**TOWN COUNCIL REGULAR MEETING**

21 Main Street

Tuesday, July 09, 2024 at 9:00 AM

**AGENDA**

Possible additions to the agenda and related materials are not set forth herein.

Times set forth are approximate and may be adjusted as necessary.

## I. WORKSESSION - 9:00 AM

A. Planning Commission Update - At the June 18, 2024, Regular Meeting the Planning Commission held a public hearing on SUP 2022-05 Warrenton Village Center and moved to recommend approval to Town Council subject to draft Conditions of Approval. A work session was held ZOTA 2024-02 to remove Articles 4 and 5 from the Zoning Ordinance after the Town Council approved a stand alone document on June 11, 2024.

B. SUP 2022-05 Warrenton Village Center, the Owners, Jefferson Associates LP and Warrenton Center, LLC with the Applicant, NewCastle Development Group, seek a Special Use Permit for two parcels totaling approximately 29.05 acres to create a mixed use development in the existing Warrenton Village Center. The proposal includes up to 320 apartments, 34 2 over 2s, and 32 townhomes with the addition of central plaza, parking garage, enhanced internal road network, and pedestrian infrastructure to promote walkability. The properties are zoned Commercial and designated in the New Town Character District of Plan Warrenton 2040. (GPINs 6985-20-7247 and 6984-29-6753)

C. Tri-Party Agreement modification request

D. Board of Zoning Appeals Funding Request

E. Agenda Review

## II. REGULAR MEETING - 6:30 PM

**A. INVOCATION.**

**B. PLEDGE OF ALLEGIANCE.**

**C. PROCLAMATIONS AND RECOGNITIONS.**

**D. CITIZEN'S TIME.**

**E. APPROVAL OF THE AGENDA.**

**F. PUBLIC HEARINGS.**

**G. CONSENT AGENDA.**

a. Drought Conditions Currently Affecting the Town and the Impact on Water Resources

b. Bond Release- Strickland Brothers Oil Change (BOND-24-1)

c. Approval of Town Council Minutes-

September 7th, 2023, Special Town Council Meeting

September 12th, 2023, Regular Town Council Meeting.

d. Tri-Party Agreement modification request

**H. NEW BUSINESS.**

a. Electronic Meeting Policy Update

**I. UNFINISHED BUSINESS.**

a. Zoning Ordinance Update Initiation and Appointment of Steering Committee

**J. TOWN ATTORNEY'S REPORT.**

**K. TOWN MANAGER'S REPORT.**

**L. COUNCILMEMBERS TIME.**

**M. ADJOURNMENT.**

Community Development Department

# STAFF REPORT

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|---|---|
| **Town Council Meeting Date:** | July 9, 2024 |
| **Agenda Title:** | Planning Commission Update |
| **Requested Action:** | Informational Purposes |
| **Staff Lead:** | Denise Harris, Planning Manager |

## EXECUTIVE SUMMARY

Planning Commission Update - At the June 18, 2024, Regular Meeting the Planning Commission held a public hearing on SUP 2022-05 Warrenton Village Center and moved to recommend approval to Town Council subject to draft Conditions of Approval. A work session was held ZOTA 2024-02 to remove Articles 4 and 5 from the Zoning Ordinance after the Town Council approved a stand alone document on June 11, 2024.

## BACKGROUND

Minutes are attached for background.

## STAFF RECOMMENDATION

For Informational Purposes.

# PLANNING COMMISSION REGULAR MEETING

**21 Main Street**

Tuesday, June 18, 2024, at 7:00 PM

**MINUTES**

**A REGULAR MEETING OF THE PLANNING COMMISSION OF THE TOWN OF WARRENTON, VIRGINIA, WAS HELD ON JUNE 18, 2024, at 7:00 PM**

Regular Meeting

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| PRESENT | Mr. Ryan Stewart, Chair; Mr. Terry Lasher, Vice Chair; Ms. Darine Barbour, Secretary; Mr. James Lawrence; Ms. Denise Harris, Planning Manager; Mr. Rob Walton, Director Community Development; Tolley Gwinn, Town Attorney |
| ABSENT | Mr. Steve Ainsworth |

**The minutes laid out will be a brief recap of the agenda items. Please see recorded video for more in-depth information.**

**REGULAR MEETING - 7:00 PM**

At 7:00 PM on Tuesday, June 18, 2024. The Planning Commission meeting was called to order by the Chair and a quorum was established.

**APPROVAL OF THE MINUTES.**

April 16, 2024, Regular Meeting Minutes

Vice Chair Lasher motioned to adopt the April 16, 2024, Planning Commission Regular Meeting Minutes.

Secretary Barbour seconded the motion.

Vote 4-0-1 (Ainsworth absent) to approve.

April 23, 2024, Work Session Minutes

Secretary Barbour motioned to adopt the April 23, 2024, Planning Commission Regular Meeting Minutes.

Commissioner Lawrence seconded the motion.

Vote 4-0-1 (Ainsworth absent) to approve.

**PUBLIC HEARINGS.**

1. SUP 2022-05 Warrenton Village Center, the Owners, Jefferson Associates LP and Warrenton Center, LLC with the Applicant, NewCastle Development Group, seek a Special Use Permit for two parcels

totaling approximately 29.05 acres to create a mixed-use development in the existing Warrenton Village Center. The proposal includes up to 320 apartments, 34 2 over 2s, and 32 townhomes with the addition of central plaza, parking garage, enhanced internal road network, and pedestrian infrastructure to promote walkability. The properties are zoned Commercial and designated in the New Town Character District of Plan Warrenton 2040. (GPINs 6985-20-7247 and 6984-29-6753)

Ms. Denise Harris, Planning Manager gave an overview of the application.

The Applicant's representative Kedrick Whitmore gave an overview of the application and highlights of the previous three work sessions.

Chair Stewart opened the Public Hearing at 7:26PM. The following citizens spoke to the application:

Rebecca Segal of 500 Hospital Dr, Warrenton VA 20186 – In favor

Charla Malone of 452 Ridge Ct, Warrenton VA 20186 - Opposed

Connor Hedges of 102 Dorset Ln , Warrenton VA 20186 - In favor

James Meizanis of 4020 University Dr, Ste 300, Fairfax VA 22030 on behalf of his client Highland School – Traffic Concerns will keep working with Applicant

Steve Wojcik of 621 Old Meetze Rd, Warrenton VA 20186 - In favor

Ernie Huetez of 7379 Leigh Rd, Warrenton VA 20186 - In favor

Sherrie Dennee 584 Broadview Ave, Warrenton VA 20186 - Opposed

Brett York 512 Electric Ave, Culpeper VA 22031- In favor

James Whitehead 253 Waterloo St, Warrenton VA 20186 - Opposed

Fred Verdi 589 Foxcroft Rd, Warrenton VA 20186 – Opposed

Geoffrey Grambo 300 Winchester St, Warrenton VA 20186 – Opposed

Roy Francis 147 Northview, Warrenton VA 20186 – Opposed

Chair Stewart closed the Public Hearing at **7:56 PM.**

Commissioner Lawrence asked the Applicant a series of questions regarding the amount of the water and sewer tap fees that will be generated; possible no left turns on Broadview Avenue; and the amending the draft Conditions of Approval to remove the word "similar" and replace with "identical" in Condition 11.C.

John Wright of Bohler Engineering stated the Applicant is not yet at full site design and therefore cannot answer the question regarding the needed size of the pipes to serve Block 1.

Kedrick Whitmore, Applicant's representative, stated the intent is to have identical units and that there is no problem revising the language in Condition 11.C.

Chair Stewart spoke to the TIA facts vs the perceived transportation impacts. The TIA finds the Level of Service impacts do not warrant additional turn lanes or signals.

Vice Chair Lasher spoke to the walkability both within the site and linkages to the surrounding neighborhoods.

Secretary Barbour spoke to the positive improvements the proposal is making for affordable dwelling units and walkability.

Chair Stewart stated the application is the right direction to meet the goals of the Town. He stated support for the Applicant to continue to work with Highland and the Town to consider no left turns on Broadview.

Commissioner Lawrence stated he appreciated the work on the affordable dwelling units and the additional efforts the Applicant made to provide more than was required.

Vice Chair Lasher stated he believes this is a good faith effort on the part of the Applicant and he thanked them for working with the community.

Commissioner Lawrence moved to adopt the resolution recommending approval of SUP 2022-05 with the conditions as amended.

The motion was seconded by Commissioner Lasher.

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| ***Ayes:*** | Mr. Ryan Stewart, Chair; Mr. Terry Lasher, Vice Chair; Ms. Darine Barbour, Secretary; Mr. James Lawrence |
| ***Nays:*** | ***N/A*** |
| ***Abstention:*** | ***N/A*** |
| ***Absent:*** | Mr. Steve Ainsworth |

The motion 4-0-1 (Ainsworth absent) to approve.

**WORKSESSION ITEMS.**

1. ZOTA 2024 - 02 - Zoning Text Amendment to Remove Articles 4 and 5 per State Code. On June 11, 2024, the Town Council adopted Erosion and Sediment Control and Stormwater Management regulations in a standalone document based on a state model ordinance. This procedural text amendment removes Articles 4 and 5 from the Zoning Ordinance as the updated regulations are contained in the new document.

Ms. Harris briefed reviewed the Zoning Text Amendment that is needed to clean up the Zoning Ordinance per State Code and will be scheduled for public hearing at the July Planning Commission meeting.

**COMMENTS FROM THE COMMISSION.**

Chair Stewart reminded the group of the Juneteenth holiday and that Town Hall will be closed.

**COMMENTS FROM THE STAFF.**

Ms. Harris reviewed the kick off of the Zoning Ordinance update and thanked the Planning Commissioners that attended the public workshop and/or Town Council work session.

**ADJOURN.**

Commissioner Lawrence moved to adjourn, seconded by Vice Chair Lasher. With no further business, the Chair adjourned at **8:51 PM.**



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**I hereby certify that this is a true and exact record of actions taken by the Planning Commission of the Town of Warrenton on June 18, 2024.**

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Darine Barbour, Secretary
Planning Commission

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Community Development Department

# STAFF REPORT

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| **Meeting Date:** | July 9, 2024 |
| **Agenda Title:** | Special Use Permit 2022-05 Warrenton Village Mixed Use |
| **Requested Action:** | Hold a Work Session |
| **Staff Lead:** | Denise Harris, Planning Manager |

## EXECUTIVE SUMMARY

Special Use Permit (SUP) 2022-05 Warrenton Village Center, the Owners, Jefferson Associates LP and Warrenton Center, LLC with the Applicant, NewCastle Development Group, seek a Special Use Permit for two parcels totaling approximately 29.05 acres to create a mixed-use development in the existing Warrenton Village Center. The proposal includes up to 320 apartments, 34 two over twos, and 32 townhomes with the addition of central plaza, parking garage, enhanced internal road network, and pedestrian infrastructure to promote walkability. The proposal includes a 10% density bonus and several waiver/modification requests. The properties are zoned Commercial and designated in the New Town Character District of Plan Warrenton 2040. (GPINs 6985-20-7247 and 6984-29-6753)

## BACKGROUND

On March 19, 2024, the Planning Commission held a Work Session on SUP 2022-05 Warrenton Village Center Mixed Use. The Applicant, NewCastle Development Partners, presented an overview of the proposal. The Planning Commissioners asked a series of questions related to affordable dwelling units, waivers and modifications, architecture, transportation, economic impacts, water and sewer, density bonuses, walkability, schools, open space, and design. While the Applicant spoke to many of the topics at this meeting, it was agreed upon to hold two more Work Sessions in the month of April to enable the Applicant to provide a deeper analysis on each topic.

The Planning Commission continued its Work Session on April 16, 2024, the Applicant presented to the Planning Commission information related to design of the development. Topics included affordable dwelling units, elevations and building heights, architecture, historical resources, and economic impacts. On April 23, 2024, the Planning Commission Work Session discussed transportation, schools, and water and sewer impacts, and modifications and waivers. The Planning Commission asked the Applicant to consider the character and massing of the proposed structures. At each of these meetings, subject matter experts for the Town were in attendance to answer zoning, transportation, water and sewer questions. The Applicant indicated they would look at adjustments to the plans to accommodate the requests.

On May 31, 2024, the Applicant resubmitted the SUP application for the June Public Hearing. Based on discussions at the Work Sessions, highlights of the modified application are:

- Developing a new set of elevations that include pitched roofs, stone instead of brick, and massing variations.
- Flipping the townhouses and 2 over 2 blocks to allow for the townhouses to front Branch Drive and the 2 over 2 to front Broadview.
- Added proposed language to the draft Conditions of Approval to accommodate 10% of each block to be reserved for 80% AMI affordable dwelling units, 10 additional units in Block 1 reserved for 70% AMI, and five additional units in Block 1 reserved for 60% AMI.

On June 18, 2024, the Planning Commission held a public hearing on SUP 2022-05. Twelve citizens spoke to the application (video of meeting available on the Town's website). After closing the public hearing, the Planning Commission discussed the revenue that will be generated by water and sewer taps; the perceived transportation impacts against the findings of the Transportation Impact Analysis; walkability to adjacent neighborhoods; and the desire to ensure the proposed ADUS are identical to market rate units. The Planning Commission stated this proposal meets the goals of Plan Warrenton 2040 and that the applicant has put forth a good faith effort in listening to the community. The Planning Commission then voted unanimously to recommend approval to the Town Council 4-0-1 (Ainsworth absent) with the proposed Conditions of Approval.

## PLANNING COMMISSION RECOMMENDATION

The Planning Commission recommended approval of SUP 2022-05 in a 4-0-1 vote with Conditions of Approval (Ainsworth absent) on June 18, 2024.

**SPECIAL USE PERMIT CONDITIONS**

**Applicant: NewCastle Development Group, LLC ("The Applicant")**
**Owners: Jefferson Associates LP; Warrenton Center LLC**
**SUP 2022-05, Warrenton Village Mixed Use Center**
**GPINs 6985-20-7247-000; 6984-29-6753-000 (the "Property")**
**Special Use Permit Area: ± 29.05 acres**
**Zoning: Commercial (C)**
**Date: July 9, 2024**

In approving a Special Use Permit, the Town Council may impose such conditions, safeguards, and restrictions as may be necessary to avoid, minimize, or mitigate any potentially adverse or injurious effect of such special uses upon other properties in the neighborhood, and to carry out the general purpose and intent of this Ordinance. The Council may require a guarantee or bond to ensure that compliance with the imposed conditions. All required conditions shall be set out in the documentation approving the Special Use Permit (SUP).

1. General: The property shall be developed in substantial conformance with these conditions and the plans titled "Special Use Permit for Warrenton Village Center, REVISION 3 – 5/31/2024", and prepared by Bohler Engineering. Minor changes and adjustments may be made to the road and street alignments, entrances, parking, dimensions and location of SWM/BMP facilities, the exact configuration and location of building footprints, and other similar features as shown on the SUP Plan, provided they meet the intent of these Conditions and are approved by the Director of Community Development or the Zoning Administrator.

2. Use Parameters: The Special Use Permit shall apply to the entire +/- 29.05 acre property. The property may be constructed with not more than 320 apartments, 32 townhomes, and 34 two over twos. The Zoning Ordinance 9-25 requires that residential uses shall not exceed 1 dwelling unit per 500 gross square feet of non-residential floor space within the mixed use development unless approved by Town Council through a Special Use Permit.

3. Phasing: The Applicant has the flexibility to develop Blocks 1-3 in any order. Mixed Use development approval includes the provision for construction of public amenities. To ensure that site improvements are completed in a timely manner along with the residential buildings, Applicant agrees that the Town of Warrenton will withhold Certificates of Occupancy (COs) in accordance with the following schedule:

   A. Block 1: Prior to issuance of the 1st CO within Block 1, all required infrastructure improvements for Block 1 and the following amenities shall be constructed and open for public use:

- Central Plaza
- Dog Park and Picnic Area
- West Plaza

- East Plaza
- Reconfiguration of commercial parking
- Preservation and reconditioning of Oak Spring (natural spring)
- Crosswalk across Oaks Springs Drive at Highland School entrance and Hastings Lane

B. Block 2: Prior to issuance of the 17th CO within Block 2, all required infrastructure improvements for Block 2 and the following amenities shall be constructed and open for public use:

- Central Plaza
- Reconfiguration of commercial parking
- Crosswalk across Oaks Springs Drive at Hastings Lane

C. Block 3: Prior to issuance of the 26th CO within Block 3, all required infrastructure improvements for Block 3 and the following amenities shall be constructed and open for public use:

- Central Plaza
- Reconfiguration of commercial parking
- Crosswalk across Oaks Springs Drive at Hastings Lane
- New sidewalk section on east side of Broadview Ave (behind Galaxy Strike Bowling Center building)

4. Architecture:

A. The final design of the buildings to be constructed shall generally conform to the elevations and materials included with the Special Use Permit application (hereinafter, the "Elevations"). The Elevations may be subject to minor modification approved by the Zoning Administrator in connection with Site Development Plan review. Additional changes to the design and materials may be made provided that any such changes are approved by the Zoning Administrator prior to the issuance of a building permit. Such approval shall be based on a determination that the changes result in equal to or better than the quality shown on the Building Elevations developed by Dynamik dated February 14, 2024 and/or May 30, 2024

B. The following materials are prohibited from use: vinyl siding, EIFS, corrugated metal siding, and plastic panels.

C. All residential buildings shall be designed and certified to a National Green Building Standard (NGBS), Level Bronze or higher. If NGBS is not available for this project, an equivalent certification from an alternative third-party green building rating system will be acceptable.

D. The structured parking garage in Block 1 shall include a nonreflective screening on the façade on its south facing side.

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5. Waivers and Modifications:

A. Article 2-6.1: The maximum density specified in the zoning ordinance for a given zoning district shall not be exceeded. The maximum density is 5 units per acre or 10 units per acre with inclusion of 10% affordable dwelling units.
• Waiver #1: Increase density to 386 units or 13.28 per acre.

B. Article 3-4.10.4: Required front yard setback from ROW greater than 50' is 40' minimum, if no parking or loading is proposed.
• Waiver #2: Decrease minimum setback to 14' along Broadview Avenue.

C. Article 3-4.10.4: Required side/rear yard setbacks is 5' minimum.
• Waiver #3: Decrease side/rear yard setbacks to 0'.

D. Article 8-8.5: Minimum buffer width for commercial uses adjacent to residential uses is 25', plus 1' for each foot of building height over 35'. Minimum buffer width for rear boundaries of residential uses from public ROW is 25'.
• Waiver #4a: Decrease buffer width between commercial and residential uses to 0'.
• Waiver #4b: Decrease rear buffer width for residential uses from public ROW to 14'.

E. Article 2-20: Height limit for dwellings may be increased up to 45' and up to three stories provided that front, side and year setbacks increase 1' for each additional foot of building height over 35'.
• Waiver #5: Increase height limit for dwellings as follows:
• 54' max height for Block 1, Oak Springs Drive Frontage
• 36' max height for Block 1, Broadview Avenue Frontage
• 36' max height for Block 2
• 45' max height for Block 3

F. Article 3-4.4.5.3: No more than six townhouse units shall be grouped contiguously to each other.
• Waiver #6: Increase maximum grouping of townhouse units from six to seven

G. Article 2-19: Fences and walls may be erected up to a height of six (6) feet in all zoning districts, except for fences or walls that extend within the required front setback.
• Waiver #7: Allow retaining walls in excess of six feet on Oak Springs Drive and Hastings Lane; and around refuse and dumpster enclosures as approved by the Zoning Administrator.

6. Signage: All signage shall comply with the applicable provisions of Article 6 of the Town of Warrenton Zoning Ordinance.

7. Site Maintenance and Refuse Collection: The Applicant shall maintain the site in a clean and orderly manner and shall arrange for the pickup of trash, litter, and debris. Any refuse storage areas shall be screened with a solid enclosure constructed of materials that are compatible with the buildings on the property. Private refuse collection will be provided by the Homeowners' Association and non-residential businesses. The Association documents shall ensure that pickup times for refuse

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from both residential and the non-residential follow Town Code. Deliveries and refuse collection shall follow Town Code Section 11-19(9).

8. Transportation:

A. Access - Access to the site shall be provided as shown on the SUP Plan, subject to changes as may be approved at Site Development Plan review.

B. Loading/Unloading – All loading and unloading of vehicles shall take place on the Subject Property during regular hours of operation and outside of peak travel hours, to the greatest extent possible, in the Loading Area depicted on the Special Use Permit Plan.

C. Obstruction of Travel Ways – No vehicles associated with the use shall obstruct the travel ways, fire lanes, adjoining road network or encroach upon landscaped areas as shown on the Special Use Permit Plan. No vehicles shall be located within site entranceways or otherwise impede ingress, egress, and internal circulation.

D. Parking – The Subject Parcel shall meet all parking requirements as outlined in Article 7. Should it be desired to expand the use in any of the buildings located on the Subject Property, the new proposed use shall be required to apply for approvals that meet Zoning Ordinance and additional parking requirements.

E. Sidewalks - The Applicant shall install sidewalks as shown on the SUP Plan, through these Conditions of Approval, and required by the Town of Warrenton regulations. All sidewalks will be a minimum of five feet (5') in width. The Applicant will install a new section of sidewalk along the east side of Winchester Street, between Lee Highway and Broadview Avenue (behind the
Galaxy Strike Bowling Center building) as part of Block 3 improvements.

F. Oak Springs Drive Crosswalk(s) – new crosswalks will be installed on Oak Springs Drive at Hasting Lane and at the entrance to Highland School as provided for in the Phasing condition. Inclusion of these crosswalks will be contingent upon and subject to Town of Warrenton at time of Site Development Plan approval.

9. Water & Public Sewer Connection: The Property shall connect to public water and public sewer. A pre and post closed-circuit TV inspection will be required with inspection prior to residential occupancy permits.

10. Stormwater Management: The site is to be planned and designed as a redeveloped site under the State's Runoff Reduction requirements for Stormwater Management (SWM) and in compliance with the Town of Warrenton's SWM Ordinance at time of construction.

11. Affordable Dwelling Units:

A. The Applicant shall provide the following minimum number of Affordable Dwelling Units (ADUs):

- 10% of total dwelling units within each of the three blocks (Block 1,

Block 2 and Block 3) will be reserved as 80% AMI ADUs;
• Ten (10) additional dwelling units in Block 1 will be reserved as 70% AMI ADUs;
• Five (5) additional dwelling units in Block 1 will be reserved as 60% AMI ADUs

B. The Applicant shall maintain the ADU program on all rental units for a period of twenty-five (25) years from the issuance of the Special Use Permit (the "Affordability Period").

C. Within Block 1, allocation of the ADUs between 1-, 2- and 3-bedroom units will be at the discretion of the Applicant, so long as the minimum number of units defined above are maintained as ADUs. Within Block 2 and Block 3, wherein all units are 3-bedrooms, all ADUs will be 3-bedrooms. The ADUs shall be identical to the market rate units in architectural design, fixture/appliance selections and unit size. ADUs will be distributed so that no more than three (3) are adjacent in Block 1 and none shall be adjacent in Blocks 2 and 3. The ADUs shall be architecturally identical to the market rate units. The size of these units shall be identical to the market rate units.

D. "Qualified Parties" and "Rent Limits" for ADUs, are defined as:
• For the purposes of qualifying for the lease of an affordable rental ADU a Qualified Party shall be an individual or a family whose gross annual household income does not exceed 60%, 70%, or 80% (dependent on the specific ADU) of the current Multifamily Tax Subsidy Program (MTSP) Income Limits for Fauquier County as published by the Virginia Housing (formerly known as VHDA), at the time the rental application is opened for such Qualified Party ("AMI"). If Viginia Housing has not published the Income Limits used under this Condition 11 for a period of more than 365 days, the Zoning Administrator shall notify the property owner at the record address given in the Fauquier County tax records of a new comparable Income Limits program to be used based on the available information about income in the Warrenton or Fauquier County housing markets.
• For the purposes of determining the Rent Limits for all ADUs, monthly rental rate limits shall be equal to those published by Virginia Housing for 0-, 1-, 2-, and 3-bedroom units and corresponding 60%, 70% and 80% AMIs, with no utility allowances.
• For the purposes of qualifying for the purchase of an ADU in Block 2 or Block 3, a Qualified Party shall be an individual or a family whose gross annual household income does not exceed 80% of the current Multifamily Tax Subsidy Program (MTSP) Income Limits for a 4-person household in Fauquier County as published by Virginia Housing, at the time the purchase contract is executed for such Qualified Party.
• For purposes of determining the purchase price of any for-sale ADU, that price will not exceed the amount at which the monthly mortgage payment for such unit exceeds the monthly rent limits for 3-bedroom units and 80% AMI income, as published by Virginia Housing. Qualifying Parties must provide a market rate loan commitment prior to closing in order to calculate the proposed mortgage payment.

E. ADU status shall be set forth in a deed of restrictive covenants recorded against the Property and shall continue to bind the minimum ADU requirement within each block to the Property for a period of twenty five years from the issuance of this Special Use Permit; provided, however, that for rental units, the Applicant may recalculate the rental

rates for new leases or renewals in accordance with the then current rates published by Virginia Housing.

F. The Applicant shall establish in a deed of restrictive covenants a program for the administration of this ADU program according to the requirements of these conditions.

G. The Applicant shall designate on the Construction Drawings submitted for building permit approval which units will be the initial ADUs; however, the units that are selected as the initial rental ADU units are not required to remain as the designated rental ADUs for the entirety of the Affordability Period. The Applicant will have the authority to re-designate the rental ADUs from time to time based on leases and vacancies. The Applicant will maintain a building plan set at the leasing office located in the Block 1 at all times that shows which units are currently designated as rental ADUs, a copy of which shall be made available to the Zoning Administrator upon request.

H. The documents creating the ADU program shall be reviewed and approved by the Town Attorney prior to their recordation in the Land Records.

I. ADUs will first be made available to the following persons with preference to the first three bulleted items below:
- Those residing or working in the Town of Warrenton or Fauquier County
- Town of Warrenton or Fauquier County teachers
- Town of Warrenton or Fauquier County first responders
- Veterans and enlisted members of the United States Armed Forces

J. The Applicant shall contact the appropriate local Social Service and/or Housing Authority offices for help to identify and place of local residents.

K. The community's Property Management Team shall make annual reports to the Zoning Administrator as to the number, type and location of units hereunder that shall have been rented as ADUs and shall verify that they have been rented to Qualified Parties.

L. Separate entrances for ADU apartment entrances are not permitted.

M. All ADU occupants shall have the same rights and privileges to amenities as market rate unit residents, except for as provided under the condo sale provision.

N. All ADUs shall meet the US Department of Housing and Urban Development Accessibility Requirements for Multifamily Buildings under the Fair Housing Act.

12. Site Surface: All outdoor areas used for open spaces, amenities, facilities, parking, storage, loading, display and driveways shall be constructed and maintained in good repair, free of cracks or damage to the surface.

13. Electric Vehicle Charging Stations: a minimum of 2% of the total spaces

included within the Block 1 parking garage will include electric charging stations for tenant use. EV stations shall be reserved for electric vehicles only and enforcement will be monitored by the Property Management team.

14. Landscaping: All Zoning Ordinance requirements must be met for landscaping, except as provided for in approved waivers and/or modifications. The Owner shall be responsible for the maintenance and replacement of all plantings on site. Any diseased or dead landscaping shall be replaced within one season of dormancy.

15. Emergency Services:

A. All future Site Development Plans shall illustrate adequate access to the site for Emergency Service vehicles, subject to approval by the Community Development Director or Zoning Administrator. Nothing shall be placed or constructed on the site that would prohibit or restrict Emergency Service vehicles from mounting curbs or accessing structures. There shall be no parking of any vehicles in the travel ways. Mountable curbs will be required at new and/or modified entrances.

B. Fire hydrants shall be installed in locations acceptable to the Town of Warrenton.

C. Buildings shall have supra boxes installed on them with a fire alarm panel inside the front and rear entrances of the structures.

16. Lighting:

A. All outdoor lighting shall be in conformance with the Zoning Ordinance.
B. The Applicant shall prepare and submit a photometric plan in connection with Site Development Plan review.
C. All site lighting, to include both new fixtures within the new development areas as well as any non-residential area that is modified as a part of site development, must consist of fully-shielded, full cut-off fixtures to meet the requirements of Article 9, Section 9-8.
D. Color temperature of exterior light fixtures will be 3,000 degrees kelvin or lower.
E. Average horizontal illumination level of exterior light fixtures will be 3.0 footcandles or less.

17. Open Space: each residential block/parcel and the residual retail parcel will individually meet the 10% usable open space requirement. The Applicant will construct and maintain all open spaces in general conformance with the improvements noted and shown in SUP "Open Space Plan." Benches, bicycle racks, and other amenities shall be provided as shown on the SUP "Open Space Plan.".

18. Modified Alley: The Applicant will build and maintain the Modified Alley in general conformance with the improvements shown in this area on the Plan.

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19. Three Bedroom Unit Maximum: A maximum of 10% of the units located in Block 1 will be 3-bedroom units.

20. Condo Sale of Block 2 and Block 3: Applicant will maintain the ability to sell the entirety of Block 2 (Multi-Family Townhomes) and/or the entirety of Block 3 (Multi-Family 2-Over-2 and Townhomes) as Condos. The Applicant agrees to sell all or none of the units within Block 2 or Block 3, so as to prohibit a mix of for rent and for sale units in the same block.

All conditions of the SUP will continue to be enforced in a block sale scenario through the Declarations of Restrictive Covenants that the Applicant will record and encumber the Block 2 and/or Block 3 parcels.

In a block sale scenario, Homeowner Associations will be established to maintain all conditions of the SUP and will own the block parcel, while individual condo owners will own the condo dwelling units.

In a sale scenario, residents/owners of the condos will not be tenants of the apartment community and will not have access to the rental amenities located within Block 1. In a block sale scenario, 10% of the units within the sold block will be required to be sold as ADUs, in accordance with the language outlined in Affordable Dwelling Units of this Conditions of Approval.

21. Block 1 Amenities: All amenities located within Block 1 will be available for use by tenants of residential rental units owned by the Owner in all three blocks (Block 1, 2 and 3). If residential units within Block 2 and/or Block 3 are sold by the Owner in a condo sale, the fee simple owners of the residential condos will not have access to the Block 1 amenities contained within the apartment complex. All public amenities shall continue to be open to Block 2 and 3 residents.

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**June 18, 2024**
**Planning Commission**
**Regular Meeting**

**RESOLUTION TO RECOMMEND APPROVAL SPECIAL USE PERMIT 22-05 WARRENTON VILLAGE CENTER MIXED USE PURSUANT TO SECTION 11-3.10 OF THE ZONING ORDINANCE OF THE TOWN OF WARRENTON (GPINS 6985-20-7247 and 6984-29-6753)**

**WHEREAS,** Warrenton, VA (Hereinafter "the Town") is a municipal corporation located within the County of Fauquier; and

**WHEREAS,** Warrenton Village Center, and the owners, Jefferson Associates LP and Warrenton Center, LLC, with the Applicant, NewCastle Development Group ("the Applicant"), are the requesting a Special Use Permit approval on a parcel of land containing approximately 29.05 acres, identified as GPINs 6985-20-7247 and 6984-29-6753, located at the existing Warrenton Village shopping center bordered by Oak Springs Drive, Branch Drive, Lee Highway, and Broadview Avenue in the Town of Warrenton and hereinafter referred to as the "Property"; and

**WHEREAS,** the Applicant has applied for a Special Use Permit pursuant to §3-4.10 and §9-25 of the Zoning Ordinance for approval to create a mixed-use development in the existing shopping center to include up to 320 apartments, up to 34 2-over-2s, and up to 32 townhomes with the addition of a central plaza, enhanced internal road network, and pedestrian infrastructure to promote walkability, hereinafter the "Special Use Permit"; and

**WHEREAS**, the Applicant requested waivers and modifications to the Zoning Ordinance for Article 2-6.1 to allow for density increase to 386 units at approximately 13.28 units/per acre; Article 3-4.10.4 to allow for 14' setbacks from Public Right of Way on the east side of Broadview Avenue and 0' setbacks along internal parcel lines within Warrenton Village Center; Article 8-8.5 to allow for 0' buffer width between commercial and residential uses within Warrenton Village Center and 14' buffer width between Public Right of Way and residential uses along the east side of Broadview Avenue; Article 2-20 to allow for maximum building heights of 54' along Oak Springs Drive (Block 1), 36' along Broadview Avenue (Block 1), 36' within Block 2, and 45' within Block 3; Article 3-4.4.5.3 to allow for seven multifamily townhome and/or 2-over-2 units to be grouped contiguously, and Article 2-19 to allow retaining walls in excess of six feet on Oak Springs Drive and Hastings Lane; and

**WHEREAS,** the Planning Commission held three public work sessions on SUP 2022-05 on March 19, 2024; April 16, 2024; April 23, 2024; and

**WHEREAS,** pursuant to §11-3 of the Zoning Ordinance upon petition of the Applicant for approval of the Special Use Permit, the Planning Commission upon advertisement and notice properly given pursuant to §15.2-2204 of the Virginia Code held a Public Hearing on June 18, 2024; and

**WHEREAS**, the Planning Commission considered for approval of the Special Use Permit based on Conditions of Approval and Virginia State Code Section 15.2-2286.A.3; and

**WHEREAS,** the Planning Commission finds that the Application meets the criteria for approval found in Section 11-3.10.3 in the Town of Warrenton Zoning Ordinance; and

**WHEREAS,** the Planning Commission, in consideration of all of the foregoing, is of the opinion that the application for the Special Use Permit is to be recommended for approval to the Town Council subject to certain conditions;

**NOW, THEREFORE, BE IT RESOLVED** that the Warrenton Planning Commission on this 18th day of June 2024, that SUP 22-05 be, and is hereby, recommended for approval to Town Council, subject to the Conditions of Approval and Special Use Permit Plans dated June 30, 2023 and revised through May 31, 2024 by Bohler (Sheets 1-36).

**Votes:**
**Ayes:** Stewart, Lasher, Barbour, Lawrence
**Nays:** ø
**Absent from Vote:** S. Ainsworth
**Absent from Meeting:** S. Ainsworth

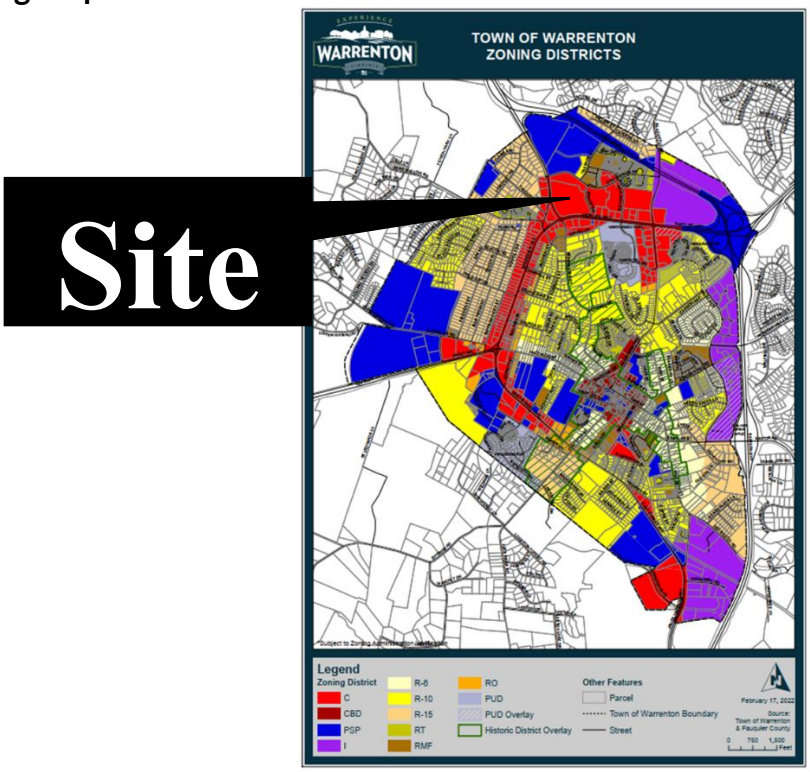
**ATTEST:** Darine Barbour
**Darine Barbour, Planning Commission Secretary**

# Attachment A – Maps

**Vicinity Map:**



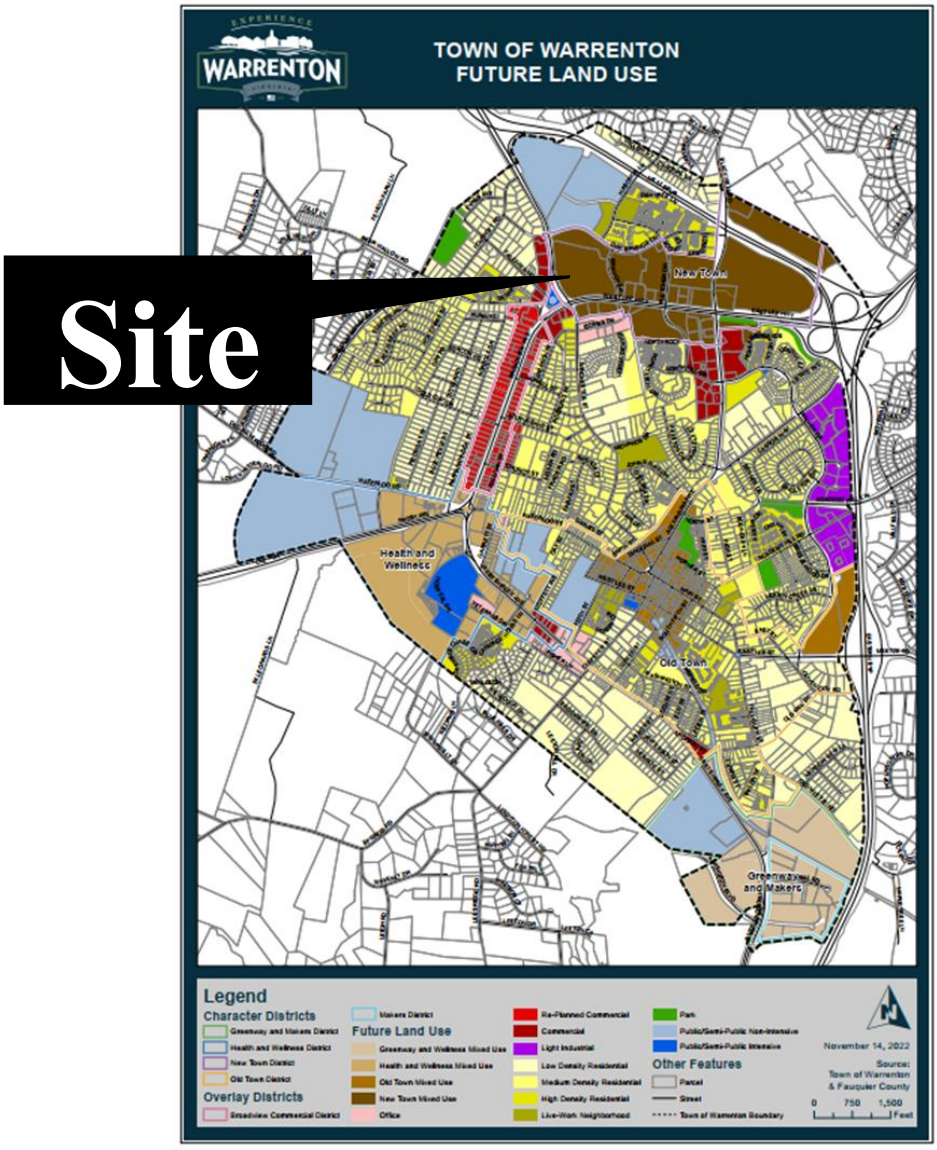

**Zoning Map:**




Commercial Zoning

# Attachment A – Maps

**Future Land Use Map:**




New Town Character District

## Staff Analysis

This analysis is based on the Comprehensive Plan, Zoning Ordinance, and review comments by Town Departments. The standards/analysis tables in the sections below contain the criteria for Planning Commission and Town Council consideration of Special Use Permits, per Article 11-3.10.3.

This request for a Special Use Permit for Warrenton Village Center Mixed Use with Article 3-4.10 and Article 9-25 of the Town Zoning Ordinance. The proposal includes up to 320 apartments, 34 two over twos, and 32 townhomes with the addition of central plaza, parking garage, enhanced internal road network, and pedestrian infrastructure to promote walkability. The proposal includes a 10% density bonus, provisions for affordable dwelling units, and several waiver/modification requests.

The following table summarizes the area characteristics (see maps in Attachment A):

| Approx. Direction | Land Use | Future Land Use Map Designation | Zoning |
|---|---|---|---|
| North | Private School/Multi Family/Assisted Living | Public/Semi Public Non Intensive; Live/Work Neighborhood | PSP/R-10/RMF |
| South | Commercial | New Town District | Commercial |
| East | Commercial | New Town District | Commercial |
| West | Commercial | Commercial | Commercial |

The properties totaling approximately 29.05 acres are zoned Commercial and designated in the New Town Character District of Plan Warrenton 2040. (GPINs 6985-20-7247 and 6984-29-6753)

### Comprehensive Plan Future Land Use

Plan Warrenton 2040 designates Warrenton Village in the New Town Character District. The District encourages quality modern architecture that compliments the historic character of Warrenton. Open spaces contribute to this character to encourage active use tying the commercial and residential uses together. District design elements listed in the Comprehensive Plan encourage frontages with storefront awnings, gallery, arcade, stoops, porches, and yards. Internal streets are walkable and on a grid-pattern with a mix of uses at varying intensities. The summary of this district calls for the following:

"*A form-based transect approach to development would define form with greater maximum height towards Lee Highway and the center of the district, with a gradual step down in scale towards Oak Springs Drive…Frontage along the adjoining neighborhoods shall have a more residential appearance, with setbacks, stoops, and compact green yard space.*"

There are Ten Guiding Principles for all Character Districts listed in the Comprehensive Plan. The first and most emphasized feature being a discernible center. A hardscaped plaza or park *centered* within the entire

development to accommodate neighborhood interactions. Building placement, building massing and design, entrances and facades, ground floor residential use, streetscape design and walkability, multi-purpose public areas, and a mix of residential with non-residential are all part of the envisioned New Town Character District.

| Standard | Analysis |
|---|---|
| *Whether the proposed Special Use Permit is consistent with the Comprehensive Plan.* | The proposed use falls within the future land use designation of New Town Character District which specifically calls for redevelopment of shopping centers to be mixed use. |
| *The compatibility of the proposed use with other existing or proposed uses in the neighborhood, and adjacent parcels.* | The Warrenton Village Center is surrounded by commercial retail, multi-family, and institutional uses. The proposed mixed use is compatible and consistent with the comprehensive plan. |

**Staff Findings**

The Applicant has worked to integrate the proposed mixed use with the existing built environment and is proposing the creation of a central plaza with splash pad, landscaping, and seating in the existing parking lot of Warrenton Village Center. This amenity is part of the design transformation from a commercial strip mall towards a mix-use development. There will be a potential commercial/retail pad on the western side of the central plaza to activate the space. The Applicant is also proposing a dog park immediately north of the existing eastern side of the commercial development. This area currently is an underutilized grassy grove of younger trees.

The Applicant worked with Plan Warrenton 2040 Design Guidelines and the Planning Commission to refine the proposal. Retrofitting an existing shopping center to mixed use provides challenges. However, the Applicant worked to create transportation linkages by extending Hastings Lane; adjust Blocks 2 and 3 to have the more compatible townhomes located next to existing multi-family and townhomes; and developed a second set of architectural drawing to incorporate pitched roofs and stone.

The waivers and modification requests are necessary to achieve the design setbacks and mix of uses envisioned in Plan Warrenton 2040. The Applicant is asking for a height waiver along Oak Springs Drive where the comprehensive plan envisioned a “stepped down” approach to Oak Springs. Plan Warrenton 2040 is a guide that made a high-level goal for the entirety of Oak Springs Drive. The Applicant’s justification for the additional height is multi-layered due to topology, the adjacency to a school and commercial assisted living, and the provided setbacks from Oak Springs Drive. Overall, staff finds no outstanding issues.

**Planning Commission**

The Planning Commission requested the Applicant swap the townhouses in Block 3 fronting Broadview Avenue with the 2 over 2s in Block 2 fronting Oak Springs due the compatibility of townhouses on Oak Springs. The Applicant accommodated this request. The Planning Commission also explored the placement of open spaces, elevations, and access points with the Applicant. This resulted in the May 31,

2024, SUP Plans and included elevations.

## Transportation and Circulation Analysis

A Transportation Impact Analysis was provided and is being reviewed with the SUP plans by the Virginia Department of Transportation (VDOT) and the Town's transportation consultant. In addition, conducted a "Pipeline Study" of Lee Highway that resulted in the Smartscale funding of a roundabout at the southwest corner of the proposal at the intersection of Broadview Avenue/Lee Highway/Winchester Street. A second roundabout is funded at the intersection of Lee Highway and Blackwell Road. On June 11, 2024, the Town Council passed a resolution of support to submit Smartscale applications for a roundabout at the intersection of Fletcher Drive and Lee Highway with access management improvements at Branch Drive and Village Center Drive.

The northern portion of Broadview Avenue that touches the proposed parcels is considered a Gateway Street Typology, as noted in the 2017 Complete Streets Guide. This is an alternate Boulevard designation that indicates the roadway crosses from the Town to the County. This means the development would have a more pronounced effect on the entrance impact into Warrenton.

Plan Warrenton 2040 places emphasis on appropriate circulation and connection to promote safe, equitable multimodal transportation. A key aspiration within the Comprehensive Plan states: *"Improve multimodal safety by enacting access management strategies, incorporating bike-friendly policies into new development standards, and deconflicting through-travel and local traffic movements."*

The 2017 Complete Streets Guide categorizes design elements for five distinct street classifications. Each classification encourages multi-modal considerations with an emphasis on connectivity. This is further encouraged by the goals and policies of the Comprehensive Plan to enhance the traveling experience of Warrenton. The Comprehensive Plan provides the following policies:

- *Facilitate new, compact redevelopment in Character Districts to introduce sidewalks and linkages to trails/paths and promote walkability.*
- *Provide and improve sidewalks, crosswalks, pedestrian signals, lighting, and other amenities to make it safer, easier and more comfortable for people to walk.*
- *Require that the proposed street system for new developments will be designed to provide a network of interconnected streets.*
- *In large development parcels, create compact development blocks with internal streets for pedestrian and vehicular circulation to support walk access and decrease auto-trip patterns.*

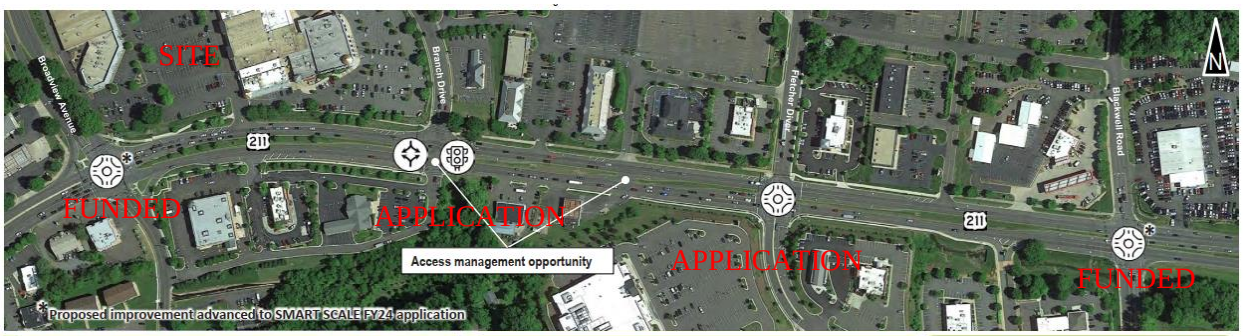
| Standard | Analysis |
|---|---|
| *The traffic expected to be generated by the proposed use, the adequacy of access roads and the vehicular and pedestrian circulation elements (on and off-site) of the proposed use, all in relation to the public's interest in pedestrian and vehicular safety, efficient traffic movement and access in case of fire or catastrophe.* | The Applicant provided a Transportation Impact Analysis (TIA) to calculate the potential impacts of the addition. The TIA determined no adverse impacts on the surrounding road network and no signal or turn lane warrants are triggered. The Town will be constructing roundabouts on Lee Highway which studies show increase safety and transportation flow by 60%. |
| *Whether the proposed use will facilitate orderly and safe road development and transportation.* | |

**Staff Findings**

The proposed development includes creating an extension of Hastings Lane into the site and a parking garage located behind the proposed apartments with two entry points (one off Oak Springs Drive across from Highland Lower School and one into the alley). The townhouses and two over twos will have garages. The Applicant has conducted autoturn analysis for delivery and emergency vehicles to demonstrate accessibility. The Applicant has also indicated they will work with the schools on potential bus stop locations in ternal to the site. The Applicant is also proposing pedestrian improvements throughout the site with sidewalk connections, raised crosswalks, and adding crosswalks at Hasting Lane and the intersection with Highland's Lower School to create a pedestrian network to the surrounding community.

External to the Site

Warrenton Village is bounded by several important regional roads and neighborhood streets. Lee Highway (BUS29) to the south, including Broadview Avenue (Bus17) to the west, Oak Springs Drive to the north, and Branch Drive to the east. These are roads that the Town and VDOT have been studying for years and making funding applications regardless of the proposal. Plan Warrenton 2040 listed Lee Highway in the Near-Term Recommendations for improvements. VDOT followed this up with a Lee Highway Pipeline Study in 2022 with specific intersection improvements that VDOT had vetted through a public outreach process. The Town then successfully applied for VDOT Smart Scale funding for roundabouts at Lee Highway and Winchester Street and Lee Highway and Blackwell Road. The remaining improvements in the Pipeline Study, including a roundabout at Fletcher Drive and access management improvements at Branch Drive and Village Center Drive, have been submitted for VDOT Smart Scale applications in 2024.




*Town of Warrenton VDOT Smart Scale Applications*

The Applicant produced a Transportation Impact Analysis (TIA) that was reviewed by the Virginia

Department of Transportation (VDOT), the Town transportation consultant (Kittelson), and Town staff. The TIA is a technical document that follows industry standards to determine transportation scenarios using today's base numbers, a percentage growth rate to account for changing needs over time that occur off site, intersection analysis of the surrounding onsite access points, and projected transportation needs based on the impacts of the proposed development and without the proposed development. The TIA was updated based on technical comments to produce a document that indicates the following:

1) Ten intersections were studied as part of the TIA.
2) Annual growth rate of 1% regional growth on Lee Highway was assumed.
3) The approved Waterloo Junction and Warrenton Crossing developments were included in the analysis.
4) Included the funded roundabout at Lee Highway and Winchester Street.
5) The proposal generates less traffic than if 40,000 square feet of by-right retail was developed.
6) The proposal anticipates approximately 154 new vehicle trips during the AM Peak Hour and 197 new vehicle trips during the PM Peak Hour across multiple access points.
7) Intersection analysis with the proposed development finds no new turn lane are warranted by VDOT standards.
8) Intersection analysis with the proposed development finds no new signals are warranted per MUTCD standards.




Bottom line is the TIA finds no additional roadway improvements are needed beyond the planned roundabout at Broadview and Winchester that is funded in VDOT's Smart Scale Round 5. The Applicant is providing sidewalks internal to the site, crosswalks on Oak Springs Drive, and the extension of Hastings Lane for interconnected transportation.

**Planning Commission**

The Planning Commission held a work session on transportation with the Town's staff, transportation consultant and the Applicant. They were advised by the Town Attorney about roughly proportional and essential nexus for reasonable conditions. Since the TIA found no warranted improvements, the Planning Commission encouraged the Town and the Applicant to continue working on the transportation network as a whole for safety. Town staff is already exploring, under current conditions, ways to increase safety on Broadview; adding multi-modal improvements across Broadview, Oak Springs, and Branch Drive; and traffic calming across the network.

## Community Facilities and Environmental Analysis

Plan Warrenton 2040's vision includes key aspirations of fostering high quality, equitable, and accessible community facilities; make responsible and strategic community facility investments that support the Town's vision for a live/work community, sustaining its fiscal well-being and economic resiliency; and provide a high quality of life to capture economic benefits through diverse businesses, employers, and residences. The health, safety, and quality of life for residents is established in part by the community infrastructure. Goals also include:

> *CF-4: Ensure healthy, safe, adequate water and wastewater services.*
> *CF-5: To provide a fiscally responsible infrastructure that maintains a high quality of life for residents, supports current businesses, and attracts new employers with a stable tax structure.*

| Standard | Analysis |
|---|---|
| *Whether the proposed Special Use Permit will be served adequately by essential public facilities, services and utilities.* | The parcel is located in Town and currently served by Town Police and Fauquier County Emergency Services. There is an existing water and sewer to the site. Public Utilities has determined there is sufficient infrastructure to serve the site. |
| *The location of any existing and/or proposed adequate on and off-site infrastructure.* | |

**Staff Findings**

Schools

Fauquier County Public Schools use a formula for all development across the county to anticipate generated school seats. Using the formula, this proposal generates:

- 49 Elementary Students
- 21 Middle School Students
- 24 High School Students

Fauquier County Public Schools anticipates the projected 2028-2029 enrollment at the currently districted schools to be with program capacity:

- Bradley Elementary: 360 enrollment/588 capacity
- Taylor Middle School: 606 enrollment/850 capacity
- Fauquier High School: 1170 enrollment/1612 capacity

Based on the Fauquier County Public School calculations, there is available capacity in the school system for this proposed development.

Environmental Building

Plan Warrenton 2040 includes the goal *"CF-3: Green infrastructure and sustainability are incorporated into community facilities to promote energy efficiency and environmental protections."* The Applicant is proposing a Condition of Approval that all residential buildings will be designed and certified to a National Green

Building Standard, Level Bronze, or higher. If the National Green Building Standard is not available for the project than an equivalent certification from an alternative third-party green building rating system will be accepted.

Water and Sewer

The Town of Warrenton conducted water and sewer availability studies to determine townwide what approved, by right, and anticipated development would generate. The WRA Water and Sewer Capacity Evaluation took into account approved projects within the Town, partially approved/in process projects in the Town, vacant parcels in the Town, and then potential future growth in various areas of the Town based on the character districts of Plan Warrenton 2040. At that time, the Warrenton Village proposal was included in the study as an "in process" development, meaning it was an active land use application. The Study assumed a usage of 166,000 gallons per day. The Town Public Utilities Department stated the residential portion will require a water and sewer demand of between 77,000 GPS and 116,000 GPD, and the commercial will require around 44,000 GPD for a total of between 121,000 and 160,000 GPD. This flow demand on top of the existing and already committed demand on the Town's water and wastewater treatment plants is a significant increase to the currently permitted treatment levels of 2.4 and 2.5 MGD respectively. If the density and type of development is deemed acceptable by Planning Commission and the Town Council, the Town's Department of Utilities will respond to meet these requirements.

**Planning Commission**

The Planning Commission held a work session with the Director of Public Utilities and the Applicant to discuss the water and sewer. The Applicant presented an average of the water and sewer usage of their existing apartment complexes that came out to less than was anticipated. The Director of Public Utilities walked the Planning Commission through the WRA Water and Sewer Capacity Study that allocated more water and sewer to anticipated future development on the site then is projected to be used by this proposal.

## Attainable/Affordable Housing

Attainable housing for all ages, incomes, and needs is one of the main goals for Housing in Plan Warrenton 2040. Creating housing that caters to the local need while fostering and protecting the character of surrounding neighborhoods and the Town as a whole, new developments are encouraged to be interconnected with shared open spaces for a sense of place. Specifically for the New Town District, the Comprehensive Plan states:

*"…each Character District is different when it comes to identifying appropriate housing typologies. For example, …the New Town Character District would promote mixed-use residential in a vertical configuration to support more retail uses."*

There is a difference between attainable and affordable housing. While affordable housing is defined by housing subsidized by the government or non-profits, attainable housing is not subsidized. Plan Warrenton 2040 took these distinctions into account when formulating how to create a housing stock that allows for a diverse community. The Plan Warrenton Housing goals include:

*H-1: Ensure equitable, attainable housing opportunities across residents of all ages, incomes, and abilities by*

*catering to the needs of a diverse community, including young families, professionals early in their careers, essential workforce, and those entering retirement.*

*H-2: Character Districts will accommodate a balance of available housing typologies that are compatible to existing neighborhoods in scale, character, and transition.*

> *H-2.1: Place an emphasis on physical form of the housing (e.g. number of stories, building profile, and appropriate transitions to adjoining neighborhoods) by updating the Zoning Ordinance, while protecting the character of existing residential neighborhoods.*
>
> *H-2.2: Increase opportunities for multi-family and mixed-use residential development by updating the commercial corridors in the Character Districts to allow for appropriate use and scale transitions into existing neighborhoods.*

Plan Warrenton 2040 protects existing neighborhoods by promoting the Character Districts as the places to accommodate a range of housing typologies. The RKG Demographic and Housing Analysis White Paper that was adopted as part of Plan Warrenton 2040 found single family units make up 75.3% of the Town's housing inventory with the largest share built before 1980. The 2020 report found *"the Town's population trends are skewing towards older age-cohorts while younger age-cohorts have shown minimal growth since 2010. From a housing perspective, the Town appears to lack the diverse housing options (both housing price and type) desired by younger populations who may not desire or are not ready to purchase a home. Roughly, 63.4% of the Town's newly constructed building square footage is comprised of residential properties with 60.0% being single family properties while only 3.5% is classified as multifamily. Almost all of the multifamily development is age-restricted."*

The Rappahannock Rapidan Regional Housing Study confirmed those aged 65+ represent the highest increase in each jurisdiction of PD9 between 2010-2019. Housing demand was estimated at 4,600 housing units across the region and underhoused population of those aged 18-34 and living with a non-spouse/partner. The Study recommended increasing the supply of attainable housing and recognizing the need for a diverse set of housing options across the region. Under the recommendation of increasing attainable housing, the Study further encourages localities consider targeted incentives for higher density and mixed-use development in potentially designated Urban Development Areas (UDAs). The New Town Character District, where this proposal is located, is a Town adopted UDA and recognized by the Commonwealth of Virginia as such.

The Town of Warrenton Zoning Ordinance Article 9-3 defines persons eligible to rent or buy affordable dwelling units includes those eligible for assistance under the following state or federal programs:

- Virginia Housing Development Authority (now Virginia Housing)
- Section 8 Rental Assistance Program
- Department of Housing and Urban Development Community Block Grant Program
- Farmer's Home Administration Program
- Other programs similar to those named herein as approved by Town Council

Each of these programs utilizes the U.S. Housing and Urban Development (HUD) definitions and calculations for determining Area Median Income (AMI). Warrenton is designated as part of the

Washington-Arlington-Alexandria, DC, VA, MD HUD Metro Area. The following chart illustrates the current HUD calculations.

| FY 2024 Income Limit Area | Median Family Income Click for More Detail | FY 2024 Income Limit Category | Persons in Family | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| **Washington-Arlington-Alexandria, DC-VA-MD HUD Metro FMR Area** | $154,700 | Very Low (50%) Income Limits ($) Click for More Detail | 54,150 | 61,900 | 69,650 | **77,350** | 83,550 | 89,750 | 95,950 | 102,150 |
| | | Extremely Low Income Limits ($)* Click for More Detail | 32,500 | 37,150 | 41,800 | **46,400** | 50,150 | 53,850 | 57,550 | 61,250 |
| | | Low (80%) Income Limits ($) Click for More Detail | 68,500 | 78,250 | 88,050 | **97,800** | 105,650 | 113,450 | 121,300 | 129,100 |

NOTE: **Fauquier County** is part of the **Washington-Arlington-Alexandria, DC-VA-MD HUD Metro FMR Area**, so all information presented here applies to all of the Washington-Arlington-Alexandria, DC-VA-MD HUD Metro FMR Area. HUD generally uses the Office of Management and Budget (OMB) area definitions in the calculation of income limit program parameters. However, to ensure that program parameters do not vary significantly due to area definition changes, HUD has used custom geographic definitions for the Washington-Arlington-Alexandria, DC-VA-MD HUD Metro FMR Area.

https://www.huduser.gov/portal/datasets/il.htm

Article 9-3 of the Zoning Ordinance further outlines how an affordable housing program would assure the availability for at least 25 years following the date of Town approval, developing in a traditional design technique, and how the units would be offered to the public. These provisions are captured in the draft Conditions of Approval. Article 9-25 for Mixed Use Development Options allows for a density bonus of up to 100% of the allowable density if no less than 10% of the residential units are defined as affordable.

**Staff Findings**

The Applicant is proposing 10% of the units within each residential block to be dedicated to affordable housing in each block reserved for residents with household incomes below 80% of the Area Medium Income (AMI). Further, the Applicant is proposing 10 additional dwelling units in Block One reserved for 70% AMI and five additional units in Block One reserved for 60% AMI.

Virginia State Code 15.2-2286.A.3 states *"For the granting of special exceptions under suitable regulations and safeguards; notwithstanding any other provisions of this article, the governing body of any locality may reserve unto itself the right to issue such special exceptions. Conditions imposed in connection with residential special use permits, wherein the applicant proposes affordable housing, shall be consistent with the objective of providing affordable housing. When imposing conditions on residential projects specifying materials and methods of construction or specific design features, the approving body shall consider the impact of the conditions upon the affordability of housing."*

The draft Conditions of Approval include how the program would be administered, as well as provisions that ADUs will be built to similar standards as market rate units and not clustered together in one location. Per the State Code, the Town Council needs to consider the draft Conditions of Approval impact upon the affordability of the units.

**Planning Commission**

The Planning Commission discussed the ADU provisions throughout the work sessions and public hearing. The Applicant offered draft Conditions of Approval that go above the requirements of the Zoning Ordinance in regards to how many are provided, the identical design and materials to market rate units, and architecture.

## Historic/Environmental Resources

Plan Warrenton 2040 includes a Historic Resources chapter that envisions *"The Town and property owners will work toward a common goal of preserving the historic built environment for current and future generations, knowing their efforts will strengthen Warrenton's neighborhoods, complement place-based economic development, encourage local economic growth, promote equity of its residents, and conserve natural resources."*

The subject parcels are not located within the Town's Historic District. The existing shopping center is contained on one larger parcel with six acres of greenfield development, where Block One is located, on the northern parcel.

**Staff Findings:**

Plan Warrenton's goal of HR-4: Enhance the Environment Through Preservation and Sustainability Practices has been addressed by the Applicant twofold. First, a natural spring is located on the northeast portion of the site. This spring may be the original naming reason for Oak Springs Drive and the historical Oak Spring Manor. Former Architectural Review Board Chair, Steve Wojcik, brought this to the Town's attention by pointing out *"The spring, the house, and part of the family cemetery a few blocks further, are all that remain of the estate of the Edmonds Blackwell family, early settlers of the area during the colonial period, one of whose members was an officer in the Revolutionary War."* When brought to the Applicant's attention, the proposal was adjusted to preserve the spring. The Applicant also stated they are looking to recondition the spring as a public amenity.

Second, the Applicant is proposing a Condition of Approval that all residential buildings will be designed and certified to a National Green Building Standard, Level Bronze, or higher. If the National Green Building Standard is not available for the project then an equivalent certification from an alternative third party green building rating system will be accepted.

**Planning Commission**

The Planning Commission raised the question of the spring on the property during the design discussion with the Applicant. In future submissions, the Applicant spoke to preserving the spring as a public amenity.

## Economic Resources Analysis

An economic goal of Plan Warrenton 2040 is to promote a diverse, equitable stable tax base while preserving the character of the community. The New Town District is deemed a major economic development priority with potential to be a destination center for mixed-use bridging entertainment, office, and residential. Per the Comprehensive Plan, the Character Districts are created with the intention

of being:

*"…a focal point for revitalization to allow for mixed-use and multi-family development at an appropriate scale compatible with the Town's character and existing neighborhoods. Transform aging commercial corridors to vibrant mixed-use neighborhoods."*

Another major economic goal of the Comprehensive Plan is to maintain the small-town character while reducing the percentage of Town residents commuting for work. Mixed use developments allow for greater walkability. Additionally, several large County employers located in Town have communicated recruitment issues due to lack of housing in the Town. Some major employers, for instance the schools and hospital, have indicated that their employees face challenges finding housing in Town due to lack of supply.

The Fiscal Sustainability Analysis that was produced as part of the Comprehensive Plan provided the community with development scenarios that walked the community through the economic realities of the Town and the long-standing desires/needs. The analysis communicated that in order for the community to have net positive fiscal impacts, it must grow its housing supply to support the underperforming retails and commercial assets.

The growth in office component will require a concerted economic development effort from the Town to succeed. Simply put, the current marketplace for office development is not robust enough to project such growth by 2039. That said, the introduction of the proposed large-scale mixed-use developments likely will have a transformative effect on how the office market views the Town, particularly how the projected development program incorporates multifamily development, a critical missing component for Warrenton to attract more of the region's younger workforce. The focus on creating a strong connection between living, working, and recreating (restaurant growth) has proven effective throughout the region.

*"First, the citizens of Warrenton continue to want higher levels of services and amenities. This desire for improved facilities, expanded choices, and better connectivity will come at a cost. It is a cost that exceeds the Town's existing financial capacity. If built, the sample public enhancements researched/identified through this effort would create a negative fiscal impact on the Town if development activity does not increase to similar levels of surrounding jurisdictions. Simply put, the Town can not 'save its way' to fiscal sustainability. Improving the quality of life for existing residents will require additional revenue (either from new growth or existing residents).*

*Second, the mix of development matters. The market analysis reveals that the Town does not have the demand to continue to increase retail services. The existing development policies make new construction of any type challenging, even for those uses that have strong market demand (i.e. multifamily development). That said, the mix of uses that are proposed for development (or redevelopment) matter from a fiscal perspective. Residential uses with smaller household sizes will have a smaller fiscal impact on the Town's cost structure. From the nonresidential side, the modeling reveals accommodation and dining uses create a greater fiscal benefit to the Town due to their higher direct revenue streams.*

*Finally, balancing the mix of uses between residential and nonresidential uses will be critical from both a market perspective and a fiscal one. Simply put, growth in commercial development (particularly retail and dining venues) will require greater consumer spending, which primarily comes from local households. Much of the development projected in Scenario 2 and Scenario 3 will require more residences to increase spending. More strategically, diversifying the Town's housing stock will be important to redefine the local office market, as Millennials are becoming the largest portion of the white-collar labor force. This generation is delaying homebuying and family*

*household formation at a higher rate than previous ones. Having a high quality, well-integrated live/work/recreate community is a fundamental need to attracting these workers (and as a result, their companies).*"

| Standard | Analysis |
|---|---|
| *Whether the proposed Special Use Permit use will provide desirable employment and enlarge the tax base by encouraging economic development activities consistent with the Comprehensive Plan.* | According to all fiscal impact studies conducted previously by the Town and by the Applicant as part of this application, the proposal will result in a net positive fiscal impact. |
| *The number of employees.* | N/A |
| *The proposed days/hours of operation.* | N/A |

**Staff Findings**

The Town has invested significant resources in determining its fiscal resiliency and what market forces are required to obtain a healthy economic scenario in Town. The findings indicate mixed use developments that add to the housing supply are critical to the fiscal success of the Town.

**Planning Commission**

The Planning Commission received the Fiscal Impact Analysis as part of the project application submission that was consistent with the Town's fiscal studies, which find the overall impact to be net positive. S. Patz and Associates, Inc's June 2023 analysis found the proposal of 320 units apartment building, 36 2 over 2s, and 20 townhomes to be a net benefit of approximately $46, 100 annually with most of the revenue generated by off-site impacts due to the *"Town of Warrenton levies low real estate and personal property taxes."* (Page 2) Since the Planning Commission's purview is land use, it is did explore the fiscal impact question further.

**Open Space, Parks, and Environment**

Plan Warrenton 2040 highlights ample open space and access to open space is a priority to public health. Providing access to an open space suitable for the development needs within walking distance is encouraged:

"*Provide a dynamic system of safe, interconnected spaces for a variety of public uses that promote healthy, active, recreational activities in spaces throughout the Town. These spaces will reflect the culture, ecology, and natural environment of Warrenton.*"

**Staff Findings**

The Applicant is following the Character District Design Guidelines by providing for a central plaza and other public amenities like a dog park, interconnected sidewalks, and residential units in a compact, walkable environment.

**Planning Commission**

The Planning Commission reviewed the open space, central plaza, sidewalks and connections to adjacent neighborhoods.

## Zoning Analysis

The legislative intent of the Commercial District is to encourage the logical and timely development of land for a range of commercial and mixed-use purposes in accordance with the objectives, policies, and proposals of the Comprehensive Plan; to prohibit any use which would create undue impacts on surrounding residential areas; and to assure suitable design to protect the residential environmental of adjacent and nearby neighborhoods. It is further declared to be the intent of the district to limit traffic congestion, overcrowding of land, noise, glare, and pollution, as to lessen the danger to public safety, and to ensure convenient and safe pedestrian access to and from commercial and mixed-use sites.

| Standard | Analysis |
|---|---|
| *The level and impact of any noise emanating from the site, including that generated by the proposed use, in relation to the uses in the immediate area.* | The existing use is commercial/retail. All non-residential uses in Town must meet the noise ordinance and residential must meet Town Code. |
| *The proposed location, lighting and type of signs in relation to the proposed use, uses in the area, and the sign requirements of this Ordinance.* | The Applicant has stated they will follow Article 6 of the Zoning Ordinance. While conceptual signage was provide, a master sign plan was not included in the application. |
| *The location and area footprint with dimensions (all drawn to scale), nature and height of existing or proposed buildings, structures, walls, and fences on the site and in the neighborhood.* | The Applicant is seeking waivers and modifications to the height of the proposed building and possible retaining walls to a fourth story for the apartment units. |
| *The nature and extent of existing or proposed landscaping, screening and buffering on the site and in the neighborhood.* | The Applicant provided a landscaping plan and must meet all Zoning Ordinance requirements. |
| *The timing and phasing of the proposed development and the duration of the proposed use.* | The Applicant is not proposing specific phasing but is breaking the development into three distinct blocks. |
| *Whether the proposed Special Use Permit at the specified location will contribute to or promote the welfare or convenience of the public.* | The welfare of the public is promoted by contributing new housing stock and affordable dwelling units. |
| *Whether, in the case of existing structures proposed to be converted to uses requiring a Special Use Permit, the structures meet all code requirements of the Town of Warrenton.* | N/A |
| *The location, character, and size of any outdoor storage.* | N/A |

| Standard | Analysis |
|---|---|
| *The location of any major floodplain and steep slopes.* | Steep slopes are illustrated in the SUP Plans and will be addressed at time of site plan. |
| *The location and use of any existing non-conforming uses and structures.* | N/A |
| *The location and type of any fuel and fuel storage.* | N/A |
| *The location and use of any anticipated accessory uses and structures.* | The Applicant states where applicable, all accessory structures will comply with local codes and ordinances. |
| *The area of each proposed use.* | Block 1: up to 320 apartments with a 4 story parking garage<br>Block 2: Up to 32 townhouses<br>Block 3: Up to 34 two over twos |
| *The location and screening of parking and loading spaces and/or areas.* | Block 1 contains a 4 story parking garage with screening; Blocks 2 and 3 contain garages and driveways. |
| *The location and nature of any proposed security features and provisions.* | N/A |
| *Any anticipated odors which may be generated by the uses on site.* | Site will comply with Zoning Ordinance. |
| *Refuse and service areas.* | Private refuse collection is anticipated with dumpster areas delineated on the SUP Plans. |
| *Whether the proposed Special Use Permit will result in the preservation or destruction, loss or damage of any significant topographic or physical, natural, scenic, archaeological or historic feature.* | The Applicant is proposing to preserve a historic natural spring for a public amenity. |
| *The effect of the proposed Special Use Permit on environmentally sensitive land or natural features, wildlife habitat and vegetation, water quality and air quality. The location of any major floodplain and steep slopes.* | The Applicant states they will comply with federal, state, or local codes and ordinances regarding wildlife habitats, sensitive land or natural features, vegetation, water quality, and air quality. |
| *The glare or light that may be generated by the proposed use in relation to uses in the immediate area.* | Fixture details/cut-sheets and new structures will be required to be provided and reviewed as part of the Site Development Plan submission. |

**Staff Findings**

The Applicant has indicated that items like lighting, landscaping, parking, and signage will all be addressed at the time of the Site Development Plan. As with previous SUP approvals, draft Conditions of Approval attempt to address potential LED lights as the Zoning Ordinance has not yet been updated to address this

technology.

**Planning Commission**

The Planning Commission passed a resolution that found the Application to meets the evaluation criteria found in the Zoning Ordinance Article 11-3.10.3.

**Waiver and Modification Requests**

Article 2-6.1: The maximum density specified in the zoning ordinance for a given zoning district shall not be exceeded. The maximum density is 5 units per acre or 10 units per acre with inclusion of 10% affordable dwelling units.

- Waiver #1: Increase density to 386 units or 13.28 per acre.

Article 3-4.10.4: Required front yard setback from ROW greater than 50' is 40' minimum, if no parking or loading is proposed.

- Waiver #2: Decrease minimum setback to 14' along Broadview Avenue.

Article 3-4.10.4: Required side/rear yard setbacks is 5' minimum.

- Waiver #3: Decrease side/rear yard setbacks to 0'.

Article 8-8.5: Minimum buffer width for commercial uses adjacent to residential uses is 25', plus 1' for each foot of building height over 35'. Minimum buffer width for rear boundaries of residential uses from public ROW is 25'.

- Waiver #4a: Decrease buffer width between commercial and residential uses to 0'.
- Waiver #4b: Decrease rear buffer width for residential uses from public ROW to 14'.

Article 2-20: Height limit for dwellings may be increased up to 45' and up to three stories provided that front, side and year setbacks increase 1' for each additional foot of building height over 35'.

- Waiver #5: Increase height limit for dwellings as follows:
- 54' max height for Block 1, Oak Springs Drive Frontage
- 36' max height for Block 1, Broadview Avenue Frontage
- 36' max height for Block 2
- 45' max height for Block 3

Article 3-4.4.5.3: No more than six townhouse units shall be grouped contiguously to each other.

- Waiver #6: Increase maximum grouping of townhouse units from six to seven

Article 2-19: Fences and walls may be erected up to a height of six (6) feet in all zoning districts, except for fences or walls that extend within the required front setback.

- Waiver #7: Allow retaining walls in excess of six feet on Oak Springs Drive and Hastings Lane; and around refuse and dumpster enclosures as approved by the Zoning Administrator.

**Staff Findings**

Plan Warrenton calls for mixed use developments, with design guidelines, that require modifications to the Zoning Ordinance. Mixed use developments are integrated with zero set backs and buildings closer to

the street to create a more walkable environment. The proposed waivers and modifications are requested to help meet the mixed use design guidelines as the Zoning Ordinance has not yet been updated.

**Planning Commission**

The Planning Commission motioned to recommend approval to the Town Council for SUP 2022-05 per the Conditions of Approval (Separate Attachment) and SUP plans. Waivers and modifications are included in the recommended Conditions of Approval.

# SPECIAL USE PERMIT

FOR

# WARRENTON VILLAGE CENTER

LOCATION OF SITE

**TOWN OF WARRENTON**

**FAUQUIER COUNTY, VIRGINIA 20186**

**PARCEL ID'S: 6985-20-7247-000, 6984-29-6753**

## PARCEL IDENTIFICATION TABLE

| PARCEL NUMBER | OWNER | ADDRESS | AREA | CURRENT ZONE | CURRENT PLANNED LAND USE | PROPOSED PLANNED LAND USE |
|---|---|---|---|---|---|---|
| 6985-20-7247-000 | JEFFERSON ASSOCIATES LP | 360 OAK SPRINGS DRIVE WARRENTON, VA 20186 | 6.46 ACRES | C | VACANT | MIXED USE |
| 6984-29-6753-000 | WARRENTON CENTER LLC | 251 W LEE HIGHWAY WARRENTON, VA 20186 | 22.59 ACRES | C | RETAIL | MIXED USE |
| | | | TOTAL AREA 29.05 ACRES | | | |

## REFERENCES AND CONTACTS

REFERENCES

♦ BOUNDARY & TOPOGRAPHIC SURVEY:
ALTA/NSPS LAND TITLE SURVEY
"WARRENTON CENTER, 360 OAK SPRINGS DRIVE, CENTER DISTRICT, TOWN OF WARRENTON, VIRGINIA"
PREPARED BY: BOHLER
DATED: 11/3/21

♦ ARCHITECTURAL PLAN:
CAD FILE: WARRENTON FLOOR PLAN.DWG
PREPARED BY: DYNAMIK DESIGN
DATED: 5/21/2024
SEE GENERAL NOTES REFERENCE ON SHEET 4

**GOVERNING AGENCIES**

♦ TOWN OF WARRENTON
COMMUNITY DEVELOPMENT
21 MAIN STREET
WARRENTON, VA 20188-0341
CONTACT: ROB WALTON, DIRECTOR OF COMMUNITY DEVELOPMENT
PHONE: (540) 347-2405

* THE ABOVE REFERENCED DOCUMENTS ARE INCORPORATED BY REFERENCE AS PART OF THESE PLANS, HOWEVER, BOHLER ENGINEERING DOES NOT CERTIFY THE ACCURACY OF THE WORK REFERENCED OR DERIVED FROM THESE DOCUMENTS, BY OTHERS.




## LOCATION MAP

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SCALE: 1" = 2,000'

## SHEET INDEX



| SHEET TITLE | SHEET NUMBER |
|---|---|
| COVER SHEET | 1 |
| EXISTING CONDITIONS PLAN | 2 |
| PARCEL OVERVIEW PLAN | 2A |
| OVERALL SITE DEVELOPMENT PLAN | 3 |
| SITE PLAN DEVELOPMENT PLAN BLOCK 1 | 4 |
| SITE DEVELOPMENT PLAN - BLOCKS 2 & 3 | 5 |
| OPEN SPACE PLAN | 6 |
| WAIVER INFORMATION | 7 |
| FIRE TRUCK MOVEMENT | 8 |
| LANDSCAPE PLAN | 9-10 |
| BUILDING ELEVATIONS | 11-15B |
| CONCEPTUAL PLAN RENDERING | 16 |
| DETAIL - CENTRAL PLAZA | 17 |
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| DETAIL - EAST PLAZA | 20 |
| CONCEPTUAL SIGNAGE PLAN | 21 |
| CONCEPTUAL LIGHTING PLAN | 22 |
| CONCEPTUAL CIRCULATION PLAN | 23 |
| RENDERING | 24-36 |



## OWNER

SEE PARCEL IDENTIFICATION TABLE

## DEVELOPER

NEWCASTLE DEVELOPMENT GROUP
100 10TH STREET SE, SUITE 300
CHARLOTTESVILLE, VA 22902
CONTACT: JESS ACHENBACH
PHONE: (434) 260-6628

PREPARED BY

BOHLER

CONTACT: JOHN C. WRIGHT, P.E.

BOHLER
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**PROJECT No.:** V212141
**DRAWN BY:** DSH
**CHECKED BY:** JCW
**DATE:** 7/8/2022
**CAD I.D.:** SUPP -2

PROJECT:

**SPECIAL USE PERMIT**

FOR

WARRENTON VILLAGE CENTER

PROPOSED DEVELOPMENT

OAK SPRINGS DRIVE
CENTER DISTRICT
TOWN OF WARRENTON, VIRGINIA

BOHLER
28 BLACKWELL PARK LANE, SUITE 201
WARRENTON, VIRGINIA 20186
Phone: (540) 349-4500
Fax: (540) 349-0321
VA@BohlerEng.com

COMMONWEALTH OF VIRGINIA
JOHN C. WRIGHT
Lic. No. 046960
5/31/2024
PROFESSIONAL ENGINEER

SHEET TITLE:

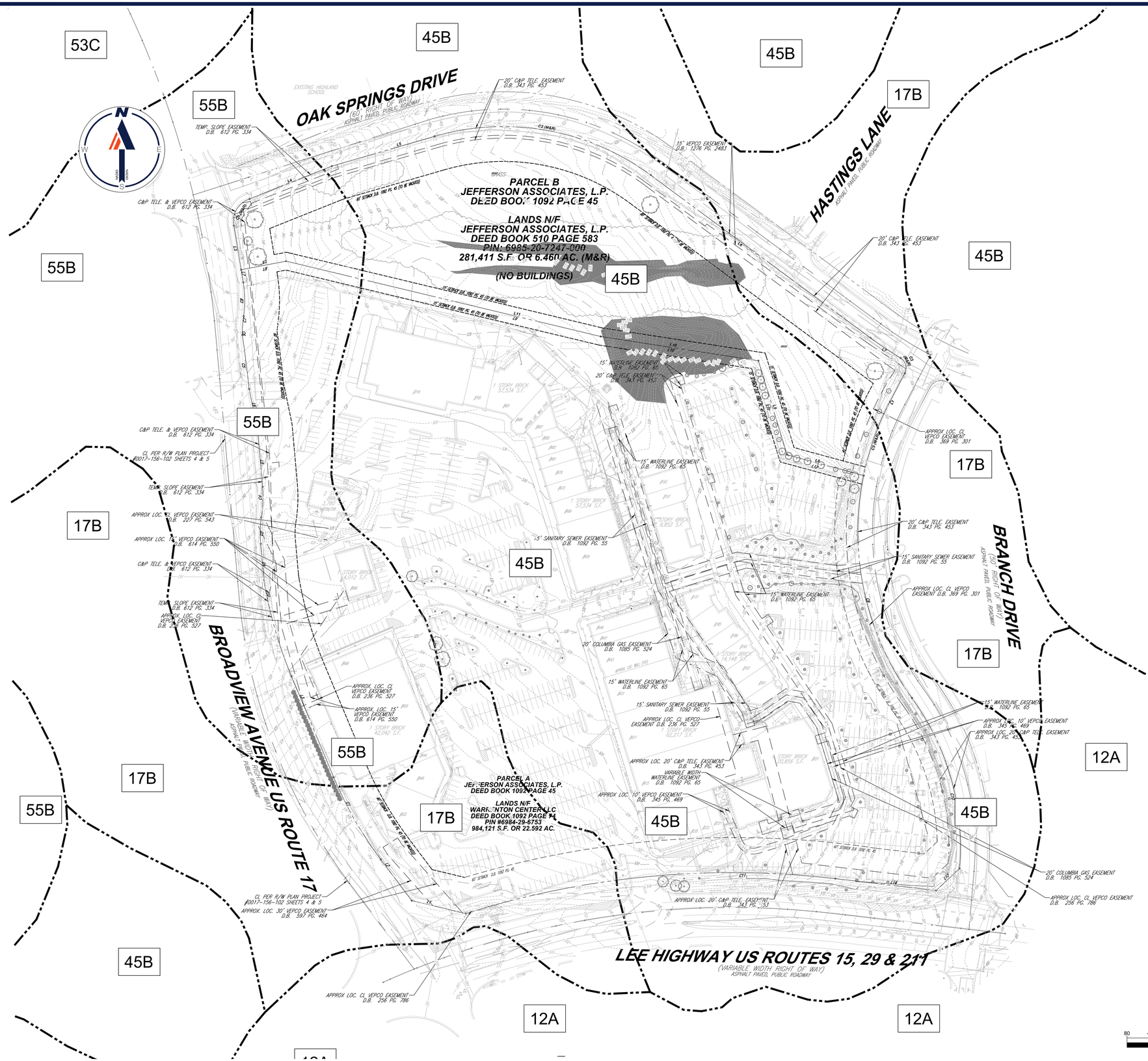
**COVER SHEET**

SHEET NUMBER:

1

REVISION 3 - 5/31/2024

May 30, 2024
H:\2012\V212141\CAD\DRAWINGS\PLAN SETS\SUPP\V212141 - SUPP - 1---LAYOUT 1 - COVER SHEET




## HATCH LEGEND

EXTENTS OF STEEP SLOPES

## SOILS TABLE

| SYMBOL | SOIL NAME | SLOPES |
|---|---|---|
| 12A | ROHRERSVILLE LOAM | 0 TO 2% |
| 17B | MIDDLEBURG LOAM | 2 TO 7% |
| 45B | FAUQUIER SILT LOAM | 2 TO 7% |
| 53C | GLENELG LOAM | 7 TO 15% |
| 55B | ELIOAK LOAM | 2 TO 7% |

80 40 20 0 80
1"= 80'

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| PROJECT No.: | V212141 |
| DRAWN BY: | DSH |
| CHECKED BY: | JCW |
| DATE: | 7/8/2022 |
| CAD I.D.: | EXST -2 |

PROJECT:

**SPECIAL USE PERMIT**

FOR

WARRENTON VILLAGE CENTER

PROPOSED DEVELOPMENT

OAK SPRINGS DRIVE
CENTER DISTRICT
TOWN OF WARRENTON, VIRGINIA

BOHLER
28 BLACKWELL PARK LANE, SUITE 201
WARRENTON, VIRGINIA 20186
Phone: (540) 349-4500
Fax: (540) 349-0321
VA@BohlerEng.com

COMMONWEALTH OF VIRGINIA
JOHN C. WRIGHT
Lic. No. 046960
5/31/2024
PROFESSIONAL ENGINEER

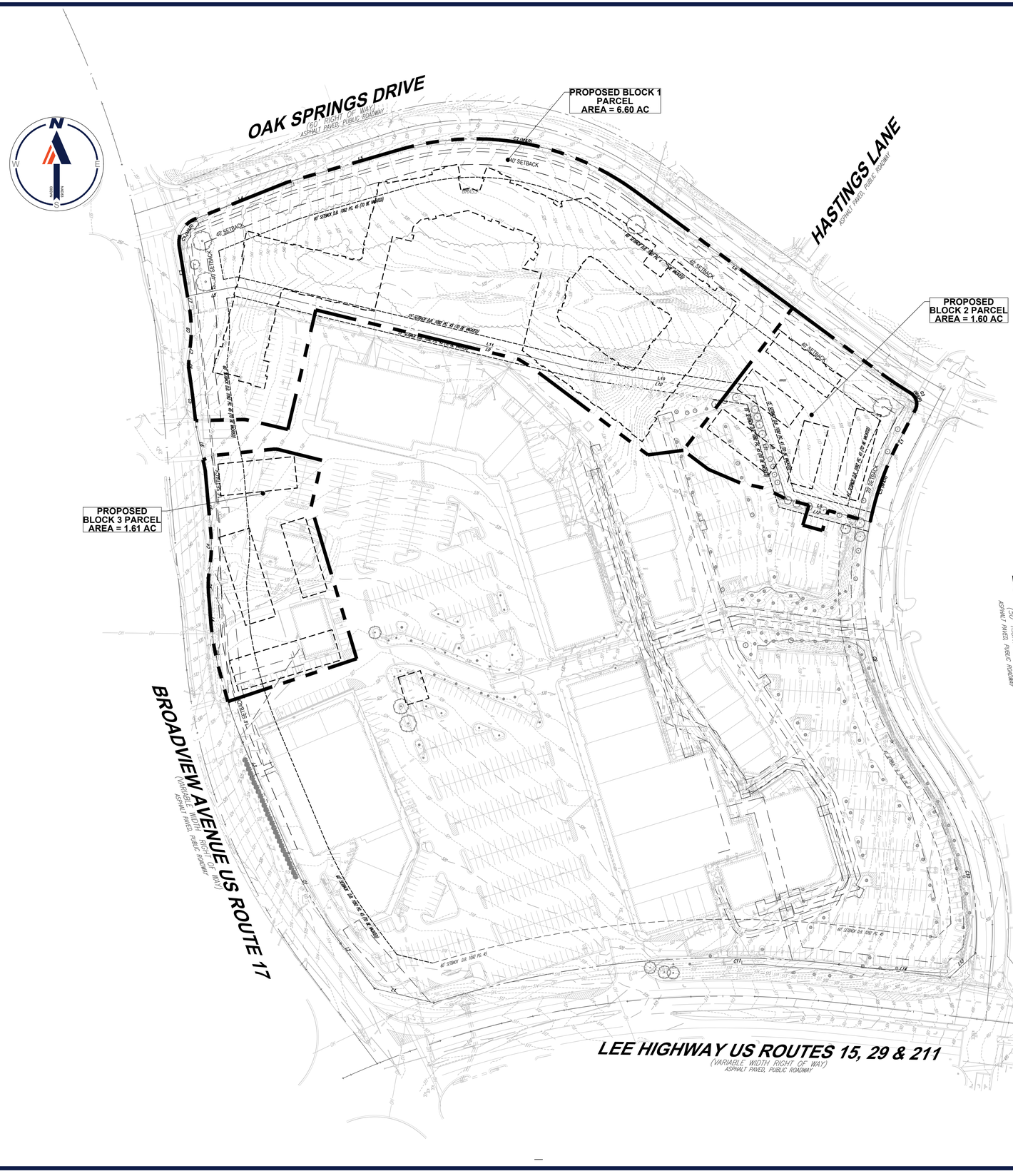
SHEET TITLE:

**EXISTING CONDITIONS PLAN**

SHEET NUMBER:

2

REVISION 3 - 5/31/2024




**LEGEND**

- PROPOSED BUILDING OUTLINE
- PROPOSED BLOCK PARCEL LINE

80 40 20 0 80
1"= 80'

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COMMONWEALTH OF VIRGINIA
JOHN C. WRIGHT
Lic. No. 046960
5/31/2024
PROFESSIONAL ENGINEER

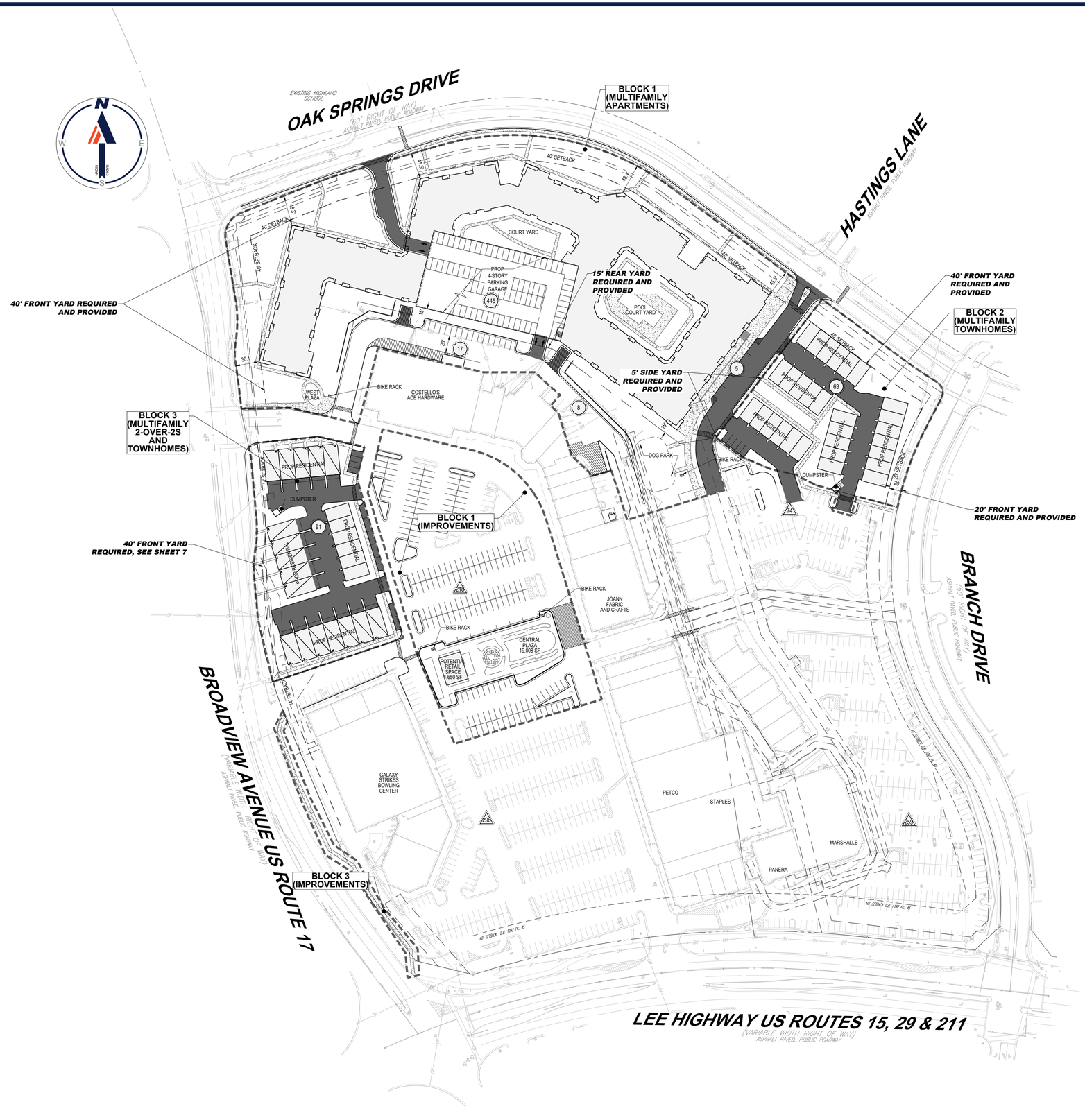
SHEET TITLE:

***PARCEL OVERVIEW PLAN***

SHEET NUMBER:

2A

REVISION 3 - 5/31/2024




## ZONING TABULATION TABLE:

LOT SIZE AND YARD SETBACK REQUIREMENTS:

| | REQUIRED | PROVIDED |
|---|---|---|
| MINIMUM LOT SIZE: | 5 ACRES | 29.05 ACRES |
| **SETBACK REQUIREMENTS:** | | |
| | REQUIRED | MIN PROVIDED |
| FRONT YARD (OAK SPRINGS, ROW >50') | 40'* | 40'± |
| FRONT YARD (BRANCH, ROW <50') | 20'* | 20'± |
| FRONT YARD (BROADVIEW, ROW >50') | 40'* | 14'± |
| | REQUIRED | MIN PROVIDED |
| SIDE YARD BUILDING | 5' | 0'± |
| | REQUIRED | MIN PROVIDED |
| SIDE YARD BUILDING | 5' | 48.7'± |
| | REQUIRED | MIN PROVIDED |
| REAR YARD BUILDING | 15' | 15'± |

LOT COVERAGE REQUIREMENTS

| | MAX | PROVIDED |
|---|---|---|
| PROPOSED LOT COVERAGE: (IMPERVIOUS SURFACES) | 85% | 83% |

*FRONT YARD MAY BE REDUCED BY 20' IF NO PARKING OR LOADING IS PROPOSED. A REDUCTION IN FRONT/REAR/SIDE SETBACKS IS BEING REQUESTED FROM TOWN COUNCIL AT CERTAIN LOCATIONS - SEE SHEET 7 FOR DETAIL.

## GENERAL NOTES:

1. THIS PLAN IS BASED ON THE FOLLOWING:
   SURVEY CAD FILES PREPARED BY BOHLER DATED: 11/3/2021
   BUILDING FOOTPRINT CAD FILES PREPARED BY MV&A ARCHITECTS DATED: 5/21/2024
2. ZONING DATA:
   EXISTING ZONE: C - COMMERCIAL
   PROPOSED ZONE: COMMERCIAL WITH MIXED USE
3. USES:
   EXISTING USE: VACANT, RETAIL
   PROPOSED USE: MIXED USE
4. SITE AREA
   PIN'S : 6985-20-7247-0000 6.46 ACRES
   6984-29-6753-0000 22.59 ACRES
5. SITE WILL BE SERVICED BY TOWN WATER AND SEWER.
6. TOPOGRAPHIC INFORMATION:
   HORIZONTAL DATUM: NAD 83
   VERTICAL DATUM: NAVD 88
7. THE PROPOSED BUILDING, DIMENSIONAL ELEMENTS, AND OTHER SITE FEATURES, SUCH AS HARDSCAPE AREAS AND PLAZAS SHOWN ARE CONCEPTUAL AND SUBJECT TO CHANGE WITH FINAL ENGINEERING.
8. CURB AND PARKING MODIFICATIONS IN WARRENTON CENTER WILL OCCUR AS PART OF EACH DEVELOPMENT BLOCK.
9. A PROPERTY LINE ADJUSTMENT PLAT WILL BE COMPLETED WITH SITE PLAN.
10. A TREE SURVEY WILL BE PROVIDED AT TIME OF SITE PLAN.
11. A PHOTOMETRIC/LIGHTING PLAN WILL BE PROVIDED AT TIME OF SITE PLAN.
12. CONSTRUCTION DETAILS OF ALL SCREENING AND FENCING WILL BE ADDRESSED AT TIME OF SITE PLAN.

## HATCH LEGEND

- CONCRETE
- PROP BUILDING (SEE ARCH DRAWINGS)
- DEVELOPMENT BLOCKS
- ASPHALT

80 40 20 0 80
1"= 80'

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**CAD I.D.:** SUPP -2

PROJECT:

**SPECIAL USE PERMIT**

FOR

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PROPOSED DEVELOPMENT

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VA@BohlerEng.com

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JOHN C. WRIGHT
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5/31/2024
PROFESSIONAL ENGINEER

SHEET TITLE:

**OVERALL SITE DEVELOPMENT PLAN**

SHEET NUMBER:

3

REVISION 3 - 5/31/2024



May 30, 2024
H:\V212141\CAD\DRAWINGS\PLAN SETS\SUPP\V212141 - SUPP - 1----LAYOUT 3 - OVERALL SITE PLAN
CHECKED PLOT

## DEVELOPMENT TABULATION

| BLOCK | BLOCK USE | LAND AREA | EXISITNG ZONE | LAND USE | RETAIL | RESIDENTIAL | MAX. ALLOWABLE DENSITY | PROPOSED MAX. | REQUIRED PARKING | PARKING PROVIDED | MAX. BUILDING HEIGHT | MAX. BUILDING HEIGHT PROVIDED |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Block 1 | Multifamily Apartments | 6.60 Ac. | C-Commercial | Mixed Use W/ SUP | 1,650 | 320 | | 320 | ±144 - 1 bed units (1 space per 1 bed unit)<br>±144 - 2 bed units (1.5 spaces per 2 bed unit)<br>±32 - 3 bed units (2 spaces per 3 bed unit) =<br>320 units, 424 spaces | 475 Spaces (445 Garage + 30 Surface spaces) | 36' | 54' (Oak Springs Drive Frontage)<br>36' (Broadview Drive Frontage) |
| Block 2 | Multifamily Townhomes | 1.60 Ac. | C-Commercial | Mixed Use W/ SUP | - | 26 | | 26 | 2 spaces per unit = 52 spaces | 63 Spaces (58 garage + 5 Surface spaces) | 36' | 36' |
| Block 3 | Multifamily 2-over-2s and Townhomes | 1.61 Ac. | C-Commercial | Mixed Use W/ SUP | - | 40 | | 40 | 2 spaces per unit = 80 spaces | 91 Spaces (46 Garage + 45 Surface spaces) | 36' | 45' |
| Retail | Retail | 19.24 Ac. | C-Commercial | Mixed Use W/ SUP | 218,142 SF | N/A | | | Shopping Center: 1/300 GFA for first 12,000 SF + 2 spaces for each 1,000 GFA = 449 spaces | 847 spaces | 45' | 45' |
| TOTALS: | TOTALS: | 29.05 Ac. | C-Commercial | Mixed Use W/ SUP | 219,792 SF | 391 UNITS | 439 Units (See Note 1) | 386 Units or 13.28 Units/Ac.<br>219,792 SF of Commercial | 1,005 Spaces Required | 1,476 Total Parking Spaces | | (See Note 5) |

### NOTES:

1. FIVE (5) DWELLING UNITS PER ACRE OR 29.05 AC. X 5 = 145.25 UNITS, 1 DWELLING UNITS PER 500 GROSS SF OR NON-RESIDENTIAL FLOOR SPACE OR 219,792 SF/500 SF = 439 UNITS
2. DENSITY BONUS REQUESTED AS 10% OF THE TOTAL NUMBER UNITS WILL BE PROVIDED AS AFFORDABLE HOUSING.
3. 2/2 TOWNHOME UNITS INCLUDE 1 DRIVEWAY SPACE + 1 GARAGE SPACE IN TOTAL PARKING SPACE COUNT.
4. EXISTING COMMERCIAL = 218,142, PROPOSED RETAIL (PLAZA) = 1,650 SF NEW TOTAL = 219,792 SF, NOTE: RETAIL SPACE MAY INCREASE AS EXISTING SPACE IS REDEVELOPED
5. BUILDING HEIGHT MODIFICATION SECTION 9-25 BEING REQUESTED FROM TOWN COUNCIL TO INCREASE BUILDING HEIGHTS. SEE WAIVER INFORMATION ON SHEET 7.




### GENERAL NOTES:

1. THIS PLAN IS BASED ON THE FOLLOWING:
   SURVEY CAD FILES PREPARED BY BOHLER DATED: 11/3/2021
   BUILDING FOOTPRINT CAD FILES PREPARED BY MV+A ARCHITECTS DATED: 5/21/2024
2. ZONING DATA:
   EXISTING ZONE: C - COMMERCIAL
   PROPOSED ZONE: COMMERCIAL WITH MIXED USE
3. USES:
   EXISTING USE: VACANT, RETAIL
   PROPOSED USE: MIXED USE
4. SITE AREA
   PINS : 6985-20-7247-0000 6.46 ACRES
   6984-29-6753-0000 22.59 ACRES
5. SITE WILL BE SERVICED BY TOWN WATER AND SEWER.
6. TOPOGRAPHIC INFORMATION:
   HORIZONTAL DATUM: NAD 83
   VERTICAL DATUM: NAVD 88
7. THE PROPOSED BUILDING, DIMENSIONAL ELEMENTS, AND OTHER SITE FEATURES, SUCH AS HARDSCAPE AREAS AND PLAZAS SHOWN ARE CONCEPTUAL AND SUBJECT TO CHANGE WITH FINAL ENGINEERING.
8. CURB AND PARKING MODIFICATIONS IN WARRENTON CENTER WILL OCCUR IN EACH OF THE DEVELOPMENT BLOCKS, UNLESS OTHERWISE NOTED.
9. A PROPERTY LINE ADJUSTMENT PLAT WILL BE COMPLETED WITH SITE PLAN.
10. A TREE SURVEY WILL BE PROVIDED AT TIME OF SITE PLAN.
11. A PHOTOMETRIC / LIGHTING PLAN WILL BE PROVIDED AT TIME OF SITE PLAN.
12. CONSTRUCTION DETAILS OF ALL SCREENING AND FENCING WILL BE ADDRESSED AT TIME OF SITE PLAN.
13. PROPOSED SIDEWALK WIDTH IS 5' MIN. UNLESS OTHERWISE NOTED.

### HATCH LEGEND

- CONCRETE
- PROP BUILDING (SEE ARCH DRAWINGS)
- PAVEMENT & ADA STRIPING
- ASPHALT
- DEVELOPMENT AREA

50 25 12.5 0 50
1"= 50'

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**PROJECT No.:** V212141
**DRAWN BY:** DSH
**CHECKED BY:** JCW
**DATE:** 7/8/2022
**CAD I.D.:** SUPP -2

PROJECT:

**SPECIAL USE PERMIT**

FOR

WARRENTON VILLAGE CENTER

PROPOSED DEVELOPMENT

OAK SPRINGS DRIVE
CENTER DISTRICT
TOWN OF WARRENTON, VIRGINIA

BOHLER
28 BLACKWELL PARK LANE, SUITE 201
WARRENTON, VIRGINIA 20186
Phone: (540) 349-4500
Fax: (540) 349-0321
VA@BohlerEng.com

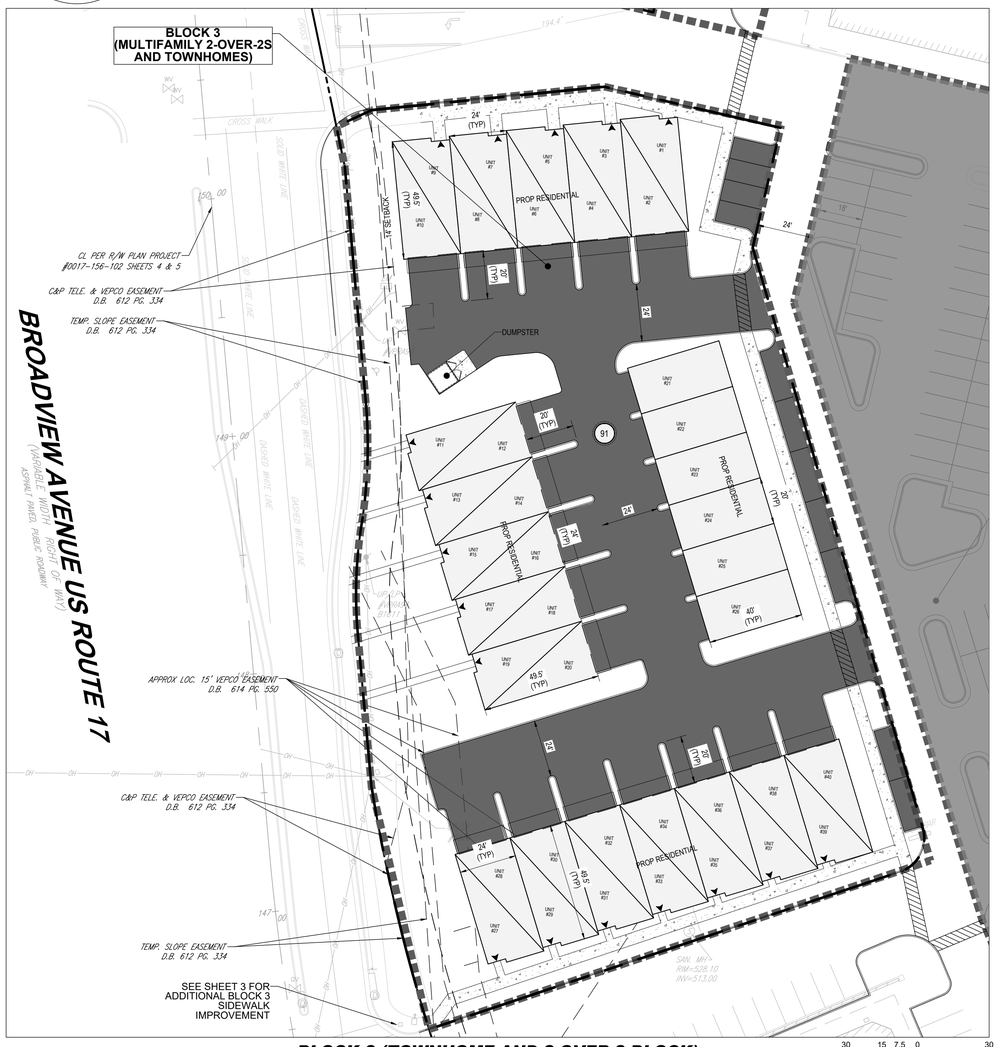
COMMONWEALTH OF VIRGINIA
JOHN C. WRIGHT
Lic. No. 046960
5/31/2024
PROFESSIONAL ENGINEER

SHEET TITLE:
**SITE DEVELOPMENT PLAN BLOCK 1**

SHEET NUMBER:
4

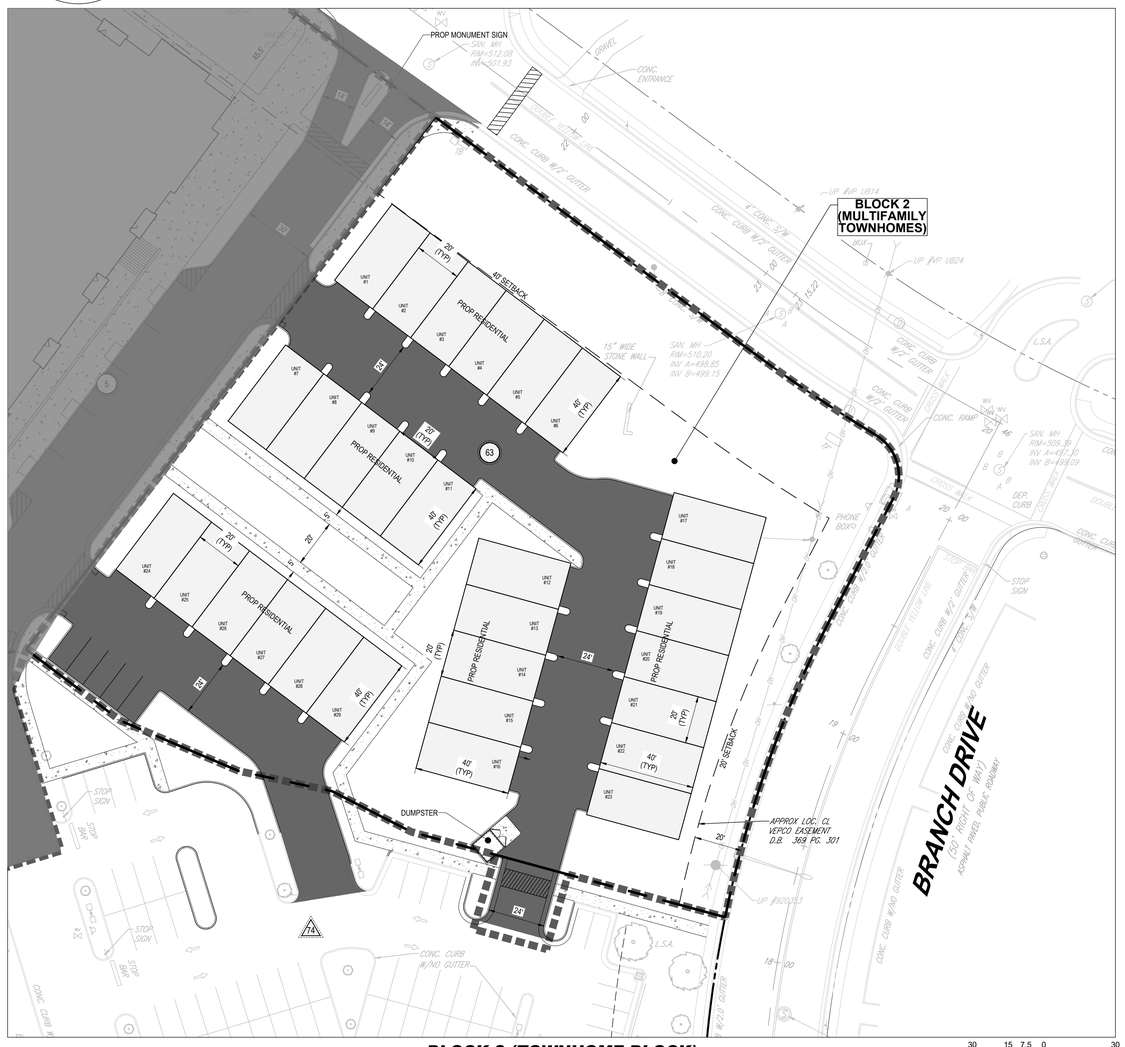
REVISION 3 - 5/31/2024

May 30, 2024
H:\21\V212141\CAD\DRAWINGS\PLAN SETS\SUPP\V212141 - SUPP - 1 - LAYOUT 4 - SITE PLAN




**BLOCK 3 (TOWNHOME AND 2-OVER-2 BLOCK)**

30 15 7,5 0 30
1"= 30'




**BLOCK 2 (TOWNHOME BLOCK)**

30 15 7,5 0 30
1"= 30'

***NOTES:***

1. DECKS ARE NOT SHOWN IN FOOTPRINTS - STANDARD DECKS PROTRUDE 2' OUT FROM FOOTPRINT.

## HATCH LEGEND

- CONCRETE
- PROP BUILDING (SEE ARCH DRAWINGS)
- PAVEMENT & ADA STRIPING
- ASPHALT
- DEVELOPMENT BLOCKS

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COMMONWEALTH OF VIRGINIA
JOHN C. WRIGHT
Lic. No. 046960
5/31/2024
PROFESSIONAL ENGINEER

SHEET TITLE:

***SITE DEVELOPMENT PLAN - BLOCKS 2 AND 3***

SHEET NUMBER:

5

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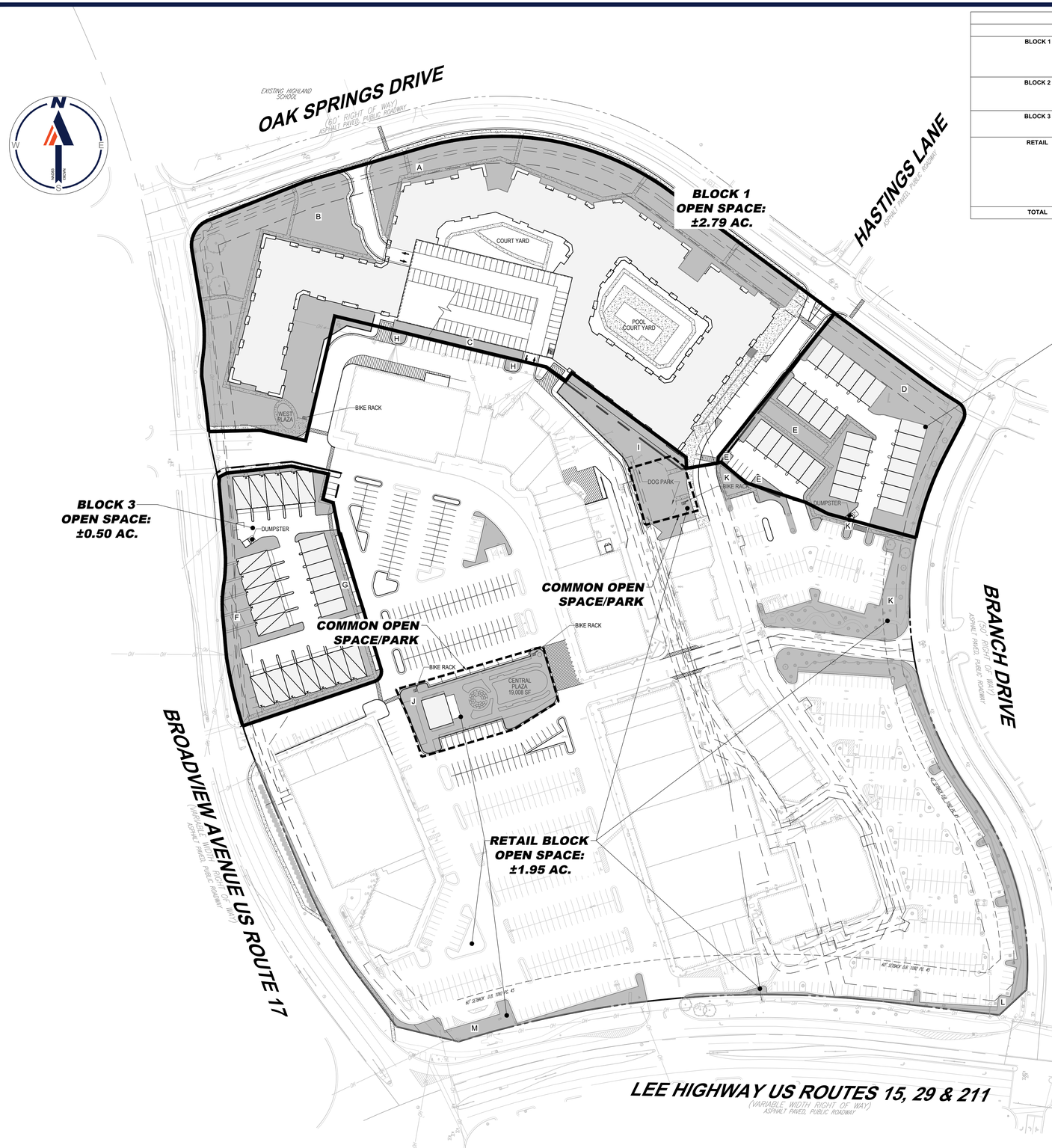


**OPEN SPACE TABULATION**

| | AREA | OPEN SPACE REQUIRED | OPEN SPACE PROVIDED | NEW IMPROVEMENTS |
|---|---|---|---|---|
| **BLOCK 1** | ±6.60 AC. | 10% - 0.66 AC. (±28,750 SF) | A: 0.91 AC. (±39,640 SF)<br>B: 1.81 AC. (±78,840 SF)<br>C: 0.07 AC. (±3,050 SF)<br>TOTAL BLOCK 1: 2.79 AC. (±121,530 SF) (42.2%) | A: LANDSCAPING<br>B: RESIDENTIAL PLAZA, BENCH SEATING, BIKE RACK, LANDSCAPING<br>C: LANDSCAPING |
| **BLOCK 2** | ±1.60 AC. | 10% - 0.16 AC. (±6,970 SF) | D: 0.47 AC. (±20,470 SF)<br>E: 0.26 AC. (±11,330 SF)<br>TOTAL BLOCK 2: 0.73 AC. (±31,800 SF) (45.6%) | D: LANDSCAPING<br>E: RESIDENTIAL PLAZA, LANDSCAPING |
| **BLOCK 3** | ±1.61 AC. | 10% - 0.16 AC. (±6,970 SF) | F: 0.43 AC. (±18,860 SF)<br>G: 0.07 AC. (±3,050 SF)<br>TOTAL BLOCK 3: 0.50 AC. (±21,910 SF) (28%) | F: LANDSCAPING<br>G: LANDSCAPING |
| **RETAIL** | ±19.24 AC. | 10% - 1.92 AC. (±83,640 SF) | H: 0.02 AC. (±870 SF)<br>I: 0.39 AC. (±16,990 SF)<br>J: 0.44 AC. (±19,170 SF)<br>K: 0.41 AC. (±17,860 SF)<br>L: 0.45 AC. (±19,600 SF)<br>M: 0.20 AC. (±8,710 SF)<br>LANDSCAPE ISLAND: 0.04 AC. (±1,750 SF)<br>TOTAL BLOCK RETAIL: 1.95 AC. (±84,950 SF) (10.1%) | H: LANDSCAPING<br>I: FENCED DOG PLAY AREA, PICNIC TABLES, BIKE RACK, LANDSCAPING<br>J: BIKE RACK, SPLASH-PAD, LAWN AREA, BENCH SEATING, LANDSCAPING, COMMERCIAL PAD<br>K, L, M: EXISTING CONDITIONS |
| **TOTAL** | **±29.05 AC.** | **10% - 2.90 AC. (±126,330 SF)** | **20.6% - 5.97 AC. (±260,050 SF)** | |

**LEGEND**

- OPEN SPACE
- COMMON OPEN SPACE/PARK
- BLOCK AREA FOR OPEN SPACE TABULATION

80 40 20 0 80
1"= 80'

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| **DRAWN BY:** | DSH |
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| **DATE:** | 7/8/2022 |
| **CAD I.D.:** | SUPP -2 |

PROJECT:

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FOR

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PROPOSED DEVELOPMENT

OAK SPRINGS DRIVE
CENTER DISTRICT
TOWN OF WARRENTON, VIRGINIA

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COMMONWEALTH OF VIRGINIA
JOHN C. WRIGHT
Lic. No. 046960
5/31/2024
PROFESSIONAL ENGINEER

SHEET TITLE:

**OPEN SPACE PLAN**

SHEET NUMBER:

6

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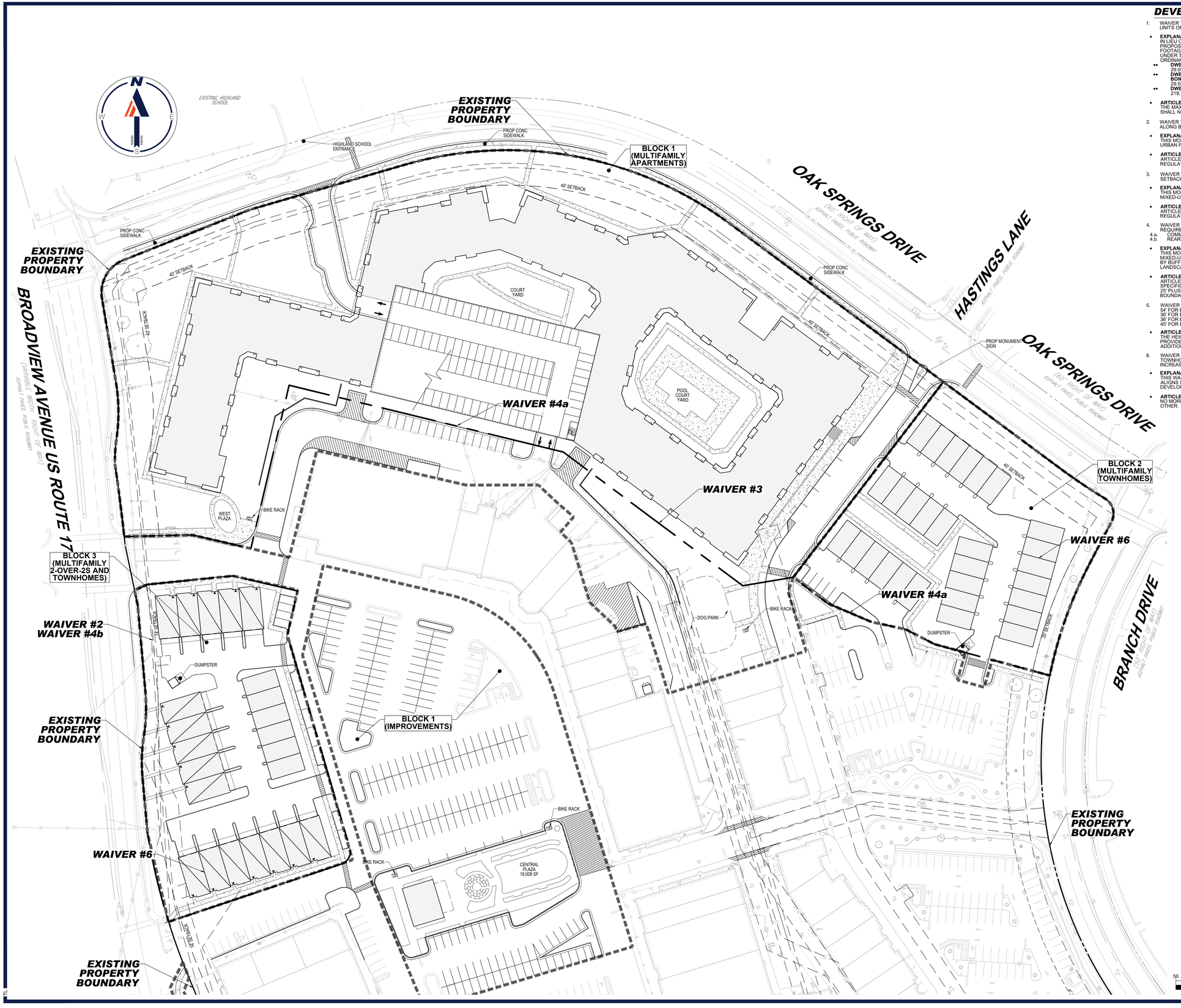


## DEVELOPMENT MODIFICATIONS/WAIVERS

1. WAIVER TO ARTICLES 2-6.1 OF THE TOWN ZONING ORDINANCE FOR DENSITY INCREASE OF 386 UNITS OR 13.28 UNITS/ACRE.

- **EXPLANATION:**
  IN LIEU OF CALCULATING DENSITY ON A DWELLING UNIT PER ACRE BASIS, APPLICANT PROPOSED TO CALCULATE RESIDENTIAL DENSITY BASED ON EXISTING COMMERCIAL SQUARE FOOTAGE (1 DWELLING PER 500 SQUARE FEET OF NON-RESIDENTIAL SPACE, AS ALLOWED UNDER THE MIXED-USE DEVELOPMENT OPTION OF THE COMMERCIAL DISTRICT ZONING ORDINANCE)
  - **DWELLING UNITS ALLOWED PER DU/A = 145 UNITS**
    29.05 ACRES X 5 DU/A = 145 UNITS
  - **DWELLING UNITS ALLOWED PER DU/A CALCULATION (ASSUMING AFFORDABLE HOUSING BONUS):**
    29.05 ACRES X 10 DU/A = 290 UNITS
  - **DWELLING UNITS ALLOWE PER DU/GSF CALCULATION:**
    219,792 GSF / 500 = 439 UNITS
- **ARTICLE 2-6.1:**
  THE MAXIMUM DENSITY SPECIFIED IN THE ZONING ORDINANCE FOR A GIVEN ZONING DISTRICT SHALL NOT BE EXCEEDED. THE REQUIRED MAXIMUM DENSITY IS 5 UNITS PER ACRE.

2. WAIVER TO ARTICLE 3-4.10.4 OF THE TOWN ZONING ORDINANCE FOR FRONT YARD SETBACK ALONG BROADVIEW AVENUE FOR TOWNHOME BLOCK TO BE 14' MIN.

- **EXPLANATION:**
  THIS MODIFICATION WILL ALLOW THE UNITS TO BE CLOSER TO STREET, CREATING A MORE URBAN FORM AND CHARACTER.
- **ARTICLE 3-4.10.4:**
  ARTICLE 3-4.10.4 OF THE ZONING ORDINANCE IS A TABLE STATING LOT AND YARD REGULATIONS PER USE. THE REQUIRED FRONT YARD SETBACK IS TO BE 40' MIN.

3. WAIVER TO ARTICLE 3-4.10.4 OF THE TOWN ZONING ORDINANCE FOR SIDE/REAR YARD SETBACKS ALONG INTERNAL PROPOSED/EXISTING PROPERTY LINES TO 0.

- **EXPLANATION:**
  THIS MODIFICATION WILL ALLOW THE OVERALL DEVELOPMENT TO FUNCTION AS A TRUE MIXED-USE DEVELOPMENT THAT WILL NOT BE SEGMENTED BY INTERNAL SEPARATIONS.
- **ARTICLE 3-4.10.4:**
  ARTICLE 3-4.10.4 OF THE ZONING ORDINANCE IS A TABLE STATING LOT AND YARD REGULATIONS PER USE. THE REQUIRED SIDE YARD SETBACK IS TO BE 5' MIN.

4. WAIVER TO ARTICLE 8-8.5 OF THE TOWN ZONING ORDINANCE FOR LANDSCAPE BUFFER REQUIREMENTS
   4.a. COMMERCIAL USES FROM RESIDENTIAL USES TO 0.
   4.b. REAR BOUNDARIES OF RESIDENTIAL USES FROM PUBLIC RIGHT-OF-WAYS TO 14'.

- **EXPLANATION:**
  THIS MODIFICATION WILL ALLOW THE OVERALL DEVELOPMENT TO FUNCTION AS A TRUE MIXED-USE DEVELOPMENT BY CREATING AN INTEGRATED PROJECT THAT IS NOT SEGMENTED BY BUFFER STRIPS ADJACENT TO RESIDENTIAL AND COMMERCIAL USES. THE SCHEMATIC LANDSCAPING PLAN HAS IDENTIFIED AREAS WHERE PLANTINGS ARE PROPOSED.
- **ARTICLE 8-8.5:**
  ARTICLE 8-8.5 OF THE TOWN ZONING ORDINANCE IS A TABLE STATING LOT AND BUFFER YARD SPECIFICATIONS. THE MINIMUM WIDTH FOR COMMERCIAL USES FROM RESIDENTIAL USES IS 25' PLUS 1' FOR EACH FOOT OF BUILDING HEIGHT OVER 35'. THE MINIMUM WIDTH FOR REAR BOUNDARIES OF RESIDENTIAL USES FROM PUBLIC RIGHT-OF-WAYS IS 25'.

5. WAIVER TO ARTICLE 2-20 OF THE TOWN ZONING ORDINANCE FOR BUILDING HEIGHT:
   54' FOR BLOCK 1 OAK SPRINGS DRIVE FRONTAGE
   36' FOR BLOCK 1 BROADVIEW DRIVE FRONTAGE
   36' FOR BLOCK 2
   45' FOR BLOCK 3
- **ARTICLE 2-20:**
  THE HEIGHT LIMIT FOR DWELLINGS MAY BE INCREASED UP TO 45' AND UP TO THREE STORIES PROVIDED THAT FRONT, SIDE, AND REAR YARD SETBACKS INCREASE 1' FOR EACH ADDITIONAL FOOT OF BUILDING HEIGHT OVER 35'.

6. WAIVER TO ARTICLE 3-4.4.5.3 OF THE TOWN ZONING ORDINANCE FOR MAXIMUM GROUPING OF TOWNHOUSES:
   INCREASE FROM 6 TO 7.

- **EXPLANATION:**
  THIS WAIVER IS NECESSARY FOR UNIT COUNTS TO ENSURE DEVELOPMENT FEASIBILITY AND ALIGNS SEVERAL OTHER GROUPINGS OF 7 TO 8 UNITS IN OTHER TOWNHOUSE DEVELOPMENTS THROUGHOUT THE TOWN OF WARRENTON.
- **ARTICLE 3-4.4.5.3:**
  NO MORE THAN SIX (6) TOWNHOUSE UNITIS SHALL BE GROUPED CONTIGUOUS TO EACH OTHER.

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PROJECT:

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FOR

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PROPOSED DEVELOPMENT

OAK SPRINGS DRIVE
CENTER DISTRICT
TOWN OF WARRENTON, VIRGINIA

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VA@BohlerEng.com

COMMONWEALTH OF VIRGINIA
JOHN C. WRIGHT
Lic. No. 046960
5/31/2024
PROFESSIONAL ENGINEER

SHEET TITLE:

**WAIVER INFORMATION**

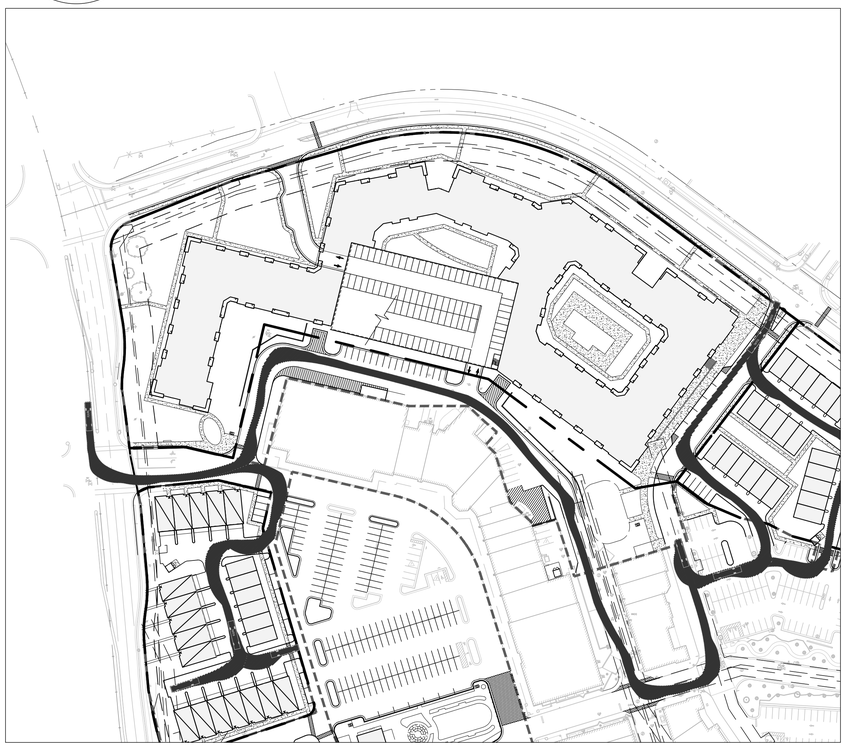
SHEET NUMBER:

7

REVISION 3 - 5/31/2024

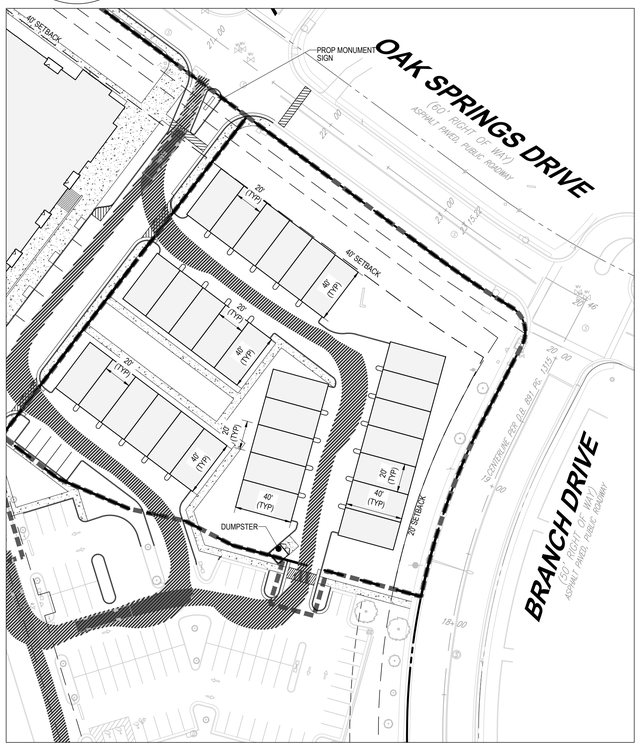


May 30, 2024
I:\V212141\CAD\DRAWINGS\PLAN SETS\SUPP\V212141 - SUPP - 1----LAYOUT 7 - WAIVER INFORMATION



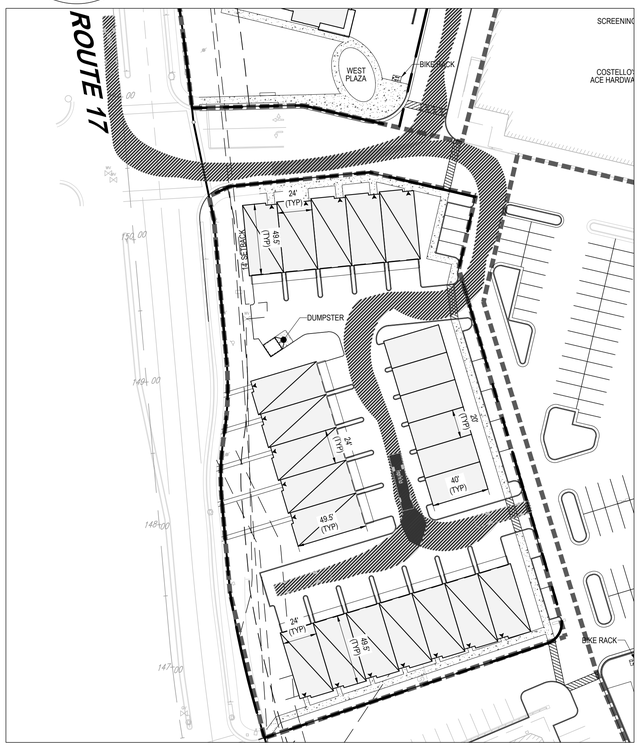
**BLOCK 1**

100 50 25 0 100
1"= 100'



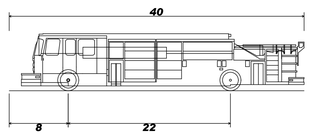

**BLOCK 2 (2 OVER 2 BLOCK)**

50 25 12.5 0 50
1"= 50'




**BLOCK 3 (TOWNHOME BLOCK)**

50 25 12.5 0 50
1"= 50'




| | |
|---|---|
| ***Pumper Fire Truck*** | |
| ***Overall Length*** | ***40.000ft*** |
| ***Overall Width*** | ***8.167ft*** |
| ***Overall Body Height*** | ***7.745ft*** |
| ***Min Body Ground Clearance*** | ***0.656ft*** |
| ***Track Width*** | ***8.167ft*** |
| ***Lock-to-lock time*** | ***5.00s*** |
| ***Max Wheel Angle*** | ***45.00°*** |

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COMMONWEALTH OF VIRGINIA
JOHN C. WRIGHT
Lic. No. 046960
5/31/2024
PROFESSIONAL ENGINEER

SHEET TITLE:

***FIRE TRUCK MOVEMENT***

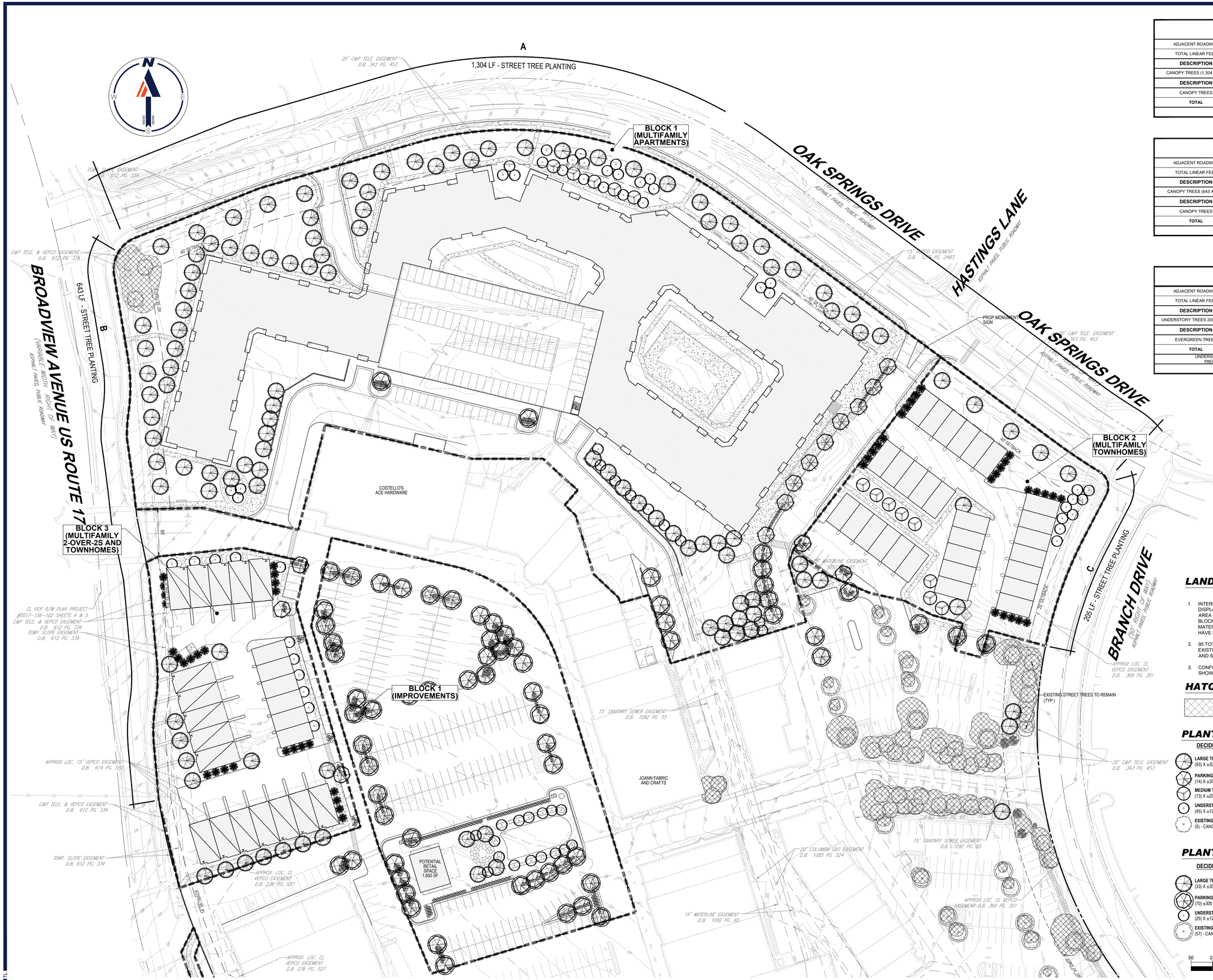
SHEET NUMBER:

8

REVISION 3 - 5/31/2024



May 30, 2024
11:21\V212141\CAD\DRAWINGS\PLAN SETS\SUPP\V212141 - SUPP -1----LAYOUT: 8 - FIRE TRUCK MOVEMENT




A

| STREET TREE PLANTING SECTION 8-5.5 | | | | |
|---|---|---|---|---|
| ADJACENT ROADWAY | OAK SPRINGS DRIVE | | | |
| TOTAL LINEAR FEET | 1,304 LF | | | |
| **DESCRIPTION** | **REQUIRED** | | **PROVIDED** | |
| CANOPY TREES (1,304 X 1/50) | 27 | | 27 | |
| **DESCRIPTION** | **EXISTING** | **PROPOSED** | **TOTAL QTY** | **PERCENT** |
| CANOPY TREES | 0 | 27 | 27 | 100% |
| **TOTAL** | 0 | 27 | 27 | 100% |

B

| STREET TREE PLANTING SECTION 8-5.5 | | | | |
|---|---|---|---|---|
| ADJACENT ROADWAY | BROADVIEW AVE - VA ROUTE 17 | | | |
| TOTAL LINEAR FEET | 643 LF | | | |
| **DESCRIPTION** | **REQUIRED** | | **PROVIDED** | |
| CANOPY TREES (643 X 1/50) | 13 | | 14 | |
| **DESCRIPTION** | **EXISTING** | **PROPOSED** | **TOTAL QTY** | **PERCENT** |
| CANOPY TREES | 0 | 14 | 14 | 100% |
| **TOTAL** | 0 | 14 | 14 | 100% |

C

| STREET TREE PLANTING SECTION 8-5.5 | | | | |
|---|---|---|---|---|
| ADJACENT ROADWAY | BRANCH DR | | | |
| TOTAL LINEAR FEET | 205 LF | | | |
| **DESCRIPTION** | **REQUIRED** | | **PROVIDED** | |
| UNDERSTORY TREES 205 X (2/50) | 9 | | 9 | |
| **DESCRIPTION** | **EXISTING** | **PROPOSED** | **TOTAL QTY** | **PERCENT** |
| EVERGREEN TREES | 0 | 9 | 9 | 100% |
| **TOTAL** | 0 | 9 | 9 | 100% |
| UNDERSTORY TREES ARE PROPOSED IN PLACE OF CANOPY TREES DUE TO OVERHEAD LINES AT RATE OF 2 TO 1 | | | | |

## LANDSCAPE NOTES

1. INTERIOR PARKING LOT AND 20-YEAR TREE CANOPY ANALYSIS IS DISPLAYED FOR RESIDENTIAL BLOCK AREA. RESIDENTIAL BLOCK AREA ENCOMPASSES THE TOTAL AREA OF THE MULTIFAMILY BLOCK, 2 OVER 2 BLOCK, AND TOWNHOME BLOCK. ONLY THE MATERIAL COUNTED TOWARD THE RESIDENTIAL LANDSCAPING HAVE BEEN COUNTED FOR THE 20-YEAR TREE CANOPY.
2. 95 TOTAL TREES PROPOSED IN EXISTING PARKING LOT TO REPLACE EXISTING TREES THAT ARE TO BE REMOVED DUE TO PARKING LOT AND SITE IMPROVEMENTS.
3. CONFORMANCE WITH LANDSCAPING REQUIREMENTS WILL BE SHOWN WITH THE SITE DEVELOPMENT PLAN.

## HATCH LEGEND

EXISTING TREE CANOPY TO REMAIN

## PLANT LEGEND - RESIDENTIAL

**DECIDUOUS**

- **LARGE TREE (MIN. 15 FEET)** (93) X ±300 SF EA = 27,900 SF
- **PARKING LOT TREE (MIN. 15 FEET)** (14) X ±300 SF EA = 4,200 SF
- **MEDIUM TREE (MIN. 12 FEET)** (13) X ±200 SF EA = 2,600 SF
- **UNDERSTORY TREE (MIN. 6 FEET)** (45) X ±125 SF EA = 5,625 SF
- **EXISTING LARGE TREE** (5) - CANOPY BASED ON AERIAL IMAGERY

**EVERGREEN**

- **EVERGEEN TREE (MIN. 8 FEET)** (52) X ±150 SF EA = 7,800 SF
- **PARKING LOT SHRUBS** (42)

## PLANT LEGEND - COMMERCIAL

**DECIDUOUS**

- **LARGE TREE (MIN. 15 FEET)** (33) X ±300 SF EA = 9,900 SF
- **PARKING LOT TREE (MIN. 15 FEET)** (70) ±300 SF EA = 21,000 SF
- **UNDERSTORY TREE (MIN. 6 FEET)** (25) X ±125 SF EA = 3,125 SF
- **EXISTING PARKING LOT TREE** (57) - CANOPY BASED ON AERIAL IMAGERY

**EVERGREEN**

- **PARKING LOT SHRUBS** (345)

50 25 12.5 0 50
1"= 50'

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**PROJECT No.:** V212141
**DRAWN BY:** DSH
**CHECKED BY:** JCW
**DATE:** 7/8/2022
**CAD I.D.:** LSCP -2

PROJECT:

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FOR

WARRENTON VILLAGE CENTER

PROPOSED DEVELOPMENT

OAK SPRINGS DRIVE
CENTER DISTRICT
TOWN OF WARRENTON, VIRGINIA

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Phone: (540) 349-4500
Fax: (540) 349-0321
VA@BohlerEng.com

COMMONWEALTH OF VIRGINIA
JOHN C. WRIGHT
Lic. No. 046960
5/31/2024
PROFESSIONAL ENGINEER

SHEET TITLE:

**LANDSCAPE PLAN**

SHEET NUMBER:

9

REVISION 3 - 5/31/2024



May 30, 2024
H:\2012\212141\CAD\DRAWINGS\PLAN SETS\SUP\V212141 - LSCP - 1---LAYOUT 9 - LANDSCAPE PLAN



## LANDSCAPE NOTES

1. INTERIOR PARKING LOT AND 20-YEAR TREE CANOPY ANALYSIS IS DISPLAYED FOR RESIDENTIAL BLOCK AREA. RESIDENTIAL BLOCK AREA ENCOMPASSES THE TOTAL AREA OF THE MULTIFAMILY BLOCK, 2 OVER 2 BLOCK, AND TOWNHOME BLOCK. ONLY THE MATERIAL COUNTED TOWARD THE RESIDENTIAL LANDSCAPING HAVE BEEN COUNTED FOR THE 20-YEAR TREE CANOPY.
2. 95 TOTAL TREES PROPOSED IN EXISTING PARKING LOT TO REPLACE EXISTING TREES THAT ARE TO BE REMOVED DUE TO PARKING LOT AND SITE IMPROVEMENTS.
3. CONFORMANCE WITH LANDSCAPING REQUIREMENTS WILL BE SHOWN WITH THE SITE DEVELOPMENT PLAN.

## PLANT LEGEND - RESIDENTIAL

**DECIDUOUS**

- **LARGE TREE (MIN. 15 FEET)** (93) X ±300 SF EA = 27,900 SF
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- **UNDERSTORY TREE (MIN. 6 FEET)** (45) X ±125 SF EA = 5,625 SF
- **EXISTING LARGE TREE** (5) - CANOPY BASED ON AERIAL IMAGERY

**EVERGREEN**

- **EVERGEEN TREE (MIN. 8 FEET)** (52) X ±150 SF EA = 7,800 SF
- **PARKING LOT SHRUBS** (42)

## HATCH LEGEND

- EXISTING TREE CANOPY TO REMAIN
- INTERIOR PARKING LOT AREA
- INTERIOR PARKING LOT LANDSCAPE AREA

100 50 25 0 100

1"= 100'

## PLANT LEGEND - COMMERCIAL

**DECIDUOUS**

- **LARGE TREE (MIN. 15 FEET)** (33) X ±300 SF EA = 9,900 SF
- **PARKING LOT TREE (MIN. 15 FEET)** (70) ±300 SF EA = 21,000 SF
- **UNDERSTORY TREE (MIN. 6 FEET)** (25) X ±125 SF EA = 3,125 SF
- **EXISTING PARKING LOT TREE** (57) - CANOPY BASED ON AERIAL IMAGERY

**EVERGREEN**

- **PARKING LOT SHRUBS** (345)

### INTERIOR PARKING LOT LANDSCAPING - COMMERCIAL

SECTION 8-6.2

| | | | | |
|---|---|---|---|---|
| PARKING LOT AREA | 457,772 SF | | | |
| PARKING SPACES | 847 | | | |
| **DESCRIPTION** | **REQUIRED** | | **PROVIDED** | |
| LANDSCAPE AREA 457,772 X 10% | 45,777 SF | | 48,163 SF (10.52%) | |
| SHADE TREES 847 X (1/8) | 106 | | 132 | |
| SHRUBS 847 X (3/8) | 317 | | 348 | |
| **DESCRIPTION** | **EXISTING** | **PROPOSED** | **TOTAL QTY** | **PERCENT** |
| CANOPY TREES | 57 | 70 | 127 | 100% |
| SHRUBS | 0 | 345 | 345 | 100% |
| **TOTAL** | 57 | 415 | 472 | 100% |

### INTERIOR PARKING LOT LANDSCAPING - MULTIFAMILY BLOCK 1

SECTION 8-6.2

| | | | | |
|---|---|---|---|---|
| PARKING LOT AREA | 8,376 SF | | | |
| PARKING SPACES | 30 | | | |
| **DESCRIPTION** | **REQUIRED** | | **PROVIDED** | |
| LANDSCAPE AREA 8,376 X 10% | 838 SF | | 1,127 SF (14.49%) | |
| SHADE TREES 30 X (1/8) | 4 | | 9 | |
| SHRUBS 30 X (3/8) | 12 | | 14 | |
| **DESCRIPTION** | **EXISTING** | **PROPOSED** | **TOTAL QTY** | **PERCENT** |
| CANOPY TREES | 0 | 9 | 9 | 100% |
| SHRUBS | 0 | 14 | 14 | 100% |
| **TOTAL** | 0 | 23 | 23 | 100% |

### INTERIOR PARKING LOT LANDSCAPING - MULTIFAMILY BLOCK 2

SECTION 8-6.2

| | | | | |
|---|---|---|---|---|
| PARKING LOT AREA | 4,308 SF | | | |
| PARKING SPACES | 5 | | | |
| **DESCRIPTION** | **REQUIRED** | | **PROVIDED** | |
| LANDSCAPE AREA 4,308 X 10% | 431 SF | | 672 SF (15.6%) | |
| SHADE TREES 5 X (1/8) | 1 | | 2 | |
| SHRUBS 5 X (3/8) | 3 | | 9 | |
| **DESCRIPTION** | **EXISTING** | **PROPOSED** | **TOTAL QTY** | **PERCENT** |
| CANOPY TREES | 0 | 2 | 2 | 100% |
| SHRUBS | 0 | 9 | 9 | 100% |
| **TOTAL** | 0 | 11 | 11 | 100% |

### INTERIOR PARKING LOT LANDSCAPING - MULTIFAMILY BLOCK 3

SECTION 8-6.2

| | | | | |
|---|---|---|---|---|
| PARKING LOT AREA | 2,173 SF | | | |
| PARKING SPACES | 11 | | | |
| **DESCRIPTION** | **REQUIRED** | | **PROVIDED** | |
| LANDSCAPE AREA 2,173 X 10% | 217 SF | | 920 SF (42.34%) | |
| SHADE TREES 11 X (1/8) | 2 | | 3 | |
| SHRUBS 11 X (3/8) | 5 | | 18 | |
| **DESCRIPTION** | **EXISTING** | **PROPOSED** | **TOTAL QTY** | **PERCENT** |
| CANOPY TREES | 0 | 3 | 3 | 100% |
| SHRUBS | 0 | 18 | 18 | 100% |
| **TOTAL** | 0 | 21 | 21 | 100% |

### TREE CANOPY TABLE - COMMERCIAL

SECTION 8-10.3.2

| | |
|---|---|
| SITE AREA | 838,094 SF OR 19.24 AC |
| PROPOSED ZONE | COMMERCIAL |
| 20 YEAR CANOPY REQUIREMENT | 10% |
| 20 YEAR CANOPY REQUIRED | 83,809 SF |
| PROPOSED CANOPY | 34,025 SF (4.06%) |
| EXISTING CANOPY CONSERVATION | 51,087 SF (6.10%) |
| TOTAL 20 YEAR CANOPY PROVIDED | 85,112 SF (10.16%) |

### TREE CANOPY TABLE - MULTIFAMILY BLOCK 1

SECTION 8-10.3.2

| | |
|---|---|
| SITE AREA | 287,496 SF OR 6.60 AC |
| PROPOSED ZONE | RESIDENTIAL |
| 20 YEAR CANOPY REQUIREMENT | 10% (49 UNITS PER ACRE) |
| 20 YEAR CANOPY REQUIRED | 28,750 SF |
| PROPOSED CANOPY | 27,825 SF (9.67%) |
| EXISTING CANOPY CONSERVATION | 3,031 SF (1.05%) |
| TOTAL 20 YEAR CANOPY PROVIDED | 30,856 SF (10.72%) |

### TREE CANOPY TABLE - MULTIFAMILY BLOCK 2

SECTION 8-10.3.2

| | |
|---|---|
| SITE AREA | 69,696 SF OR 1.6 AC |
| PROPOSED ZONE | RESIDENTIAL |
| 20 YEAR CANOPY REQUIREMENT | 10% (25 UNITS PER ACRE) |
| 20 YEAR CANOPY REQUIRED | 6,970 SF |
| PROPOSED CANOPY | 8,575 SF (12.3%) |
| EXISTING CANOPY CONSERVATION | 0 SF (0.00%) |
| TOTAL 20 YEAR CANOPY PROVIDED | 8,575 SF (12.3%) |

### TREE CANOPY TABLE - MULTIFAMILY BLOCK 3

SECTION 8-10.3.2

| | |
|---|---|
| SITE AREA | 70,131 SF OR 1.61 AC |
| PROPOSED ZONE | RESIDENTIAL |
| 20 YEAR CANOPY REQUIREMENT | 15% (19 UNITS PER ACRE) |
| 20 YEAR CANOPY REQUIRED | 10,515 SF |
| PROPOSED CANOPY | 10,800 SF (15.40%) |
| EXISTING CANOPY CONSERVATION | 0 SF (0.00%) |
| TOTAL 20 YEAR CANOPY PROVIDED | 10,800 SF (15.40%) |

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| **CHECKED BY:** | JCW |
| **DATE:** | 7/8/2022 |
| **CAD I.D.:** | LSCP -2 |

PROJECT:

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FOR

WARRENTON VILLAGE CENTER

PROPOSED DEVELOPMENT

OAK SPRINGS DRIVE
CENTER DISTRICT
TOWN OF WARRENTON, VIRGINIA

BOHLER
28 BLACKWELL PARK LANE, SUITE 201
WARRENTON, VIRGINIA 20186
Phone: (540) 349-4500
Fax: (540) 349-0321
VA@BohlerEng.com

COMMONWEALTH OF VIRGINIA
JOHN C. WRIGHT
Lic. No. 046960
5/31/2024
PROFESSIONAL ENGINEER

SHEET TITLE:

**LANDSCAPE PLAN**

SHEET NUMBER:

10

REVISION 3 - 5/31/2024



May 30, 2024
H:\212\212141\CAD\DRAWINGS\PLAN SETS\SUP\PV212141 LSCP- 1 ---LAYOUT 10 - LANDSCAPE PLAN
TL




CASTLE
DEVELOPMENT PARTNERS

# WARRENTON VILLAGE MIXED-USE CENTER

WARRENTON, VA

RENDERING • 05-30-2024

CST2021-03

DYNAMIK
DESIGN

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WARRENTON, VIRGINIA 20186
Phone: (540) 349-4500
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*VA@BohlerEng.com*

COMMONWEALTH OF VIRGINIA
JOHN C. WRIGHT
Lic. No. 046960
5/31/2024
PROFESSIONAL ENGINEER

SHEET TITLE:

***BUILDING ELEVATIONS***

SHEET NUMBER:

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May 30, 2024
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MULTIFAMILY FRONT ELEVATION

CASTLE DEVELOPMENT PARTNERS

# WARRENTON VILLAGE CENTER

WARRENTON, VA

ELEVATION • 05-30-2024

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WARRENTON, VIRGINIA 20186
Phone: (540) 349-4500
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COMMONWEALTH OF VIRGINIA
JOHN C. WRIGHT
Lic. No. 046960
5/31/2024
PROFESSIONAL ENGINEER

SHEET TITLE:

**BUILDING ELEVATIONS**

SHEET NUMBER:

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REVISION 3 - 5/31/2024

May 30, 2024
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**MULTIFAMILY ELEVATION- 3 STORY**

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# WARRENTON VILLAGE CENTER

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PROFESSIONAL ENGINEER

SHEET TITLE:

***BUILDING ELEVATIONS***

SHEET NUMBER:

12B

REVISION 3 - 5/31/2024

May 30, 2024
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MULTIFAMILY SIDE ELEVATION

CASTLE DEVELOPMENT PARTNERS

# WARRENTON VILLAGE MIXED-USE CENTER

WARRENTON, VA

ELEVATION • 05-30-2024

CST2021-03

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JOHN C. WRIGHT
Lic. No. 046960
5/31/2024
PROFESSIONAL ENGINEER

SHEET TITLE:

**BUILDING ELEVATIONS**

SHEET NUMBER:

12C

REVISION 3 - 5/31/2024

May 30, 2024
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TL




## TOWNHOME - 3 STORY FRONT ELEVATION

CASTLE DEVELOPMENT PARTNERS

# WARRENTON VILLAGE CENTER

WARRENTON, VA

ELEVATION • 05-30-2024

CST2021-03

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**PROJECT No.:** V212141
**DRAWN BY:** DSH
**CHECKED BY:** JCW
**DATE:** 7/8/2022
**CAD I.D.:** SUPP -2

PROJECT:

**SPECIAL USE PERMIT**

FOR

WARRENTON VILLAGE CENTER

PROPOSED DEVELOPMENT

OAK SPRINGS DRIVE
CENTER DISTRICT
TOWN OF WARRENTON, VIRGINIA

BOHLER

28 BLACKWELL PARK LANE, SUITE 201
WARRENTON, VIRGINIA 20186
Phone: (540) 349-4500
Fax: (540) 349-0321
VA@BohlerEng.com

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JOHN C. WRIGHT
Lic. No. 046960
5/31/2024
PROFESSIONAL ENGINEER

SHEET TITLE:

**BUILDING ELEVATIONS**

SHEET NUMBER:

13

REVISION 3 - 5/31/2024

May 30, 2024
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## TOWNHOME - 3 STORY REAR ELEVATION

CASTLE DEVELOPMENT PARTNERS

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WARRENTON, VA

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| **DRAWN BY:** | DSH |
| **CHECKED BY:** | JCW |
| **DATE:** | 7/8/2022 |
| **CAD I.D.:** | SUPP.-2 |

PROJECT:

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PROPOSED DEVELOPMENT

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Lic. No. 046960
5/31/2024
PROFESSIONAL ENGINEER

SHEET TITLE:

**BUILDING ELEVATIONS**

SHEET NUMBER:

13B

REVISION 3 - 5/31/2024

May 30, 2024
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TOWNHOME - 4 STORY ELEVATION

CASTLE DEVELOPMENT PARTNERS

# WARRENTON VILLAGE CENTER

WARRENTON, VA

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| CHECKED BY: | JCW |
| DATE: | 7/8/2022 |
| CAD I.D.: | SUPP -2 |

PROJECT:

**SPECIAL USE PERMIT**

FOR

WARRENTON VILLAGE CENTER

PROPOSED DEVELOPMENT

OAK SPRINGS DRIVE
CENTER DISTRICT
TOWN OF WARRENTON, VIRGINIA

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Fax: (540) 349-0321
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COMMONWEALTH OF VIRGINIA
JOHN C. WRIGHT
Lic. No. 046960
5/31/2024
PROFESSIONAL ENGINEER

SHEET TITLE:

**BUILDING ELEVATIONS**

SHEET NUMBER:

13C

REVISION 3 - 5/31/2024

May 30, 2024
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TL




TOWNHOME - 4 STORY REAR ELEVATION

CASTLE DEVELOPMENT PARTNERS

# WARRENTON VILLAGE CENTER

WARRENTON, VA

ELEVATION • 05-30-2024

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Item B.

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PROJECT:

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JOHN C. WRIGHT
Lic. No. 046960
5/31/2024
PROFESSIONAL ENGINEER

SHEET TITLE:

**BUILDING ELEVATIONS**

SHEET NUMBER:

13D

REVISION 3 - 5/31/2024

May 30, 2024
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TL




MULTIFAMILY FRONT ELEVATION

CASTLE DEVELOPMENT PARTNERS

# WARRENTON VILLAGE CENTER

WARRENTON, VA

ELEVATION • 02-13-2024

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| **DATE:** | 7/8/2022 |
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PROJECT:

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FOR

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PROPOSED DEVELOPMENT

OAK SPRINGS DRIVE
CENTER DISTRICT
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Lic. No. 046960
5/31/2024
PROFESSIONAL ENGINEER

SHEET TITLE:

***BUILDING ELEVATIONS***

SHEET NUMBER:

14

REVISION 3 - 5/31/2024



May 30, 2024
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TL






**MULTIFAMILY ELEVATION- 3 STORY**

CASTLE DEVELOPMENT PARTNERS

# WARRENTON VILLAGE CENTER

WARRENTON, VA

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JOHN C. WRIGHT
Lic. No. 046960
5/31/2024
PROFESSIONAL ENGINEER

SHEET TITLE:

***BUILDING ELEVATIONS***

SHEET NUMBER:

14B

REVISION 3 - 5/31/2024

May 30, 2024
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**MULTIFAMILY SIDE ELEVATION**

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# WARRENTON VILLAGE CENTER

WARRENTON, VA

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| **DRAWN BY:** | DSH |
| **CHECKED BY:** | JCW |
| **DATE:** | 7/8/2022 |
| **CAD I.D.:** | SUPP-2 |

PROJECT:

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PROPOSED DEVELOPMENT

OAK SPRINGS DRIVE
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5/31/2024
PROFESSIONAL ENGINEER

SHEET TITLE:

***BUILDING ELEVATIONS***

SHEET NUMBER:

14C

REVISION 3 - 5/31/2024

May 30, 2024
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**TOWNHOME - 3 STORY ELEVATION**

CASTLE DEVELOPMENT PARTNERS

# WARRENTON VILLAGE CENTER

WARRENTON, VA

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| **CHECKED BY:** | JCW |
| **DATE:** | 7/8/2022 |
| **CAD I.D.:** | SUPP -2 |

PROJECT:

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5/31/2024
PROFESSIONAL ENGINEER

SHEET TITLE:

***BUILDING ELEVATIONS***

SHEET NUMBER:

15

REVISION 3 - 5/31/2024

May 30, 2024
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TOWNHOME - 4 STORY ELEVATION

CASTLE DEVELOPMENT PARTNERS

# WARRENTON VILLAGE CENTER

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| DRAWN BY: | DSH |
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| DATE: | 7/8/2022 |
| CAD I.D.: | SUPP -2 |

PROJECT:

**SPECIAL USE PERMIT**

FOR

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PROPOSED DEVELOPMENT

OAK SPRINGS DRIVE
CENTER DISTRICT
TOWN OF WARRENTON, VIRGINIA

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COMMONWEALTH OF VIRGINIA
JOHN C. WRIGHT
Lic. No. 046960
5/31/2024
PROFESSIONAL ENGINEER

SHEET TITLE:

**BUILDING ELEVATIONS**

SHEET NUMBER:

15B

REVISION 3 - 5/31/2024

May 30, 2024
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TL




# RENDERING - WARRENTON VILLAGE CENTER

SCALE 1"=80'-0"

mv+a MAY 30, 2024

Item B.

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PROJECT:

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FOR

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SHEET TITLE:

**CONCEPTUAL PLAN RENDERING**

SHEET NUMBER:

16

REVISION 3 - 5/31/2024

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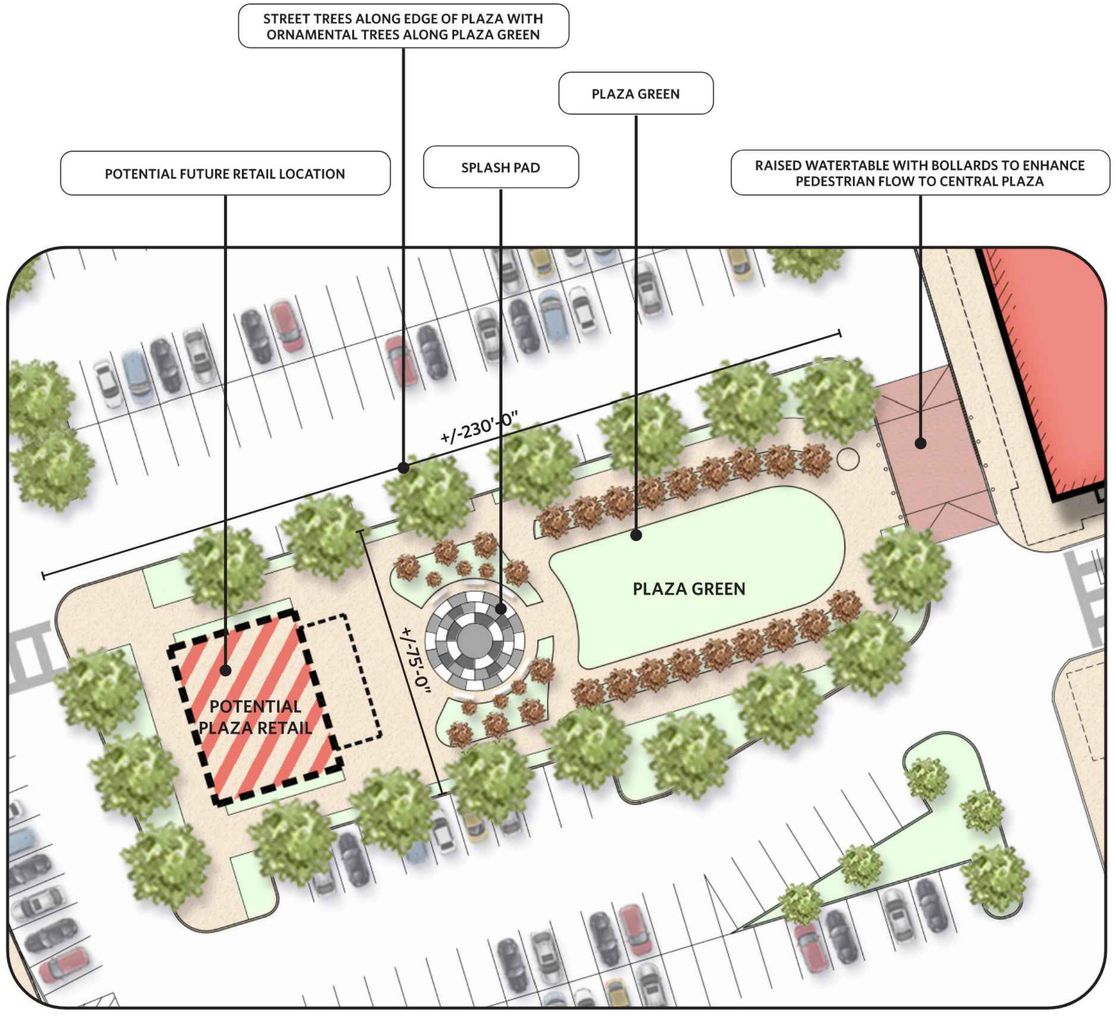
TL




## ENLARGED CONCEPTUAL CENTRAL PLAZA PLAN

SCALE 1"=20'-0"



## AERIAL VIEW OF CENTRAL PLAZA

NTS



## EYE LEVEL VIEW OF CENTRAL PLAZA

NTS

mv+a MAY 30, 2024

NOTE: Retail building shown in Central Plaza is for conceptual future development purposes only. No retail building is proposed as part of this SUP.

Item B.

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| PROJECT No.: | V212141 |
| DRAWN BY: | DSH |
| CHECKED BY: | JCW |
| DATE: | 7/8/2022 |
| CAD I.D.: | SUPP -2 |

PROJECT:

**SPECIAL USE PERMIT**

FOR

WARRENTON VILLAGE CENTER

PROPOSED DEVELOPMENT

OAK SPRINGS DRIVE
CENTER DISTRICT
TOWN OF WARRENTON, VIRGINIA

BOHLER
28 BLACKWELL PARK LANE, SUITE 201
WARRENTON, VIRGINIA 20186
Phone: (540) 349-4500
Fax: (540) 349-0321
VA@BohlerEng.com

COMMONWEALTH OF VIRGINIA
JOHN C. WRIGHT
Lic. No. 046960
5/31/2024
PROFESSIONAL ENGINEER

SHEET TITLE:

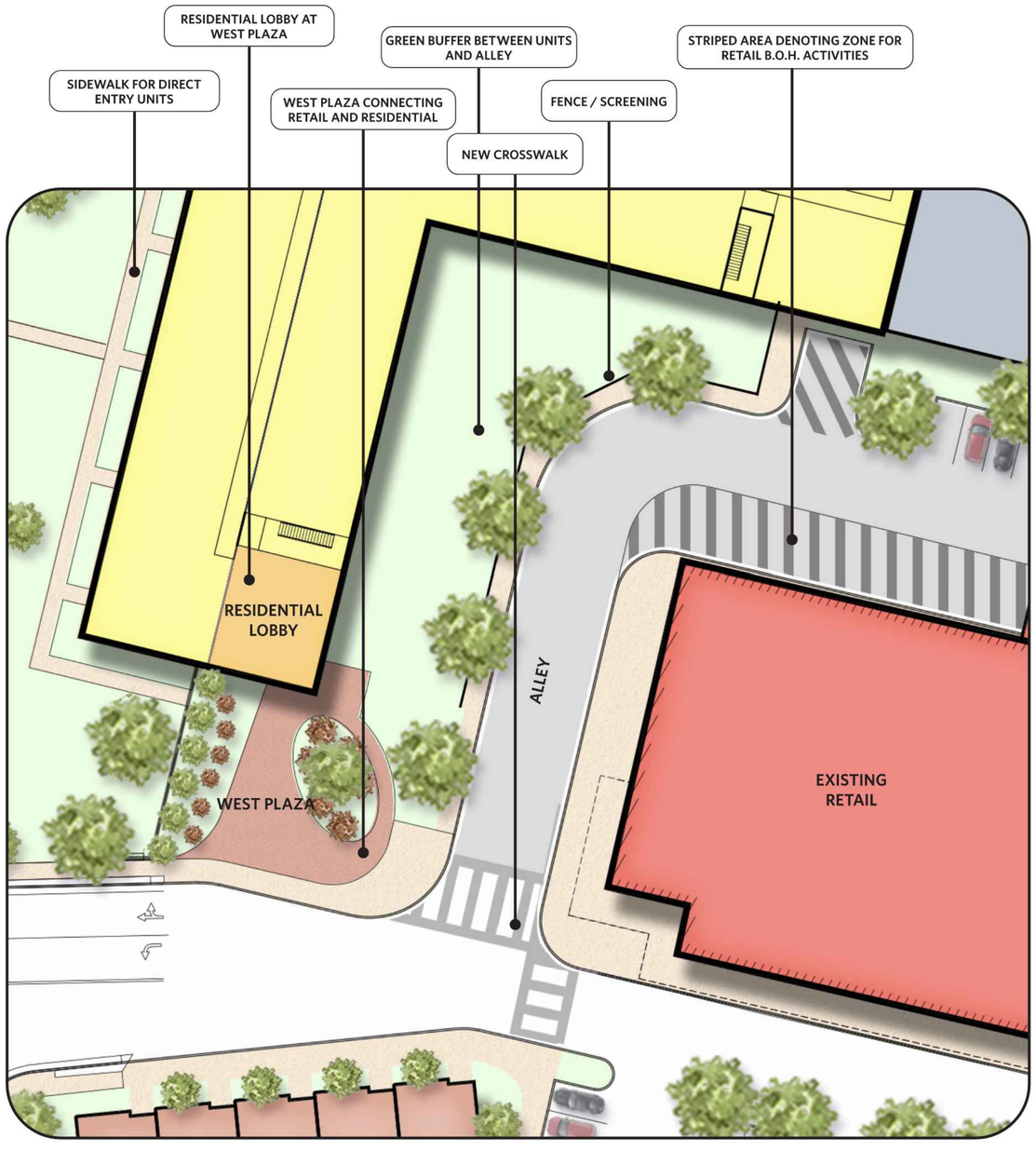
**DETAIL - CENTRAL PLAZA**

SHEET NUMBER:

17

REVISION 3 - 5/31/2024

May 30, 2024
H:\21\V212141\CAD\DRAWINGS\PLAN SETS\SUPP\V212141 - SUPP - 1----->LAYOUT: 17 - DETAIL - CENTRAL PLAZA
TL




## ENLARGED CONCEPTUAL WEST PLAZA PLAN

SCALE 1"=20'-0"




## TYPICAL SECTION THROUGH ALLEY

SCALE 1/8"=1'-0"




## VIEW OF WEST PLAZA AND EXISTING RETAIL BEYOND

NTS

mv+a MAY 30, 2024

Item B.

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PROJECT:

**SPECIAL USE PERMIT**

FOR

WARRENTON VILLAGE CENTER

PROPOSED DEVELOPMENT

OAK SPRINGS DRIVE
CENTER DISTRICT
TOWN OF WARRENTON, VIRGINIA

BOHLER
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WARRENTON, VIRGINIA 20186
Phone: (540) 349-4500
Fax: (540) 349-0321
VA@BohlerEng.com

COMMONWEALTH OF VIRGINIA
JOHN C. WRIGHT
Lic. No. 046960
5/31/2024
PROFESSIONAL ENGINEER

SHEET TITLE:

**DETAIL - WEST PLAZA**

SHEET NUMBER:

18

REVISION 3 - 5/31/2024

May 30, 2024
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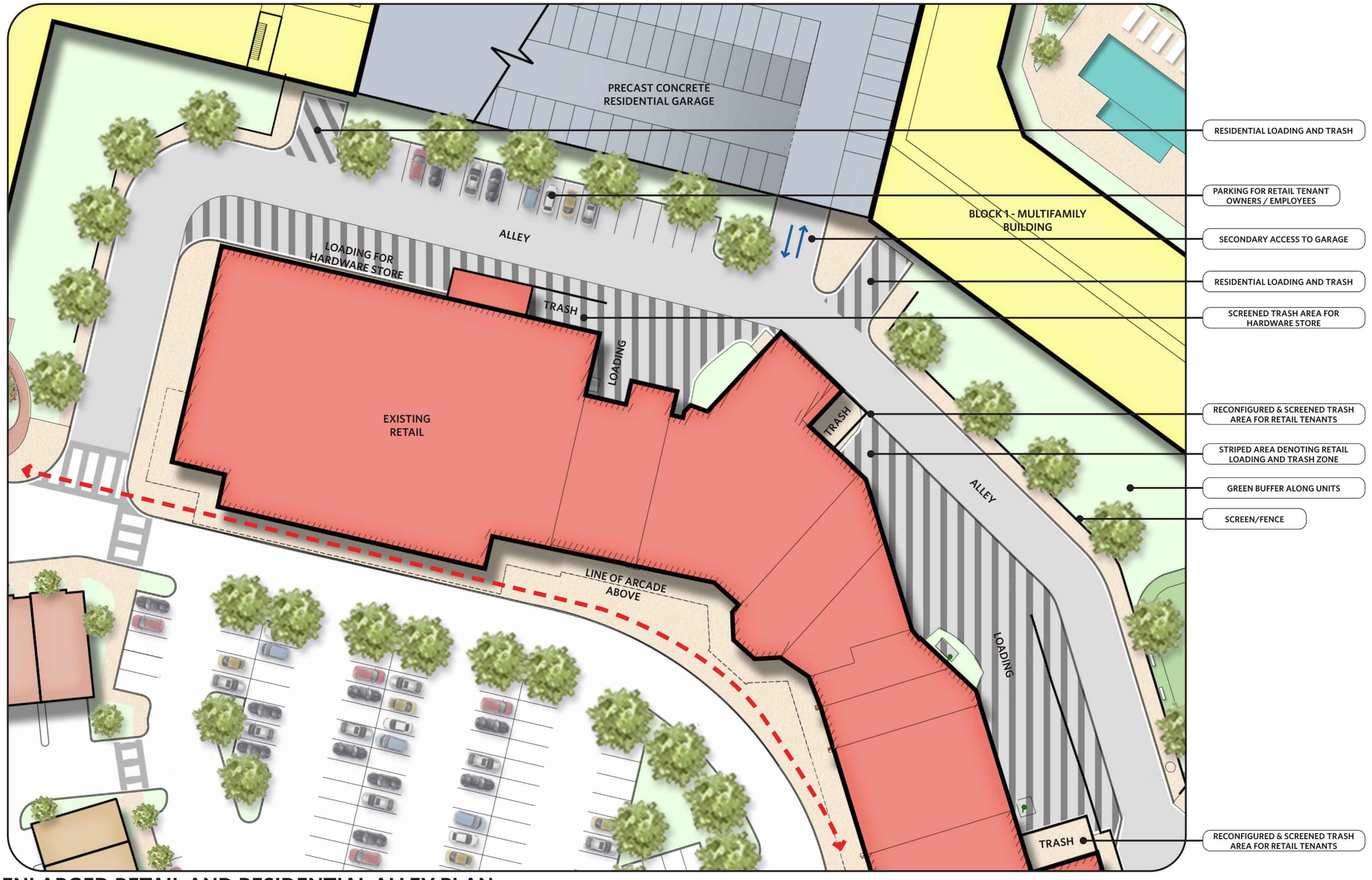
TL




# ENLARGED RETAIL AND RESIDENTIAL ALLEY PLAN

SCALE 1"=20'-0"

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SHEET TITLE:

***DETAIL - ALLEY***

SHEET NUMBER:

19

REVISION 3 - 5/31/2024



May 30, 2024
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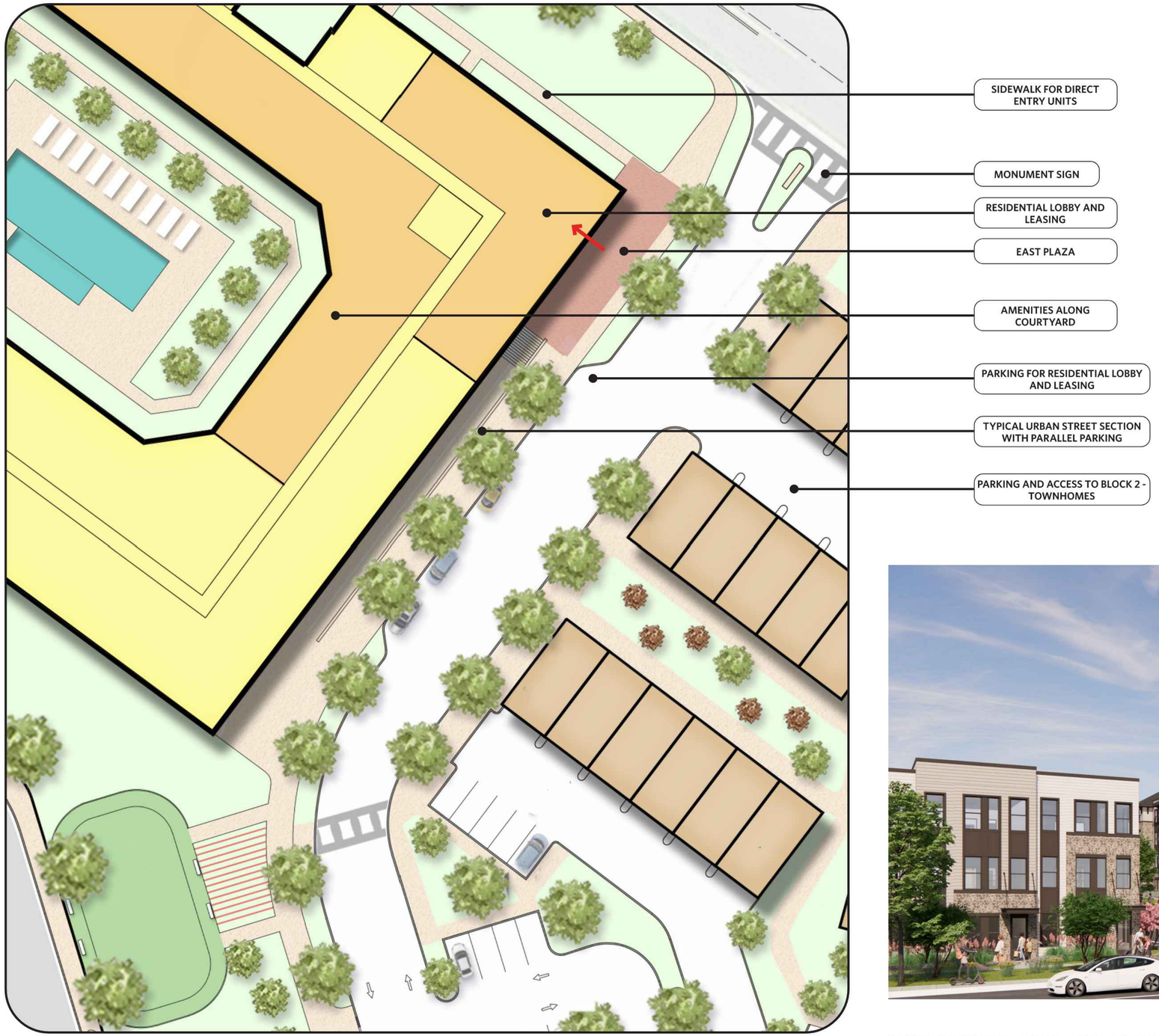


## ENLARGED PLAN OF NEW ENTRANCE DRIVEWAY

SCALE 1"=20'-0"




## VIEW OF NEW ENTRANCE STREET

NTS

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SHEET TITLE:

**DETAIL - EAST PLAZA**

SHEET NUMBER:

20

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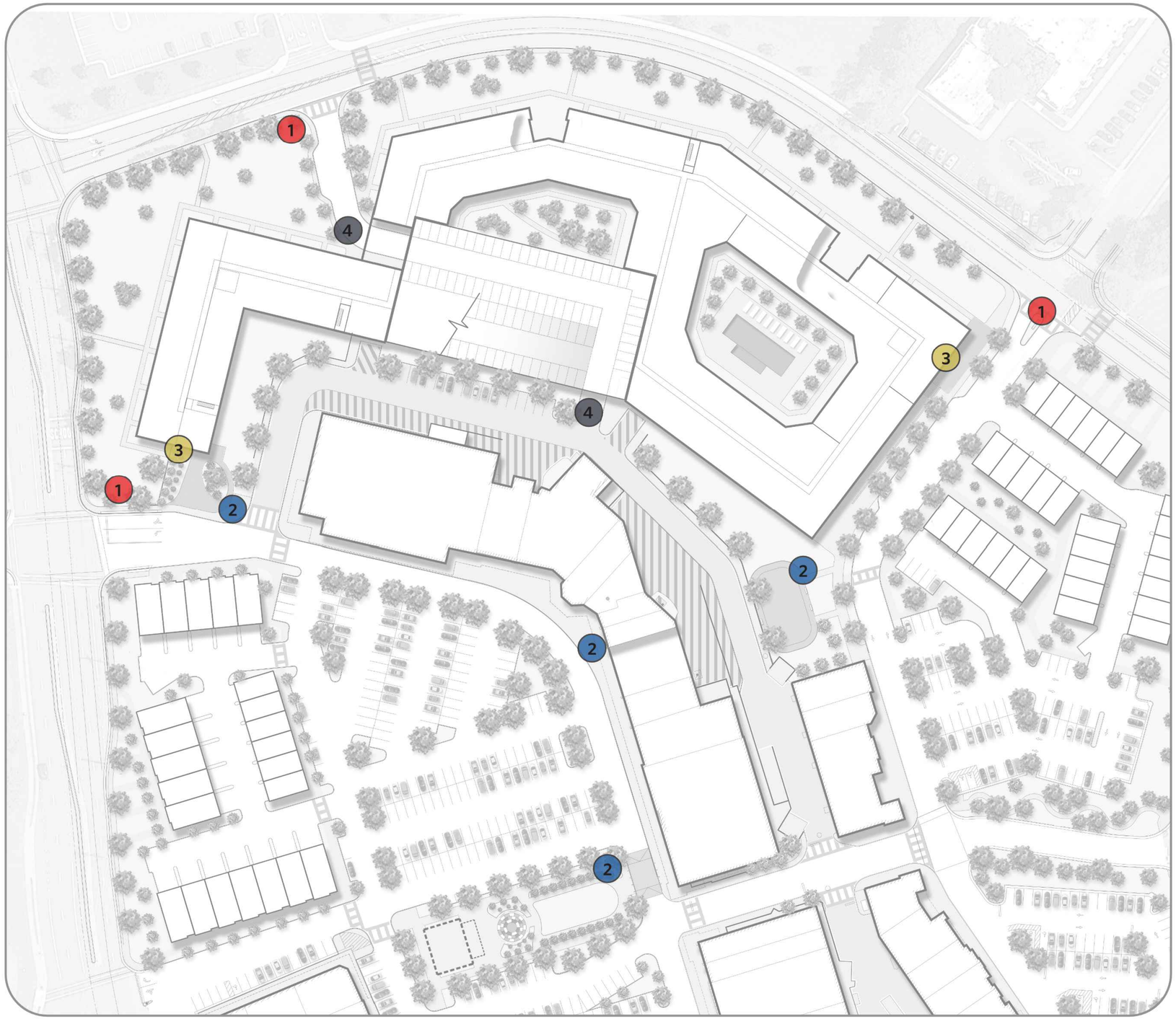


# CONCEPTUAL SITE SIGNAGE PLAN

SCALE 1"=50'-0"

mv+a MAY 30, 2024




## 1 MONUMENT SIGNAGE

INCLUDES HORIZONTAL OR VERTICAL PYLON SIGNS , EITHER FREE STANDING OR INTEGRATED INTO THE LANDSCAPE, HIGHLIGHTING THE PROJECT/COMMUNITY NAME AND MAJOR TENANTS




## 2 WAYFINDING SIGNAGE

SUCH SIGNS COULD BE POST SUPPORTED OR ATTACHED TO OTHER ELEMENTS OF THE STREETSCAPE OR WITHIN LANDSCAPING AND ARE MEANT TO PROVIDE PEDESTRIANS WITH DIRECTION TO TENANTS WITHIN THE PROJECT.




## 3 CANOPY SIGNAGE

INCLUDES SIGNS THAT MAY BE WALL MOUNTED, CANOPY MOUNTED OR VERTICALLY MOUNTED TO THE FACADE VIA BRACKETS AND TYPICALLY ARE USED TO HIGHLIGHT THE NAME OF THE BUILDING OR THE COMMUNITY.




## 4 INCIDENTAL SIGNAGE

SIGNS THAT SUPPLEMENT AND PROVIDE NON-TENANT/BRAND IDENTITY INFORMATION USUALLY HIGHLIGHTING OTHER SUPPLEMENTARY PROGRAMS IN A PROJECT.

NOTE: Signage types and location shown here in this plan is conceptual and subject to change with input from stakeholders. All signs to conform to Article 6 - Signage of Zoning Ordinance

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PROJECT:

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CENTER DISTRICT
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SHEET TITLE:

**CONCEPTUAL SIGNAGE PLAN**

SHEET NUMBER:

21

REVISION 3 - 5/31/2024



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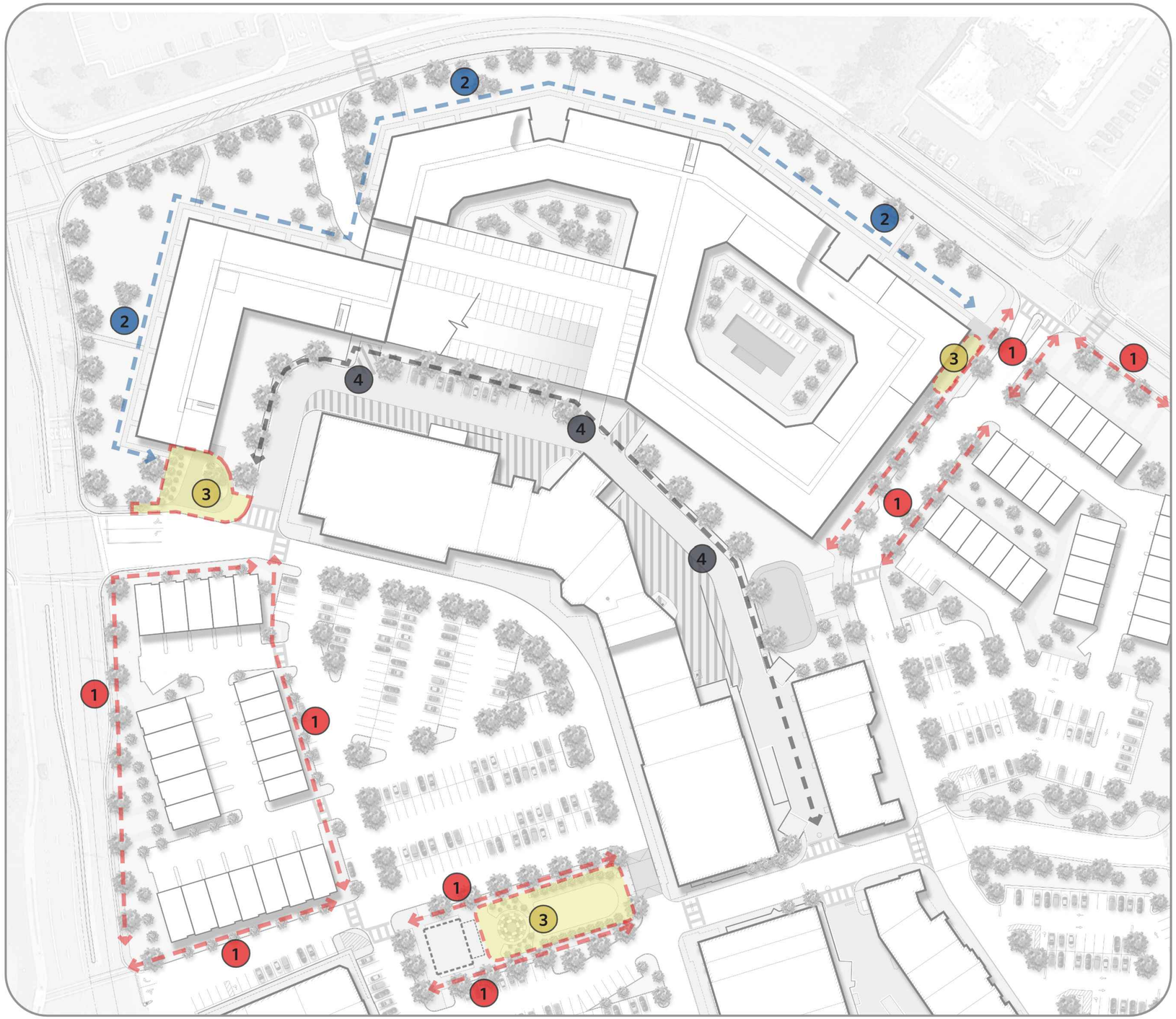


# CONCEPTUAL LIGHTING PLAN

SCALE 1"=50'-0"

mv+a MAY 30, 2024





## 1 DECORATIVE POST LIGHTING

SUCH LIGHTING ALREADY EXISTS WITHIN SELECTIVE AREAS OF THE SITE. THIS LIGHTING TYPE IS MEANT TO PROVIDE ILLUMINATION ALONG PEDESTRIAN ROUTES/STREETS AND FORMS A NECESSARY COMPONENT OF THE ENTOURAGE THAT MAKES UP URBAN STREETSCAPES.



## 2 WALL SCONCE LIGHTING

ACCENT LIGHTING MOUNTED ON THE BUILDING ILLUMINATING FEATURES OF THE ARCHITECTURE AS WELL AS PROVIDING UTILITY LIGHTING FOR THE IMMEDIATE SURROUNDINGS/WALKWAYS.





## 3 ACCENT LIGHTING - BUILDING AND LANDSCAPE

ACCENT LIGHTING UTILIZED TO EMPHASIZE BUILDING ARCHITECTURE/ CANOPY ENTRANCES AS WELL AS LANDSCAPE FEATURES - PLANTING, FURNITURE ELEMENTS, DECORATIVE WALKING PATHS, ETC.



## 4 UTILITY LIGHTING

POST MOUNTED OR BUILDING MOUNTED LIGHTING THAT IS MEANT TO ILLUMINATE AREAS THAT ARE NOT USUALLY ACCESSED BY PEDESTRIANS OR PART OF THE URBAN STREETSCAPES - ALLEYS, INCIDENTAL PATHS, HIGH VEHICULAR TRAFFIC AREAS

NOTE: Detailed lighting and photometric plan to be provided at site plan. All lighting to conform to Article 9 of Zoning Ordinance.

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PROJECT:

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FOR

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PROPOSED DEVELOPMENT

OAK SPRINGS DRIVE
CENTER DISTRICT
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Phone: (540) 349-4500
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COMMONWEALTH OF VIRGINIA
JOHN C. WRIGHT
Lic. No. 046960
PROFESSIONAL ENGINEER
5/31/2024

SHEET TITLE:

**CONCEPTUAL LIGHTING PLAN**

SHEET NUMBER:

22

REVISION 3 - 5/31/2024

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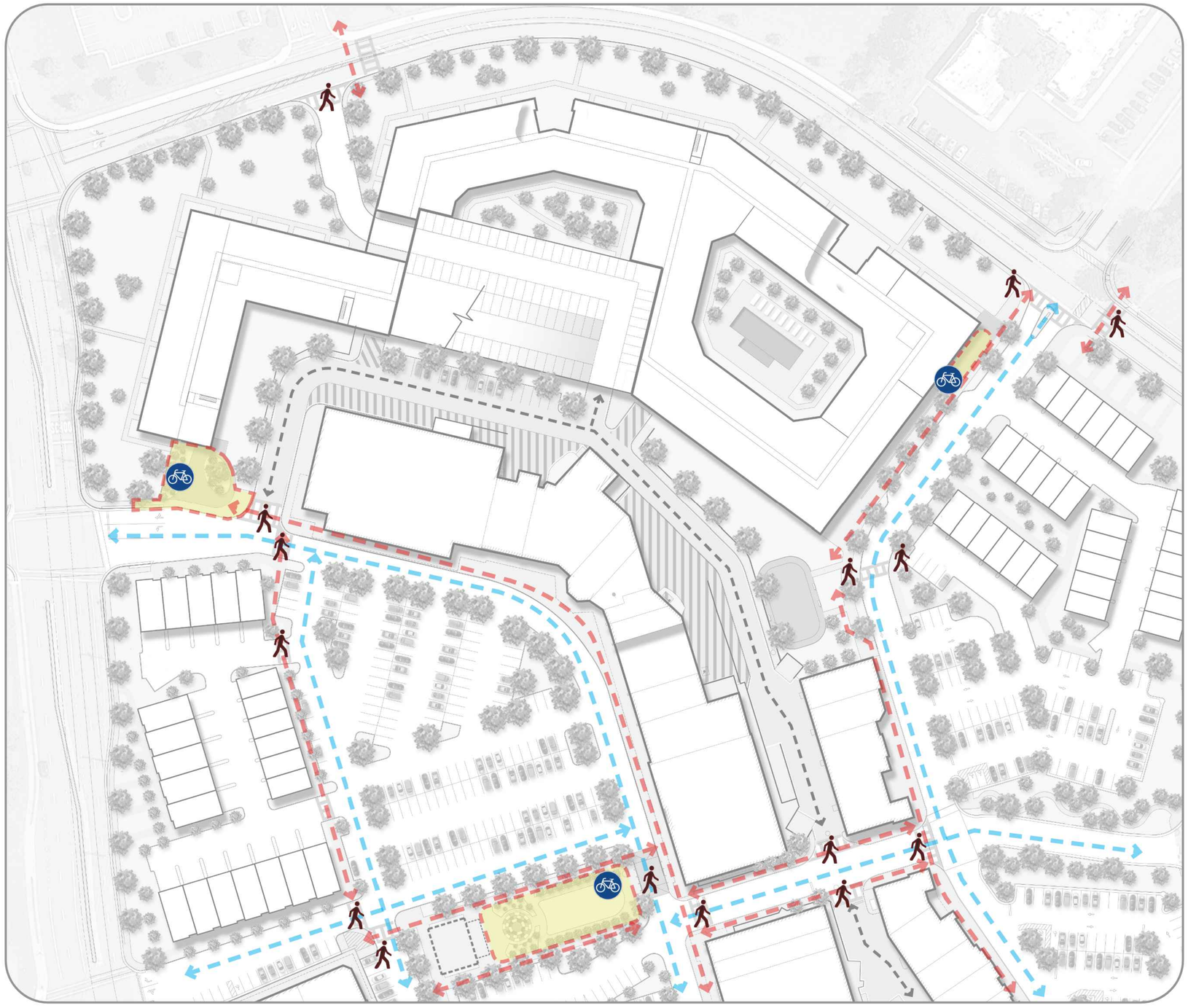
TL



# CONCEPTUAL CIRCULATION PLAN

SCALE 1"=50'-0"

mv+a MAY 30, 2024

## LEGEND

### PLAZA / COMMUNITY AREAS

THESE COLORED REGIONS REPRESENT THE PUBLIC PLAZAS IN THE PROJECT ANCHORING BOTH RETAIL AS WELL AS RESIDENTIAL PROGRAMS.

### PEDESTRIAN CIRCULATION

THIS DENOTES SOME OF THE MAJOR PEDESTRIAN CIRCULATION ROUTES WITHIN THE CENTER EFFECTIVELY CONNECTING THE NEW RESIDENTIAL PROGRAMS WITH THE EXISTING RETAIL CENTER AND COMMUNITY SPACES/ PLAZAS WITHIN THE PROJECT. CIRCULATION PATHS WILL CONSIST OF MINIMUM 5' WIDTH SIDEWALK AS REQUIRED BY ARTICLE 9-25.1 SUBSECTION G OF THE ZONING CODE.

### BICYCLE AND VEHICULAR CIRCULATION

SHARED CIRCULATION CORRIDORS WITHIN THE PROJECT ON CONNECTOR STREETS - EXISTING AND PROPOSED, AS WELL AS PARKING LOTS, ALL CHARACTERISED BY LOW SPEED LIMITS. REDUCED DRIVE WIDTHS AND RAISED CROSSWALKS IN SELECTED AREAS WILL PROVIDE NECESSARY TRAFFIC CALMING AND A DETERRENT TO UNSAFE DRIVING.

### SERVICE AND SECONDARY GARAGE CIRCULATION

PRIMARY USE FOR THIS CORRIDOR IS LOADING AND TRASH PICKUP FOR BOTH THE RETAIL AND RESIDENTIAL IN THE PROJECT ALONG WITH SECONDARY GARAGE ACCESS FOR BLOCK 1 - MULTIFAMILY BUILDING.

### BIKE PARKING AREAS

BIKE PARKING WILL BE CLUSTERED WITHIN THE CENTRAL, EAST AND WEST PLAZAS FOR USE BY RESIDENTS OR VISITING MEMBERS OF THE COMMUNITY. ADDITIONAL BIKE PARKIING WILL BE DISPERSED ALONG THE RETAIL SIDEWALK FOR USE BY RETAIL CUSTOMERS.

### CROSSWALKS

PROPOSED CROSSWALKS PROVIDE ACCESSIBLE MEANS OF CROSSING THE STREET/ALLEYS AS PEDESTRIANS MAKE THEIR WAY BETWEEN THE RESIDENTIAL AND THE RETAIL.

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| CAD I.D.: | SUPP -2 |

PROJECT:

**SPECIAL USE PERMIT**

FOR

WARRENTON VILLAGE CENTER

PROPOSED DEVELOPMENT

OAK SPRINGS DRIVE
CENTER DISTRICT
TOWN OF WARRENTON, VIRGINIA

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JOHN C. WRIGHT
Lic. No. 046960
5/31/2024
PROFESSIONAL ENGINEER

SHEET TITLE:

**CONCEPTUAL CIRCULATION PLAN**

SHEET NUMBER:

23

REVISION 3 - 5/31/2024






# VIEW OF NEW ENTRANCE ACROSS FROM HASTINGS LANE LOOKING AT BLOCK 1 AND BLOCK 2

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PROJECT:

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COMMONWEALTH OF VIRGINIA
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Lic. No. 046960
5/31/2024
PROFESSIONAL ENGINEER

SHEET TITLE:

***RENDERING***

SHEET NUMBER:

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REVISION 3 - 5/31/2024



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# VIEW ALONG BLOCK 1 MULTIFAMILY APARTMENT BUILDING LOOKING TOWARDS BLOCK 3

mv+a MAY 30, 2024

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FOR

WARRENTON VILLAGE CENTER

PROPOSED DEVELOPMENT

OAK SPRINGS DRIVE
CENTER DISTRICT
TOWN OF WARRENTON, VIRGINIA

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WARRENTON, VIRGINIA 20186
Phone: (540) 349-4500
Fax: (540) 349-0321
VA@BohlerEng.com

COMMONWEALTH OF VIRGINIA
JOHN C. WRIGHT
Lic. No. 046960
5/31/2024
PROFESSIONAL ENGINEER

SHEET TITLE:

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REVISION 3 - 5/31/2024






## VIEW ALONG BLOCK 3 SIDEWALK LOOKING TOWARDS THE EXISTING RETAIL

mv+a MAY 30, 2024

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WARRENTON, VIRGINIA 20186
Phone: (540) 349-4500
Fax: (540) 349-0321
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Lic. No. 046960
5/31/2024
PROFESSIONAL ENGINEER

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May 30, 2024
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## AERIAL VIEW OF CENTRAL PLAZA STRETCHING BETWEEN THE RETAIL

mv+a MAY 30, 2024

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WARRENTON, VIRGINIA 20186
Phone: (540) 349-4500
Fax: (540) 349-0321
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## AERIAL VIEW OF CENTRAL PLAZA STRETCHING ACROSS THE RETAIL

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Phone: (540) 349-4500
Fax: (540) 349-0321
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Lic. No. 046960
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## EYE LEVEL VIEW OF CENTRAL PLAZA STRETCHING ACROSS THE RETAIL

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WARRENTON, VIRGINIA 20186
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Fax: (540) 349-0321
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# EYE LEVEL VIEW FROM CENTRAL PLAZA GREEN LOOKING TOWARDS RETAIL AND RESIDENTIAL

mv+a MAY 30, 2024

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# EYE LEVEL VIEW OF CONNECTION BETWEEN THE RETAIL AND CENTRAL PLAZA

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31

REVISION 3 - 5/31/2024






# EYE LEVEL VIEW OF CENTRAL PLAZA AS APPROACHED FROM THE RETAIL

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32

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# VIEW FROM INTERSECTION OF BROADVIEW AVENUE AND EXISTING ENTRANCE

mv+a MAY 30, 2024

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FOR

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CENTER DISTRICT
TOWN OF WARRENTON, VIRGINIA

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WARRENTON, VIRGINIA 20186
Phone: (540) 349-4500
Fax: (540) 349-0321
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REVISION 3 - 5/31/2024





# VIEW FROM HASTINGS LANE LOOKING OUT TOWARD OAK SPRINGS

mv+a MAY 30, 2024

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WARRENTON, VIRGINIA 20186
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Fax: (540) 349-0321
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# VIEW FROM EXISTING DRIVE LOOKING OUT TO BROADVIEW AVENUE

mv+a MAY 30, 2024

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WARRENTON, VIRGINIA 20186
Phone: (540) 349-4500
Fax: (540) 349-0321
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# VIEW FROM INTERSECTION OF OAK SPRINGS AND BROADVIEW AVENUE

mv+a MAY 30, 2024

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PROPOSED DEVELOPMENT

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BOHLER
28 BLACKWELL PARK LANE, SUITE 201
WARRENTON, VIRGINIA 20186
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COMMONWEALTH OF VIRGINIA
JOHN C. WRIGHT
Lic. No. 046960
5/31/2024
PROFESSIONAL ENGINEER

SHEET TITLE:

**RENDERING**

SHEET NUMBER:

36

REVISION 3 - 5/31/2024

# WARRENTON VILLAGE CENTER

# DESIGN STORY

WARRENTON, VIRGINIA | MAY 31, 2024













## DESIGN OBJECTIVE

To transform the existing Warrenton Village retail center into a thriving, walkable, mixed-use, community destination with a sense of place that celebrates the character of Warrenton, while introducing a new, fresh, modern aesthetic.









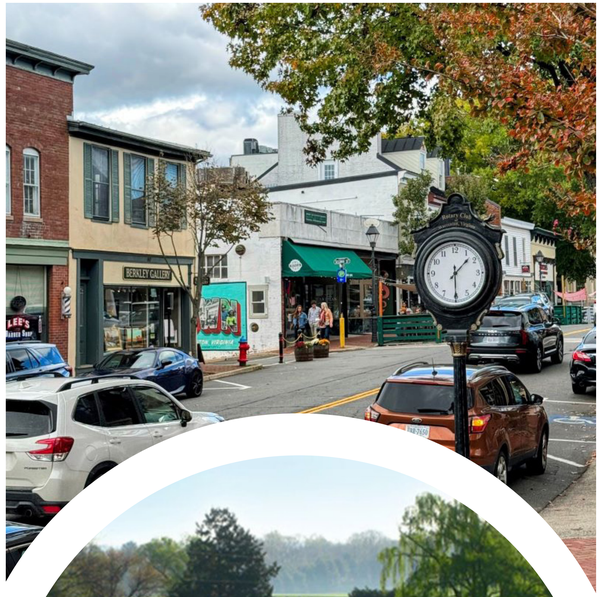

## DESIGN IMPLEMENTATION

- Purposeful integration of new buildings to create a Live/Work/Play community in line with the goals of the 2040 Warrenton Plan.
- Revitalization of the existing retail with new public gathering spaces, pedestrian connectivity, reduced vehicles speeds, a new Central Plaza for village events, enhanced green spaces, and activated streetscapes.
- Fusion of a new contemporary aesthetic with the warmth of local and historical design influences.



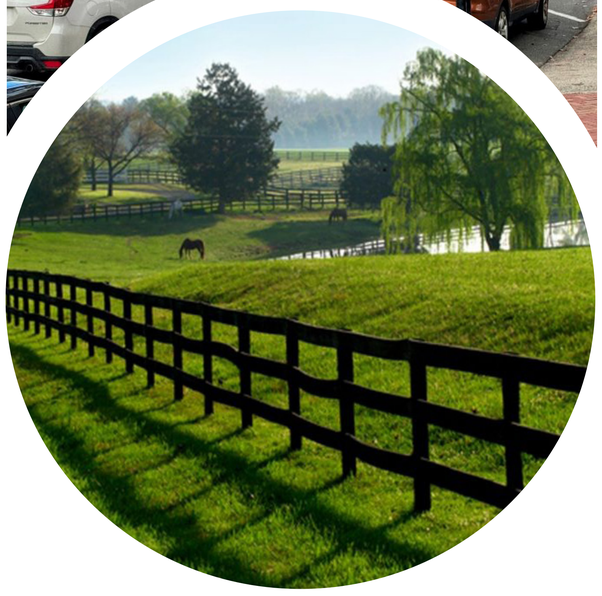













## WARRENTON CONTEXT

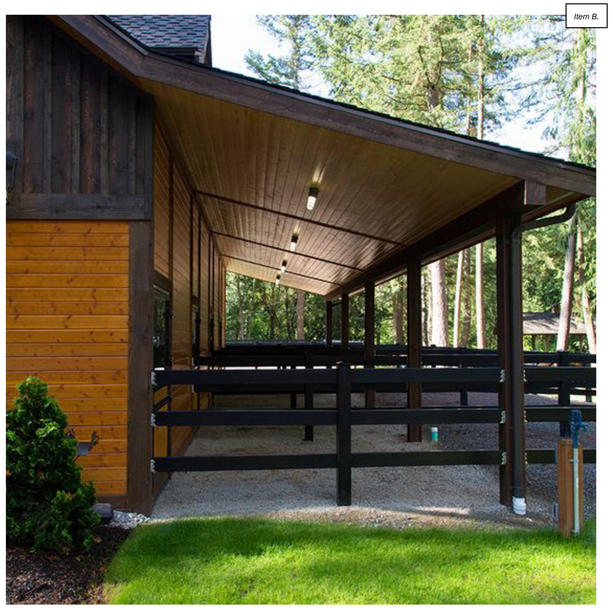
- Historical downtown Warrenton provides inspiration with its textures of brick and stone, dark metal accents and awnings, historical lighting fixtures, traditional lap siding, classic masonry banding and detailing, large windows with dark mullions, and pedestrian friendly streetscapes.
- The greater Warrenton area has deep equine and agricultural industry roots, featuring iconic horse farms and celebrated bucolic landscapes. Inspirations include classic equestrian design features, rich colors and textures, dark metal accents, warm woods, and farmhouse inspired lap siding and stone.

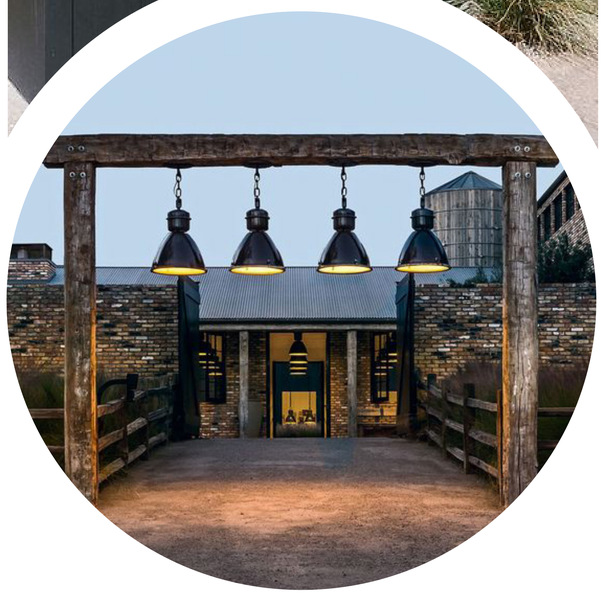






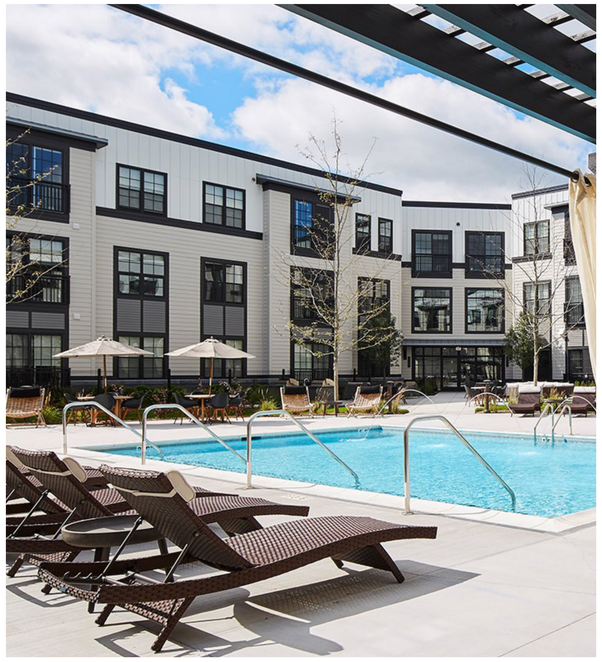








## DESIGN APPLICATION

Warrenton's past becomes Warrenton's future. The rich palette of historic materials, textures, and architectural details are reclaimed with a fresh perspective and contemporary context.

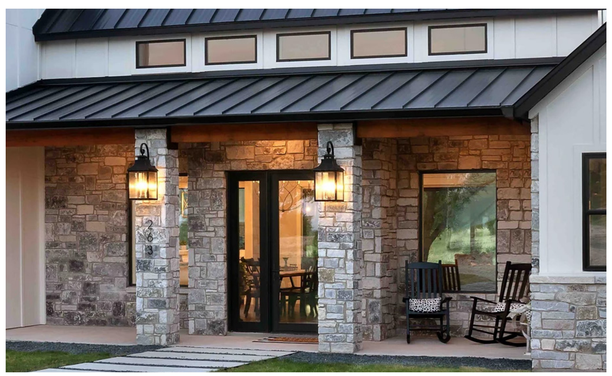
# RESIDENTIAL DESIGN

The three and four story massing of the residential development is designed to emulate the scale of a walkable town center. A clean, light modern aesthetic is grounded with rich masonry and architectural detailing. The street level is activated with resident access, generous sidewalks and rich landscaping. The articulated façade and generous fenestration break down the scale of the buildings and create visual interest for pedestrians.







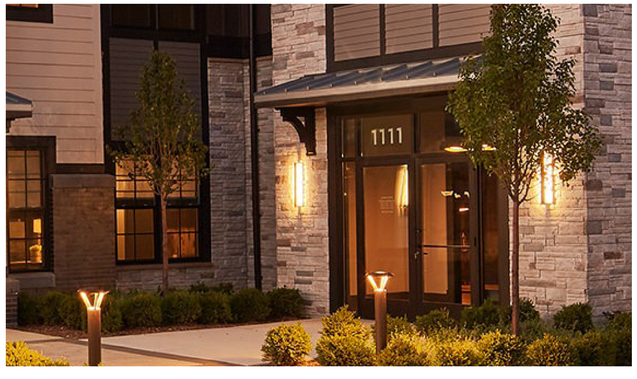




## MATERIALS

- Cultured stacked farmstone
- Exterior reveal panel system
- Classic lap siding
- Selective sloped roofs to blend modern and traditional aesthetics
- Corbels
- Wood tones to infuse warmth





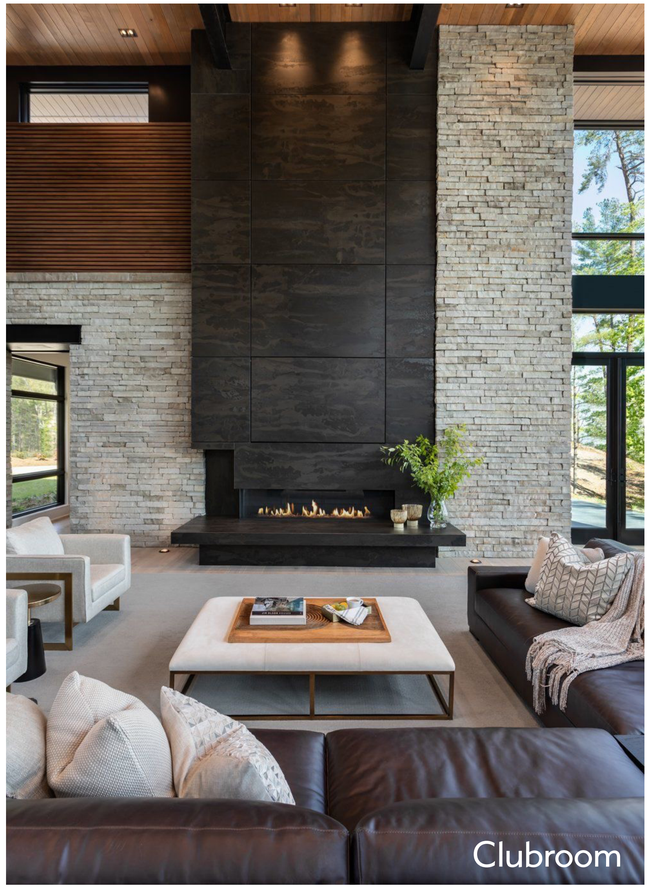


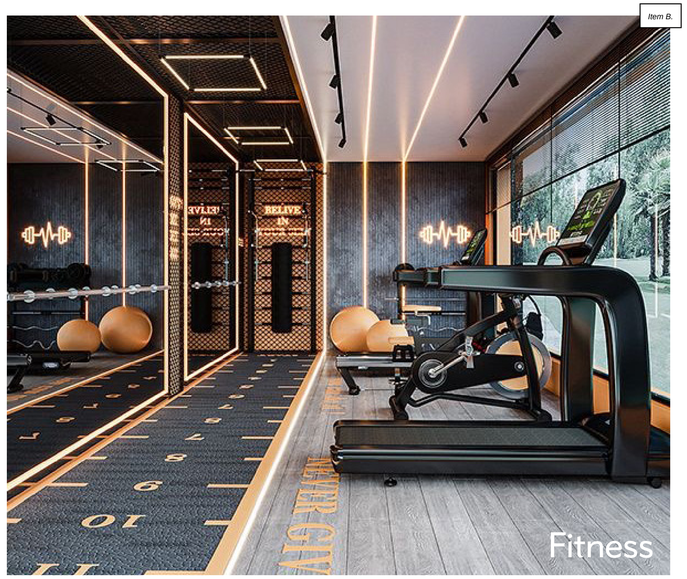

## ACCENT FEATURES & STREETSCAPE

- Metal accents & awnings
- Equestrian inspired light fixtures
- Large windows with dark mullions and lintels
- Architectural detailing to provide visual interest at pedestrian level
- Residential street level entries activating the sidewalk
- Pedestrian Connectivity
- Walkable Environment

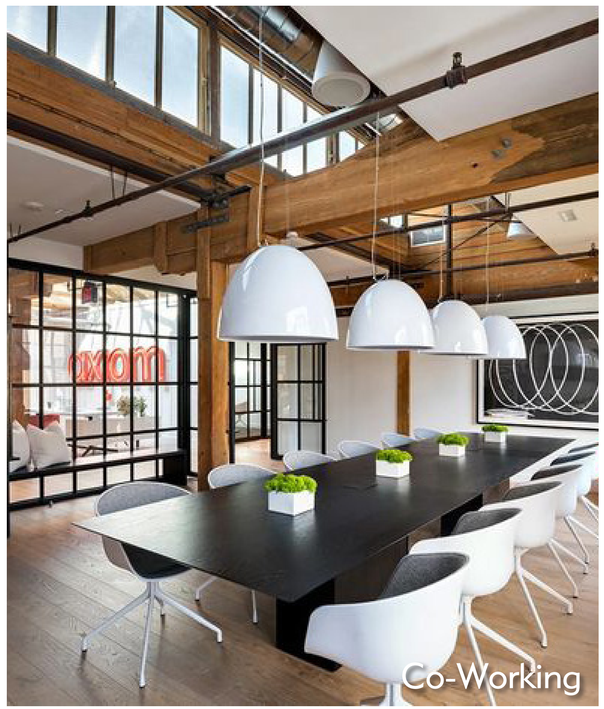















## INTERIOR DESIGN CONCEPT

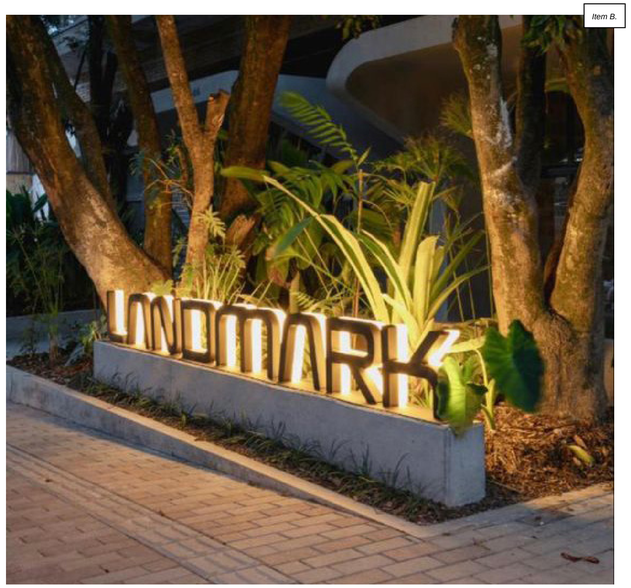
Urban Farmhouse aesthetic blends classic, timeless materials and natural textures with crisp, clean lines, neutral color palettes and light, open spaces. Old is blended with the new to provide spaces that are comfortable and approachable with a nod toward the trends of tomorrow.






















## SIGNAGE

Signage and wayfinding are designed to combine key historical elements or notable community themes with clean, sophisticated materials, fonts and applications, bridging the old and the new.

**STATEMENT OF JUSTIFICATION**
**WARRENTON VILLAGE CENTER**
**SPECIAL USE PERMIT APPLICATION**

**GPIN 6985-20-7247-000 and GPIN 6984-29-6753-000**

**Owner: Jefferson Associates L P, Warrenton Center, LLC**
**Applicant: NewCastle Development Group**

**May 31, 2024**

## INTRODUCTION

NewCastle Development Group (hereinafter, the "Applicant") is seeking a Special Use Permit for two parcels, totaling 29.05 acres and identified as GPINs 6984-20-7247-000 and 6984-29-6753-000 (the "Property"), to add residential units into the existing Warrenton Village Center (the "Center") in order to create a new mixed-use, live/work/play community (the "Proposal"). The Proposal seeks to bring a maximum of 386 residential dwellings to the existing commercial center through a variety of dwelling types, including traditional apartment units, 2-over-2s units and townhomes.

The Property is located within the New Town Warrenton District in the Plan Warrenton 2040 Comprehensive Plan, which is described as "a location for signature office/jobs center; with a greater intensity of mixed use and strong live, work and play options. A mix of uses could be organized around an internal street network and public amenities, such as civic spaces, parks green spaces and public gathering areas." This guidance from Plan Warrenton 2040 was the framework upon which the Proposal was contemplated and designed.

The Proposal seeks to create a critical mass of residential units on the vacant land north of Warrenton Village Center via a multifamily apartment building and structured parking garage that will 1) bring much needed rental supply to the Warrenton housing market and 2) introduce a new supply of consumers to support the existing businesses of not only Warrenton Village Center, but of all of Warrenton's established commercial/retail businesses.

The Applicant proposes to offer a wider range of housing types and price points through two additional sections of housing, which will include 2-over-2 and townhome dwelling units. These infill blocks, which will provide much needed "missing middle" housing types, will be utilized to integrate residential dwellings into the existing commercial center, creating a true mixed-use environment.

Lastly, the Applicant proposes a multitude of new improvements to the existing Warrenton Village Center, including public plazas, increased pedestrian walkability, and an enhanced road network, all of which adhere to the goals and initiatives of the New Town Warrenton District's vision for mixed-use centers.

## SPECIAL USE PERMIT – MODIFICATIONS/WAIVERS

The Applicant is requesting the following modifications from Town Council, via approval of a Special Use Permit:

1. Increase in Overall Project Density

- Article 2-6.1: The maximum density specified in the zoning ordinance for a given zoning district shall not be exceeded. The maximum density is 5 units per acre or 10 units per acre with inclusion of 10% affordable dwelling units.
- Waiver Request #1: Increase density to 386 units or 13.28 per acre.
- In lieu of calculating density on a dwelling unit per acre basis, applicant proposes to calculate residential density based on existing commercial square footage (1 dwelling unit per 500 square feet of non-residential space, as allowed under the Mixed-Use Development Option of the Commercial District zoning ordinance)
    - Dwelling units allowed per DU/A calculation:
        - 29.05 acres x 5 DU/A = 145 units
    - Dwelling units allowed per DU/A calculation (assuming affordable housing bonus):
        - 29.05 acres x 10 DU/A = 290 units
    - Dwelling units allowed per DU/GSF calculation:
        - 219,792 GSF / 500 = 439 units
- Proposed dwelling units = 386 units

2. Front Yard Setback Modification along Broadview Avenue
    - Article 3-4.10.4: Required front yard setback from ROW greater than 50' is 40' minimum, if no parking or loading is proposed.
    - Waiver Request #2: Decrease minimum setback to 14' along Broadview Avenue.
    - This modification will allow the units to be closer to street, creating a more urban form and character.

3. Side & Rear Yard Setbacks along all internal property lines
    - Article 3-4.10.4: Required side/rear yard setbacks is 5' minimum.
    - Waiver Request #3: Decrease side/rear yard setbacks to 0'.
    - This modification will allow the overall development to function as a true mixed-use development that will not be segmented by internal separations.

4. Landscape Buffers along internal property lines and public ROW
    - Article 8-8.5: Minimum buffer width for commercial uses adjacent to residential uses is 25', plus 1' for each foot of building height over 35'. Minimum buffer width for rear boundaries of residential uses from public ROW is 25'.
    - Waiver Request #4a: Decrease buffer width between commercial and residential uses to 0'.
    - Waiver Request #4b: Decrease rear buffer width for residential uses from public ROW to 14'.
    - This modification will allow the overall development to function as a true mixed-use development by creating an integrated project that is not segmented by buffer strips adjacent to residential and commercial uses. The schematic landscaping plan has identified areas where plantings are proposed.

5. Height Modifications
    - Article 2-20: Height limit for dwellings may be increased up to 45' and up to three stories provided that front, side and year setbacks increase 1' for each additional foot of building height over 35'.
    - Waiver Request #5: Increase height limit for dwellings as follows:
        - 54' max height for Block 1, Oak Springs Drive Frontage
        - 36' max height for Block 1, Broadview Drive Frontage
        - 36' max height for Block 2

- 45’ max height for Block 3
- This modification will allow for the concentration of increased density that is envisioned in Warrenton Plan 2040. With these increases in height, the desired step down in height towards adjacent properties is still achieved, relative to Warrenton Plan 2040’s proposed 6-story maximum heights along Lee Highway and 3-story maximum heights on the north side of Oak Springs Drive.

6. Maximum Multifamily Townhome Grouping
- Article 3-4.4.5.3: No more than six townhouse units shall be grouped contiguously to each other.
- Waiver Request #6: Increase maximum grouping of townhouse units from six to seven.
- This modification is necessary to provide increased supply of “missing middle” housing type and aligns with several other existing residential communities in Warrenton include grouping of seven or eight units.

7. Other modifications/waivers necessary to implement the proposed development plans.

## CREATION OF A MIXED-USE CENTER

The goal of the new Warrenton Village Center is to create a mixed-use community that is representative of the Plan Warrenton 2040’s vision for the New Town Warrenton Character District. The New Town Warrenton District emphasizes highly visible centers with greater intensity of mixed-use and strong live, work and play options. This mix of uses is ideally located around an internal street network and public amenities, such as civic spaces, parks, green space and public gathering areas. This was the guiding directive when designing the Proposal.

The existing Warrenton Village Center is an established commercial center with a wide variety of in-place retail tenants. Due to the existing operations of these long-standing Warrenton businesses, the Proposal does not have the luxury of a “clean slate” from which to design the “quintessential” mixed-use community—impacts to tenants must be minimized, displacement of tenants may not be acceptable and the ability to demise existing structures, if possible, must be done extremely selectively.

So, while the existing commercial structures must remain as is, the Proposal seeks to improve the under-utilized commercial areas with the introduction of public amenities, increased pedestrian circulation and new interesting gathering areas—in this way, the new residential areas will offer a place to live, and the enhanced commercial areas will offer a place to “play.”

The goal of the design is not to create a new apartment community adjacent to an existing commercial center. The goal is to create an integrated village environment where both uses enjoy and thrive off one another and the lines between residential and commercial uses becomes blurred.

The Proposal focuses on two primary components to create a mixed-use community that will have little to no negative impact on existing businesses:

1) introduction of residential dwellings into the existing commercial center to create a live, work, play environment; and

2) installation of new public amenity areas and pedestrian connectivity to tie the different uses together in a cohesive manner.

**1) Introduction of Residential Dwellings**

The Proposal includes three new residential "blocks." Each block will submit its own Site Development Plan and will meet the general requirements of a "standalone" site plan with respect to open space requirements, parking requirements, landscaping requirements, ADU requirements, etc. While it is not possible for each of the individual blocks to satisfy all the guiding principles of the 2040 Plan, when combined, they will create a cohesive mixed-use center that exhibits all the goals of the New Town Character District. The "Block Sequencing and Required Site Improvements" section later in this Statement of Justification will provide additional detail on how the Applicant proposes to ensure that this comprehensive plan will be realized.

Block 1 (Multi-Family Apartments): located on the vacant land along Oak Springs Drive, between Broadview Avenue and Hastings Lane, this component of the SUP will include a maximum of 320 rental dwellings, comprised of 1-, 2-, and 3-bedroom units, a four-story parking garage and approximately 10,000 square feet of clubhouse and amenity space, including a state-of-the-art fitness facility, work-from-home/co-working spaces, entertainment lounges, cyber and coffee cafes, gathering spaces, and more. The building will also offer two interior courtyards that will include a saltwater pool and resort style pool deck, outdoor kitchens and grilling stations, outdoor game spaces, ample seating and lounging areas, firepits and "brew gardens."

Primary access to the internal, four-story, parking garage will be located on Oak Springs Drive, directly across from the entrance into Highland School. The residential leasing offices and amenity areas will be accessed at the corner of Oak Springs Drive and the new Hastings Lane extension. On-street parallel parking along the Hastings Lane extension will be provided for prospective tenants that are visiting the leasing facilities.

All building frontage facing Broadview Avenue and Branch Drive will be three stories, while building frontage facing Oak Springs Drive will be four stories. All first-floor units along Broadview Avenue, Oak Springs Drive, Branch Drive, and Hastings Lane will feature direct entry access to promote pedestrian walkability.

This block will include the majority of the proposed residential units and will have the greatest impact on bringing much needed housing supply and consumers to Warrenton.

*Block 1 Multi-Family Apartment Building Elevation*



Block 2 (Multi-Family Townhomes): a maximum of 26 townhome dwelling units are proposed in the northeast corner of the Warrenton Village Center, at the intersection of Oak Springs Drive and Hastings Lane. These will be three story units and feature a two-car garage in each unit and direct pedestrian sidewalk access to all units.

Through its rental townhome product, Block 2 will provide new supply to the highly desirable "missing middle" housing stock.

*Block 2 Multi-Family Townhome Elevation*




Block 3 (Multi-Family 2-over-2s): a maximum of 34 2-over-2s and 6 townhomes are proposed on the west side of Warrenton Village Center along Broadview Avenue. These buildings will be four stories, with one unit located on the 1st and 2nd floors and a second unit located on the 3rd and 4th floors of each residential "stack." All units will include a one-car garage and direct pedestrian access to first-floor units along Broadview Avenue. The townhomes included in this block will mirror the townhomes found in Block 2 and will face inward in the Center to provide direct residential access into the heart of commercial area.

Block 3 will introduce a new product type to Warrenton in its 2-over-2s and will create true infill into the existing commercial center, better integrating the two uses and promoting walkability between the Central and West Plazas. These units will add additional units to the "missing middle" housing supply.

*Block 3 Multi-Family 2-over-2 Elevation*




**2) Installation of Public Improvements**

Central Plaza: the Applicant proposes to create a new Central Plaza at the core of Warrenton Village Center. This public gathering space will include a plaza green with seating and lounging areas for visitors and provide a place for local businesses to hold activities; a splash-pad that will be a major attractor for families with young children and serve as a central landmark for the newly improved center; as well as an area for a potential future retail building that would further activate this public amenity—ownership envisions a coffee or ice cream shop with indoor/outdoor seating that will be a destination for all residents of Warrenton. This plaza will be adorned with street and ornamental trees and planting beds and feature a raised watertable street crossing that will connect the space to the existing retail in a pedestrian safe manner. The new Central Plaza will serve as Warrenton Village Center's vehicular and pedestrian crossroads, a hub that will function as the heart of the Center and is sized, programmed, and planned to allow for community activities as well as everyday use.

East and West Plazas: Smaller public plazas are proposed at the Broadview Avenue entrance and the Hasting Lane entrance into the Warrenton Village Center. These plazas are connecting points celebrating the east and west entrances to the multifamily building and will act as visual links between the residential and commercial areas. These "doorways" into the Center will enhance walkability for the residents by providing easy and direct connection to the retail areas. The plazas will also help transition from public sidewalks to private interior residential lobbies. The 24/7 illuminated interiors of the lobbies will provide visual activation for both plazas and serve as an anchoring use for the open spaces.

The East and West plazas will serve as passive, ceremonial transition zones between the private residential realm and the public retail realm. Their primary intent and use is to connect residents with the rest of the commercial center, while also allowing for a different, less active, and smaller public area for passive recreation.

Dog Park and Picnic Area: a new dog park and seating areas will be accessible to both residents and the general public. The dog park will include a fenced in area for off-leash play, pet water fountains and waste clean up stations. Just outside of the dog area will be picnic table seating areas for pet owners and guests to relax and congregate while their pets play.

Oak Springs Drive Pedestrian Crosswalks: two crosswalks are proposed on Oak Springs Drive—one at Hastings Land and one at the Highland School entrance. These new crosswalks will provide safe points of pedestrian access for people visiting the Center from the north side of Oak Springs Drive.

Completion of Outer Sidewalk Ring: the Proposal seeks to complete a sidewalk ring around the entirety of the Warrenton Village Center. Each residential block will include sidewalks along its outer rim (either along Broadview Avenue, Oak Springs Drive or Branch Drive) to piece together a fully encompassing sidewalk circle.

Additionally, there is currently a large gap in the sidewalk connection along the east side of Broadview Avenue. The Applicant proposes to install a new ~475' section of sidewalk in this area (located behind the Galaxy Strike Bowling Center building). Once completed, this section of sidewalk and the new sidewalks within the residential blocks will complete an outer ring of sidewalks around the entire Warrenton Village Center.

Internal Pedestrian Circulation: residential tenants will benefit from quick and easy access to all the businesses of Warrenton Village Center via new sidewalks, crosswalks and wayfinding markers. All new buildings will be encircled by new sidewalks and will include direct entry access to ground level units (with the exception of those units in Block 1 that will face the rear of the existing commercial building). The addition of the plazas, linked together with internal sidewalks, will serve to better activate and tie together the different uses found within the Center. Finally, new crosswalks are proposed at all primary street crossings. These improvements will not only benefit pedestrian circulation within the site, but will also allow for easier and safer travel for those accessing the site from the outside.

A Conceptual Circulation Plan for pedestrian, vehicular and bicycle traffic can be found on Sheet 23 of the SUP.

Hastings Lane Extension: a new vehicular and pedestrian entrance into the Warrenton Village Center is proposed at the Oak Springs Drive and Hastings Lane intersection. This new entrance will provide a new source of direct ingress/egress into the Center, which will help to facilitate less congestion at the Center's other entrances and result in less traffic on Oak Springs Drive and Branch Drive, as vehicles no longer have to circle around the Center to access one of the existing entrances on Broadview Avenue and Branch Drive.

Oak Spring Preservation: the natural spring from which Oak Springs Drive derives its name is located at the northeast corner of the Center. The Applicant has revised its original site plan in order to preserve this spring and proposes to recondition it into a public amenity, which will include seating areas in a natural and historical environment.

**Summary of Improvements, included within each block:**

Block 1:

- Multi-family building and parking garage
- Central Plaza
- West Plaza
- East Plaza
- Hastings Lane extension
- Reconfiguration of commercial parking

- Modified Alley, all improvements
- Dog park and picnic area
- Preservation and reconditioning of Oak Spring (natural spring)
- Sidewalks included in Block 1 Improvements – Sheet 4 of SUP
- Two crosswalks across Oaks Springs Drive at Hastings Lane and Highland School entrance

Block 2:
- Townhome dwelling units and parking
- Sidewalks included in Block 2 Improvements – Sheet 5 of SUP
- Restoration of Oak Spring into a natural public amenity

Block 3:
- 2-over-2 dwelling units and parking
- Townhome dwelling units and parking
- Sidewalks included in Block 3 Improvements – Sheet 5 of SUP
- New sidewalk section on east side of Broadview Ave (behind Galaxy Strike Bowling Center building)

## ADDITIONAL JUSTIFICATIONS AND PROPOSAL DETAILS

### Density

Plan Warrenton 2040 states that the calculation of density on a unit per acre basis can be deficient in a mixed-use environment – "when considering implementation, conventional zoning that separates land uses and measures development intensities by dwelling units per acre (DU/AC) is not compatible with a vision of mixed-use, walkable neighborhoods with a range of housing types" and "if the density requirements for a zoning district are revised accordingly, the chances are high that a typical multi-family building will be built." It recognizes that using DU/AC as a density measurement often gives a false perception of increased density with housing types that are lower in square footage and are stacked vertically, such as the apartments and "2-over-2" units included in the Proposal. To eliminate the false sense of increased density given the proposed housing types, this submittal proposes to utilize an alternative density calculation method that is included in Article 9-25.1.B of the Zoning Ordinance.

Per the Mixed-Use Development Option in Article 9-25.1.B of the Zoning Ordinance, which stipulates that a mixed-use property can be approved for up to one dwelling unit per 500 gross square feet (GSF) of non-residential floor space, the Property could be permitted to have up to 439 units with approval of an SUP, given the proposed 219,792 gross square feet of non-residential floor space (219,792 GSF / 500 GSF = 439 units).

The Warrenton Village Center proposes a maximum of 386 residential dwellings, paired with 219,792 square feet of non-residential uses. Therefore, while the Applicant is requesting a modification for increased density, the request is 53 units less than the maximum amount that can be approved via an SUP.

Plan Warrenton 2040 encourages "setting district standards based on form rather than density" to "achieve the middle-range housing types desired." Accordingly, this proposal prioritizes site design and a mix of housing types over a strict adherence to underlying density requirements. This enhanced site design will mitigate any effects of the additional density, with an emphasis on

walkability, a variety of housing types, and the integration of multiple uses within a single destination location.

Lastly, the Economic and Fiscal Resilience goals of the Plan Warrenton 2040 call for "a range of housing types and housing assistance programs for employees to live in Warrenton." This proposal accomplishes this by including affordable housing and a range of housing types that will be attractive to current Warrenton residents, as well as potential employers looking to bring new business and employees to Warrenton. This proposal supports Plan Warrenton 2040's goal to "promote Character Districts as the place to accommodate a range of housing typologies" by proposing a variety of housing types, including multi-family, 2-over-2s, and townhomes. This new stock of residential units and new housing types will bolster a housing supply that is severely underserved and sorely needed within the Town.

The Applicant's proposal meets and advances nearly all of the housing goals stated in the Plan Warrenton 2040. Additionally, it promotes consolidation of a high amount of density into an infill project, in lieu of sprawl development that is detrimental to the area's rural preservation.

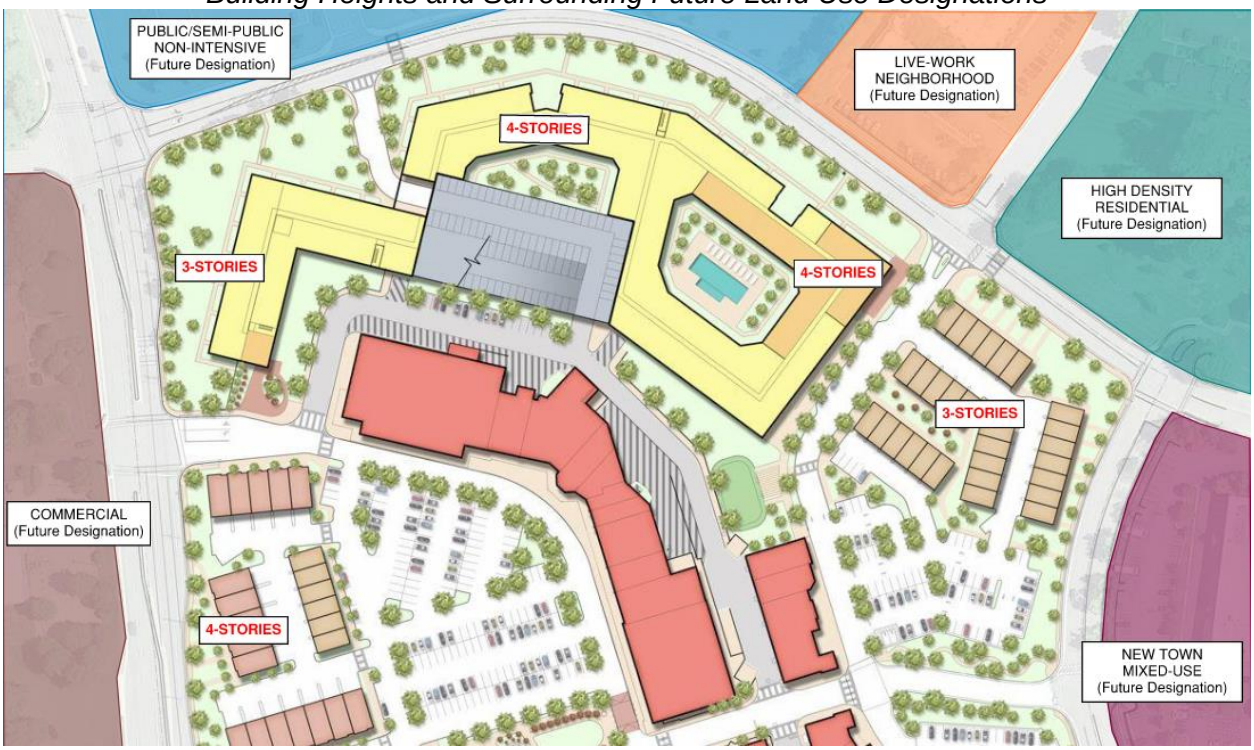
**Height**

The New Town Character District uses a form-based transect approach to development, which defines form with greater maximum height towards Lee Highway and the center of the district, with a gradual step down in scale towards Oak Springs Drive, where the Property is located. Since the Property is in the Transition Zone, building heights of one-to-three stories or 35' are recommended.

Applicant is seeking a modification for a fourth story along Oak Springs Drive in Block 1, which is one story greater than the three recommended in the Transition Zone. Since Plan Warrenton 2040 envisions developments along Lee Highway and east of Broadview Avenue to be up to six stories, the Property would still maintain a step down in scale towards Oak Springs Drive at four stories. Therefore, the requested height modification is still in conformance with the goal of Plan Warrenton 2040, which is to step down in height towards residential zones.

The goal of the height recommendations of Plan Warrenton 2040 is to step down towards residential zones. The Proposal achieves this goal by locating its three-story sections in the northwest and northeast corners of the Center, nearest to current and future residential uses—most notably, those neighborhoods located on the west side of Broadview Avenue and the 3-story townhome communities located to the northeast across Oaks Springs Drive—and increasing heights in areas that are adjacent to existing commercial and other non-residential uses.

*Building Heights and Surrounding Future Land Use Designations*




Inclusion of four-story buildings along Oak Springs Drive will provide a more gradual step down from the six stories allowed along Lee Highway to the three-stories allowed in the High-Density Residential areas shown on the Future Land Use Map on the north side of Oak Springs Drive. This will create a better design aesthetic than the stark contrast of a dramatic drop from six stories down to three stories. From a visual perspective along Oak Springs Drive, this modification would allow for three-story buildings on the north side of the street, four-story buildings on the south side of the street in the Transition Zone, then escalating up to six-story buildings along Lee Highway—a gradual and appropriate escalation in heights.

It is noteworthy that Transition Zones are intended to provide appropriate step downs to adjacent single-family residential neighborhoods, which are typically two-story—hence the recommendation of 3-story maximum heights. However, in the case of the Property, it is in a unique Transition Zone that does not adjoin any typical single-family residential. Instead, it is surrounded by commercial, non-residential, and 3- and 4-story residential uses. Therefore, the 3-story maximum is not necessary to provide the appropriate step down to single-family residential, and the proposed 4-story maximum adequately achieves the step down to the adjacent commercial, non-residential and 3- and 4-story residential uses—see adjacent building in illustration below.

*Surrounding Properties – Existing Building Uses & Heights*




Another transition goal of Plan Warrenton 2040 is that "the neighborhood edge provides the means of transition from the Character District to adjoining properties." Four-story apartments are an appropriate transition to the High-Density Residential areas located to the north, which will be similar in character and use. High-Density Residential will allow up to 12 units per acre, which is in line with the DU/AC proposed at Warrenton Village Center (13.28 DU/AC).

Further, the Future Land Use Plan's Character District Summaries calls for "greater intensity of mixed-use and strong live, work, and play options" in the New Town Warrenton District and notes that this district has "high visibility," due to its proximity to Route 29. The requested modifications to increase density and height support the need for greater intensities and higher visibility in this character district.

Finally, one of the ten guiding principles for the character districts is to place parking behind buildings and away from street frontages. To accomplish this goal, the Applicant has proposed an interior structured parking garage that will not be visible from surrounding streets. Increasing building heights in select areas is the only way to create the necessary density needed to facilitate this improved parking condition and to conceal it behind building facades.

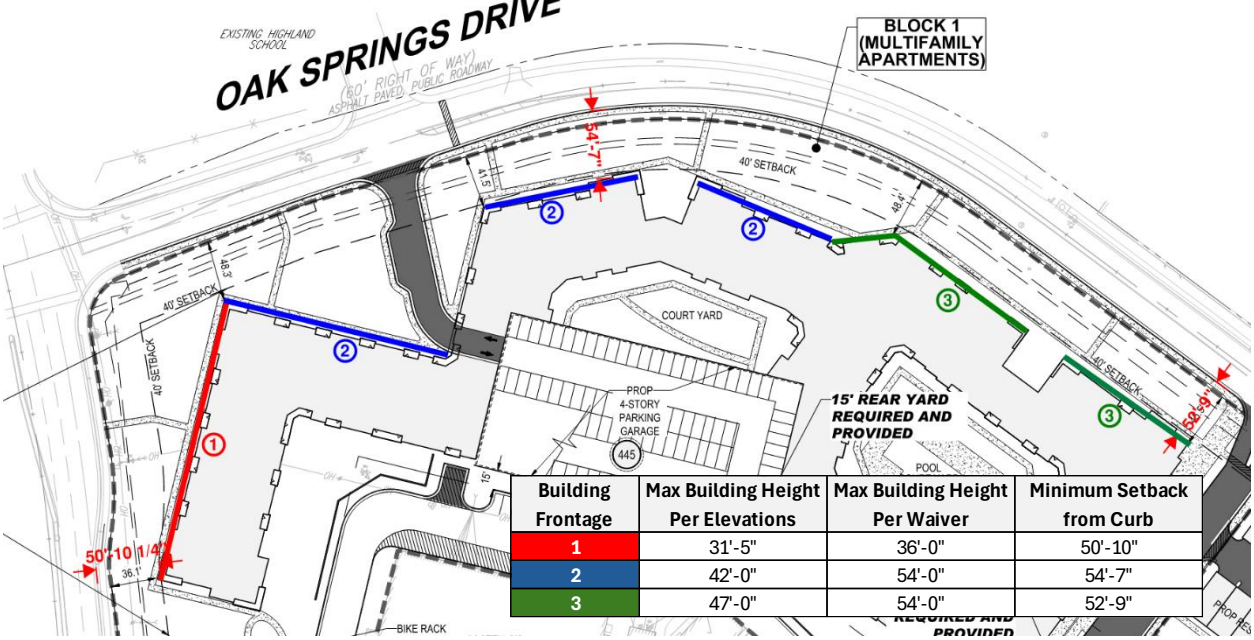
**Building Heights and Setbacks**

Article 2-20 allows for building height limits to increase above 35' if the corresponding setback increases by an equal amount. The intent of offering a mechanism by which an applicant can increase building heights if corresponding building setbacks are simultaneously and equally increased, is to ensure that an appropriate balance or ratio of height to depth is maintained. The general rule of thumb in land planning is that for every one foot of building height, there should be a minimum of one foot of corresponding setback. Applicant has satisfied this standard by providing appropriately sized setbacks that correspond with the proposed increases in building height limits.

The below illustration examines the three building frontages of the Block 1 apartment building. Anticipated building heights are calculated using the average ground surface elevation across a building's frontage in relation to the highest point of a flat roof (parapets have not been included

in building heights, per IBC code definition). For each building frontage, the corresponding minimum setback from the back of street curb has been provided. Along all three frontages, building setbacks are equal to or greater than the anticipated building height, confirming that the appropriate standard has been achieved.

*Block 1 Building Heights and Corresponding Setbacks*



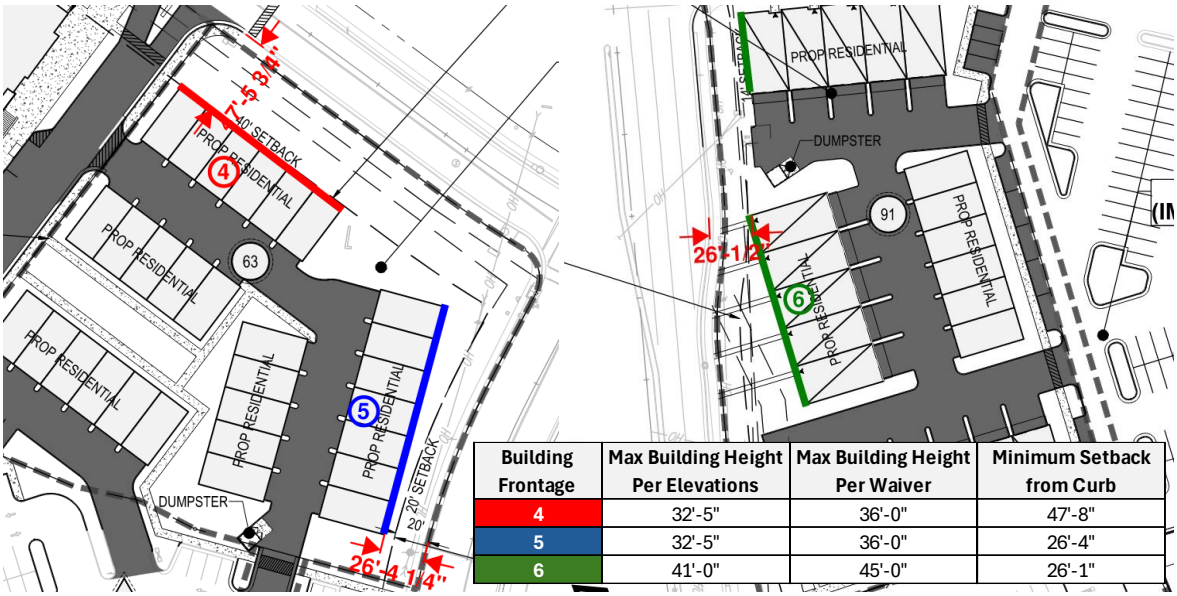

| Building Frontage | Max Building Height Per Elevations | Max Building Height Per Waiver | Minimum Setback from Curb |
|---|---|---|---|
| 1 | 31'-5" | 36'-0" | 50'-10" |
| 2 | 42'-0" | 54'-0" | 54'-7" |
| 3 | 47'-0" | 54'-0" | 52'-9" |

Note—Applicant acknowledges that setbacks are defined by the Town from property lines, however, the point of this exercise is to illustrate that proper height to setback standards have been provided, which apply to the public's viewpoint (i.e. traveling the street) and not an intangible property line. Applicant is therefore requesting a height waiver because it acknowledges that adequate setbacks from property lines have not been provided.

In Block 2, proper anticipated building height to minimum setbacks ratios are provided along Frontage #4 (Oak Springs Drive), but not along Frontage #5 (Branch Drive). The Applicant feels that this is appropriate given the internal nature of Branch Drive as a "cut through" drive within the Warrenton Village Center. Branch Drive serves the Center more as an internal drive than as a primary thoroughfare, in which case it is appropriate to push buildings up onto internal street frontages.

Block 3 (Frontage #6) provides setbacks that are below the 1:1 ratio, as this area of the New Town Character District calls for taller building heights, up to 6 stories. A waiver is already being requested at this location to reduce setbacks to 14'.

*Block 2 and Block 3 Building Heights and Corresponding Setbacks*




| Building Frontage | Max Building Height Per Elevations | Max Building Height Per Waiver | Minimum Setback from Curb |
|---|---|---|---|
| 4 | 32'-5" | 36'-0" | 47'-8" |
| 5 | 32'-5" | 36'-0" | 26'-4" |
| 6 | 41'-0" | 45'-0" | 26'-1" |

Below is the compiled list of anticipated building heights along street frontages, the maximum height allowed per the Applicant's waiver request, and the corresponding setback from back of curb. Slight height increases have been added into the maximum height limits allowed per the waiver to provide buffer for average ground surface grade changes that may occur during Site Development Plan.

| Building Frontage | Location | Block | Max Building Height Per Elevations | Max Building Height Per Waiver | Minimum Setback from Curb |
|---|---|---|---|---|---|
| 1 | Broadview Avenue | 1 | 31'-5" | 36'-0" | 50'-10" |
| 2 | Oak Springs Drive | 1 | 42'-0" | 54'-0" | 54'-7" |
| 3 | Oak Springs Drive | 1 | 47'-0" | 54'-0" | 52'-9" |
| 4 | Oak Springs Drive | 2 | 32'-5" | 36'-0" | 47'-8" |
| 5 | Branch Drive | 2 | 32'-5" | 36'-0" | 26'-4" |
| 6 | Broadview Avenue | 3 | 41'-0" | 45'-0" | 26'-1" |

See Elevation Sheets 11-13B of SUP for a depiction of these measurements.

**Affordable Housing**

To support the need for affordable housing within the Town of Warrenton, the Applicant proposes that for a minimum affordability period of twenty-five years from the issuance of this Special Use Permit (the "Affordability Period), the following units shall be designated as affordable low-income restricted units (the "Affordable Dwelling Units or ADUs"):

- A minimum of 10% of total dwelling units within each of the three blocks (Block 1, Block 2 and Block 3) will be reserved as 80% AMI ADUs
- An additional ten (10) dwelling units in Block 1 will be reserved as 70% AMI ADUs
- An additional five (5) dwelling units in Block 1 will be reserved as 60% AMI ADUs

Within Block 1, allocation of the Affordable Dwelling Units between 1-, 2- and 3-bedroom units will be at the discretion of the Applicant, so long as the minimum number of units defined above

are maintained as Affordable Dwelling Units. Within Block 2 and Block 3, wherein all units are 3-bedrooms, all ADUs will be 3-bedrooms. The ADUs shall be similar to the market rate units in architectural design, fixture/appliance selections and unit size. No more than three ADU units will be positioned adjacent to one another at any given time.

"Qualified Parties" who will be eligible to rent or purchase one of the ADUs, are defined as:

> For the purposes of qualifying for the lease of an affordable rental ADU a Qualified Party shall be an individual or a family whose gross annual household income does not exceed 60%, 70%, or 80% (dependent on the specific ADU) of the current Multifamily Tax Subsidy Program (MTSP) Income Limits for Fauquier County as published by the Virginia Housing & Development Authority (VHDA), at the time the rental application is opened for such Qualified Party ("AMI").
>
> For the purposes of determining the rent limits for all ADUs, monthly rental rate limits shall be equal to those published by VHDA for 0-, 1-, 2-, and 3-bedroom units and corresponding 60%, 70% and 80% AMIs, with no utility allowances.
>
> For the purposes of qualifying for the purchase of an ADU in Block 2 or Block 3, a Qualified Party shall be an individual or a family whose gross annual household income does not exceed 80% of the current Multifamily Tax Subsidy Program (MTSP) Income Limits for a 4-person household in Fauquier County as published by VHDA, at the time the purchase contract is executed for such Qualified Party.
>
> For purposes of determining the purchase price of any for-sale ADU, that price will not exceed the amount at which the monthly mortgage payment for such unit exceeds the monthly rent limits for 3-bedroom units and 80% AMI income, as published by VHDA. Qualifying Parties must provide a market rate loan commitment prior to closing in order to calculate the proposed mortgage payment.
>
> Persons eligible for assistance under the following state or federal programs:
>
> a. Virginia Housing Development Authority

The ADU status shall be set forth in a deed of restrictive covenants recorded against the Property and shall continue to bind the minimum ADU requirement within each block to the Property for a period of twenty-five years from the issuance of this Special Use Permit; provided, however, that for rental units, the Applicant may recalculate the rental rates for new leases or renewals in accordance with the then current rates published by VHDA.

The Applicant shall establish in a deed of restrictive covenants a program for the administration of this ADU program according to the requirements of these conditions. The Applicant (or Owners Associations with respect to any purchase units if the Applicant is no longer the Declarant) shall make each ADU available for a period of not less than 90 days for rental units and 180 days for purchase units, following the issuance of a certificate of occupancy for each unit.

The Applicant shall designate on the Construction Drawings submitted for building permit approval which units will be the initial ADUs; however, the units that are selected as the initial rental ADU units are not required to remain as the designated rental ADUs for the entirety of the Affordability Period. The Applicant will have the authority to re-designated the rental ADUs from time to time based on leases and vacancies. The Applicant will maintain a building plan set at

the leasing office located in the Block 1 at all times that shows which units are currently designated as rental ADUs.

The documents creating the ADU program shall be reviewed and approved by the Town Attorney prior to their recordation in the Land Records.

ADUs will first be made available to the following persons: those residing or working in the Town of Warrenton or Fauquier County; Town of Warrenton or Fauquier County teachers; Town of Warrenton or Fauquier County first responders; veterans and enlisted members of the United States Armed Forces. The Applicant shall contact the appropriate local Social Service and/or Housing Authority offices for identification and placement of these potential residents.

The community's Property Management Team shall make annual reports to the Zoning Administrator as to the number, type and location of units hereunder that shall have been rented as ADUs and shall verify that they have been rented to Qualified Parties.

These obligations are described in greater detail in the proposed Conditions of Approval.

**Condo Sale of Block 2 and Block 3**

All dwelling units in all three blocks are intended to be for rent, however, Applicant will maintain the ability to sell the entirety of Block 2 (Multi-Family Townhomes) and/or the entirety of Block 3 (Multi-Family 2-over-2s) as Condos. The Applicant agrees to sell all or none of the units within Block 2 or Block 3, so as to prohibit a mix of for rent and for sale units in the same block.

All conditions of the SUP will continue to be enforced in a block sale scenario through the Declarations of Restrictive Covenants that the Applicant will record and encumber the Block 2 and/or Block 3 parcels. In a block sale scenario, Homeowner Associations will be established to maintain all conditions of the SUP and will own the block parcel, while individual condo owners will own the condo dwelling units.

In a sale scenario, residents/owners of the condos will not be tenants of the apartment community and will not have access to the rental amenities located within Block 1.

In a block sale scenario, 10% of the units within the sold block will be required to be sold as ADUs, in accordance with the language outlined in the SUP's Affordable Housing Conditions of Approval.

**Architecture**

The Conditions of Approval includes language that the final design of all buildings shall be in general conformance with the materials included in this SUP submittal.

Two options for exterior elevations have been provided to Planning Commission, who will select which option is approved for Town Council review. Elevations for the two options can be found on SUP Sheets 11 – 15B.

A list of prohibited materials is also included in the Conditions of Approval.

One noteworthy architectural feature that has been added to the Block 1 apartment building design is the inclusion of two "building insets or step backs" along Oak Springs Drive. These

features have been added to lengthy sections of the building in order to break up the larger massing areas and to create the sense of agglomeration, as opposed to a single frontage.

*Building "Insets" Added to Break Up Massing on Oak Springs Drive*




**Garage Screening**

A structured parking garage is proposed in Block 1. Three of the garage's four sides will be concealed within the apartment building and not visible from the exterior. The south facing façade, while exposed, is not anticipated to be easily viewed from ground level, given its position behind the existing Warrenton Village Center commercial buildings. To mitigate concerns that may remain regarding its visibility, the Applicant will install a screen on the southern facing façade of the garage to minimize its visual impact. A concept of this screening is provided below.

*Conceptual Garage Screening Design on South Facing Façade*




**Block Sequencing and Required Site Improvements**

Applicant can develop the blocks in any order. Each block will have its own independent Site Development Plan, separately submitted and approved by the Town of Warrenton.

All improvements included within each individual block are shown on SUP Sheet 4 and Sheet 5.

To ensure that site improvements are completed in a timely manner along with the residential buildings, Applicant agrees that the Town of Warrenton will withhold Certificates of Occupancy (COs) in accordance with the following schedule:

- Block 1: the 215th CO within Block 1 will not be issued until such time as all Block 1 site improvements have been substantially completed;
- Block 2: the 19th CO within Block 2 will not be issued until such time as all Block 2 site improvements have been substantially completed;
- Block 3: the 33rd CO within Block 3 will not be issued until such time as all Block 3 site improvements have been substantially completed.

It is anticipated, but not required, that Block 1 (Multi-family Apartment Building) will commence construction first. Block 2 (Multi-Family Townhomes) is anticipated to commence simultaneously with Block 1 or shortly after, depending on market conditions. Block 3 (Multi-Family 2-over-2s) will commence last, due to in-place tenants in the current retail building at that location (Summit Community Bank). It is anticipated that Block 3 will commence upon lease expiration of current retail tenant, but exact timing is unknown.

**Open Space**

Each individual residential block/parcel, as well as the residual retail parcel, will individually satisfy the 10% open space requirement.

Applicant will construct all open spaces in general conformance with the renderings and materials included in the SUP and inclusive of the "New Improvements" listed on Sheet 6 "Open Space Plan."

Most Notably:

- Open Space A in Block 1 will include the West Plaza, inclusive of a hardscape residential plaza with bench seating and a bike rack;
- Open Space D in Retail Block will include a fenced in dog play area, picnic table seating and a bike rack;
- Open Space E in Retail Block will include the Central Plaza, inclusive of a lawn area, splash-pad, bench seating, two bike racks, and future commercial pad.

**Site Conditions**

The proposed development consists of two parcels totaling approximately 29.05 acres. Approximately 22.59 acres are the existing shopping center known as Warrenton Village Center and the remaining 6.46 acres are a vacant semi-wooded parcel with road frontage on Broadview Avenue and Oak Springs Drive. The topography of the site ranges in elevation from 550' at the northwest corner of the site at Broadview Avenue to an elevation of 505' along the eastern property line at Branch Avenue. Site soils consist of various loams such as Rohrersville, Middleburg, Fauquier Silt, Glenelg and Elioak. A detailed tree survey will be provided at the time of Site Development Plan.

The Property is surrounded by a mix of commercial, education and residential uses:

- To the north, across Oak Springs Drive, is Highland School, Brookside Rehab and Nursing Center and the Cedars of Warrenton town home community;
- To the east, across Branch Drive, is Safeway and other commercial businesses included within Warrenton Village Center;

- To the south is Warrenton Village Center;
- To the west, across Broadview Avenue, are standalone commercial and office uses and single family neighborhoods.

**Construction Impacts**

Construction limits of disturbance will be limited to within the Property. No neighboring or adjoining properties will be included within the limits of disturbance. All construction parking will be contained within the Property and/or specified locations within Warrenton Village Center. No offsite impacts or storage will be required. If substantial rock is discovered at the Property, blasting may be required and permitted in accordance with Town of Warrenton requirements.

Per Gorove Slade's Traffic Impact Analysis, turn lanes are not warranted at the proposed access points on Oak Springs Drive, therefore, the only impact to the public right of way will be the two new connections to Oak Springs Drive and the two new crosswalks on Oak Springs Drive.

**Construction Timelines**

Block 1 (Multi-family Apartments): Construction will take approximately 24 to 28 months.

Site Work Duration: 6 to 8 months
Vertical Construction Commencement: ~ Month 6
Vertical Construction Duration: 18 to 20 months
Clubhouse/Leasing Delivery: ~ Month 20
First Units Available: ~ Month 20
Construction Completion: ~ Month 26

Block 2 (Multi-family Townhomes): Construction will take approximately 16 months.

Site Work Duration: 3 to 4 months
Vertical Construction Commencement: ~ Month 4
Vertical Construction Duration: 8 to 12 months
First Units Available: ~ Month 12
Construction Completion: ~ Month 16

Block 3 (Multi-family 2-over-2s): Construction will take approximately 16 months.

Site Work Duration: 3 to 4 months
Vertical Construction Commencement: ~ Month 4
Vertical Construction Duration: 8 to 12 months
First Units Available: ~ Month 12
Construction Completion: ~ Month 16

Construction schedules included herein are estimates and subject to change based on potential unanticipated delays, such as those caused by severe weather, material shortages, etc.

**Economic Impact**

A Fiscal Impact Analysis by S. Patz & Associates, Inc. determined that the Proposal would result in a $46,100 annual surplus for the Town of Warrenton, plus the additional benefit of much needed housing supply.

The full report has been submitted as part of the SUP application.

**Traffic Impact Analysis**

New access to the Property will be provided via a parking garage entry with direct access to Oak Springs Drive (Town Route 3), a fourth-leg to the existing full-movement intersection of Oak Springs Road at Hastings Lane, and via the existing shopping center accesses to the south.

Based on the capacity and queueing analysis results, the proposed Warrenton Village Center will not have a substantial impact on the surrounding transportation and roadway network. No improvements are warranted or recommended to mitigate traffic concerns created by the Proposal.

It is anticipated that the peak activity times for the proposed residential units would have only a short overlap with the Highland School peak arrival and dismissal times. Based on existing traffic counts, the school driveway on Oak Springs Drive sees most activity after 7:45 AM and has very little traffic after 4:30 PM. Typical peak times for multi-family residences are 7:00-8:00 AM and 5:00-6:00 PM, according to the Institute of Transportation Engineers. Similarly, the Traffic Impact Study prepared for the site indicates that with both Highland School traffic and new trips from the residential units, acceptable traffic operations would be maintained at the shared entrance location during all times of day.
To help mitigate potential traffic concerns during Highland School's peak AM and PM hours, the Applicant proposes to install signage and lighting at the Primary Garage Entrance to encourage residents to use the Secondary Garage Entrance at those times—during Highland School's peak hours, a red light will turn on at the interior exit to the garage's Oak Springs Drive access point with signage saying "Highland School Peak Traffic Hours – Recommend Using Secondary Exit" (or something similar).

The full report on transportation impacts can be found in the Traffic Impact Analysis by Gorove Slade that has been submitted as part of this SUP application.

**New Amenities for Public Use**

In addition to the extensive package of amenities that will be offered to tenants within the Block 1 multi-family apartment building, the Proposal also includes a variety of new improvements that will be available to and benefit the general public:

- Improved walkability through an enhanced sidewalk and crosswalk network within the Center will make for a more efficient shopping experience.
- New and improved crosswalks on Oak Springs Drive at Hastings Lane and at the Highland School entrance will create easier and safer points of pedestrian access to the Center.
- Traffic slowing measures will create a safer walking environment.
- The Central Plaza will provide a new destination family attraction for residents of Warrenton with its splash-pad, activity area and future eatery.
- The Dog Park will offer a new off-leash area for pets to play, while owners can relax nearby on benches and picnic tables.
- Restoration of Oak Spring along with improved seating areas.

## Impact on Community Facilities

Stormwater Management will include, but not be limited to both structural and non-structural best management practices for managing stormwater runoff. This could include underground stormwater facilities, bio-retention areas and rain gardens.

The Property will connect to public water and sewer. The Town of Warrenton Department of Public Works and Utilities has utilized a calculation of 300 gallons per day per unit and determined that there are no concerns with providing adequate capacity for the Proposal.

The Property will rely on Town Services such as fire, rescue, and police services.

## Impact on Schools

School age children residing at the proposed community would attend the following public schools:

| | |
|---|---|
| Elementary: | Bradley |
| Middle School: | Taylor/Warrenton |
| High School: | Fauquier |

Per existing and projected enrollment data provided by Fauquier County Public Schools, the max capacity and projected enrollments of these schools are shown in the table below. Based on the available data, an increase of 225 elementary students, 244 middle school students and 464 high school students would be required to meet the capacity at any of these schools over the next five years.

*Available Capacity at District Public Schools*

| | | *Actuals* | *% of Capacity* | *Projections* | | | | |
|---|---|---|---|---|---|---|---|---|
| **Bradley Elementary School** | | | | | | | | |
| Max Capacity | 588 | | | | | | | |
| | | *2023-24* | | *2024-25* | *2025-26* | *2026-27* | *2027-28* | *2028-29* |
| Enrollment | | 349 | 59.4% | 341 | 354 | 355 | 363 | 360 |
| Available Capacity | | 239 | | 247 | 234 | 233 | 225 | 228 |
| **Taylor/Warrenton Middle School** | | | | | | | | |
| Max Capacity | 850 | *School Year* | | | | | | |
| | | *2023-24* | | *2024-25* | *2025-26* | *2026-27* | *2027-28* | *2028-29* |
| Enrollment | | 607 | 71.4% | 607 | 601 | 569 | 601 | 606 |
| Available Capacity | | 243 | | 243 | 249 | 281 | 249 | 244 |
| **Fauquier High School** | | | | | | | | |
| Max Capacity | 1,634 | *School Year* | | | | | | |
| | | *2023-24* | | *2024-25* | *2025-26* | *2026-27* | *2027-28* | *2028-29* |
| Enrollment | | 1,122 | 68.7% | 1,089 | 1,111 | 1,153 | 1,147 | 1,170 |
| Available Capacity | | 512 | | 545 | 523 | 481 | 487 | 464 |
| **COMBINED** | | | | | | | | |
| Max Capacity | 3,072 | *School Year* | | | | | | |
| | | *2023-24* | | *2024-25* | *2025-26* | *2026-27* | *2027-28* | *2028-29* |
| Enrollment | | 2,078 | 67.6% | 2,037 | 2,066 | 2,077 | 2,111 | 2,136 |
| Available Capacity | | 994 | | 1,035 | 1,006 | 995 | 961 | 936 |

Fauquier County Public Schools uses the following calculation to estimate student generation from various housing types:

- Single Family Detached Dwelling: 0.72 students per household
- Single Family Attached Dwelling: 0.45 students per household
- Multi-Family Apartment Dwelling: 0.20 students per household

Fauquier's methodology then allocated students as follows:

- 52% to elementary school
- 22% to middle school
- 26% to high school

Based on the student generation calculation used by Fauquier County Public Schools, at full buildout, Warrenton Village Center is projected to generate the following students:

- Block 1: 320 apartments x 0.20 = 64 students
- Block 2: 36 attached dwellings x 0.45 = 16
- Block 3: 30 attached dwellings x 0.45 = 14
- Total proposed students = 94

With allocations per school as follows:

- 52% to Bradley = 49 students
- 22% to Taylor/Warrenton = 21 students
- 26% to FHS = 24 students

The chart below shows the projected students generated from Warrenton Village Center versus the minimum available capacity at those schools over the next five years.

| School | Min. Capacity | New Students | Remaining Capacity |
|---|---|---|---|
| **Bradley** | 225 | 49 | 176 |
| **Taylor/Warrenton** | 243 | 21 | 222 |
| **FHS** | 464 | 24 | 440 |

**Topography**

To address grade changes of approximately 45' from west to east across the site and approximately 10' from south to north, the architect and engineering teams have utilized different grade mitigation methods such as stepped buildings, introduction of "basement" units, small retaining walls and adding elevated stoops with sidewalk access.

Below is a building elevation to help illustrate some of these strategies—this elevation is taken from the new Hastings Lane extension, looking west at the proposed multi-family building.

*Profile Illustrating the "Stepping" of the Apartment Building*




In Section A, at the corner of Oak Springs and Branch Drive, the Property's elevation is at its lowest point. The leasing offices and amenity areas have been located at this corner and the finished floor elevation of the building has been dropped to mitigate the lower elevations and provide direct on-grade access at that point. These sections will also benefit from increased ceiling heights created from the "sunken" finished floor elevation.

In Section B, as the site's elevation rises, residential units will be elevated above the street level, with access to those units provided by a secondary sidewalk that sits on top of a section of masonry retaining wall. One "public" sidewalk will be placed adjacent to the street and run with the slope and a secondary "private" sidewalk will be placed adjacent to the building in an elevated, level position. The elevated residential units will have direct access to the raised secondary sidewalk, which will also create increased privacy for those ground floor residents. See image below for illustration of this concept.

*View of Section B Showing "Double Sidewalk" Configuration*




In Section C, the finished floor elevation of the building is on-grade at street level and no grade mitigation is required.

In Section D, where there is a steep increase in elevation, the building will step from four-stories to three-stories, utilizing a retaining wall hidden within the building's foundation to mitigate the significant grade change.

Through methods such as these around the Property, the elevation changes across the site will be mitigated in subtle and attractive ways that enhance the aesthetic of the building and avoid large and potentially unsightly retaining walls.

**Geotech**

A geotechnical report will be completed at the time of Site Development Plan. Results of the study will be incorporated into the certified structural design and approved during the building permit review process.

**Block 2 & Block 3 Mail**

Block 2 and Block 3 will require cluster mailboxes. The mailbox locations and adequate temporary parking (delivery/pickup) will be approved at Site Development Plan.

**Road & Infrastructure Maintenance**

The Warrenton Village Center will be owned and maintained by Jefferson Associates L P, Warrenton Center, LLC and/or affiliated entities. These entities will be responsible for the continued maintenance and cleaning of all existing and proposed improvements, including but not limited to residential buildings, private roads, sidewalks, stormwater facilities, parking areas, plazas and open space, as well as continued maintenance of landscaping, including mowing, weeding, mulching and snow removal.

**Modified Alley – Improvements, Vehicular Access & Loading, and Screening**

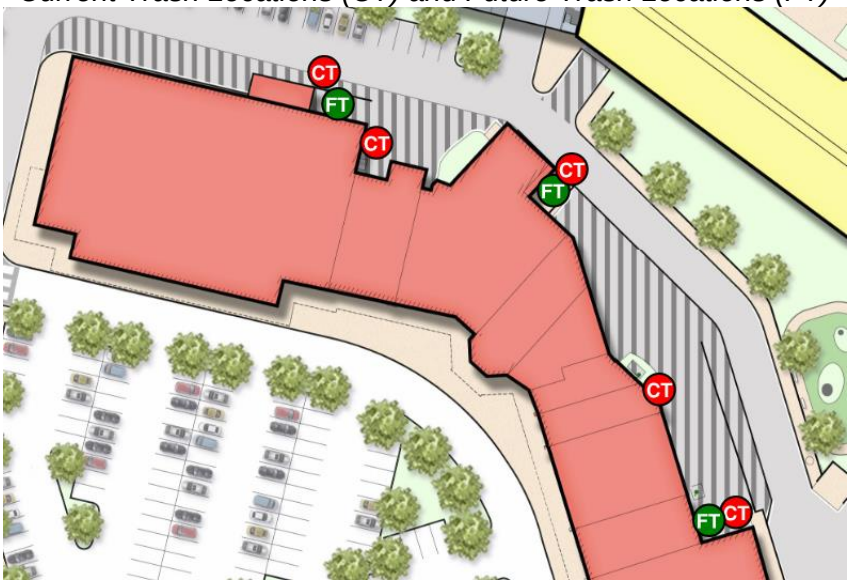
Improvements to the existing alley located behind the retail buildings are proposed with this SUP plan. The primary usage of the Modified Alley will continue to be for “back of house” loading functions and trash pickup areas for the existing commercial buildings. These functions will be improved through several enhancements, including a consolidation of existing dumpster locations into three, centrally located, screened trash areas (see Sheet 19 of SUP), removal and cleanup of existing “ancillary” structures that have been erected adjacent to the commercial buildings, painting of the rear facing commercial façade, and striping of “back of house” areas to designate retail loading and trash zones. This alley will also include approximately twenty-five parking spaces that will be reserved for employees of the commercial tenants.
The Modified Alley will also serve as a secondary vehicular ingress/egress into the garage, as well as provide Residential Loading and Trash Pickup Areas. Two residential loading and trash pickup areas have been designated within the Modified Alley. The primary ingress/egress into the garage will be located on Oak Springs Drive, so as to minimize vehicular traffic in the Modified Alley.

Vehicular studies have been performed to ensure appropriate turning radii will be provided for commercial loading vehicles and adequate lines of site around all corners/turns will be confirmed during Site Development Plan review. These studies were coordinated with the existing shopping center owner to ensure that adequate loading space will be provided for each of the business’s required loading vehicle sizes and types. Additionally, convex traffic safety mirrors can be installed at any location that poses a safety concern.

The Applicant plans to incorporate a number of visual improvements to the Modified Alley, summarized below:

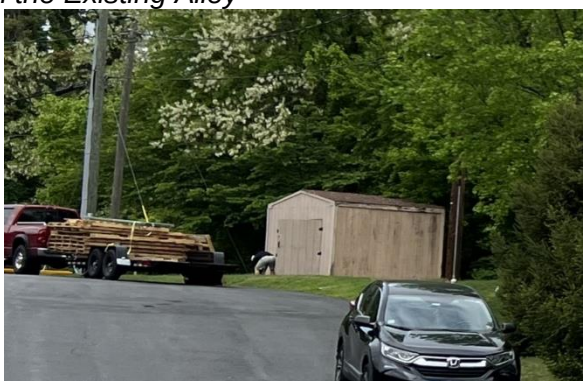
- Garage positioning: the garage has purposefully been located in a parallel position along the rear of the commercial buildings so that the majority of the multi-family building that abuts the “back of house” area is non-residential space.
- Trash screening: commercial trash areas have been consolidated into three locations, all of which will have new privacy fencing installed around the designated areas. Construction details of all screening and fencing will be addressed at the time of Site Development Plan.

*Current Trash Locations (CT) and Future Trash Locations (FT)*




- Landscape buffers and screening: all portions of the Modified Alley that are within the potential viewshed of residential dwelling units will include 35’ to 50’ of landscape buffers, plus privacy fencing along the drive lanes—see Sheets 18 & 19 of SUP. Construction details of all screening and fencing will be addressed at the time of Site Development Plan.
- Painting: all rear elevations of the commercial building that are adjacent to the Modified Alley will be repainted in a consistent, neutral color.
- Striping: all residential and commercial trash and loading areas will be striped to encourage loading/delivery activity to stay out of the travel way and within the designated locations.
- Demolition: all ancillary structures that have been erected adjacent to the commercial building will be demised and removed. Examples of these ancillary structures are shown below.

*"Ancillary Structures" in the Existing Alley*



**Loading and Trash Pickup Areas**

Striped loading and trash pickup areas are proposed along both sides of the Modified Alley. The loading areas are intended to be reserved for exclusive use by either the residential tenants or the commercial tenants, as outlined below:

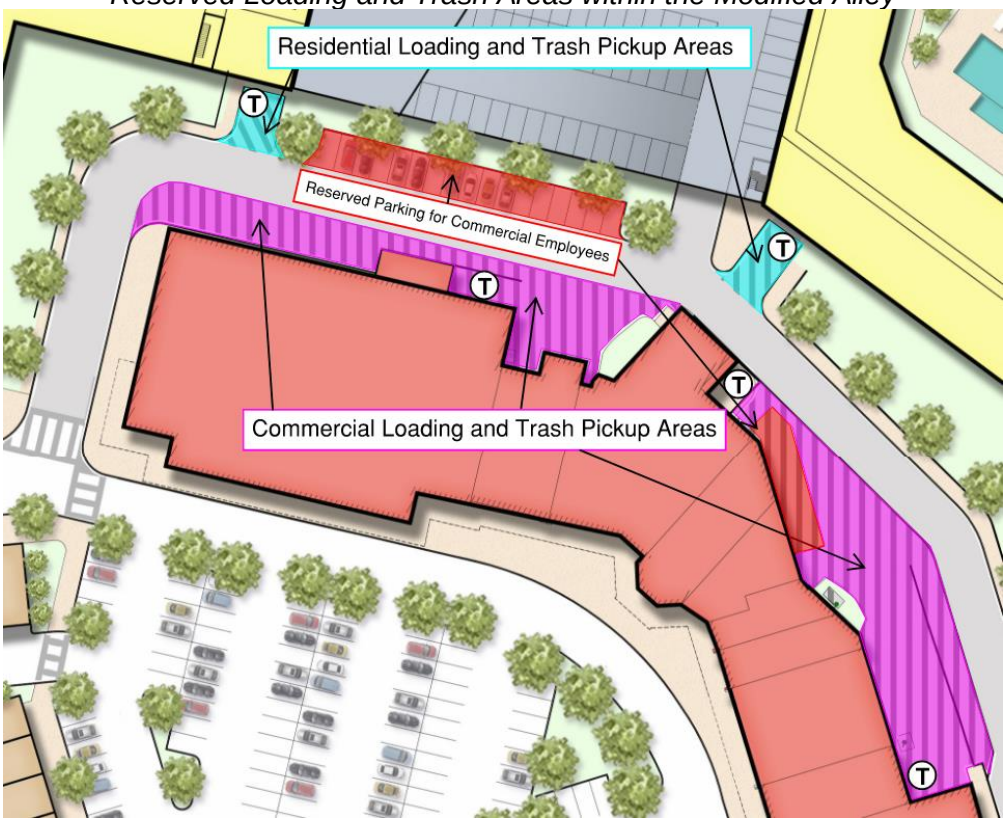
- Commercial Loading and Trash Area (PINK): these striped areas will be reserved for exclusive use by commercial tenants for "back of house" operations. These areas will provide access to necessary loading and delivery areas for the commercial tenants in accordance with their current and future needs. Existing loading areas and loading doors/docks will continue to serve the commercial building—no changes are proposed to the existing commercial loading bays and appropriate turning radii will be provided to ensure that commercial vehicles maintain access to existing loading facilities. Commercial trash dumpsters will be consolidated to the three locations marked with a "T" and will be shielded with privacy fencing. Privately contracted waste management services will pick up trash at these locations on scheduled trash days.
- Residential Loading and Trash Area (BLUE): these striped areas will be reserved for exclusive use by residential tenants for "move in / move out" purposes. Tenants will have the ability to reserve these areas on an hourly basis at specific times to facilitate move ins and move outs. Reservations for use of these spaces will be made through the property management team. These two loading areas are a minimum of 30' deep, which is adequate space to fit the maximum sized commercial rental truck (e.g. U-Haul truck). These areas will also serve as trash pickup locations for the residential building. On scheduled trash days, property management will roll dumpsters from the trash compactors

located on the interior of the building to these locations, where they will be picked up by privately contracted waste management services.

- No ground level residential units will be placed adjacent to the Residential Loading and Trash Areas. Those areas of the buildings will be designated for loading and trash services.

- Reserved Parking for Commercial Employees (RED): to ensure that employees of the commercial tenants do not utilize the loading areas for employee parking, approximately 25 parking spaces will be provided for their exclusive use along the Modified Alley. This will help to provide consistent, unimpeded trash and loading access to both the residential and commercial tenants.

*Reserved Loading and Trash Areas within the Modified Alley*




**Trash**

The Applicant shall maintain Warrenton Village Center in a clean and orderly manner and shall arrange for the pickup of trash, litter, and debris on a daily basis through a private refuse collection company.

Deliveries and refuse/solid waste collection shall follow Town Code Section 11-19(9).

Residential Trash Locations: trash facilities are proposed at three locations (found on Sheets 4 & 5 of the SUP):

1) Block 1: A trash compactor will be located within the multi-family building. Trash chutes will be located on all floors of the building for direct deposit of trash from residential floors into the trash compactor. Trash bins will be rolled out by property

management to one of the Residential Loading and Trash Pickup Areas on either side of the garage on trash pickup days.

2) Block 2: It is anticipated that each individual unit will have its own trash bin kept within that unit's garage. Residents will be responsible for rolling trash bins out to the rear alley on trash pickup days.
    a. If the municipality will not allow individual trash bins/pickup, the location for a potential trash dumpster that will serve all residents of Block 2 has been included in the SUP plans.
    b. Block 2 dumpster will be surrounded by privacy fencing, as well as landscape buffering.
3) Block 3: It is anticipated that each individual unit will have its own trash bin kept within that unit's garage. Residents will be responsible for rolling trash bins out to the rear alley on trash pickup days.
    a. If the municipality will not allow individual trash bins/pickup, the location for a potential trash dumpster that will serve all residents of Block 3 has been included in the SUP plans.
    b. Block 3 dumpster will be surrounded by privacy fencing, as well as landscape buffering.

Commercial Trash Locations: trash dumpsters behind the existing retail buildings will be consolidated into the three centrally located trash areas shown on Sheet 19 of the SUP. These trash areas will be hidden from public view with new privacy fencing.

All exterior refuse storage areas will be shielded within enclosures or privacy screening.

**Wayfinding**

The Applicant will include detailed locations and specifications on all proposed signage and wayfinding in the site plan. All signage will comply with the Zoning Ordinance at the time of Site Development Plan.

A Conceptual Signage Plan can be found on Sheet 21of the SUP.

**Lighting**

The Applicant will prepare a detailed lighting plan in conformance with §9-8 of the Zoning Ordinance and will install lighting in accordance with that plan. This will be reviewed at the time of Site Plan Development review.
Light pollution restrictions will include:

- All site lighting, to include both new fixtures within the new development areas as well as any non-residential area that is modified as a part of site development, must consist of fully-shielded, full cut-off fixtures to meet the requirements of Article 9, Section 9-8.
- Color temperature of exterior light fixtures will be 3,000 degrees kelvin or lower.
- Average horizontal illumination level of exterior light fixtures will be 3.0 footcandles or less.

A Conceptual Lighting Plan can be found on Sheet 22 of the SUP.

**Bicycle Plan**

The streets within the retail and residential areas are proposed to function as shared streets for both cars and bicycles. This is appropriate given the low vehicular volumes, short street segments

that limit vehicular speeds, existing and proposed character of the property with significant pedestrian/vehicle interactions, and the need to minimize street widths to keep pedestrian crossing distances short.

Eliminated/shortened travel ways, especially those encouraging speedy vehicular use between Broadview Avenue and Oak Springs Drive, change the nature of available accessways within the Center. This combined with on-street parking – parallel and head-in spaces, reduced driveway widths and raised crosswalks, will automatically provide traffic calming and slower traffic speeds, thereby making it safer for multi-modal use. Visitors entering the site are immediately confronted with a travel landscape that is unlike urban throughfares and more like parking lots with limited speeds, but good visibility. Unlike urban throughfares, which are designed for speedy travel between points A and B, visitors entering the Center will be immediately at B. The proposed streets and accessways encourage visitors to think about parking their vehicles or bikes and setting out on foot.

A Conceptual Circulation Plan, including proposed bicycle travel ways and public bike rack locations, can be found on Sheet 23 of the SUP.

**Resident Connectivity to the Town of Warrenton**

The Applicant believes that the new residents of Warrenton Village Center should not only benefit the commercial tenants at the Center but should provide new patronage to all of Warrenton's businesses. To do this, the Applicant desires to enhance and promote new and existing transportation networks to other areas of Warrenton.

Warrenton Circuit Rider: to encourage increased use of this public transport by residents, the Applicant proposes the following concepts:

1) There are currently Green Route and Blue Route stops within Warrenton Village Center at the current location of Joann Fabrics. If desired by the Town, the Applicant agrees to work with the Town to establish additional stops at the West Plaza and/or East Plaza residential lobbies.
2) Install permanent signage within residential lobbies to promote this public transportation option.
3) Establish a program with the Town that provides tenants with a monthly stipend for Circuit Rider fares—"Circuit Rider Cash" or something similar that would be accepted by the buses and funded by the apartment community.

**Green Building Design**

All residential buildings will be designed and certified to a National Green Building Standard (NGBS), Level Bronze, or higher. This certification requires minimum efficiency standards among building materials, plumbing and electrical fixtures, appliances and much more. If NGBS is not available for this project, an equivalent certification from an alternative third-party green building rating system will be acceptable.

**EV Stations**

To encourage continued growth of electric vehicles, a minimum of 2% of parking spaces within the Block 1 parking garage will include electric charging stations for resident use. Block 2 and Block 3 will not include charging stations, as residents will be able to utilize individual unit garages to supply EV power.

### Noise & Exhaust

The proposed development will not produce any noticeable increase in noise or odor.

### Emergency Services

All plans will be in conformance with Town Code and approved at Site Development Plan.

Sheet 8 of the SUP provides a Fire Truck Movement plan, confirming 360-degree fire truck access to all buildings.

### Community Hours of Operations

All proposed residential rental units in all three blocks (multi-family, townhome and 2-over-2 units) will be part of the same new apartment community. All residents will have access to the community amenities found primarily at the Block 1 multi-family building. Hours of operations for the community's amenities will be as follows:

Leasing Office: 9am-6pm (Monday-Friday), 10am-5pm (Saturday), Closed (Sunday)
Mail & Packaging: 24 hours a day, 7 days a week
Bike Storage: 24 hours a day, 7 days a week
Pool and Pool Deck: 10am – 8pm, 7 days a week (Memorial Day to Labor Day)
Fitness: 24 hours a day, 7 days a week
Co-Working Space: 24 hours a day, 7 days a week
Entertainment Lounge: 24 hours a day, 7 days a week
Gathering Room: 24 hours a day, 7 days a week
Garage Parking: 24 hours a day, 7 days a week

### 3-Bedroom Unit Maximum

3-bedroom apartments are important to provide a wide range of housing types and price points to the residents of Warrenton. 3-bedroom units provide the lowest rental rates on a per bedroom basis and are therefore pivotal when seeking to provide lower cost options to the Town's residents. In order to minimize concerns regarding potential fiscal impacts of 3-bedroom units, the Applicant agrees to cap 3-bedroom units in Block 1 at 10% of the total Block 1 units.

## PLAN WARRENTON 2040

Plan Warrenton 2040 establishes a series of goals for future development within Warrenton. This proposal advances many of these goals, which have been outlined below:

### Housing Goals

Character Districts are identified as an opportunity for "expanding housing options" and to "accommodate a range of housing typologies." The Proposal advances this goal via inclusion of multiple housing types.

Goals H-1 and H-1.3 recommend the creation of workforce housing. The Proposal advances this by creating a variety of housing types to provide a wide range of rental price points, as well as inclusion of an affordable housing component.

Goal H-1.1 is to encourage “Missing Middle” housing types. The Proposal advances this goal by providing highly sought after rental dwellings in both townhome and 2-over-2 product types.

Goal H-1.2 of the Plan is to encourage the creation of a range of housing types. The Proposal meets this goal by providing 1-, 2- and 3-bedroom multi-family apartment units, as well as 2-over-2 and townhome dwelling units.

Goal H-2.2 of the Plan provides for appropriate use and scale of development and proper transitions to existing neighborhoods. The Proposal meets this goal by placing higher, four-story buildings in areas closer to existing commercial and future three-story residential, and then steps down to three-story buildings on the west side, where existing neighborhoods and future low density residential are found on the west side of Broadview Avenue.

**Open Space, Parks, & Environment Goals**

Goals P-3 and P-3.1 focus on providing residents with access to green and public spaces. The Proposal meets this goal by providing significant open space in close proximity to new residential housing, most notably, at the newly proposed Central, East and West Plazas.

**Transportation Goals**

Goals T-3.6 and T-3.10 focus on encouraging bicycle friendly policies and bicycle parking in new development standards. A bike storage room will be located within the multi-family building for use by all residents, as well as multiple bike racks throughout the site to promote bicycle transportation and recreation.

Goals T-3.4 and T-4.3 focus on creating a walkable network with sidewalk, pedestrian safety features, and increased network connectivity. An extensive new sidewalk network is being proposed throughout the Warrenton Village Center to promote walkability for residents and commercial shoppers alike. Pedestrians will have the ability to easily navigate between the residential, commercial and plaza areas with new sidewalks, crosswalks and vehicular traffic slowing measures.

**Economics & Fiscal Resilience Goals**

Goal E-1.2 of the Plan calls for a range of housing, with appropriate levels of density and transitions. The Proposal meets this goal by providing a variety of housing types, with height and density tapering down toward existing residential neighborhoods.

Goal E-1.5 of the Plan focuses on a diverse, equitable stable tax base. The Proposal advances this goal by providing opportunities for an increased tax base through its added housing stock.
Goal E-2.2 of the Plan promotes Warrenton’s high quality of life to attract employers to work here. The Proposal will appeal to employers wanting to offer their employees new, high quality housing options. Warrenton Village Center will provide the Town with the first new, Class A apartment community in decades.

Goal E-2.5 of the Plan calls for development of a range of housing types. The Proposal meets this goal by providing 1-, 2- and 3-bedroom multi-family apartment units, as well as 2-Over-2 and townhome dwelling units.

Goal E-3.3 of the Plan focuses on maximizing public spaces and right-of-way for outdoor gathering space. The Proposal meets this goal by adding significant publicly accessible open space to the Property, most notably, at the Central, East and West Plazas.

**Land Use & Character Districts**

The Plan recommends a set of ten design criteria for projects within a Character District. The proposal meets and advances all these criteria, as shown below:

**1. Discernable Center**

The highlight of the proposed Warrenton Village Center is the new Central Plaza. The Plaza is centrally located within the 29-acre site at the crossroads of vehicular and pedestrian circulation and positioned to benefit the new residential units and existing commercial businesses alike. The Central Plaza is proposed as approximately one-half acre and includes a spash-pad, public green, hardscapes for seating and decorative planters and flower beds. It is sized, programmed, and designed for everyday use as well as for larger community activities. Additionally, the Central Plaza is bookended by a space for future retail development that would further activate the public amenity. A new raised watertable crosswalk will provide safe pedestrian connectivity and new wayfinding will allow the entire Warrenton Village Center to easily locate and enjoy this new public space.

**2. Connected sidewalks with a clear pedestrian path, street trees, and lighting**

The new Warrenton Village Center will benefit from a multitude of improvements that will increase pedestrian connectivity throughout the entire site. New sidewalks will be added along the entire perimeter of all residential blocks, including direct sidewalk connectivity to all street facing, ground floor units. The extension of Hastings Lane and accompanying sidewalks will offer a new pedestrian access point from Oak Springs Drive. Multiple sidewalks will link the three new residential blocks to the new public amenities and allow maximum ease of walkability from one side of the Property to the other.

Ample street trees, landscaping and lighting will line the sidewalks along the streets and private drives, providing shade during the day and lighting during the evenings to create a pleasant and safe walking environment.

Detailed landscaping and lighting plans will be provided at Site Development Plan review. Concept plans have been included on Sheets 9 & 10 (landscape) and Sheet 22 (lighting) of the SUP.

The siting of all three blocks, the sidewalk connections leading from the residential to the retail and the consistent street wall and streetscape envisioned will allow for a familiar experience typically seen in traditional mixed-use settings.

**3. Buildings that are placed close to the street to create a sense of place**

All buildings have been placed along exterior streets to create desirable streetscapes and a sense of place. Majority of parking has been pulled away from streets and concealed from view within a centrally located parking garage—inclusion of the parking garage has eliminated the need for unattractive surface parking lots.

Portions of all three building types (multi-family, 2-over-2s and townhomes) have been faced inwards so that they are visible from the commercial areas to enhance the mixed-use feel of the Center.

Street-facing, ground level units in all residential buildings will have direct access from the units to the sidewalk systems installed along all public and private streets.

**4. Parking placed behind buildings and away from street frontages**

All parking for Block 1 will be centrally located within a four-story parking garage that has been concealed from public view within the building itself.

Block 2 and Block 3 will have interior garages (two-car garage per townhome unit and one-car garage per 2-over-2 unit), surface parking in the driveways behind all 2-over-2 garages, and visitor parking areas found within both blocks.

**5. Complete streets create a balance between cars, pedestrians, and bicyclists**

The street networks are designed to slow vehicular traffic, create ease of access for residents and visitors, and promote pedestrian activity.

A bike storage room will be located within the multi-family building for use by all residents, as well as multiple bike racks throughout the site to promote bicycle transportation and recreation—see Sheet 23 of the SUP.

An extensive new sidewalk network is being proposed throughout the Warrenton Village Center to promote walkability for residents and commercial shoppers alike. Pedestrians will have the ability to easily navigate between the residential, commercial and plaza areas with new sidewalks, crosswalks and vehicular traffic slowing measures.

**6. Compact street blocs encourage walking**

The deliberate location of the Central Plaza and reorganization of vehicular, pedestrian and bicycle traffic around it allows the center to appear as a collection of smaller blocks, providing numerous ways for residents and visitors to explore areas within the Center.

These enhancements will create smaller, more compact blocks to promote easy walkability from the new residential to the existing retail.

Further traffic calming by way of raised crosswalks/watertables at important intersections and elimination of travel ways designed for speed will encourage pedestrian use.

**7. A park, trail, or activity center is within a half mile walking radius**

The proposed development will link its new residents directly to the adjacent shops and businesses of Warrenton Village Center, turning the existing retail into an active pedestrian amenity. The creation of the Central Plaza, East and the West Plaza will further promote the Warrenton Village Center as a destination for not only residents of the community, but all residents of Warrenton. The location of the plazas and their use and function is directly tied to the role they are expected to play. The Central Plaza is ‘centrally’ located at the crossroads – vehicular and pedestrian to allow it to function as the neighborhood center and is sized, programmed, and

planned to allow for community activities as well as everyday use. The East and West plazas serve as passive, ceremonial transition zones between the private residential realm and the public retail realm. Their primary intent and use is to connect residents with the rest of the commercial center while also allowing for a different, less active and smaller public area for passive recreation.

**8. A variety of dwelling types accommodates a wide range of family sizes and income levels and commercial activity**

As the first large rental community in the area in over a decade, the proposed Warrenton Village Center will add diversity to the housing market by providing much needed market rate and affordable rental dwellings. The community will offer 1-, 2-, and 3-bedroom apartment units within Block 1, as well as unique 2-over-2 and townhome units to supply the "missing middle" in Blocks 2 and 3—all dwellings are anticipated to be for rent.

**9. Neighborhood identity connects district wayfinding and identification with a larger marketing effort to bring private investment to the neighborhood**

Warrenton Village Center is an existing neighborhood anchor and community shopping destination. The new Warrenton Village Center will synergistically elevate the overall development, redefining the neighborhood identity as a regional Live-Work-Play destination for both residents and visitors from the surrounding area.

The overall aesthetic of the new Warrenton Village Center brand and identity will be a contemporary design that thoughtfully incorporates Warrenton's rich history, focusing on equestrian inspired materials and textures. The sleek façade of the exterior pairs light colored brick and cementitious panels with warm stone, wood, and dark metal accents.

Signage and wayfinding will exercise these same principles to create a sense of place and affirm the character of the new development. The existing equestrian themed signage at Warrenton Village Center will be contemplated to create fresh branding and wayfinding that complements the existing infrastructure with a new modern and sleek identity.

**10. The neighborhood edge provides the means of transition from the Character District to adjoining properties.**

The buildings are designed to scale appropriately with the adjacent current and future uses, which are primarily commercial with some periphery residential. At four-stories, the proposed new buildings will be a step down from the six-stories allowed along Lee Highway and create an appropriate transition to the three-story residential areas allowed on the north of Oak Springs Drive.

## Comprehensive Plan Future Land Use Analysis

Plan Warrenton 2040 labels this parcel in the Future Land Use Map within the New Town Character District. The New Town designation notes the district "will support the revitalization of the commercial shopping malls with a walkable development pattern that includes a mix of uses." Plan Warrenton also includes the following applicable goals:

**Transportation and Circulation Goals**

T-1: Improve multi-modal capacity and safety that encourages trips by walking, bicycling, and transit.

T-3 Promote livability in the Town by creating great places for residents and visitors to feel welcome and safe.

**Economic and Fiscal Goals**

E-1 Grow a strong, diversified, and resilient economy that supports residents and businesses a like.

E-4 Support Character Districts as unique mixed-use neighborhood centers

| Standard | Analysis |
|---|---|
| *Whether the proposed Special Use Permit is consistent with the Comprehensive Plan.* | The Applicant's proposal has been designed to advance the general goals of the Plan and the specific goals set forth for the New Town Character District, which is identified as "a location for signature office/jobs center; with greater intensity of mixed use and strong live, work and play options. A mix of uses cold be organized around an internal street network and public amenities, such as civic spaces, parks, green spaces and public gathering areas." |
| *The compatibility of the proposed use with other existing or proposed uses in the neighborhood, and adjacent parcels.* | The proposed development is surrounded by a mix of commercial, education and residential:<br><br>• To the north, across Oak Springs Drive, is Highland Private School, Brookside Rehab and Nursing Center and the Cedars of Warrenton town home community.<br><br>• To the east, across Branch Drive, is Safeway and other commercial businesses included within Warrenton Village Center. |

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| | • To the south is Warrenton Village Center.<br><br>• To the west, across Broadview Avenue, are standalone commercial and office uses.<br><br>The proposal is compatible with these uses and proposed uses and the goals of the Comprehensive Plan. |

## Zoning Analysis

The legislative intent of the Commercial District is to simultaneously encourage appropriate and timely land development while assuring suitable design by prohibiting uses that would create undue impacts on the surrounding residential areas.

| Standard | Analysis |
|---|---|
| *The level and impact of any noise emanating from the site, including that generated by the proposed use, in relation to the uses in the immediate area.* | The proposed use is a mixed-residential and retail. All non-residential uses must meet the noise standards under Article 9-14.2. |
| *The proposed location, lighting and type of signs in relation to the proposed use, uses in the area, and the sign requirements of this Ordinance.* | All signage shall be permitted in accordance with the Plan as shown and shall comply with any Zoning Ordinance regulations at that time. |
| *The location and area footprint with dimensions (all drawn to scale), nature and height of existing or proposed buildings, structures, walls, and fences on the site and in the neighborhood.* | The Applicant is seeking a minor modification to the height because it is located between Lee Highway, which allows up to six (6) stories, and Oak Springs Drive which allows up to three (3) stories. The goal of the height recommendations of Plan Warrenton 2040 is to step down towards residential zones. The proposal will achieve this goal in the Transition Zone along Oak Springs Drive. Though a fourth story is proposed by the Applicant for the apartment units, it maintains a step down in scale from the six stories permitted along Lee Highway. |

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| | Additionally, stepping down from six stories to four stories is a more gradual approach and a better design aesthetic than the stark hierarchal contrast of a dramatic drop from six stories down to three stories. From a visual perspective along Oak Springs Drive, maintaining three stories would mean that the structures behind the residential buildings could be twice their size or more with bonus height. |
| *The nature and extent of existing or proposed landscaping, screening and buffering on the site and in the neighborhood.* | Applicant acknowledges that landscaping must meet Zoning Ordinance requirements and will be reviewed as part of the Site Development Plan. |
| *The timing and phasing of the proposed development and the duration of the proposed use.* | There is no phasing proposed. |
| *Whether the proposed Special Use Permit at the specified location will contribute to or promote the welfare or convenience of the public.* | The mixed-use development will promote the welfare of the public by reducing housing costs for renters and promoting a healthier lifestyle be encouraging outdoor activity. |
| *Whether, in the case of existing structures proposed to be converted to uses requiring a Special Use Permit, the structures meet all code requirements of the Town of Warrenton.* | No existing structures are being converted |
| *The location, character, and size of any outdoor storage.* | No outdoor storage is proposed. |
| *The location of any major floodplain and steep slopes.* | Where applicable, all paving that may interact with major floodplains or steep slopes will be done with strict compliance to the flood-proofing and related provisions contained in the Virginia Uniform Statewide Building Code and all other applicable codes and ordinances. |
| *The location and use of any existing non-conforming uses and structures.* | There are no non-conforming structures or uses on the site. |
| *The location and type of any fuel and fuel storage.* | No fuel storage areas are noted on site. |

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| *The location and use of any anticipated accessory uses and structures.* | Where applicable, all accessory structure will comply with local codes and ordinances. |
| *The area of each proposed use.* | Unique housing types are proposed within each block:<br>Block 1: Multi-Family Apartments<br>Block 2: Multi-Family Townhomes<br>Block 3: Multi-Family 2-over-2s and Townhomes |
| *The location and screening of parking and loading spaces and/or areas.* | The Subject Parcel shall meet all parking requirements as outlines in Article 7. Should it be desired to expand the use in any of the buildings located on the Subject Property, the new proposed use shall be required to apply for approvals that meet Zoning Ordinance and additional parking requirements. |
| *The location and nature of any proposed security features and provisions.* | Not applicable. |
| *Any anticipated odors which may be generated by uses on site.* | The site must remain in compliance with Article 9-14.5 regarding the control of odors |
| *Refuse and service areas.* | The Applicant shall maintain Warrenton Village Mixed Use Center in a clean and orderly manner and shall arrange for the pickup of trash, litter and debris on a daily basis through a private refuse collection company. Additionally, trash pickup will be scheduled through the Town of Warrenton's Public Work's & Utilities – Refuse Collection. |
| *Whether the proposed Special Use Permit will result in the preservation or destruction, loss or damage of any significant topographic or physical, natural, scenic, archaeological or historic feature.* | No significant or topographic areas are located on site. |
| *The effect of the proposed Special Use Permit on environmentally sensitive land or natural features, wildlife habitat and vegetation, water quality and air quality.* | Except where given exceptions by the Special Use Permit, the proposal will comply with any federal, state, or local codes and ordinances regarding wildlife habitats, sensitive land or natural features, vegetation, water quality, and air quality. |

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| *The glare or light that may be generated by the proposed use in relation to uses in the immediate area.* | A concept lighting plan has been provided. Fixture details/cut-sheets and new structures will be required to be provided and reviewed as part of the Site Development Plan submission. |

## Transportation and Circulation Analysis

The primary transportation and circulation goal for the Town of Warrenton is to "Promote livability in the Town by integrating multi-modal, interconnected transportation solutions with land use development in each mixed-use Character District and applying traffic calming techniques that foster and protect non-vehicular street activities in established residential neighborhoods." The Transportation and Circulation section of the Comprehensive Plan sets out policies and objectives that work to further this goal. The section includes recommendations addressing improvements for pedestrian use, new street connections, parking and sidewalks, trails, cost sharing, traffic calming techniques, safety, and signage.

| Standard | Analysis |
|---|---|
| *The traffic expected to be generated by the proposed use, the adequacy of access roads and the vehicular and pedestrian circulation elements (on and off-site) of the proposed use, all in relation to the public's interest in pedestrian and vehicular safety, efficient traffic movement and access in case of fire or catastrophe.* | Mixed-use development of the property will assist in vehicular safety by reducing the amount that residents are required to drive; Additionally, no vehicles associated with the use shall obstruct the travel ways, fire lanes, adjoining road network or encroach upon landscaped areas as shown on the Special Use Permit Plan. No vehicles shall be located within site entranceways or otherwise impede ingress, egress, and internal circulation. Finally, access to the site is adequate as shown in site plan. |
| *Whether the proposed use will facilitate orderly and safe road development and transportation.* | |

## Community Facilities and Services Analysis

Public community facilities in the Town are provided by the Town, Fauquier County, and other public groups for the benefit of all residents. The availability and quality of these facilities, that include, schools, libraries, hospitals, parks, police and fire and rescue services, are evaluated when people are considering moving into the Town or nearby area. The provision of these facilities adds to the desirability of living in the Town. The Comprehensive Plan's primary community facilities and services goals for the Town of Warrenton are:

1. *Foster high-quality, equitable, and accessible community facilities that meet the Town's service requirements and support a high quality of life for the community.*

2. *Make responsible and strategic community facility investments that support the Town's vision for a live/work community, sustaining its fiscal well-being and economic resiliency.*

3. *Promote sustainability in all Town-owned facilities.*

4. *Reinforce the role of County community facilities into the Town fabric.*

5. *Promote livability through properly located Town services, schools, libraries, courts, and County administrative functions.*

6. *Support the connection of residential dwellings to public water and sewer.*

7. *Provide a high quality of life to capture economic benefits through diverse businesses, employers, and residences.*

Public services are essential to the community structure and quality of life, as well as to long-term economic vitality. They support existing and planned developments and contribute to the health, safety, education and general welfare of Warrenton residents.

| Standard | Analysis |
|---|---|
| *Whether the proposed Special Use Permit will be served adequately by essential public facilities, services and utilities.* | The Subject Parcels shall be served by public water and sewer. The Property Owner is responsible for all improvements required in order to meet the demand of the Subject Uses associated with the Property. |
| *The location of any existing and/or proposed adequate on and off-site infrastructure.* | |

## Economic Resources Analysis

An economic goal of Plan Warrenton 2040 is to promote a diverse, equitable stable tax base while preserving the character of the community.

| Standard | Analysis |
|---|---|
| *Whether the proposed Special Use Permit use will provide desirable employment and enlarge the tax base by encouraging economic development activities consistent with the Comprehensive Plan.* | Residential use will enlarge the tax base by providing increases in property taxes and increasing the local population, allowing more money to be spent at local businesses. Additional retail space will also create new |

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| | employment opportunities for the residents of Warrenton. |
| *The number of employees.* | No changes anticipated by applicant. |
| *The proposed day/hours of operation.* | For residential use, not applicable. For retail use, this would be subject to final decisions from the retailers. |

**SPECIAL USE PERMIT PROPOSED CONDITIONS**
**Applicant:** NewCastle Development Group, LLC ("The Applicant")
**Owner:** Jefferson Associates LP; Warrenton Center LLC
**Special Use Permit:** SUP 22-5, Warrenton Village Mixed-Use Center
**Address:** 360 Oak Springs Drive, Center District, Town of Warrenton, Virginia 20186
**GPIN #:** 6984-20-7247-000; 6984-29-6753-000
**Zoning:** Commercial District
**Special Use Permitting Area:** +/- 6.46 acres; +/- 22.59 acres
**Date:** May 31, 2024

In approving a Special Use Permit, the Town Council may impose such conditions, safeguards, and restrictions as may be necessary to avoid, minimize or mitigate any potentially adverse or injurious effect of such special uses upon other properties in the neighborhood, and to carry out the general purpose and intent of this Ordinance. The Council may require a guarantee or bond to ensure that compliance with the imposed conditions. All required conditions shall be set out in the documentation approving the Special Use Permit (SUP).

1. Site Development – The property shall be developed in substantial conformance with these conditions and the plans titled "Special Use Permit for Warrenton Village Center, REVISION 3 – 5/31/2024", and prepared by Bohler Engineering. Minor changes and adjustments may be made to the road and street alignments, entrances, parking, dimensions and location of SWM/BMP facilities, the exact configuration and location of building footprints, and other similar features as shown on the SUP Plan, provided they meet the intent of these Conditions and are approved by the Director of Community Development or the Zoning Administrator.

2. Use Parameters

    1. Special Use Permit Area – The Special Use Permit shall apply to the entire +/- 29.05-acre property.

    2. Use Limitations – Use shall be limited to residential and retail.

3. Waivers and modifications

    1. Article 2-6.1: The maximum density specified in the zoning ordinance for a given zoning district shall not be exceeded. The maximum density is 5 units per acre or 10 units per acre with inclusion of 10% affordable dwelling units.
        - Waiver Request #1: Increase density to 386 units or 13.28 per acre.
    2. Article 3-4.10.4: Required front yard setback from ROW greater than 50' is 40' minimum, if no parking or loading is proposed.
        - Waiver Request #2: Decrease minimum setback to 14' along Broadview Avenue.

3. Article 3-4.10.4: Required side/rear yard setbacks is 5’ minimum.
    - Waiver Request #3: Decrease side/rear yard setbacks to 0’.

4. Article 8-8.5: Minimum buffer width for commercial uses adjacent to residential uses is 25’, plus 1’ for each foot of building height over 35’. Minimum buffer width for rear boundaries of residential uses from public ROW is 25’.
    - Waiver Request #4a: Decrease buffer width between commercial and residential uses to 0’.
    - Waiver Request #4b: Decrease rear buffer width for residential uses from public ROW to 14’.

5. Article 2-20: Height limit for dwellings may be increased up to 45’ and up to three stories provided that front, side and year setbacks increase 1’ for each additional foot of building height over 35’.
    - Waiver Request #5: Increase height limit for dwellings as follows:
        - 54’ max height for Block 1, Oak Springs Drive Frontage
        - 36’ max height for Block 1, Broadview Avenue Frontage
        - 36’ max height for Block 2
        - 45’ max height for Block 3
6. Article 3-4.4.5.3: No more than six townhouse units shall be grouped contiguously to each other.
    - Waiver Request #6: Increase maximum grouping of townhouse units from six to seven.

4. Architecture – The final design of the buildings to be constructed shall generally conform to the elevations and materials included with the Special Use Permit application (hereinafter, the "Elevations"). The Elevations may be subject to minor modification approved by the Zoning Administrator in connection with Site Development Plan review. Additional changes to the design and materials may be made provided that any such changes are approved by the Town prior to the issuance of a building permit. Such approval shall be based on a determination that the changes result in equal to or better than the quality shown on the Elevations.

5. Materials – the following materials will be prohibited from use:

    1. Vinyl siding
    2. EIFS
    3. Corrugated metal siding
    4. Plastic panels

6. Garage Screening – the structured parking garage in Block 1 will include a mesh or fabric screening on its south facing façade.

7. Green Building Design -- all residential buildings will be designed and certified to a National Green Building Standard (NGBS), Level Bronze, or higher. If NGBS is not available for this project, an equivalent certification from an alternative third-party green building rating system will be acceptable.

8. Electric Vehicle Charging Stations – a minimum of 2% of the total spaces included within the Block 1 parking garage will include electric charging stations for tenant use.

9. Affordable Dwelling Units

    1. The Applicant shall provide the following minimum number of Affordable Dwelling Units (ADUs):

        - 10% of total dwelling units within each of the three blocks (Block 1, Block 2 and Block 3) will be reserved as 80% AMI ADUs;

        - Ten (10) additional dwelling units in Block 1 will be reserved as 70% AMI ADUs;

        - Five (5) additional dwelling units in Block 1 will be reserved as 60% AMI ADUs

    2. The Applicant shall maintain the ADU program on all rental units for a period of twenty-five (25) years from the issuance of the Special Use Permit (the "Affordability Period").

    3. Within Block 1, allocation of the ADUs between 1-, 2- and 3-bedroom units will be at the discretion of the Applicant, so long as the minimum number of units defined above are maintained as ADUs. Within Block 2 and Block 3, wherein all units are 3-bedrooms, all ADUs will be 3-bedrooms. The ADUs shall be similar to the market rate units in architectural design, fixture/appliance selections and unit size. No more than three ADU units will be positioned adjacent to one another at any given time.

    4. "Qualified Parties" and "Rent Limits" for ADUs, are defined as:

        - For the purposes of qualifying for the lease of an affordable rental ADU a Qualified Party shall be an individual or a family whose gross annual household income does not exceed 60%, 70%, or 80% (dependent on the specific ADU) of the current Multifamily Tax Subsidy Program (MTSP) Income Limits for Fauquier County as published by the Virginia Housing & Development Authority (VHDA), at the time the rental application is opened for such Qualified Party ("AMI").

        - For the purposes of determining the Rent Limits for all ADUs, monthly rental rate limits shall be equal to those published by

VHDA for 0-, 1-, 2-, and 3-bedroom units and corresponding 60%, 70% and 80% AMIs, with no utility allowances.

- For the purposes of qualifying for the purchase of an ADU in Block 2 or Block 3, a Qualified Party shall be an individual or a family whose gross annual household income does not exceed 80% of the current Multifamily Tax Subsidy Program (MTSP) Income Limits for a 4-person household in Fauquier County as published by VHDA, at the time the purchase contract is executed for such Qualified Party.

- For purposes of determining the purchase price of any for-sale ADU, that price will not exceed the amount at which the monthly mortgage payment for such unit exceeds the monthly rent limits for 3-bedroom units and 80% AMI income, as published by VHDA. Qualifying Parties must provide a market rate loan commitment prior to closing in order to calculate the proposed mortgage payment.

5. The ADU status shall be set forth in a deed of restrictive covenants recorded against the Property and shall continue to bind the minimum ADU requirement within each block to the Property for a period of twenty-five years from the issuance of this Special Use Permit; provided, however, that for rental units, the Applicant may recalculate the rental rates for new leases or renewals in accordance with the then current rates published by VHDA.

6. The Applicant shall establish in a deed of restrictive covenants a program for the administration of this ADU program according to the requirements of these conditions. The Applicant (or Owners Associations with respect to any purchase units if the Applicant is no longer the Declarant) shall make each ADU available for a period of not less than 90 days for rental units and 180 days for purchase units, following the issuance of a certificate of occupancy for each unit.

7. The Applicant shall designate on the Construction Drawings submitted for building permit approval which units will be the initial ADUs; however, the units that are selected as the initial rental ADU units are not required to remain as the designated rental ADUs for the entirety of the Affordability Period. The Applicant will have the authority to re-designated the rental ADUs from time to time based on leases and vacancies. The Applicant will maintain a building plan set at the leasing office located in the Block 1 at all times that shows which units are currently designated as rental ADUs.

8. The documents creating the ADU program shall be reviewed and approved by the Town Attorney prior to their recordation in the Land Records.

9. ADUs will first be made available to the following persons:

    - Those residing or working in the Town of Warrenton or Fauquier County
    - Town of Warrenton or Fauquier County teachers
    - Town of Warrenton or Fauquier County first responders
    - Veterans and enlisted members of the United States Armed Forces

    The Applicant shall contact the appropriate local Social Service and/or Housing Authority offices for identification and placement of local residents.

10. The community's Property Management Team shall make annual reports to the Zoning Administrator as to the number, type and location of units hereunder that shall have been rented as ADUs and shall verify that they have been rented to Qualified Parties.

10. Block Sequencing and Required Site Improvements

1. The Applicant can develop the three blocks included within the Site Development in any order.

2. To ensure that site improvements are completed in a timely manner along with the residential buildings, Applicant agrees that the Town of Warrenton will withhold Certificates of Occupancy (COs) in accordance with the following schedule:

    - Block 1: the 215th CO within Block 1 will not be issued until such time as all Block 1 site improvements have been substantially completed;

    - Block 2: the 19th CO within Block 2 will not be issued until such time as all Block 2 site improvements have been substantially completed;

    - Block 3: the 33rd CO within Block 3 will not be issued until such time as all Block 3 site improvements have been substantially completed.

3. Site improvements allocated to each individual block are shown in SUP Sheets 4 & 5 and generally include the following:

- Block 1:
  - Multi-family building and parking garage
  - Central Plaza
  - West Plaza
  - East Plaza
  - Hastings Lane extension
  - Reconfiguration of commercial parking
  - Modified Alley, all improvements
  - Dog park and picnic area
  - Preservation and reconditioning of Oak Spring (natural spring)
  - Sidewalks included in Block 1 Improvements – Sheet 4 of SUP
  - Two crosswalks across Oaks Springs Drive at Hastings Lane and Highland School entrance

- Block 2:
  - Townhome dwelling units and parking
  - Sidewalks included in Block 2 Improvements – Sheet 5 of SUP

- Block 3:
  - 2-over-2 dwelling units and parking
  - Townhome dwelling units and parking
  - Sidewalks included in Block 3 Improvements – Sheet 5 of SUP
  - New sidewalk section on east side of Broadview Ave (behind Galaxy Strike Bowling Center building)

11. Site Surface – All outdoor areas used for shared open spaces, amenities, facilities, parking, storage, loading, display and driveways shall be constructed and maintained in good repair, free of cracks or damage to the surface.

12. Traffic

    1. Access - Access to the site shall be provided as shown on the SUP Plan, subject to changes as may be approved through at Site Development Plan review.

    2. Loading/Unloading – All loading and unloading of vehicles shall take place on the Subject Property during regular hours of operation and outside of peak travel hours, to the greatest extent possible, in the Loading Area depicted on the Special Use Permit Plan.

    3. Obstruction of Travel Ways – No vehicles associated with the use shall obstruct the travel ways, fire lanes, adjoining road network or encroach

upon landscaped areas as shown on the Special Use Permit Plan. No vehicles shall be located within site entranceways or otherwise impede ingress, egress, and internal circulation.

13. Parking – The Subject Parcel shall meet all parking requirements as outlined in Article 7. Should it be desired to expand the use in any of the buildings located on the Subject Property, the new proposed use shall be required to apply for approvals that meet Zoning Ordinance and additional parking requirements.

14. Sidewalks

    1. The Applicant shall install sidewalks as shown on the SUP Plan.

    2. All sidewalks will be a minimum of 5’.

    3. The Applicant will install a new section of sidewalk along the east side of Winchester Street, between Lee Highway and Broadview Avenue (behind the Galaxy Strike Bowling Center building) as part of Block 3 improvements.

15. Oak Springs Drive Crosswalk(s) – new crosswalks will be installed on Oak Springs Drive at Hasting Lane and at the entrance to Highland School as part of Block 1 improvements. Inclusion of these crosswalks will be contingent upon and subject to Town of Warrenton and VDOT approvals as Site Development Plan.

16. Refuse Storage Area – Any refuse storage areas shall be screened with a solid enclosure constructed of materials that are compatible with the buildings on the property.

17. Site Maintenance – The Owner shall maintain the site in a clean and orderly manner and shall pick up trash, litter and debris on a daily basis.

18. Landscaping – The Owner shall be responsible for the maintenance and replacement of all plantings on site. Any diseased or dead landscaping shall be replaced within one season of dormancy.

19. Stormwater Management – The site is to be planned and designed as a redeveloped site under the State's Runoff Reduction requirements for Stormwater Management (SWM) and in compliance with the Town of Warrenton's SWM Ordinance at time of construction.

20. Water and Sewer – The Subject Parcels shall be served by public water and sewer. The Property Owner is responsible for all improvements required in order to meet the demand of the Subject Uses associated with the Property.

21. Emergency Services

    1. All future Site Development Plans shall illustrate adequate access to the site for Emergency Service vehicles, subject to approval by the Planning Director or Zoning Administrator. Nothing shall be placed or constructed on the site that would prohibit or restrict Emergency Service vehicles from mounting curbs or accessing structures. There shall be no parking of any vehicles in the travel ways.

    2. Fire hydrants shall be installed in locations acceptable to the Town of Warrenton.

    3. Buildings shall have supra boxes installed on them with a fire alarm panel inside the front and rear entrances of the structures.

22. Signs – All signage shall be permitted in accordance with the Plan as shown and shall comply with any Zoning Ordinance regulations at that time.

23. Lighting

    1. All outdoor lighting shall be in conformance with the Zoning Ordinance.

    2. The Applicant shall prepare and submit a photometric plan in connection with Site Development Plan review.

    3. All site lighting, to include both new fixtures within the new development areas as well as any non-residential area that is modified as a part of site development, must consist of fully-shielded, full cut-off fixtures to meet the requirements of Article 9, Section 9-8.

    4. Color temperature of exterior light fixtures will be 3,000 degrees kelvin or lower.

    5. Average horizontal illumination level of exterior light fixtures will be 3.0 footcandles or less.

24. Open Space – each residential block/parcel and the residual retail parcel will individually meet the 10% open space requirement. The Applicant will construct and maintain all open spaces in general conformance with the improvements noted and shown in Sheet 6 of the SUP – “Open Space Plan.”

25. Modified Alley – The Applicant will build and maintain the Modified Alley in general conformance with the improvements shown in this area on the Plan.

26. 3-Bedroom Unit Maximum – A maximum of 10% of the units located in Block 1 will be 3-bedroom units.

27. Condo Sale of Block 2 and Block 3 – Applicant will maintain the ability to sell the entirety of Block 2 (Multi-Family Townhomes) and/or the entirety of Block 3 (Multi-Family 2-Over-2 and Townhomes) as Condos. The Applicant agrees to sell all or none of the units within Block 2 or Block 3, so as to prohibit a mix of for rent and for sale units in the same block.

    All conditions of the SUP will continue to be enforced in a block sale scenario through the Declarations of Restrictive Covenants that the Applicant will record and encumber the Block 2 and/or Block 3 parcels. In a block sale scenario, Homeowner Associations will be established to maintain all conditions of the SUP and will own the block parcel, while individual condo owners will own the condo dwelling units.

    In a sale scenario, residents/owners of the condos will not be tenants of the apartment community and will not have access to the rental amenities located within Block 1.

    In a block sale scenario, 10% of the units within the sold block will be required to be sold as ADUs, in accordance with the language outlined in Section 9 – Affordable Dwelling Units of this Conditions of Approval.

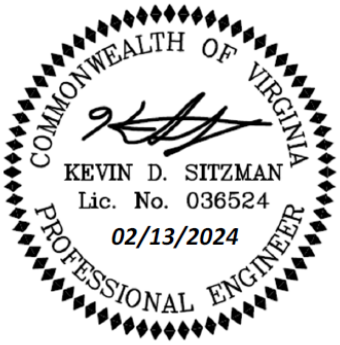
28. Block 1 Amenities – All amenities located within Block 1 will be available for use by tenants of residential rental units owned by the Owner in all three blocks (Block 1, 2 and 3). If residential units within Block 2 and/or Block 3 are sold by the Owner in a condo sale, the fee simple owners of the residential condos will not have access to the Block 1 amenities.

Traffic Impact Analysis

# Warrenton Village Center

Town of Warrenton, Virginia

**June 30, 2023**
**Revised February 13, 2024**




**Prepared for:**

Castle Development Partners

230 Court Square, Suite 202

Charlottesville, Virginia 22902

GOROVE SLADE
Transportation Planners and Engineers

**Prepared by:**

GOROVE SLADE
Transportation Planners and Engineers

1140 Connecticut Ave NW
Suite 1010
Washington, DC 20036
T 202.296.8625

4114 Legato Road
Suite 650
Fairfax, VA 22033
T 703.787.9595

225 Reinekers Lane
Suite 750
Alexandria, VA 22314
T 703.721.3044

4951 Lake Brook Drive
Suite 250
Glen Allen, VA 23060
T 804.362.0578

**www.goroveslade.com**

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# Executive Summary

This report presents the findings of a Traffic Impact Analysis (TIA) conducted for the proposed Warrenton Village Center development (the Site / the Development / the Property) situated in the Town of Warrenton, Virginia.

This study was developed in accordance with the Virginia Department of Transportation (VDOT) and the Town of Warrenton (the Town) transportation impact analysis guidelines. The document was prepared in accordance with best professional practices and standards that assess the impact of a proposed development on the transportation system. Traffic operational analyses, as presented in this TIA, involve the evaluation of anticipated roadway conditions with and without the proposed development. The analysis assists public officials and developers to balance the interrelations between efficient traffic movements with necessary lane access. This revised TIA is based on review comments provided by VDOT and the Town.

## *Site Location and Study Area*

The proposed development will be located primarily along the southern frontage of Oak Springs Drive (Town Route 3), east of Broadview Avenue (US Route 17 Business) and west of Branch Drive (Town Route 4) in the Town of Warrenton, Virginia. The vehicular study area includes ten existing intersections along Broadview Avenue, Lee Highway, Branch Drive, and Oak Springs Drive.

## *Description of Proposed Development*

The development will be situated on a single parcel of vacant land (approximately 6.46 acres) and a portion of an adjacent developed parcel of land, which can be identified on Fauquier County Tax Maps with the following GPIN #s: 6985-20-7247-000, and 6984-29-6753-000, respectively. The property is currently zoned as C (Commercial District) with a Future Land Use of Mixed Use as part of the New Town Warrenton Character District (Lee Highway Urban Development Area [UDA]).

The Applicant is proposing to apply for a Special Use Permit (SUP) in order to construct approximately 386 multifamily residential dwelling units (320 multifamily apartments, 36 2-over-2 units, and 30 townhomes) and a parking deck. The site has an anticipated build-out date of 2027.

Access to the site will be provided via one full movement parking deck entry along Oak Springs Drive (Town Route 3) forming the fourth leg of the High School Driveway, one full movement driveway along Oak Springs Drive forming the fourth leg to the existing full-movement intersection of Hastings Lane, and via the existing shopping center accesses to the south.

This report analyzes the trips generated by the Warrenton Village Center Development and its impact on traffic operations on the surrounding road network.

## *Principal Findings and Conclusions*

Discussions regarding the study assumptions and relevant background information were held with VDOT, County, and Town staff during January 2023. The scope details the study assumptions and relevant background information discussed. A copy of the scoping document is included in Appendix A.

The analysis contained herein presents the 2023 Existing Conditions, 2027 Future Conditions without Development, and 2027 Future Conditions with Development:

The analysis presented in this report supports the following assumptions and major findings:

### *Analysis Components*

- 2023 existing volumes were derived via turning movement counts collected at intersections within the study area in February 2023.
- As determined based on review comments from VDOT and the Town, an inherent regional growth of 1.0% per year was applied to the Lee Highway mainline through movements at the intersection of Lee Highway at Broadview Avenue (US

Route 17 Business). The growth volumes were balanced along the road network by increasing the mainline through movements at subsequent study intersections along the road network where applicable for the period between 2023 and 2027 to account for 2027 conditions.

- The trip generation associated with the Site was based on the ITE Trip Generation Manual, 11th Edition publication. The Site in total is expected to generate approximately 154 new trips during the AM peak hour, 197 new trips during the PM peak hour, and 2,602 new daily trips on a typical weekday.
- Intersection capacity and queuing analyses were performed for all analysis scenarios at the study area intersections during the weekday morning (AM) and weekday afternoon (PM) peak hours. *Synchro*, version 11, was used to analyze the study intersections with results based on the Transportation Research Board's (TRB) Highway Capacity Manual (HCM) methodology and analysis guidelines provided in VDOT's Traffic Operations and Safety Analysis Manual (TOSAM) (version 2). The analysis herein includes level of service (LOS), delay, and queue length comparisons for the turning movements analyzed.
- The analysis also considers an assessment of historical crash data at all existing study intersections.
- The analysis also includes preliminary access management assessment and turn lane warrant assessments for the Site access points along Oak Springs Drive.

## *Analysis Results*

### 2023 Existing Conditions

- Based on the capacity analysis of Existing Conditions, the two signalized study intersections operate at an overall level of service D or better during both the AM and PM peak hours.
- Based on the capacity analysis of Existing Conditions, three study intersections have at least one approach that operates at levels of service (LOS E or F) for at least one peak hour. The remaining intersection approaches operate at acceptable levels of service during both peak hours.
- Based on the analysis of the Synchro 95th percentile queue lengths, all turning movements have queue lengths that can be accommodated within the available storage length of the turn bays, except the southbound left turn movement at Study Intersection 1 (Broadview Avenue / Lee Highway at Winchester Street).

### 2027 Future Conditions without Development

- Based on the capacity analysis of 2027 Future Conditions with Development, the signalized study intersection would operate at an overall level of service D or better during both the AM and PM peak hours.
- The planned roundabout is expected to operate at an overall LOS B or better with all approaches operating at LOS D or better during the AM and PM peak hours.
- Based on the capacity analysis of 2027 Future Conditions without Development, two study intersections have at least one approach that would operate at levels of service (LOS E or F) for at least one peak hour. The remaining intersection approaches would operate at acceptable levels of service during both peak hours.
- Based on the analysis of the Synchro 95th percentile queue lengths, all turning movements have queue lengths that could be accommodated within the available storage length of the turn bays.

### 2027 Future Conditions with Development

- The Site is expected to generate approximately 154 new total trips during the AM peak hour, 197 new trips during the PM peak hour and 2,602 new trips during a typical weekday.

- Based on the capacity analysis of 2027 Future Conditions with Development, the signalized study intersection would operate at an overall level of service D or better during both the AM and PM peak hours.
- The planned roundabout is expected to operate at an overall LOS B with all approaches operating at LOS D or better during the AM and PM peak hours.
- Based on the capacity analysis of the 2027 Future Conditions with Development, two study intersections have at least one approach that would operate at levels of service (LOS E or F) for at least one peak hour (similar to 2027 Future Conditions without Development) during the AM and PM peak hours. The remaining intersection approaches would operate at acceptable levels of service during both peak hours.
- Based on the queuing analysis performed for the 2027 Future Conditions with Development, all turning movements have queue lengths that could be accommodated within the available storage length of the turn bays.

### *Overall Conclusion*

Based on the capacity and queueing analysis results, the proposed Development will not have a substantial impact to the surrounding transportation and roadway network, assuming that the site is constructed as depicted on the concept plan. No improvements are warranted or recommend to accommodate the proposed Development.

# Introduction

This report presents the findings of a Traffic Impact Analysis (TIA) conducted for the proposed Warrenton Village Center (the Site / the Development / the Property) along the southern frontage of Oak Springs Drive (Town Route 3), east of Broadview Avenue (US Route 17 Business) and west of Branch Drive (Town Route 4) in the Town of Warrenton, Virginia

The development will be situated on a single parcel of vacant land (approximately 6.46 acres) and a portion of an adjacent developed parcel of land, which can be identified on Fauquier County Tax Maps with the following GPIN #s: 6985-20-7247-000, and 6984-29-6753-000, respectively. The property is currently zoned as C (Commercial District) with a Future Land Use of Mixed Use as part of the New Town Warrenton Character District (Lee Highway Urban Development Area [UDA]).

The Applicant is proposing to apply for a Special Use Permit (SUP) in order to construct approximately 386 multifamily residential dwelling units (320 multifamily apartments, 36 2-over-2 units, and 30 townhomes) and a parking deck. The site has an anticipated build-out date of 2027.

Access to the site will be provided via one full movement parking deck entry along Oak Springs Drive (Town Route 3) forming the fourth leg of the High School Driveway, one full movement driveway along Oak Springs Drive forming the fourth leg to the existing full-movement intersection of Hastings Lane, and via the existing shopping center accesses to the south.

The following tasks were completed as part of this study effort:

- A scoping meeting was held on January 3, 2023 with the Virginia Department of Transportation (VDOT), Fauquier County (the County), and the Town of Warrenton (Town) staff to discuss the parameters of this study as well as any relevant background information. A copy of the scoping document is included in Appendix A.
- Review comments of the first TIA submission were provided and addressed in this study submission.
- Existing conditions were observed in the field to verify roadway geometry, pedestrian and bicycle infrastructure, and traffic flow characteristics.
- Signal timings were acquired from VDOT and are provided in Appendix E.
- In order to determine the weekday morning and afternoon peak hour turning movement traffic volumes, traffic counts were conducted in February 2023.
- The 2027 Future Conditions without Development scenario was projected based on the existing traffic volumes, an inherent growth to account for regional growth on the roadway network, two approved background developments, and roadway improvements.
- Proposed site traffic volumes were derived based on the methodology outlined in ITE's Trip Generation Manual, 11th Edition, publication and were assigned to the road network based on the agreed-upon direction of approach discussed during the aforementioned scoping meeting.
- The 2027 Future Conditions with Development scenario was projected based on the existing traffic volumes, regional growth, and the projected trips generated by the proposed development.
- Intersection capacity and queueing analyses were performed for the identified study intersections for the 2023 Existing Conditions, 2027 Future Conditions without Development, and 2027 Future Conditions with Development scenarios during the weekday morning (AM), and weekday afternoon (PM) peak hours.
- Intersection capacity and queuing analyses were performed using *Synchro*, version 11, with LOS and delay results based on the Transportation Research Board's (TRB) Highway Capacity Manual (HCM) 6 methodology and in following VDOT's Traffic Operations and Safety Manual (TOSAM) (version 2).
- The analysis also considers an assessment of historical crash data at all study intersections.

- The analysis also includes preliminary access management assessment and turn lane warrant assessments for the Site access points along Oak Springs Drive.
- The study also includes preliminary discussions on the pedestrian facilities in the study area.

Sources of data for this study include the Institute of Transportation Engineers (ITE), VDOT, the County, the Town and the office files and field reconnaissance efforts of Gorove Slade.

# Background Information: Proposed Development (Site & Nearby)

## *Description of the Existing Site*

### *Site Location*

The proposed Development will be located primarily along the southern frontage of Oak Springs Drive (Town Route 3), east of Broadview Avenue (US Route 17 Business) and west of Branch Drive (Town Route 4) in the Town of Warrenton, Virginia. A description of the proposed Development is provided in the *Introduction* section of this report.

### *Location within Jurisdiction and Region*

The Site is located generally on the northern portion of Warrenton approximately 0.5 miles from the north Town line an approximately 1 mile west of the US 17 and US 29 Business interchange. A regional aerial of the Site is provided in **Figure 1.**

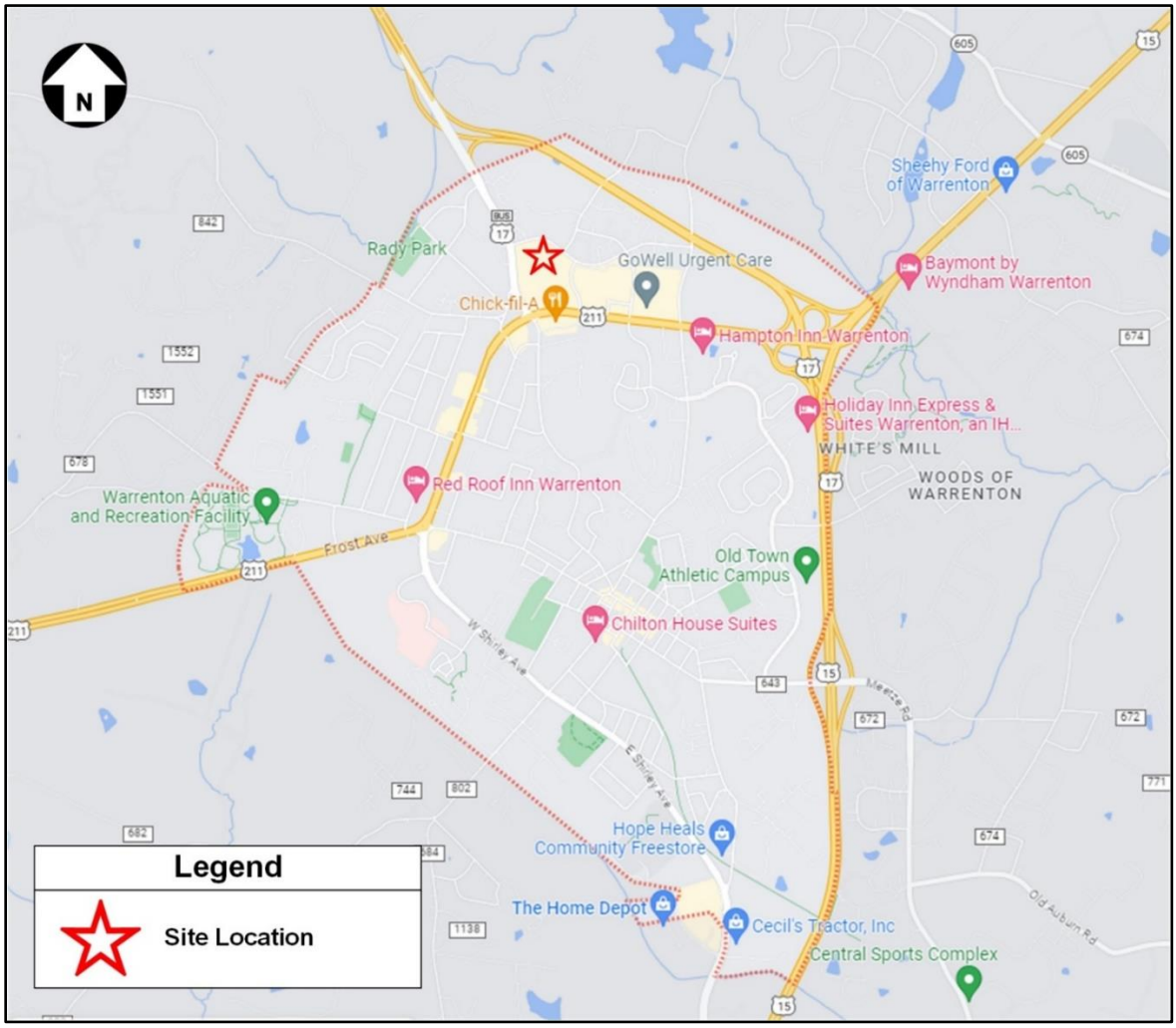


**Figure 1: Regional Location**

## *Description of the Parcel*

The development will be situated on a single parcel of vacant land (approximately 6.46 acres) and a portion of an adjacent developed parcel of land, which can be identified on Fauquier County Tax Maps with the following GPIN #s: 6985-20-7247-000, and 6984-29-6753-000 as illustrated in **Figure 2.**

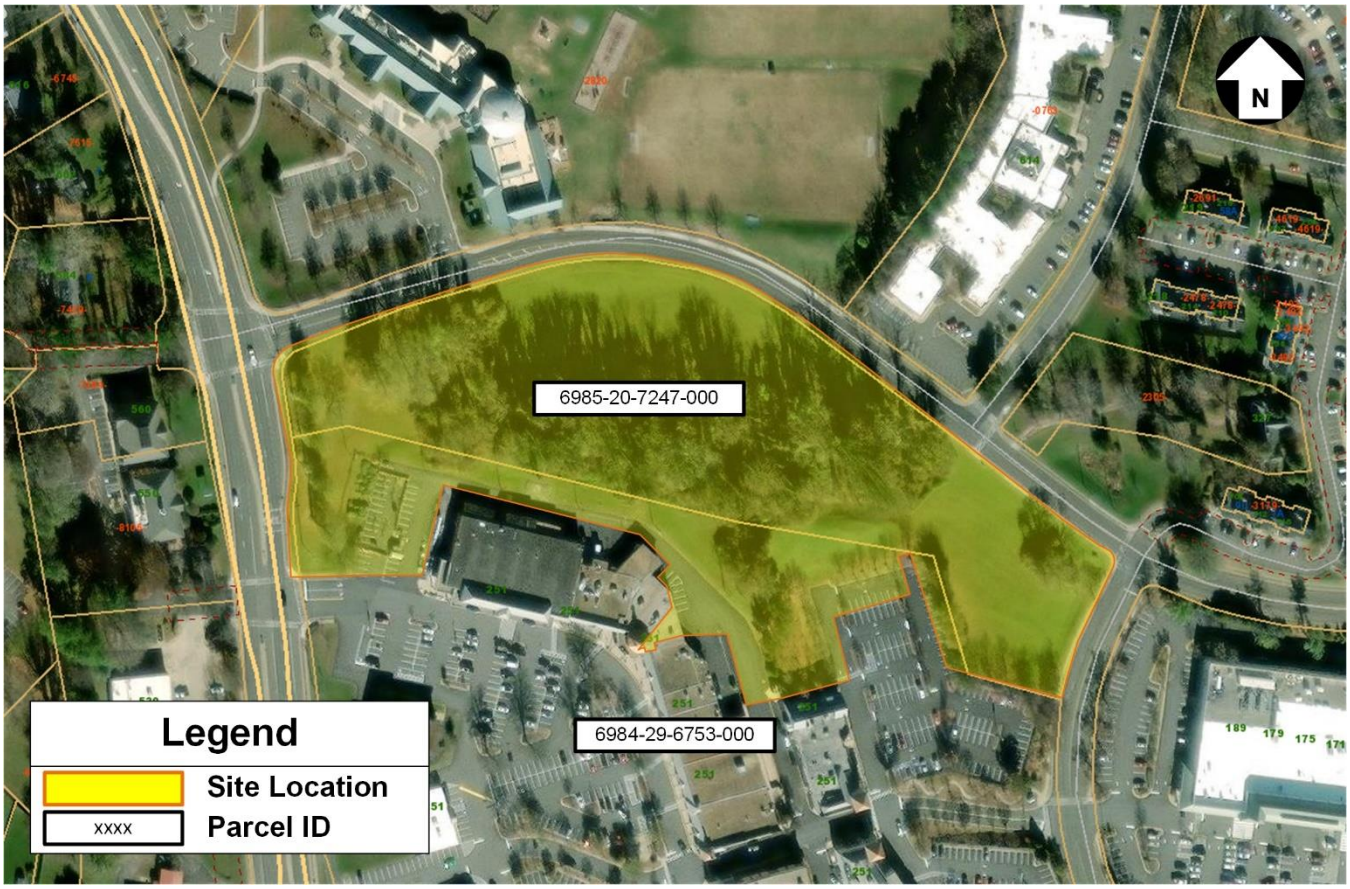


**Figure 2: Parcel Map**
(Source: https://fauquiergis.maps.arcgis.com/**)**

### *Existing Zoning and Future Land-Use*

The property is currently zoned as C (Commercial District) with a Future Land Use of Mixed Use as part of the New Town Warrenton Character District (Lee Highway Urban Development Area [UDA]).

The existing zoning is presented in Error! Reference source not found.; the Town of Warrenton 2040 Comp Plan future land use is presented in **Figure 4**.

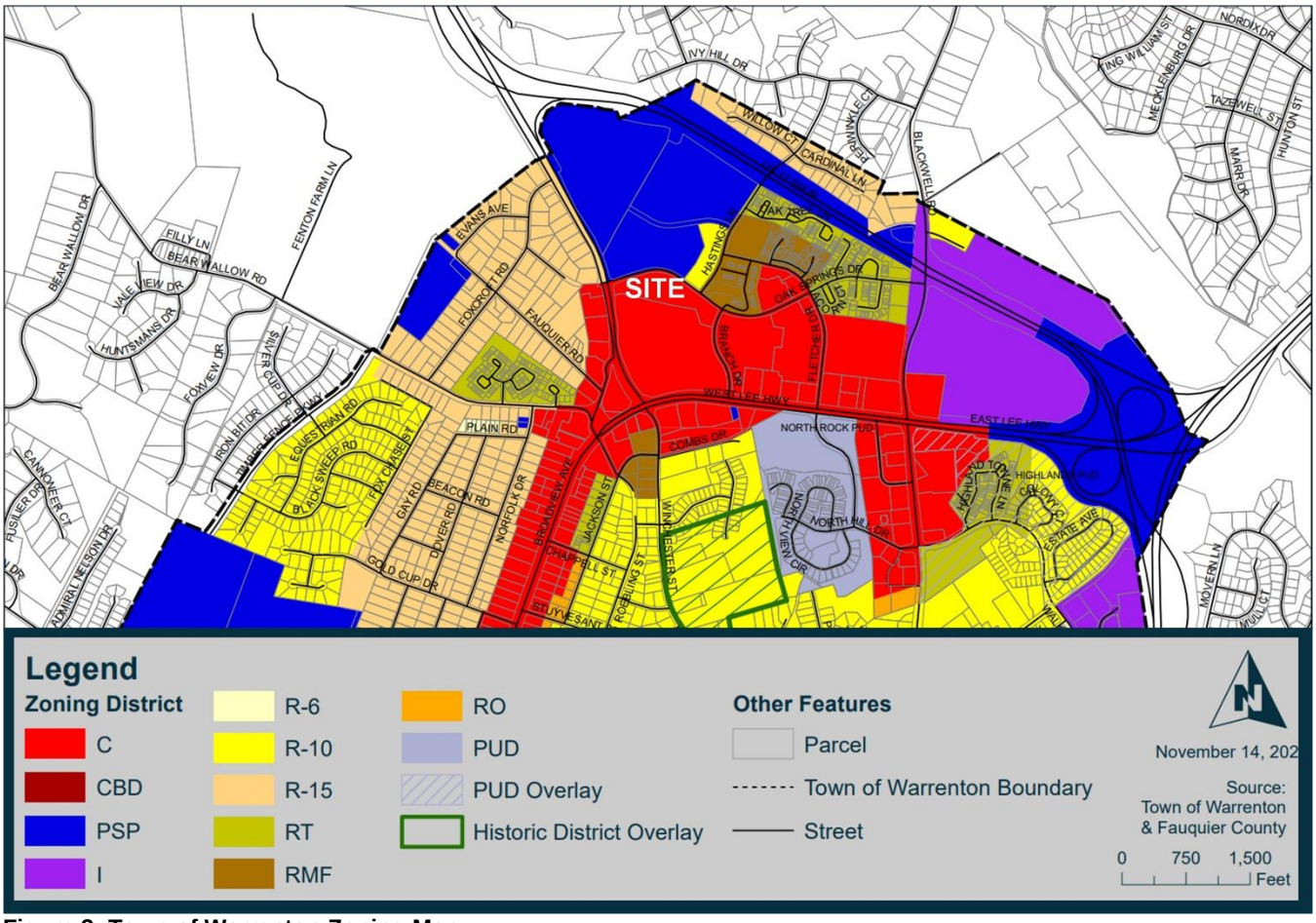


**Figure 3: Town of Warrenton Zoning Map**

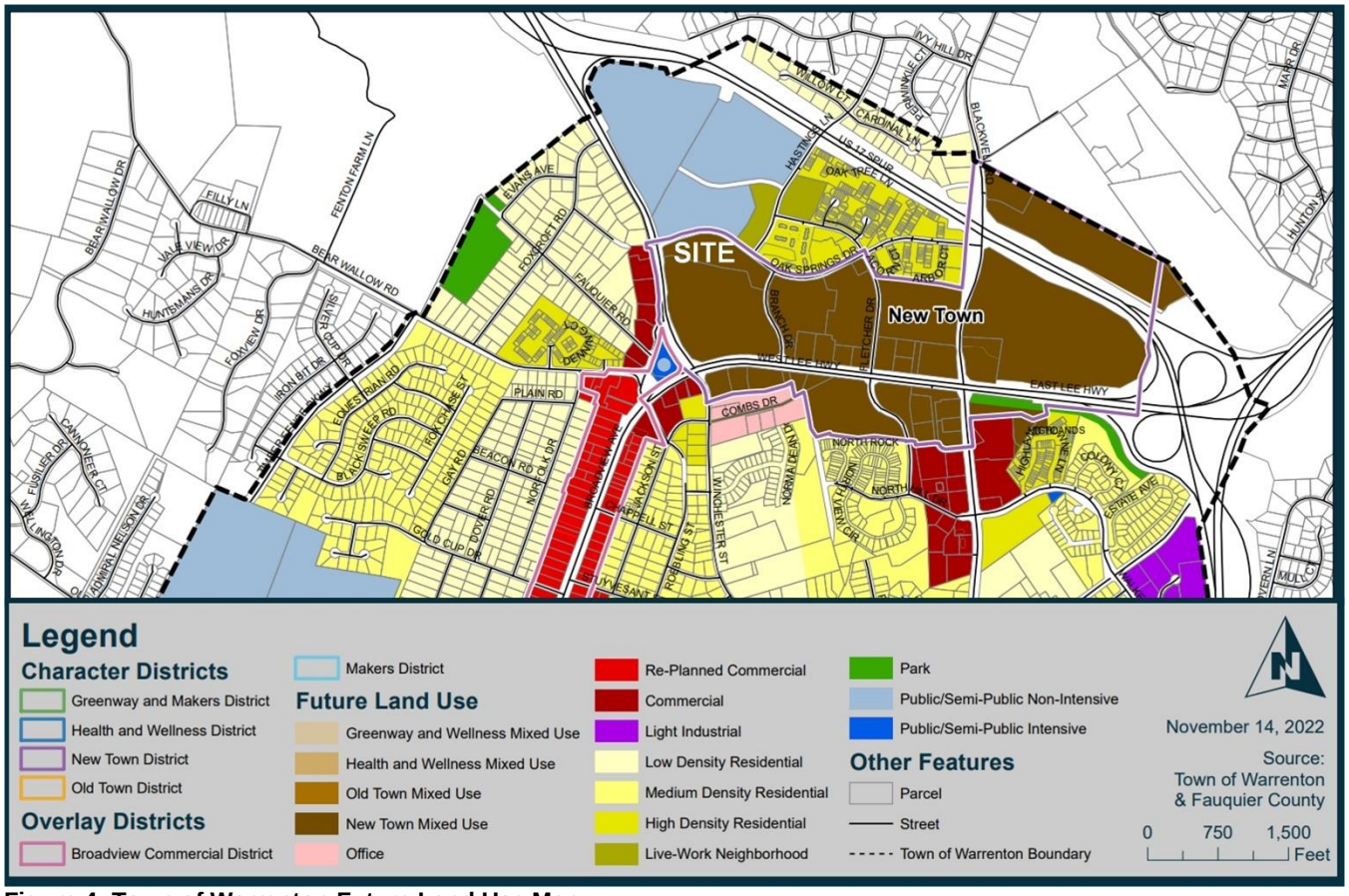


**Figure 4: Town of Warrenton Future Land Use Map**

## *Descriptions of Geographic Scope of Study and Limits of the Study Area*

The geographic scope of the study area was developed in accordance with VDOT and County guidance. The vehicular study area includes ten existing study intersections. At build out of the Site, the proposed site driveways will form the fourth leg of two existing intersections.

The existing study intersections are as follows:

**Intersection 1:** Broadview Avenue (US Route 17) / Lee Highway at Broadview Avenue / Winchester Street [existing full-movement, signalized],

**Intersection 2:** Lee Highway (US Route 17) at Warrenton Village Center Driveway at Chick-fil-a Driveway [existing full-movement, unsignalized],

**Intersection 3:** Lee Highway (US Route 17) at Branch Drive (Town Route 4) [existing full-movement, signalized],

**Intersection 4:** Branch Drive (Town Route 4) at Warrenton Village Driveway / Safeway Driveway [existing full-movement, unsignalized],

**Intersection 5:** Oak Springs Drive (Town Route 3) at Branch Drive (Town Route 4) / Cedar Crest Drive [existing full-movement, unsignalized],

**Intersection 6:** Oak Springs Drive (Town Route 3) at Hastings Lane / Future Access [existing full-movement, unsignalized, future fourth leg],

**Intersection 7:** Oak Springs Drive (Town Route 3) at Highland School Driveway / Future Garage Access [existing full-movement, unsignalized, future fourth leg],

**Intersection 8:** Broadview Avenue (US Route 17 Business) at Oak Springs Drive (Town Route 3) [existing full-movement, unsignalized],

**Intersection 9:** Broadview Avenue (US Route 17 Business) at Warrenton Village Center South Driveway [existing full-movement, unsignalized],

**Intersection 10:** Broadview Avenue (US Route 17 Business) at Warrenton Village Center North Driveway [existing full-movement, unsignalized].

An aerial of the study intersections is provided in **Figure 5.**




**Figure 5: Aerial of Study Boundaries (Study Intersections)**

## *Existing Roadway Network*

A description of the major roadways within the immediate vicinity of the Site is presented below in Error! Reference source not found..

**Table 1: Summary of Existing Road Network**

| Roadway | RTE # | VDOT Classification | Legal/Design Speed Limit (mph) | Lanes | AADT (vpd) | Road Segment Between: | | k-factor |
|---|---|---|---|---|---|---|---|---|
| Broadview Avenue | US 17 Bus | Other Principal Arterial | 35 | 4 Div | 11,000 | Bus US 29 Lee Hwy | NCL Warrenton | 9.7% |
| Oak Springs Drive | Town 3 | Major Collector | 25 | 2 Undiv | 3,100 | Broadview Ave | Branch Dr | 10.3% |
| Branch Drive | Town 4 | Major Collector | 25 | 4 Undiv | 4,300 | Lee Highway | Oak Springs Drive | 11.1% |
| Lee Highway | US 211/29 Bus | Other Principal Arterial | 40 | 4 Div | 26,000 | US 17 Broadview | US 15 Blackwell | 7.7% |

Lee Highway (US Route 211/US Route 29 Business) is generally a four-lane divided Principal Arterial with a posted speed limit of 40 mph within the vicinity of the Site. The 2021 VDOT ADT on Lee Highway is 26,000 vehicles per day (vpd). For the purposes of this analysis, Lee Highway is assumed to be an east-west roadway.

Broadview Avenue (US 17 Business) is a four-lane divided Principal Arterial with a posted speed limit of 35 mph and a 2021 VDOT ADT of approximately 11,000 vpd. For the purposes of this study, Broadview Avenue is assumed to be a north-south roadway.

Branch Drive (Town Route 4) is a four-lane, undivided Major Collector with a posted speed limit of 25 mph and a 2021 VDOT ADT of approximately 4,300 vpd. For the purposes of this study, Branch Drive is assumed to be a north-south roadway.

Oak Springs Drive (Town Route 3) is a two-lane, undivided Major Collector with a posted speed limit of 25 mph and a 2021 VDOT ADT of approximately 3,100 vpd. For the purposes of this study, Oak Springs Drive is assumed to be an east-west roadway.

# Analysis of 2023 Existing Conditions

## *Existing Roadway Safety Assessment*

As agreed upon in the aforementioned scoping meeting, existing crash reports for all existing study intersections over a five-year period between May 2018 and May 2023 were provided by VDOT's Crash Analysis Tool. These reports are summarized in **Table 2** and **Table 3**.

During the five-year period, a total of 88 crashes were recorded at the ten existing study intersections as illustrated in Error! Reference source not found.. Of the 88 recorded crashes, 58 were classified as "Property Damage Only (PDO)," 30 were classified as "Injury Collision (IC), and zero fatalities occurred during the five-year period.

An aerial of the recorded crash locations is provided in **Figure 6**. The crash data by study intersection is provided in Appendix B.

The intersection crash rate was computed for the existing study intersections using the following formula and was calculated as crashes per one million entering vehicles (MEV). The approach average daily traffic volumes ($ADT_{approach}$) were derived from calculations based on the existing link ADTs.

$$Rate_{intersection} = \frac{1{,}000{,}000 * \#\ of\ Crashes}{\#\ of\ Years * 365\ \left(\frac{days}{year}\right) * ADT_{approach}}$$

It should be noted that according to the Institute of Transportation Engineers' (ITE) Transportation Impact Analysis for Site Development, a crash rate of 1.0 MEV or higher is an indication that further study may be required. A rate over 1.0 MEV does not necessarily mean there is a significant problem at an intersection, but rather it is a threshold used to identify which intersections may have an elevated crash rate due to operational, geometric, or other deficiencies. Based on the crash rates, none of the existing study intersections were considered high crash locations.

The following tables provide detailed reported crash data for all study intersections.

**Table 2: Historical Crash Data Summary (May 2018 – May 2023)**

| | Intersection | Approximate ADT | PDO | IC | Fatality | Total | Crash Rate (Per MEV) |
|---|---|---|---|---|---|---|---|
| 1 | Lee Highway (US 211/US 29 BUS) at Broadview Avenue | 29,125 | 28 | 12 | 0 | 40 | 0.75 |
| 2 | Lee Highway (US 211/US 29 BUS) at Warrenton Village / | 21,375 | 3 | 2 | 0 | 5 | 0.13 |
| 3 | Lee Highway (US 211/US 29 BUS) at Branch Drive | 23035 | 14 | 5 | 0 | 19 | 0.45 |
| 4 | Branch Drive at Warrenton Village / Safeway | 4485 | 1 | 1 | 0 | 2 | 0.24 |
| 5 | Branch Drive at Oak Springs Drive | 4000 | 2 | 0 | 0 | 2 | 0.27 |
| 6 | Oak Springs Drive at Hastings Lane | No Crashes | 0 | 0 | 0 | 0 | 0.00 |
| 7 | Oak Springs Drive at Highland School Entrance | No Crashes | 0 | 0 | 0 | 0 | 0.00 |
| 8 | Broadview Avenue at Oak Springs Drive | 12010 | 2 | 1 | 0 | 3 | 0.14 |
| 9 | Broadview Avenue at Warrenton Village North | 10425 | 2 | 2 | 0 | 4 | 0.21 |
| 10 | Broadview Avenue at Warrenton Village South | 13165 | 6 | 7 | 0 | 13 | 0.54 |
| **Total Reported Crashes Analyzed** | | | **58** | **30** | **0** | **88** | - |
| **Percentages** | | | **65.9%** | **34.1%** | **0.0%** | **100.0%** | - |

Based on the crash rates, none of the existing study intersections were considered high crash locations, however, Study Intersections 1 and 10 are on the Culpepper District top 100 PSI list. A pipeline study has been conducted and these locations have been identified for construction of roundabouts.

**Table 3: VDOT Crash Data Summary by Type of Collision (May 2018 – May 2023)**

| | Intersection | Fixed Object/Single Vehicle | Head-on | Sideswipe (Same Direction) | Sideswipe (Opposite Direction) | Rear End | Angle | Backing | Pedestrian | Animal | Other | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Lee Highway (US 211/US 29 BUS) at Broadview Avenue | 0 | 0 | 3 | 0 | 24 | 11 | 0 | 0 | 0 | 2 | 40 |
| 2 | Lee Highway (US 211/29 BUS) at Warrenton Village / | 2 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 5 |
| 3 | Lee Highway (US 211/29 BUS) at Branch Drive | 1 | 0 | 1 | 1 | 6 | 8 | 1 | 0 | 0 | 1 | 19 |
| 4 | Branch Drive at Warrenton Village / Safeway | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| 5 | Branch Drive at Oak Springs Drive | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| 6 | Oak Springs Drive at Hastings Lane | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 | Oak Springs Drive at Highland School Entrance | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 | Broadview Avenue at Oak Springs Drive | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 3 |
| 9 | Broadview Avenue at Warrenton Village North | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 4 |
| 10 | Broadview Avenue at Warrenton Village South | 0 | 3 | 1 | 0 | 1 | 7 | 0 | 0 | 0 | 1 | 13 |
| **Total Reported Crashes Analyzed** | | **3** | **3** | **5** | **1** | **32** | **38** | **1** | **0** | **1** | **4** | **88** |
| **Percentages** | | **3.4%** | **3.4%** | **5.7%** | **1.1%** | **36.4%** | **43.2%** | **1.1%** | **0.0%** | **1.1%** | **4.5%** | **100.0%** |

Approximately 43% of the crashes that occurred were classified as angle collisions and approximately 36% were classified as rear end collisions. Rear end and angle collisions are common at congested signalized intersections. Study Intersection 1 has been identified as a location for a potential roundabout.

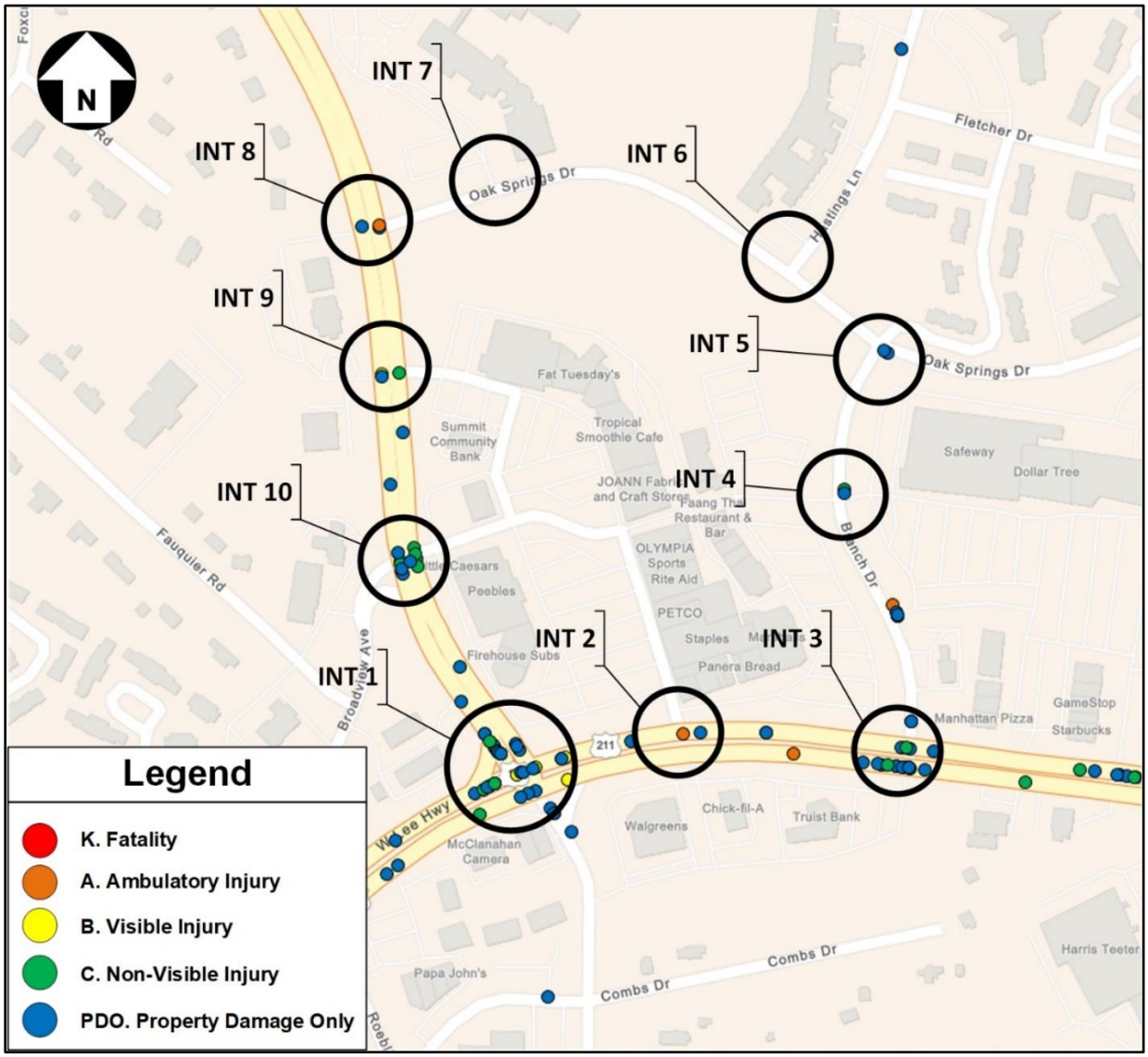


**Figure 6: Recorded Crash Location Map**

### *2023 Existing Traffic Volumes*

In order to determine the weekday morning (AM) and weekday afternoon (PM) peak hour turning movement traffic volumes, turning movement counts (TMC) were collected at the study intersections in February 2023. The referenced weekday turning movement counts were collected from the hours of 6:00 AM to 9:00 AM and 4:00 PM to 7:00 PM:

- Study Intersection 1: Lee Highway (US 211/US 29 BUS) at Broadview Avenue (US 17 BUS)
- Study Intersection 2: Lee Highway (US 211/US 29 BUS) at Warrenton Village / Chick-fil-a Driveway
- Study Intersection 3: Lee Highway (US 211/US 29 BUS) at Branch Drive
- Study Intersection 4: Branch Drive at Warrenton Village / Safeway
- Study Intersection 5: Branch Drive at Oak Springs Drive
- Study Intersection 6: Oak Springs Drive at Hastings Lane
- Study Intersection 7: Oak Springs Drive at Highland School Entrance
- Study Intersection 8: Broadview Avenue at Oak Springs Drive
- Study Intersection 9: Broadview Avenue at Warrenton Village North
- Study Intersection 10: Broadview Avenue at Warrenton Village South

- From the turning movement counts, the following system peak hours were determined.
  - AM Peak Hour: 7:30 AM to 8:30 AM
  - PM Peak Hour: 4:00 PM to 5:00 PM

The 2023 existing road network configuration is presented in **Figure 7**. The existing AM and PM peak hour traffic volumes for the existing study intersections are shown in **Figure 8**. The ADT volumes, depicted in **Figure 8** and in subsequent volume graphics, were calculated based on VDOT published k-factors from 2021, if available, or assumed k-factors per approach of 0.10 and the PM peak hour volumes. The raw existing traffic count data is provided in Appendix C.

In addition to turning movement volumes, pedestrians crossing data was collected at all study intersections. The peak hour pedestrian crossing data is presented in **Figure 9**.

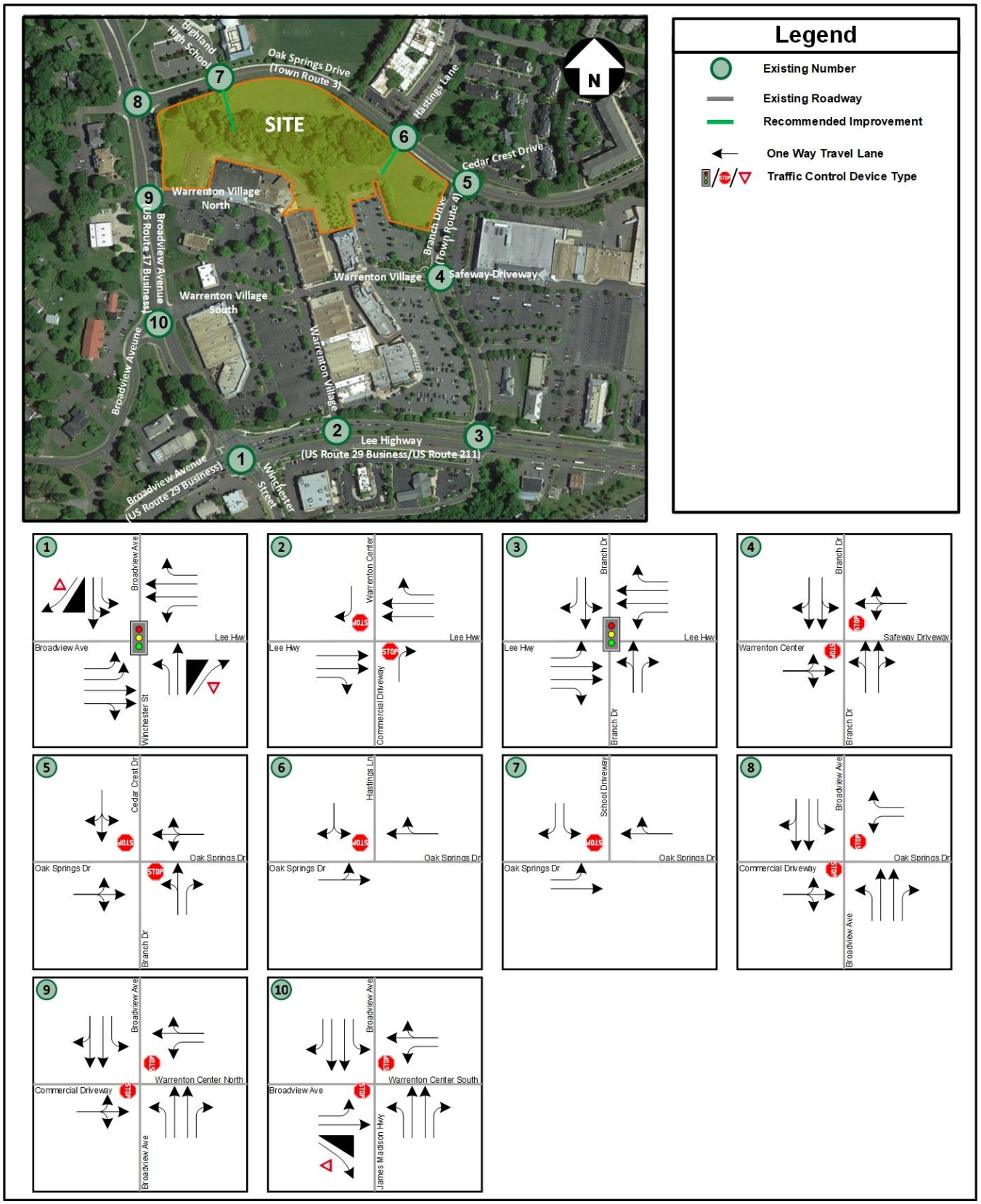


**Figure 7: 2023 Existing Conditions – Roadway Network Geometric Configuration and Traffic Control Devices**

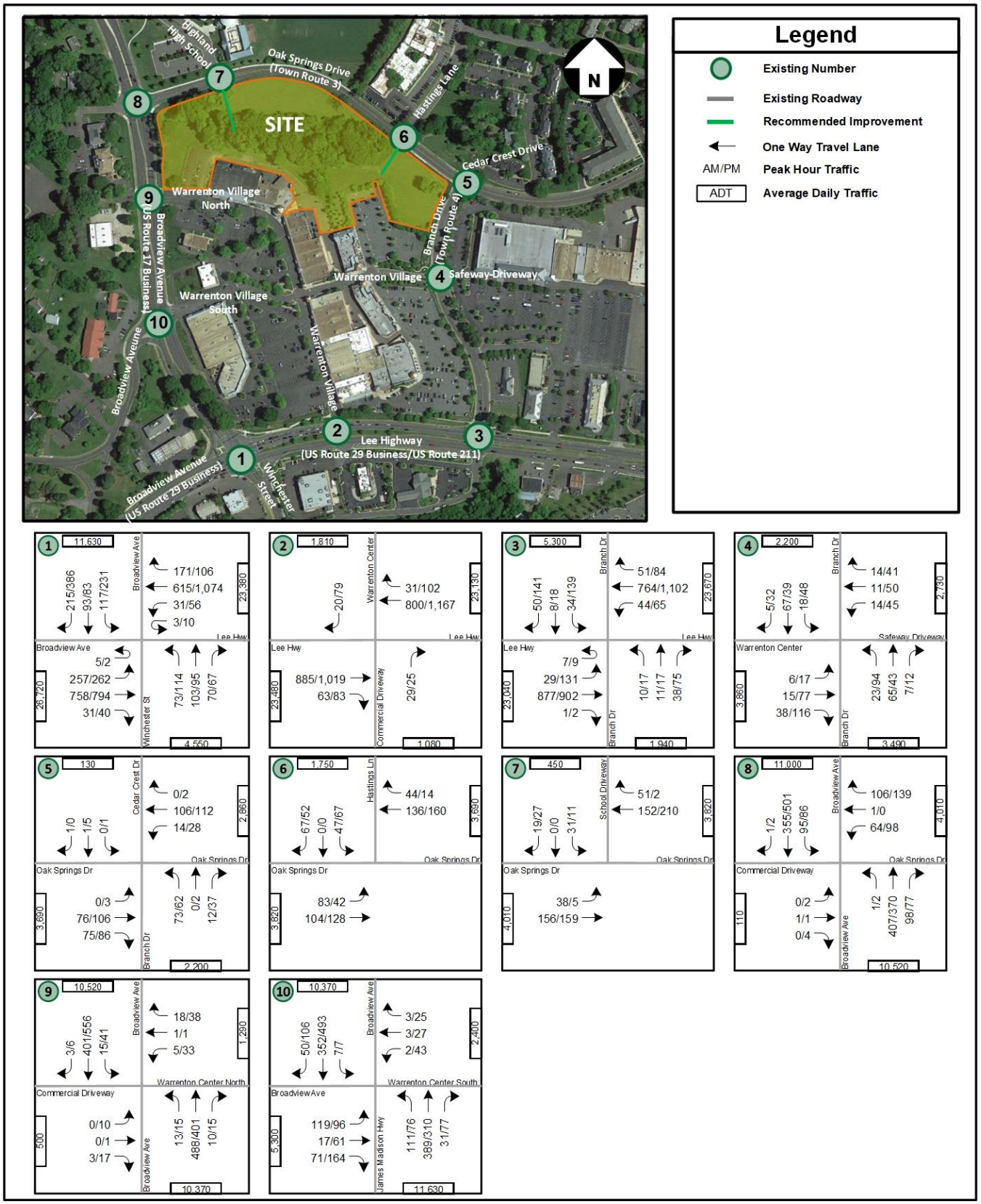


**Figure 8: 2023 Existing Conditions – Vehicular Traffic Volumes**

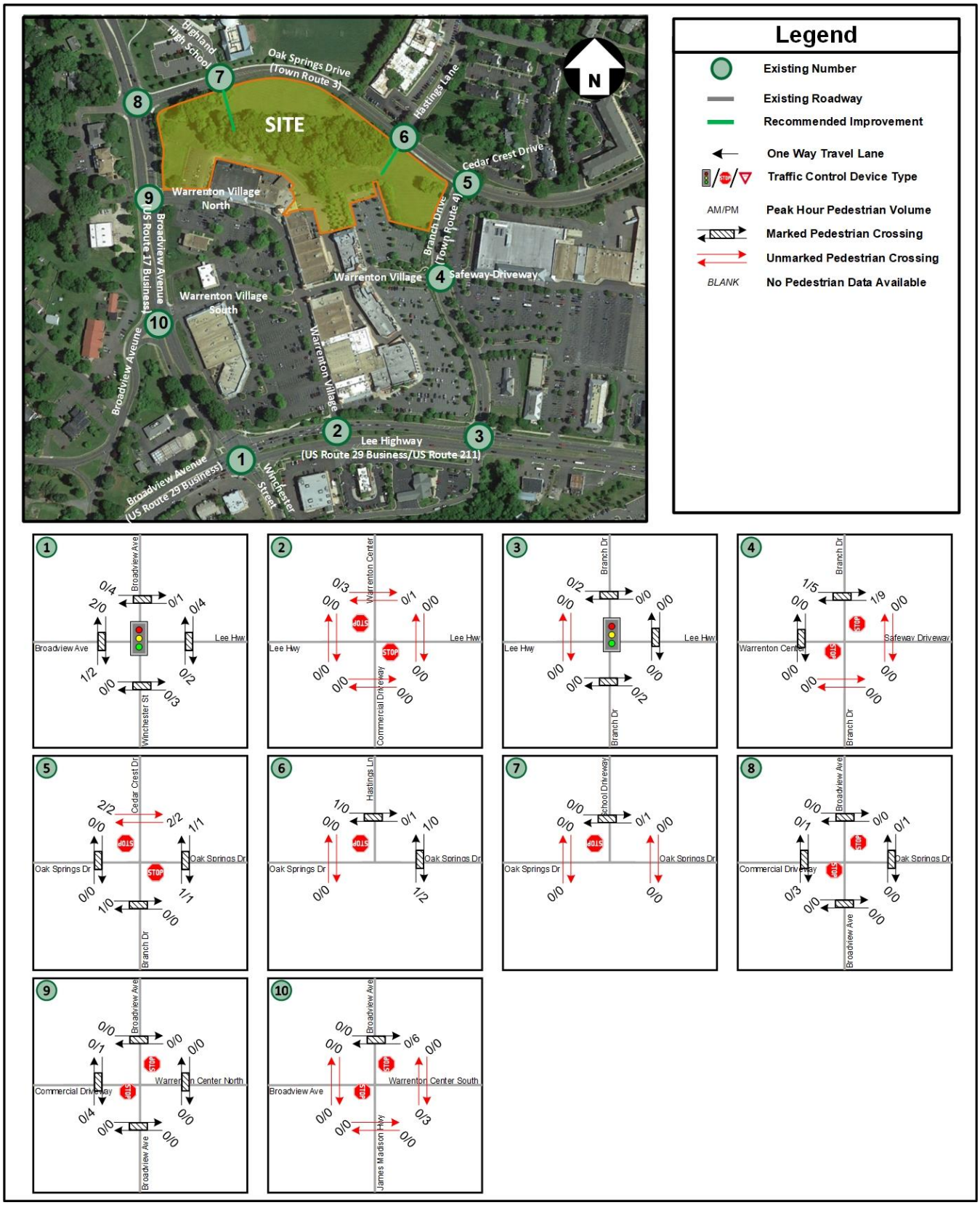


**Figure 9: 2023 Existing Conditions – Pedestrian Volumes**

### *Existing Intersection Capacity and Queueing Analysis*

Intersection capacity and queuing analyses were performed for the 2023 Existing Conditions scenario at the study area intersections during AM and PM peak hours, in accordance with VDOT's *TOSAM* (version 2) guidelines. *Synchro,* version 11, was used to analyze the study intersections with results based on the Transportation Research Board's (TRB) Highway Capacity Manual (HCM) 6th edition methodology[1] and include level of service (LOS), delay, and queue length comparisons for the turning movements analyzed. Lane configurations at study intersections along the road network were field-verified, and the existing traffic volumes discussed in the aforementioned section as well as other relevant data were entered into the analysis models.

Signal timings were obtained from VDOT and were utilized as a base for the analysis models. Traffic operation conditions as well as lane configurations were field verified. The existing traffic volumes discussed in the aforementioned section as well as other relevant data were entered into the analysis models. For the purposes of this analysis, the existing peak hour factors (PHF) utilized in the analysis of existing conditions were based on the 2023 existing volumes and were modeled in the *Synchro* network on a by-intersection basis. PHF in the range of 0.85 to 1.00 were used for the existing scenario, as agreed to in the scoping document. The heavy vehicle percentages (HV%) utilized per movement were based on the existing traffic counts collected. Pedestrian crossing data utilized per crossing were based on the existing traffic counts collected. Based on *Synchro* guidance and pedestrian count data, all pedestrian calls at both signalized intersections were set to five calls per hour. Note that for analysis purposes, all turning movement counts were coded with a minimum volume of one vehicle in *Synchro*.

Per the scoping meeting with VDOT and Town staff, it would be considered acceptable and/or desirable to achieve an approach LOS D or better for traffic operations using HCM methodology. The results of the intersection capacity and queuing analyses from *Synchro* are presented in **Table 4** and graphically in **Figure 10**. The results are expressed in LOS and delay (seconds per vehicle) for overall signalized/all-way stop control intersections and per approach and lane group for all study intersections. Any overall signalized intersection or approach that operates at LOS E or F is displayed in red.

The queue lengths were reported as the 95th percentile queues from *Synchro* and are expressed in feet. The lane groups where the queue lengths exceeded the available effective storage capacity of existing turn lanes are displayed in red.

The description of different LOS and delay are included in Appendix D. The signal timing data provided by VDOT is included in Appendix E. The detailed analysis worksheets of 2023 Existing Conditions are contained in Appendix F.

[1] It should be noted that HCM 2000 methodology was used in lieu of HCM 6th if the HCM 6th methodology was not applicable. HCM 6th could not be applicable in such cases as nonstandard National Electrical Manufacturers Association (NEMA) configurations, shared lane configurations, placement of loop detectors, U-turns, etc.

**Table 4: 2023 Existing Conditions – Intersection Capacity Analysis Results**

| No. | Intersection (Movement) | Effective Storage Length (ft.) | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|---|---|
| | | | LOS | Delay (sec/veh) | 95th % Queue (ft.) [2] | LOS | Delay (sec/veh) | 95th % Queue [2] |
| | | | Synchro | | | Synchro | | |
| 1 | **Broadview Ave (E/W) at Winchester St (N/S)** | | | | | | | |
| | **Overall Intersection (Signalized)** | | **D** | **36.4** | | **D** | **39.4** | |
| | ***Eastbound Approach*** | | ***C*** | ***34.2*** | | ***D*** | ***40.6*** | |
| | Eastbound Left | 250 | E | 64.9 | 186 | E | 72.0 | 193 |
| | Eastbound Thru/Right | | C | 24.0 | 428 | C | 30.6 | 428 |
| | ***Westbound Approach*** | | ***C*** | ***25.5*** | | ***C*** | ***25.9*** | |
| | Westbound Left | 130 | F | 89.7 | 78 | F | 93.8 | m119 |
| | Westbound Thru | | B | 19.8 | 143 | C | 22.7 | 192 |
| | Westbound Right | 200 | C | 33.6 | 46 | B | 16.8 | m15 |
| | ***Northbound Approach*** | | ***E*** | ***60.3*** | | ***E*** | ***66.6*** | |
| | Northbound Left | 250 | E | 61.7 | 126 | E | 74.8 | 188 |
| | Northbound Thru | | E | 66.5 | 166 | E | 67.3 | 160 |
| | Northbound Right | 125 | D | 49.9 | 0 | D | 51.7 | 17 |
| | ***Southbound Approach*** | | ***D*** | ***49.2*** | | ***D*** | ***50.9*** | |
| | Southbound Left | 215 | E | 63.1 | 167 | E | 59.2 | 251 |
| | Southbound Left/Thru | | E | 62.0 | 171 | E | 59.0 | 257 |
| | Southbound Right | | D | 36.1 | 95 | D | 44.2 | 417 |
| 2 | **Broadview Ave (E/W) at Warrenton Village Center Dwy (Chipotle)/Walgreens Dwy (N/S)** | | | | | | | |
| | **Overall Intersection (TWSC)** | | | | | | | |
| | ***Northbound Approach*** | | ***B*** | ***12.6*** | | ***B*** | ***13.4*** | |
| | Northbound Right | | B | 12.6 | 5 | B | 13.4 | 5 |
| | ***Southbound Approach*** | | ***B*** | ***10.7*** | | ***B*** | ***13.3*** | |
| | Southbound Right | | B | 10.7 | 3 | B | 13.3 | 15 |
| 3 | **Broadview Ave (E/W) at Branch Dr (N/S)** | | | | | | | |
| | **Overall Intersection (Signalized)** | | **B** | **16.2** | | **C** | **31.6** | |
| | ***Eastbound Approach*** | | ***A*** | ***9.0*** | | ***C*** | ***20.9*** | |
| | Eastbound Left | 240 | F | 81.5 | m80 | F | 80.8 | 225 |
| | Eastbound Thru | | A | 6.0 | 133 | B | 11.6 | 226 |
| | Eastbound Right | 330 | A | 9.9 | m0 | B | 13.4 | m0 |
| | ***Westbound Approach*** | | ***B*** | ***15.8*** | | ***C*** | ***28.5*** | |
| | Westbound Left | 150 | E | 67.4 | 88 | E | 78.5 | 123 |
| | Westbound Thru | | B | 13.2 | 394 | C | 26.4 | 610 |
| | Westbound Right | 150 | A | 9.8 | 0 | B | 17.3 | 0 |
| | ***Northbound Approach*** | | ***E*** | ***60.3*** | | ***E*** | ***67.0*** | |
| | Northbound Left/Thru | | E | 61.0 | 43 | E | 68.6 | 73 |
| | Northbound Right | 60 | E | 59.9 | 0 | E | 66.2 | 0 |
| | ***Southbound Approach*** | | ***E*** | ***64.7*** | | ***E*** | ***69.4*** | |
| | Southbound Left/Thru | | E | 67.2 | 86 | E | 78.8 | 249 |
| | Southbound Right | | E | 62.7 | 0 | E | 59.0 | 53 |
| 4 | **Warrenton Village Center Dwy/Shopping Center Dwy (E/W) at Branch Dr (N/S)** | | | | | | | |
| | **Overall Intersection (TWSC)** | | | | | | | |
| | ***Eastbound Approach*** | | ***A*** | ***9.4*** | | ***B*** | ***11.8*** | |
| | Eastbound Left/Thru/Right | | A | 9.4 | 8 | B | 11.8 | 30 |
| | ***Westbound Approach*** | | ***B*** | ***10.1*** | | ***B*** | ***14.2*** | |
| | Westbound Left/Thru/Right | | B | 10.1 | 5 | B | 14.2 | 28 |
| | ***Northbound Approach*** | | | | | | | |
| | Northbound Left | | A | 7.4 | 3 | A | 7.5 | 5 |
| | ***Southbound Approach*** | | | | | | | |
| | Southbound Left | | A | 7.4 | 0 | A | 7.4 | 3 |
| 5 | **Oak Springs Dr (E/W) at Branch Dr (N/S)** | | | | | | | |
| | **Overall Intersection (TWSC)** | | | | | | | |
| | ***Eastbound Approach*** | | | | | | | |
| | Eastbound Left | | A | 7.5 | 0 | A | 7.5 | 0 |
| | ***Westbound Approach*** | | | | | | | |
| | Westbound Left | | A | 7.7 | 0 | A | 7.7 | 3 |
| | ***Northbound Approach*** | | ***B*** | ***11.2*** | | ***B*** | ***11.4*** | |
| | Northbound Left/Thru | | B | 11.6 | 13 | B | 12.6 | 13 |
| | Northbound Right | | A | 9.0 | 0 | A | 9.4 | 5 |
| | ***Southbound Approach*** | | ***B*** | ***10.0*** | | ***B*** | ***10.9*** | |
| | Southbound Left/Thru/Right | | B | 10.0 | 0 | B | 10.9 | 0 |

**Table 4 (Continued): 2023 Existing Conditions – Intersection Capacity Analysis Results**

| No. | Intersection (Movement) | Effective Storage Length (ft.) | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|---|---|
| | | | LOS | Delay (sec/veh) | 95th % Queue (ft.) [2] | LOS | Delay (sec/veh) | 95th % Queue [2] |
| | | | Synchro | | | Synchro | | |
| 6 | **Oak Springs Dr (E/W) at Hastings Ln / Future Access (N/S) Overall Intersection (TWSC)** | | | | | | | |
| | ***Eastbound Approach*** | | | | | | | |
| | Eastbound Left | | A | 7.9 | 5 | A | 7.7 | 3 |
| | ***Southbound Approach*** | | ***B*** | ***11.5*** | | ***B*** | ***11.3*** | |
| | Southbound Left/Thru/Right | | B | 11.5 | 18 | B | 11.3 | 18 |
| 7 | **Oak Springs Dr (E/W) at Highland School Dwy / Future Garage Access (N/S) Overall Intersection (TWSC)** | | | | | | | |
| | ***Eastbound Approach*** | | | | | | | |
| | Eastbound Left | 75 | A | 7.8 | 3 | A | 7.7 | 0 |
| | ***Southbound Approach*** | | ***B*** | ***11.2*** | | ***B*** | ***10.2*** | |
| | Southbound Left/Thru | | B | 12.3 | 5 | B | 11.5 | 3 |
| | Southbound Right | | A | 9.4 | 3 | A | 9.7 | 3 |
| 8 | **Oak Springs Dr (E/W) at Broadview Ave (N/S) Overall Intersection (TWSC)** | | | | | | | |
| | ***Eastbound Approach*** | | ***D*** | ***25.2*** | | ***C*** | ***16.8*** | |
| | Eastbound Left/Thru/Right | | D | 25.2 | 0 | C | 16.8 | 3 |
| | ***Westbound Approach*** | | ***C*** | ***23.0*** | | ***D*** | ***27.5*** | |
| | Westbound Left/Thru | 125 | E | 42.8 | 53 | F | 51.1 | 83 |
| | Westbound Right | | B | 10.8 | 15 | B | 10.8 | 18 |
| | ***Northbound Approach*** | | | | | | | |
| | Northbound Left | 90 | A | 8.1 | 0 | A | 8.6 | 0 |
| | ***Southbound Approach*** | | | | | | | |
| | Southbound Left | 225 | A | 9.3 | 10 | A | 8.7 | 8 |
| 9 | **Warrenton Village North Dwy (E/W) at Broadview Ave (N/S) Overall Intersection (TWSC)** | | | | | | | |
| | ***Eastbound Approach*** | | ***A*** | ***9.9*** | | ***C*** | ***20.3*** | |
| | Eastbound Left/Thru/Right | | A | 9.9 | 0 | C | 20.3 | 10 |
| | ***Westbound Approach*** | | ***B*** | ***13.8*** | | ***C*** | ***18.5*** | |
| | Westbound Left | | C | 22.9 | 3 | D | 27.8 | 18 |
| | Westbound Thru/Right | | B | 11.4 | 3 | B | 10.6 | 5 |
| | ***Northbound Approach*** | | | | | | | |
| | Northbound Left | 150 | A | 8.3 | 0 | A | 8.8 | 3 |
| | ***Southbound Approach*** | | | | | | | |
| | Southbound Left | 110 | A | 8.7 | 3 | A | 8.4 | 3 |
| 10 | **Warrenton Village South Dwy/Broadview Ave (E/W) at Broadview Ave/Winchester St (N/S) Overall Intersection (TWSC)** | | | | | | | |
| | ***Eastbound Approach*** | | ***E*** | ***38.8*** | | ***D*** | ***28.4*** | |
| | Eastbound Left | | F | 57.3 | 110 | F | 52.1 | 83 |
| | Eastbound Thru | | D | 29.6 | 10 | E | 36.7 | 40 |
| | Eastbound Right | | B | 10.1 | 8 | B | 11.5 | 25 |
| | ***Westbound Approach*** | | ***C*** | ***21.4*** | | ***D*** | ***33.0*** | |
| | Westbound Left | | D | 28.0 | 0 | E | 47.2 | 38 |
| | Westbound Thru/Right | | C | 19.2 | 3 | C | 21.3 | 20 |
| | ***Northbound Approach*** | | | | | | | |
| | Northbound Left | 160 | A | 8.7 | 10 | A | 9.2 | 8 |
| | ***Southbound Approach*** | | | | | | | |
| | Southbound Left | 160 | A | 8.4 | 0 | A | 8.2 | 0 |

*NOTES:*

*[1] Effective storage length is based on the storage length plus one-half of the taper length per TOSAM guidelines.*

*[2] m: 95th percentile volume and queues (reported from Synchro) are metered by upstream signal.*

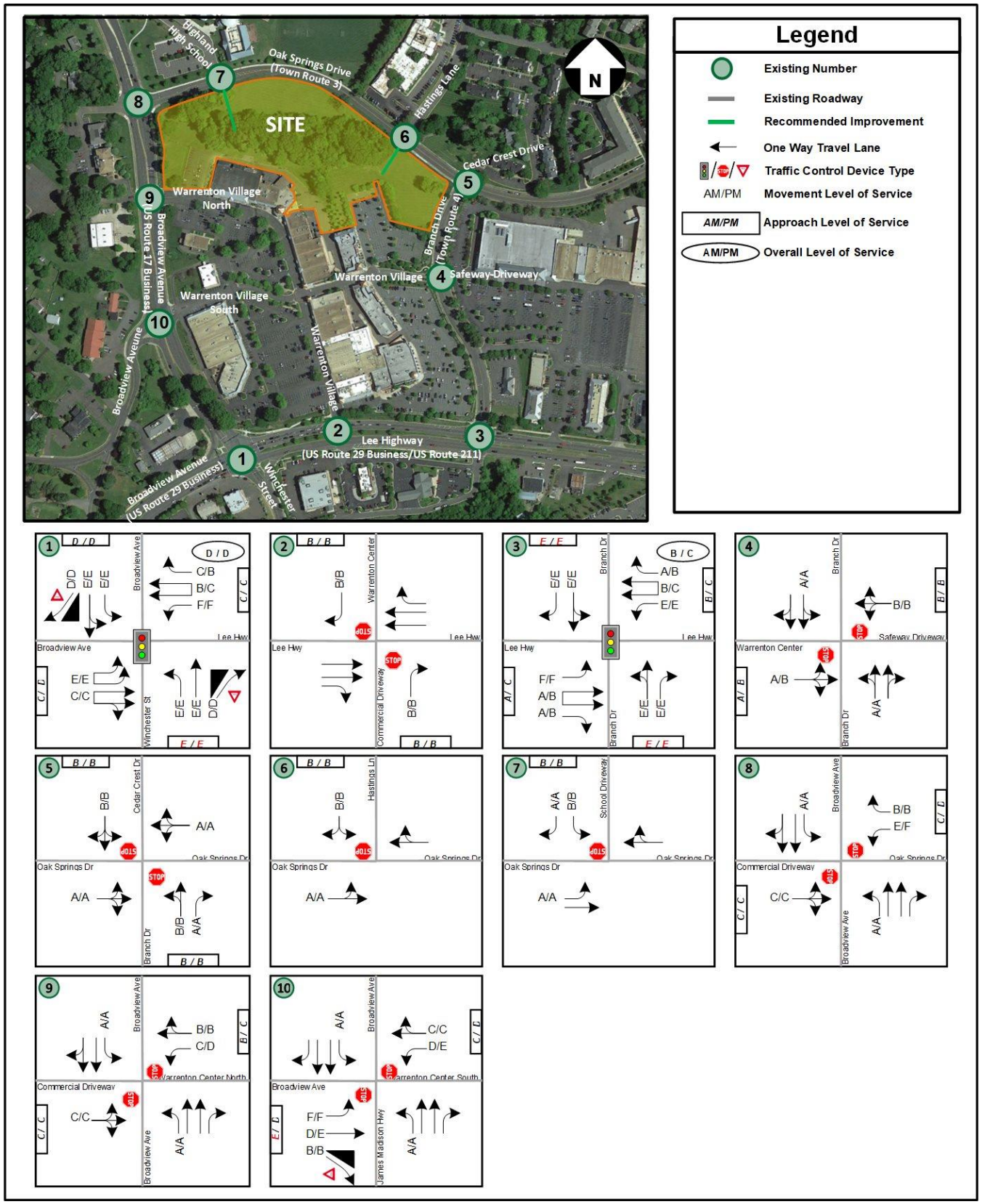


**Figure 10: 2023 Existing Conditions – Level of Service Results**

Based on the capacity analysis of existing conditions, the two signalized study intersections operate at overall levels of service of D or better during both the AM and PM peak hours.

Based on the capacity analysis of existing conditions, the approaches of all study intersections operate at approach levels of service of D or better during both the AM and PM peak hours, except for the following study intersections that have at least one approach that operates at levels of service E or F during at least one peak hour:

- Study Intersection 1: Lee Highway (US 211/US 29 BUS) at Broadview Avenue / Winchester Street
- Study Intersection 3: Lee Highway (US 211/US 29 BUS) at Branch Drive
- Study Intersection 10: Broadview Avenue at Warrenton Village South

Based on the queuing analysis performed for existing conditions, all turning movements at the study intersections have maximum queue lengths that are accommodated within the available storage lengths of the turn bays except for the southbound left turn movement at Study Intersection 1 (Lee Highway at Broadview Avenue / Winchester Street).

# Analysis of 2027 Future Conditions Without Development

For the purposes of this study, the Development is anticipated to be constructed by 2027; this scenario analyzes the future without development conditions for the year 2027.

## *Future without Development Traffic Volumes*

The derivation of future without development traffic volumes was based on assumptions and parameters discussed with VDOT and the County during the scoping process for this study. The future conditions include anticipated inherent regional growth, the inclusion of any potential background developments in the pipeline around the vicinity of the Site, and any anticipated roadway improvements.

### *Inherent Regional Growth*

The Development is anticipated to be complete in 2027. In order to account for increased demand on the traffic network between 2023 and 2027, an inherent growth rate was applied to the future scenarios. This “inherent” growth was anticipated to account for regional development within the at-large area, which would ultimately result in increased roadway demand. Furthermore, the inherent growth was anticipated to account for any potential background developments unaccounted for within the vicinity of the study area.

To account for 2027 future conditions, an inherent growth rate of 1.0%, (compounded annually) over a four-year period, between 2023 to 2027 (and totaling 4.06% growth of the existing volumes) was applied to the Lee Highway mainline through movements at the intersection of Lee Highway at Broadview Avenue / Winchester Street. The growth volumes were balanced along the road network by increasing the mainline through movements at subsequent study intersections along the road network where applicable.

The inherent regional growth volumes (for the period between 2023 and 2027) are illustrated in **Figure 11.**

### *Potential Background Development(s)*

In addition to the applied inherent regional growth reflecting increased regional traffic demand, a total of two “background” developments within the vicinity of the Site, with their locations depicted in **Figure 12**, were identified in the meeting with VDOT and Town staff for inclusion in this study. The background developments included are as follows:

1. Waterloo Junction
    - Located in the southeast quadrant of Bear Wallow Road and Norfolk Drive, the Waterloo Junction development is anticipated to include 47 townhomes, 6 apartments, and 3,600 square feet of retail space.
2. Patrick Ryan Way Homes
    - Located along Winchester Street at Patrick Ryan Way, this development is expected to consist of 60 single family homes. This development was partially built out at the time the turning movement counts were collected. For the purposes of this study, it was assumed that 40 of the 60 homes are built and occupied.

The assignment of the total combined background trips to the road network is depicted in **Figure 13**. Additional information, including the trips generated and the assignment of trips for each individual background development are included in Appendix G.

### *Potential Roadway Improvement(s)*

As discussed during the scoping meeting, there is one roadway improvement within the vicinity of the site that is either fully funded or would be completely constructed by 2027.

- Smartscale project to construct a roundabout at the intersection of Lee Highway at Winchester Street / Broadview Avenue (Study Intersection 1)

There is one roadway improvement within the vicinity of the site that was previously identified for construction but was not selected for funding and therefore not included in the analysis:

- Smartscale project to construct a six-leg roundabout at the intersection of Broadview Avenue at Warrenton Village South (Study Intersection 10)

Relevant Smartscale excerpts and information are included in Appendix G.

The anticipated 2027 future road network (without the development) is illustrated in **Figure 14.**

### *Future without Development Traffic Volumes*

In order to forecast future roadway traffic volumes for the year 2027, the 2023 existing traffic volumes were combined with the inherent regional growth traffic volumes and the combined background development trips. The 2027 future conditions without Development traffic volumes are illustrated in **Figure 15**.

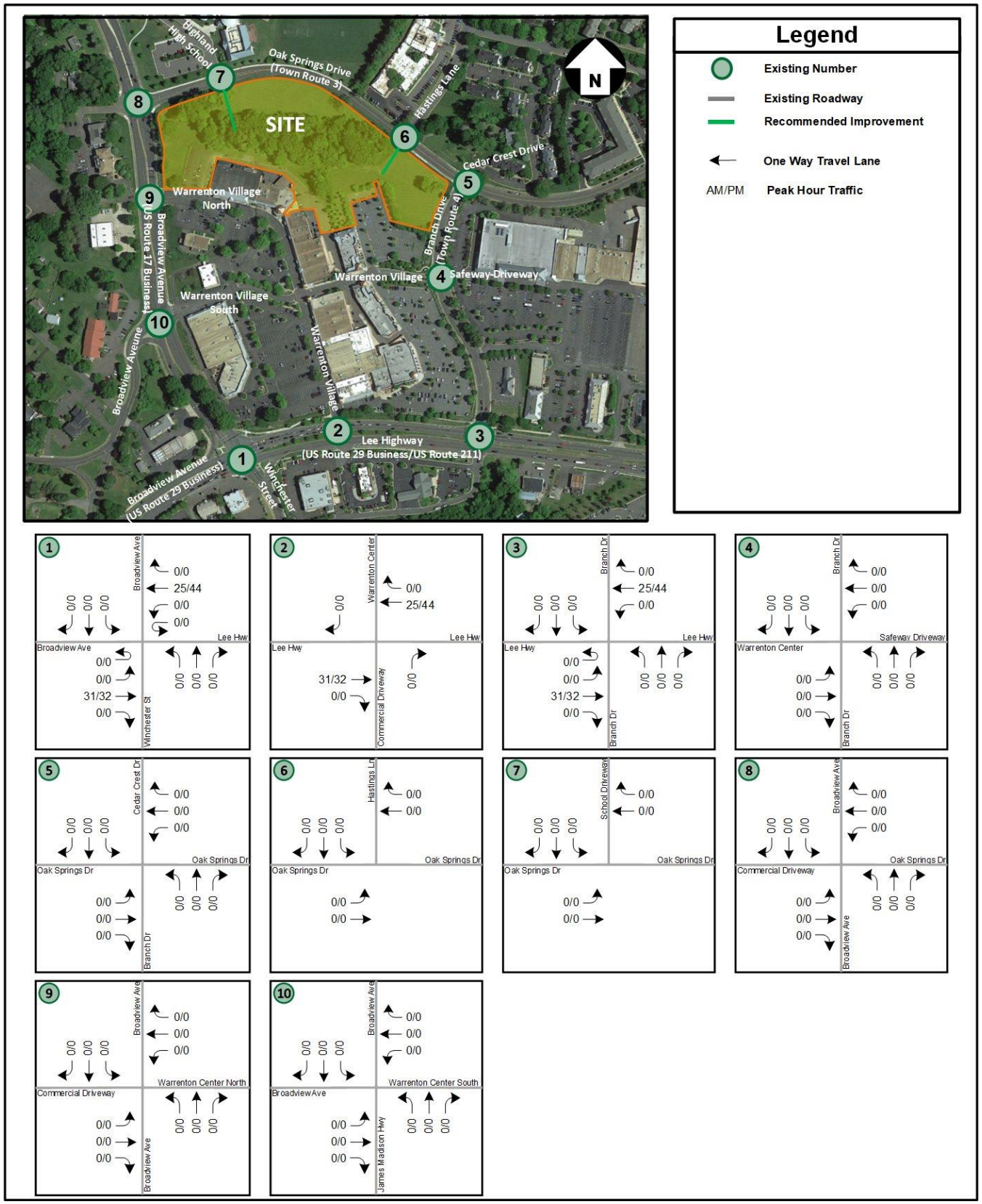


**Figure 11: Projected Inherent Regional Growth Traffic Volumes (2023 to 2027)**

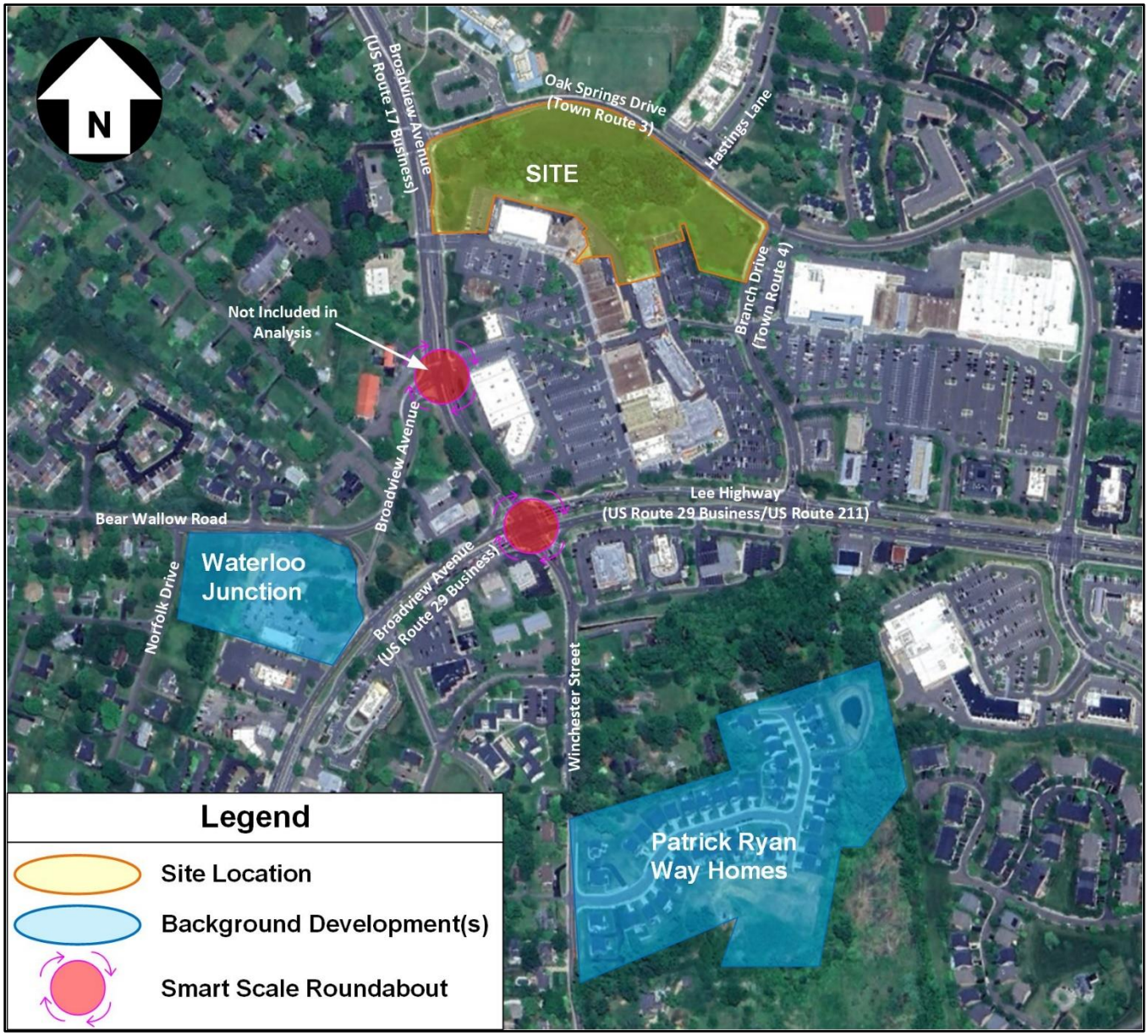


**Figure 12: Background Development and Roadway Improvement Map**

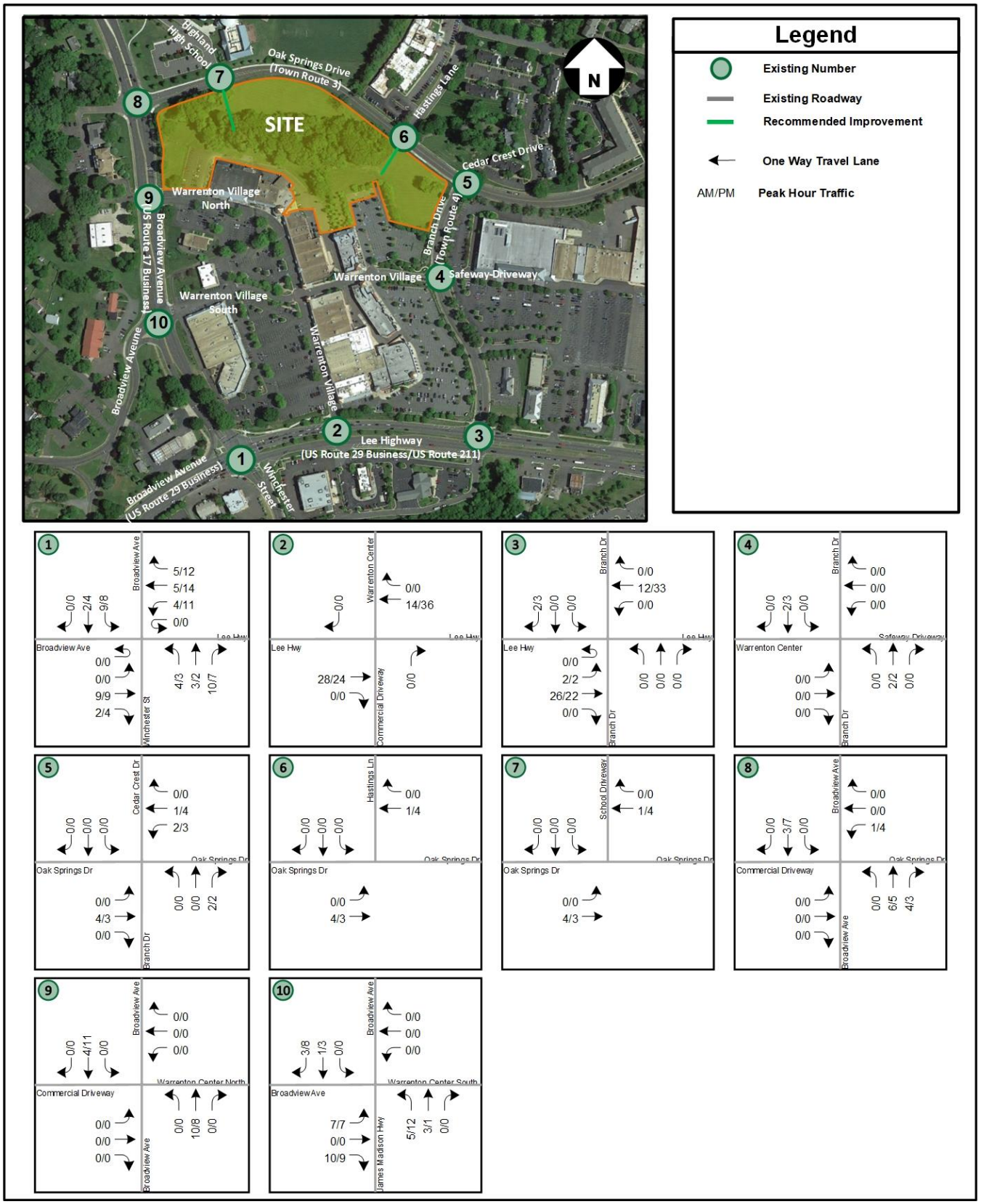


**Figure 13: Total Combined Background Development Trips**

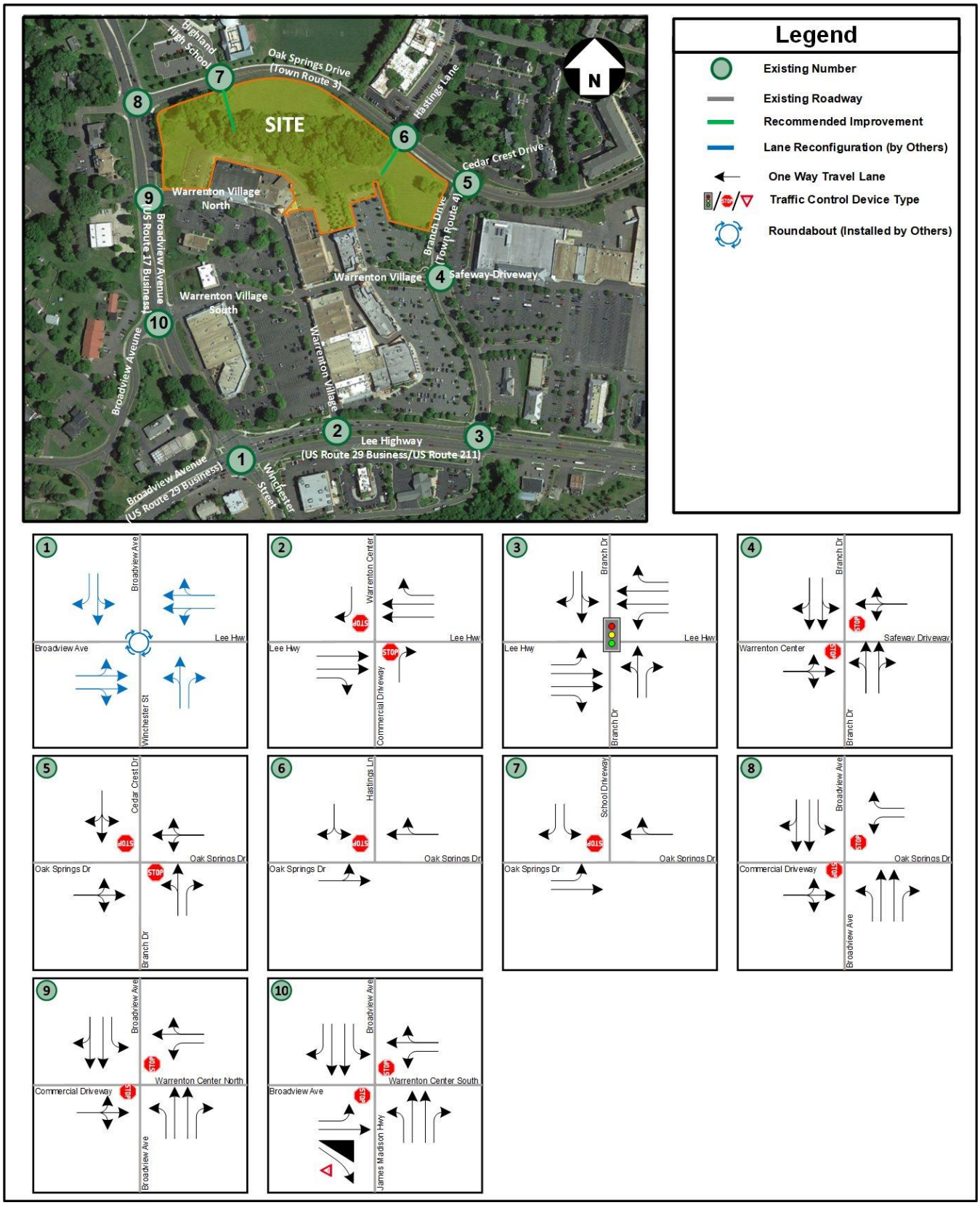


**Figure 14: 2027 Future Conditions without Development – Roadway Network Geometric Configuration and Traffic Control Devices**

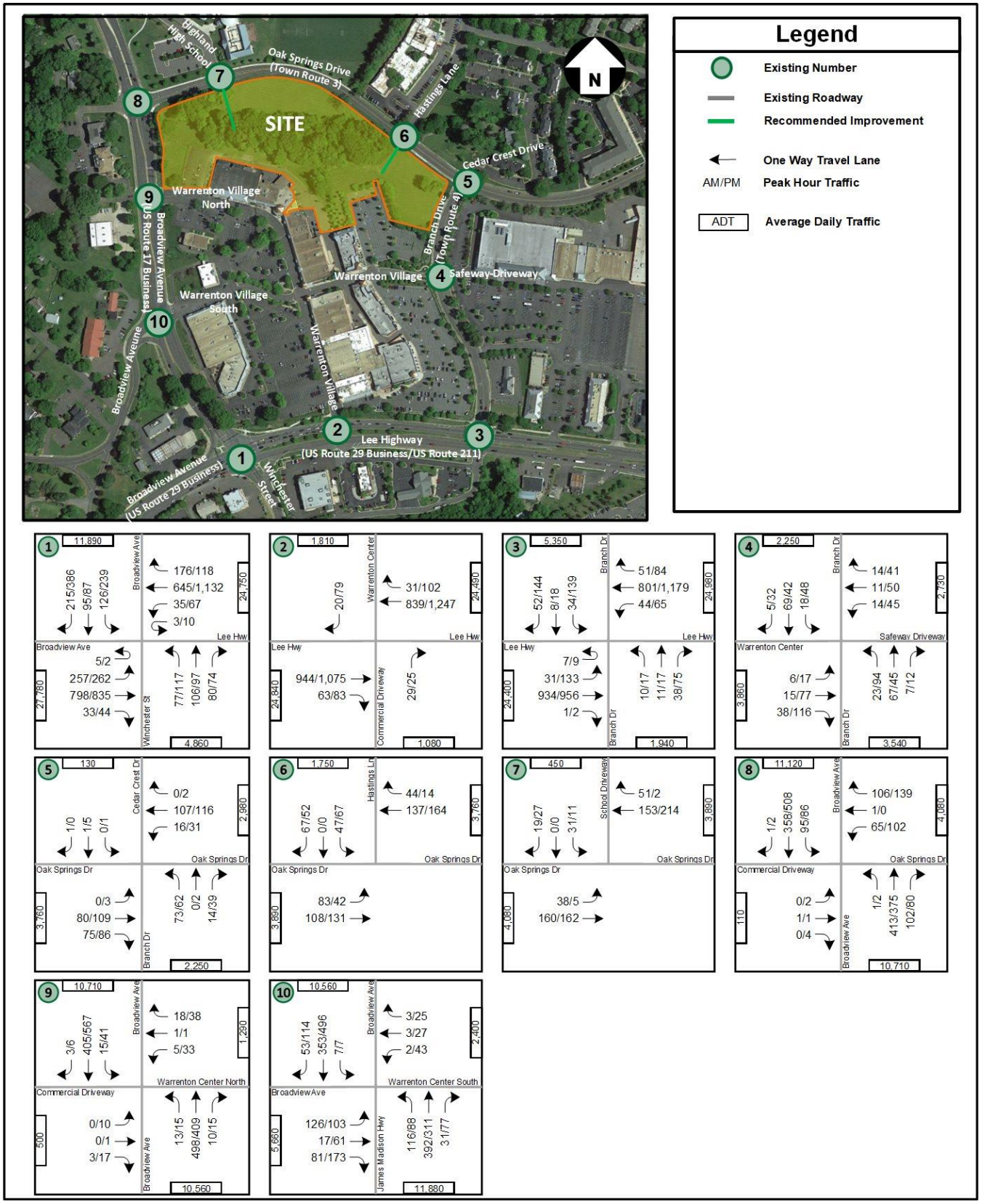


**Figure 15: 2027 Future Conditions without Development – Vehicular Traffic Volumes**

### *Future without Development Intersection Capacity and Queuing Analysis*

Intersection capacity and queueing analyses were performed for the 2027 Future Conditions without Development scenario at the study area intersections during the AM and PM peak hours, in accordance with VDOT's *TOSAM* (version 2) guidelines. *Synchro,* version 11, was used to analyze the study intersections with results based on TRB's HCM 6th methodology and include LOS, delay, and queue length comparisons for the turning movements analyzed. The roundabout was analyzed using *Sidra*, version 9.

For the purposes of this analysis, the intersection PHF utilized in the analysis of future conditions was determined based on the existing traffic counts, with a minimum of 0.92 as agreed to in the scoping document. The HV% were based on the existing conditions scenario. Note that for analysis purposes, all turning movement counts were coded with a minimum volume of one vehicle in *Synchro*.

Per the scoping meeting with VDOT and County staff, it would be considered acceptable and/or desirable to achieve an approach LOS D or better for traffic operations using HCM methodology. The results of the intersection capacity and queuing analyses from *Synchro* are presented in **Table 5** and graphically in **Figure 16.** The results are expressed in LOS and delay (seconds per vehicle) for overall signalized intersections and per approach and lane group for all study intersections. Any overall signalized intersection or approach that operates at LOS E or F is displayed in red.

The queue lengths were reported as the 95th percentile queues determined from *Synchro* and are expressed in feet. The lane groups where the queue lengths exceeded the available effective storage capacity of existing turn lanes are displayed in red.

The detailed analysis worksheets of the 2027 Future Conditions without Development are contained in Appendix H.

**Table 5: 2027 Future Conditions without Development – Intersection Capacity Analysis Results**

| No. | Intersection (Movement) | Effective Storage Length (ft.) | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|---|---|
| | | | LOS | Delay (sec/veh) | 95th % Queue (ft.) | LOS | Delay (sec/veh) | 95th % Queue |
| | | | Synchro | | | Synchro | | |
| 1 | **Broadview Ave (E/W) at Winchester St (N/S)** | | | | | | | |
| | **Overall Intersection (Roundabout)** | | **A** | **8.1** | | **B** | **17.6** | |
| | ***Eastbound Approach*** | | ***A*** | ***7.6*** | | ***B*** | ***11.1*** | |
| | Eastbound Left/Thru | | A | 8.0 | 80 | B | 11.9 | 158 |
| | Eastbound Thru/Right | | A | 7.2 | 83 | B | 10.4 | 158 |
| | ***Westbound Approach*** | | ***A*** | ***7.6*** | | ***B*** | ***15.0*** | |
| | Westbound Left/Thru | | A | 8.0 | 78 | B | 16.2 | 252 |
| | Westbound Thru/Right | | A | 7.2 | 81 | B | 14.0 | 268 |
| | ***Northbound Approach*** | | ***A*** | ***9.5*** | | ***B*** | ***12.4*** | |
| | Northbound Left/Thru | | A | 9.2 | 36 | B | 12.2 | 56 |
| | Northbound Right | | B | 10.2 | 19 | B | 13.0 | 22 |
| | ***Southbound Approach*** | | ***A*** | ***9.1*** | | ***C*** | ***34.7*** | |
| | Southbound Left/Thru | | A | 8.6 | 39 | D | 35.1 | 161 |
| | Southbound Right | | A | 9.7 | 43 | C | 34.4 | 191 |
| 2 | **Broadview Ave (E/W) at Warrenton Village Center Dwy (Chipotle)/Walgreens Dwy (N/S)** | | | | | | | |
| | **Overall Intersection (TWSC)** | | | | | | | |
| | ***Northbound Approach*** | | ***B*** | ***13.0*** | | ***B*** | ***13.9*** | |
| | Northbound Right | | B | 13.0 | 5 | B | 13.9 | 5 |
| | ***Southbound Approach*** | | ***B*** | ***10.8*** | | ***B*** | ***13.9*** | |
| | Southbound Right | | B | 10.8 | 3 | B | 13.9 | 15 |
| 3 | **Broadview Ave (E/W) at Branch Dr (N/S)** | | | | | | | |
| | **Overall Intersection (Signalized)** | | **B** | **19.7** | | **C** | **34.0** | |
| | ***Eastbound Approach*** | | ***B*** | ***16.4*** | | ***C*** | ***26.4*** | |
| | Eastbound Left | 240 | E | 67.0 | 80 | E | 75.4 | 224 |
| | Eastbound Thru | | B | 14.3 | 485 | B | 19.1 | 441 |
| | Eastbound Right | 330 | A | 9.7 | 0 | B | 13.4 | 0 |
| | ***Westbound Approach*** | | ***B*** | ***15.7*** | | ***C*** | ***29.6*** | |
| | Westbound Left | 150 | E | 67.4 | 88 | E | 78.5 | 123 |
| | Westbound Thru | | B | 13.3 | 400 | C | 27.8 | 675 |
| | Westbound Right | 150 | A | 9.7 | 0 | B | 17.3 | 0 |
| | ***Northbound Approach*** | | ***E*** | ***60.8*** | | ***E*** | ***67.0*** | |
| | Northbound Left/Thru | | E | 61.5 | 44 | E | 68.6 | 73 |
| | Northbound Right | 60 | E | 60.4 | 0 | E | 66.2 | 0 |
| | ***Southbound Approach*** | | ***E*** | ***64.7*** | | ***E*** | ***69.3*** | |
| | Southbound Left/Thru | | E | 67.2 | 86 | E | 78.8 | 249 |
| | Southbound Right | | E | 62.7 | 0 | E | 59.1 | 58 |
| 4 | **Warrenton Village Center Dwy/Shopping Center Dwy (E/W) at Branch Dr (N/S)** | | | | | | | |
| | **Overall Intersection (TWSC)** | | | | | | | |
| | ***Eastbound Approach*** | | ***A*** | ***9.3*** | | ***B*** | ***11.8*** | |
| | Eastbound Left/Thru/Right | | A | 9.3 | 5 | B | 11.8 | 30 |
| | ***Westbound Approach*** | | ***B*** | ***10.0*** | | ***B*** | ***14.3*** | |
| | Westbound Left/Thru/Right | | B | 10.0 | 5 | B | 14.3 | 28 |
| | ***Northbound Approach*** | | | | | | | |
| | Northbound Left | | A | 7.4 | 3 | A | 7.5 | 5 |
| | ***Southbound Approach*** | | | | | | | |
| | Southbound Left | | A | 7.4 | 0 | A | 7.4 | 3 |
| 5 | **Oak Springs Dr (E/W) at Branch Dr (N/S)** | | | | | | | |
| | **Overall Intersection (TWSC)** | | | | | | | |
| | ***Eastbound Approach*** | | | | | | | |
| | Eastbound Left | | A | 7.4 | 0 | A | 7.5 | 0 |
| | ***Westbound Approach*** | | | | | | | |
| | Westbound Left | | A | 7.6 | 0 | A | 7.7 | 3 |
| | ***Northbound Approach*** | | ***B*** | ***11.0*** | | ***B*** | ***11.4*** | |
| | Northbound Left/Thru | | B | 11.4 | 10 | B | 12.6 | 10 |
| | Northbound Right | | A | 9.0 | 3 | A | 9.4 | 5 |
| | ***Southbound Approach*** | | ***A*** | ***9.9*** | | ***B*** | ***11.0*** | |
| | Southbound Left/Thru/Right | | A | 9.9 | 0 | B | 11.0 | 0 |

**Table 5 (Continued): 2027 Future Conditions without Development – Intersection Capacity Analysis Results**

| No. | Intersection (Movement) | Effective Storage Length (ft.) | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|---|---|
| | | | LOS | Delay (sec/veh) | 95th % Queue (ft.) | LOS | Delay (sec/veh) | 95th % Queue |
| | | | Synchro | | | Synchro | | |
| 6 | **Oak Springs Dr (E/W) at Hastings Ln / Future Access (N/S)** | | | | | | | |
| | **Overall Intersection (TWSC)** | | | | | | | |
| | ***Eastbound Approach*** | | | | | | | |
| | Eastbound Left | | A | 7.9 | 5 | A | 7.7 | 3 |
| | ***Southbound Approach*** | | ***B*** | ***11.1*** | | ***B*** | ***11.0*** | |
| | Southbound Left/Right | | B | 11.1 | 15 | B | 11.0 | 15 |
| 7 | **Oak Springs Dr (E/W) at Highland School Dwy / Future Garage Access (N/S)** | | | | | | | |
| | **Overall Intersection (TWSC)** | | | | | | | |
| | ***Eastbound Approach*** | | | | | | | |
| | Eastbound Left | 75 | A | 7.7 | 3 | A | 7.7 | 0 |
| | ***Southbound Approach*** | | ***B*** | ***10.9*** | | ***B*** | ***10.1*** | |
| | Southbound Left | | B | 11.9 | 5 | B | 11.2 | 3 |
| | Southbound Right | | A | 9.3 | 3 | A | 9.6 | 3 |
| 8 | **Oak Springs Dr (E/W) at Broadview Ave (N/S)** | | | | | | | |
| | **Overall Intersection (TWSC)** | | | | | | | |
| | ***Eastbound Approach*** | | ***C*** | ***17.8*** | | ***C*** | ***16.6*** | |
| | Eastbound Left/Thru/Right | | C | 17.8 | 0 | C | 16.6 | 3 |
| | ***Westbound Approach*** | | ***C*** | ***19.7*** | | ***D*** | ***27.9*** | |
| | Westbound Left/Thru | 125 | D | 34.3 | 40 | F | 51.0 | 85 |
| | Westbound Right | | B | 10.6 | 13 | B | 10.7 | 18 |
| | ***Northbound Approach*** | | | | | | | |
| | Northbound Left | 90 | A | 8.1 | 0 | A | 8.5 | 0 |
| | ***Southbound Approach*** | | | | | | | |
| | Southbound Left | 225 | A | 9.1 | 8 | A | 8.7 | 8 |
| 9 | **Warrenton Village North Dwy (E/W) at Broadview Ave (N/S)** | | | | | | | |
| | **Overall Intersection (TWSC)** | | | | | | | |
| | ***Eastbound Approach*** | | ***C*** | ***15.6*** | | ***C*** | ***20.0*** | |
| | Eastbound Left/Thru/Right | | C | 15.6 | 0 | C | 20.0 | 10 |
| | ***Westbound Approach*** | | ***B*** | ***13.2*** | | ***C*** | ***18.3*** | |
| | Westbound Left | | C | 21.2 | 3 | D | 27.3 | 15 |
| | Westbound Thru/Right | | B | 11.1 | 3 | B | 10.6 | 5 |
| | ***Northbound Approach*** | | | | | | | |
| | Northbound Left | 150 | A | 8.2 | 0 | A | 8.8 | 3 |
| | ***Southbound Approach*** | | | | | | | |
| | Southbound Left | 110 | A | 8.6 | 0 | A | 8.4 | 3 |
| 10 | **Warrenton Village South Dwy/Broadview Ave (E/W) at Broadview Ave/Winchester St (N/S)** | | | | | | | |
| | **Overall Intersection (TWSC)** | | | | | | | |
| | ***Eastbound Approach*** | | ***D*** | ***30.7*** | | ***D*** | ***31.9*** | |
| | Eastbound Left | | E | 44.6 | 90 | F | 62.0 | 98 |
| | Eastbound Thru | | D | 26.5 | 8 | E | 38.5 | 43 |
| | Eastbound Right | | B | 10.0 | 10 | B | 11.6 | 25 |
| | ***Westbound Approach*** | | ***C*** | ***19.7*** | | ***E*** | ***35.5*** | |
| | Westbound Left | | D | 25.4 | 0 | F | 51.8 | 40 |
| | Westbound Thru/Right | | C | 17.8 | 3 | C | 22.1 | 20 |
| | ***Northbound Approach*** | | | | | | | |
| | Northbound Left | 160 | A | 8.6 | 10 | A | 9.3 | 8 |
| | ***Southbound Approach*** | | | | | | | |
| | Southbound Left | 160 | A | 8.3 | 0 | A | 8.2 | 0 |

*NOTES:*

*[1] Effective storage length is based on the storage length plus one-half of the taper length per TOSAM guidelines.*

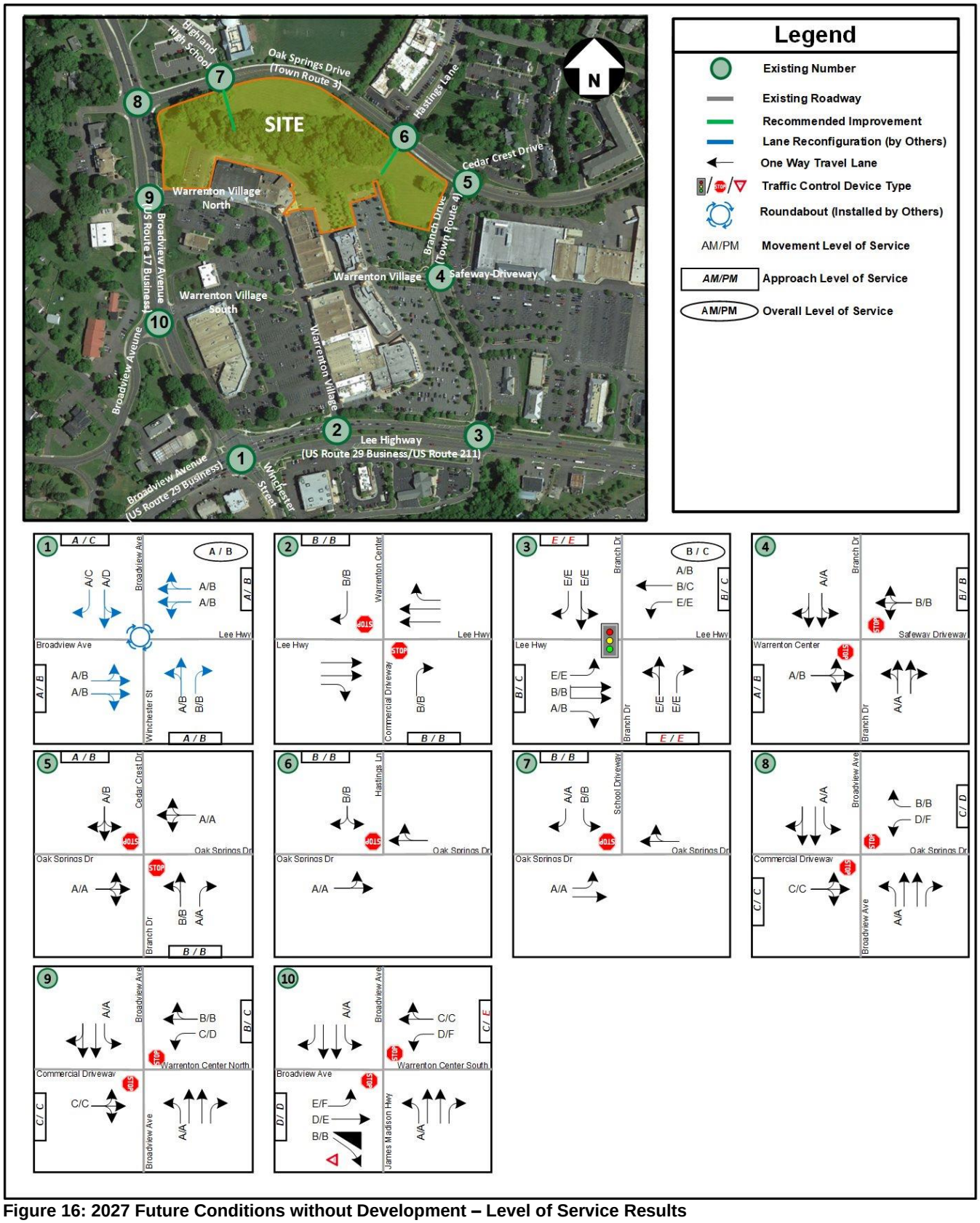


**Figure 16: 2027 Future Conditions without Development – Level of Service Results**

Study Intersection 1 (Lee Highway at Winchester Street / Broadview Avenue) was approved for a roundabout and received SmartScale funding. As such, this intersection was converted from a signalized intersection to a roundabout in all future conditions.

Based on the capacity analysis of 2027 Future Conditions without Development, the planned roundabout is expected to operate at overall levels of service of B or better during both the AM and PM peak hours.

Based on the capacity analysis of 2027 Future Conditions without Development, the signalized study intersection is expected to operate at overall levels of service of C or better during both the AM and PM peak hours.

Based on the capacity analysis of 2027 Future Conditions without Development, the approaches of all study intersections continue to operate at approach levels of service of D or better during both the AM and PM peak hours, except for the following study intersections that have at least one approach that would operates at level of service E of F during at least one peak hour:

- Study Intersection 3: Lee Highway (US 211/US 29 BUS) at Branch Drive
- Study Intersection 10: Broadview Avenue at Warrenton Village South

Based on the queuing analysis performed for 2027 Future Conditions without Development, all turning movements at the study intersections have maximum queue lengths that are accommodated within the available storage lengths of the turn bays.

# Analysis of 2027 Future Conditions with Development

For the purposes of this study, the Development is anticipated to be constructed by 2027; this scenario analyzes the future with development conditions for the year 2027.

## *Site Description*

The development will be situated on a single parcel of vacant land (approximately 6.46 acres) and a portion of an adjacent developed parcel of land, which can be identified on Fauquier County Tax Maps with the following GPIN #s: 6985-20-7247-000, and 6984-29-6753-000, respectively. The property is currently zoned as C (Commercial District) with a Future Land Use of Mixed Use as part of the New Town Warrenton Character District (Lee Highway Urban Development Area [UDA]).

The Applicant is proposing to apply for a Special Use Permit (SUP) in order to construct approximately 386 multifamily residential dwelling units (320 multifamily apartments, 36 2-over-2 units, and 30 townhomes) and a parking deck. The site has an anticipated build-out date of 2027.

A conceptual plan for the Site is illustrated in **Figure 17**

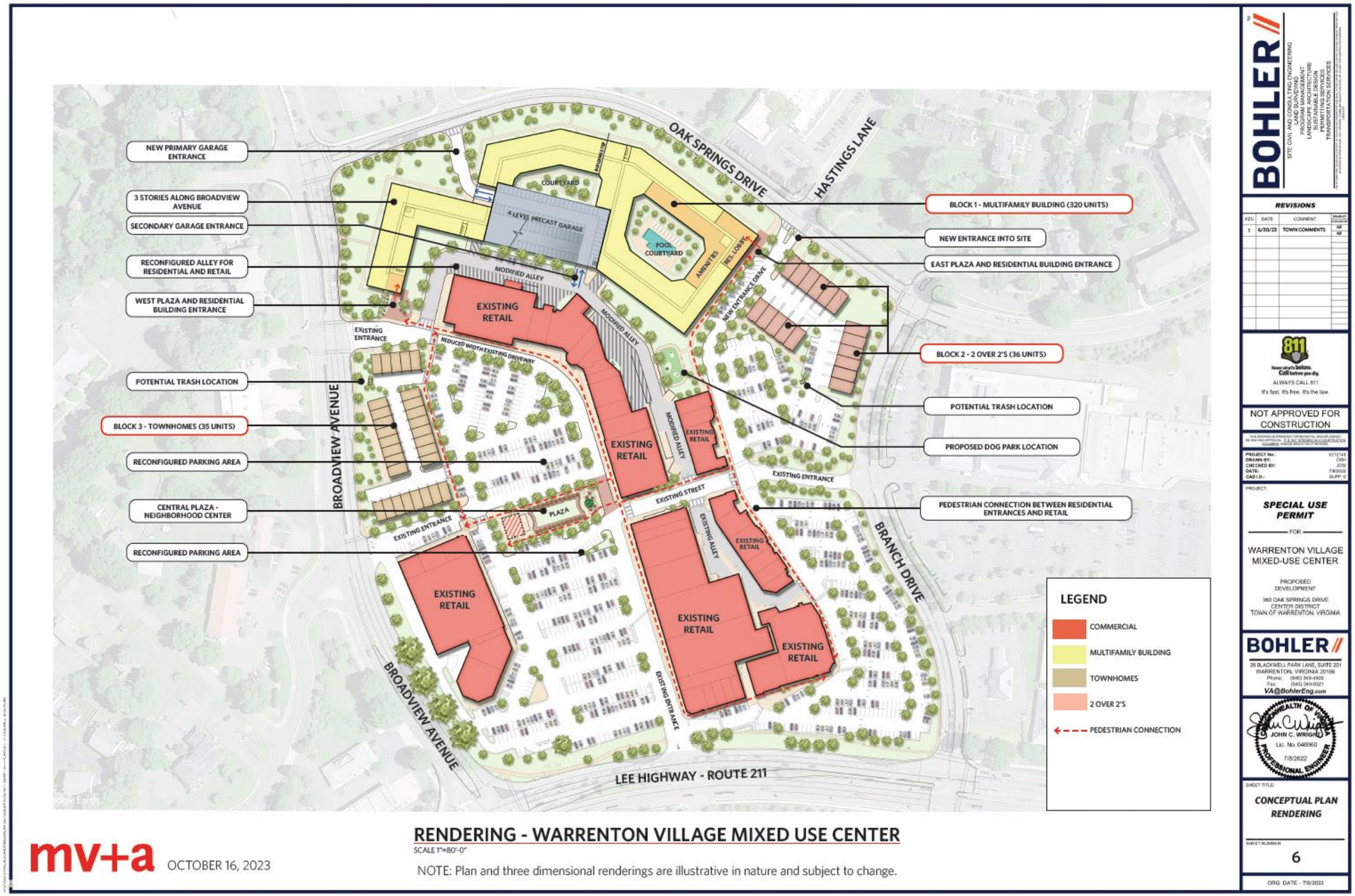


**Figure 17: Conceptual Development Plan**
*Note: Plan provided by Bohler and is for conceptual purposes only.*

## *Proposed Site Access*

Access to the site will be provided via one full movement parking deck entry along Oak Springs Drive (Town Route 3) forming the fourth leg of the High School Driveway, one full movement driveway along Oak Springs Drive forming the fourth leg to the existing full-movement intersection of Hastings Lane, and via the existing shopping center accesses to the south.

## *Projected Site Trip Generation*

In order to calculate the trips generated by the proposed Development, the Institute of Transportation Engineers' (ITE) Trip Generation Manual, 11th Edition, publication was used to determine the total trips going into and out of the subject study site during the AM and PM peak hours as well as the typical number of weekday daily trips. The projected trip generation for the proposed Development is depicted in **Table 6**Table 6. Of note, as agreed to in the scoping document, no internal capture or pass-by trip reductions were assumed with respect to the proposed Development, and therefore are not assumed within the table.

**Table 6: Site Trip Generation (Peak Hour of the Adjacent Street; ITE 11th Ed.)**

| Land Use | ITE Code | Size | ------ Weekday ------ | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | | | PM Peak Hour | | | Daily |
| | | | In | Out | Total | In | Out | Total | Total |
| Multifamily Housing | 220 | 386 DU | 37 | 117 | 154 | 124 | 73 | 197 | 2,602 |

As illustrated in the table above, the Site is expected to generate approximately 154 new trips during the AM peak hour, 197 new trips during the PM peak hour, and 2,602 new daily trips on a typical weekday.

## *Distribution and Assignment of Site Traffic*

The distribution and assignment of the site generated trips were based on the existing traffic patterns, engineering judgement, the nature of the proposed Development, and with the guidance and input from the VDOT and the Town staff. The site direction of approach and trip distribution are illustrated in **Figure 18**.

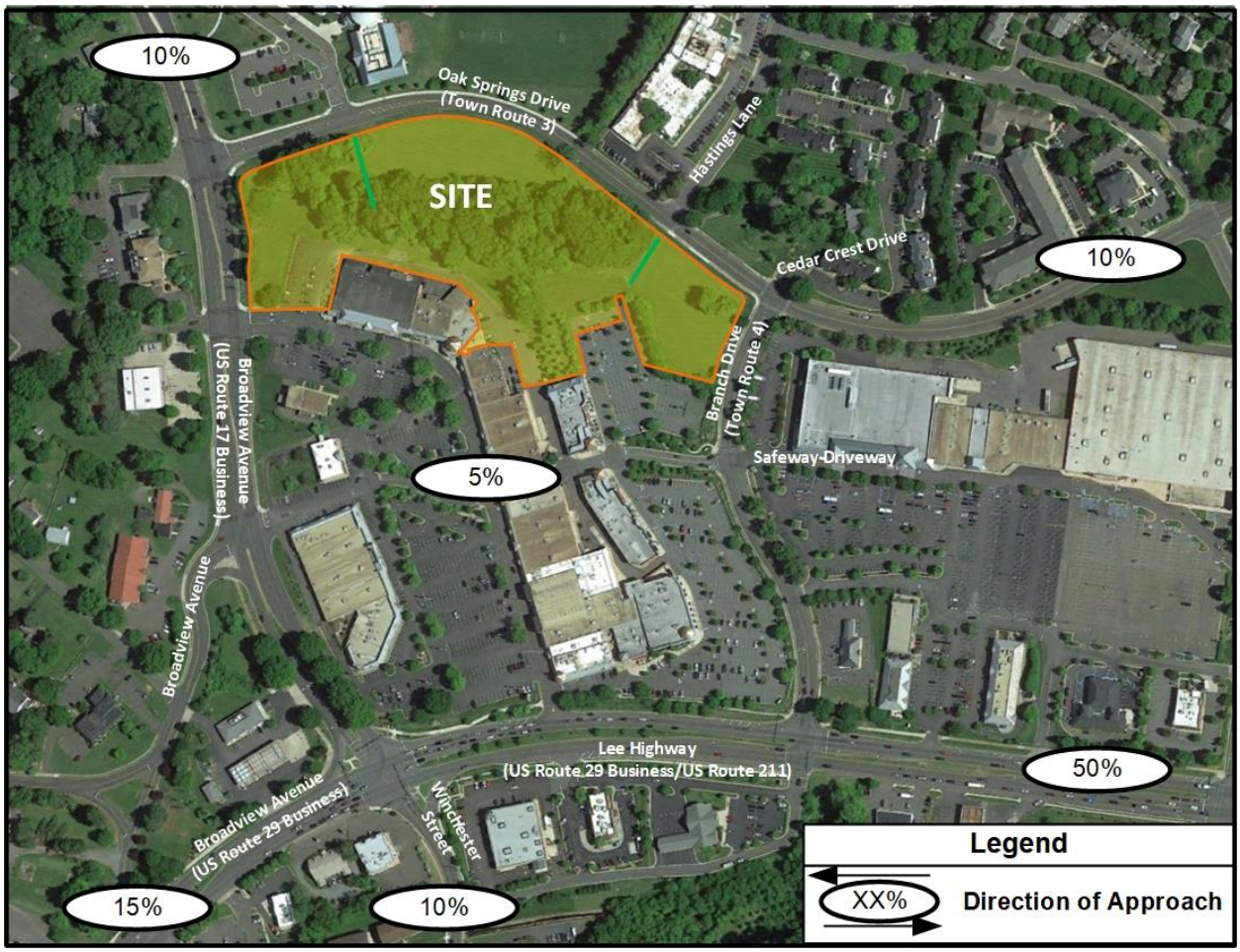


**Figure 18: Global Vehicular Direction of Approach (Site Trip Distribution)**

### *Future with Development Traffic Volumes*

In order to project future traffic volumes on the roadways in the vicinity of the Development, trips generated from the Development were assigned to the road network based on the previously mentioned direction of approach. The site traffic assignment is illustrated for the AM and PM peak hours in **Figure 19.**

The future with development traffic volumes for were determined by adding the assigned site generated traffic volumes to the 2027 Future Conditions without Development traffic volumes. The 2027 Future Conditions with Development traffic volumes are depicted in **Figure 20.**

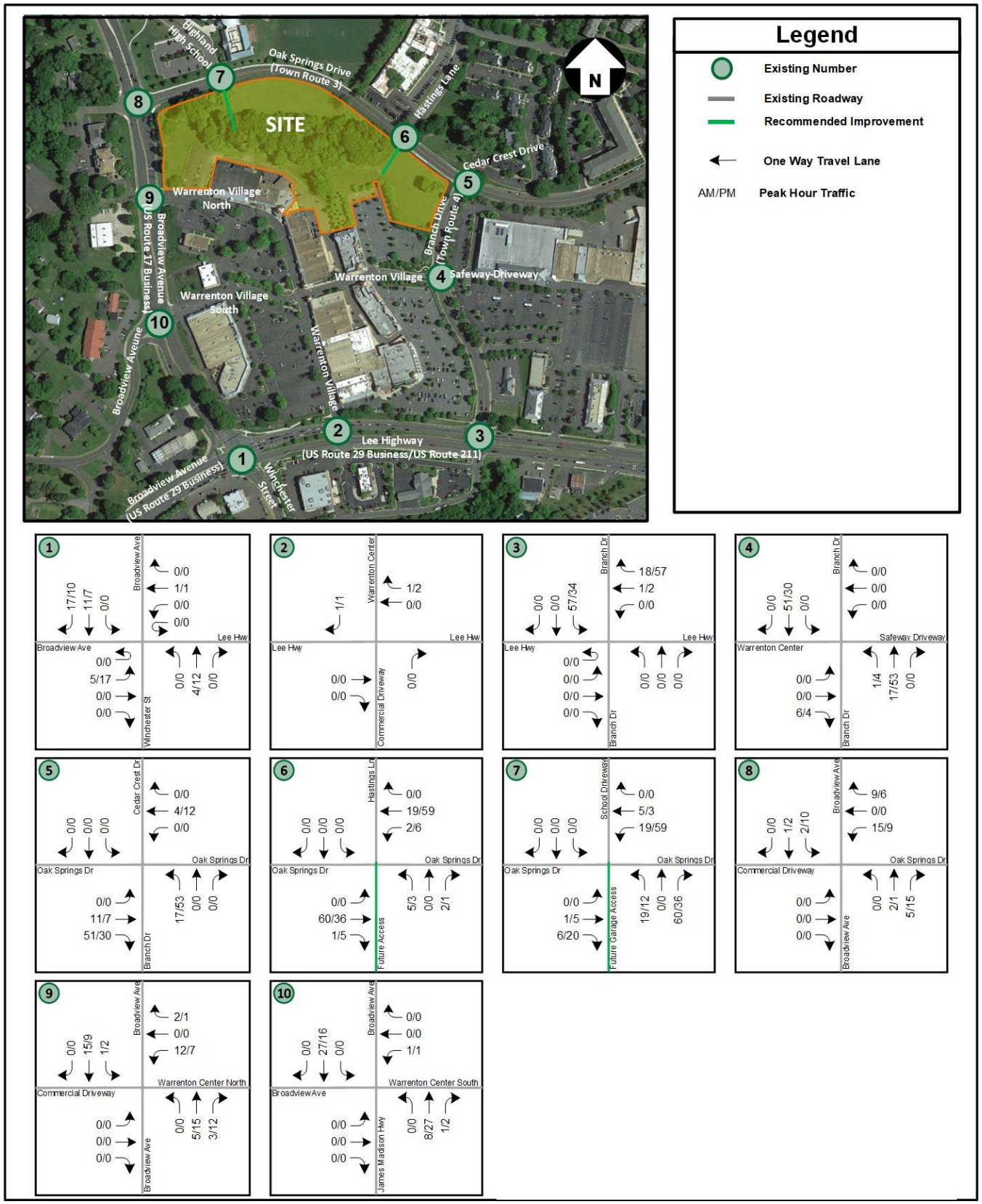


**Figure 19: Site Generated Trip Assignment**

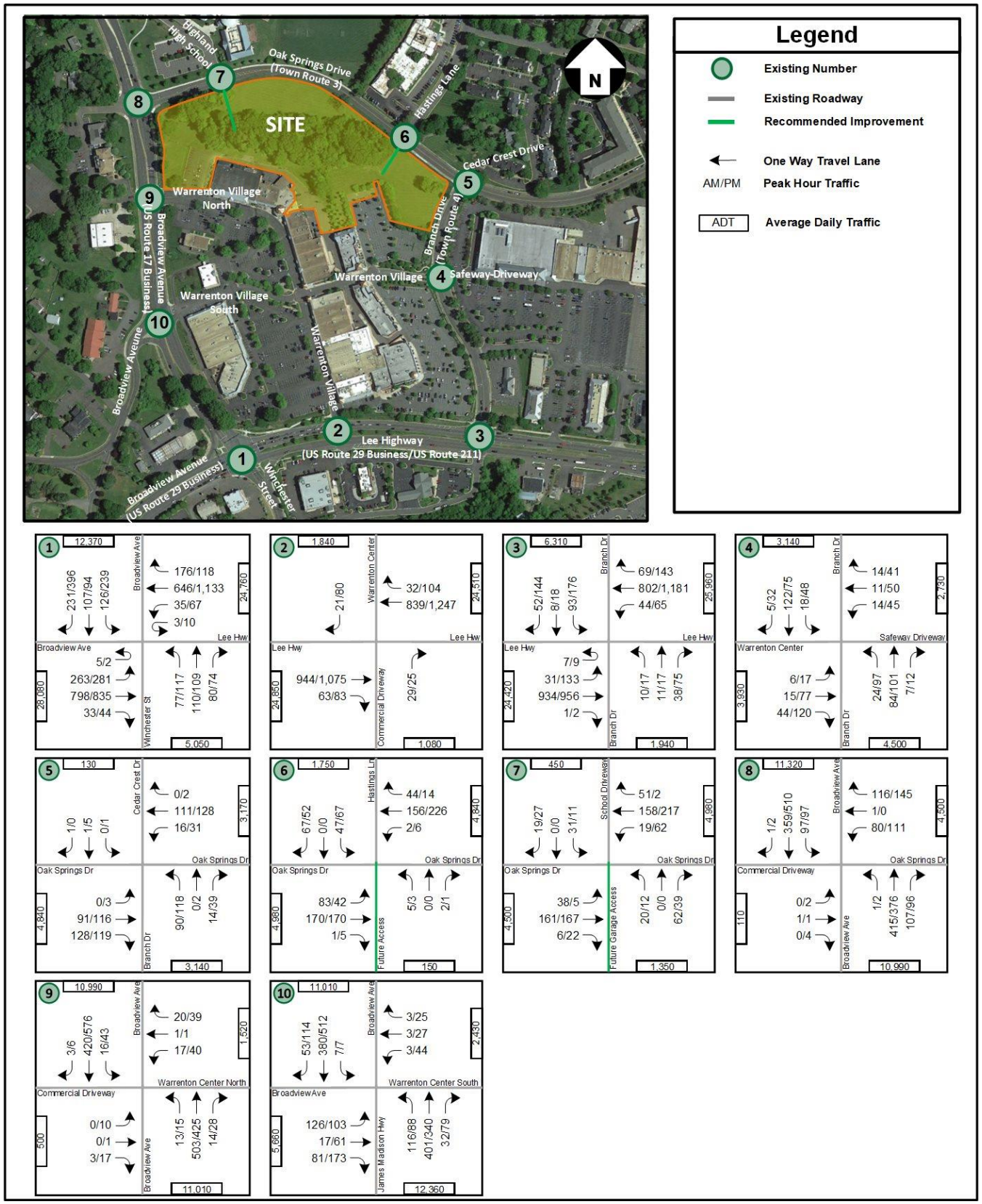


**Figure 20: 2027 Future Conditions with Development**

### *Future with Development Intersection Capacity and Queuing Analysis*

Intersection capacity and queueing analyses were performed for the 2027 Future Conditions without Development scenario at the study area intersections during the AM and PM peak hours, in accordance with VDOT's *TOSAM* (version 2) guidelines. *Synchro,* version 11, was used to analyze the study intersections with results based on TRB's HCM 6th methodology and include LOS, delay, and queue length comparisons for the turning movements analyzed. Roundabouts were analyzed using *Sidra*, version 9.

For the purposes of this analysis, the intersection PHF utilized in the analysis of future conditions was determined based on the existing traffic counts, with a minimum of 0.92 as agreed to in the scoping document. The HV% were based on the existing conditions scenario, with any new approaches utilizing a default *Synchro* value of 2.0% per movement. Note that for analysis purposes, all turning movement counts were coded with a minimum volume of one vehicle in *Synchro*.

Per the scoping meeting with VDOT and the Town staff, it would be considered acceptable and/or desirable to achieve an approach LOS of D or better for traffic operations using the HCM methodology. The results of the intersection capacity and queuing analyses from *Synchro* are presented in **Table 7** and graphically in **Figure 21.** The results are expressed in LOS and delay (seconds per vehicle) for overall signalized intersections and per approach and lane group for all study intersections. The overall signalized intersections and any approaches that operate at LOS E or F are displayed in red.

The queue lengths were reported as the 95th percentile queues determined from *Synchro* and are expressed in feet. The lane groups where the queue lengths exceeded the available effective storage capacity of existing turn lanes are displayed in red.

The detailed analysis worksheets of the 2027 Future Conditions with Development scenario are contained in Appendix I.

**Table 7: 2027 Future Conditions without Development – Intersection Capacity Analysis Results**

| No. | Intersection (Movement) | Effective Storage Length (ft.) | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|---|---|
| | | | LOS | Delay (sec/veh) | 95th % Queue (ft.) [2] | LOS | Delay (sec/veh) | 95th % Queue [2] |
| | | | Synchro | | | Synchro | | |
| 1 | **Broadview Ave (E/W) at Winchester St (N/S)** | | | | | | | |
| | **Overall Intersection (Roundabout)** | | **B** | **10.1** | | **B** | **19.3** | |
| | ***Eastbound Approach*** | | ***A*** | ***9.4*** | | ***B*** | ***11.5*** | |
| | Eastbound Left/Thru | | A | 10.0 | 111 | B | 12.4 | 170 |
| | Eastbound Thru/Right | | A | 8.9 | 116 | B | 10.8 | 172 |
| | ***Westbound Approach*** | | ***B*** | ***10.5*** | | ***B*** | ***16.3*** | |
| | Westbound Left/Thru | | A | 11.4 | 116 | B | 17.7 | 272 |
| | Westbound Thru/Right | | B | 9.8 | 117 | B | 15.3 | 291 |
| | ***Northbound Approach*** | | ***B*** | ***11.9*** | | ***B*** | ***13.3*** | |
| | Northbound Left/Thru | | B | 11.5 | 47 | B | 13.2 | 62 |
| | Northbound Right | | B | 12.7 | 23 | B | 13.7 | 23 |
| | ***Southbound Approach*** | | ***B*** | ***10.1*** | | ***D*** | ***39.6*** | |
| | Southbound Left/Thru | | A | 9.5 | 47 | D | 39.5 | 170 |
| | Southbound Right | | B | 10.8 | 53 | D | 39.7 | 172 |
| 2 | **Broadview Ave (E/W) at Warrenton Village Center Dwy (Chipotle)/Walgreens Dwy (N/S)** | | | | | | | |
| | **Overall Intersection (TWSC)** | | | | | | | |
| | ***Northbound Approach*** | | ***B*** | ***13.0*** | | ***B*** | ***13.9*** | |
| | Northbound Right | | B | 13.0 | 5 | B | 13.9 | 5 |
| | ***Southbound Approach*** | | ***B*** | ***10.8*** | | ***B*** | ***13.9*** | |
| | Southbound Right | | B | 10.8 | 3 | B | 13.9 | 15 |
| 3 | **Broadview Ave (E/W) at Branch Dr (N/S)** | | | | | | | |
| | **Overall Intersection (Signalized)** | | **C** | **23.0** | | **D** | **35.8** | |
| | ***Eastbound Approach*** | | ***B*** | ***19.0*** | | ***C*** | ***28.1*** | |
| | Eastbound Left | 240 | E | 67.0 | 80 | E | 75.4 | 224 |
| | Eastbound Thru | | B | 17.0 | 485 | C | 21.1 | 441 |
| | Eastbound Right | 330 | B | 11.6 | 0 | B | 14.7 | 0 |
| | ***Westbound Approach*** | | ***B*** | ***18.0*** | | ***C*** | ***31.6*** | |
| | Westbound Left | 150 | E | 67.4 | 88 | E | 78.5 | 123 |
| | Westbound Thru | | B | 15.8 | 400 | C | 30.4 | 675 |
| | Westbound Right | 150 | B | 11.6 | 0 | B | 19.3 | 26 |
| | ***Northbound Approach*** | | ***E*** | ***62.1*** | | ***E*** | ***67.0*** | |
| | Northbound Left/Thru | | E | 63.0 | 47 | E | 68.6 | 73 |
| | Northbound Right | 60 | E | 61.6 | 0 | E | 66.2 | 0 |
| | ***Southbound Approach*** | | ***E*** | ***63.4*** | | ***E*** | ***68.7*** | |
| | Southbound Left/Thru | | E | 66.7 | 162 | E | 78.1 | #338 |
| | Southbound Right | | E | 57.2 | 0 | E | 56.4 | 58 |
| 4 | **Warrenton Village Center Dwy/Shopping Center Dwy (E/W) at Branch Dr (N/S)** | | | | | | | |
| | **Overall Intersection (TWSC)** | | | | | | | |
| | ***Eastbound Approach*** | | ***A*** | ***9.5*** | | ***B*** | ***12.5*** | |
| | Eastbound Left/Thru/Right | | A | 9.5 | 8 | B | 12.5 | 35 |
| | ***Westbound Approach*** | | ***B*** | ***10.4*** | | ***C*** | ***16.0*** | |
| | Westbound Left/Thru/Right | | B | 10.4 | 5 | C | 16.0 | 33 |
| | ***Northbound Approach*** | | | | | | | |
| | Northbound Left | | A | 7.5 | 3 | A | 7.6 | 5 |
| | ***Southbound Approach*** | | | | | | | |
| | Southbound Left | | A | 7.4 | 0 | A | 7.5 | 3 |
| 5 | **Oak Springs Dr (E/W) at Branch Dr (N/S)** | | | | | | | |
| | **Overall Intersection (TWSC)** | | | | | | | |
| | ***Eastbound Approach*** | | | | | | | |
| | Eastbound Left | | A | 0.0 | 0 | A | 7.5 | 0 |
| | ***Westbound Approach*** | | | | | | | |
| | Westbound Left | | A | 7.8 | 0 | A | 7.8 | 3 |
| | ***Northbound Approach*** | | ***B*** | ***11.8*** | | ***B*** | ***13.1*** | |
| | Northbound Left/Thru | | B | 12.2 | 15 | B | 14.3 | 25 |
| | Northbound Right | | A | 9.2 | 3 | A | 9.5 | 5 |
| | ***Southbound Approach*** | | ***B*** | ***10.1*** | | ***B*** | ***11.3*** | |
| | Southbound Left/Thru/Right | | B | 10.1 | 0 | B | 11.3 | 0 |

**Table 7 (Continued): 2027 Future Conditions without Development – Intersection Capacity Analysis Results**

| No. | Intersection (Movement) | Effective Storage Length (ft.) | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|---|---|
| | | | LOS | Delay (sec/veh) | 95th % Queue (ft.) [2] | LOS | Delay (sec/veh) | 95th % Queue [2] |
| | | | Synchro | | | Synchro | | |
| 6 | **Oak Springs Dr (E/W) at Hastings Ln / Future Access (N/S) Overall Intersection (TWSC)** | | | | | | | |
| | ***Eastbound Approach*** | | | | | | | |
| | Eastbound Left | | A | 7.9 | 5 | A | 7.9 | 3 |
| | ***Westbound Approach*** | | | | | | | |
| | Westbound Left | | A | 7.6 | 0 | A | 7.6 | 0 |
| | ***Northbound Approach*** | | ***B*** | ***13.6*** | | ***B*** | ***13.1*** | |
| | Northbound Left/Thru/Right | | B | 13.6 | 3 | B | 13.1 | 0 |
| | ***Southbound Approach*** | | ***B*** | ***12.1*** | | ***B*** | ***12.5*** | |
| | Southbound Left/Thru/Right | | B | 12.1 | 18 | B | 12.5 | 20 |
| 7 | **Oak Springs Dr (E/W) at Highland School Dwy / Future Garage Access (N/S) Overall Intersection (TWSC)** | | | | | | | |
| | ***Eastbound Approach*** | | | | | | | |
| | Eastbound Left | 75 | A | 7.7 | 3 | A | 7.7 | 0 |
| | ***Westbound Approach*** | | | | | | | |
| | Westbound Left | | A | 7.6 | 0 | A | 7.8 | 3 |
| | ***Northbound Approach*** | | ***B*** | ***10.8*** | | ***B*** | ***11.0*** | |
| | Northbound Left/Thru/Right | | B | 10.8 | 10 | B | 11.0 | 8 |
| | ***Southbound Approach*** | | ***B*** | ***12.6*** | | ***B*** | ***11.1*** | |
| | Southbound Left/Thru | | B | 14.6 | 8 | B | 14.7 | 3 |
| | Southbound Right | | A | 9.4 | 3 | A | 9.6 | 3 |
| 8 | **Oak Springs Dr (E/W) at Broadview Ave (N/S) Overall Intersection (TWSC)** | | | | | | | |
| | ***Eastbound Approach*** | | ***C*** | ***18.1*** | | ***C*** | ***17.1*** | |
| | Eastbound Left/Thru/Right | | C | 18.1 | 0 | C | 17.1 | 3 |
| | ***Westbound Approach*** | | ***C*** | ***22.4*** | | ***D*** | ***32.9*** | |
| | Westbound Left/Thru | 125 | E | 39.0 | 55 | F | 61.8 | 103 |
| | Westbound Right | | B | 10.7 | 15 | B | 10.8 | 20 |
| | ***Northbound Approach*** | | | | | | | |
| | Northbound Left | 90 | A | 8.1 | 0 | A | 8.5 | 0 |
| | ***Southbound Approach*** | | | | | | | |
| | Southbound Left | 225 | A | 9.1 | 10 | A | 8.8 | 8 |
| 9 | **Warrenton Village North Dwy (E/W) at Broadview Ave (N/S) Overall Intersection (TWSC)** | | | | | | | |
| | ***Eastbound Approach*** | | ***C*** | ***16.0*** | | ***C*** | ***20.7*** | |
| | Eastbound Left/Thru/Right | | C | 16.0 | 3 | C | 20.7 | 10 |
| | ***Westbound Approach*** | | ***C*** | ***16.3*** | | ***C*** | ***20.3*** | |
| | Westbound Left | | C | 22.8 | 8 | D | 30.0 | 23 |
| | Westbound Thru/Right | | B | 11.1 | 3 | B | 10.7 | 5 |
| | ***Northbound Approach*** | | | | | | | |
| | Northbound Left | 150 | A | 8.3 | 0 | A | 8.8 | 3 |
| | ***Southbound Approach*** | | | | | | | |
| | Southbound Left | 110 | A | 8.6 | 3 | A | 8.5 | 3 |
| 10 | **Warrenton Village South Dwy/Broadview Ave (E/W) at Broadview Ave/Winchester St (N/S) Overall Intersection (TWSC)** | | | | | | | |
| | ***Eastbound Approach*** | | ***D*** | ***34.4*** | | ***E*** | ***35.6*** | |
| | Eastbound Left | | F | 51.0 | 100 | F | 71.7 | 108 |
| | Eastbound Thru | | D | 27.8 | 8 | E | 42.2 | 45 |
| | Eastbound Right | | B | 10.1 | 10 | B | 11.7 | 25 |
| | ***Westbound Approach*** | | ***C*** | ***21.2*** | | ***E*** | ***40.2*** | |
| | Westbound Left | | D | 26.6 | 3 | F | 60.0 | 45 |
| | Westbound Thru/Right | | C | 18.5 | 3 | C | 23.5 | 20 |
| | ***Northbound Approach*** | | | | | | | |
| | Northbound Left | 160 | A | 8.7 | 10 | A | 9.4 | 8 |
| | ***Southbound Approach*** | | | | | | | |
| | Southbound Left | 160 | A | 8.3 | 0 | A | 8.3 | 0 |

*NOTES:*

*[1] Effective storage length is based on the storage length plus one-half of the taper length per TOSAM guidelines.*

*[2] #: 95th percentile queues (reported from Synchro) exceed capacity; actual queues may be longer. Queues shown are based on the maximum after two cycles.*

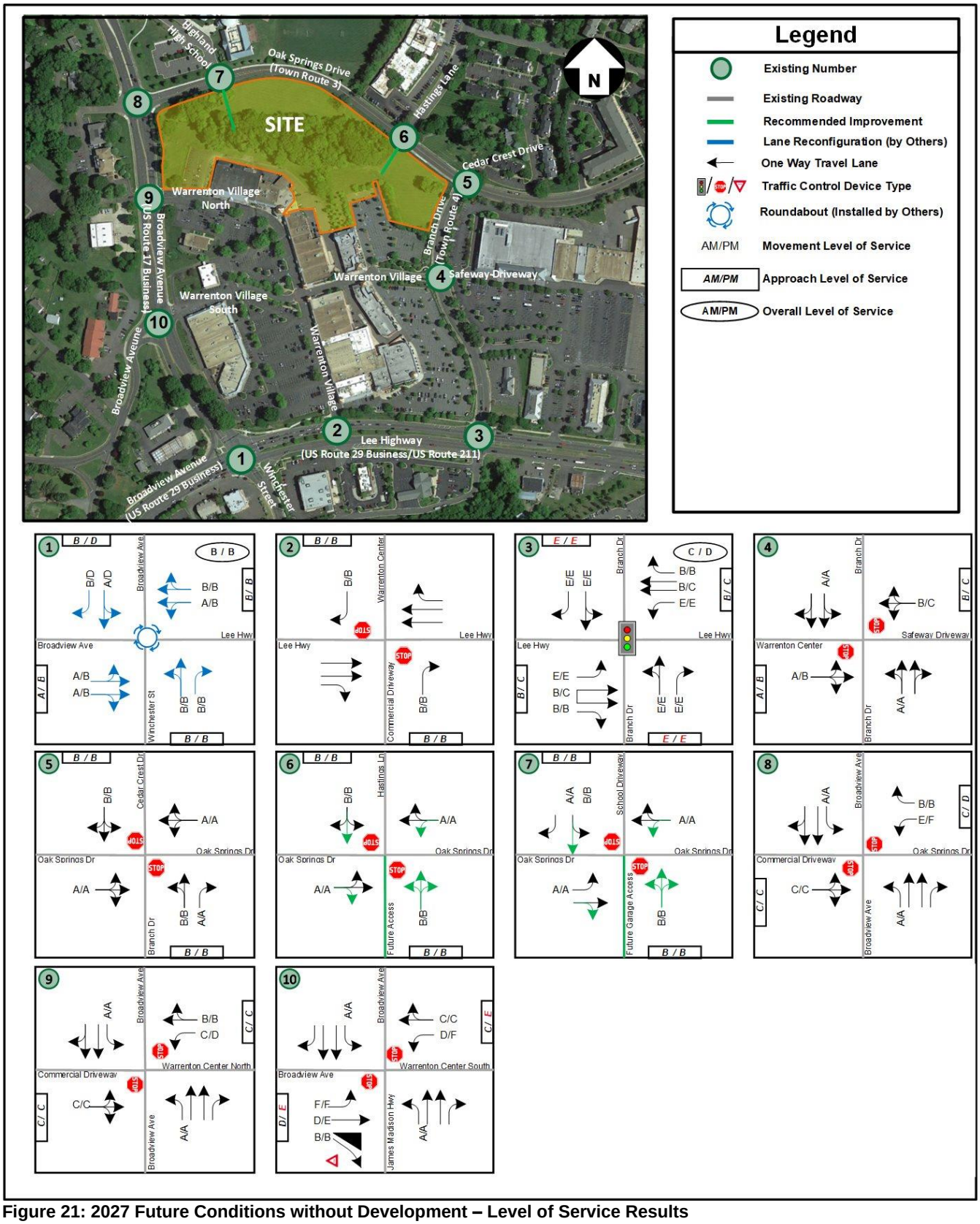


**Figure 21: 2027 Future Conditions without Development – Level of Service Results**

As mentioned previously, per the agreed upon scoping document, it would be considered desirable to achieve an approach LOS D or better for traffic operations using HCM methodology. Furthermore, if an overall intersection or approach was operating at an unacceptable LOS under future without development conditions, it was assumed acceptable to achieve non-degradation.

The planned roundabout is expected to operate at an overall LOS B with all approaches operating at LOS D or better during the AM and PM peak hours.

Based on the capacity analysis of 2027 Future Conditions without Development, the signalized study intersection is expected to continue to operate at overall levels of service of D or better during both the AM and PM peak hours.

Based on the capacity analysis of 2027 Future Conditions without Development, the approaches of all study intersections continue to operate at approach levels of service of D or better during both the AM and PM peak hours, except for the following study intersections that have at least one approach that would operate at level of service E of F (similar to 2027 Future Conditions without Development) during at least one peak hour:

- Study Intersection 3: Lee Highway (US 211/US 29 BUS) at Branch Drive
- Study Intersection 10: Broadview Avenue at Warrenton Village South

Based on the queuing analysis performed for 2027 Future Conditions without Development, all turning movements at the study intersections have maximum queue lengths that are accommodated within the available storage lengths of the turn bays.

Note that Study Intersection 10 (Broadview Avenue at Warrenton Village South) was previously identified by the Town for construction of a roundabout but was not selected for funding and therefore not included in the analysis. Therefore, no improvements are recommended for construction by the proposed Development.

In general, the signalized intersection would operate with longer vehicular delays for the side-streets and mainline left turning movements. These delays are a result of VDOT prioritization of through traffic on the mainline, as is typical along commuter corridors, to accommodate the largest possible volume of through traffic in the area along the mainlines and therefore have a better overall traffic operation than if all movements were prioritized equally.

No improvements are warranted or recommended as part of the proposed Development.

## Preliminary Left and Right Turn Lane Warrant Assessments

Left and right turn lane warrants are based off VDOT's Road Design Manual (RDM), Appendix F. In order to determine the need for exclusive left and/or right turn lanes or tapers at the study intersections, the traffic data and anticipated development program provided in the 2027 Future Conditions with Development scenario section were utilized.

Warrants for right-turn storage lanes on two- and four-lane highways at intersections are based on Figure 3-26 and Figure 3-27 in Appendix F of VDOT's RDM. These figures provide a graphical representation for determining the necessity of a right turn lane by comparing the total volumes of a given approach with their respective right turn volumes.

Warrants for left-turn storage lanes on two-lane highways at unsignalized intersections are based on Figure 3-5 to Figure 3-21 in Appendix F of VDOT's RDM. The figures provide graphical representations for determining the necessity of a left turn lane by comparing the advancing volumes of a given approach and the respective opposing volumes with respect to the percentage of left turning vehicles of the advancing volumes and the design speed of a given roadway.

If the turn lanes and / or tapers are not provided or would not meet the minimum requirements per VDOT's RDM, turn lane waivers requests would need to be submitted as separate documentation and be approved by VDOT.

A summary of the turn lane warrant analysis is presented in **Table 8** through **Table 11**.

**Table 8: Summary of Left Turn Lane Warrants at Site Entrances (2-Lane) – Build 2027**

| Study Scenario | Opposing Vol. (VPH) | Advancing Vol. (VPH) | Left Turn Vol. (VPH) | Left Turn % | Minimum Opposing Threshold (VPH) | VDOT RDM F Figure | Treatment |
|---|---|---|---|---|---|---|---|
| **INT 6 - WBL AM - TF 2027** | 254 | 202 | 2 | 0.99% | 1,208 | Fig. 3-4 | Not Warranted |
| **INT 6 - WBL PM - TF 2027** | 217 | 246 | 6 | 2.44% | 1,054 | Fig. 3-4 | Not Warranted |
| **INT 7 - WBL AM - TF 2027** | 205 | 228 | 19 | 8.33% | 841 | Fig. 3-5 | Not Warranted |
| **INT 7 - WBL PM - TF 2027** | 194 | 281 | 62 | 22.06% | 274 | Fig. 3-8 | Not Warranted |

**Table 9: Summary of Right Turn Lane Warrants at Site Entrances (2-Lane) - Build 2027**

| Study Scenario | Approach Volume | Right Turn Volume | Minimum Right Turn Taper Threshold | Minimum Right Turn Full Lane Threshold | Treatment |
|---|---|---|---|---|---|
| **INT 4 - NBR - 2027 TF AM Peak** | 95 | 7 | 37 | 90 | Not Warranted |
| **INT 4 - NBR - 2027 TF PM Peak** | 149 | 12 | 36 | 90 | Not Warranted |
| **INT 4 - SBR - 2027 TF AM Peak** | 90 | 5 | 37 | 90 | Not Warranted |
| **INT 4 - SBR - 2027 TF PM Peak** | 119 | 32 | 36 | 90 | Not Warranted |

**Table 10: Summary of Left Turn Lane Warrants at Brach Drive (Study Intersection 4) (4-Lane) - Existing 2023**

| Study Scenario | Opposing Vol. (VPH) | Advancing Vol. (VPH) | Left Turning Vol. | Left Turn % | Treatment |
|---|---|---|---|---|---|
| **INT 4 - NBL - 2023 EX AM Peak** | 90 | 95 | 23 | 24.2% | Not Warranted |
| **INT 4 - NBL - 2023 EX PM Peak** | 119 | 149 | 94 | 63.1% | Full-width Turn Lane and Taper Warranted (for Undivided and Divided) |
| **INT 4 - SBL - 2023 EX AM Peak** | 95 | 90 | 18 | 20.0% | Not Warranted |
| **INT 4 - SBL - 2023 EX PM Peak** | 149 | 119 | 48 | 40.3% | Full-width Turn Lane and Taper Warranted (for Undivided) |

**Table 11: Summary of Left Turn Lane Warrants at Brach Drive (Study Intersection 4) (4-Lane) – Build 2027**

| Study Scenario | Opposing Vol. (VPH) | Advancing Vol. (VPH) | Left Turning Vol. | Left Turn % | Treatment |
|---|---|---|---|---|---|
| **INT 4 - NBL - 2027 TF AM Peak** | 145 | 115 | 24 | 20.9% | Not Warranted |
| **INT 4 - NBL - 2027 TF PM Peak** | 155 | 210 | 97 | 46.2% | Full-width Turn Lane and Taper Warranted (for Undivided and Divided) |
| **INT 4 - SBL - 2027 TF AM Peak** | 115 | 145 | 18 | 12.4% | Not Warranted |
| **INT 4 - SBL - 2027 TF PM Peak** | 210 | 155 | 48 | 31.0% | Full-width Turn Lane and Taper Warranted (for Undivided) |

No turn lanes are warranted at the site entrances. At the request of VDOT and the Town, turn lanes were evaluated at the Study Intersection 4 (Branch Drive at Warrenton Village Driveway / Safeway Driveway). The northbound left turn lane is warranted under Build 2027 conditions, but it is also warranted under existing conditions. Therefore, a northbound left turn

lane on Branch Drive is not recommended to be installed by the proposed Development. Graphics and information regarding the methodology used to determine the turn lane warrants are provided in Appendix J.

## Preliminary Access Management Evaluation (Intersection Spacing)

The minimum spacing standards for the Commonwealth of Virginia are specified in VDOT's Road Design Manual (RDM). Appendix F of the RDM focuses primarily on access management practices. The minimum spacing standard are particularly specified in Table 2-2 through Table 2-4. Table 2-2 provides guidance on the minimum spacing standard for commercial entrances, intersections, and median crossovers, and are based on a roadway's speed limit and functional classification. Table 2-3 and 2-4 provide guidance for minimum spacing standards for the spacing between interchanges and intersections or commercial entrances.

As mentioned previously, Oak Springs Road is classified by VDOT as "Major Collector," with a posted speed limit of 25 mph. Based on the applicable intersection spacing requirements (centerline-to-centerline) per RDM Appendix F Table 2-2, **Table 12** lists the summary of the future intersections with corresponding roadway information and the appropriate distance requirements. **Figure 22** shows the approximate proposed distances between the study intersections and the corresponding required distances with the proposed intersections in place for the Site.

**Table 12: Future Intersection Spacing**

| Functional Classification | Design Speed (See Note 2) | Minimum Spacing (Distance) in Feet | | | |
|---|---|---|---|---|---|
| | | Type 1 (Signalized) | Type 2 (Unsignalized/ Full Crossover) | Type 3 (Full Access /Directional Crossover) | Type 4 (Partial Access) |
| Principal Arterial | ≤ 30 mph | 1,050 | 880 | 440 | 250 |
| | 35 to 45 mph | 1,320 | 1,050 | 565 | 305 |
| | ≥ 50 mph | 2,640 | 1,320 | 750 | 495 |
| Minor Arterial | ≤ 30 mph | 880 | 660 | 355 | 200 |
| | 35 to 45 mph | 1,050 | 660 | 470 | 250 |
| | ≥ 50 mph | 1,320 | 1,050 | 555 | 425 |
| Collector | ≤ 30 mph | 660 | 440 | 225 | 200 |
| | 35 to 45 mph | 660 | 440 | 335 | 250 |
| | ≥ 50 mph | 1,050 | 660 | 445 | 360 |
| Local Street | See Note 1 | | | | |

TABLE 2-2 MINIMUM SPACING STANDARDS FOR COMMERCIAL ACCESSES, INTERSECTIONS AND MEDIAN CROSSOVERS*

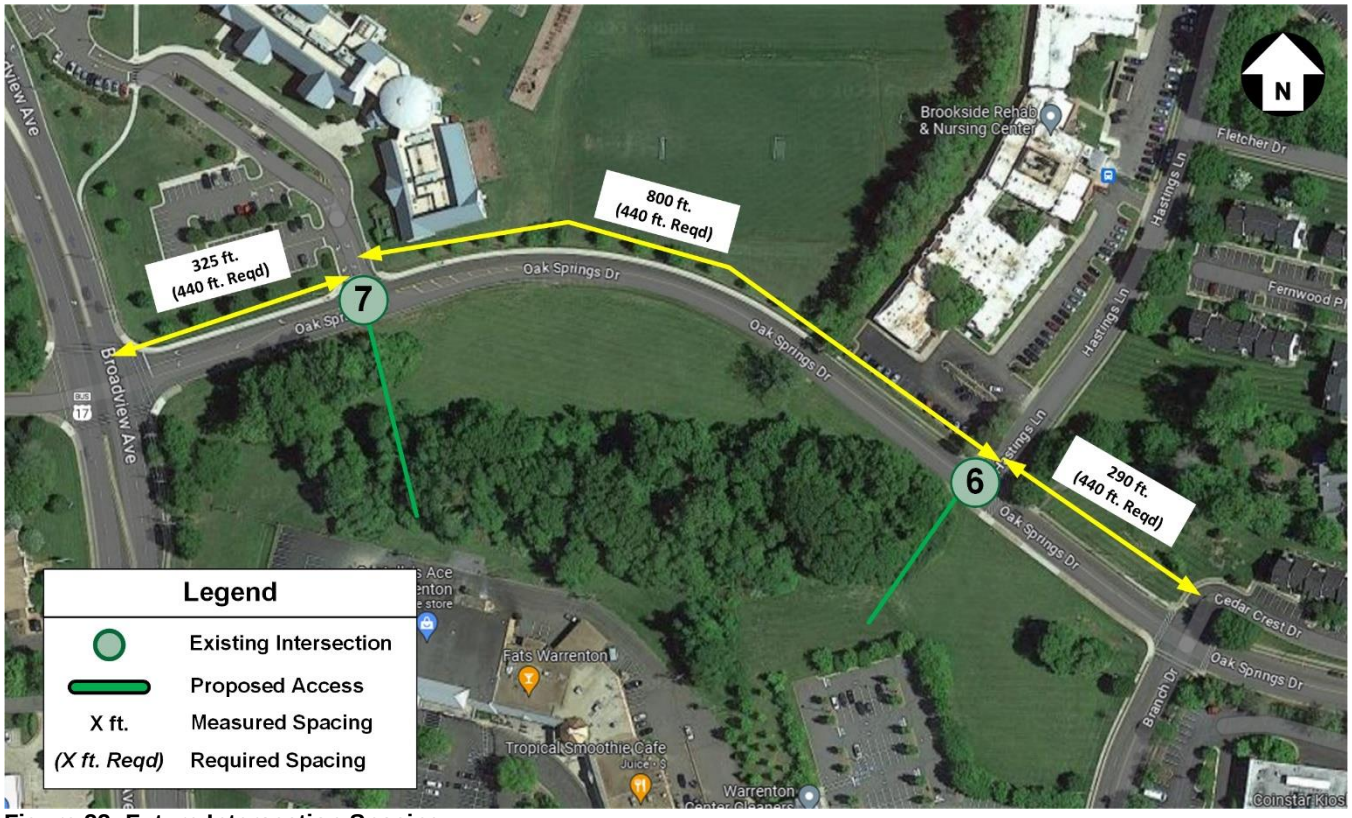


**Figure 22: Future Intersection Spacing**

As described in

**Table** 12**2** and depicted in **Figure 22,** the two proposed entrances do not meet the spacing requirements for unsignalized intersections on a 25 mph Major Collector. However, the entrances are proposed as the fourth leg to existing intersections instead of creating new entrances with offsets. However, Oak Springs Drive does not appear to be a VDOT maintained roadway, so an Access Management Exception (AM-E) request will not be submitted.

## Preliminary Signal Warrant Analysis

Signal warrants are based on *Chapter 4C: Traffic Control Signal Needs Studies* of the Federal Highway Administration's (FHWA) Manual on Uniform Traffic Control Devices (MUTCD), 2009 Edition. Chapter 4C discusses nine (9) separate warrants, by which only one warrant needs to be satisfied to justify the installation of a traffic control signal. In order to provide an assessment for the possible signalization of Broadview Avenue at Oak Springs Road (Study Intersection 8) under the build 2027 traffic volumes, Warrant Two (Four-Hour Vehicular Volume) was analyzed, since the warrant usually is a significant factor signalization and is often the warrant that is most readily satisfied for typical conditions.

Portions of the MUTCD used in this analysis are provided in Appendix K.

### *Warrant Two: Four-Hour Vehicular Volume*

Warrant Two is satisfied when the plotted points representing the vehicles per hour (vph) on the major street (total of both approaches and the corresponding vph on the high-volume minor-street approach (one direction only), for each of any four hours of an average day, all fall above either MUTCD Figure 4C-1 or Figure 4C-2 (depending on the applicability) for the future combination of approach lanes.

The traffic volumes utilized to evaluate Warrant Two, using Figure 4C-1 are shown in **Table 13** for the study intersection. It should be noted that the intersection was analyzed as being two lanes on the major approach and one lane on the minor approach. In addition, only two hourly volumes were utilized, the build 2027 AM and PM peak hour volumes, because it is not anticipated that the other hourly volumes would be any higher or more likely to satisfy the conditions than that of the two selected. Lastly, as the capacity analysis of future conditions indicated that 100% of right turners could perform right turn maneuvers on red from the side-street approaches and there are currently exclusive northbound and westbound right turn lanes, a 100% right turn on red (RTOR) reduction was applied to all approaches, as depicted below.

**Table 13: Volume Projections – Broadview Avenue at Oak Springs Road (Intersection 8)**

| Time Period | Broadview Ave (NB/SB) | Oak Springs Dr (WBL) |
|---|---|---|
| 7:30AM to 8:30 AM | 872 | 80 |
| 4:00 PM to 5:00 PM | 985 | 110 |

Note: 100% right turn reductions are applied on all approaches

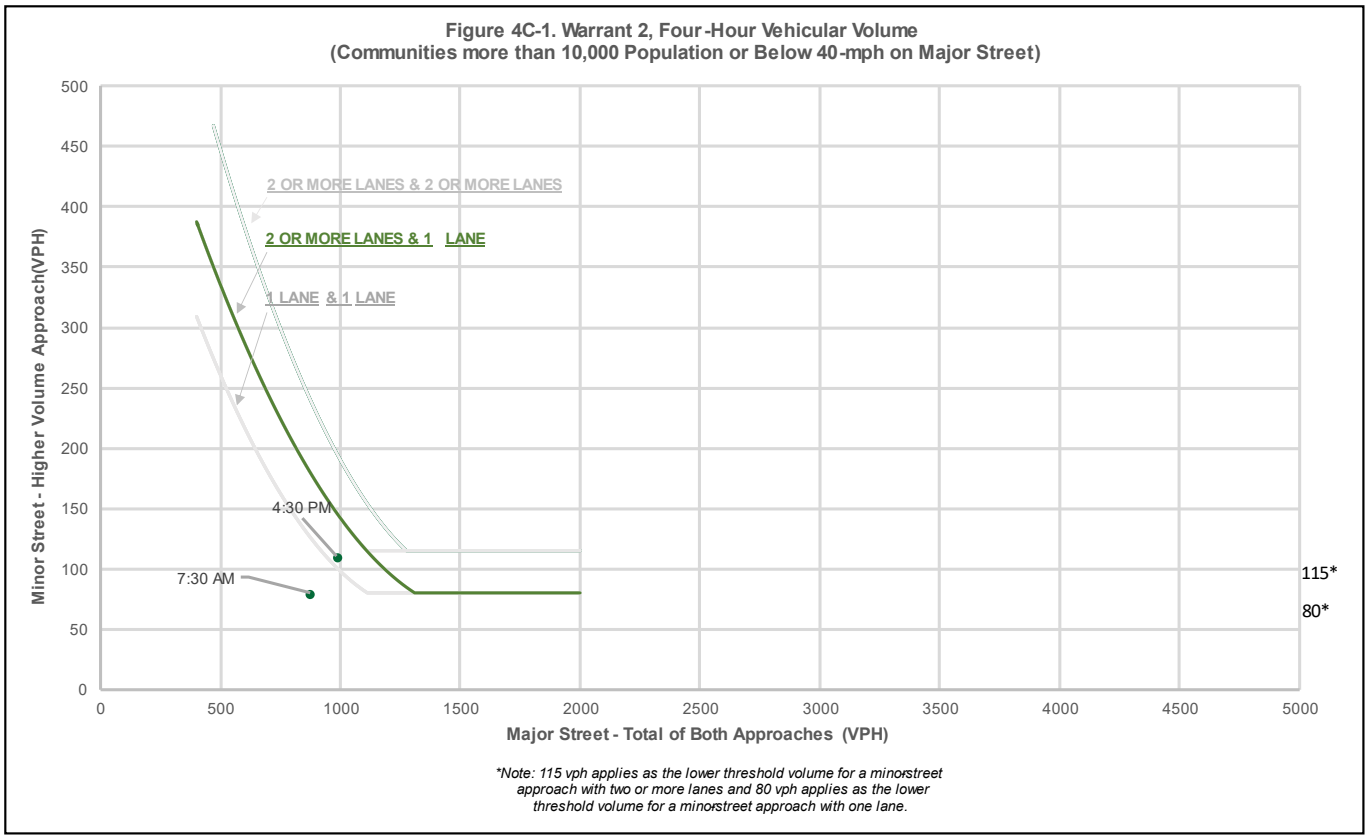


**Figure 23: Four-Hour Warrant Analysis – Broadview Avenue at Oak Springs Road (Intersection 8)**

As seen in the figure above, the build 2027 peak hour traffic volumes with a 100% RTOR reduction does not meet the threshold for two of the four hours required. As mentioned earlier, it is most likely that the next two hours with the highest traffic volume will generate even lower trips than the AM and PM peak hours. Therefore, based on traffic volumes, a signal would not be warranted at this intersection under this analysis.

The minor street volume is above the minimum threshold of 80 vehicles to warrant a signal; however, the major street volume is not high enough.

Additionally, the capacity analysis in the 2011 TIA shows that all reported movements at this unsignalized study intersection are anticipated to operate at LOS C or better during both AM and PM peak hours. This capacity analysis is acceptable and an indication that there is not an operational need for signalization.

## Bicycle and Pedestrian Accommodations

The property currently contains a sidewalk with a buffer across the north side of the Oak Springs frontage. The existing sidewalk will be maintained with the proposed development, and sidewalk will be constructed along the south side of Oak Springs Road across the property frontage. There is at least one crosswalk at every study intersection, with the exception of Study Intersection 2 (Lee Highway at Warrenton Village / Chick-fil-a Driveway).

The school and mixed-use area create opportunities for the proposed Site to create paths and areas for multimodal connectivity. As shown on the concept plan, The Site is proposing a multitude of improvements that will increase pedestrian connectivity throughout the entire area. New sidewalks will be added along the entire perimeter of all residential blocks, including direct sidewalk connectivity to ground floor units. The extension of Hastings Lane and accompanying sidewalks will offer a new pedestrian access point from Oak Springs Drive. The proposed road that will connect the Hastings Lane extension through the existing commercial building and into the heart of the retail center via a new cut-through street that will allow maximum ease to walk from one side of the site to the other.

The unsignalized pedestrian crossings were reviewed as per TE-384.1 and will be submitted as a separate document.

# Conclusions

This report presents the findings of a Traffic Impact Analysis (TIA) conducted for the proposed Warrenton Village Center (the Site / the Development / the Property) along the southern frontage of Oak Springs Drive (Town Route 3), east of Broadview Avenue (US Route 17 Business) and west of Branch Drive (Town Route 4) in the Town of Warrenton, Virginia

The development will be situated on a single parcel of vacant land (approximately 6.46 acres) and a portion of an adjacent developed parcel of land, which can be identified on Fauquier County Tax Maps with the following GPIN #s: 6985-20-7247-000, and 6984-29-6753-000, respectively. The property is currently zoned as C (Commercial District) with a Future Land Use of Mixed Use as part of the New Town Warrenton Character District (Lee Highway Urban Development Area [UDA]).

The Applicant is proposing to apply for a Special Use Permit (SUP) in order to construct approximately 386 multifamily residential dwelling units (320 multifamily apartments, 36 2-over-2 units, and 30 townhomes) and a parking deck. The site has an anticipated build-out date of 2027.

Access to the site will be provided via one full movement parking deck entry along Oak Springs Drive (Town Route 3) forming the fourth leg of the High School Driveway, one full movement driveway along Oak Springs Drive forming the fourth leg to the existing full-movement intersection of Hastings Lane, and via the existing shopping center accesses to the south.

## *Analysis Components*

- 2023 existing volumes were derived via turning movement counts collected at intersections within the study area in February 2023.
- As determined based on review comments from VDOT and the Town, an inherent regional growth of 1.0% per year was applied to the Lee Highway mainline through movements at the intersection of Lee Highway at Broadview Avenue (US Route 17 Business). The growth volumes were balanced along the road network by increasing the mainline through movements at subsequent study intersections along the road network where applicable for the period between 2023 and 2027 to account for 2027 conditions.
- The trip generation associated with the Site was based on the ITE Trip Generation Manual, 11th Edition publication. The Site in total is expected to generate approximately 154 new trips during the AM peak hour, 197 new trips during the PM peak hour, and 2,602 new daily trips on a typical weekday.
- Intersection capacity and queuing analyses were performed for all analysis scenarios at the study area intersections during the weekday morning (AM) and weekday afternoon (PM) peak hours. *Synchro*, version 11, was used to analyze the study intersections with results based on the Transportation Research Board's (TRB) Highway Capacity Manual (HCM) methodology and analysis guidelines provided in VDOT's Traffic Operations and Safety Analysis Manual (TOSAM) (version 2). The analysis herein includes level of service (LOS), delay, and queue length comparisons for the turning movements analyzed.
- The analysis also considers an assessment of historical crash data at all existing study intersections.
- The analysis also includes preliminary access management assessment and turn lane warrant assessments for the Site access points along Oak Springs Drive.

## *Analysis Results*

### 2023 Existing Conditions

- Based on the capacity analysis of Existing Conditions, the two signalized study intersections operate at an overall level of service D or better during both the AM and PM peak hours.

- Based on the capacity analysis of Existing Conditions, three study intersections have at least one approach that operates at levels of service (LOS E or F) for at least one peak hour. The remaining intersection approaches operate at acceptable levels of service during both peak hours.
- Based on the analysis of the Synchro 95th percentile queue lengths, all turning movements have queue lengths that can be accommodated within the available storage length of the turn bays, except the southbound left turn movement at Study Intersection 1 (Broadview Avenue / Lee Highway at Winchester Street).

### 2027 Future Conditions without Development

- Based on the capacity analysis of 2027 Future Conditions with Development, the signalized study intersection would operate at an overall level of service D or better during both the AM and PM peak hours.
- The planned roundabout is expected to operate at an overall LOS B or better with all approaches operating at LOS D or better during the AM and PM peak hours.
- Based on the capacity analysis of 2027 Future Conditions without Development, two study intersections have at least one approach that would operate at levels of service (LOS E or F) for at least one peak hour. The remaining intersection approaches would operate at acceptable levels of service during both peak hours.
- Based on the analysis of the Synchro 95th percentile queue lengths, all turning movements have queue lengths that could be accommodated within the available storage length of the turn bays.

### 2027 Future Conditions with Development

- The Site is expected to generate approximately 154 new total trips during the AM peak hour, 197 new trips during the PM peak hour and 2,602 new trips during a typical weekday.
- Based on the capacity analysis of 2027 Future Conditions with Development, the signalized study intersection would operate at an overall level of service D or better during both the AM and PM peak hours.
- The planned roundabout is expected to operate at an overall LOS B with all approaches operating at LOS D or better during the AM and PM peak hours.
- Based on the capacity analysis of the 2027 Future Conditions with Development, two study intersections have at least one approach that would operate at levels of service (LOS E or F) for at least one peak hour (similar to 2027 Future Conditions without Development) during the AM and PM peak hours. The remaining intersection approaches would operate at acceptable levels of service during both peak hours.
- Based on the queuing analysis performed for the 2027 Future Conditions with Development, all turning movements have queue lengths that could be accommodated within the available storage length of the turn bays.

### *Overall Conclusion*

Based on the capacity and queueing analysis results, the proposed Development will not have a substantial impact to the surrounding transportation and roadway network, assuming that the site is constructed as depicted on the concept plan. No improvements are warranted or recommend to accommodate the proposed Development.

Transportation Technical Appendix

# Warrenton Village Center

Town of Warrenton, Virginia

GOROVE SLADE
Transportation Planners and Engineers

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# A. Signed Scoping Document

THIS IS NOT A CHAPTER 870 STUDY

| VDOT Virginia Department of Transportation | PRE-SCOPE OF WORK MEETING FORM<br>Information on the Project<br>Traffic Impact Analysis Base Assumptions |
|---|---|

The applicant is responsible for entering the relevant information and submitting the form to VDOT and the locality no less than three (3) business days prior to the meeting. If a form is not received by this deadline, the scope of work meeting may be postponed.

| **Contact Information** | | | |
|---|---|---|---|
| Consultant Name:<br>Tele:<br>E-mail: | Kevin Sitzman, Gorove Slade Associates, Inc.<br>703.787.9595<br>kevin.sitzman@goroveslade.com | | |
| Developer/Owner Name:<br>Tele:<br>E-mail: | Jess Achenbach<br><br>jachenbach@castledp.com | | |
| **Project Information** | | | |
| Project Name: | Warrenton Village Mixed-Use Center | Locality/County: | Town of Warrenton |
| Project Location:<br>(Attach regional and site specific location map) | The proposed development will be located primarily along the southern frontage of Oak Springs Drive (Town Route 3), east of Broadview Avenue (US Route 17 Business) and west of Branch Drive (Town Route 4) in the Town of Warrenton, Virginia. **(See Figure 1).** | | |
| Submission Type | Comp Plan ☐ | REZ/SUP ☒ | Site Plan ☐ / Subd Plat ☐ |
| Project Description:<br>(Including details on the land use, acreage, phasing, access location, etc. Attach additional sheet if necessary) | The development will be situated on a single parcel of vacant land (approximately 6.46 acres) and a portion of an adjacent developed parcel of land, which can be identified on Fauquier County Tax Maps with the following GPIN #s: 6985-20-7247-000, and 6984-29-6753-000, respectively. The property is currently zoned as C (Commercial District) with a Future Land Use of Mixed Use as part of the New Town Warrenton Character District (Lee Highway Urban Development Area [UDA]).<br><br>The Applicant is proposing to apply for a Special Use Permit (SUP) in order to construct approximately 376 multifamily residential dwelling units (320 multifamily apartments, 36 2-over-2 units, and 20 townhomes) and a parking deck. The site has an anticipated build-out date of 2027.<br><br>Access to the site will be provided via one full movement parking deck entry along Oak Springs Drive (Town Route 3) forming the forth leg of the High School Driveway, one full movement driveway along Oak Springs Drive forming the fourth-leg to the existing full-movement intersection of Hastings Lane, and via the existing shopping center accesses to the south. | | |
| Proposed Use(s):<br>(Check all that apply; attach additional pages as necessary) | Residential ☒ / Commercial ☐ / Mixed Use ☐ / Other ☐ | | |
| | **Residential Uses(s)**<br>ITE LU Code(s): 220<br>Number of Units: 376<br><br>**Other Use(s)** | **Commercial Use(s)**<br>ITE LU Code(s):<br>Square Ft or Other Variable: | |

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

| | | | | |
|---|---|---|---|---|
| | ITE LU Code(s):<br>Square Ft or Other Variable: | | | |
| Total Peak Hour Trip Projection: | Less than 100 ☐ | 100 – 499 ☒ | 500 – 999 ☐ | 1,000 or more ☐ |

## Traffic Impact Analysis Assumptions

| | | | |
|---|---|---|---|
| Study Period | Existing Year: 2023 | Build-out Year: 2027 | Design Year: N/A |
| Study Area Boundaries (Attach map) | North: Oak Springs Drive (Town Route 3) | | South: US Route 211 / 29 Business |
| | West: Broadview Avenue (US Route 17 Business) | | East: Branch Drive (Town Route 4) |
| External Factors That Could Affect Project (Planned road improvements, other nearby developments) | Waterloo Junction<br>Single Family homes along Patrick Ryan Way<br>Smart Scale Roundabouts<br>1. Broadview/Winchester/Lee<br>2. Roebling/Broadview | | |
| Consistency With Comprehensive Plan (Land use, transportation plan) | Yes | | |
| Available Traffic Data (Historical, forecasts) | 2023 TMC's<br>VDOT Historical AADT Data | | |
| Trip Distribution **(Please refer to attached Figure 2 in Supplement)** | Road Name:<br>(to/from the North) – N/A | | Road Name:<br>(to/from the South) – N/A |
| | Road Name:<br>(to/from the West) – N/A | | Road Name:<br>(to/from the East) – N/A |
| Annual Vehicle Trip Growth Rate:<br>(See Note 2.) | 1.0%/yr.<br>(2023 to 2027) | Peak Period for Study (check all that apply) | ☒ AM ☒ PM ☐ SAT |
| | | Peak Hour of the Adj. (to be used in study) | AM: 150 / PM: 192 / Daily: 2,534 |

| Study Intersections and/or Road Segments (Attach additional sheets as necessary) **(Please refer to attached Figure 1.)** | | | | |
|---|---|---|---|---|
| | 1. | Broadview Avenue (US Route 17) / Lee Highway at Broadview Avenue / Winchester Street | 6. | Oak Springs Drive (Town Route 3) at Hastings Lane / Future Access |
| | 2. | Lee Highway (US Route 17) at Warrenton Village Center Driveway at Chick-fil-a Driveway | 7. | Oak Springs Drive (Town Route 3) at Highland School Driveway / Future Garage Access |
| | 3. | Lee Highway (US Route 17) at Branch Drive (Town Route 4) | 8. | Broadview Avenue (US Route 17 Business) at Oak Springs Drive (Town Route 3) |
| | 4. | Branch Drive (Town Route 4) at Warrenton Village Driveway / Safeway Driveway | 9. | Broadview Avenue (US Route 17 Business) at Warrenton Village Center South Driveway |
| | 5. | Oak Springs Drive (Town Route 3) at Branch Drive (Town Route 4) / Cedar Crest Drive | 10. | Broadview Avenue (US Route 17 Business) at Warrenton Village Center North Driveway |

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

| | | |
|---|---|---|
| Trip Adjustment Factors | Internal allowance Reduction:<br>☐ Yes ☒ No | Pass-by allowance Reduction:<br>☐ Yes ☒ No |
| Software Methodology | ☒ Synchro ☐ HCS (v.2000/+) ☒ SIDRA ☐ CORSIM ☐ Other _____ | |
| Traffic Signal Proposed or Affected<br>(Analysis software to be used, progression speed, cycle length) | Existing traffic signals that could be affected:<br>1. Broadview Avenue (US Route 17) / Lee Highway at Broadview Avenue / Winchester Street<br>2. Lee Highway (US Route 17) at Branch Drive (Town Route 4)<br><br>Analysis Software: Synchro version 11<br>Results: HCM 6 Methodology (See Note 7)<br>Queue Lengths to be Reported: 95th Percentile | |
| Improvement(s) Assumed or to be Considered | Smart Scale Roundabouts<br>1. Broadview/Winchester/Lee<br>2. Roebling/Broadview | |
| Background Traffic Studies Considered | Waterloo Junction<br>Single Family homes along Patrick Ryan Way | |
| Plan Submission | ☐ Master Development Plan (MDP) ☒ Generalized Development Plan (GDP)<br>☐ Preliminary/Sketch Plan ☐ Other Plan type (Final Site, Subd. Plan) | |
| Additional Issues to be Addressed | ☒ Queuing analysis ☐ Actuation/Coordination ☐ Weaving analysis<br>☐ Merge analysis ☒ Bike/Ped Accommodations ☒ Intersection(s)<br>☐ TDM Measures ☐ Other (_____) | |

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

NOTES on ASSUMPTIONS:

1. The scenarios to be included in the study are Existing Conditions (2023), Future without Development (2027) and Future with Development (2027). The study will analyze AM and PM peak hours.
2. Existing traffic volumes will be based on 2023 traffic count data. In order to project 2027 future conditions, a regional growth of 1.0% per annum will be applied to all turning movements at all study intersections.
3. Existing peak hour factors will be based on the traffic counts and utilized on a by-intersection basis. Peak hours factors by intersection in the range of 0.85 to 1.00 will be used for existing scenario. Peak hour factors of 0.92 will be used for all future scenarios if the existing peak hour factor by intersection is less than 0.92.
4. Heavy vehicle percentages (HV%) will be based on existing counts per movement. For any new leg or intersection, the HV% will be based on a default *Synchro* value of 2.0% per movement.
5. For any approach, a level of service (LOS) D or better would be considered as acceptable/desirable traffic operation condition. For all approaches, the projected future conditions without development LOS and delay will be maintained in the future with development condition. Will show intersection, approach, and movement LOS.
6. 95th percentile queues will be provided from *Synchro*.
7. HCM 6 methodology will be utilized where applicable; HCM 2000 methodology will be utilized if HCM 6 methodology is not applicable.
8. Preliminary access management and turn lane warrant assessments will be conducted for the site entrances.
9. Crash Data obtained from VDOT's Crash Analysis Tool will be analyzed at existing intersections.

SIGNED:  DATE: 6/30/2023
Applicant or Consultant

PRINT NAME: Kevin Sitzman
Applicant or Consultant

SIGNED: _____ DATE: _____
VDOT Representative

PRINT NAME: _____
VDOT Representative

SIGNED: _____ DATE: _____
Local Government Representative

PRINT NAME: _____
Local Government Representative

**Table 1: Historic Growth (Based on VDOT Traffic Data)**

| Road Segment: | From: | To: | Published VDOT AADT | | | | | Growth Rate | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 2015 | 2016 | 2017 | 2018 | 2019 | 2015 - 2019 | 2016 - 2019 | 2017 - 2019 | 2018 - 2019 |
| Broadview Avenue | Bus US 29 Lee Hwy | NCL Warrenton | 10,000 | 10,000 | 10,000 | 10,000 | 11,000 | 2% | 3% | 5% | 10% |
| Oak Springs Drive | Broadview Ave | Branch Dr | 3,200 | 3,200 | 3,200 | 3,200 | 3,100 | -1% | -1% | -2% | -3% |
| Branch Drive | Lee Highway | Oak Springs Drive | 3,800 | 4,200 | 4,200 | 4,300 | 4,300 | 3% | 1% | 1% | 0% |




**Figure 1: Site Location and Study Intersections**

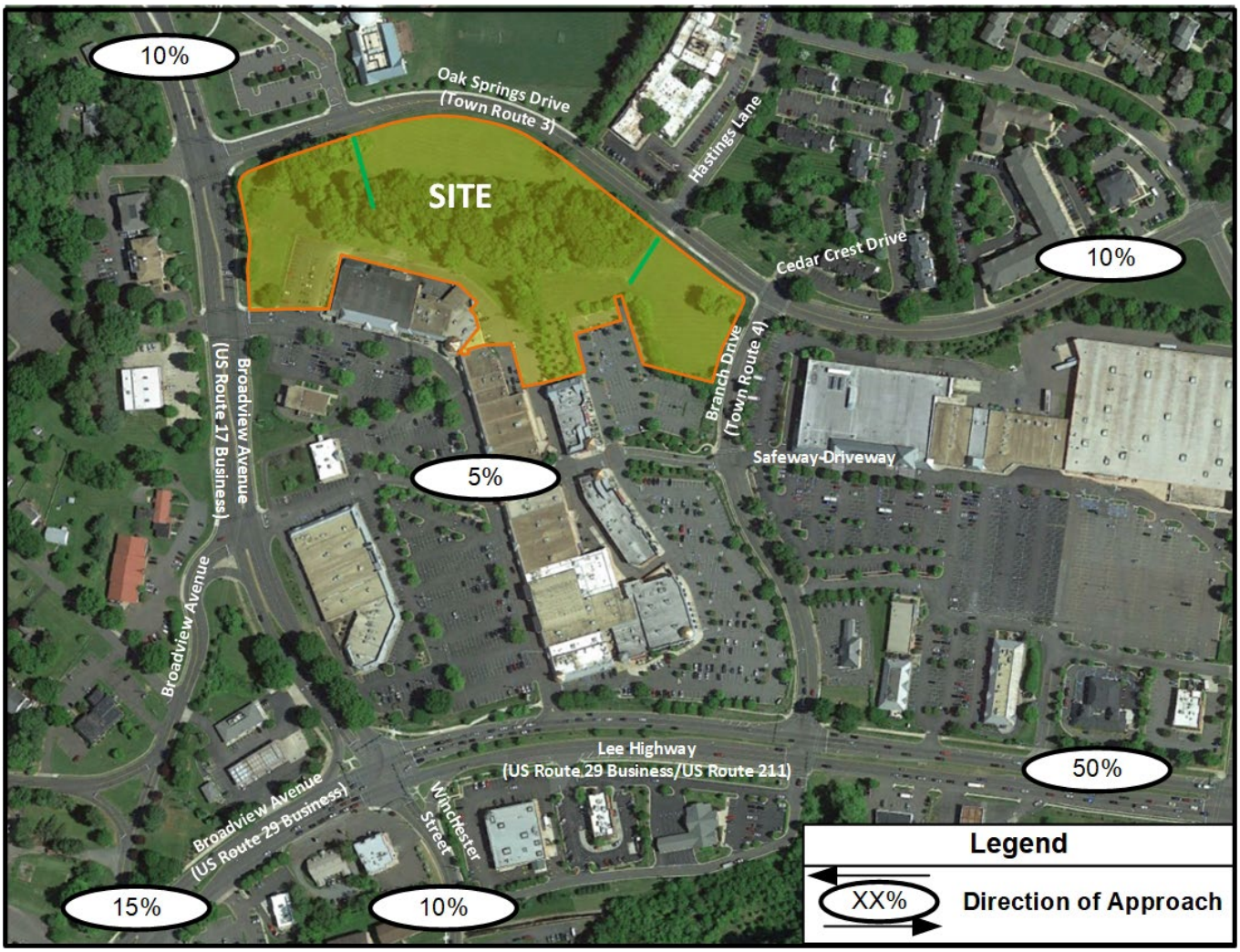



**Figure 2: Direction of Approach**

**Table 2: Trip Generation – Peak Hour of the Adjacent Street (ITE 11th Edition) – To Be Used in Study**

| Land Use | ITE Code | Size | ------ Weekday ------ | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | | | PM Peak Hour | | | Daily |
| | | | In | Out | Total | In | Out | Total | Total |
| Multifamily Housing | 220 | 376 DU | 36 | 114 | 150 | 121 | 71 | 192 | 2,534 |

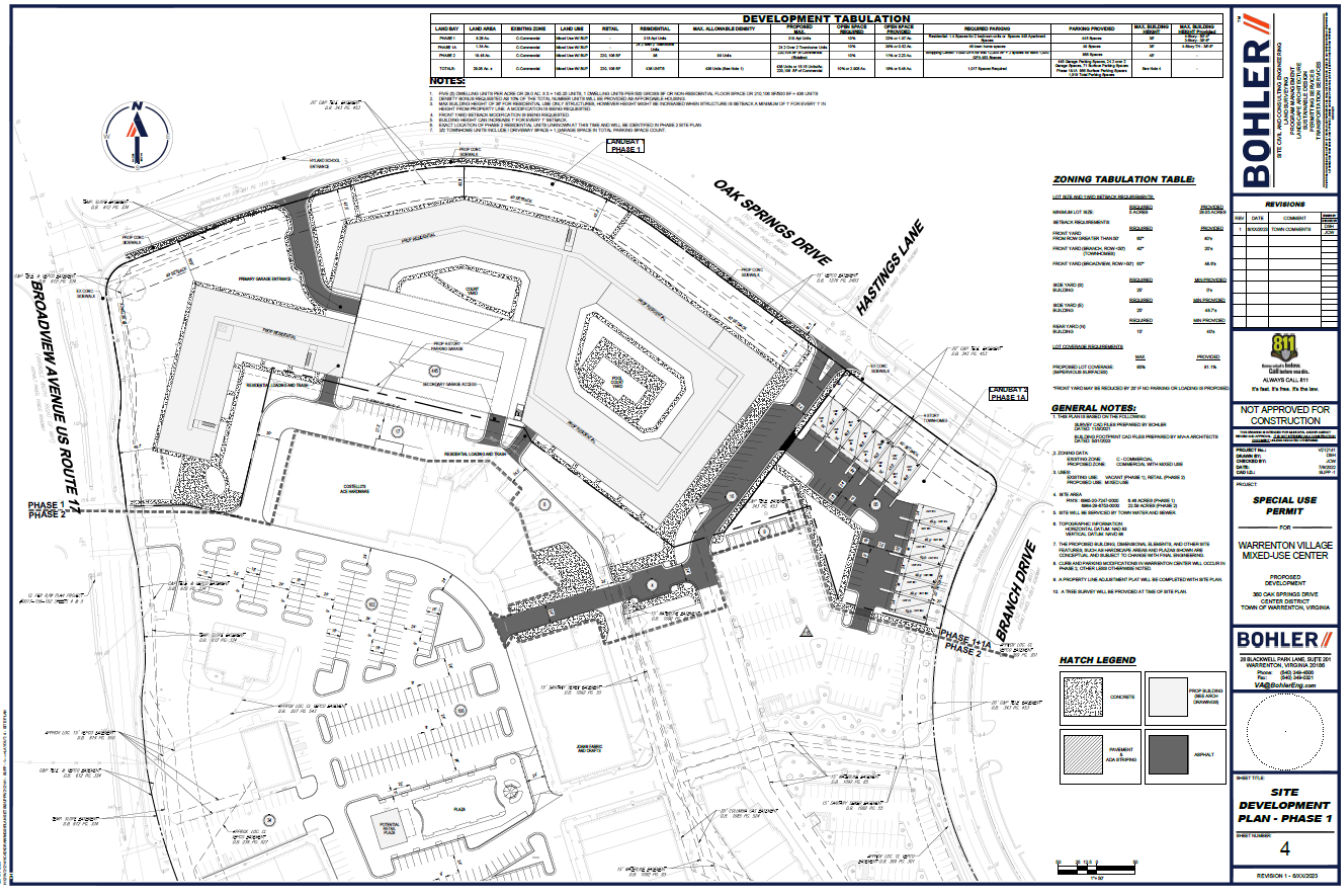



**Figure 3: Illustrative Site Plan (Provided by Bohler)**
*Note: For conceptual purposes only.*

# B. Crash Data by Study Intersection

# VDOT Crash Data Summary Table

| Intersection Crash Analysis | Crash Data for the Intersection of Lee Highway (US 211/US 29 BUS) and Broadview Avenue (US 17 BUS) (May 2018 - April 2023) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | Total | Relative Frequency |
| ***Crash Severity*** | | | | | | | | |
| Fatal Collision (Type K) | | | | | | | | 0.00% |
| Injury Collision (Type A, B, and C) | 2 | 6 | 1 | 1 | 2 | | 12 | 30.00% |
| *Type A* | *1* | | | | | | *1* | |
| *Type B* | | *2* | | | *2* | | *4* | |
| *Type C* | *1* | *4* | *1* | *1* | | | *7* | |
| Property Damage Only (Type PDO) | 3 | 8 | 3 | 8 | 6 | | 28 | 70.00% |
| ***TOTAL**** | ***5*** | ***14*** | ***4*** | ***9*** | ***8*** | | ***40*** | ***100.00%*** |
| ***Crash Type*** | | | | | | | | |
| Fixed Object/ Single-Vehicle Crash | | | | | | | | 0.00% |
| Head-On | | | | | | | | 0.00% |
| Sideswipe / Same Direction | | 1 | | | 2 | | 3 | 7.50% |
| Sideswipe / Opposite Direction | | | | | | | | 0.00% |
| Rear-End Collision | 3 | 8 | 4 | 5 | 4 | | 24 | 60.00% |
| Angle Collision | 1 | 5 | | 4 | 1 | | 11 | 27.50% |
| Backed Into | | | | | | | | 0.00% |
| Pedestrian Collision | | | | | | | | 0.00% |
| Deer/Animal | | | | | | | | 0.00% |
| Other | 1 | | | | 1 | | 2 | 5.00% |
| ***TOTAL**** | ***5*** | ***14*** | ***4*** | ***9*** | ***8*** | | ***40*** | ***100.00%*** |
| ***Other Factors*** | | | | | | | | |
| Distracted Driver | | | | | | | | 0.00% |
| Alcohol** | 1 | | | | | | 1 | 2.50% |
| Work-Zone | | | | | | | | 0.00% |
| Inclement Weather (Non-Dry) | | 1 | | | 2 | | 3 | 7.50% |
| Speeding | 2 | | | | | | 2 | 5.00% |
| Pedestrian Injury*** | | | | | | | | N/A |
| Time of Day | | | | | | | | |
| *AM Peak Period (6 - 10 AM)* | *1* | *5* | | *2* | | | *8* | *20.00%* |
| *Off Peak - Daytime (10 AM - 3 PM)* | *1* | *5* | *3* | *4* | *4* | | *17* | *42.50%* |
| *PM Peak Period (3 - 7 PM)* | *2* | *3* | *1* | *3* | *2* | | *11* | *27.50%* |
| *Off Peak - Nighttime (7 PM - 6 AM)* | *1* | *1* | | | *2* | | *4* | *10.00%* |
| ***CALCULATED CRASH RATE**** | | | | | | | ***0.75*** | ***Crashes per MEV*** |

* It should be noted that an intersection radius of 300 feet was used in this analysis. Crashes also thought to be caused by the intersection may have been added based on the description of the crash and engineering judgement.

** Instances where the event was classified as "Unknown", "Not Known Whether Impaired", "Ability Not Impaired" were classified as alcohol related to provide a more conservative analysis.

*** Pedestrian injuries are based on the number of pedestrians injured and may not be directly be related to the number of crash incidences (i.e., if one crash occurred injuring two pedestrians, the table would show a "2" instead of a "1").

# VDOT Crash Data Summary Table

## Crash Data for the Intersection of Lee Highway (US 211/US 29 BUS) and Broadview Avenue (US 17 BUS) (May 2018 - April 2023)

| Document Number | Date | Crash Severity | Collsion Type | Pedestrain Injury | Persons Injured | Fatalities | Work Zone Related | Adverse Weather Conditions | Distracted Driver |
|---|---|---|---|---|---|---|---|---|---|
| 182555077 | 9/11/2018 | A. Severe Injury | 16. Other | 0 | 1 | 0 | | no | no |
| 181915232 | 7/5/2018 | PDO. Property Damage Only | 1. Rear End | 0 | 0 | 0 | | no | no |
| 181845228 | 6/28/2018 | PDO. Property Damage Only | 2. Angle | 0 | 0 | 0 | | no | no |
| 182415104 | 8/20/2018 | C. Nonvisible Injury | 1. Rear End | 0 | 1 | 0 | | no | no |
| 182885118 | 10/13/2018 | PDO. Property Damage Only | 1. Rear End | 0 | 0 | 0 | | no | no |
| 192075126 | 7/20/2019 | B. Visible Injury | 2. Angle | 0 | 1 | 0 | | no | no |
| 193445038 | 8/21/2019 | PDO. Property Damage Only | 2. Angle | 0 | 0 | 0 | | no | no |
| 191415326 | 5/15/2019 | PDO. Property Damage Only | 2. Angle | 0 | 0 | 0 | | no | no |
| 191685219 | 5/22/2019 | PDO. Property Damage Only | 2. Angle | 0 | 0 | 0 | | no | no |
| 190705057 | 3/5/2019 | PDO. Property Damage Only | 1. Rear End | 0 | 0 | 0 | | no | no |
| 190935057 | 4/2/2019 | PDO. Property Damage Only | 1. Rear End | 0 | 0 | 0 | | no | no |
| 192325410 | 8/20/2019 | PDO. Property Damage Only | 1. Rear End | 0 | 0 | 0 | | no | no |
| 191895108 | 7/5/2019 | C. Nonvisible Injury | 1. Rear End | 0 | 5 | 0 | | no | no |
| 193445107 | 10/30/2019 | C. Nonvisible Injury | 1. Rear End | 0 | 1 | 0 | | no | no |
| 193445122 | 11/14/2019 | PDO. Property Damage Only | 1. Rear End | 0 | 0 | 0 | | no | no |
| 193445083 | 10/13/2019 | C. Nonvisible Injury | 1. Rear End | 0 | 1 | 0 | | no | no |
| 193445100 | 10/22/2019 | C. Nonvisible Injury | 1. Rear End | 0 | 3 | 0 | | yes | no |
| 193445071 | 9/30/2019 | PDO. Property Damage Only | 4. Sideswipe - Same Direction | 0 | 0 | 0 | | no | no |
| 191295165 | 5/8/2019 | B. Visible Injury | 2. Angle | 0 | 1 | 0 | | no | no |
| 203495122 | 12/11/2020 | PDO. Property Damage Only | 1. Rear End | 0 | 0 | 0 | | no | no |
| 202175264 | 7/29/2020 | PDO. Property Damage Only | 1. Rear End | 0 | 0 | 0 | | no | no |
| 203175313 | 11/2/2020 | C. Nonvisible Injury | 1. Rear End | 0 | 1 | 0 | | no | no |
| 201635154 | 6/2/2020 | PDO. Property Damage Only | 1. Rear End | 0 | 0 | 0 | | no | no |
| 212215197 | 7/25/2021 | PDO. Property Damage Only | 1. Rear End | 0 | 0 | 0 | | no | no |
| 212285259 | 8/6/2021 | PDO. Property Damage Only | 2. Angle | 0 | 0 | 0 | | no | no |
| 211945123 | 7/6/2021 | PDO. Property Damage Only | 1. Rear End | 0 | 0 | 0 | | no | no |
| 211535051 | 5/26/2021 | PDO. Property Damage Only | 1. Rear End | 0 | 0 | 0 | | no | no |

# VDOT Crash Data Summary Table

## Crash Data for the Intersection of Lee Highway (US 211/US 29 BUS) and Broadview Avenue (US 17 BUS) (May 2018 - April 2023)

| Document Number | Date | Crash Severity | Collsion Type | Pedestrain Injury | Persons Injured | Fatalities | Work Zone Related | Adverse Weather Conditions | Distracted Driver |
|---|---|---|---|---|---|---|---|---|---|
| 212725106 | 9/20/2021 | C. Nonvisible Injury | 1. Rear End | 0 | 1 | 0 | | no | no |
| 213275307 | 11/17/2021 | PDO. Property Damage Only | 2. Angle | 0 | 0 | 0 | | no | no |
| 211805101 | 6/21/2021 | PDO. Property Damage Only | 1. Rear End | 0 | 0 | 0 | | no | no |
| 213145192 | 11/6/2021 | PDO. Property Damage Only | 2. Angle | 0 | 0 | 0 | | no | no |
| 210905134 | 3/20/2021 | PDO. Property Damage Only | 2. Angle | 0 | 0 | 0 | | no | no |
| 220205117 | 1/12/2022 | PDO. Property Damage Only | 1. Rear End | 0 | 0 | 0 | | no | no |
| 222345164 | 8/21/2022 | PDO. Property Damage Only | 1. Rear End | 0 | 0 | 0 | | no | no |
| 220975211 | 3/18/2022 | PDO. Property Damage Only | 1. Rear End | 0 | 0 | 0 | | no | no |
| 222795285 | 10/6/2022 | B. Visible Injury | 8. Non-Collision | 0 | 1 | 0 | | no | no |
| 222015106 | 7/14/2022 | PDO. Property Damage Only | 1. Rear End | 0 | 0 | 0 | | no | no |
| 221295161 | 5/7/2022 | B. Visible Injury | 4. Sideswipe - Same Direction | 0 | 1 | 0 | | yes | no |
| 220135226 | 1/6/2022 | PDO. Property Damage Only | 2. Angle | 0 | 0 | 0 | | no | no |
| 222165194 | 7/8/2022 | PDO. Property Damage Only | 4. Sideswipe - Same Direction | 0 | 0 | 0 | | yes | no |

# VDOT Crash Data Summary Table

| Intersection Crash Analysis | Crash Data for the Intersection of Lee Highway (US 211/US 29 BUS) and Warrenton Village / Chick-fil-a Driveway (May 2018 - April 2023) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | Total | Relative Frequency |
| ***Crash Severity*** | | | | | | | | |
| Fatal Collision (Type K) | | | | | | | | 0.00% |
| Injury Collision (Type A, B, and C) | | 1 | | | 1 | | 2 | 40.00% |
| *Type A* | | *1* | | | *1* | | *2* | |
| *Type B* | | | | | | | | |
| *Type C* | | | | | | | | |
| Property Damage Only (Type PDO) | | | 1 | | 2 | | 3 | 60.00% |
| ***TOTAL**** | | ***1*** | ***1*** | | ***3*** | | ***5*** | ***100.00%*** |
| ***Crash Type*** | | | | | | | | |
| Fixed Object/ Single-Vehicle Crash | | | 1 | | 1 | | 2 | 40.00% |
| Head-On | | | | | | | | 0.00% |
| Sideswipe / Same Direction | | | | | | | | 0.00% |
| Sideswipe / Opposite Direction | | | | | | | | 0.00% |
| Rear-End Collision | | | | | 1 | | 1 | 20.00% |
| Angle Collision | | 1 | | | 1 | | 2 | 40.00% |
| Backed Into | | | | | | | | 0.00% |
| Pedestrian Collision | | | | | | | | 0.00% |
| Deer/Animal | | | | | | | | 0.00% |
| Other | | | | | | | | 0.00% |
| ***TOTAL**** | | ***1*** | ***1*** | | ***3*** | | ***5*** | ***100.00%*** |
| ***Other Factors*** | | | | | | | | |
| Distracted Driver | | | | | | | | 0.00% |
| Alcohol** | | | | | 1 | | 1 | 20.00% |
| Work-Zone | | | | | | | | 0.00% |
| Inclement Weather (Non-Dry) | | | 1 | | | | 1 | 20.00% |
| Speeding | | | | | 1 | | 1 | 20.00% |
| Pedestrian Injury*** | | | | | | | | N/A |
| Time of Day | | | | | | | | |
| *AM Peak Period (6 - 10 AM)* | | | | | | | | *0.00%* |
| *Off Peak - Daytime (10 AM - 3 PM)* | | | | | *1* | | *1* | *20.00%* |
| *PM Peak Period (3 - 7 PM)* | | *1* | | | *1* | | *2* | *40.00%* |
| *Off Peak - Nighttime (7 PM - 6 AM)* | | | *1* | | *1* | | *2* | *40.00%* |
| ***CALCULATED CRASH RATE****** | | | | | | | ***0.13*** | ***Crashes per MEV*** |

* It should be noted that an intersection radius of 300 feet was used in this analysis. Crashes also thought to be caused by the intersection may have been added based on the description of the crash and engineering judgement.

** Instances where the event was classified as "Unknown", "Not Known Whether Impaired", "Ability Not Impaired" were classified as alcohol related to provide a more conservative analysis.

*** Pedestrian injuries are based on the number of pedestrians injured and may not be directly be related to the number of crash incidences (i.e., if one crash occurred injuring two pedestrians, the table would show a "2" instead of a "1").

# VDOT Crash Data Summary Table

## Crash Data for the Intersection of Lee Highway (US 211/US 29 BUS) and Warrenton Village / Chick-fil-a Driveway (May 2018 - April 2023)

| Document Number | Date | Crash Severity | Collsion Type | Pedestrain Injury | Persons Injured | Fatalities | Work Zone Related | Adverse Weather Conditions | Distracted Driver |
|---|---|---|---|---|---|---|---|---|---|
| 193445020 | 7/26/2019 | A. Severe Injury | 2. Angle | 0 | 1 | 0 | | no | no |
| 203025223 | 10/25/2020 | PDO. Property Damage Only | 9. Fixed Object - Off Road | 0 | 0 | 0 | | yes | no |
| 222785213 | 9/17/2022 | A. Severe Injury | 9. Fixed Object - Off Road | 0 | 1 | 0 | | no | no |
| 222135133 | 7/28/2022 | PDO. Property Damage Only | 1. Rear End | 0 | 0 | 0 | | no | no |
| 223325320 | 11/1/2022 | PDO. Property Damage Only | 2. Angle | 0 | 0 | 0 | | no | no |

# VDOT Crash Data Summary Table

| Intersection Crash Analysis | Crash Data for the Intersection of Lee Highway (US 211/US 29 BUS) and Branch Drive (May 2018 - April 2023) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | Total | Relative Frequency |
| ***Crash Severity*** | | | | | | | | |
| Fatal Collision (Type K) | | | | | | | | 0.00% |
| Injury Collision (Type A, B, and C) | 1 | | 2 | 1 | 1 | | 5 | 26.32% |
| *Type A* | | | | | | | | |
| *Type B* | | | | | | | | |
| *Type C* | *1* | | *2* | *1* | *1* | | *5* | |
| Property Damage Only (Type PDO) | 2 | 1 | | 3 | 8 | | 14 | 73.68% |
| ***TOTAL**** | ***3*** | ***1*** | ***2*** | ***4*** | ***9*** | | ***19*** | ***100.00%*** |
| ***Crash Type*** | | | | | | | | |
| Fixed Object/ Single-Vehicle Crash | | | | 1 | | | 1 | 5.26% |
| Head-On | | | | | | | | 0.00% |
| Sideswipe / Same Direction | 1 | | | | | | 1 | 5.26% |
| Sideswipe / Opposite Direction | | | | 1 | | | 1 | 5.26% |
| Rear-End Collision | 2 | | | 1 | 3 | | 6 | 31.58% |
| Angle Collision | | | 2 | 1 | 5 | | 8 | 42.11% |
| Backed Into | | 1 | | | | | 1 | 5.26% |
| Pedestrian Collision | | | | | | | | 0.00% |
| Deer/Animal | | | | | | | | 0.00% |
| Other | | | | | 1 | | 1 | 5.26% |
| ***TOTAL**** | ***3*** | ***1*** | ***2*** | ***4*** | ***9*** | | ***19*** | ***100.00%*** |
| ***Other Factors*** | | | | | | | | |
| Distracted Driver | | | | | | | | 0.00% |
| Alcohol** | | | | | | | | 0.00% |
| Work-Zone | | | | | | | | 0.00% |
| Inclement Weather (Non-Dry) | | | | 2 | 1 | | 3 | 15.79% |
| Speeding | | | 1 | | 1 | | 2 | 10.53% |
| Pedestrian Injury*** | | | | | | | | N/A |
| Time of Day | | | | | | | | |
| *AM Peak Period (6 - 10 AM)* | *1* | | | *1* | *1* | | *3* | *15.79%* |
| *Off Peak - Daytime (10 AM - 3 PM)* | | | *2* | *2* | *2* | | *6* | *31.58%* |
| *PM Peak Period (3 - 7 PM)* | *2* | *1* | | *1* | *6* | | *10* | *52.63%* |
| *Off Peak - Nighttime (7 PM - 6 AM)* | | | | | | | | *0.00%* |
| ***CALCULATED CRASH RATE****** | | | | | | | ***0.45*** | ***Crashes per MEV*** |

* It should be noted that an intersection radius of 300 feet was used in this analysis. Crashes also thought to be caused by the intersection may have been added based on the description of the crash and engineering judgement.

** Instances where the event was classified as "Unknown", "Not Known Whether Impaired", "Ability Not Impaired" were classified as alcohol related to provide a more conservative analysis.

*** Pedestrian injuries are based on the number of pedestrians injured and may not be directly be related to the number of crash incidences (i.e., if one crash occurred injuring two pedestrians, the table would show a "2" instead of a "1").

# VDOT Crash Data Summary Table



## Crash Data for the Intersection of Lee Highway (US 211/US 29 BUS) and Branch Drive (May 2018 - April 2023)

| Document Number | Date | Crash Severity | Collsion Type | Pedestrain Injury | Persons Injured | Fatalities | Work Zone Related | Adverse Weather Conditions | Distracted Driver |
|---|---|---|---|---|---|---|---|---|---|
| 190035248 | 12/24/2018 | PDO. Property Damage Only | 4. Sideswipe - Same Direction | 0 | 0 | 0 | | no | no |
| 182955427 | 10/20/2018 | C. Nonvisible Injury | 1. Rear End | 0 | 2 | 0 | | no | no |
| 183655065 | 12/17/2018 | PDO. Property Damage Only | 1. Rear End | 0 | 0 | 0 | | no | no |
| 193445084 | 10/13/2019 | PDO. Property Damage Only | 15. Backed Into | 0 | 0 | 0 | | no | no |
| 201995197 | 7/12/2020 | C. Nonvisible Injury | 2. Angle | 0 | 1 | 0 | | no | no |
| 201275157 | 4/1/2020 | C. Nonvisible Injury | 2. Angle | 0 | 1 | 0 | | no | no |
| 211335075 | 5/10/2021 | PDO. Property Damage Only | 2. Angle | 0 | 0 | 0 | | no | no |
| 212925308 | 10/10/2021 | PDO. Property Damage Only | 9. Fixed Object - Off Road | 0 | 0 | 0 | | yes | no |
| 212705186 | 9/20/2021 | PDO. Property Damage Only | 1. Rear End | 0 | 0 | 0 | | no | no |
| 211935132 | 6/22/2021 | C. Nonvisible Injury | 5. Sideswipe - Opposite Direction | 0 | 2 | 0 | | yes | no |
| 222805102 | 10/6/2022 | PDO. Property Damage Only | 2. Angle | 0 | 0 | 0 | | no | no |
| 220825133 | 3/21/2022 | PDO. Property Damage Only | 2. Angle | 0 | 0 | 0 | | no | no |
| 221965176 | 7/9/2022 | PDO. Property Damage Only | 2. Angle | 0 | 0 | 0 | | yes | no |
| 221965175 | 6/29/2022 | PDO. Property Damage Only | 2. Angle | 0 | 0 | 0 | | no | no |
| 221735151 | 6/2/2022 | PDO. Property Damage Only | 1. Rear End | 0 | 0 | 0 | | no | no |
| 222205137 | 8/6/2022 | PDO. Property Damage Only | 2. Angle | 0 | 0 | 0 | | no | no |
| 222695228 | 9/24/2022 | C. Nonvisible Injury | 1. Rear End | 0 | 1 | 0 | | no | no |
| 220385210 | 2/6/2022 | PDO. Property Damage Only | 1. Rear End | 0 | 0 | 0 | | no | no |
| 222975113 | 10/23/2022 | PDO. Property Damage Only | 16. Other | 0 | 0 | 0 | | no | no |

# VDOT Crash Data Summary Table

| Intersection Crash Analysis | Crash Data for the Intersection of Branch Drive and Warrenton Village / Safeway (May 2018 - April 2023) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | Total | Relative Frequency |
| ***Crash Severity*** | | | | | | | | |
| Fatal Collision (Type K) | | | | | | | | 0.00% |
| Injury Collision (Type A, B, and C) | | | | | 1 | | 1 | 50.00% |
| *Type A* | | | | | | | | |
| *Type B* | | | | | | | | |
| *Type C* | | | | | *1* | | *1* | |
| Property Damage Only (Type PDO) | | | | 1 | | | 1 | 50.00% |
| ***TOTAL**** | | | | ***1*** | ***1*** | | ***2*** | ***100.00%*** |
| ***Crash Type*** | | | | | | | | |
| Fixed Object/ Single-Vehicle Crash | | | | | | | | 0.00% |
| Head-On | | | | | | | | 0.00% |
| Sideswipe / Same Direction | | | | | | | | 0.00% |
| Sideswipe / Opposite Direction | | | | | | | | 0.00% |
| Rear-End Collision | | | | | | | | 0.00% |
| Angle Collision | | | | 1 | 1 | | 2 | 100.00% |
| Backed Into | | | | | | | | 0.00% |
| Pedestrian Collision | | | | | | | | 0.00% |
| Deer/Animal | | | | | | | | 0.00% |
| Other | | | | | | | | 0.00% |
| ***TOTAL**** | | | | ***1*** | ***1*** | | ***2*** | ***100.00%*** |
| ***Other Factors*** | | | | | | | | |
| Distracted Driver | | | | | | | | 0.00% |
| Alcohol** | | | | 1 | | | 1 | 50.00% |
| Work-Zone | | | | | | | | 0.00% |
| Inclement Weather (Non-Dry) | | | | | 1 | | 1 | 50.00% |
| Speeding | | | | | | | | 0.00% |
| Pedestrian Injury*** | | | | | | | | N/A |
| Time of Day | | | | | | | | |
| *AM Peak Period (6 - 10 AM)* | | | | | *1* | | *1* | *50.00%* |
| *Off Peak - Daytime (10 AM - 3 PM)* | | | | | | | | *0.00%* |
| *PM Peak Period (3 - 7 PM)* | | | | *1* | | | *1* | *50.00%* |
| *Off Peak - Nighttime (7 PM - 6 AM)* | | | | | | | | *0.00%* |
| ***CALCULATED CRASH RATE****** | | | | | | | ***0.24*** | ***Crashes per MEV*** |

* It should be noted that an intersection radius of 300 feet was used in this analysis. Crashes also thought to be caused by the intersection may have been added based on the description of the crash and engineering judgement.

** Instances where the event was classified as "Unknown", "Not Known Whether Impaired", "Ability Not Impaired" were classified as alcohol related to provide a more conservative analysis.

*** Pedestrian injuries are based on the number of pedestrians injured and may not be directly be related to the number of crash incidences (i.e., if one crash occurred injuring two pedestrians, the table would show a "2" instead of a "1").

# VDOT Crash Data Summary Table

## Crash Data for the Intersection of Branch Drive and Warrenton Village / Safeway (May 2018 - April 2023)

| Document Number | Date | Crash Severity | Collsion Type | Pedestrain Injury | Persons Injured | Fatalities | Work Zone Related | Adverse Weather Conditions | Distracted Driver |
|---|---|---|---|---|---|---|---|---|---|
| 213055189 | 10/15/2021 | PDO: Property Damage Only | 2. Angle | 0 | 0 | 0 | | no | no |
| 223255325 | 11/11/2022 | C. Nonvisible Injury | 2. Angle | 0 | 1 | 0 | | yes | no |

# VDOT Crash Data Summary Table

| Intersection Crash Analysis | Crash Data for the Intersection of Branch Drive and Oak Springs Drive (May 2018 - April 2023) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | Total | Relative Frequency |
| ***Crash Severity*** | | | | | | | | |
| Fatal Collision (Type K) | | | | | | | | 0.00% |
| Injury Collision (Type A, B, and C) | | | | | | | | 0.00% |
| *Type A* | | | | | | | | |
| *Type B* | | | | | | | | |
| *Type C* | | | | | | | | |
| Property Damage Only (Type PDO) | | | 1 | | 1 | | 2 | 100.00% |
| ***TOTAL**** | | | ***1*** | | ***1*** | | ***2*** | ***100.00%*** |
| ***Crash Type*** | | | | | | | | |
| Fixed Object/ Single-Vehicle Crash | | | | | | | | 0.00% |
| Head-On | | | | | | | | 0.00% |
| Sideswipe / Same Direction | | | | | | | | 0.00% |
| Sideswipe / Opposite Direction | | | | | | | | 0.00% |
| Rear-End Collision | | | | | | | | 0.00% |
| Angle Collision | | | 1 | | 1 | | 2 | 100.00% |
| Backed Into | | | | | | | | 0.00% |
| Pedestrian Collision | | | | | | | | 0.00% |
| Deer/Animal | | | | | | | | 0.00% |
| Other | | | | | | | | 0.00% |
| ***TOTAL**** | | | ***1*** | | ***1*** | | ***2*** | ***100.00%*** |
| ***Other Factors*** | | | | | | | | |
| Distracted Driver | | | | | | | | 0.00% |
| Alcohol** | | | | | | | | 0.00% |
| Work-Zone | | | | | | | | 0.00% |
| Inclement Weather (Non-Dry) | | | | | | | | 0.00% |
| Speeding | | | | | | | | 0.00% |
| Pedestrian Injury*** | | | | | | | | N/A |
| Time of Day | | | | | | | | |
| *AM Peak Period (6 - 10 AM)* | | | | | | | | *0.00%* |
| *Off Peak - Daytime (10 AM - 3 PM)* | | | | | *1* | | *1* | *50.00%* |
| *PM Peak Period (3 - 7 PM)* | | | *1* | | | | *1* | *50.00%* |
| *Off Peak - Nighttime (7 PM - 6 AM)* | | | | | | | | *0.00%* |
| ***CALCULATED CRASH RATE****** | | | | | | | ***0.27*** | ***Crashes per MEV*** |

* It should be noted that an intersection radius of 300 feet was used in this analysis. Crashes also thought to be caused by the intersection may have been added based on the description of the crash and engineering judgement.

** Instances where the event was classified as "Unknown", "Not Known Whether Impaired", "Ability Not Impaired" were classified as alcohol related to provide a more conservative analysis.

*** Pedestrian injuries are based on the number of pedestrians injured and may not be directly be related to the number of crash incidences (i.e., if one crash occurred injuring two pedestrians, the table would show a "2" instead of a "1").

# VDOT Crash Data Summary Table

## Crash Data for the Intersection of Branch Drive and Oak Springs Drive (May 2018 - April 2023)

| Document Number | Date | Crash Severity | Collsion Type | Pedestrain Injury | Persons Injured | Fatalities | Work Zone Related | Adverse Weather Conditions | Distracted Driver |
|---|---|---|---|---|---|---|---|---|---|
| 202745301 | 9/18/2020 | PDO: Property Damage Only | 2. Angle | 0 | 0 | 0 | | no | no |
| 220335106 | 1/31/2022 | PDO: Property Damage Only | 2. Angle | 0 | 0 | 0 | | no | no |

# VDOT Crash Data Summary Table

| Intersection Crash Analysis | Crash Data for the Intersection of Broadview Avenue and Oak Springs Drive (May 2018 - April 2023) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | Total | Relative Frequency |
| ***Crash Severity*** | | | | | | | | |
| Fatal Collision (Type K) | | | | | | | | 0.00% |
| Injury Collision (Type A, B, and C) | 1 | | | | | | 1 | 33.33% |
| *Type A* | *1* | | | | | | *1* | |
| *Type B* | | | | | | | | |
| *Type C* | | | | | | | | |
| Property Damage Only (Type PDO) | | | 2 | | | | 2 | 66.67% |
| ***TOTAL**** | ***1*** | | ***2*** | | | | ***3*** | ***100.00%*** |
| ***Crash Type*** | | | | | | | | |
| Fixed Object/ Single-Vehicle Crash | | | | | | | | 0.00% |
| Head-On | | | | | | | | 0.00% |
| Sideswipe / Same Direction | | | | | | | | 0.00% |
| Sideswipe / Opposite Direction | | | | | | | | 0.00% |
| Rear-End Collision | | | | | | | | 0.00% |
| Angle Collision | 1 | | 2 | | | | 3 | 100.00% |
| Backed Into | | | | | | | | 0.00% |
| Pedestrian Collision | | | | | | | | 0.00% |
| Deer/Animal | | | | | | | | 0.00% |
| Other | | | | | | | | 0.00% |
| ***TOTAL**** | ***1*** | | ***2*** | | | | ***3*** | ***100.00%*** |
| ***Other Factors*** | | | | | | | | |
| Distracted Driver | | | | | | | | 0.00% |
| Alcohol** | | | | | | | | 0.00% |
| Work-Zone | | | | | | | | 0.00% |
| Inclement Weather (Non-Dry) | | | | | | | | 0.00% |
| Speeding | | | | | | | | 0.00% |
| Pedestrian Injury*** | | | | | | | | N/A |
| Time of Day | | | | | | | | |
| *AM Peak Period (6 - 10 AM)* | | | | | | | | *0.00%* |
| *Off Peak - Daytime (10 AM - 3 PM)* | | | *1* | | | | *1* | *33.33%* |
| *PM Peak Period (3 - 7 PM)* | *1* | | *1* | | | | *2* | *66.67%* |
| *Off Peak - Nighttime (7 PM - 6 AM)* | | | | | | | | *0.00%* |
| ***CALCULATED CRASH RATE****** | | | | | | | ***0.14*** | ***Crashes per MEV*** |

* It should be noted that an intersection radius of 300 feet was used in this analysis. Crashes also thought to be caused by the intersection may have been added based on the description of the crash and engineering judgement.

** Instances where the event was classified as "Unknown", "Not Known Whether Impaired", "Ability Not Impaired" were classified as alcohol related to provide a more conservative analysis.

*** Pedestrian injuries are based on the number of pedestrians injured and may not be directly be related to the number of crash incidences (i.e., if one crash occurred injuring two pedestrians, the table would show a "2" instead of a "1").

# VDOT Crash Data Summary Table



| Crash Data for the Intersection of Broadview Avenue and Oak Springs Drive (May 2018 - April 2023) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Document Number | Date | Crash Severity | Collsion Type | Pedestrain Injury | Persons Injured | Fatalities | Work Zone Related | Adverse Weather Conditions | Distracted Driver |
| 182435282 | 8/23/2018 | A. Severe Injury | 2. Angle | 0 | 1 | 0 | | no | no |
| 202585163 | 2/22/2020 | PDO. Property Damage Only | 2. Angle | 0 | 0 | 0 | | no | no |
| 202115210 | 7/15/2020 | PDO. Property Damage Only | 2. Angle | 0 | 0 | 0 | | no | no |

# VDOT Crash Data Summary Table

| Intersection Crash Analysis | Crash Data for the Intersection of Broadview Avenue and Warrenton Village North (May 2018 - April 2023) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | Total | Relative Frequency |
| ***Crash Severity*** | | | | | | | | |
| Fatal Collision (Type K) | | | | | | | | 0.00% |
| Injury Collision (Type A, B, and C) | | | 1 | | 1 | | 2 | 50.00% |
| *Type A* | | | | | | | | |
| *Type B* | | | *1* | | | | *1* | |
| *Type C* | | | | | *1* | | *1* | |
| Property Damage Only (Type PDO) | | 1 | | 1 | | | 2 | 50.00% |
| ***TOTAL**** | | ***1*** | ***1*** | ***1*** | ***1*** | | ***4*** | ***100.00%*** |
| ***Crash Type*** | | | | | | | | |
| Fixed Object/ Single-Vehicle Crash | | | | | | | | 0.00% |
| Head-On | | | | | | | | 0.00% |
| Sideswipe / Same Direction | | | | | | | | 0.00% |
| Sideswipe / Opposite Direction | | | | | | | | 0.00% |
| Rear-End Collision | | | | | | | | 0.00% |
| Angle Collision | | | 1 | 1 | 1 | | 3 | 75.00% |
| Backed Into | | | | | | | | 0.00% |
| Pedestrian Collision | | | | | | | | 0.00% |
| Deer/Animal | | 1 | | | | | 1 | 25.00% |
| Other | | | | | | | | 0.00% |
| ***TOTAL**** | | ***1*** | ***1*** | ***1*** | ***1*** | | ***4*** | ***100.00%*** |
| ***Other Factors*** | | | | | | | | |
| Distracted Driver | | | | | | | | 0.00% |
| Alcohol** | | | | | 1 | | 1 | 25.00% |
| Work-Zone | | | | | | | | 0.00% |
| Inclement Weather (Non-Dry) | | | | | 1 | | 1 | 25.00% |
| Speeding | | | | | | | | 0.00% |
| Pedestrian Injury*** | | | | | | | | N/A |
| Time of Day | | | | | | | | |
| *AM Peak Period (6 - 10 AM)* | | *1* | | | | | *1* | *25.00%* |
| *Off Peak - Daytime (10 AM - 3 PM)* | | | | | | | | *0.00%* |
| *PM Peak Period (3 - 7 PM)* | | | *1* | *1* | *1* | | *3* | *75.00%* |
| *Off Peak - Nighttime (7 PM - 6 AM)* | | | | | | | | *0.00%* |
| ***CALCULATED CRASH RATE****** | | | | | | | ***0.21*** | ***Crashes per MEV*** |

* It should be noted that an intersection radius of 300 feet was used in this analysis. Crashes also thought to be caused by the intersection may have been added based on the description of the crash and engineering judgement.

** Instances where the event was classified as "Unknown", "Not Known Whether Impaired", "Ability Not Impaired" were classified as alcohol related to provide a more conservative analysis.

*** Pedestrian injuries are based on the number of pedestrians injured and may not be directly be related to the number of crash incidences (i.e., if one crash occurred injuring two pedestrians, the table would show a "2" instead of a "1").

# VDOT Crash Data Summary Table

## Crash Data for the Intersection of Broadview Avenue and Warrenton Village North (May 2018 - April 2023)

| Document Number | Date | Crash Severity | Collsion Type | Pedestrain Injury | Persons Injured | Fatalities | Work Zone Related | Adverse Weather Conditions | Distracted Driver |
|---|---|---|---|---|---|---|---|---|---|
| 192545226 | 9/11/2019 | PDO. Property Damage Only | 10. Deer | 0 | 0 | 0 | | no | no |
| 202765309 | 9/20/2020 | B. Visible Injury | 2. Angle | 0 | 1 | 0 | | no | no |
| 211665121 | 5/27/2021 | PDO. Property Damage Only | 2. Angle | 0 | 0 | 0 | | no | no |
| 223465170 | 12/6/2022 | C. Nonvisible Injury | 2. Angle | 0 | 1 | 0 | | yes | no |

# VDOT Crash Data Summary Table

| Intersection Crash Analysis | Crash Data for the Intersection of Broadview Avenue and Warrenton Village South (May 2018 - April 2023) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | Total | Relative Frequency |
| ***Crash Severity*** | | | | | | | | |
| Fatal Collision (Type K) | | | | | | | | 0.00% |
| Injury Collision (Type A, B, and C) | 2 | | | 2 | 3 | | 7 | 53.85% |
| *Type A* | | | | | | | | |
| *Type B* | | | | | | | | |
| *Type C* | *2* | | | *2* | *3* | | *7* | |
| Property Damage Only (Type PDO) | 1 | | 2 | 2 | 1 | | 6 | 46.15% |
| ***TOTAL**** | ***3*** | | ***2*** | ***4*** | ***4*** | | ***13*** | ***100.00%*** |
| ***Crash Type*** | | | | | | | | |
| Fixed Object/ Single-Vehicle Crash | | | | | | | | 0.00% |
| Head-On | 1 | | | | 2 | | 3 | 23.08% |
| Sideswipe / Same Direction | | | | 1 | | | 1 | 7.69% |
| Sideswipe / Opposite Direction | | | | | | | | 0.00% |
| Rear-End Collision | | | 1 | | | | 1 | 7.69% |
| Angle Collision | 1 | | 1 | 3 | 2 | | 7 | 53.85% |
| Backed Into | | | | | | | | 0.00% |
| Pedestrian Collision | | | | | | | | 0.00% |
| Deer/Animal | | | | | | | | 0.00% |
| Other | 1 | | | | | | 1 | 7.69% |
| ***TOTAL**** | ***3*** | | ***2*** | ***4*** | ***4*** | | ***13*** | ***100.00%*** |
| ***Other Factors*** | | | | | | | | |
| Distracted Driver | | | | | | | | 0.00% |
| Alcohol** | 1 | | | | | | 1 | 7.69% |
| Work-Zone | | | | | | | | 0.00% |
| Inclement Weather (Non-Dry) | | | | | | | | 0.00% |
| Speeding | | | 1 | | | | 1 | 7.69% |
| Pedestrian Injury*** | | | | | | | | N/A |
| Time of Day | | | | | | | | |
| *AM Peak Period (6 - 10 AM)* | | | | | *1* | | *1* | *7.69%* |
| *Off Peak - Daytime (10 AM - 3 PM)* | *1* | | *2* | *2* | *2* | | *7* | *53.85%* |
| *PM Peak Period (3 - 7 PM)* | *1* | | | *2* | *1* | | *4* | *30.77%* |
| *Off Peak - Nighttime (7 PM - 6 AM)* | *1* | | | | | | *1* | *7.69%* |
| ***CALCULATED CRASH RATE****** | | | | | | | ***0.54*** | ***Crashes per MEV*** |

* It should be noted that an intersection radius of 300 feet was used in this analysis. Crashes also thought to be caused by the intersection may have been added based on the description of the crash and engineering judgement.

** Instances where the event was classified as "Unknown", "Not Known Whether Impaired", "Ability Not Impaired" were classified as alcohol related to provide a more conservative analysis.

*** Pedestrian injuries are based on the number of pedestrians injured and may not be directly be related to the number of crash incidences (i.e., if one crash occurred injuring two pedestrians, the table would show a "2" instead of a "1").

# VDOT Crash Data Summary Table

## Crash Data for the Intersection of Broadview Avenue and Warrenton Village South (May 2018 - April 2023)

| Document Number | Date | Crash Severity | Collsion Type | Pedestrain Injury | Persons Injured | Fatalities | Work Zone Related | Adverse Weather Conditions | Distracted Driver |
|---|---|---|---|---|---|---|---|---|---|
| 182505243 | 9/5/2018 | C. Nonvisible Injury | 6. Fixed Object in Road | 0 | 1 | 0 | | no | no |
| 182835057 | 10/4/2018 | C. Nonvisible Injury | 2. Angle | 0 | 1 | 0 | | no | no |
| 182135102 | 7/31/2018 | PDO. Property Damage Only | 3. Head On | 0 | 0 | 0 | | no | no |
| 201265208 | 2/25/2020 | PDO. Property Damage Only | 1. Rear End | 0 | 0 | 0 | | no | no |
| 201265233 | 3/12/2020 | PDO. Property Damage Only | 2. Angle | 0 | 0 | 0 | | no | no |
| 213625118 | 12/15/2021 | C. Nonvisible Injury | 2. Angle | 0 | 2 | 0 | | no | no |
| 213145191 | 11/3/2021 | PDO. Property Damage Only | 2. Angle | 0 | 0 | 0 | | no | no |
| 210135154 | 1/6/2021 | C. Nonvisible Injury | 2. Angle | 0 | 1 | 0 | | no | no |
| 212425152 | 8/23/2021 | PDO. Property Damage Only | 4. Sideswipe - Same Direction | 0 | 0 | 0 | | no | no |
| 221235227 | 4/29/2022 | C. Nonvisible Injury | 3. Head On | 0 | 1 | 0 | | no | no |
| 221045273 | 3/28/2022 | PDO. Property Damage Only | 3. Head On | 0 | 0 | 0 | | no | no |
| 220945207 | 3/29/2022 | C. Nonvisible Injury | 2. Angle | 0 | 1 | 0 | | no | no |
| 223325319 | 11/23/2022 | C. Nonvisible Injury | 2. Angle | 0 | 1 | 0 | | no | no |

# C. Turning Movement Counts Data

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** US 17/Winchester St & US 17/US 211/Broadview Ave
**City:** Warrenton
**Control:** Signalized

**Project ID:** 23-260020-001
**Date:** 2/9/2023

## Data - Total

| NS/EW Streets: | US 17/Winchester St | | | | US 17/Winchester St | | | | US 17/US 211/Broadview Ave | | | | US 17/US 211/Broadview Ave | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 1 | 1 | 1 | 0 | 1.5 | 0.5 | 1 | 0 | 2 | 1.5 | 0.5 | 0 | 1 | 2 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 5 | 5 | 2 | 0 | 28 | 3 | 15 | 0 | 18 | 155 | 2 | 1 | 2 | 48 | 21 | 1 | 306 |
| 6:15 AM | 7 | 0 | 6 | 0 | 15 | 2 | 19 | 0 | 21 | 167 | 1 | 1 | 0 | 78 | 32 | 1 | 350 |
| 6:30 AM | 7 | 9 | 8 | 0 | 18 | 1 | 31 | 0 | 18 | 179 | 2 | 0 | 0 | 90 | 27 | 0 | 390 |
| 6:45 AM | 12 | 11 | 8 | 0 | 27 | 5 | 45 | 0 | 23 | 163 | 0 | 3 | 6 | 122 | 32 | 0 | 457 |
| 7:00 AM | 13 | 13 | 10 | 0 | 27 | 3 | 97 | 0 | 46 | 171 | 1 | 1 | 7 | 134 | 41 | 0 | 564 |
| 7:15 AM | 20 | 8 | 11 | 0 | 31 | 8 | 89 | 0 | 58 | 208 | 5 | 2 | 6 | 119 | 31 | 1 | 597 |
| 7:30 AM | 15 | 25 | 14 | 0 | 28 | 9 | 34 | 0 | 83 | 220 | 13 | 1 | 6 | 154 | 49 | 0 | 651 |
| 7:45 AM | 27 | 42 | 32 | 0 | 34 | 40 | 61 | 0 | 73 | 169 | 5 | 2 | 5 | 162 | 64 | 1 | 717 |
| 8:00 AM | 14 | 19 | 12 | 0 | 22 | 26 | 61 | 0 | 57 | 204 | 7 | 2 | 9 | 140 | 29 | 1 | 603 |
| 8:15 AM | 17 | 17 | 12 | 0 | 26 | 18 | 59 | 0 | 44 | 165 | 6 | 0 | 11 | 159 | 29 | 1 | 564 |
| 8:30 AM | 24 | 11 | 21 | 0 | 29 | 13 | 61 | 0 | 52 | 159 | 13 | 2 | 11 | 125 | 28 | 3 | 552 |
| 8:45 AM | 16 | 17 | 8 | 0 | 45 | 26 | 54 | 0 | 53 | 170 | 16 | 4 | 4 | 141 | 24 | 3 | 581 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 177 | 177 | 144 | 0 | 330 | 154 | 626 | 0 | 546 | 2130 | 71 | 19 | 67 | 1472 | 407 | 12 | 6332 |
| **APPROACH %'s :** | 35.54% | 35.54% | 28.92% | 0.00% | 29.73% | 13.87% | 56.40% | 0.00% | 19.74% | 77.01% | 2.57% | 0.69% | 3.42% | 75.18% | 20.79% | 0.61% | |
| **PEAK HR :** | 07:15 AM - 08:15 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 76 | 94 | 69 | 0 | 115 | 83 | 245 | 0 | 271 | 801 | 30 | 7 | 26 | 575 | 173 | 3 | 2568 |
| **PEAK HR FACTOR :** | 0.704 | 0.560 | 0.539 | 0.000 | 0.846 | 0.519 | 0.688 | 0.000 | 0.816 | 0.910 | 0.577 | 0.875 | 0.722 | 0.887 | 0.676 | 0.750 | 0.895 |
| | 0.592 | | | | 0.820 | | | | 0.875 | | | | 0.837 | | | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 1 | 1 | 0 | 1.5 | 0.5 | 1 | 0 | 2 | 1.5 | 0.5 | 0 | 1 | 2 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 29 | 18 | 21 | 0 | 72 | 18 | 94 | 1 | 51 | 194 | 14 | 0 | 7 | 309 | 23 | 1 | 852 |
| 4:15 PM | 32 | 27 | 15 | 0 | 46 | 23 | 86 | 1 | 69 | 167 | 9 | 1 | 19 | 240 | 40 | 1 | 776 |
| 4:30 PM | 24 | 28 | 16 | 0 | 50 | 23 | 103 | 0 | 71 | 223 | 9 | 1 | 17 | 261 | 24 | 4 | 854 |
| 4:45 PM | 29 | 22 | 15 | 0 | 44 | 19 | 94 | 0 | 67 | 210 | 8 | 0 | 13 | 264 | 19 | 4 | 808 |
| 5:00 PM | 12 | 35 | 13 | 0 | 47 | 14 | 63 | 0 | 68 | 170 | 13 | 2 | 14 | 265 | 23 | 4 | 743 |
| 5:15 PM | 18 | 34 | 18 | 0 | 46 | 18 | 75 | 0 | 60 | 180 | 11 | 1 | 13 | 284 | 28 | 1 | 787 |
| 5:30 PM | 22 | 29 | 15 | 0 | 28 | 19 | 69 | 0 | 44 | 183 | 7 | 4 | 12 | 218 | 40 | 1 | 691 |
| 5:45 PM | 16 | 27 | 16 | 0 | 37 | 23 | 74 | 0 | 47 | 176 | 8 | 1 | 8 | 252 | 25 | 6 | 716 |
| 6:00 PM | 32 | 23 | 15 | 0 | 42 | 14 | 44 | 0 | 54 | 135 | 12 | 1 | 19 | 222 | 23 | 3 | 639 |
| 6:15 PM | 14 | 12 | 17 | 0 | 42 | 19 | 45 | 0 | 47 | 144 | 6 | 1 | 17 | 236 | 34 | 4 | 638 |
| 6:30 PM | 19 | 16 | 20 | 0 | 26 | 13 | 42 | 0 | 49 | 137 | 8 | 0 | 16 | 185 | 22 | 4 | 557 |
| 6:45 PM | 14 | 17 | 20 | 0 | 25 | 10 | 35 | 0 | 43 | 107 | 9 | 1 | 13 | 194 | 24 | 4 | 516 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 261 | 288 | 201 | 0 | 505 | 213 | 824 | 2 | 670 | 2026 | 114 | 13 | 168 | 2930 | 325 | 37 | 8577 |
| **APPROACH %'s :** | 34.80% | 38.40% | 26.80% | 0.00% | 32.71% | 13.80% | 53.37% | 0.13% | 23.73% | 71.77% | 4.04% | 0.46% | 4.86% | 84.68% | 9.39% | 1.07% | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 114 | 95 | 67 | 0 | 212 | 83 | 377 | 2 | 258 | 794 | 40 | 2 | 56 | 1074 | 106 | 10 | 3290 |
| **PEAK HR FACTOR :** | 0.891 | 0.848 | 0.798 | 0.000 | 0.736 | 0.902 | 0.915 | 0.500 | 0.908 | 0.890 | 0.714 | 0.500 | 0.737 | 0.869 | 0.663 | 0.625 | 0.963 |
| | 0.932 | | | | 0.911 | | | | 0.900 | | | | 0.916 | | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** US 17/Winchester St & US 17/US 211/Broadview Ave
**City:** Warrenton
**Control:** Signalized

**Project ID:** 23-260020-001
**Date:** 2/9/2023

## Data - Cars

| NS/EW Streets: | US 17/Winchester St | | | | US 17/Winchester St | | | | US 17/US 211/Broadview Ave | | | | US 17/US 211/Broadview Ave | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 1 | 1 | 1 | 0 | 1.5 | 0.5 | 1 | 0 | 2 | 1.5 | 0.5 | 0 | 1 | 2 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 5 | 5 | 2 | 0 | 27 | 3 | 14 | 0 | 16 | 149 | 2 | 1 | 2 | 48 | 21 | 1 | 296 |
| 6:15 AM | 7 | 0 | 6 | 0 | 15 | 2 | 19 | 0 | 18 | 163 | 1 | 1 | 0 | 74 | 31 | 1 | 338 |
| 6:30 AM | 7 | 9 | 8 | 0 | 17 | 1 | 29 | 0 | 15 | 171 | 1 | 0 | 0 | 87 | 27 | 0 | 372 |
| 6:45 AM | 12 | 11 | 8 | 0 | 27 | 5 | 43 | 0 | 22 | 160 | 0 | 3 | 5 | 112 | 31 | 0 | 439 |
| 7:00 AM | 12 | 13 | 10 | 0 | 26 | 3 | 92 | 0 | 39 | 165 | 1 | 1 | 7 | 127 | 40 | 0 | 536 |
| 7:15 AM | 19 | 7 | 11 | 0 | 28 | 8 | 83 | 0 | 55 | 196 | 5 | 2 | 6 | 112 | 30 | 1 | 563 |
| 7:30 AM | 14 | 25 | 13 | 0 | 25 | 9 | 30 | 0 | 81 | 213 | 13 | 1 | 6 | 146 | 48 | 0 | 624 |
| 7:45 AM | 25 | 42 | 31 | 0 | 33 | 40 | 61 | 0 | 70 | 159 | 5 | 2 | 5 | 155 | 63 | 1 | 692 |
| 8:00 AM | 12 | 18 | 12 | 0 | 22 | 25 | 61 | 0 | 54 | 199 | 6 | 2 | 9 | 131 | 27 | 1 | 579 |
| 8:15 AM | 16 | 16 | 11 | 0 | 24 | 17 | 57 | 0 | 39 | 157 | 6 | 0 | 11 | 136 | 26 | 1 | 517 |
| 8:30 AM | 23 | 9 | 21 | 0 | 27 | 13 | 49 | 0 | 51 | 155 | 12 | 2 | 11 | 108 | 25 | 3 | 509 |
| 8:45 AM | 14 | 17 | 7 | 0 | 43 | 26 | 50 | 0 | 52 | 166 | 16 | 4 | 3 | 125 | 22 | 3 | 548 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 166 | 172 | 140 | 0 | 314 | 152 | 588 | 0 | 512 | 2053 | 68 | 19 | 65 | 1361 | 391 | 12 | 6013 |
| **APPROACH %'s :** | 34.73% | 35.98% | 29.29% | 0.00% | 29.79% | 14.42% | 55.79% | 0.00% | 19.31% | 77.41% | 2.56% | 0.72% | 3.55% | 74.41% | 21.38% | 0.66% | |
| **PEAK HR :** | 07:15 AM - 08:15 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 70 | 92 | 67 | 0 | 108 | 82 | 235 | 0 | 260 | 767 | 29 | 7 | 26 | 544 | 168 | 3 | 2458 |
| **PEAK HR FACTOR :** | 0.700 | 0.548 | 0.540 | 0.000 | 0.818 | 0.513 | 0.708 | 0.000 | 0.802 | 0.900 | 0.558 | 0.875 | 0.722 | 0.877 | 0.667 | 0.750 | 0.888 |
| | 0.584 | | | | 0.793 | | | | 0.863 | | | | 0.827 | | | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 1 | 1 | 0 | 1.5 | 0.5 | 1 | 0 | 2 | 1.5 | 0.5 | 0 | 1 | 2 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 29 | 18 | 21 | 0 | 72 | 18 | 90 | 1 | 50 | 190 | 14 | 0 | 7 | 303 | 23 | 1 | 837 |
| 4:15 PM | 32 | 27 | 15 | 0 | 45 | 23 | 79 | 1 | 67 | 164 | 9 | 1 | 19 | 235 | 40 | 1 | 758 |
| 4:30 PM | 24 | 27 | 16 | 0 | 49 | 23 | 101 | 0 | 69 | 220 | 9 | 1 | 17 | 251 | 24 | 4 | 835 |
| 4:45 PM | 29 | 22 | 15 | 0 | 44 | 19 | 91 | 0 | 64 | 205 | 8 | 0 | 13 | 260 | 17 | 4 | 791 |
| 5:00 PM | 12 | 35 | 13 | 0 | 47 | 14 | 61 | 0 | 67 | 168 | 13 | 2 | 13 | 261 | 23 | 4 | 733 |
| 5:15 PM | 18 | 34 | 17 | 0 | 46 | 18 | 74 | 0 | 59 | 177 | 11 | 1 | 13 | 278 | 28 | 1 | 775 |
| 5:30 PM | 22 | 29 | 15 | 0 | 28 | 18 | 67 | 0 | 44 | 181 | 7 | 4 | 12 | 214 | 40 | 1 | 682 |
| 5:45 PM | 16 | 27 | 16 | 0 | 37 | 23 | 72 | 0 | 45 | 172 | 8 | 1 | 7 | 250 | 24 | 6 | 704 |
| 6:00 PM | 31 | 23 | 15 | 0 | 42 | 14 | 44 | 0 | 53 | 132 | 12 | 1 | 19 | 220 | 23 | 3 | 632 |
| 6:15 PM | 14 | 12 | 17 | 0 | 42 | 19 | 44 | 0 | 46 | 141 | 6 | 1 | 17 | 235 | 33 | 4 | 631 |
| 6:30 PM | 19 | 16 | 19 | 0 | 26 | 13 | 42 | 0 | 48 | 137 | 8 | 0 | 16 | 179 | 22 | 4 | 549 |
| 6:45 PM | 14 | 17 | 20 | 0 | 25 | 10 | 35 | 0 | 42 | 104 | 9 | 1 | 13 | 191 | 23 | 4 | 508 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 260 | 287 | 199 | 0 | 503 | 212 | 800 | 2 | 654 | 1991 | 114 | 13 | 166 | 2877 | 320 | 37 | 8435 |
| **APPROACH %'s :** | 34.85% | 38.47% | 26.68% | 0.00% | 33.16% | 13.97% | 52.74% | 0.13% | 23.59% | 71.83% | 4.11% | 0.47% | 4.88% | 84.62% | 9.41% | 1.09% | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 114 | 94 | 67 | 0 | 210 | 83 | 361 | 2 | 250 | 779 | 40 | 2 | 56 | 1049 | 104 | 10 | 3221 |
| **PEAK HR FACTOR :** | 0.891 | 0.870 | 0.798 | 0.000 | 0.729 | 0.902 | 0.894 | 0.500 | 0.906 | 0.885 | 0.714 | 0.500 | 0.737 | 0.866 | 0.650 | 0.625 | 0.962 |
| | 0.929 | | | | 0.906 | | | | 0.895 | | | | 0.912 | | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** US 17/Winchester St & US 17/US 211/Broadview Ave
**City:** Warrenton
**Control:** Signalized

**Project ID:** 23-260020-001
**Date:** 2/9/2023

## Data - HT

| NS/EW Streets: | US 17/Winchester St | | | | US 17/Winchester St | | | | US 17/US 211/Broadview Ave | | | | US 17/US 211/Broadview Ave | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 1 | 1 | 1 | 0 | 1.5 | 0.5 | 1 | 0 | 2 | 1.5 | 0.5 | 0 | 1 | 2 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 4 | 0 | 0 | 0 | 4 | 1 | 0 | 12 |
| 6:30 AM | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 3 | 8 | 1 | 0 | 0 | 3 | 0 | 0 | 18 |
| 6:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 3 | 0 | 0 | 1 | 10 | 1 | 0 | 18 |
| 7:00 AM | 1 | 0 | 0 | 0 | 1 | 0 | 5 | 0 | 7 | 6 | 0 | 0 | 0 | 7 | 1 | 0 | 28 |
| 7:15 AM | 1 | 1 | 0 | 0 | 3 | 0 | 6 | 0 | 3 | 12 | 0 | 0 | 0 | 7 | 1 | 0 | 34 |
| 7:30 AM | 1 | 0 | 1 | 0 | 3 | 0 | 4 | 0 | 2 | 7 | 0 | 0 | 0 | 8 | 1 | 0 | 27 |
| 7:45 AM | 2 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 3 | 10 | 0 | 0 | 0 | 7 | 1 | 0 | 25 |
| 8:00 AM | 2 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 5 | 1 | 0 | 0 | 9 | 2 | 0 | 24 |
| 8:15 AM | 1 | 1 | 1 | 0 | 2 | 1 | 2 | 0 | 5 | 8 | 0 | 0 | 0 | 23 | 3 | 0 | 47 |
| 8:30 AM | 1 | 2 | 0 | 0 | 2 | 0 | 12 | 0 | 1 | 4 | 1 | 0 | 0 | 17 | 3 | 0 | 43 |
| 8:45 AM | 2 | 0 | 1 | 0 | 2 | 0 | 4 | 0 | 1 | 4 | 0 | 0 | 1 | 16 | 2 | 0 | 33 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 11 | 5 | 4 | 0 | 16 | 2 | 38 | 0 | 34 | 77 | 3 | 0 | 2 | 111 | 16 | 0 | 319 |
| **APPROACH %'s :** | 55.00% | 25.00% | 20.00% | 0.00% | 28.57% | 3.57% | 67.86% | 0.00% | 29.82% | 67.54% | 2.63% | 0.00% | 1.55% | 86.05% | 12.40% | 0.00% | |
| **PEAK HR :** | 07:15 AM - 08:15 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 6 | 2 | 2 | 0 | 7 | 1 | 10 | 0 | 11 | 34 | 1 | 0 | 0 | 31 | 5 | 0 | 110 |
| **PEAK HR FACTOR :** | 0.750 | 0.500 | 0.500 | 0.000 | 0.583 | 0.250 | 0.417 | 0.000 | 0.917 | 0.708 | 0.250 | 0.000 | 0.000 | 0.861 | 0.625 | 0.000 | 0.809 |
| | 0.833 | | | | 0.500 | | | | 0.767 | | | | 0.818 | | | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 1 | 1 | 0 | 1.5 | 0.5 | 1 | 0 | 2 | 1.5 | 0.5 | 0 | 1 | 2 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 4 | 0 | 0 | 0 | 6 | 0 | 0 | 15 |
| 4:15 PM | 0 | 0 | 0 | 0 | 1 | 0 | 7 | 0 | 2 | 3 | 0 | 0 | 0 | 5 | 0 | 0 | 18 |
| 4:30 PM | 0 | 1 | 0 | 0 | 1 | 0 | 2 | 0 | 2 | 3 | 0 | 0 | 0 | 10 | 0 | 0 | 19 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 5 | 0 | 0 | 0 | 4 | 2 | 0 | 17 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 2 | 0 | 0 | 1 | 4 | 0 | 0 | 10 |
| 5:15 PM | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 3 | 0 | 0 | 0 | 6 | 0 | 0 | 12 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 0 | 9 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 4 | 0 | 0 | 1 | 2 | 1 | 0 | 12 |
| 6:00 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 2 | 0 | 0 | 7 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 3 | 0 | 0 | 0 | 1 | 1 | 0 | 7 |
| 6:30 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 8 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 3 | 1 | 0 | 8 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 1 | 1 | 2 | 0 | 2 | 1 | 24 | 0 | 16 | 35 | 0 | 0 | 2 | 53 | 5 | 0 | 142 |
| **APPROACH %'s :** | 25.00% | 25.00% | 50.00% | 0.00% | 7.41% | 3.70% | 88.89% | 0.00% | 31.37% | 68.63% | 0.00% | 0.00% | 3.33% | 88.33% | 8.33% | 0.00% | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 1 | 0 | 0 | 2 | 0 | 16 | 0 | 8 | 15 | 0 | 0 | 0 | 25 | 2 | 0 | 69 |
| **PEAK HR FACTOR :** | 0.000 | 0.250 | 0.000 | 0.000 | 0.500 | 0.000 | 0.571 | 0.000 | 0.667 | 0.750 | 0.000 | 0.000 | 0.000 | 0.625 | 0.250 | 0.000 | 0.908 |
| | 0.250 | | | | 0.563 | | | | 0.719 | | | | 0.675 | | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** US 17/Winchester St & US 17/US 211/Broadview Ave
**City:** Warrenton
**Control:** Signalized

**Project ID:** 23-260020-001
**Date:** 2/9/2023

## Data - Bikes

| NS/EW Streets: | US 17/Winchester St | | | | US 17/Winchester St | | | | US 17/US 211/Broadview Ave | | | | US 17/US 211/Broadview Ave | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 1 | 1 | 1 | 0 | 1.5 | 0.5 | 1 | 0 | 2 | 1.5 | 0.5 | 0 | 1 | 2 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **APPROACH %'s :** | | | | | | | | | | | | | | | | | |
| **PEAK HR :** | 07:15 AM - 08:15 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |

| **PM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 1 | 1 | 0 | 1.5 | 0.5 | 1 | 0 | 2 | 1.5 | 0.5 | 0 | 1 | 2 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| **APPROACH %'s :** | | | | | | | | | 0.00% | 100.00% | 0.00% | 0.00% | | | | | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** US 17/Winchester St & US 17/US 211/Broadview Ave **Project ID:** 23-260020-001
**City:** Warrenton **Date:** 2/9/2023

## Data - Pedestrians (Crosswalks)

| NS/EW Streets: | US 17/Winchester St | | US 17/Winchester St | | US 17/US 211/Broadview Ave | | US 17/US 211/Broadview Ave | | |
|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTH LEG | | SOUTH LEG | | EAST LEG | | WEST LEG | | |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 3 |
| 8:30 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 8:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| **TOTAL VOLUMES :** | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 5 |
| **APPROACH %'s :** | 50.00% | 50.00% | | | | | 33.33% | 66.67% | |
| **PEAK HR :** | 07:15 AM - 08:15 AM | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **PEAK HR FACTOR :** | | | | | | | | | |

| PM | NORTH LEG | | SOUTH LEG | | EAST LEG | | WEST LEG | | |
|---|---|---|---|---|---|---|---|---|---|
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| 4:00 PM | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 4 |
| 4:15 PM | 1 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 5 |
| 4:30 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 4:45 PM | 2 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 6 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:00 PM | 2 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 5 |
| 6:15 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 PM | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| **TOTAL VOLUMES :** | 7 | 1 | 1 | 4 | 7 | 8 | 2 | 0 | 30 |
| **APPROACH %'s :** | 87.50% | 12.50% | 20.00% | 80.00% | 46.67% | 53.33% | 100.00% | 0.00% | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 4 | 1 | 0 | 3 | 2 | 4 | 2 | 0 | 16 |
| **PEAK HR FACTOR :** | 0.500 | 0.250 | | 0.375 | 0.500 | 0.500 | 0.250 | | 0.667 |
| | 0.625 | | 0.375 | | 0.500 | | 0.250 | | |

Prepared by National Data & Surveying Services

# US 17/Winchester St & US 17/US 211/Broadview Ave

## Peak Hour Turning Movement Count

**ID:** 23-260020-001
**City:** Warrenton

**Day:** Thursday
**Date:** 2/9/2023

| PEAK HOURS | COUNT PERIODS |
|---|---|
| 07:15 AM - 08:15 AM | 6:00 AM - 09:00 AM |
| NONE | NONE |
| 04:00 PM - 05:00 PM | 4:00 PM - 07:00 PM |

**CONTROL:** Signalized

| | AM | NOON | PM |
|---|---|---|---|
| TEV | 2568 | 0 | 3290 |
| PHF | 0.90 | | 0.96 |

### SOUTHBOUND (US 17/Winchester St)

| | L | T | R | U | Total | |
|---|---|---|---|---|---|---|
| AM | 245 | 83 | 115 | 0 | 538 | AM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| PM | 377 | 83 | 212 | 2 | 461 | PM |
| | 1 | 0.5 | 1.5 | 0 | | |

### EASTBOUND (US 17/US 211/Broadview Ave)

| | AM | NOON | PM | |
|---|---|---|---|---|
| L | 7 | 0 | 2 | 0 |
| T | 271 | 0 | 258 | 2 |
| R | 801 | 0 | 794 | 1.5 |
| U | 30 | 0 | 40 | 0.5 |
| Total | 903 | 0 | 1567 | |

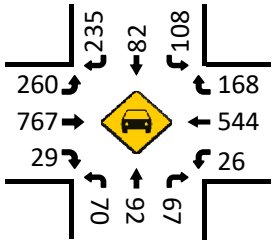
### WESTBOUND (US 17/US 211/Broadview Ave)

| | PM | NOON | AM | |
|---|---|---|---|---|
| L | 106 | 0 | 173 | 1 |
| T | 1074 | 0 | 575 | 2 |
| R | 56 | 0 | 26 | 1 |
| U | 10 | 0 | 3 | 0 |
| Total | 1083 | 0 | 988 | |

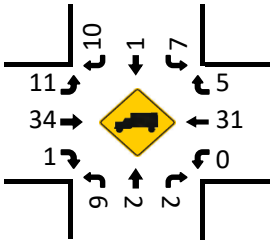
### NORTHBOUND (US 17/Winchester St)

| | L | T | R | U | Total | |
|---|---|---|---|---|---|---|
| PM | 179 | 0 | 114 | 95 | 67 | PM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| AM | 139 | 0 | 76 | 94 | 69 | AM |
| | 0 | 1 | 1 | 1 | | |

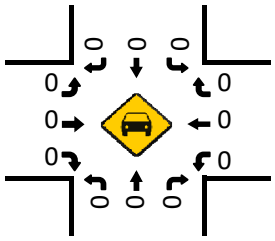
Cars (AM)



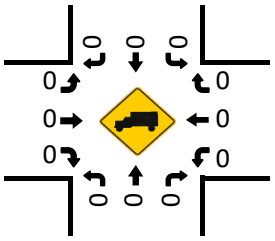

HT (AM)



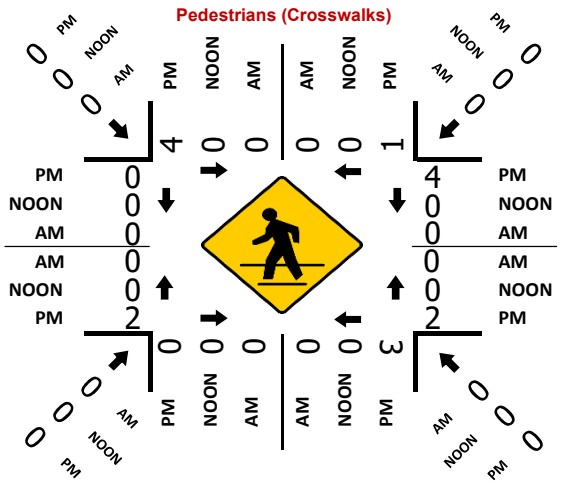

Cars (NOON)



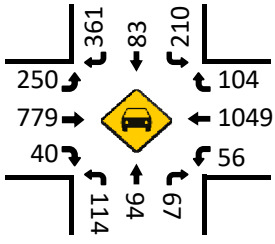

HT (NOON)



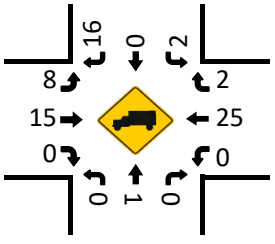

Pedestrians (Crosswalks)




Cars (PM)




HT (PM)



# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Warrenton Village Center Dwy (Chipotle)/Walgreens Dwy & US 17/US 211/Broadview Ave
**City:** Warrenton
**Control:** 1-Way Stop(SB)

**Project ID:** 23-260020-002
**Date:** 2/9/2023

## Data - Total

| NS/EW Streets: | Warrenton Village Center Dwy (Chipotle)/Walgreens Dwy | | | | Warrenton Village Center Dwy (Chipotle)/Walgreens Dwy | | | | US 17/US 211/Broadview Ave | | | | US 17/US 211/Broadview Ave | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 183 | 0 | 0 | 0 | 67 | 2 | 0 | 252 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 192 | 0 | 0 | 0 | 115 | 0 | 0 | 307 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 203 | 0 | 0 | 0 | 113 | 2 | 0 | 318 |
| 6:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 196 | 0 | 0 | 0 | 157 | 1 | 0 | 356 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 212 | 0 | 0 | 0 | 185 | 4 | 0 | 402 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 244 | 0 | 0 | 0 | 164 | 3 | 0 | 414 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 269 | 0 | 0 | 0 | 196 | 9 | 0 | 477 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 236 | 0 | 0 | 0 | 234 | 9 | 0 | 487 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 236 | 0 | 0 | 0 | 168 | 6 | 0 | 413 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 207 | 0 | 0 | 0 | 196 | 7 | 0 | 416 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 208 | 0 | 0 | 0 | 159 | 10 | 0 | 383 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 230 | 0 | 0 | 0 | 168 | 23 | 0 | 428 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 0 | 0 | 2616 | 0 | 0 | 0 | 1922 | 76 | 0 | 4653 |
| **APPROACH %'s :** | | | | | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | 0.00% | 96.20% | 3.80% | 0.00% | |
| **PEAK HR :** | 07:30 AM - 08:30 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 948 | 0 | 0 | 0 | 794 | 31 | 0 | 1793 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.625 | 0.000 | 0.000 | 0.881 | 0.000 | 0.000 | 0.000 | 0.848 | 0.861 | 0.000 | 0.920 |
| | | | | | | | 0.625 | | | 0.881 | | | | 0.849 | | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 0 | 0 | 291 | 0 | 0 | 0 | 320 | 25 | 0 | 653 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 0 | 227 | 0 | 0 | 0 | 284 | 25 | 0 | 555 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 0 | 0 | 295 | 0 | 0 | 0 | 286 | 18 | 0 | 616 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 271 | 0 | 0 | 0 | 274 | 34 | 0 | 605 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 236 | 0 | 0 | 0 | 295 | 35 | 0 | 586 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 245 | 0 | 0 | 0 | 302 | 24 | 0 | 597 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 223 | 0 | 0 | 0 | 244 | 16 | 0 | 499 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 239 | 0 | 0 | 0 | 277 | 38 | 0 | 574 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 0 | 0 | 190 | 0 | 0 | 0 | 250 | 38 | 0 | 507 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 212 | 0 | 0 | 0 | 248 | 42 | 0 | 527 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 185 | 0 | 0 | 0 | 203 | 22 | 0 | 434 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 0 | 0 | 158 | 0 | 0 | 0 | 219 | 22 | 0 | 420 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 0 | 0 | 260 | 0 | 0 | 2772 | 0 | 0 | 0 | 3202 | 339 | 0 | 6573 |
| **APPROACH %'s :** | | | | | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | 0.00% | 90.43% | 9.57% | 0.00% | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 79 | 0 | 0 | 1084 | 0 | 0 | 0 | 1164 | 102 | 0 | 2429 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.760 | 0.000 | 0.000 | 0.919 | 0.000 | 0.000 | 0.000 | 0.909 | 0.750 | 0.000 | 0.930 |
| | | | | | | | 0.760 | | | 0.919 | | | | 0.917 | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Warrenton Village Center Dwy (Chipotle)/Walgreens Dwy & US 17/US 211/Broadview Ave
**City:** Warrenton
**Control:** 1-Way Stop(SB)

**Project ID:** 23-260020-002
**Date:** 2/9/2023

## Data - Cars

| NS/EW Streets: | Warrenton Village Center Dwy (Chipotle)/Walgreens Dwy | | | | Warrenton Village Center Dwy (Chipotle)/Walgreens Dwy | | | | US 17/US 211/Broadview Ave | | | | US 17/US 211/Broadview Ave | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 176 | 0 | 0 | 0 | 67 | 2 | 0 | 245 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 188 | 0 | 0 | 0 | 110 | 0 | 0 | 298 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 194 | 0 | 0 | 0 | 110 | 2 | 0 | 306 |
| 6:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 193 | 0 | 0 | 0 | 144 | 1 | 0 | 340 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 205 | 0 | 0 | 0 | 178 | 4 | 0 | 388 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 229 | 0 | 0 | 0 | 156 | 3 | 0 | 390 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 258 | 0 | 0 | 0 | 188 | 9 | 0 | 458 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 224 | 0 | 0 | 0 | 225 | 9 | 0 | 466 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 231 | 0 | 0 | 0 | 156 | 6 | 0 | 396 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 196 | 0 | 0 | 0 | 172 | 7 | 0 | 381 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 204 | 0 | 0 | 0 | 137 | 10 | 0 | 357 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 221 | 0 | 0 | 0 | 151 | 23 | 0 | 402 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 0 | 0 | 2519 | 0 | 0 | 0 | 1794 | 76 | 0 | 4427 |
| **APPROACH %'s :** | | | | | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | 0.00% | 95.94% | 4.06% | 0.00% | |
| **PEAK HR :** | 07:30 AM - 08:30 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 909 | 0 | 0 | 0 | 741 | 31 | 0 | 1701 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.625 | 0.000 | 0.000 | 0.881 | 0.000 | 0.000 | 0.000 | 0.823 | 0.861 | 0.000 | 0.913 |
| | | | | | | | 0.625 | | | 0.881 | | | | 0.825 | | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 0 | 0 | 286 | 0 | 0 | 0 | 314 | 25 | 0 | 642 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 0 | 223 | 0 | 0 | 0 | 277 | 25 | 0 | 544 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 0 | 0 | 291 | 0 | 0 | 0 | 278 | 18 | 0 | 604 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 266 | 0 | 0 | 0 | 268 | 34 | 0 | 594 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 0 | 234 | 0 | 0 | 0 | 291 | 35 | 0 | 579 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 241 | 0 | 0 | 0 | 296 | 24 | 0 | 587 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 221 | 0 | 0 | 0 | 241 | 16 | 0 | 493 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 235 | 0 | 0 | 0 | 273 | 38 | 0 | 566 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 0 | 0 | 187 | 0 | 0 | 0 | 248 | 38 | 0 | 502 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 209 | 0 | 0 | 0 | 246 | 42 | 0 | 522 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 184 | 0 | 0 | 0 | 197 | 22 | 0 | 427 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 0 | 0 | 155 | 0 | 0 | 0 | 215 | 22 | 0 | 413 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 0 | 0 | 258 | 0 | 0 | 2732 | 0 | 0 | 0 | 3144 | 339 | 0 | 6473 |
| **APPROACH %'s :** | | | | | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | 0.00% | 90.27% | 9.73% | 0.00% | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 79 | 0 | 0 | 1066 | 0 | 0 | 0 | 1137 | 102 | 0 | 2384 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.760 | 0.000 | 0.000 | 0.916 | 0.000 | 0.000 | 0.000 | 0.905 | 0.750 | 0.000 | 0.928 |
| | | | | | | | 0.760 | | | 0.916 | | | | 0.914 | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Warrenton Village Center Dwy (Chipotle)/Walgreens Dwy & US 17/US 211/Broadview Ave
**City:** Warrenton
**Control:** 1-Way Stop(SB)

**Project ID:** 23-260020-002
**Date:** 2/9/2023

## Data - HT

| NS/EW Streets: | Warrenton Village Center Dwy (Chipotle)/Walgreens Dwy | | | | Warrenton Village Center Dwy (Chipotle)/Walgreens Dwy | | | | US 17/US 211/Broadview Ave | | | | US 17/US 211/Broadview Ave | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 5 | 0 | 0 | 9 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 3 | 0 | 0 | 12 |
| 6:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 13 | 0 | 0 | 16 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 7 | 0 | 0 | 14 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 15 | 0 | 0 | 0 | 8 | 0 | 0 | 24 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 8 | 0 | 0 | 19 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 9 | 0 | 0 | 21 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 12 | 0 | 0 | 17 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 24 | 0 | 0 | 35 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 22 | 0 | 0 | 26 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 17 | 0 | 0 | 26 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 97 | 0 | 0 | 0 | 128 | 0 | 0 | 226 |
| **APPROACH %'s :** | | | | | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | |
| **PEAK HR :** | 07:30 AM - 08:30 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 0 | 0 | 0 | 53 | 0 | 0 | 92 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.813 | 0.000 | 0.000 | 0.000 | 0.552 | 0.000 | 0.000 | 0.657 |
| | | | | | | | | | | 0.813 | | | | 0.552 | | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 6 | 0 | 0 | 11 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 7 | 0 | 0 | 11 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 8 | 0 | 0 | 12 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 6 | 0 | 0 | 11 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 0 | 7 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 6 | 0 | 0 | 10 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 3 | 0 | 0 | 6 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 4 | 0 | 0 | 8 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 0 | 0 | 5 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 0 | 0 | 5 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 6 | 0 | 0 | 7 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 4 | 0 | 0 | 7 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 40 | 0 | 0 | 0 | 58 | 0 | 0 | 100 |
| **APPROACH %'s :** | | | | | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 27 | 0 | 0 | 45 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.900 | 0.000 | 0.000 | 0.000 | 0.844 | 0.000 | 0.000 | 0.938 |
| | | | | | | | | | | 0.900 | | | | 0.844 | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Warrenton Village Center Dwy (Chipotle)/Walgreens Dwy & US 17/US 211/Broadview Ave
**City:** Warrenton
**Control:** 1-Way Stop(SB)

**Project ID:** 23-260020-002
**Date:** 2/9/2023

## Data - Bikes

| NS/EW Streets: | Warrenton Village Center Dwy (Chipotle)/Walgreens Dwy | | | | Warrenton Village Center Dwy (Chipotle)/Walgreens Dwy | | | | US 17/US 211/Broadview Ave | | | | US 17/US 211/Broadview Ave | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **APPROACH %'s :** | | | | | | | | | | | | | | | | | |
| **PEAK HR :** | 07:30 AM - 08:30 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| **APPROACH %'s :** | | | | | | | | | 0.00% | 100.00% | 0.00% | 0.00% | | | | | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Warrenton Village Center Dwy (Chipotle)/Walgreens Dwy & US 17/L **Project ID:** 23-260020-002
**City:** Warrenton **Date:** 2/9/2023

## Data - Pedestrians (Crosswalks)

| NS/EW Streets: | Warrenton Village Center Dwy (Chipotle)/Walgreens | | Warrenton Village Center Dwy (Chipotle)/Walgreens | | US 17/US 211/Broadview Ave | | US 17/US 211/Broadview Ave | | |
|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTH LEG | | SOUTH LEG | | EAST LEG | | WEST LEG | | |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:30 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| **TOTAL VOLUMES :** | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| **APPROACH %'s :** | 100.00% | 0.00% | | | | | | | |
| **PEAK HR :** | 07:30 AM - 08:30 AM | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **PEAK HR FACTOR :** | | | | | | | | | |

| **PM** | NORTH LEG | | SOUTH LEG | | EAST LEG | | WEST LEG | | |
|---|---|---|---|---|---|---|---|---|---|
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 4:30 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 4:45 PM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 5:00 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| **TOTAL VOLUMES :** | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| **APPROACH %'s :** | 57.14% | 42.86% | | | | | | | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| **PEAK HR FACTOR :** | 0.375 | 0.250 | | | | | | | 0.500 |
| | 0.500 | | | | | | | | |

Prepared by National Data & Surveying Services

Warrenton Village Center Dwy (Chipotle)/Walgreens Dwy & US 17/US 211/Broadview Ave

# Peak Hour Turning Movement Count

**ID:** 23-260020-002
**City:** Warrenton

**Day:** Thursday
**Date:** 2/9/2023

| PEAK HOURS | COUNT PERIODS |
|---|---|
| 07:30 AM - 08:30 AM | 6:00 AM - 09:00 AM |
| NONE | NONE |
| 04:00 PM - 05:00 PM | 4:00 PM - 07:00 PM |

## SOUTHBOUND — Warrenton Village Center Dwy (Chipotle)/Walgreens Dwy

| | | | | | | |
|---|---|---|---|---|---|---|
| AM | 20 | 0 | 0 | 0 | 31 | AM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| PM | 79 | 0 | 0 | 0 | 102 | PM |

0 1 0 0

## EASTBOUND — US 17/US 211/Broadview Ave

| AM | NOON | PM | |
|---|---|---|---|
| 814 | 0 | 1243 | |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 948 | 0 | 1084 | 3 |
| 0 | 0 | 0 | 0 |

## WESTBOUND — US 17/US 211/Broadview Ave

| PM | NOON | AM | |
|---|---|---|---|
| 102 | 0 | 31 | 1 |
| 1164 | 0 | 794 | 2 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 1084 | 0 | 948 | |

## CONTROL

1-Way Stop(SB)

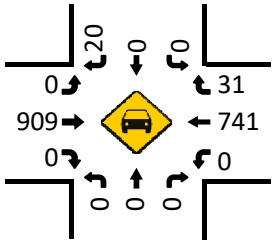
| | AM | NOON | PM |
|---|---|---|---|
| TEV | 1793 | 0 | 2429 |
| PHF | 0.92 | | 0.93 |

0 0 0 0

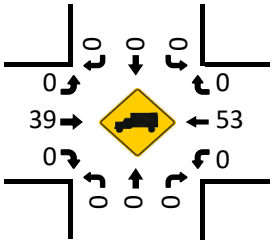
## NORTHBOUND — Warrenton Village Center Dwy (Chipotle)/Walgreens Dwy

| | | | | | | |
|---|---|---|---|---|---|---|
| PM | 0 | 0 | 0 | 0 | 0 | PM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| AM | 0 | 0 | 0 | 0 | 0 | AM |

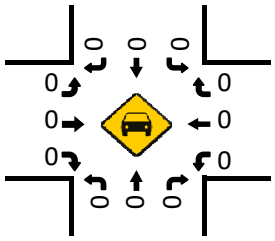
### Cars (AM)



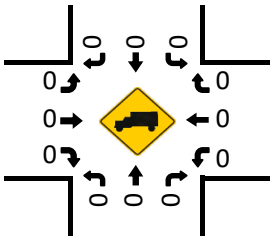

### HT (AM)



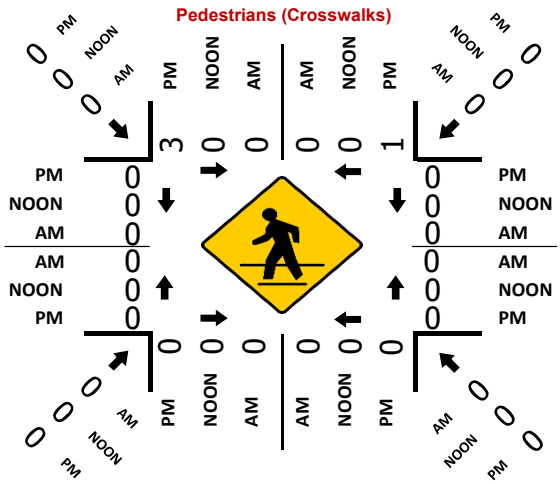

### Cars (NOON)




### HT (NOON)




### Pedestrians (Crosswalks)


PM
NOON
AM
0
0
0
3
0
0
1
0
0
0
0
0
0
0
0
0
0
0
0

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Branch Dr & US 211/Lee Hwy/Broadview Ave
**City:** Warrenton
**Control:** Signalized

**Project ID:** 23-260020-003
**Date:** 2/9/2023

## Data - Total

| NS/EW Streets: | Branch Dr | | | | Branch Dr | | | | US 211/Lee Hwy/Broadview Ave | | | | US 211/Lee Hwy/Broadview Ave | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 0.5 | 0.5 | 1 | 0 | 0.5 | 0.5 | 1 | 0 | 1 | 2 | 1 | 0 | 1 | 2 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 1 | 0 | 4 | 0 | 3 | 1 | 1 | 0 | 0 | 180 | 0 | 0 | 3 | 69 | 3 | 0 | 265 |
| 6:15 AM | 0 | 0 | 4 | 0 | 2 | 1 | 7 | 0 | 4 | 180 | 0 | 0 | 6 | 106 | 3 | 0 | 313 |
| 6:30 AM | 0 | 0 | 8 | 0 | 1 | 1 | 4 | 0 | 4 | 190 | 0 | 0 | 11 | 114 | 3 | 0 | 336 |
| 6:45 AM | 1 | 1 | 7 | 0 | 2 | 0 | 8 | 0 | 9 | 176 | 0 | 0 | 7 | 152 | 9 | 0 | 372 |
| 7:00 AM | 3 | 0 | 6 | 0 | 1 | 1 | 12 | 0 | 5 | 213 | 1 | 1 | 11 | 167 | 4 | 0 | 425 |
| 7:15 AM | 2 | 0 | 8 | 0 | 5 | 5 | 7 | 0 | 8 | 225 | 0 | 2 | 10 | 158 | 6 | 0 | 436 |
| 7:30 AM | 4 | 4 | 14 | 0 | 3 | 1 | 9 | 0 | 6 | 245 | 0 | 2 | 10 | 192 | 15 | 0 | 505 |
| 7:45 AM | 2 | 5 | 10 | 0 | 11 | 3 | 11 | 0 | 9 | 220 | 0 | 3 | 11 | 223 | 18 | 0 | 526 |
| 8:00 AM | 1 | 2 | 8 | 0 | 10 | 2 | 4 | 0 | 7 | 215 | 0 | 1 | 11 | 172 | 12 | 0 | 445 |
| 8:15 AM | 3 | 0 | 6 | 0 | 10 | 2 | 26 | 0 | 7 | 195 | 1 | 1 | 12 | 169 | 6 | 0 | 438 |
| 8:30 AM | 4 | 3 | 9 | 0 | 12 | 5 | 9 | 0 | 10 | 187 | 0 | 2 | 17 | 156 | 5 | 2 | 421 |
| 8:45 AM | 0 | 3 | 11 | 0 | 11 | 2 | 11 | 0 | 11 | 214 | 2 | 3 | 17 | 176 | 14 | 0 | 475 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 21 | 18 | 95 | 0 | 71 | 24 | 109 | 0 | 80 | 2440 | 4 | 15 | 126 | 1854 | 98 | 2 | 4957 |
| **APPROACH %'s :** | 15.67% | 13.43% | 70.90% | 0.00% | 34.80% | 11.76% | 53.43% | 0.00% | 3.15% | 96.10% | 0.16% | 0.59% | 6.06% | 89.13% | 4.71% | 0.10% | |
| **PEAK HR :** | 07:30 AM - 08:30 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 10 | 11 | 38 | 0 | 34 | 8 | 50 | 0 | 29 | 875 | 1 | 7 | 44 | 756 | 51 | 0 | 1914 |
| **PEAK HR FACTOR :** | 0.625 | 0.550 | 0.679 | 0.000 | 0.773 | 0.667 | 0.481 | 0.000 | 0.806 | 0.893 | 0.250 | 0.583 | 0.917 | 0.848 | 0.708 | 0.000 | 0.910 |
| | 0.670 | | | | 0.605 | | | | 0.901 | | | | 0.844 | | | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.5 | 0.5 | 1 | 0 | 0.5 | 0.5 | 1 | 0 | 1 | 2 | 1 | 0 | 1 | 2 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 7 | 4 | 15 | 0 | 40 | 4 | 39 | 0 | 23 | 252 | 1 | 1 | 17 | 275 | 26 | 1 | 705 |
| 4:15 PM | 3 | 4 | 18 | 0 | 39 | 4 | 36 | 0 | 34 | 208 | 1 | 3 | 14 | 272 | 23 | 0 | 659 |
| 4:30 PM | 5 | 7 | 20 | 0 | 34 | 6 | 24 | 0 | 35 | 218 | 0 | 1 | 15 | 269 | 10 | 0 | 644 |
| 4:45 PM | 2 | 2 | 22 | 0 | 26 | 4 | 42 | 0 | 39 | 224 | 0 | 4 | 18 | 277 | 25 | 0 | 685 |
| 5:00 PM | 2 | 3 | 16 | 0 | 30 | 7 | 31 | 0 | 28 | 205 | 1 | 4 | 19 | 298 | 22 | 2 | 668 |
| 5:15 PM | 4 | 8 | 16 | 0 | 26 | 6 | 31 | 0 | 29 | 203 | 0 | 3 | 14 | 266 | 15 | 2 | 623 |
| 5:30 PM | 3 | 4 | 13 | 0 | 30 | 1 | 20 | 0 | 18 | 187 | 0 | 3 | 13 | 241 | 19 | 0 | 552 |
| 5:45 PM | 5 | 2 | 17 | 0 | 31 | 2 | 21 | 0 | 25 | 210 | 0 | 3 | 22 | 279 | 19 | 0 | 636 |
| 6:00 PM | 6 | 2 | 12 | 0 | 44 | 5 | 28 | 0 | 29 | 160 | 1 | 1 | 16 | 262 | 15 | 0 | 581 |
| 6:15 PM | 3 | 5 | 17 | 0 | 30 | 4 | 25 | 0 | 19 | 160 | 0 | 6 | 13 | 247 | 17 | 1 | 547 |
| 6:30 PM | 4 | 4 | 16 | 0 | 32 | 4 | 21 | 0 | 13 | 162 | 0 | 0 | 22 | 202 | 19 | 5 | 504 |
| 6:45 PM | 1 | 1 | 9 | 0 | 27 | 9 | 20 | 0 | 17 | 149 | 0 | 4 | 10 | 214 | 11 | 0 | 472 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 45 | 46 | 191 | 0 | 389 | 56 | 338 | 0 | 309 | 2338 | 4 | 33 | 193 | 3102 | 221 | 11 | 7276 |
| **APPROACH %'s :** | 15.96% | 16.31% | 67.73% | 0.00% | 49.68% | 7.15% | 43.17% | 0.00% | 11.51% | 87.11% | 0.15% | 1.23% | 5.47% | 87.95% | 6.27% | 0.31% | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 17 | 17 | 75 | 0 | 139 | 18 | 141 | 0 | 131 | 902 | 2 | 9 | 64 | 1093 | 84 | 1 | 2693 |
| **PEAK HR FACTOR :** | 0.607 | 0.607 | 0.852 | 0.000 | 0.869 | 0.750 | 0.839 | 0.000 | 0.840 | 0.895 | 0.500 | 0.563 | 0.889 | 0.986 | 0.808 | 0.250 | 0.955 |
| | 0.852 | | | | 0.898 | | | | 0.942 | | | | 0.970 | | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Branch Dr & US 211/Lee Hwy/Broadview Ave
**City:** Warrenton
**Control:** Signalized

**Project ID:** 23-260020-003
**Date:** 2/9/2023

## Data - Cars

| NS/EW Streets: | Branch Dr | | | | Branch Dr | | | | US 211/Lee Hwy/Broadview Ave | | | | US 211/Lee Hwy/Broadview Ave | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 0.5 | 0.5 | 1 | 0 | 0.5 | 0.5 | 1 | 0 | 1 | 2 | 1 | 0 | 1 | 2 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 1 | 0 | 4 | 0 | 3 | 1 | 1 | 0 | 0 | 174 | 0 | 0 | 3 | 69 | 3 | 0 | 259 |
| 6:15 AM | 0 | 0 | 4 | 0 | 2 | 1 | 6 | 0 | 3 | 176 | 0 | 0 | 6 | 102 | 3 | 0 | 303 |
| 6:30 AM | 0 | 0 | 8 | 0 | 1 | 1 | 4 | 0 | 3 | 183 | 0 | 0 | 11 | 111 | 3 | 0 | 325 |
| 6:45 AM | 1 | 1 | 6 | 0 | 1 | 0 | 5 | 0 | 9 | 173 | 0 | 0 | 6 | 142 | 9 | 0 | 353 |
| 7:00 AM | 3 | 0 | 6 | 0 | 1 | 1 | 11 | 0 | 5 | 206 | 1 | 1 | 11 | 161 | 4 | 0 | 411 |
| 7:15 AM | 2 | 0 | 8 | 0 | 4 | 5 | 7 | 0 | 8 | 210 | 0 | 2 | 10 | 150 | 6 | 0 | 412 |
| 7:30 AM | 4 | 4 | 14 | 0 | 3 | 1 | 9 | 0 | 6 | 235 | 0 | 2 | 10 | 184 | 15 | 0 | 487 |
| 7:45 AM | 2 | 5 | 10 | 0 | 11 | 3 | 11 | 0 | 9 | 208 | 0 | 3 | 11 | 214 | 18 | 0 | 505 |
| 8:00 AM | 1 | 2 | 8 | 0 | 9 | 2 | 3 | 0 | 7 | 211 | 0 | 1 | 11 | 161 | 12 | 0 | 428 |
| 8:15 AM | 3 | 0 | 6 | 0 | 10 | 2 | 18 | 0 | 7 | 184 | 1 | 0 | 11 | 154 | 6 | 0 | 402 |
| 8:30 AM | 4 | 3 | 9 | 0 | 11 | 5 | 8 | 0 | 10 | 183 | 0 | 2 | 15 | 135 | 5 | 2 | 392 |
| 8:45 AM | 0 | 2 | 11 | 0 | 10 | 2 | 10 | 0 | 11 | 206 | 2 | 3 | 17 | 159 | 14 | 0 | 447 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 21 | 17 | 94 | 0 | 66 | 24 | 93 | 0 | 78 | 2349 | 4 | 14 | 122 | 1742 | 98 | 2 | 4724 |
| **APPROACH %'s :** | 15.91% | 12.88% | 71.21% | 0.00% | 36.07% | 13.11% | 50.82% | 0.00% | 3.19% | 96.07% | 0.16% | 0.57% | 6.21% | 88.70% | 4.99% | 0.10% | |
| **PEAK HR :** | 07:30 AM - 08:30 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 10 | 11 | 38 | 0 | 33 | 8 | 41 | 0 | 29 | 838 | 1 | 6 | 43 | 713 | 51 | 0 | 1822 |
| **PEAK HR FACTOR :** | 0.625 | 0.550 | 0.679 | 0.000 | 0.750 | 0.667 | 0.569 | 0.000 | 0.806 | 0.891 | 0.250 | 0.500 | 0.977 | 0.833 | 0.708 | 0.000 | 0.902 |
| | 0.670 | | | | 0.683 | | | | 0.899 | | | | 0.830 | | | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.5 | 0.5 | 1 | 0 | 0.5 | 0.5 | 1 | 0 | 1 | 2 | 1 | 0 | 1 | 2 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 7 | 4 | 15 | 0 | 40 | 4 | 39 | 0 | 23 | 247 | 1 | 1 | 17 | 269 | 25 | 1 | 693 |
| 4:15 PM | 3 | 4 | 18 | 0 | 39 | 4 | 35 | 0 | 34 | 206 | 1 | 3 | 14 | 265 | 23 | 0 | 649 |
| 4:30 PM | 5 | 7 | 20 | 0 | 33 | 6 | 24 | 0 | 35 | 213 | 0 | 1 | 15 | 262 | 10 | 0 | 631 |
| 4:45 PM | 2 | 2 | 22 | 0 | 26 | 4 | 42 | 0 | 39 | 218 | 0 | 4 | 18 | 271 | 25 | 0 | 673 |
| 5:00 PM | 2 | 3 | 15 | 0 | 30 | 7 | 30 | 0 | 28 | 203 | 1 | 4 | 19 | 295 | 21 | 2 | 660 |
| 5:15 PM | 4 | 8 | 16 | 0 | 26 | 6 | 29 | 0 | 29 | 199 | 0 | 3 | 14 | 262 | 14 | 2 | 612 |
| 5:30 PM | 3 | 4 | 13 | 0 | 29 | 1 | 20 | 0 | 18 | 185 | 0 | 3 | 13 | 237 | 19 | 0 | 545 |
| 5:45 PM | 5 | 2 | 17 | 0 | 31 | 2 | 21 | 0 | 25 | 206 | 0 | 3 | 22 | 276 | 19 | 0 | 629 |
| 6:00 PM | 6 | 2 | 12 | 0 | 44 | 5 | 27 | 0 | 29 | 158 | 1 | 1 | 16 | 261 | 15 | 0 | 577 |
| 6:15 PM | 3 | 5 | 17 | 0 | 30 | 4 | 25 | 0 | 19 | 156 | 0 | 6 | 13 | 245 | 17 | 1 | 541 |
| 6:30 PM | 4 | 4 | 16 | 0 | 32 | 4 | 21 | 0 | 13 | 161 | 0 | 0 | 22 | 196 | 19 | 5 | 497 |
| 6:45 PM | 1 | 1 | 9 | 0 | 27 | 9 | 19 | 0 | 17 | 146 | 0 | 4 | 10 | 211 | 11 | 0 | 465 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 45 | 46 | 190 | 0 | 387 | 56 | 332 | 0 | 309 | 2298 | 4 | 33 | 193 | 3050 | 218 | 11 | 7172 |
| **APPROACH %'s :** | 16.01% | 16.37% | 67.62% | 0.00% | 49.94% | 7.23% | 42.84% | 0.00% | 11.69% | 86.91% | 0.15% | 1.25% | 5.56% | 87.85% | 6.28% | 0.32% | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 17 | 17 | 75 | 0 | 138 | 18 | 140 | 0 | 131 | 884 | 2 | 9 | 64 | 1067 | 83 | 1 | 2646 |
| **PEAK HR FACTOR :** | 0.607 | 0.607 | 0.852 | 0.000 | 0.863 | 0.750 | 0.833 | 0.000 | 0.840 | 0.895 | 0.500 | 0.563 | 0.889 | 0.984 | 0.830 | 0.250 | 0.955 |
| | 0.852 | | | | 0.892 | | | | 0.943 | | | | 0.967 | | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Branch Dr & US 211/Lee Hwy/Broadview Ave
**City:** Warrenton
**Control:** Signalized

**Project ID:** 23-260020-003
**Date:** 2/9/2023

## Data - HT

| NS/EW Streets: | Branch Dr | | | | Branch Dr | | | | US 211/Lee Hwy/Broadview Ave | | | | US 211/Lee Hwy/Broadview Ave | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 0.5 | 0.5 | 1 | 0 | 0.5 | 0.5 | 1 | 0 | 1 | 2 | 1 | 0 | 1 | 2 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 4 | 0 | 0 | 0 | 4 | 0 | 0 | 10 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 7 | 0 | 0 | 0 | 3 | 0 | 0 | 11 |
| 6:45 AM | 0 | 0 | 1 | 0 | 1 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 1 | 10 | 0 | 0 | 19 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 7 | 0 | 0 | 0 | 6 | 0 | 0 | 14 |
| 7:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 8 | 0 | 0 | 24 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 8 | 0 | 0 | 18 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 9 | 0 | 0 | 21 |
| 8:00 AM | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 0 | 11 | 0 | 0 | 17 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 11 | 0 | 1 | 1 | 15 | 0 | 0 | 36 |
| 8:30 AM | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 2 | 21 | 0 | 0 | 29 |
| 8:45 AM | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 8 | 0 | 0 | 0 | 17 | 0 | 0 | 28 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 1 | 1 | 0 | 5 | 0 | 16 | 0 | 2 | 91 | 0 | 1 | 4 | 112 | 0 | 0 | 233 |
| **APPROACH %'s :** | 0.00% | 50.00% | 50.00% | 0.00% | 23.81% | 0.00% | 76.19% | 0.00% | 2.13% | 96.81% | 0.00% | 1.06% | 3.45% | 96.55% | 0.00% | 0.00% | |
| **PEAK HR :** | 07:30 AM - 08:30 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 1 | 0 | 9 | 0 | 0 | 37 | 0 | 1 | 1 | 43 | 0 | 0 | 92 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.250 | 0.000 | 0.281 | 0.000 | 0.000 | 0.771 | 0.000 | 0.250 | 0.250 | 0.717 | 0.000 | 0.000 | 0.639 |
| | | | | | | | 0.313 | | | | 0.792 | | | | 0.688 | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.5 | 0.5 | 1 | 0 | 0.5 | 0.5 | 1 | 0 | 1 | 2 | 1 | 0 | 1 | 2 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 6 | 1 | 0 | 12 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 7 | 0 | 0 | 10 |
| 4:30 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 7 | 0 | 0 | 13 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 6 | 0 | 0 | 12 |
| 5:00 PM | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 3 | 1 | 0 | 8 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 4 | 0 | 0 | 0 | 4 | 1 | 0 | 11 |
| 5:30 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 0 | 7 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 3 | 0 | 0 | 7 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 4 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 2 | 0 | 0 | 6 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 6 | 0 | 0 | 7 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 7 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 1 | 0 | 2 | 0 | 6 | 0 | 0 | 40 | 0 | 0 | 0 | 52 | 3 | 0 | 104 |
| **APPROACH %'s :** | 0.00% | 0.00% | 100.00% | 0.00% | 25.00% | 0.00% | 75.00% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | 0.00% | 94.55% | 5.45% | 0.00% | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 18 | 0 | 0 | 0 | 26 | 1 | 0 | 47 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.250 | 0.000 | 0.250 | 0.000 | 0.000 | 0.750 | 0.000 | 0.000 | 0.000 | 0.929 | 0.250 | 0.000 | 0.904 |
| | | | | | | | 0.500 | | | | 0.750 | | | | 0.964 | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Branch Dr & US 211/Lee Hwy/Broadview Ave
**City:** Warrenton
**Control:** Signalized

**Project ID:** 23-260020-003
**Date:** 2/9/2023

## Data - Bikes

| NS/EW Streets: | Branch Dr | | | | Branch Dr | | | | US 211/Lee Hwy/Broadview Ave | | | | US 211/Lee Hwy/Broadview Ave | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 0.5 | 0.5 | 1 | 0 | 0.5 | 0.5 | 1 | 0 | 1 | 2 | 1 | 0 | 1 | 2 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **APPROACH %'s :** | | | | | | | | | | | | | | | | | |
| **PEAK HR :** | 07:30 AM - 08:30 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.5 | 0.5 | 1 | 0 | 0.5 | 0.5 | 1 | 0 | 1 | 2 | 1 | 0 | 1 | 2 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 3 |
| **APPROACH %'s :** | | | | | | | | | 0.00% | 100.00% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | 0.00% | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.500 | 0.000 | 0.000 | 0.000 | 0.500 |
| | | | | | | | | | | | | | | 0.500 | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Branch Dr & US 211/Lee Hwy/Broadview Ave **Project ID:** 23-260020-003
**City:** Warrenton **Date:** 2/9/2023

## Data - Pedestrians (Crosswalks)

| NS/EW Streets: | Branch Dr | | Branch Dr | | US 211/Lee Hwy/Broadview Ave | | US 211/Lee Hwy/Broadview Ave | | |
|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTH LEG | | SOUTH LEG | | EAST LEG | | WEST LEG | | |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 AM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:30 AM | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| **TOTAL VOLUMES :** | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| **APPROACH %'s :** | 75.00% | 25.00% | | | | | | | |
| **PEAK HR :** | 07:30 AM - 08:30 AM | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **PEAK HR FACTOR :** | | | | | | | | | |

| **PM** | NORTH LEG | | SOUTH LEG | | EAST LEG | | WEST LEG | | |
|---|---|---|---|---|---|---|---|---|---|
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| 4:00 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:30 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 4:45 PM | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| 5:00 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| **TOTAL VOLUMES :** | 2 | 2 | 1 | 2 | 0 | 1 | 0 | 0 | 8 |
| **APPROACH %'s :** | 50.00% | 50.00% | 33.33% | 66.67% | 0.00% | 100.00% | | | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 4 |
| **PEAK HR FACTOR :** | 0.500 | | | 0.250 | | | | | 0.500 |
| | 0.500 | | 0.250 | | | | | | |

Prepared by National Data & Surveying Services

# Branch Dr & US 211/Lee Hwy/Broadview Ave

## Peak Hour Turning Movement Count

**ID:** 23-260020-003
**City:** Warrenton

**Day:** Thursday
**Date:** 2/9/2023

| PEAK HOURS | COUNT PERIODS |
|---|---|
| 07:30 AM - 08:30 AM | 6:00 AM - 09:00 AM |
| NONE | NONE |
| 04:00 PM - 05:00 PM | 4:00 PM - 07:00 PM |

### SOUTHBOUND (Branch Dr)

| | | | | | | |
|---|---|---|---|---|---|---|
| AM | 50 | 8 | 34 | 0 | 91 | AM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| PM | 141 | 18 | 139 | 0 | 232 | PM |
| | 1 | 0.5 | 0.5 | 0 | | |

### EASTBOUND (US 211/Lee Hwy/Broadview Ave)

| AM | NOON | PM | |
|---|---|---|---|
| 823 | 0 | 1260 | |
| 7 | 0 | 9 | 0 |
| 29 | 0 | 131 | 1 |
| 875 | 0 | 902 | 2 |
| 1 | 0 | 2 | 1 |

### WESTBOUND (US 211/Lee Hwy/Broadview Ave)

| PM | NOON | AM | |
|---|---|---|---|
| 84 | 0 | 51 | 1 |
| 1093 | 0 | 756 | 2 |
| 64 | 0 | 44 | 1 |
| 1 | 0 | 0 | 0 |
| 1117 | 0 | 947 | |

### NORTHBOUND (Branch Dr)

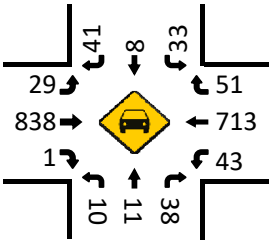
| | | | | | | |
|---|---|---|---|---|---|---|
| PM | 84 | 0 | 17 | 17 | 75 | PM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| AM | 53 | 0 | 10 | 11 | 38 | AM |
| | 0 | 0.5 | 0.5 | 1 | | |

### CONTROL

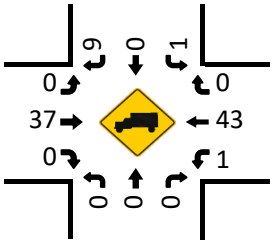
Signalized

| | | | |
|---|---|---|---|
| TEV | 1914 AM | 0 NOON | 2693 PM |
| PHF | 0.91 | | 0.95 |

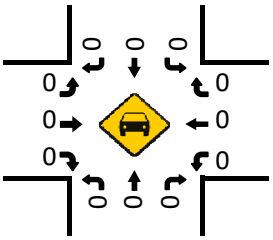
### Cars (AM)



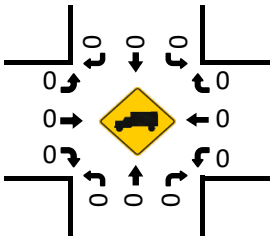

### HT (AM)



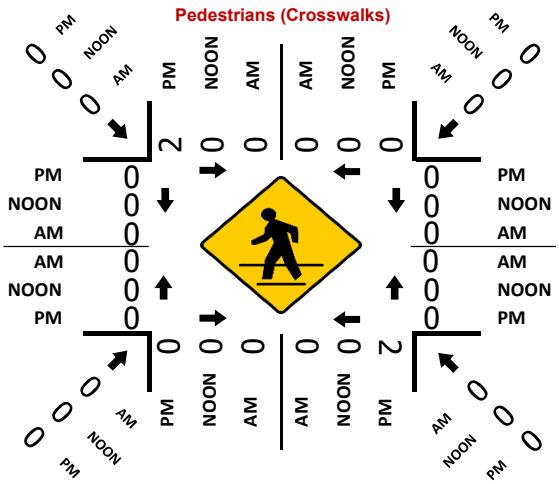

### Cars (NOON)




### HT (NOON)




### Pedestrians (Crosswalks)


PM
NOON
AM
0
2
0
0
0
0
0
0
0
0
0
0
0

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Branch Dr & Warrenton Village Center Dwy/Shopping Center Dwy
**City:** Warrenton
**Control:** 2-Way Stop(EB/WB)

**Project ID:** 23-260020-004
**Date:** 2/9/2023

## Data - Total

| NS/EW Streets: | Branch Dr | | | | Branch Dr | | | | Warrenton Village Center Dwy/Shopping Center Dwy | | | | Warrenton Village Center Dwy/Shopping Center Dwy | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 2 | 2 | 0 | 0 | 2 | 5 | 0 | 0 | 0 | 4 | 2 | 0 | 1 | 0 | 0 | 0 | 18 |
| 6:15 AM | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 2 | 0 | 0 | 12 |
| 6:30 AM | 1 | 3 | 1 | 0 | 1 | 4 | 0 | 0 | 0 | 3 | 2 | 0 | 3 | 1 | 0 | 0 | 19 |
| 6:45 AM | 7 | 2 | 0 | 0 | 3 | 8 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 2 | 0 | 0 | 25 |
| 7:00 AM | 3 | 6 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 4 | 5 | 0 | 3 | 6 | 1 | 0 | 37 |
| 7:15 AM | 3 | 6 | 1 | 0 | 5 | 8 | 2 | 0 | 1 | 5 | 5 | 0 | 3 | 3 | 5 | 0 | 47 |
| 7:30 AM | 10 | 16 | 0 | 0 | 2 | 10 | 1 | 0 | 0 | 5 | 5 | 0 | 1 | 3 | 5 | 0 | 58 |
| 7:45 AM | 5 | 26 | 3 | 0 | 5 | 21 | 1 | 0 | 4 | 3 | 9 | 0 | 3 | 2 | 3 | 0 | 85 |
| 8:00 AM | 6 | 14 | 3 | 0 | 6 | 16 | 0 | 0 | 1 | 4 | 10 | 0 | 2 | 4 | 2 | 0 | 68 |
| 8:15 AM | 2 | 9 | 1 | 0 | 5 | 20 | 3 | 0 | 1 | 3 | 14 | 0 | 8 | 2 | 4 | 0 | 72 |
| 8:30 AM | 9 | 5 | 0 | 0 | 3 | 17 | 5 | 0 | 3 | 2 | 5 | 0 | 1 | 4 | 3 | 0 | 57 |
| 8:45 AM | 8 | 9 | 1 | 0 | 2 | 14 | 4 | 0 | 1 | 6 | 7 | 0 | 3 | 2 | 0 | 0 | 57 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 56 | 99 | 11 | 0 | 35 | 134 | 16 | 0 | 11 | 41 | 64 | 0 | 34 | 31 | 23 | 0 | 555 |
| **APPROACH %'s :** | 33.73% | 59.64% | 6.63% | 0.00% | 18.92% | 72.43% | 8.65% | 0.00% | 9.48% | 35.34% | 55.17% | 0.00% | 38.64% | 35.23% | 26.14% | 0.00% | |
| **PEAK HR :** | 07:30 AM - 08:30 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 23 | 65 | 7 | 0 | 18 | 67 | 5 | 0 | 6 | 15 | 38 | 0 | 14 | 11 | 14 | 0 | 283 |
| **PEAK HR FACTOR :** | 0.575 | 0.625 | 0.583 | 0.000 | 0.750 | 0.798 | 0.417 | 0.000 | 0.375 | 0.750 | 0.679 | 0.000 | 0.438 | 0.688 | 0.700 | 0.000 | 0.832 |
| | 0.699 | | | | 0.804 | | | | 0.819 | | | | 0.696 | | | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 32 | 10 | 0 | 0 | 11 | 13 | 8 | 0 | 3 | 22 | 29 | 0 | 14 | 12 | 6 | 0 | 160 |
| 4:15 PM | 19 | 6 | 3 | 0 | 10 | 11 | 8 | 0 | 6 | 22 | 28 | 0 | 10 | 12 | 14 | 0 | 149 |
| 4:30 PM | 15 | 16 | 5 | 0 | 13 | 9 | 10 | 0 | 2 | 20 | 33 | 0 | 7 | 10 | 12 | 0 | 152 |
| 4:45 PM | 28 | 11 | 4 | 0 | 14 | 6 | 6 | 0 | 6 | 13 | 26 | 0 | 14 | 16 | 9 | 0 | 153 |
| 5:00 PM | 28 | 9 | 1 | 0 | 12 | 13 | 10 | 0 | 3 | 12 | 35 | 0 | 7 | 12 | 12 | 0 | 154 |
| 5:15 PM | 25 | 7 | 3 | 0 | 12 | 9 | 9 | 0 | 6 | 12 | 30 | 0 | 11 | 9 | 12 | 0 | 145 |
| 5:30 PM | 27 | 15 | 4 | 0 | 6 | 0 | 10 | 0 | 11 | 26 | 32 | 0 | 6 | 14 | 10 | 0 | 161 |
| 5:45 PM | 28 | 6 | 2 | 0 | 9 | 6 | 8 | 0 | 5 | 22 | 32 | 0 | 12 | 21 | 7 | 0 | 158 |
| 6:00 PM | 29 | 9 | 1 | 0 | 5 | 6 | 9 | 0 | 8 | 22 | 48 | 0 | 10 | 17 | 13 | 0 | 177 |
| 6:15 PM | 20 | 16 | 2 | 0 | 4 | 6 | 6 | 0 | 6 | 17 | 32 | 0 | 8 | 14 | 8 | 0 | 139 |
| 6:30 PM | 18 | 8 | 2 | 0 | 3 | 9 | 4 | 0 | 4 | 10 | 25 | 0 | 10 | 17 | 4 | 0 | 114 |
| 6:45 PM | 10 | 6 | 0 | 0 | 1 | 5 | 7 | 0 | 4 | 9 | 36 | 0 | 4 | 7 | 10 | 0 | 99 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 279 | 119 | 27 | 0 | 100 | 93 | 95 | 0 | 64 | 207 | 386 | 0 | 113 | 161 | 117 | 0 | 1761 |
| **APPROACH %'s :** | 65.65% | 28.00% | 6.35% | 0.00% | 34.72% | 32.29% | 32.99% | 0.00% | 9.74% | 31.51% | 58.75% | 0.00% | 28.90% | 41.18% | 29.92% | 0.00% | |
| **PEAK HR :** | 05:15 PM - 06:15 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 109 | 37 | 10 | 0 | 32 | 21 | 36 | 0 | 30 | 82 | 142 | 0 | 39 | 61 | 42 | 0 | 641 |
| **PEAK HR FACTOR :** | 0.940 | 0.617 | 0.625 | 0.000 | 0.667 | 0.583 | 0.900 | 0.000 | 0.682 | 0.788 | 0.740 | 0.000 | 0.813 | 0.726 | 0.808 | 0.000 | 0.905 |
| | 0.848 | | | | 0.742 | | | | 0.814 | | | | 0.888 | | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Branch Dr & Warrenton Village Center Dwy/Shopping Center Dwy
**City:** Warrenton
**Control:** 2-Way Stop(EB/WB)

**Project ID:** 23-260020-004
**Date:** 2/9/2023

## Data - Cars

| NS/EW Streets: | Branch Dr | | | | Branch Dr | | | | Warrenton Village Center Dwy/Shopping Center Dwy | | | | Warrenton Village Center Dwy/Shopping Center Dwy | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 2 | 2 | 0 | 0 | 2 | 5 | 0 | 0 | 0 | 4 | 2 | 0 | 1 | 0 | 0 | 0 | 18 |
| 6:15 AM | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 2 | 0 | 0 | 10 |
| 6:30 AM | 1 | 3 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 3 | 1 | 0 | 3 | 1 | 0 | 0 | 17 |
| 6:45 AM | 6 | 2 | 0 | 0 | 3 | 6 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 20 |
| 7:00 AM | 3 | 6 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 4 | 5 | 0 | 3 | 5 | 1 | 0 | 35 |
| 7:15 AM | 3 | 6 | 1 | 0 | 4 | 8 | 1 | 0 | 1 | 5 | 4 | 0 | 3 | 3 | 5 | 0 | 44 |
| 7:30 AM | 10 | 16 | 0 | 0 | 2 | 10 | 1 | 0 | 0 | 5 | 5 | 0 | 1 | 3 | 5 | 0 | 58 |
| 7:45 AM | 5 | 26 | 3 | 0 | 5 | 21 | 1 | 0 | 4 | 3 | 9 | 0 | 3 | 1 | 3 | 0 | 84 |
| 8:00 AM | 6 | 14 | 3 | 0 | 6 | 13 | 0 | 0 | 1 | 4 | 10 | 0 | 2 | 4 | 2 | 0 | 65 |
| 8:15 AM | 2 | 9 | 1 | 0 | 5 | 14 | 3 | 0 | 1 | 3 | 14 | 0 | 8 | 2 | 4 | 0 | 66 |
| 8:30 AM | 9 | 5 | 0 | 0 | 3 | 16 | 5 | 0 | 3 | 2 | 4 | 0 | 1 | 3 | 3 | 0 | 54 |
| 8:45 AM | 8 | 9 | 1 | 0 | 2 | 13 | 4 | 0 | 1 | 6 | 7 | 0 | 1 | 2 | 0 | 0 | 54 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 55 | 98 | 10 | 0 | 34 | 120 | 15 | 0 | 11 | 41 | 61 | 0 | 30 | 27 | 23 | 0 | 525 |
| **APPROACH %'s :** | 33.74% | 60.12% | 6.13% | 0.00% | 20.12% | 71.01% | 8.88% | 0.00% | 9.73% | 36.28% | 53.98% | 0.00% | 37.50% | 33.75% | 28.75% | 0.00% | |
| **PEAK HR :** | 07:30 AM - 08:30 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 23 | 65 | 7 | 0 | 18 | 58 | 5 | 0 | 6 | 15 | 38 | 0 | 14 | 10 | 14 | 0 | 273 |
| **PEAK HR FACTOR :** | 0.575 | 0.625 | 0.583 | 0.000 | 0.750 | 0.690 | 0.417 | 0.000 | 0.375 | 0.750 | 0.679 | 0.000 | 0.438 | 0.625 | 0.700 | 0.000 | 0.813 |
| | 0.699 | | | | 0.750 | | | | 0.819 | | | | 0.679 | | | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 32 | 9 | 0 | 0 | 11 | 13 | 8 | 0 | 3 | 22 | 29 | 0 | 14 | 12 | 6 | 0 | 159 |
| 4:15 PM | 19 | 6 | 3 | 0 | 10 | 10 | 8 | 0 | 6 | 22 | 27 | 0 | 10 | 11 | 13 | 0 | 145 |
| 4:30 PM | 15 | 16 | 5 | 0 | 13 | 9 | 10 | 0 | 2 | 20 | 32 | 0 | 7 | 10 | 11 | 0 | 150 |
| 4:45 PM | 28 | 11 | 4 | 0 | 14 | 6 | 6 | 0 | 6 | 13 | 26 | 0 | 14 | 16 | 9 | 0 | 153 |
| 5:00 PM | 28 | 9 | 1 | 0 | 12 | 12 | 10 | 0 | 3 | 12 | 35 | 0 | 7 | 11 | 12 | 0 | 152 |
| 5:15 PM | 25 | 7 | 3 | 0 | 12 | 7 | 9 | 0 | 6 | 12 | 30 | 0 | 11 | 9 | 12 | 0 | 143 |
| 5:30 PM | 27 | 15 | 4 | 0 | 6 | 0 | 10 | 0 | 11 | 26 | 32 | 0 | 6 | 14 | 10 | 0 | 161 |
| 5:45 PM | 28 | 6 | 2 | 0 | 9 | 6 | 8 | 0 | 5 | 22 | 32 | 0 | 12 | 20 | 7 | 0 | 157 |
| 6:00 PM | 29 | 9 | 1 | 0 | 5 | 5 | 9 | 0 | 8 | 22 | 48 | 0 | 10 | 17 | 13 | 0 | 176 |
| 6:15 PM | 20 | 16 | 2 | 0 | 4 | 6 | 6 | 0 | 6 | 17 | 32 | 0 | 8 | 14 | 8 | 0 | 139 |
| 6:30 PM | 18 | 8 | 2 | 0 | 3 | 9 | 4 | 0 | 4 | 10 | 25 | 0 | 10 | 16 | 4 | 0 | 113 |
| 6:45 PM | 10 | 6 | 0 | 0 | 1 | 4 | 7 | 0 | 4 | 9 | 36 | 0 | 3 | 7 | 10 | 0 | 97 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 279 | 118 | 27 | 0 | 100 | 87 | 95 | 0 | 64 | 207 | 384 | 0 | 112 | 157 | 115 | 0 | 1745 |
| **APPROACH %'s :** | 65.80% | 27.83% | 6.37% | 0.00% | 35.46% | 30.85% | 33.69% | 0.00% | 9.77% | 31.60% | 58.63% | 0.00% | 29.17% | 40.89% | 29.95% | 0.00% | |
| **PEAK HR :** | 05:15 PM - 06:15 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 109 | 37 | 10 | 0 | 32 | 18 | 36 | 0 | 30 | 82 | 142 | 0 | 39 | 60 | 42 | 0 | 637 |
| **PEAK HR FACTOR :** | 0.940 | 0.617 | 0.625 | 0.000 | 0.667 | 0.643 | 0.900 | 0.000 | 0.682 | 0.788 | 0.740 | 0.000 | 0.813 | 0.750 | 0.808 | 0.000 | 0.905 |
| | 0.848 | | | | 0.768 | | | | 0.814 | | | | 0.881 | | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Branch Dr & Warrenton Village Center Dwy/Shopping Center Dwy
**City:** Warrenton
**Control:** 2-Way Stop(EB/WB)

**Project ID:** 23-260020-004
**Date:** 2/9/2023

## Data - HT

| NS/EW Streets: | Branch Dr | | | | Branch Dr | | | | Warrenton Village Center Dwy/Shopping Center Dwy | | | | Warrenton Village Center Dwy/Shopping Center Dwy | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 |
| 6:30 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 |
| 6:45 AM | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 5 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 |
| 7:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 3 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 3 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 1 | 1 | 1 | 0 | 1 | 14 | 1 | 0 | 0 | 0 | 3 | 0 | 4 | 4 | 0 | 0 | 30 |
| **APPROACH %'s :** | 33.33% | 33.33% | 33.33% | 0.00% | 6.25% | 87.50% | 6.25% | 0.00% | 0.00% | 0.00% | 100.00% | 0.00% | 50.00% | 50.00% | 0.00% | 0.00% | |
| **PEAK HR :** | 07:30 AM - 08:30 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 10 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.375 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.250 | 0.000 | 0.000 | 0.417 |
| | | | | | | 0.375 | | | | | | | | 0.250 | | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 4 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 2 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 1 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 4 | 2 | 0 | 16 |
| **APPROACH %'s :** | 0.00% | 100.00% | 0.00% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | 0.00% | 0.00% | 100.00% | 0.00% | 14.29% | 57.14% | 28.57% | 0.00% | |
| **PEAK HR :** | 05:15 PM - 06:15 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.375 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.250 | 0.000 | 0.000 | 0.500 |
| | | | | | | 0.375 | | | | | | | | 0.250 | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Branch Dr & Warrenton Village Center Dwy/Shopping Center Dwy
**City:** Warrenton
**Control:** 2-Way Stop(EB/WB)

**Project ID:** 23-260020-004
**Date:** 2/9/2023

## Data - Bikes

| NS/EW Streets: | Branch Dr | | | | Branch Dr | | | | Warrenton Village Center Dwy/Shopping Center Dwy | | | | Warrenton Village Center Dwy/Shopping Center Dwy | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **APPROACH %'s :** | | | | | | | | | | | | | | | | | |
| **PEAK HR :** | 07:30 AM - 08:30 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |

| **PM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| **APPROACH %'s :** | | | | | 0.00% | 0.00% | 100.00% | 0.00% | 100.00% | 0.00% | 0.00% | 0.00% | | | | | |
| **PEAK HR :** | 05:15 PM - 06:15 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.250 | 0.000 | 0.250 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.250 |
| | | | | | | | 0.250 | | | | 0.250 | | | | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Branch Dr & Warrenton Village Center Dwy/Shopping Center Dwy **Project ID:** 23-260020-004
**City:** Warrenton **Date:** 2/9/2023

## Data - Pedestrians (Crosswalks)

| NS/EW Streets: | Branch Dr | | Branch Dr | | Warrenton Village Center Dwy/Shopping Center | | Warrenton Village Center Dwy/Shopping Center | | |
|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTH LEG | | SOUTH LEG | | EAST LEG | | WEST LEG | | |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| 6:00 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 6:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| **TOTAL VOLUMES :** | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| **APPROACH %'s :** | 50.00% | 50.00% | | | | | | | |
| **PEAK HR :** | 07:30 AM - 08:30 AM | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| **PEAK HR FACTOR :** | 0.250 | 0.250 | | | | | | | 0.500 |
| | 0.500 | | | | | | | | |

| PM | NORTH LEG | | SOUTH LEG | | EAST LEG | | WEST LEG | | |
|---|---|---|---|---|---|---|---|---|---|
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| 4:00 PM | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 4:15 PM | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 4 |
| 4:30 PM | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 4:45 PM | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:15 PM | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 5:30 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:00 PM | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| **TOTAL VOLUMES :** | 10 | 13 | 0 | 0 | 1 | 1 | 0 | 0 | 25 |
| **APPROACH %'s :** | 43.48% | 56.52% | | | 50.00% | 50.00% | | | |
| **PEAK HR :** | 05:15 PM - 06:15 PM | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| **PEAK HR FACTOR :** | 0.625 | 0.500 | | | | | | | 0.583 |
| | 0.583 | | | | | | | | |

Prepared by National Data & Surveying Services

# Branch Dr & Warrenton Village Center Dwy/Shopping Center Dwy

## Peak Hour Turning Movement Count

**ID:** 23-260020-004
**City:** Warrenton

**Day:** Thursday
**Date:** 2/9/2023

**PEAK HOURS**

| | |
|---|---|
| AM | 07:30 AM - 08:30 AM |
| NOON | NONE |
| PM | 05:15 PM - 06:15 PM |

**COUNT PERIODS**

| | |
|---|---|
| AM | 6:00 AM - 09:00 AM |
| NOON | NONE |
| PM | 4:00 PM - 07:00 PM |

### SOUTHBOUND — Branch Dr

| | | | | | | |
|---|---|---|---|---|---|---|
| AM | 5 | 67 | 18 | 0 | 85 | AM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| PM | 36 | 21 | 32 | 0 | 109 | PM |
| | 0 | 2 | 0 | 0 | | |

### EASTBOUND — Warrenton Village Center Dwy/Shopping Center Dwy

| AM | NOON | PM | |
|---|---|---|---|
| 39 | 0 | 206 | |
| 0 | 0 | 0 | 0 |
| 6 | 0 | 30 | 0 |
| 15 | 0 | 82 | 1 |
| 38 | 0 | 142 | 0 |
| AM | NOON | PM | |

### WESTBOUND — Warrenton Village Center Dwy/Shopping Center Dwy

| PM | NOON | AM | |
|---|---|---|---|
| 42 | 0 | 14 | 0 |
| 61 | 0 | 11 | 1 |
| 39 | 0 | 14 | 0 |
| 0 | 0 | 0 | 0 |
| 124 | 0 | 40 | |
| PM | NOON | AM | |

### CONTROL

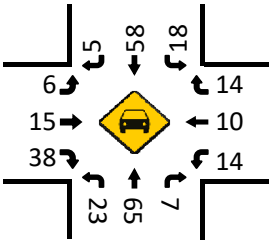
2-Way Stop(EB/WB)

| | AM | NOON | PM |
|---|---|---|---|
| TEV | 283 | 0 | 641 |
| PHF | 0.83 | | 0.91 |

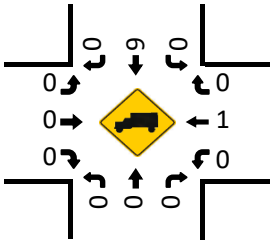
### NORTHBOUND — Branch Dr

| | | | | | | |
|---|---|---|---|---|---|---|
| | 0 | 0 | 2 | 0 | | |
| PM | 202 | 0 | 109 | 37 | 10 | PM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| AM | 119 | 0 | 23 | 65 | 7 | AM |

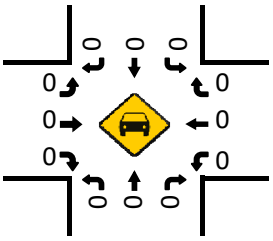
Cars (AM)



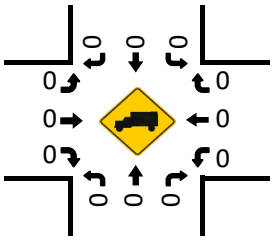

HT (AM)



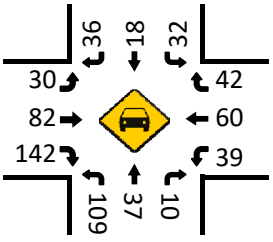

Cars (NOON)



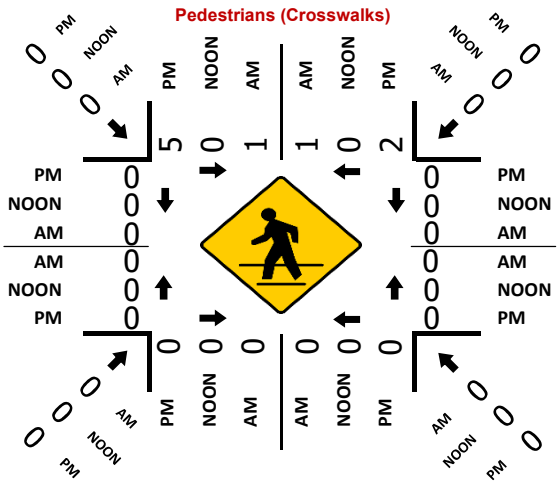

HT (NOON)



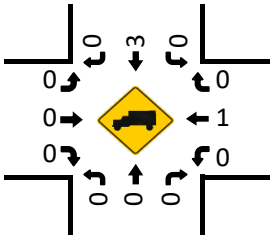

Cars (PM)




Pedestrians (Crosswalks)




HT (PM)



# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Branch Dr & Oak Springs Dr
**City:** Warrenton
**Control:** 2-Way Stop(NB/SB)

**Project ID:** 23-260020-005
**Date:** 2/9/2023

## Data - Total

| NS/EW Streets: | Branch Dr | | | | Branch Dr | | | | Oak Springs Dr | | | | Oak Springs Dr | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 6 | 0 | 1 | 0 | 0 | 0 | 12 |
| 6:15 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 0 | 0 | 4 | 0 | 0 | 10 |
| 6:30 AM | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 4 | 0 | 0 | 6 | 0 | 0 | 17 |
| 6:45 AM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 9 | 0 | 2 | 6 | 1 | 0 | 24 |
| 7:00 AM | 6 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 6 | 0 | 3 | 12 | 0 | 0 | 33 |
| 7:15 AM | 12 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 15 | 9 | 0 | 4 | 10 | 0 | 0 | 53 |
| 7:30 AM | 17 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 15 | 7 | 0 | 5 | 18 | 0 | 0 | 65 |
| 7:45 AM | 31 | 0 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 20 | 23 | 0 | 4 | 49 | 0 | 0 | 132 |
| 8:00 AM | 14 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 21 | 0 | 1 | 22 | 0 | 0 | 75 |
| 8:15 AM | 11 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 24 | 0 | 4 | 17 | 0 | 0 | 86 |
| 8:30 AM | 9 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 17 | 18 | 0 | 7 | 19 | 0 | 0 | 73 |
| 8:45 AM | 7 | 0 | 3 | 0 | 0 | 2 | 1 | 0 | 1 | 26 | 15 | 0 | 3 | 19 | 0 | 0 | 77 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 114 | 0 | 19 | 0 | 1 | 6 | 3 | 0 | 2 | 150 | 145 | 0 | 34 | 182 | 1 | 0 | 657 |
| **APPROACH %'s :** | 85.71% | 0.00% | 14.29% | 0.00% | 10.00% | 60.00% | 30.00% | 0.00% | 0.67% | 50.51% | 48.82% | 0.00% | 15.67% | 83.87% | 0.46% | 0.00% | |
| **PEAK HR :** | 07:45 AM - 08:45 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 65 | 0 | 12 | 0 | 0 | 0 | 2 | 0 | 0 | 78 | 86 | 0 | 16 | 107 | 0 | 0 | 366 |
| **PEAK HR FACTOR :** | 0.524 | 0.000 | 0.750 | 0.000 | 0.000 | 0.000 | 0.500 | 0.000 | 0.000 | 0.722 | 0.896 | 0.000 | 0.571 | 0.546 | 0.000 | 0.000 | 0.693 |
| | 0.550 | | | | 0.500 | | | | 0.804 | | | | 0.580 | | | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 15 | 0 | 4 | 0 | 1 | 1 | 0 | 0 | 1 | 34 | 21 | 0 | 9 | 25 | 1 | 0 | 112 |
| 4:15 PM | 13 | 2 | 10 | 1 | 0 | 2 | 0 | 0 | 2 | 21 | 20 | 0 | 6 | 25 | 1 | 0 | 103 |
| 4:30 PM | 19 | 0 | 11 | 0 | 0 | 1 | 0 | 0 | 0 | 30 | 26 | 0 | 5 | 33 | 0 | 0 | 125 |
| 4:45 PM | 14 | 0 | 12 | 0 | 0 | 1 | 0 | 0 | 0 | 20 | 19 | 0 | 8 | 29 | 0 | 0 | 103 |
| 5:00 PM | 18 | 1 | 4 | 0 | 0 | 1 | 0 | 0 | 1 | 22 | 20 | 0 | 12 | 27 | 0 | 0 | 106 |
| 5:15 PM | 19 | 1 | 6 | 0 | 0 | 3 | 0 | 0 | 1 | 12 | 21 | 0 | 6 | 29 | 0 | 0 | 98 |
| 5:30 PM | 26 | 1 | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 23 | 12 | 0 | 4 | 26 | 1 | 0 | 102 |
| 5:45 PM | 12 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 15 | 0 | 8 | 20 | 2 | 0 | 84 |
| 6:00 PM | 22 | 2 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 13 | 0 | 8 | 14 | 1 | 0 | 81 |
| 6:15 PM | 18 | 1 | 10 | 0 | 0 | 0 | 0 | 0 | 1 | 16 | 10 | 0 | 5 | 5 | 1 | 0 | 67 |
| 6:30 PM | 10 | 3 | 4 | 0 | 1 | 2 | 1 | 0 | 0 | 15 | 7 | 0 | 7 | 9 | 0 | 0 | 59 |
| 6:45 PM | 13 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 5 | 0 | 8 | 3 | 1 | 0 | 48 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 199 | 12 | 87 | 1 | 3 | 11 | 1 | 0 | 6 | 240 | 189 | 0 | 86 | 245 | 8 | 0 | 1088 |
| **APPROACH %'s :** | 66.56% | 4.01% | 29.10% | 0.33% | 20.00% | 73.33% | 6.67% | 0.00% | 1.38% | 55.17% | 43.45% | 0.00% | 25.37% | 72.27% | 2.36% | 0.00% | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 61 | 2 | 37 | 1 | 1 | 5 | 0 | 0 | 3 | 105 | 86 | 0 | 28 | 112 | 2 | 0 | 443 |
| **PEAK HR FACTOR :** | 0.803 | 0.250 | 0.771 | 0.250 | 0.250 | 0.625 | 0.000 | 0.000 | 0.375 | 0.772 | 0.827 | 0.000 | 0.778 | 0.848 | 0.500 | 0.000 | 0.886 |
| | 0.842 | | | | 0.750 | | | | 0.866 | | | | 0.934 | | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Branch Dr & Oak Springs Dr
**City:** Warrenton
**Control:** 2-Way Stop(NB/SB)

**Project ID:** 23-260020-005
**Date:** 2/9/2023

## Data - Cars

| NS/EW Streets: | Branch Dr | | | | Branch Dr | | | | Oak Springs Dr | | | | Oak Springs Dr | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 6 | 0 | 1 | 0 | 0 | 0 | 12 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 0 | 0 | 4 | 0 | 0 | 9 |
| 6:30 AM | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 6 | 0 | 0 | 16 |
| 6:45 AM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 8 | 0 | 1 | 6 | 1 | 0 | 22 |
| 7:00 AM | 6 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 5 | 0 | 3 | 12 | 0 | 0 | 30 |
| 7:15 AM | 12 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 15 | 8 | 0 | 3 | 10 | 0 | 0 | 51 |
| 7:30 AM | 17 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 15 | 7 | 0 | 5 | 18 | 0 | 0 | 65 |
| 7:45 AM | 31 | 0 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 20 | 23 | 0 | 4 | 48 | 0 | 0 | 131 |
| 8:00 AM | 14 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 19 | 0 | 0 | 22 | 0 | 0 | 71 |
| 8:15 AM | 11 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 18 | 0 | 4 | 17 | 0 | 0 | 80 |
| 8:30 AM | 9 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 16 | 18 | 0 | 6 | 19 | 0 | 0 | 71 |
| 8:45 AM | 7 | 0 | 3 | 0 | 0 | 2 | 1 | 0 | 1 | 26 | 14 | 0 | 3 | 19 | 0 | 0 | 76 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 114 | 0 | 18 | 0 | 1 | 6 | 3 | 0 | 2 | 145 | 133 | 0 | 30 | 181 | 1 | 0 | 634 |
| **APPROACH %'s :** | 86.36% | 0.00% | 13.64% | 0.00% | 10.00% | 60.00% | 30.00% | 0.00% | 0.71% | 51.79% | 47.50% | 0.00% | 14.15% | 85.38% | 0.47% | 0.00% | |
| **PEAK HR :** | 07:45 AM - 08:45 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 65 | 0 | 12 | 0 | 0 | 0 | 2 | 0 | 0 | 76 | 78 | 0 | 14 | 106 | 0 | 0 | 353 |
| **PEAK HR FACTOR :** | 0.524 | 0.000 | 0.750 | 0.000 | 0.000 | 0.000 | 0.500 | 0.000 | 0.000 | 0.704 | 0.848 | 0.000 | 0.583 | 0.552 | 0.000 | 0.000 | 0.674 |
| | 0.550 | | | | 0.500 | | | | 0.856 | | | | 0.577 | | | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 14 | 0 | 4 | 0 | 1 | 1 | 0 | 0 | 1 | 34 | 21 | 0 | 9 | 25 | 1 | 0 | 111 |
| 4:15 PM | 13 | 2 | 9 | 1 | 0 | 2 | 0 | 0 | 2 | 20 | 20 | 0 | 5 | 25 | 1 | 0 | 100 |
| 4:30 PM | 18 | 0 | 11 | 0 | 0 | 1 | 0 | 0 | 0 | 29 | 26 | 0 | 5 | 33 | 0 | 0 | 123 |
| 4:45 PM | 14 | 0 | 12 | 0 | 0 | 1 | 0 | 0 | 0 | 19 | 19 | 0 | 8 | 28 | 0 | 0 | 101 |
| 5:00 PM | 18 | 1 | 4 | 0 | 0 | 1 | 0 | 0 | 1 | 22 | 20 | 0 | 11 | 26 | 0 | 0 | 104 |
| 5:15 PM | 19 | 1 | 6 | 0 | 0 | 3 | 0 | 0 | 1 | 12 | 20 | 0 | 5 | 29 | 0 | 0 | 96 |
| 5:30 PM | 26 | 1 | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 23 | 12 | 0 | 4 | 26 | 1 | 0 | 102 |
| 5:45 PM | 12 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 15 | 0 | 8 | 20 | 2 | 0 | 84 |
| 6:00 PM | 22 | 2 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 13 | 0 | 7 | 14 | 1 | 0 | 80 |
| 6:15 PM | 18 | 1 | 10 | 0 | 0 | 0 | 0 | 0 | 1 | 16 | 10 | 0 | 5 | 5 | 1 | 0 | 67 |
| 6:30 PM | 10 | 3 | 4 | 0 | 1 | 2 | 1 | 0 | 0 | 15 | 7 | 0 | 7 | 9 | 0 | 0 | 59 |
| 6:45 PM | 13 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 5 | 0 | 7 | 3 | 1 | 0 | 47 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 197 | 12 | 86 | 1 | 3 | 11 | 1 | 0 | 6 | 237 | 188 | 0 | 81 | 243 | 8 | 0 | 1074 |
| **APPROACH %'s :** | 66.55% | 4.05% | 29.05% | 0.34% | 20.00% | 73.33% | 6.67% | 0.00% | 1.39% | 54.99% | 43.62% | 0.00% | 24.40% | 73.19% | 2.41% | 0.00% | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 59 | 2 | 36 | 1 | 1 | 5 | 0 | 0 | 3 | 102 | 86 | 0 | 27 | 111 | 2 | 0 | 435 |
| **PEAK HR FACTOR :** | 0.819 | 0.250 | 0.750 | 0.250 | 0.250 | 0.625 | 0.000 | 0.000 | 0.375 | 0.750 | 0.827 | 0.000 | 0.750 | 0.841 | 0.500 | 0.000 | 0.884 |
| | 0.845 | | | | 0.750 | | | | 0.853 | | | | 0.921 | | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Branch Dr & Oak Springs Dr
**City:** Warrenton
**Control:** 2-Way Stop(NB/SB)

**Project ID:** 23-260020-005
**Date:** 2/9/2023

## Data - HT

| NS/EW Streets: | Branch Dr | | | | Branch Dr | | | | Oak Springs Dr | | | | Oak Springs Dr | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 6:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 3 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 1 | 0 | 0 | 0 | 4 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 6 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 2 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 12 | 0 | 4 | 1 | 0 | 0 | 23 |
| **APPROACH %'s :** | 0.00% | 0.00% | 100.00% | 0.00% | | | | | 0.00% | 29.41% | 70.59% | 0.00% | 80.00% | 20.00% | 0.00% | 0.00% | |
| **PEAK HR :** | 07:45 AM - 08:45 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 8 | 0 | 2 | 1 | 0 | 0 | 13 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.500 | 0.333 | 0.000 | 0.500 | 0.250 | 0.000 | 0.000 | 0.542 |
| | | | | | | | | | | 0.417 | | | | 0.750 | | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 4:15 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 3 |
| 4:30 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 2 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 5 | 2 | 0 | 0 | 14 |
| **APPROACH %'s :** | 66.67% | 0.00% | 33.33% | 0.00% | | | | | 0.00% | 75.00% | 25.00% | 0.00% | 71.43% | 28.57% | 0.00% | 0.00% | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 8 |
| **PEAK HR FACTOR :** | 0.500 | 0.000 | 0.250 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.750 | 0.000 | 0.000 | 0.250 | 0.250 | 0.000 | 0.000 | 0.667 |
| | | | 0.750 | | | | | | | 0.750 | | | | 0.500 | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Branch Dr & Oak Springs Dr
**City:** Warrenton
**Control:** 2-Way Stop(NB/SB)

**Project ID:** 23-260020-005
**Date:** 2/9/2023

## Data - Bikes

| NS/EW Streets: | Branch Dr | | | | Branch Dr | | | | Oak Springs Dr | | | | Oak Springs Dr | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **APPROACH %'s :** | | | | | | | | | | | | | | | | | |
| **PEAK HR :** | 07:45 AM - 08:45 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |

| **PM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| **APPROACH %'s :** | 0.00% | 100.00% | 0.00% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | | | | | | | | | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Branch Dr & Oak Springs Dr
**City:** Warrenton
**Project ID:** 23-260020-005
**Date:** 2/9/2023

## Data - Pedestrians (Crosswalks)

| NS/EW Streets: | Branch Dr | | Branch Dr | | Oak Springs Dr | | Oak Springs Dr | | |
|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTH LEG | | SOUTH LEG | | EAST LEG | | WEST LEG | | |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 AM | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 3 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 7:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 8:15 AM | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 4 |
| 8:30 AM | 2 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 5 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| **TOTAL VOLUMES :** | 6 | 5 | 1 | 0 | 3 | 1 | 0 | 1 | 17 |
| **APPROACH %'s :** | 54.55% | 45.45% | 100.00% | 0.00% | 75.00% | 25.00% | 0.00% | 100.00% | |
| **PEAK HR :** | 07:45 AM - 08:45 AM | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 4 | 3 | 1 | 0 | 2 | 1 | 0 | 0 | 11 |
| **PEAK HR FACTOR :** | 0.500 | 0.375 | 0.250 | | 0.500 | 0.250 | | | 0.550 |
| | 0.438 | | 0.250 | | 0.375 | | | | |

| PM | NORTH LEG | | SOUTH LEG | | EAST LEG | | WEST LEG | | |
|---|---|---|---|---|---|---|---|---|---|
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| 4:00 PM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 4:15 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 4:30 PM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 2 |
| 4:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 5:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 5:15 PM | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 2 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 2 |
| 6:00 PM | 3 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 6 |
| 6:15 PM | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 |
| 6:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 6:45 PM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 2 |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| **TOTAL VOLUMES :** | 6 | 7 | 1 | 1 | 3 | 4 | 0 | 0 | 22 |
| **APPROACH %'s :** | 46.15% | 53.85% | 50.00% | 50.00% | 42.86% | 57.14% | | | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 2 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 6 |
| **PEAK HR FACTOR :** | 0.250 | 0.500 | | | 0.250 | 0.250 | | | 0.750 |
| | 0.500 | | | | 0.500 | | | | |

Prepared by National Data & Surveying Services

# Branch Dr & Oak Springs Dr

## Peak Hour Turning Movement Count

**ID:** 23-260020-005
**City:** Warrenton

**Day:** Thursday
**Date:** 2/9/2023

| PEAK HOURS | |
|---|---|
| AM | 07:45 AM - 08:45 AM |
| NOON | NONE |
| PM | 04:00 PM - 05:00 PM |

| COUNT PERIODS | |
|---|---|
| AM | 6:00 AM - 09:00 AM |
| NOON | NONE |
| PM | 4:00 PM - 07:00 PM |

### SOUTHBOUND (Branch Dr)

| | | | | | | |
|---|---|---|---|---|---|---|
| AM | 2 | 0 | 0 | 0 | 0 | AM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| PM | 0 | 5 | 1 | 0 | 7 | PM |

### EASTBOUND (Oak Springs Dr)

| AM | NOON | PM | |
|---|---|---|---|
| 174 | 0 | 173 | |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 3 | 0 |
| 78 | 0 | 105 | 1 |
| 86 | 0 | 86 | 0 |
| AM | NOON | PM | |

### WESTBOUND (Oak Springs Dr)

| PM | NOON | AM | |
|---|---|---|---|
| 2 | 0 | 0 | 0 |
| 112 | 0 | 107 | 1 |
| 28 | 0 | 16 | 0 |
| 0 | 0 | 0 | 0 |
| 143 | 0 | 90 | |
| PM | NOON | AM | |

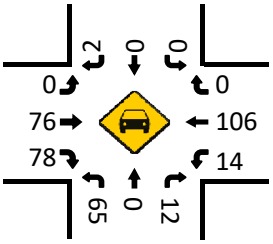
**CONTROL:** 2-Way Stop(NB/SB)

| | | | |
|---|---|---|---|
| TEV | 366 | 0 | 443 |
| | AM | NOON | PM |
| PHF | 0.69 | | 0.89 |

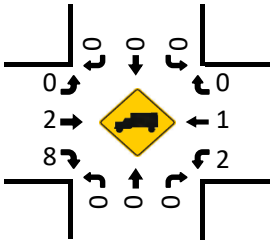
### NORTHBOUND (Branch Dr)

| | | | | | |
|---|---|---|---|---|---|
| PM | 120 | 1 | 61 | 2 | 37 | PM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| AM | 102 | 0 | 65 | 0 | 12 | AM |

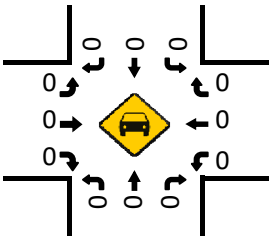
Cars (AM)



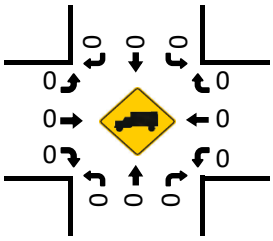

HT (AM)



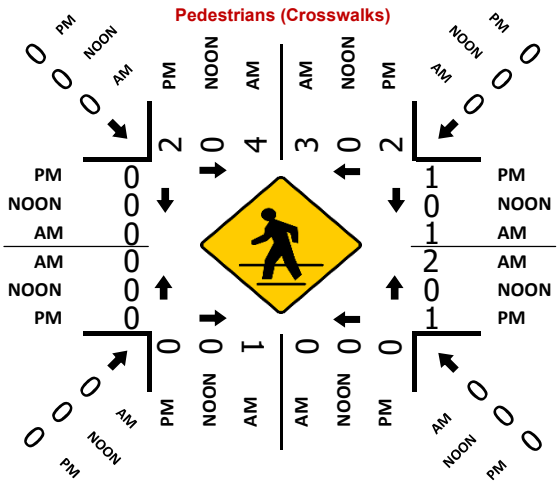

Cars (NOON)



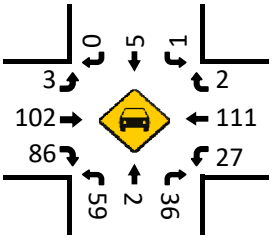

HT (NOON)



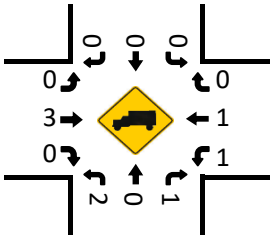

Pedestrians (Crosswalks)




Cars (PM)




HT (PM)



# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Hastings Ln & Oak Springs Dr
**City:** Warrenton
**Control:** 1-Way Stop(SB)

**Project ID:** 23-260020-006
**Date:** 2/9/2023

## Data - Total

| NS/EW Streets: | Hastings Ln | | | | Hastings Ln | | | | Oak Springs Dr | | | | Oak Springs Dr | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 1 | 1 | 0 | 12 |
| 6:15 AM | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 1 | 2 | 0 | 0 | 0 | 4 | 0 | 0 | 13 |
| 6:30 AM | 0 | 0 | 0 | 0 | 2 | 0 | 5 | 0 | 3 | 5 | 0 | 0 | 0 | 6 | 3 | 0 | 24 |
| 6:45 AM | 0 | 0 | 0 | 0 | 4 | 0 | 8 | 0 | 6 | 9 | 0 | 0 | 0 | 7 | 1 | 0 | 35 |
| 7:00 AM | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 0 | 7 | 7 | 0 | 0 | 0 | 14 | 4 | 0 | 42 |
| 7:15 AM | 0 | 0 | 0 | 0 | 5 | 0 | 16 | 0 | 11 | 18 | 0 | 0 | 0 | 16 | 6 | 0 | 72 |
| 7:30 AM | 0 | 0 | 0 | 0 | 2 | 0 | 13 | 0 | 17 | 20 | 0 | 0 | 0 | 24 | 10 | 0 | 86 |
| 7:45 AM | 0 | 0 | 0 | 0 | 5 | 0 | 6 | 0 | 18 | 39 | 0 | 0 | 0 | 68 | 12 | 0 | 148 |
| 8:00 AM | 0 | 0 | 0 | 0 | 14 | 0 | 20 | 0 | 24 | 20 | 0 | 0 | 0 | 27 | 10 | 0 | 115 |
| 8:15 AM | 0 | 0 | 0 | 0 | 26 | 0 | 28 | 0 | 24 | 25 | 0 | 0 | 0 | 17 | 12 | 0 | 132 |
| 8:30 AM | 0 | 0 | 0 | 0 | 16 | 0 | 20 | 0 | 8 | 19 | 0 | 0 | 0 | 21 | 7 | 0 | 91 |
| 8:45 AM | 0 | 0 | 0 | 0 | 2 | 0 | 7 | 0 | 9 | 41 | 0 | 0 | 0 | 21 | 7 | 0 | 87 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 88 | 0 | 131 | 0 | 129 | 210 | 0 | 0 | 0 | 226 | 73 | 0 | 857 |
| **APPROACH %'s :** | | | | | 40.18% | 0.00% | 59.82% | 0.00% | 38.05% | 61.95% | 0.00% | 0.00% | 0.00% | 75.59% | 24.41% | 0.00% | |
| **PEAK HR :** | 07:45 AM - 08:45 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 61 | 0 | 74 | 0 | 74 | 103 | 0 | 0 | 0 | 133 | 41 | 0 | 486 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.587 | 0.000 | 0.661 | 0.000 | 0.771 | 0.660 | 0.000 | 0.000 | 0.000 | 0.489 | 0.854 | 0.000 | 0.821 |
| | | | | | 0.625 | | | | 0.776 | | | | 0.544 | | | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 0 | 0 | 0 | 0 | 24 | 0 | 12 | 0 | 7 | 32 | 0 | 0 | 0 | 39 | 1 | 0 | 115 |
| 4:15 PM | 0 | 0 | 0 | 0 | 15 | 0 | 9 | 0 | 12 | 29 | 0 | 0 | 0 | 35 | 3 | 0 | 103 |
| 4:30 PM | 0 | 0 | 0 | 0 | 21 | 0 | 14 | 0 | 12 | 36 | 0 | 0 | 0 | 46 | 6 | 0 | 135 |
| 4:45 PM | 0 | 0 | 0 | 0 | 7 | 0 | 17 | 0 | 11 | 31 | 0 | 0 | 0 | 40 | 2 | 0 | 108 |
| 5:00 PM | 0 | 0 | 0 | 0 | 13 | 0 | 2 | 0 | 16 | 30 | 0 | 0 | 0 | 43 | 3 | 0 | 107 |
| 5:15 PM | 0 | 0 | 0 | 0 | 11 | 0 | 10 | 0 | 12 | 23 | 0 | 0 | 0 | 40 | 8 | 0 | 104 |
| 5:30 PM | 0 | 0 | 0 | 0 | 2 | 0 | 11 | 0 | 14 | 32 | 0 | 0 | 0 | 43 | 8 | 0 | 110 |
| 5:45 PM | 0 | 0 | 0 | 0 | 7 | 0 | 10 | 0 | 6 | 28 | 0 | 0 | 0 | 28 | 5 | 0 | 84 |
| 6:00 PM | 0 | 0 | 0 | 0 | 15 | 0 | 6 | 0 | 8 | 14 | 0 | 0 | 0 | 31 | 5 | 0 | 79 |
| 6:15 PM | 0 | 0 | 0 | 0 | 8 | 0 | 6 | 0 | 6 | 18 | 0 | 0 | 0 | 15 | 7 | 0 | 60 |
| 6:30 PM | 0 | 0 | 0 | 0 | 5 | 0 | 4 | 0 | 4 | 18 | 0 | 0 | 0 | 16 | 5 | 0 | 52 |
| 6:45 PM | 0 | 0 | 0 | 0 | 4 | 0 | 5 | 0 | 4 | 12 | 0 | 0 | 0 | 8 | 8 | 0 | 41 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 132 | 0 | 106 | 0 | 112 | 303 | 0 | 0 | 0 | 384 | 61 | 0 | 1098 |
| **APPROACH %'s :** | | | | | 55.46% | 0.00% | 44.54% | 0.00% | 26.99% | 73.01% | 0.00% | 0.00% | 0.00% | 86.29% | 13.71% | 0.00% | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 67 | 0 | 52 | 0 | 42 | 128 | 0 | 0 | 0 | 160 | 12 | 0 | 461 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.698 | 0.000 | 0.765 | 0.000 | 0.875 | 0.889 | 0.000 | 0.000 | 0.000 | 0.870 | 0.500 | 0.000 | 0.854 |
| | | | | | 0.826 | | | | 0.885 | | | | 0.827 | | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Hastings Ln & Oak Springs Dr
**City:** Warrenton
**Control:** 1-Way Stop(SB)

**Project ID:** 23-260020-006
**Date:** 2/9/2023

## Data - Cars

| NS/EW Streets: | Hastings Ln | | | | Hastings Ln | | | | Oak Springs Dr | | | | Oak Springs Dr | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 1 | 1 | 0 | 12 |
| 6:15 AM | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 1 | 2 | 0 | 0 | 0 | 4 | 0 | 0 | 13 |
| 6:30 AM | 0 | 0 | 0 | 0 | 2 | 0 | 5 | 0 | 2 | 4 | 0 | 0 | 0 | 6 | 3 | 0 | 22 |
| 6:45 AM | 0 | 0 | 0 | 0 | 3 | 0 | 8 | 0 | 5 | 9 | 0 | 0 | 0 | 7 | 1 | 0 | 33 |
| 7:00 AM | 0 | 0 | 0 | 0 | 4 | 0 | 5 | 0 | 7 | 5 | 0 | 0 | 0 | 14 | 4 | 0 | 39 |
| 7:15 AM | 0 | 0 | 0 | 0 | 5 | 0 | 16 | 0 | 11 | 17 | 0 | 0 | 0 | 16 | 6 | 0 | 71 |
| 7:30 AM | 0 | 0 | 0 | 0 | 2 | 0 | 13 | 0 | 17 | 20 | 0 | 0 | 0 | 24 | 10 | 0 | 86 |
| 7:45 AM | 0 | 0 | 0 | 0 | 5 | 0 | 6 | 0 | 15 | 39 | 0 | 0 | 0 | 67 | 12 | 0 | 144 |
| 8:00 AM | 0 | 0 | 0 | 0 | 12 | 0 | 20 | 0 | 22 | 19 | 0 | 0 | 0 | 27 | 10 | 0 | 110 |
| 8:15 AM | 0 | 0 | 0 | 0 | 20 | 0 | 28 | 0 | 24 | 25 | 0 | 0 | 0 | 17 | 12 | 0 | 126 |
| 8:30 AM | 0 | 0 | 0 | 0 | 16 | 0 | 20 | 0 | 8 | 18 | 0 | 0 | 0 | 21 | 7 | 0 | 90 |
| 8:45 AM | 0 | 0 | 0 | 0 | 2 | 0 | 7 | 0 | 9 | 40 | 0 | 0 | 0 | 21 | 7 | 0 | 86 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 78 | 0 | 131 | 0 | 122 | 203 | 0 | 0 | 0 | 225 | 73 | 0 | 832 |
| **APPROACH %'s :** | | | | | 37.32% | 0.00% | 62.68% | 0.00% | 37.54% | 62.46% | 0.00% | 0.00% | 0.00% | 75.50% | 24.50% | 0.00% | |
| **PEAK HR :** | 07:45 AM - 08:45 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 53 | 0 | 74 | 0 | 69 | 101 | 0 | 0 | 0 | 132 | 41 | 0 | 470 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.663 | 0.000 | 0.661 | 0.000 | 0.719 | 0.647 | 0.000 | 0.000 | 0.000 | 0.493 | 0.854 | 0.000 | 0.816 |
| | | | | | | | 0.661 | | | | 0.787 | | | | 0.547 | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 0 | 0 | 0 | 0 | 24 | 0 | 12 | 0 | 7 | 32 | 0 | 0 | 0 | 38 | 1 | 0 | 114 |
| 4:15 PM | 0 | 0 | 0 | 0 | 15 | 0 | 8 | 0 | 11 | 28 | 0 | 0 | 0 | 35 | 3 | 0 | 100 |
| 4:30 PM | 0 | 0 | 0 | 0 | 21 | 0 | 14 | 0 | 12 | 35 | 0 | 0 | 0 | 45 | 6 | 0 | 133 |
| 4:45 PM | 0 | 0 | 0 | 0 | 7 | 0 | 17 | 0 | 11 | 30 | 0 | 0 | 0 | 39 | 2 | 0 | 106 |
| 5:00 PM | 0 | 0 | 0 | 0 | 12 | 0 | 2 | 0 | 15 | 30 | 0 | 0 | 0 | 42 | 3 | 0 | 104 |
| 5:15 PM | 0 | 0 | 0 | 0 | 11 | 0 | 10 | 0 | 12 | 23 | 0 | 0 | 0 | 40 | 8 | 0 | 104 |
| 5:30 PM | 0 | 0 | 0 | 0 | 2 | 0 | 11 | 0 | 14 | 32 | 0 | 0 | 0 | 43 | 8 | 0 | 110 |
| 5:45 PM | 0 | 0 | 0 | 0 | 7 | 0 | 10 | 0 | 5 | 28 | 0 | 0 | 0 | 28 | 5 | 0 | 83 |
| 6:00 PM | 0 | 0 | 0 | 0 | 15 | 0 | 6 | 0 | 8 | 14 | 0 | 0 | 0 | 31 | 5 | 0 | 79 |
| 6:15 PM | 0 | 0 | 0 | 0 | 8 | 0 | 6 | 0 | 6 | 18 | 0 | 0 | 0 | 15 | 7 | 0 | 60 |
| 6:30 PM | 0 | 0 | 0 | 0 | 5 | 0 | 4 | 0 | 3 | 18 | 0 | 0 | 0 | 16 | 5 | 0 | 51 |
| 6:45 PM | 0 | 0 | 0 | 0 | 4 | 0 | 5 | 0 | 4 | 12 | 0 | 0 | 0 | 8 | 8 | 0 | 41 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 131 | 0 | 105 | 0 | 108 | 300 | 0 | 0 | 0 | 380 | 61 | 0 | 1085 |
| **APPROACH %'s :** | | | | | 55.51% | 0.00% | 44.49% | 0.00% | 26.47% | 73.53% | 0.00% | 0.00% | 0.00% | 86.17% | 13.83% | 0.00% | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 67 | 0 | 51 | 0 | 41 | 125 | 0 | 0 | 0 | 157 | 12 | 0 | 453 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.698 | 0.000 | 0.750 | 0.000 | 0.854 | 0.893 | 0.000 | 0.000 | 0.000 | 0.872 | 0.500 | 0.000 | 0.852 |
| | | | | | | | 0.819 | | | | 0.883 | | | | 0.828 | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Hastings Ln & Oak Springs Dr
**City:** Warrenton
**Control:** 1-Way Stop(SB)

**Project ID:** 23-260020-006
**Date:** 2/9/2023

## Data - HT

| NS/EW Streets: | Hastings Ln | | | | Hastings Ln | | | | Oak Springs Dr | | | | Oak Springs Dr | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 6:45 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 7:00 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4 |
| 8:00 AM | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 8:15 AM | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 7 | 7 | 0 | 0 | 0 | 1 | 0 | 0 | 25 |
| **APPROACH %'s :** | | | | | 100.00% | 0.00% | 0.00% | 0.00% | 50.00% | 50.00% | 0.00% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | |
| **PEAK HR :** | 07:45 AM - 08:45 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 5 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 16 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.333 | 0.000 | 0.000 | 0.000 | 0.417 | 0.500 | 0.000 | 0.000 | 0.000 | 0.250 | 0.000 | 0.000 | 0.667 |
| | | | | | 0.333 | | | | 0.583 | | | | 0.250 | | | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 2 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 2 |
| 5:00 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 4 | 3 | 0 | 0 | 0 | 4 | 0 | 0 | 13 |
| **APPROACH %'s :** | | | | | 50.00% | 0.00% | 50.00% | 0.00% | 57.14% | 42.86% | 0.00% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 8 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.250 | 0.000 | 0.250 | 0.750 | 0.000 | 0.000 | 0.000 | 0.750 | 0.000 | 0.000 | 0.667 |
| | | | | | 0.250 | | | | 0.500 | | | | 0.750 | | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Hastings Ln & Oak Springs Dr
**City:** Warrenton
**Control:** 1-Way Stop(SB)

**Project ID:** 23-260020-006
**Date:** 2/9/2023

## Data - Bikes

| NS/EW Streets: | Hastings Ln | | | | Hastings Ln | | | | Oak Springs Dr | | | | Oak Springs Dr | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **APPROACH %'s :** | | | | | | | | | | | | | | | | | |
| **PEAK HR :** | 07:45 AM - 08:45 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |

| **PM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **APPROACH %'s :** | | | | | | | | | | | | | | | | | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Hastings Ln & Oak Springs Dr
**City:** Warrenton
**Project ID:** 23-260020-006
**Date:** 2/9/2023

## Data - Pedestrians (Crosswalks)

| NS/EW Streets: | Hastings Ln | | Hastings Ln | | Oak Springs Dr | | Oak Springs Dr | | |
|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTH LEG | | SOUTH LEG | | EAST LEG | | WEST LEG | | |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 7:00 AM | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 4 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| 8:15 AM | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 |
| 8:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 8:45 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| **TOTAL VOLUMES :** | 4 | 3 | 0 | 0 | 1 | 2 | 0 | 0 | 10 |
| **APPROACH %'s :** | 57.14% | 42.86% | | | 33.33% | 66.67% | | | |
| **PEAK HR :** | 07:45 AM - 08:45 AM | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 4 |
| **PEAK HR FACTOR :** | 0.250 | 0.250 | | | 0.250 | 0.250 | | | 0.500 |
| | 0.500 | | | | 0.500 | | | | |

| PM | NORTH LEG | | SOUTH LEG | | EAST LEG | | WEST LEG | | |
|---|---|---|---|---|---|---|---|---|---|
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| 4:00 PM | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:00 PM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| **TOTAL VOLUMES :** | 2 | 2 | 0 | 0 | 2 | 1 | 0 | 0 | 7 |
| **APPROACH %'s :** | 50.00% | 50.00% | | | 66.67% | 33.33% | | | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 3 |
| **PEAK HR FACTOR :** | | 0.250 | | | 0.250 | | | | 0.375 |
| | 0.250 | | | | 0.250 | | | | |

Prepared by National Data & Surveying Services

# Hastings Ln & Oak Springs Dr

## Peak Hour Turning Movement Count

**ID:** 23-260020-006
**City:** Warrenton

**Day:** Thursday
**Date:** 2/9/2023

| PEAK HOURS | COUNT PERIODS |
|---|---|
| 07:45 AM - 08:45 AM | 6:00 AM - 09:00 AM |
| NONE | NONE |
| 04:00 PM - 05:00 PM | 4:00 PM - 07:00 PM |

### SOUTHBOUND (Hastings Ln)

| | | | | | | |
|---|---|---|---|---|---|---|
| AM | 74 | 0 | 61 | 0 | 115 | AM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| PM | 52 | 0 | 67 | 0 | 54 | PM |

### EASTBOUND (Oak Springs Dr)

| AM | NOON | PM | |
|---|---|---|---|
| 207 | 0 | 212 | |
| 0 | 0 | 0 | 0 |
| 74 | 0 | 42 | 0 |
| 103 | 0 | 128 | 1 |
| 0 | 0 | 0 | 0 |

### WESTBOUND (Oak Springs Dr)

| PM | NOON | AM | |
|---|---|---|---|
| 12 | 0 | 41 | 0 |
| 160 | 0 | 133 | 1 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 195 | 0 | 164 | |

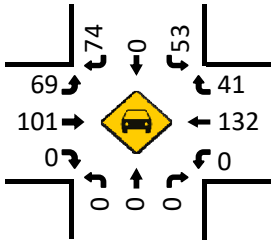
### NORTHBOUND (Hastings Ln)

| | | | | | | |
|---|---|---|---|---|---|---|
| PM | 0 | 0 | 0 | 0 | 0 | PM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| AM | 0 | 0 | 0 | 0 | 0 | AM |

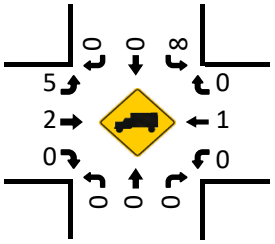
**CONTROL:** 1-Way Stop(SB)

| | | | |
|---|---|---|---|
| TEV | 486 | 0 | 461 |
| | AM | NOON | PM |
| PHF | 0.82 | | 0.85 |

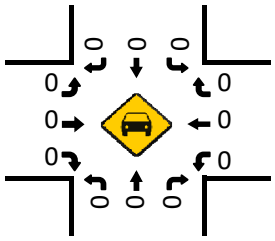
Cars (AM)



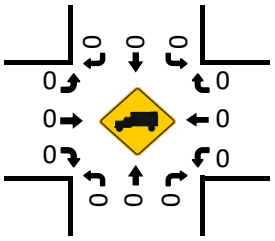

HT (AM)



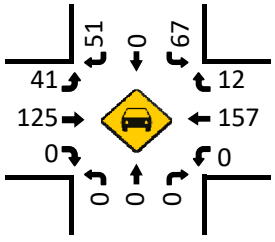

Cars (NOON)



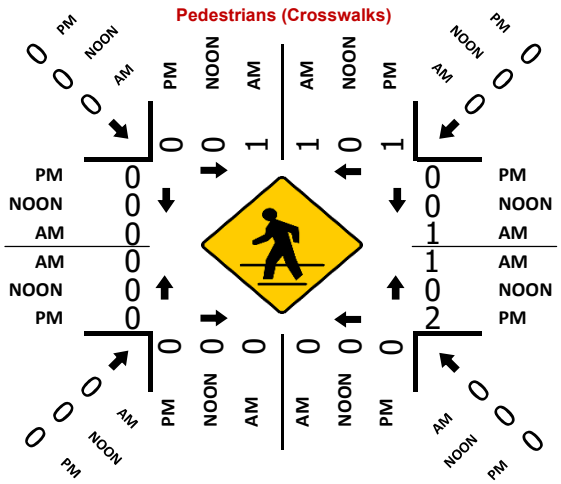

HT (NOON)



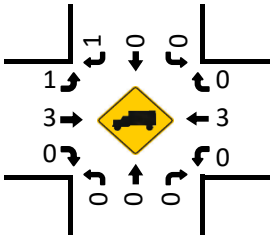

Cars (PM)




Pedestrians (Crosswalks)




HT (PM)



# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Highland School Dwy & Oak Springs Dr
**City:** Warrenton
**Control:** 1-Way Stop(SB)

**Project ID:** 23-260020-007
**Date:** 2/9/2023

## Data - Total

| NS/EW Streets: | Highland School Dwy | | | | Highland School Dwy | | | | Oak Springs Dr | | | | Oak Springs Dr | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 1 | 0 | 0 | 7 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 7 | 0 | 0 | 11 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 11 | 0 | 0 | 18 |
| 6:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 14 | 0 | 0 | 29 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 15 | 0 | 0 | 0 | 16 | 4 | 0 | 37 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 28 | 0 | 0 | 0 | 30 | 2 | 0 | 63 |
| 7:30 AM | 0 | 0 | 0 | 0 | 3 | 0 | 4 | 0 | 13 | 34 | 0 | 0 | 0 | 25 | 10 | 0 | 89 |
| 7:45 AM | 0 | 0 | 0 | 0 | 25 | 0 | 8 | 0 | 19 | 32 | 0 | 0 | 0 | 43 | 33 | 0 | 160 |
| 8:00 AM | 0 | 0 | 0 | 0 | 2 | 0 | 6 | 0 | 5 | 43 | 0 | 0 | 0 | 42 | 5 | 0 | 103 |
| 8:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 47 | 0 | 0 | 0 | 42 | 3 | 0 | 95 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 5 | 28 | 0 | 0 | 0 | 32 | 7 | 0 | 75 |
| 8:45 AM | 0 | 0 | 0 | 0 | 19 | 0 | 14 | 0 | 20 | 30 | 0 | 0 | 0 | 17 | 13 | 0 | 113 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 50 | 0 | 38 | 0 | 66 | 289 | 0 | 0 | 0 | 280 | 77 | 0 | 800 |
| **APPROACH %'s :** | | | | | 56.82% | 0.00% | 43.18% | 0.00% | 18.59% | 81.41% | 0.00% | 0.00% | 0.00% | 78.43% | 21.57% | 0.00% | |
| **PEAK HR :** | 07:30 AM - 08:30 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 31 | 0 | 19 | 0 | 38 | 156 | 0 | 0 | 0 | 152 | 51 | 0 | 447 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.310 | 0.000 | 0.594 | 0.000 | 0.500 | 0.830 | 0.000 | 0.000 | 0.000 | 0.884 | 0.386 | 0.000 | 0.698 |
| | | | | | 0.379 | | | | 0.951 | | | | 0.668 | | | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 2 | 35 | 0 | 0 | 0 | 50 | 1 | 0 | 91 |
| 4:15 PM | 0 | 0 | 0 | 0 | 2 | 0 | 6 | 0 | 2 | 39 | 0 | 0 | 0 | 44 | 0 | 0 | 93 |
| 4:30 PM | 0 | 0 | 0 | 0 | 4 | 0 | 17 | 0 | 1 | 44 | 0 | 0 | 0 | 59 | 1 | 0 | 126 |
| 4:45 PM | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 41 | 0 | 0 | 0 | 57 | 0 | 0 | 102 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 0 | 0 | 0 | 44 | 1 | 0 | 91 |
| 5:15 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 34 | 0 | 0 | 0 | 49 | 1 | 0 | 85 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 47 | 0 | 0 | 0 | 54 | 0 | 0 | 102 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 33 | 0 | 0 | 0 | 37 | 0 | 0 | 72 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 0 | 0 | 0 | 38 | 0 | 0 | 60 |
| 6:15 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 21 | 0 | 0 | 45 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 22 | 0 | 0 | 0 | 20 | 0 | 0 | 43 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 13 | 0 | 0 | 29 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 11 | 0 | 30 | 0 | 6 | 402 | 0 | 0 | 0 | 486 | 4 | 0 | 939 |
| **APPROACH %'s :** | | | | | 26.83% | 0.00% | 73.17% | 0.00% | 1.47% | 98.53% | 0.00% | 0.00% | 0.00% | 99.18% | 0.82% | 0.00% | |
| **PEAK HR :** | 04:15 PM - 05:15 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 7 | 0 | 26 | 0 | 3 | 170 | 0 | 0 | 0 | 204 | 2 | 0 | 412 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.438 | 0.000 | 0.382 | 0.000 | 0.375 | 0.924 | 0.000 | 0.000 | 0.000 | 0.864 | 0.500 | 0.000 | 0.817 |
| | | | | | 0.393 | | | | 0.940 | | | | 0.858 | | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Highland School Dwy & Oak Springs Dr
**City:** Warrenton
**Control:** 1-Way Stop(SB)

**Project ID:** 23-260020-007
**Date:** 2/9/2023

## Data - Cars

| NS/EW Streets: | Highland School Dwy | | | | Highland School Dwy | | | | Oak Springs Dr | | | | Oak Springs Dr | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 1 | 0 | 0 | 7 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 7 | 0 | 0 | 11 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 11 | 0 | 0 | 16 |
| 6:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 14 | 0 | 0 | 28 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 13 | 0 | 0 | 0 | 16 | 4 | 0 | 35 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 27 | 0 | 0 | 0 | 30 | 2 | 0 | 62 |
| 7:30 AM | 0 | 0 | 0 | 0 | 3 | 0 | 4 | 0 | 13 | 34 | 0 | 0 | 0 | 25 | 10 | 0 | 89 |
| 7:45 AM | 0 | 0 | 0 | 0 | 25 | 0 | 8 | 0 | 19 | 29 | 0 | 0 | 0 | 42 | 33 | 0 | 156 |
| 8:00 AM | 0 | 0 | 0 | 0 | 2 | 0 | 6 | 0 | 5 | 40 | 0 | 0 | 0 | 42 | 5 | 0 | 100 |
| 8:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 47 | 0 | 0 | 0 | 42 | 3 | 0 | 95 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 5 | 27 | 0 | 0 | 0 | 32 | 7 | 0 | 74 |
| 8:45 AM | 0 | 0 | 0 | 0 | 19 | 0 | 14 | 0 | 20 | 29 | 0 | 0 | 0 | 17 | 13 | 0 | 112 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 50 | 0 | 38 | 0 | 66 | 275 | 0 | 0 | 0 | 279 | 77 | 0 | 785 |
| **APPROACH %'s :** | | | | | 56.82% | 0.00% | 43.18% | 0.00% | 19.35% | 80.65% | 0.00% | 0.00% | 0.00% | 78.37% | 21.63% | 0.00% | |
| **PEAK HR :** | 07:30 AM - 08:30 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 31 | 0 | 19 | 0 | 38 | 150 | 0 | 0 | 0 | 151 | 51 | 0 | 440 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.310 | 0.000 | 0.594 | 0.000 | 0.500 | 0.798 | 0.000 | 0.000 | 0.000 | 0.899 | 0.386 | 0.000 | 0.705 |
| | | | | | 0.379 | | | | 0.979 | | | | 0.673 | | | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 2 | 35 | 0 | 0 | 0 | 49 | 1 | 0 | 90 |
| 4:15 PM | 0 | 0 | 0 | 0 | 2 | 0 | 6 | 0 | 2 | 37 | 0 | 0 | 0 | 43 | 0 | 0 | 90 |
| 4:30 PM | 0 | 0 | 0 | 0 | 4 | 0 | 17 | 0 | 1 | 43 | 0 | 0 | 0 | 58 | 1 | 0 | 124 |
| 4:45 PM | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 40 | 0 | 0 | 0 | 56 | 0 | 0 | 100 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0 | 43 | 1 | 0 | 89 |
| 5:15 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 34 | 0 | 0 | 0 | 49 | 1 | 0 | 85 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 47 | 0 | 0 | 0 | 54 | 0 | 0 | 102 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 32 | 0 | 0 | 0 | 37 | 0 | 0 | 71 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 0 | 0 | 0 | 38 | 0 | 0 | 60 |
| 6:15 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 21 | 0 | 0 | 45 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 21 | 0 | 0 | 0 | 20 | 0 | 0 | 42 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 13 | 0 | 0 | 29 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 11 | 0 | 30 | 0 | 6 | 395 | 0 | 0 | 0 | 481 | 4 | 0 | 927 |
| **APPROACH %'s :** | | | | | 26.83% | 0.00% | 73.17% | 0.00% | 1.50% | 98.50% | 0.00% | 0.00% | 0.00% | 99.18% | 0.82% | 0.00% | |
| **PEAK HR :** | 04:15 PM - 05:15 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 7 | 0 | 26 | 0 | 3 | 165 | 0 | 0 | 0 | 200 | 2 | 0 | 403 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.438 | 0.000 | 0.382 | 0.000 | 0.375 | 0.917 | 0.000 | 0.000 | 0.000 | 0.862 | 0.500 | 0.000 | 0.813 |
| | | | | | 0.393 | | | | 0.933 | | | | 0.856 | | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Highland School Dwy & Oak Springs Dr
**City:** Warrenton
**Control:** 1-Way Stop(SB)

**Project ID:** 23-260020-007
**Date:** 2/9/2023

## Data - HT

| NS/EW Streets: | Highland School Dwy | | | | Highland School Dwy | | | | Oak Springs Dr | | | | Oak Springs Dr | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 6:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 4 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 1 | 0 | 0 | 15 |
| **APPROACH %'s :** | | | | | | | | | 0.00% | 100.00% | 0.00% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | |
| **PEAK HR :** | 07:30 AM - 08:30 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 1 | 0 | 0 | 7 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.500 | 0.000 | 0.000 | 0.000 | 0.250 | 0.000 | 0.000 | 0.438 |
| | | | | | | | | | | 0.500 | | | | 0.250 | | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 3 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 2 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 2 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 2 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 5 | 0 | 0 | 12 |
| **APPROACH %'s :** | | | | | | | | | 0.00% | 100.00% | 0.00% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | |
| **PEAK HR :** | 04:15 PM - 05:15 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 4 | 0 | 0 | 9 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.625 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.750 |
| | | | | | | | | | | 0.625 | | | | 1.000 | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Highland School Dwy & Oak Springs Dr
**City:** Warrenton
**Control:** 1-Way Stop(SB)

**Project ID:** 23-260020-007
**Date:** 2/9/2023

## Data - Bikes

| NS/EW Streets: | Highland School Dwy | | | | Highland School Dwy | | | | Oak Springs Dr | | | | Oak Springs Dr | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **APPROACH %'s :** | | | | | | | | | | | | | | | | | |
| **PEAK HR :** | 07:30 AM - 08:30 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |

| **PM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **APPROACH %'s :** | | | | | | | | | | | | | | | | | |
| **PEAK HR :** | 04:15 PM - 05:15 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Highland School Dwy & Oak Springs Dr
**City:** Warrenton
**Project ID:** 23-260020-007
**Date:** 2/9/2023

## Data - Pedestrians (Crosswalks)

| NS/EW Streets: | Highland School Dwy | | Highland School Dwy | | Oak Springs Dr | | Oak Springs Dr | | |
|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTH LEG | | SOUTH LEG | | EAST LEG | | WEST LEG | | |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:45 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| **TOTAL VOLUMES :** | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| **APPROACH %'s :** | 100.00% | 0.00% | | | | | | | |
| **PEAK HR :** | 07:30 AM - 08:30 AM | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **PEAK HR FACTOR :** | | | | | | | | | |

| **PM** | NORTH LEG | | SOUTH LEG | | EAST LEG | | WEST LEG | | |
|---|---|---|---|---|---|---|---|---|---|
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 5:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| **TOTAL VOLUMES :** | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| **APPROACH %'s :** | 0.00% | 100.00% | | | | | | | |
| **PEAK HR :** | 04:15 PM - 05:15 PM | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| **PEAK HR FACTOR :** | | 0.500 | | | | | | | 0.500 |
| | 0.500 | | | | | | | | |

Prepared by National Data & Surveying Services

# Highland School Dwy & Oak Springs Dr

## Peak Hour Turning Movement Count

**ID:** 23-260020-007
**City:** Warrenton

**Day:** Thursday
**Date:** 2/9/2023

| PEAK HOURS | COUNT PERIODS |
|---|---|
| 07:30 AM - 08:30 AM | 6:00 AM - 09:00 AM |
| NONE | NONE |
| 04:15 PM - 05:15 PM | 4:00 PM - 07:00 PM |

**CONTROL:** 1-Way stop(SB)

| | | | |
|---|---|---|---|
| TEV | 447 AM | 0 NOON | 412 PM |
| PHF | 0.70 | | 0.82 |

### SOUTHBOUND (Highland School Dwy)

| | Left | Thru | Right | U-Turn | |
|---|---|---|---|---|---|
| AM | 19 | 0 | 31 | 0 | 89 AM |
| NOON | 0 | 0 | 0 | 0 | 0 NOON |
| PM | 26 | 0 | 7 | 0 | 5 PM |

### EASTBOUND (Oak Springs Dr)

| AM | NOON | PM | | |
|---|---|---|---|---|
| 171 | 0 | 230 | | |
| 0 | 0 | 0 | 0 | |
| 38 | 0 | 3 | 1 | |
| 156 | 0 | 170 | 1 | |
| 0 | 0 | 0 | 0 | |

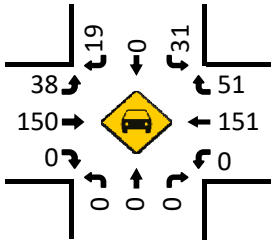
### WESTBOUND (Oak Springs Dr)

| PM | NOON | AM | | |
|---|---|---|---|---|
| 2 | 0 | 51 | 0 | |
| 204 | 0 | 152 | 1 | |
| 0 | 0 | 0 | 0 | |
| 0 | 0 | 0 | 0 | |
| 177 | 0 | 187 | | |

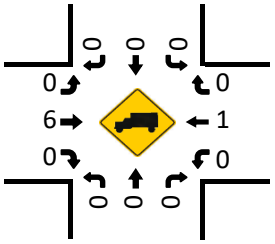
### NORTHBOUND (Highland School Dwy)

| | Left | Thru | Right | U-Turn | |
|---|---|---|---|---|---|
| PM | 0 | 0 | 0 | 0 | 0 PM |
| NOON | 0 | 0 | 0 | 0 | 0 NOON |
| AM | 0 | 0 | 0 | 0 | 0 AM |

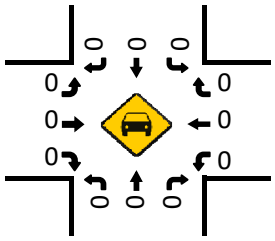
Cars (AM)



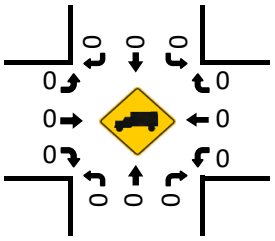

HT (AM)



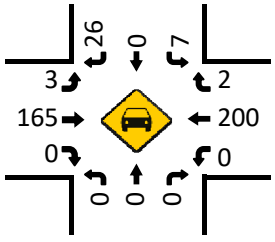

Cars (NOON)



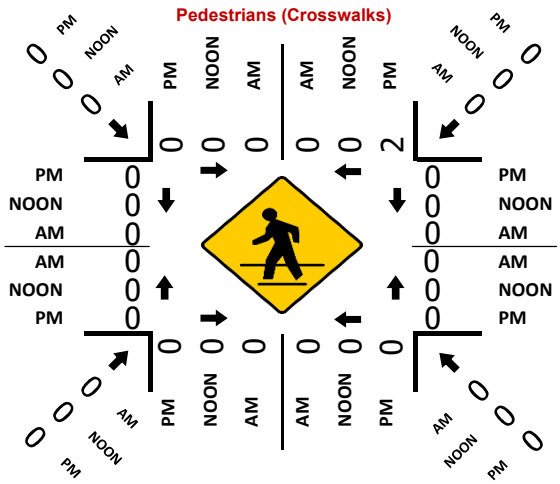

HT (NOON)




Cars (PM)




Pedestrians (Crosswalks)


PM
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# National Data & Surveying Services Intersection Turning Movement Count

**Location:** US 17/US 211/Broadview Ave & Oak Springs Dr
**City:** Warrenton
**Control:** 2-Way Stop(EB/WB)

**Project ID:** 23-260020-008
**Date:** 2/9/2023

## Data - Total

| NS/EW Streets: | US 17/US 211/Broadview Ave | | | | US 17/US 211/Broadview Ave | | | | Oak Springs Dr | | | | Oak Springs Dr | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 1 | 2 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 38 | 1 | 0 | 5 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 74 |
| 6:15 AM | 0 | 38 | 2 | 0 | 2 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 76 |
| 6:30 AM | 0 | 49 | 3 | 0 | 4 | 38 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 | 0 | 106 |
| 6:45 AM | 0 | 48 | 5 | 0 | 10 | 59 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 7 | 0 | 135 |
| 7:00 AM | 1 | 65 | 13 | 0 | 5 | 113 | 1 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 4 | 0 | 215 |
| 7:15 AM | 0 | 71 | 15 | 0 | 13 | 88 | 0 | 0 | 0 | 0 | 1 | 0 | 18 | 0 | 14 | 0 | 220 |
| 7:30 AM | 1 | 121 | 29 | 0 | 17 | 79 | 1 | 0 | 0 | 1 | 0 | 0 | 9 | 0 | 18 | 0 | 276 |
| 7:45 AM | 0 | 152 | 27 | 0 | 24 | 108 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 41 | 0 | 364 |
| 8:00 AM | 0 | 73 | 21 | 0 | 28 | 90 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 26 | 0 | 258 |
| 8:15 AM | 0 | 59 | 21 | 0 | 26 | 78 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 1 | 20 | 0 | 227 |
| 8:30 AM | 0 | 60 | 18 | 0 | 19 | 74 | 1 | 0 | 0 | 0 | 0 | 0 | 23 | 1 | 12 | 0 | 208 |
| 8:45 AM | 1 | 61 | 31 | 1 | 15 | 93 | 2 | 0 | 0 | 0 | 0 | 0 | 22 | 0 | 10 | 0 | 236 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 3 | 835 | 186 | 1 | 168 | 877 | 5 | 0 | 0 | 1 | 1 | 0 | 154 | 2 | 162 | 0 | 2395 |
| **APPROACH %'s :** | 0.29% | 81.46% | 18.15% | 0.10% | 16.00% | 83.52% | 0.48% | 0.00% | 0.00% | 50.00% | 50.00% | 0.00% | 48.43% | 0.63% | 50.94% | 0.00% | |
| **PEAK HR :** | 07:30 AM - 08:30 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 1 | 405 | 98 | 0 | 95 | 355 | 1 | 0 | 0 | 1 | 0 | 0 | 63 | 1 | 105 | 0 | 1125 |
| **PEAK HR FACTOR :** | 0.250 | 0.666 | 0.845 | 0.000 | 0.848 | 0.822 | 0.250 | 0.000 | 0.000 | 0.250 | 0.000 | 0.000 | 0.716 | 0.250 | 0.640 | 0.000 | 0.773 |
| | | 0.704 | | | | 0.854 | | | | 0.250 | | | | 0.797 | | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 1 | 81 | 19 | 0 | 19 | 128 | 0 | 0 | 1 | 0 | 1 | 0 | 20 | 0 | 32 | 0 | 302 |
| 4:15 PM | 0 | 95 | 24 | 0 | 16 | 142 | 0 | 0 | 1 | 0 | 0 | 0 | 13 | 0 | 34 | 0 | 325 |
| 4:30 PM | 0 | 119 | 16 | 0 | 30 | 108 | 0 | 0 | 0 | 0 | 2 | 0 | 40 | 0 | 39 | 0 | 354 |
| 4:45 PM | 1 | 75 | 18 | 0 | 21 | 119 | 2 | 0 | 0 | 1 | 1 | 0 | 24 | 0 | 34 | 0 | 296 |
| 5:00 PM | 1 | 94 | 19 | 0 | 27 | 107 | 0 | 0 | 0 | 1 | 1 | 0 | 13 | 0 | 33 | 0 | 296 |
| 5:15 PM | 0 | 85 | 14 | 0 | 19 | 116 | 0 | 0 | 0 | 0 | 1 | 0 | 18 | 0 | 31 | 0 | 284 |
| 5:30 PM | 1 | 68 | 21 | 0 | 26 | 93 | 0 | 0 | 0 | 1 | 0 | 0 | 25 | 0 | 28 | 0 | 263 |
| 5:45 PM | 0 | 83 | 9 | 0 | 24 | 106 | 1 | 0 | 0 | 0 | 0 | 0 | 22 | 0 | 18 | 0 | 263 |
| 6:00 PM | 0 | 66 | 11 | 0 | 13 | 64 | 0 | 0 | 0 | 0 | 1 | 0 | 13 | 0 | 23 | 0 | 191 |
| 6:15 PM | 0 | 66 | 11 | 0 | 10 | 87 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 14 | 0 | 196 |
| 6:30 PM | 0 | 56 | 12 | 0 | 10 | 54 | 0 | 0 | 1 | 0 | 1 | 0 | 9 | 0 | 13 | 0 | 156 |
| 6:45 PM | 0 | 52 | 8 | 0 | 8 | 53 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 8 | 0 | 133 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 4 | 940 | 182 | 0 | 223 | 1177 | 3 | 0 | 3 | 3 | 8 | 0 | 208 | 1 | 307 | 0 | 3059 |
| **APPROACH %'s :** | 0.36% | 83.48% | 16.16% | 0.00% | 15.89% | 83.89% | 0.21% | 0.00% | 21.43% | 21.43% | 57.14% | 0.00% | 40.31% | 0.19% | 59.50% | 0.00% | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 2 | 370 | 77 | 0 | 86 | 497 | 2 | 0 | 2 | 1 | 4 | 0 | 97 | 0 | 139 | 0 | 1277 |
| **PEAK HR FACTOR :** | 0.500 | 0.777 | 0.802 | 0.000 | 0.717 | 0.875 | 0.250 | 0.000 | 0.500 | 0.250 | 0.500 | 0.000 | 0.606 | 0.000 | 0.891 | 0.000 | 0.902 |
| | | 0.831 | | | | 0.926 | | | | 0.875 | | | | 0.747 | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** US 17/US 211/Broadview Ave & Oak Springs Dr
**City:** Warrenton
**Control:** 2-Way Stop(EB/WB)

**Project ID:** 23-260020-008
**Date:** 2/9/2023

## Data - Cars

| NS/EW Streets: | US 17/US 211/Broadview Ave | | | | US 17/US 211/Broadview Ave | | | | Oak Springs Dr | | | | Oak Springs Dr | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 1 | 2 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 35 | 1 | 0 | 5 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 70 |
| 6:15 AM | 0 | 35 | 2 | 0 | 2 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 73 |
| 6:30 AM | 0 | 47 | 2 | 0 | 3 | 36 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 | 0 | 100 |
| 6:45 AM | 0 | 45 | 5 | 0 | 9 | 56 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 7 | 0 | 128 |
| 7:00 AM | 1 | 57 | 11 | 0 | 5 | 106 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 4 | 0 | 197 |
| 7:15 AM | 0 | 67 | 15 | 0 | 12 | 81 | 0 | 0 | 0 | 0 | 1 | 0 | 18 | 0 | 14 | 0 | 208 |
| 7:30 AM | 1 | 117 | 29 | 0 | 17 | 71 | 1 | 0 | 0 | 1 | 0 | 0 | 9 | 0 | 18 | 0 | 264 |
| 7:45 AM | 0 | 146 | 26 | 0 | 22 | 107 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 40 | 0 | 353 |
| 8:00 AM | 0 | 67 | 21 | 0 | 25 | 89 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 26 | 0 | 248 |
| 8:15 AM | 0 | 52 | 21 | 0 | 26 | 72 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 1 | 20 | 0 | 214 |
| 8:30 AM | 0 | 56 | 17 | 0 | 19 | 59 | 1 | 0 | 0 | 0 | 0 | 0 | 23 | 1 | 12 | 0 | 188 |
| 8:45 AM | 1 | 58 | 31 | 1 | 14 | 88 | 2 | 0 | 0 | 0 | 0 | 0 | 22 | 0 | 10 | 0 | 227 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 3 | 782 | 181 | 1 | 159 | 821 | 4 | 0 | 0 | 1 | 1 | 0 | 154 | 2 | 161 | 0 | 2270 |
| **APPROACH %'s :** | 0.31% | 80.87% | 18.72% | 0.10% | 16.16% | 83.43% | 0.41% | 0.00% | 0.00% | 50.00% | 50.00% | 0.00% | 48.58% | 0.63% | 50.79% | 0.00% | |
| **PEAK HR :** | 07:30 AM - 08:30 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 1 | 382 | 97 | 0 | 90 | 339 | 1 | 0 | 0 | 1 | 0 | 0 | 63 | 1 | 104 | 0 | 1079 |
| **PEAK HR FACTOR :** | 0.250 | 0.654 | 0.836 | 0.000 | 0.865 | 0.792 | 0.250 | 0.000 | 0.000 | 0.250 | 0.000 | 0.000 | 0.716 | 0.250 | 0.650 | 0.000 | 0.764 |
| | | 0.698 | | | | 0.833 | | | | 0.250 | | | | 0.808 | | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 1 | 80 | 19 | 0 | 19 | 124 | 0 | 0 | 1 | 0 | 1 | 0 | 20 | 0 | 31 | 0 | 296 |
| 4:15 PM | 0 | 93 | 22 | 0 | 16 | 134 | 0 | 0 | 1 | 0 | 0 | 0 | 12 | 0 | 34 | 0 | 312 |
| 4:30 PM | 0 | 115 | 15 | 0 | 30 | 105 | 0 | 0 | 0 | 0 | 2 | 0 | 40 | 0 | 38 | 0 | 345 |
| 4:45 PM | 1 | 71 | 18 | 0 | 20 | 116 | 2 | 0 | 0 | 1 | 1 | 0 | 24 | 0 | 33 | 0 | 287 |
| 5:00 PM | 1 | 93 | 18 | 0 | 27 | 105 | 0 | 0 | 0 | 1 | 1 | 0 | 13 | 0 | 32 | 0 | 291 |
| 5:15 PM | 0 | 83 | 14 | 0 | 19 | 115 | 0 | 0 | 0 | 0 | 1 | 0 | 18 | 0 | 31 | 0 | 281 |
| 5:30 PM | 1 | 68 | 21 | 0 | 26 | 92 | 0 | 0 | 0 | 1 | 0 | 0 | 25 | 0 | 28 | 0 | 262 |
| 5:45 PM | 0 | 82 | 8 | 0 | 24 | 105 | 1 | 0 | 0 | 0 | 0 | 0 | 22 | 0 | 18 | 0 | 260 |
| 6:00 PM | 0 | 65 | 11 | 0 | 13 | 64 | 0 | 0 | 0 | 0 | 1 | 0 | 13 | 0 | 23 | 0 | 190 |
| 6:15 PM | 0 | 66 | 11 | 0 | 10 | 86 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 14 | 0 | 195 |
| 6:30 PM | 0 | 56 | 11 | 0 | 10 | 53 | 0 | 0 | 1 | 0 | 1 | 0 | 9 | 0 | 13 | 0 | 154 |
| 6:45 PM | 0 | 51 | 8 | 0 | 8 | 52 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 8 | 0 | 131 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 4 | 923 | 176 | 0 | 222 | 1151 | 3 | 0 | 3 | 3 | 8 | 0 | 207 | 1 | 303 | 0 | 3004 |
| **APPROACH %'s :** | 0.36% | 83.68% | 15.96% | 0.00% | 16.13% | 83.65% | 0.22% | 0.00% | 21.43% | 21.43% | 57.14% | 0.00% | 40.51% | 0.20% | 59.30% | 0.00% | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 2 | 359 | 74 | 0 | 85 | 479 | 2 | 0 | 2 | 1 | 4 | 0 | 96 | 0 | 136 | 0 | 1240 |
| **PEAK HR FACTOR :** | 0.500 | 0.780 | 0.841 | 0.000 | 0.708 | 0.894 | 0.250 | 0.000 | 0.500 | 0.250 | 0.500 | 0.000 | 0.600 | 0.000 | 0.895 | 0.000 | 0.899 |
| | | 0.837 | | | | 0.943 | | | | 0.875 | | | | 0.744 | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** US 17/US 211/Broadview Ave & Oak Springs Dr
**City:** Warrenton
**Control:** 2-Way Stop(EB/WB)

**Project ID:** 23-260020-008
**Date:** 2/9/2023

## Data - HT

| NS/EW Streets: | US 17/US 211/Broadview Ave | | | | US 17/US 211/Broadview Ave | | | | Oak Springs Dr | | | | Oak Springs Dr | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 1 | 2 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 6:15 AM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 6:30 AM | 0 | 2 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 6:45 AM | 0 | 3 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 7:00 AM | 0 | 8 | 2 | 0 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| 7:15 AM | 0 | 4 | 0 | 0 | 1 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 7:30 AM | 0 | 4 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 7:45 AM | 0 | 6 | 1 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 11 |
| 8:00 AM | 0 | 6 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 8:15 AM | 0 | 7 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 8:30 AM | 0 | 4 | 1 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 8:45 AM | 0 | 3 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 53 | 5 | 0 | 9 | 56 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 125 |
| **APPROACH %'s :** | 0.00% | 91.38% | 8.62% | 0.00% | 13.64% | 84.85% | 1.52% | 0.00% | | | | | 0.00% | 0.00% | 100.00% | 0.00% | |
| **PEAK HR :** | 07:30 AM - 08:30 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 23 | 1 | 0 | 5 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 46 |
| **PEAK HR FACTOR :** | 0.000 | 0.821 | 0.250 | 0.000 | 0.417 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.250 | 0.000 | 0.885 |
| | | 0.857 | | | | 0.656 | | | | | | | | 0.250 | | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 6 |
| 4:15 PM | 0 | 2 | 2 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 13 |
| 4:30 PM | 0 | 4 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 9 |
| 4:45 PM | 0 | 4 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 9 |
| 5:00 PM | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 5 |
| 5:15 PM | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 5:45 PM | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 6:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 6:30 PM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 6:45 PM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 17 | 6 | 0 | 1 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4 | 0 | 55 |
| **APPROACH %'s :** | 0.00% | 73.91% | 26.09% | 0.00% | 3.70% | 96.30% | 0.00% | 0.00% | | | | | 20.00% | 0.00% | 80.00% | 0.00% | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 11 | 3 | 0 | 1 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 37 |
| **PEAK HR FACTOR :** | 0.000 | 0.688 | 0.375 | 0.000 | 0.250 | 0.563 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.250 | 0.000 | 0.750 | 0.000 | 0.712 |
| | | 0.700 | | | | 0.594 | | | | | | | | 1.000 | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** US 17/US 211/Broadview Ave & Oak Springs Dr
**City:** Warrenton
**Control:** 2-Way Stop(EB/WB)

**Project ID:** 23-260020-008
**Date:** 2/9/2023

## Data - Bikes

| NS/EW Streets: | US 17/US 211/Broadview Ave | | | | US 17/US 211/Broadview Ave | | | | Oak Springs Dr | | | | Oak Springs Dr | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 1 | 2 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **APPROACH %'s :** | | | | | | | | | | | | | | | | | |
| **PEAK HR :** | 07:30 AM - 08:30 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **APPROACH %'s :** | | | | | | | | | | | | | | | | | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** US 17/US 211/Broadview Ave & Oak Springs Dr **Project ID:** 23-260020-008
**City:** Warrenton **Date:** 2/9/2023

## Data - Pedestrians (Crosswalks)

| NS/EW Streets: | US 17/US 211/Broadview Ave | | US 17/US 211/Broadview Ave | | Oak Springs Dr | | Oak Springs Dr | | |
|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTH LEG | | SOUTH LEG | | EAST LEG | | WEST LEG | | |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:45 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 3 |
| **APPROACH %'s :** | | | | | 100.00% | 0.00% | 50.00% | 50.00% | |
| **PEAK HR :** | 07:30 AM - 08:30 AM | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **PEAK HR FACTOR :** | | | | | | | | | |

| **PM** | NORTH LEG | | SOUTH LEG | | EAST LEG | | WEST LEG | | |
|---|---|---|---|---|---|---|---|---|---|
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 3 |
| 5:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 6:00 PM | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 3 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| **TOTAL VOLUMES :** | 0 | 1 | 0 | 0 | 3 | 1 | 5 | 2 | 12 |
| **APPROACH %'s :** | 0.00% | 100.00% | | | 75.00% | 25.00% | 71.43% | 28.57% | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 5 |
| **PEAK HR FACTOR :** | | | | | | 0.250 | 0.375 | 0.250 | 0.417 |
| | | | | | 0.250 | | 0.500 | | |

Prepared by National Data & Surveying Services

# US 17/US 211/Broadview Ave & Oak Springs Dr

## Peak Hour Turning Movement Count

**ID:** 23-260020-008
**City:** Warrenton

**Day:** Thursday
**Date:** 2/9/2023

| PEAK HOURS | COUNT PERIODS |
|---|---|
| 07:30 AM - 08:30 AM | 6:00 AM - 09:00 AM |
| NONE | NONE |
| 04:00 PM - 05:00 PM | 4:00 PM - 07:00 PM |

### SOUTHBOUND — US 17/US 211/Broadview Ave

| | | | | | | |
|---|---|---|---|---|---|---|
| AM | 1 | 355 | 95 | 0 | 510 | AM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| PM | 2 | 497 | 86 | 0 | 511 | PM |

### EASTBOUND — Oak Springs Dr

| AM | NOON | PM | | |
|---|---|---|---|---|
| 3 | 0 | 4 | ⇦ | |
| 0 | 0 | 0 | ↶ | 0 |
| 0 | 0 | 2 | ↱ | 0 |
| 1 | 0 | 1 | → | 1 |
| 0 | 0 | 4 | ↴ | 0 |
| AM | NOON | PM | | |

### WESTBOUND — Oak Springs Dr

| PM | NOON | AM | | |
|---|---|---|---|---|
| 139 | 0 | 105 | ↰ | 1 |
| 0 | 0 | 1 | ← | 0 |
| 97 | 0 | 63 | ↰ | 1 |
| 0 | 0 | 0 | ↶ | 0 |
| 164 | 0 | 194 | ⇨ | |
| PM | NOON | AM | | |

### NORTHBOUND — US 17/US 211/Broadview Ave

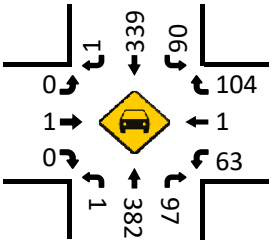
| | | | | | | |
|---|---|---|---|---|---|---|
| PM | 598 | 0 | 2 | 370 | 77 | PM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| AM | 418 | 0 | 1 | 405 | 98 | AM |

### CONTROL

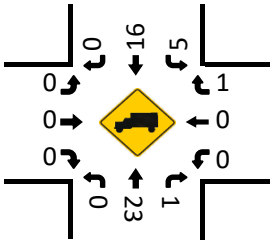
2-Way Stop(EB/WB)

| | | | |
|---|---|---|---|
| TEV | 1125 AM | 0 NOON | 1277 PM |
| PHF | 0.77 | | 0.90 |

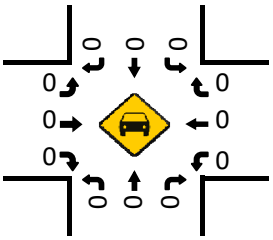
Cars (AM)



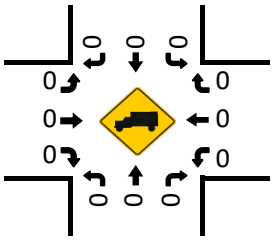

HT (AM)



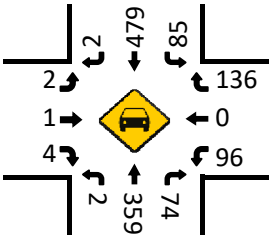

Cars (NOON)



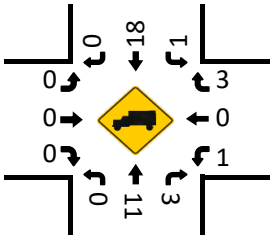

HT (NOON)



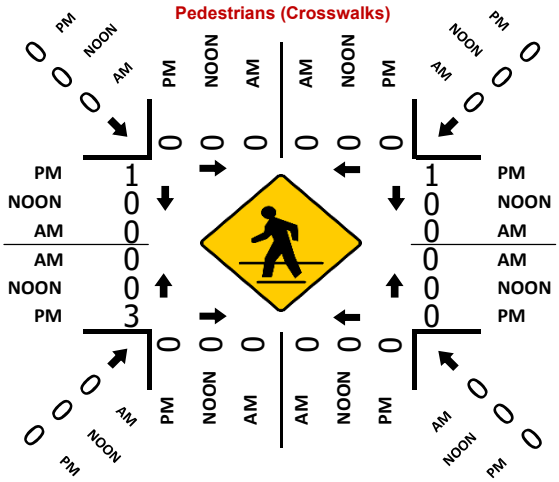

Cars (PM)




HT (PM)




Pedestrians (Crosswalks)



# National Data & Surveying Services Intersection Turning Movement Count

**Location:** US 17/US 211/Broadview Ave & Warrenton Village North Dwy
**City:** Warrenton
**Control:** 1-Way stop(WB)

**Project ID:** 23-260020-009
**Date:** 2/9/2023

## Data - Total

| NS/EW Streets: | US 17/US 211/Broadview Ave | | | | US 17/US 211/Broadview Ave | | | | Warrenton Village North Dwy | | | | Warrenton Village North Dwy | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 1 | 2 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0.5 | 0.5 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 38 | 1 | 0 | 0 | 28 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 70 |
| 6:15 AM | 0 | 41 | 0 | 0 | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 72 |
| 6:30 AM | 0 | 51 | 0 | 0 | 1 | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 95 |
| 6:45 AM | 0 | 52 | 0 | 0 | 1 | 64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 118 |
| 7:00 AM | 6 | 78 | 0 | 0 | 2 | 123 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 2 | 0 | 214 |
| 7:15 AM | 1 | 84 | 1 | 0 | 0 | 107 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 195 |
| 7:30 AM | 2 | 153 | 1 | 0 | 3 | 82 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 242 |
| 7:45 AM | 7 | 169 | 2 | 0 | 4 | 118 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 8 | 0 | 310 |
| 8:00 AM | 3 | 89 | 5 | 0 | 4 | 106 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 5 | 0 | 216 |
| 8:15 AM | 1 | 77 | 2 | 0 | 4 | 95 | 1 | 0 | 0 | 0 | 3 | 0 | 1 | 0 | 5 | 0 | 189 |
| 8:30 AM | 4 | 75 | 4 | 0 | 3 | 92 | 1 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 5 | 0 | 188 |
| 8:45 AM | 8 | 83 | 1 | 0 | 1 | 116 | 0 | 0 | 2 | 0 | 4 | 0 | 4 | 0 | 5 | 0 | 224 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 32 | 990 | 17 | 0 | 23 | 1005 | 5 | 0 | 2 | 0 | 12 | 0 | 14 | 1 | 32 | 0 | 2133 |
| **APPROACH %'s :** | 3.08% | 95.28% | 1.64% | 0.00% | 2.23% | 97.29% | 0.48% | 0.00% | 14.29% | 0.00% | 85.71% | 0.00% | 29.79% | 2.13% | 68.09% | 0.00% | |
| **PEAK HR :** | 07:15 AM - 08:15 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 13 | 495 | 9 | 0 | 11 | 413 | 2 | 0 | 0 | 0 | 1 | 0 | 4 | 1 | 14 | 0 | 963 |
| **PEAK HR FACTOR :** | 0.464 | 0.732 | 0.450 | 0.000 | 0.688 | 0.875 | 0.500 | 0.000 | 0.000 | 0.000 | 0.250 | 0.000 | 0.333 | 0.250 | 0.438 | 0.000 | 0.777 |
| | 0.726 | | | | 0.866 | | | | 0.250 | | | | 0.528 | | | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0.5 | 0.5 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 3 | 87 | 6 | 0 | 17 | 131 | 2 | 0 | 2 | 0 | 4 | 0 | 11 | 1 | 11 | 0 | 275 |
| 4:15 PM | 5 | 104 | 1 | 1 | 8 | 146 | 1 | 0 | 2 | 0 | 3 | 0 | 3 | 0 | 13 | 0 | 287 |
| 4:30 PM | 2 | 124 | 8 | 1 | 8 | 140 | 1 | 0 | 4 | 1 | 5 | 0 | 10 | 0 | 8 | 0 | 312 |
| 4:45 PM | 3 | 85 | 0 | 0 | 7 | 135 | 2 | 1 | 2 | 0 | 5 | 0 | 9 | 0 | 5 | 0 | 254 |
| 5:00 PM | 5 | 102 | 2 | 0 | 9 | 108 | 4 | 0 | 3 | 1 | 6 | 0 | 6 | 0 | 9 | 0 | 255 |
| 5:15 PM | 8 | 91 | 1 | 0 | 12 | 121 | 1 | 0 | 1 | 1 | 6 | 0 | 9 | 0 | 7 | 0 | 258 |
| 5:30 PM | 5 | 83 | 3 | 0 | 5 | 114 | 0 | 0 | 0 | 1 | 3 | 0 | 8 | 0 | 8 | 0 | 230 |
| 5:45 PM | 2 | 81 | 3 | 0 | 13 | 113 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 10 | 0 | 226 |
| 6:00 PM | 5 | 70 | 3 | 0 | 10 | 68 | 1 | 0 | 2 | 1 | 5 | 0 | 2 | 0 | 5 | 0 | 172 |
| 6:15 PM | 1 | 62 | 0 | 0 | 7 | 88 | 0 | 0 | 0 | 0 | 2 | 0 | 9 | 0 | 15 | 0 | 184 |
| 6:30 PM | 0 | 60 | 3 | 0 | 4 | 59 | 1 | 0 | 1 | 0 | 2 | 0 | 9 | 0 | 7 | 0 | 146 |
| 6:45 PM | 3 | 59 | 1 | 0 | 8 | 48 | 0 | 0 | 0 | 0 | 5 | 0 | 3 | 1 | 1 | 0 | 129 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 42 | 1008 | 31 | 2 | 108 | 1271 | 14 | 1 | 17 | 5 | 47 | 0 | 81 | 2 | 99 | 0 | 2728 |
| **APPROACH %'s :** | 3.88% | 93.07% | 2.86% | 0.18% | 7.75% | 91.18% | 1.00% | 0.07% | 24.64% | 7.25% | 68.12% | 0.00% | 44.51% | 1.10% | 54.40% | 0.00% | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 13 | 400 | 15 | 2 | 40 | 552 | 6 | 1 | 10 | 1 | 17 | 0 | 33 | 1 | 37 | 0 | 1128 |
| **PEAK HR FACTOR :** | 0.650 | 0.806 | 0.469 | 0.500 | 0.588 | 0.945 | 0.750 | 0.250 | 0.625 | 0.250 | 0.850 | 0.000 | 0.750 | 0.250 | 0.712 | 0.000 | 0.904 |
| | 0.796 | | | | 0.966 | | | | 0.700 | | | | 0.772 | | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** US 17/US 211/Broadview Ave & Warrenton Village North Dwy
**City:** Warrenton
**Control:** 1-Way stop(WB)

**Project ID:** 23-260020-009
**Date:** 2/9/2023

## Data - Cars

| NS/EW Streets: | US 17/US 211/Broadview Ave | | | | US 17/US 211/Broadview Ave | | | | Warrenton Village North Dwy | | | | Warrenton Village North Dwy | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 1 | 2 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0.5 | 0.5 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 35 | 1 | 0 | 0 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 65 |
| 6:15 AM | 0 | 38 | 0 | 0 | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 69 |
| 6:30 AM | 0 | 48 | 0 | 0 | 1 | 41 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 90 |
| 6:45 AM | 0 | 50 | 0 | 0 | 0 | 62 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 112 |
| 7:00 AM | 6 | 68 | 0 | 0 | 2 | 117 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 197 |
| 7:15 AM | 1 | 80 | 1 | 0 | 0 | 99 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 183 |
| 7:30 AM | 2 | 149 | 1 | 0 | 3 | 74 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 230 |
| 7:45 AM | 7 | 163 | 2 | 0 | 4 | 117 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 7 | 0 | 302 |
| 8:00 AM | 3 | 83 | 5 | 0 | 4 | 105 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 5 | 0 | 209 |
| 8:15 AM | 1 | 70 | 2 | 0 | 4 | 89 | 1 | 0 | 0 | 0 | 3 | 0 | 1 | 0 | 5 | 0 | 176 |
| 8:30 AM | 4 | 71 | 2 | 0 | 3 | 77 | 1 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 4 | 0 | 166 |
| 8:45 AM | 8 | 81 | 1 | 0 | 1 | 111 | 0 | 0 | 2 | 0 | 4 | 0 | 4 | 0 | 4 | 0 | 216 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 32 | 936 | 15 | 0 | 22 | 951 | 4 | 0 | 2 | 0 | 10 | 0 | 14 | 1 | 28 | 0 | 2015 |
| **APPROACH %'s :** | 3.26% | 95.22% | 1.53% | 0.00% | 2.25% | 97.34% | 0.41% | 0.00% | 16.67% | 0.00% | 83.33% | 0.00% | 32.56% | 2.33% | 65.12% | 0.00% | |
| **PEAK HR :** | 07:15 AM - 08:15 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 13 | 475 | 9 | 0 | 11 | 395 | 2 | 0 | 0 | 0 | 1 | 0 | 4 | 1 | 13 | 0 | 924 |
| **PEAK HR FACTOR :** | 0.464 | 0.729 | 0.450 | 0.000 | 0.688 | 0.844 | 0.500 | 0.000 | 0.000 | 0.000 | 0.250 | 0.000 | 0.333 | 0.250 | 0.464 | 0.000 | 0.765 |
| | 0.722 | | | | 0.836 | | | | 0.250 | | | | 0.563 | | | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0.5 | 0.5 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 3 | 86 | 6 | 0 | 17 | 127 | 2 | 0 | 2 | 0 | 4 | 0 | 11 | 1 | 11 | 0 | 270 |
| 4:15 PM | 5 | 102 | 1 | 1 | 8 | 137 | 1 | 0 | 2 | 0 | 3 | 0 | 3 | 0 | 11 | 0 | 274 |
| 4:30 PM | 2 | 119 | 8 | 1 | 8 | 137 | 1 | 0 | 4 | 1 | 5 | 0 | 10 | 0 | 8 | 0 | 304 |
| 4:45 PM | 3 | 81 | 0 | 0 | 7 | 132 | 2 | 1 | 2 | 0 | 5 | 0 | 9 | 0 | 5 | 0 | 247 |
| 5:00 PM | 5 | 101 | 2 | 0 | 9 | 106 | 4 | 0 | 3 | 1 | 6 | 0 | 6 | 0 | 8 | 0 | 251 |
| 5:15 PM | 8 | 89 | 1 | 0 | 12 | 120 | 1 | 0 | 1 | 1 | 6 | 0 | 9 | 0 | 7 | 0 | 255 |
| 5:30 PM | 4 | 83 | 3 | 0 | 5 | 113 | 0 | 0 | 0 | 1 | 2 | 0 | 8 | 0 | 8 | 0 | 227 |
| 5:45 PM | 2 | 80 | 3 | 0 | 13 | 112 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 9 | 0 | 223 |
| 6:00 PM | 4 | 69 | 3 | 0 | 10 | 68 | 1 | 0 | 2 | 1 | 5 | 0 | 2 | 0 | 5 | 0 | 170 |
| 6:15 PM | 1 | 62 | 0 | 0 | 7 | 87 | 0 | 0 | 0 | 0 | 2 | 0 | 9 | 0 | 15 | 0 | 183 |
| 6:30 PM | 0 | 60 | 3 | 0 | 3 | 59 | 1 | 0 | 1 | 0 | 2 | 0 | 9 | 0 | 6 | 0 | 144 |
| 6:45 PM | 3 | 58 | 1 | 0 | 8 | 47 | 0 | 0 | 0 | 0 | 5 | 0 | 3 | 1 | 1 | 0 | 127 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 40 | 990 | 31 | 2 | 107 | 1245 | 14 | 1 | 17 | 5 | 46 | 0 | 81 | 2 | 94 | 0 | 2675 |
| **APPROACH %'s :** | 3.76% | 93.13% | 2.92% | 0.19% | 7.83% | 91.08% | 1.02% | 0.07% | 25.00% | 7.35% | 67.65% | 0.00% | 45.76% | 1.13% | 53.11% | 0.00% | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 13 | 388 | 15 | 2 | 40 | 533 | 6 | 1 | 10 | 1 | 17 | 0 | 33 | 1 | 35 | 0 | 1095 |
| **PEAK HR FACTOR :** | 0.650 | 0.815 | 0.469 | 0.500 | 0.588 | 0.973 | 0.750 | 0.250 | 0.625 | 0.250 | 0.850 | 0.000 | 0.750 | 0.250 | 0.795 | 0.000 | 0.900 |
| | 0.804 | | | | 0.993 | | | | 0.700 | | | | 0.750 | | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** US 17/US 211/Broadview Ave & Warrenton Village North Dwy
**City:** Warrenton
**Control:** 1-Way stop(WB)

**Project ID:** 23-260020-009
**Date:** 2/9/2023

## Data - HT

| NS/EW Streets: | US 17/US 211/Broadview Ave | | | | US 17/US 211/Broadview Ave | | | | Warrenton Village North Dwy | | | | Warrenton Village North Dwy | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 1 | 2 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0.5 | 0.5 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 5 |
| 6:15 AM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 6:30 AM | 0 | 3 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 6:45 AM | 0 | 2 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 6 |
| 7:00 AM | 0 | 10 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 17 |
| 7:15 AM | 0 | 4 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 7:30 AM | 0 | 4 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 7:45 AM | 0 | 6 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 8 |
| 8:00 AM | 0 | 6 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 8:15 AM | 0 | 7 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 8:30 AM | 0 | 4 | 2 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 22 |
| 8:45 AM | 0 | 2 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 8 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 54 | 2 | 0 | 1 | 54 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 118 |
| **APPROACH %'s :** | 0.00% | 96.43% | 3.57% | 0.00% | 1.79% | 96.43% | 1.79% | 0.00% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | 0.00% | 100.00% | 0.00% | |
| **PEAK HR :** | 07:15 AM - 08:15 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 20 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 39 |
| **PEAK HR FACTOR :** | 0.000 | 0.833 | 0.000 | 0.000 | 0.000 | 0.563 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.250 | 0.000 | 0.813 |
| | | 0.833 | | | | 0.563 | | | | | | | | 0.250 | | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0.5 | 0.5 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 4:15 PM | 0 | 2 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 13 |
| 4:30 PM | 0 | 5 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 4:45 PM | 0 | 4 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 5:00 PM | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4 |
| 5:15 PM | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 5:30 PM | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 |
| 5:45 PM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 |
| 6:00 PM | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 6:30 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 |
| 6:45 PM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 2 | 18 | 0 | 0 | 1 | 26 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 5 | 0 | 53 |
| **APPROACH %'s :** | 10.00% | 90.00% | 0.00% | 0.00% | 3.70% | 96.30% | 0.00% | 0.00% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | 0.00% | 100.00% | 0.00% | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 12 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 33 |
| **PEAK HR FACTOR :** | 0.000 | 0.600 | 0.000 | 0.000 | 0.000 | 0.528 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.250 | 0.000 | 0.635 |
| | | 0.600 | | | | 0.528 | | | | | | | | 0.250 | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** US 17/US 211/Broadview Ave & Warrenton Village North Dwy
**City:** Warrenton
**Control:** 1-Way stop(WB)

**Project ID:** 23-260020-009
**Date:** 2/9/2023

## Data - Bikes

| NS/EW Streets: | US 17/US 211/Broadview Ave | | | | US 17/US 211/Broadview Ave | | | | Warrenton Village North Dwy | | | | Warrenton Village North Dwy | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 1 | 2 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0.5 | 0.5 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **APPROACH %'s :** | | | | | | | | | | | | | | | | | |
| **PEAK HR :** | 07:15 AM - 08:15 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |

| **PM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0.5 | 0.5 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **APPROACH %'s :** | | | | | | | | | | | | | | | | | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** US 17/US 211/Broadview Ave & Warrenton Village North Dwy **Project ID:** 23-260020-009
**City:** Warrenton **Date:** 2/9/2023

## Data - Pedestrians (Crosswalks)

| NS/EW Streets: | US 17/US 211/Broadview Ave | | US 17/US 211/Broadview Ave | | Warrenton Village North Dwy | | Warrenton Village North Dwy | | |
|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTH LEG | | SOUTH LEG | | EAST LEG | | WEST LEG | | |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:45 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| **TOTAL VOLUMES :** | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 3 |
| **APPROACH %'s :** | 100.00% | 0.00% | | | | | 50.00% | 50.00% | |
| **PEAK HR :** | **07:15 AM - 08:15 AM** | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **PEAK HR FACTOR :** | | | | | | | | | |

| **PM** | NORTH LEG | | SOUTH LEG | | EAST LEG | | WEST LEG | | |
|---|---|---|---|---|---|---|---|---|---|
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 |
| 5:00 PM | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 3 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:00 PM | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 2 | 0 | 2 | 0 | 4 | 2 | 10 |
| **APPROACH %'s :** | | | 100.00% | 0.00% | 100.00% | 0.00% | 66.67% | 33.33% | |
| **PEAK HR :** | **04:00 PM - 05:00 PM** | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 5 |
| **PEAK HR FACTOR :** | | | | | | | 0.333 | 0.250 | 0.417 |
| | | | | | | | 0.417 | | |

Prepared by National Data & Surveying Services

# US 17/US 211/Broadview Ave & Warrenton Village North Dwy

## Peak Hour Turning Movement Count

**ID:** 23-260020-009
**City:** Warrenton

**Day:** Thursday
**Date:** 2/9/2023

| PEAK HOURS | COUNT PERIODS |
|---|---|
| 07:15 AM - 08:15 AM | 6:00 AM - 09:00 AM |
| NONE | NONE |
| 04:00 PM - 05:00 PM | 4:00 PM - 07:00 PM |

### SOUTHBOUND — US 17/US 211/Broadview Ave

| | | | | | | |
|---|---|---|---|---|---|---|
| AM | 2 | 413 | 11 | 0 | 509 | AM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| PM | 6 | 552 | 40 | 1 | 448 | PM |
| | 0 | 2 | 1 | 0 | | |

### EASTBOUND — Warrenton Village North Dwy

| AM | NOON | PM | |
|---|---|---|---|
| 16 | 0 | 20 | |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 10 | 0 |
| 0 | 0 | 1 | 1 |
| 1 | 0 | 17 | 0 |
| AM | NOON | PM | |

### WESTBOUND — Warrenton Village North Dwy

| PM | NOON | AM | |
|---|---|---|---|
| 37 | 0 | 14 | 0.5 |
| 1 | 0 | 1 | 0.5 |
| 33 | 0 | 4 | 1 |
| 0 | 0 | 0 | 0 |
| 56 | 0 | 20 | |
| PM | NOON | AM | |

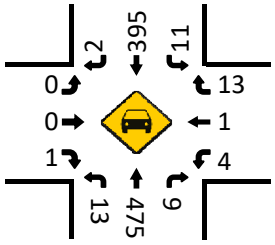
### CONTROL

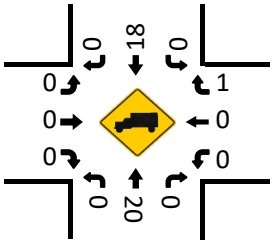
1-Way stop(WB)

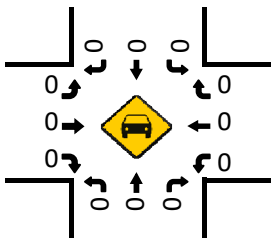
| | | | |
|---|---|---|---|
| TEV | 963 | 0 | 1128 |
| | AM | NOON | PM |
| PHF | 0.78 | | 0.90 |

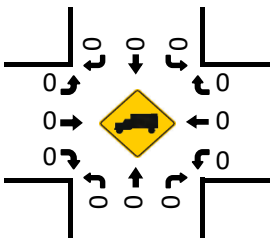
### NORTHBOUND — US 17/US 211/Broadview Ave

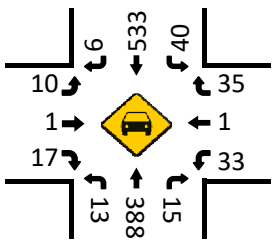
| | | | | | | |
|---|---|---|---|---|---|---|
| PM | 604 | 2 | 13 | 400 | 15 | PM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| AM | 418 | 0 | 13 | 495 | 9 | AM |
| | | 0 | 1 | 2 | 1 | |

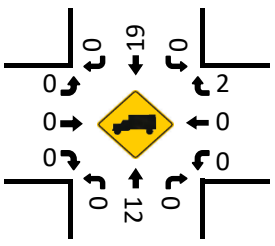


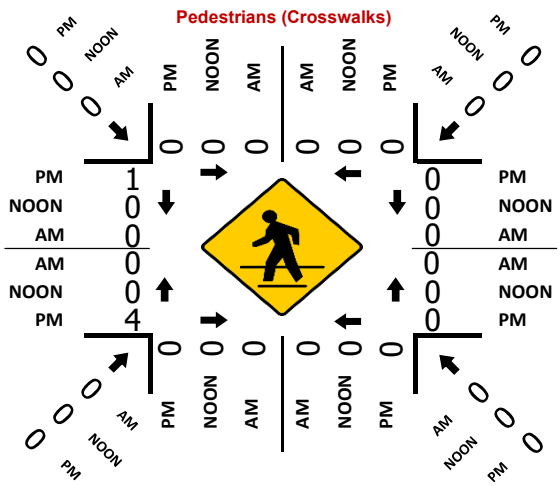



# National Data & Surveying Services Intersection Turning Movement Count

**Location:** US 17/US 211/Broadview Ave/Winchester St & Warrenton Village South Dwy/Broadview Ave
**City:** Warrenton
**Control:** 2-Way Stop(EB/WB)

**Project ID:** 23-260020-010
**Date:** 2/9/2023

## Data - Total

| NS/EW Streets: | US 17/US 211/Broadview Ave/Winchester St | | | | US 17/US 211/Broadview Ave/Winchester St | | | | Warrenton Village South Dwy/Broadview Ave | | | | Warrenton Village South Dwy/Broadview Ave | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 1 | 2 | 1 | 0 | 1 | 2 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0.5 | 0.5 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 25 | 17 | 2 | 0 | 0 | 20 | 8 | 0 | 22 | 4 | 24 | 0 | 0 | 1 | 0 | 0 | 123 |
| 6:15 AM | 29 | 21 | 2 | 0 | 0 | 26 | 7 | 0 | 20 | 1 | 13 | 0 | 0 | 2 | 0 | 0 | 121 |
| 6:30 AM | 27 | 26 | 1 | 1 | 0 | 35 | 8 | 0 | 26 | 2 | 12 | 0 | 0 | 3 | 0 | 0 | 141 |
| 6:45 AM | 32 | 31 | 3 | 0 | 0 | 57 | 7 | 0 | 20 | 2 | 21 | 0 | 0 | 2 | 0 | 0 | 175 |
| 7:00 AM | 32 | 58 | 7 | 1 | 1 | 117 | 7 | 0 | 24 | 5 | 16 | 0 | 3 | 1 | 2 | 0 | 274 |
| 7:15 AM | 26 | 66 | 6 | 0 | 0 | 98 | 11 | 0 | 26 | 8 | 19 | 0 | 1 | 0 | 0 | 0 | 261 |
| 7:30 AM | 30 | 120 | 8 | 0 | 4 | 59 | 19 | 0 | 30 | 5 | 13 | 0 | 0 | 3 | 3 | 0 | 294 |
| 7:45 AM | 34 | 136 | 7 | 0 | 1 | 106 | 11 | 0 | 39 | 4 | 25 | 0 | 1 | 0 | 0 | 0 | 364 |
| 8:00 AM | 20 | 78 | 9 | 0 | 1 | 98 | 11 | 0 | 22 | 4 | 20 | 0 | 0 | 0 | 0 | 0 | 263 |
| 8:15 AM | 26 | 55 | 7 | 1 | 1 | 89 | 7 | 0 | 23 | 4 | 13 | 0 | 1 | 0 | 0 | 0 | 227 |
| 8:30 AM | 20 | 65 | 7 | 0 | 0 | 91 | 7 | 0 | 17 | 1 | 16 | 0 | 0 | 5 | 0 | 0 | 229 |
| 8:45 AM | 14 | 71 | 9 | 0 | 0 | 108 | 15 | 0 | 20 | 8 | 19 | 0 | 0 | 1 | 2 | 0 | 267 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 315 | 744 | 68 | 3 | 8 | 904 | 118 | 0 | 289 | 48 | 211 | 0 | 6 | 18 | 7 | 0 | 2739 |
| **APPROACH %'s :** | 27.88% | 65.84% | 6.02% | 0.27% | 0.78% | 87.77% | 11.46% | 0.00% | 52.74% | 8.76% | 38.50% | 0.00% | 19.35% | 58.06% | 22.58% | 0.00% | |
| **PEAK HR :** | 07:00 AM - 08:00 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 122 | 380 | 28 | 1 | 6 | 380 | 48 | 0 | 119 | 22 | 73 | 0 | 5 | 4 | 5 | 0 | 1193 |
| **PEAK HR FACTOR :** | 0.897 | 0.699 | 0.875 | 0.250 | 0.375 | 0.812 | 0.632 | 0.000 | 0.763 | 0.688 | 0.730 | 0.000 | 0.417 | 0.333 | 0.417 | 0.000 | 0.819 |
| | 0.750 | | | | 0.868 | | | | 0.787 | | | | 0.583 | | | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 1 | 0 | 1 | 2 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0.5 | 0.5 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 15 | 66 | 12 | 0 | 3 | 124 | 21 | 0 | 21 | 10 | 46 | 0 | 14 | 7 | 9 | 0 | 348 |
| 4:15 PM | 28 | 93 | 18 | 0 | 2 | 124 | 27 | 0 | 20 | 12 | 39 | 0 | 6 | 3 | 2 | 0 | 374 |
| 4:30 PM | 14 | 87 | 20 | 0 | 0 | 121 | 33 | 0 | 34 | 27 | 44 | 0 | 9 | 7 | 10 | 0 | 406 |
| 4:45 PM | 19 | 64 | 27 | 0 | 2 | 124 | 25 | 0 | 21 | 12 | 35 | 0 | 14 | 10 | 4 | 0 | 357 |
| 5:00 PM | 17 | 86 | 18 | 0 | 6 | 88 | 26 | 0 | 18 | 11 | 23 | 0 | 9 | 15 | 4 | 0 | 321 |
| 5:15 PM | 17 | 77 | 32 | 1 | 4 | 100 | 31 | 0 | 13 | 10 | 30 | 0 | 13 | 10 | 10 | 0 | 348 |
| 5:30 PM | 34 | 54 | 23 | 0 | 2 | 96 | 28 | 0 | 32 | 16 | 16 | 0 | 10 | 11 | 6 | 0 | 328 |
| 5:45 PM | 16 | 64 | 21 | 0 | 5 | 97 | 14 | 0 | 10 | 9 | 27 | 0 | 7 | 9 | 12 | 0 | 291 |
| 6:00 PM | 14 | 57 | 27 | 0 | 1 | 60 | 13 | 0 | 15 | 14 | 35 | 0 | 10 | 14 | 7 | 0 | 267 |
| 6:15 PM | 20 | 49 | 25 | 1 | 7 | 72 | 21 | 0 | 8 | 16 | 22 | 0 | 8 | 7 | 5 | 0 | 261 |
| 6:30 PM | 15 | 46 | 22 | 3 | 2 | 55 | 13 | 0 | 9 | 11 | 16 | 0 | 8 | 11 | 7 | 0 | 218 |
| 6:45 PM | 21 | 37 | 27 | 0 | 2 | 48 | 6 | 0 | 17 | 11 | 10 | 0 | 14 | 4 | 9 | 0 | 206 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 230 | 780 | 272 | 5 | 36 | 1109 | 258 | 0 | 218 | 159 | 343 | 0 | 122 | 108 | 85 | 0 | 3725 |
| **APPROACH %'s :** | 17.87% | 60.61% | 21.13% | 0.39% | 2.57% | 79.04% | 18.39% | 0.00% | 30.28% | 22.08% | 47.64% | 0.00% | 38.73% | 34.29% | 26.98% | 0.00% | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 76 | 310 | 77 | 0 | 7 | 493 | 106 | 0 | 96 | 61 | 164 | 0 | 43 | 27 | 25 | 0 | 1485 |
| **PEAK HR FACTOR :** | 0.679 | 0.833 | 0.713 | 0.000 | 0.583 | 0.994 | 0.803 | 0.000 | 0.706 | 0.565 | 0.891 | 0.000 | 0.768 | 0.675 | 0.625 | 0.000 | 0.914 |
| | 0.833 | | | | 0.984 | | | | 0.764 | | | | 0.792 | | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** US 17/US 211/Broadview Ave/Winchester St & Warrenton Village South Dwy/Broadview Ave
**City:** Warrenton
**Control:** 2-Way Stop(EB/WB)

**Project ID:** 23-260020-010
**Date:** 2/9/2023

## Data - Cars

| NS/EW Streets: | US 17/US 211/Broadview Ave/Winchester St | | | | US 17/US 211/Broadview Ave/Winchester St | | | | Warrenton Village South Dwy/Broadview Ave | | | | Warrenton Village South Dwy/Broadview Ave | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 1 | 2 | 1 | 0 | 1 | 2 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0.5 | 0.5 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 25 | 15 | 2 | 0 | 0 | 19 | 8 | 0 | 21 | 4 | 23 | 0 | 0 | 1 | 0 | 0 | 118 |
| 6:15 AM | 29 | 18 | 1 | 0 | 0 | 26 | 7 | 0 | 20 | 1 | 13 | 0 | 0 | 2 | 0 | 0 | 117 |
| 6:30 AM | 27 | 23 | 1 | 1 | 0 | 33 | 8 | 0 | 26 | 2 | 11 | 0 | 0 | 3 | 0 | 0 | 135 |
| 6:45 AM | 32 | 29 | 3 | 0 | 0 | 55 | 7 | 0 | 20 | 2 | 21 | 0 | 0 | 2 | 0 | 0 | 171 |
| 7:00 AM | 32 | 50 | 7 | 1 | 1 | 111 | 6 | 0 | 23 | 5 | 15 | 0 | 3 | 1 | 1 | 0 | 256 |
| 7:15 AM | 25 | 62 | 6 | 0 | 0 | 91 | 10 | 0 | 26 | 8 | 19 | 0 | 0 | 0 | 0 | 0 | 247 |
| 7:30 AM | 30 | 117 | 8 | 0 | 4 | 53 | 17 | 0 | 30 | 5 | 12 | 0 | 0 | 3 | 2 | 0 | 281 |
| 7:45 AM | 34 | 132 | 7 | 0 | 1 | 106 | 10 | 0 | 37 | 4 | 24 | 0 | 1 | 0 | 0 | 0 | 356 |
| 8:00 AM | 20 | 72 | 9 | 0 | 1 | 97 | 11 | 0 | 22 | 4 | 20 | 0 | 0 | 0 | 0 | 0 | 256 |
| 8:15 AM | 25 | 48 | 7 | 1 | 1 | 84 | 6 | 0 | 23 | 4 | 13 | 0 | 1 | 0 | 0 | 0 | 213 |
| 8:30 AM | 19 | 59 | 7 | 0 | 0 | 77 | 6 | 0 | 17 | 1 | 15 | 0 | 0 | 5 | 0 | 0 | 206 |
| 8:45 AM | 13 | 69 | 9 | 0 | 0 | 104 | 14 | 0 | 20 | 8 | 18 | 0 | 0 | 1 | 2 | 0 | 258 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 311 | 694 | 67 | 3 | 8 | 856 | 110 | 0 | 285 | 48 | 204 | 0 | 5 | 18 | 5 | 0 | 2614 |
| **APPROACH %'s :** | 28.93% | 64.56% | 6.23% | 0.28% | 0.82% | 87.89% | 11.29% | 0.00% | 53.07% | 8.94% | 37.99% | 0.00% | 17.86% | 64.29% | 17.86% | 0.00% | |
| **PEAK HR :** | 07:00 AM - 08:00 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 121 | 361 | 28 | 1 | 6 | 361 | 43 | 0 | 116 | 22 | 70 | 0 | 4 | 4 | 3 | 0 | 1140 |
| **PEAK HR FACTOR :** | 0.890 | 0.684 | 0.875 | 0.250 | 0.375 | 0.813 | 0.632 | 0.000 | 0.784 | 0.688 | 0.729 | 0.000 | 0.333 | 0.333 | 0.375 | 0.000 | 0.801 |
| | 0.738 | | | | 0.869 | | | | 0.800 | | | | 0.550 | | | | |

| **PM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 1 | 0 | 1 | 2 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0.5 | 0.5 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 15 | 65 | 12 | 0 | 3 | 120 | 21 | 0 | 21 | 10 | 46 | 0 | 14 | 7 | 9 | 0 | 343 |
| 4:15 PM | 28 | 91 | 18 | 0 | 2 | 116 | 26 | 0 | 20 | 12 | 39 | 0 | 6 | 3 | 2 | 0 | 363 |
| 4:30 PM | 14 | 84 | 20 | 0 | 0 | 118 | 33 | 0 | 32 | 27 | 43 | 0 | 9 | 7 | 10 | 0 | 397 |
| 4:45 PM | 18 | 60 | 27 | 0 | 2 | 121 | 25 | 0 | 21 | 12 | 35 | 0 | 14 | 10 | 4 | 0 | 349 |
| 5:00 PM | 17 | 85 | 18 | 0 | 6 | 86 | 26 | 0 | 18 | 11 | 23 | 0 | 9 | 14 | 4 | 0 | 317 |
| 5:15 PM | 17 | 76 | 32 | 1 | 4 | 99 | 31 | 0 | 13 | 10 | 30 | 0 | 13 | 10 | 9 | 0 | 345 |
| 5:30 PM | 34 | 54 | 23 | 0 | 2 | 94 | 28 | 0 | 31 | 16 | 16 | 0 | 9 | 11 | 6 | 0 | 324 |
| 5:45 PM | 16 | 62 | 20 | 0 | 5 | 96 | 14 | 0 | 10 | 9 | 27 | 0 | 7 | 9 | 12 | 0 | 287 |
| 6:00 PM | 14 | 56 | 27 | 0 | 1 | 60 | 13 | 0 | 15 | 14 | 35 | 0 | 10 | 14 | 7 | 0 | 266 |
| 6:15 PM | 19 | 49 | 24 | 1 | 7 | 71 | 21 | 0 | 8 | 16 | 22 | 0 | 8 | 7 | 5 | 0 | 258 |
| 6:30 PM | 15 | 46 | 21 | 3 | 2 | 55 | 13 | 0 | 9 | 11 | 16 | 0 | 8 | 11 | 7 | 0 | 217 |
| 6:45 PM | 21 | 36 | 26 | 0 | 2 | 47 | 6 | 0 | 17 | 11 | 10 | 0 | 14 | 4 | 9 | 0 | 203 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 228 | 764 | 268 | 5 | 36 | 1083 | 257 | 0 | 215 | 159 | 342 | 0 | 121 | 107 | 84 | 0 | 3669 |
| **APPROACH %'s :** | 18.02% | 60.40% | 21.19% | 0.40% | 2.62% | 78.71% | 18.68% | 0.00% | 30.03% | 22.21% | 47.77% | 0.00% | 38.78% | 34.29% | 26.92% | 0.00% | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 75 | 300 | 77 | 0 | 7 | 475 | 105 | 0 | 94 | 61 | 163 | 0 | 43 | 27 | 25 | 0 | 1452 |
| **PEAK HR FACTOR :** | 0.670 | 0.824 | 0.713 | 0.000 | 0.583 | 0.981 | 0.795 | 0.000 | 0.734 | 0.565 | 0.886 | 0.000 | 0.768 | 0.675 | 0.625 | 0.000 | 0.914 |
| | 0.825 | | | | 0.972 | | | | 0.779 | | | | 0.792 | | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** US 17/US 211/Broadview Ave/Winchester St & Warrenton Village South Dwy/Broadview Ave
**City:** Warrenton
**Control:** 2-Way Stop(EB/WB)

**Project ID:** 23-260020-010
**Date:** 2/9/2023

## Data - HT

| NS/EW Streets: | US 17/US 211/Broadview Ave/Winchester St | | | | US 17/US 211/Broadview Ave/Winchester St | | | | Warrenton Village South Dwy/Broadview Ave | | | | Warrenton Village South Dwy/Broadview Ave | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 1 | 2 | 1 | 0 | 1 | 2 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0.5 | 0.5 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 5 |
| 6:15 AM | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 6:30 AM | 0 | 3 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 6 |
| 6:45 AM | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 7:00 AM | 0 | 8 | 0 | 0 | 0 | 6 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 18 |
| 7:15 AM | 1 | 4 | 0 | 0 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 14 |
| 7:30 AM | 0 | 3 | 0 | 0 | 0 | 6 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 13 |
| 7:45 AM | 0 | 4 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 8 |
| 8:00 AM | 0 | 6 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 8:15 AM | 1 | 7 | 0 | 0 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 8:30 AM | 1 | 6 | 0 | 0 | 0 | 14 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 23 |
| 8:45 AM | 1 | 2 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 9 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 4 | 50 | 1 | 0 | 0 | 48 | 8 | 0 | 4 | 0 | 7 | 0 | 1 | 0 | 2 | 0 | 125 |
| **APPROACH %'s :** | 7.27% | 90.91% | 1.82% | 0.00% | 0.00% | 85.71% | 14.29% | 0.00% | 36.36% | 0.00% | 63.64% | 0.00% | 33.33% | 0.00% | 66.67% | 0.00% | |
| **PEAK HR :** | 07:00 AM - 08:00 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 1 | 19 | 0 | 0 | 0 | 19 | 5 | 0 | 3 | 0 | 3 | 0 | 1 | 0 | 2 | 0 | 53 |
| **PEAK HR FACTOR :** | 0.250 | 0.594 | 0.000 | 0.000 | 0.000 | 0.679 | 0.625 | 0.000 | 0.375 | 0.000 | 0.750 | 0.000 | 0.250 | 0.000 | 0.500 | 0.000 | 0.736 |
| | 0.625 | | | | 0.750 | | | | 0.500 | | | | 0.750 | | | | |

| PM | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 1 | 0 | 1 | 2 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0.5 | 0.5 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 4:15 PM | 0 | 2 | 0 | 0 | 0 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 4:30 PM | 0 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 9 |
| 4:45 PM | 1 | 4 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 5:00 PM | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4 |
| 5:15 PM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 4 |
| 5:45 PM | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 6:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 6:15 PM | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 6:30 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 6:45 PM | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 2 | 16 | 4 | 0 | 0 | 26 | 1 | 0 | 3 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 56 |
| **APPROACH %'s :** | 9.09% | 72.73% | 18.18% | 0.00% | 0.00% | 96.30% | 3.70% | 0.00% | 75.00% | 0.00% | 25.00% | 0.00% | 33.33% | 33.33% | 33.33% | 0.00% | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 1 | 10 | 0 | 0 | 0 | 18 | 1 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 33 |
| **PEAK HR FACTOR :** | 0.250 | 0.625 | 0.000 | 0.000 | 0.000 | 0.563 | 0.250 | 0.000 | 0.250 | 0.000 | 0.250 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.750 |
| | 0.550 | | | | 0.528 | | | | 0.250 | | | | | | | | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** US 17/US 211/Broadview Ave/Winchester St & Warrenton Village South Dwy/Broadview Ave
**City:** Warrenton
**Control:** 2-Way Stop(EB/WB)

**Project ID:** 23-260020-010
**Date:** 2/9/2023

## Data - Bikes

| NS/EW Streets: | US 17/US 211/Broadview Ave/Winchester St | | | | US 17/US 211/Broadview Ave/Winchester St | | | | Warrenton Village South Dwy/Broadview Ave | | | | Warrenton Village South Dwy/Broadview Ave | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
| | 1 | 2 | 1 | 0 | 1 | 2 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0.5 | 0.5 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **APPROACH %'s :** | | | | | | | | | | | | | | | | | |
| **PEAK HR :** | 07:00 AM - 08:00 AM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |

| **PM** | NORTHBOUND | | | | SOUTHBOUND | | | | EASTBOUND | | | | WESTBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 1 | 0 | 1 | 2 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0.5 | 0.5 | 0 | |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | NL | NT | NR | NU | SL | ST | SR | SU | EL | ET | ER | EU | WL | WT | WR | WU | TOTAL |
| **TOTAL VOLUMES :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **APPROACH %'s :** | | | | | | | | | | | | | | | | | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **PEAK HR FACTOR :** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** US 17/US 211/Broadview Ave/Winchester St & Warrenton Village Sc **Project ID:** 23-260020-010
**City:** Warrenton **Date:** 2/9/2023

## Data - Pedestrians (Crosswalks)

| NS/EW Streets: | US 17/US 211/Broadview Ave/Winchester St | | US 17/US 211/Broadview Ave/Winchester St | | Warrenton Village South Dwy/Broadview Ave | | Warrenton Village South Dwy/Broadview Ave | | |
|---|---|---|---|---|---|---|---|---|---|
| **AM** | NORTH LEG | | SOUTH LEG | | EAST LEG | | WEST LEG | | |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 6:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| **TOTAL VOLUMES :** | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 3 |
| **APPROACH %'s :** | 0.00% | 100.00% | | | 0.00% | 100.00% | | | |
| **PEAK HR :** | 07:00 AM - 08:00 AM | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **PEAK HR FACTOR :** | | | | | | | | | |

| PM | NORTH LEG | | SOUTH LEG | | EAST LEG | | WEST LEG | | |
|---|---|---|---|---|---|---|---|---|---|
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| 4:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 4:15 PM | 0 | 4 | 0 | 0 | 3 | 0 | 0 | 0 | 7 |
| 4:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EB | WB | EB | WB | NB | SB | NB | SB | TOTAL |
| **TOTAL VOLUMES :** | 0 | 6 | 0 | 0 | 3 | 0 | 0 | 0 | 9 |
| **APPROACH %'s :** | 0.00% | 100.00% | | | 100.00% | 0.00% | | | |
| **PEAK HR :** | 04:00 PM - 05:00 PM | | | | | | | | TOTAL |
| **PEAK HR VOL :** | 0 | 6 | 0 | 0 | 3 | 0 | 0 | 0 | 9 |
| **PEAK HR FACTOR :** | | 0.375 | | | 0.250 | | | | 0.321 |
| | 0.375 | | | | 0.250 | | | | |

Prepared by National Data & Surveying Services

US 17/US 211/Broadview Ave/Winchester St & Warrenton Village South Dwy/Broadview Ave

# Peak Hour Turning Movement Count

**ID:** 23-260020-010
**City:** Warrenton

**Day:** Thursday
**Date:** 2/9/2023

| PEAK HOURS | COUNT PERIODS |
|---|---|
| 07:00 AM - 08:00 AM | 6:00 AM - 09:00 AM |
| NONE | NONE |
| 04:00 PM - 05:00 PM | 4:00 PM - 07:00 PM |

## SOUTHBOUND — US 17/US 211/Broadview Ave/Winchester St

| | | | | | | |
|---|---|---|---|---|---|---|
| AM | 48 | 380 | 6 | 0 | 504 | AM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| PM | 106 | 493 | 7 | 0 | 431 | PM |
| | 1 | 2 | 1 | 0 | | |

## EASTBOUND — Warrenton Village South Dwy/Broadview Ave

| AM | NOON | PM | |
|---|---|---|---|
| 174 | 0 | 209 | |
| 0 | 0 | 0 | 0 |
| 119 | 0 | 96 | 1 |
| 22 | 0 | 61 | 1 |
| 73 | 0 | 164 | 1 |
| AM | NOON | PM | |

## WESTBOUND — Warrenton Village South Dwy/Broadview Ave

| PM | NOON | AM | |
|---|---|---|---|
| 25 | 0 | 5 | 0.5 |
| 27 | 0 | 4 | 0.5 |
| 43 | 0 | 5 | 1 |
| 0 | 0 | 0 | 0 |
| 145 | 0 | 56 | |
| PM | NOON | AM | |

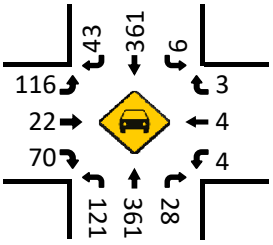
**CONTROL:** 2-Way Stop(EB/WB)

| | | | |
|---|---|---|---|
| TEV | 1193 AM | 0 NOON | 1485 PM |
| PHF | 0.82 | | 0.91 |

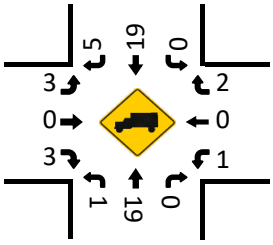
## NORTHBOUND — US 17/US 211/Broadview Ave/Winchester St

| | | | | | |
|---|---|---|---|---|---|
| PM | 700 | 0 | 76 | 310 | 77 | PM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| AM | 459 | 1 | 122 | 380 | 28 | AM |
| | | 0 | 1 | 2 | 1 | |

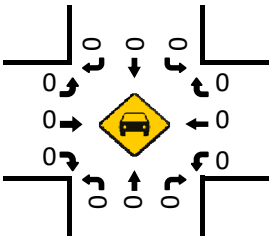
### Cars (AM)



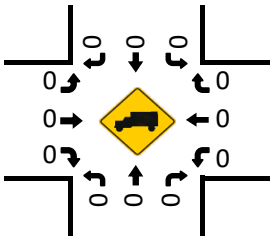

### HT (AM)



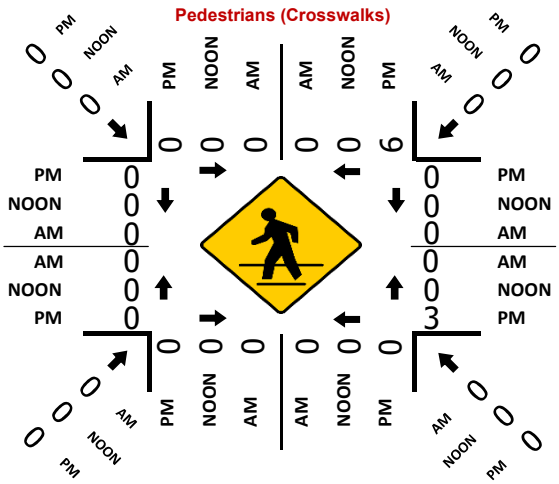

### Cars (NOON)



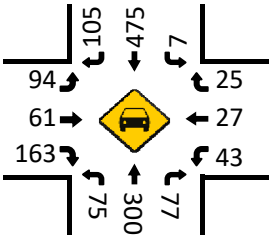

### HT (NOON)



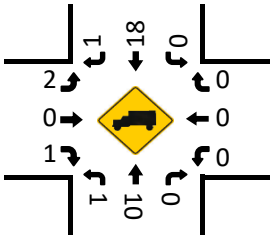

### Pedestrians (Crosswalks)




### Cars (PM)




### HT (PM)



# D. HCM Level of Service Definitions

GOROVE SLADE
Transportation Planners and Engineers

# TECHNICAL MEMORANDUM

**Subject: Level of Service Definitions**

## Introduction

The purpose of this memorandum is to define the level of service (LOS) metric that commonly used as a measure of effectiveness (MOE) for traffic operations.

All capacity analyses are based on the procedures specified by the Transportation Research Board's (TRB) Highway Capacity Manual (HCM), which is currently on its sixth edition. Level of service ranges from A to F. A brief description of each level of service for signalized and unsignalized intersections is provided below.

## Signalized Intersections

Level of service is based upon the traffic volume present in each lane on the roadway, the capacity of each lane at the intersection and the delay associated with each directional movement. The levels of service for signalized intersections are defined below:

- **Level of Service A** describes operations with very low average delay per vehicle, i.e., less than 10.0 seconds. This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop. Short signal cycle lengths may also contribute to low delay.
- **Level of Service B** describes operations with average delay in the range of 10.1 to 20.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.
- **Level of Service C** describes operations with delay in the range of 20.1 to 35.0 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level although many still pass through the intersection without stopping. This is generally considered the lower end of the range of the acceptable level of service in rural areas.
- **Level of Service D** describes operations with delay in the range of 35.1 to 55.0 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, and/or high traffic volumes as compared to the roadway capacity. Many vehicles are required to stop and the number of vehicles that do not have to stop declines. Individual signal cycle failures, where all waiting vehicles do not clear the intersection during a single green time, are noticeable. This is generally considered the lower end of the range of the acceptable level of service in urban areas.
- **Level of Service E** describes operations with delay in the range of 55.1 to 80.0 seconds per vehicle. These higher delay values generally indicate poor progression, long cycle lengths, and high traffic volumes. Individual cycle failures are frequent occurrences. LOS E has been set as the limit of acceptable conditions.
- **Level of Service F** describes operations with average delay in excess of 80.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with over-saturation, i.e., when traffic arrives at a flow rate that exceeds the capacity of the intersection. It may also occur at high volumes with many individual cycle failures. Poor progression and long cycle lengths may also contribute to such delays.



4114 Legato Road / Suite 650 / Fairfax, VA 22033 / T 703.787.9595 goroveslade.com

## Unsignalized Intersections

At an unsignalized intersection, the major street through traffic and right-turns are assumed to operate unimpeded and therefore receive no level of service rating. The level of service for the minor street and the major street left-turn traffic is dependent on the volume and capacity of the available lanes, and, the number and frequency of acceptable gaps in the major street traffic to make a conflicting turn. The level of service grade is provided for each conflicting movement at an unsignalized intersection and is based on the total average delay experienced by each vehicle. The delay includes the time it takes a vehicle to move from the back of a queue through the intersection.

The unsignalized intersection level of service analysis does not account for variations in driver behavior or the effects of nearby traffic signals. Therefore, the results from this analysis usually indicate worse levels of service than may be experienced in the field. The unsignalized intersection level of service descriptions are provided below:

- **Level of Service A** describes operations where there is very little to no conflicting traffic for a minor side street movement, i.e., an average total delay of less than 10.0 seconds per vehicle.
- **Level of Service B** describes operations with average total delay in the range of 10.1 to 15.0 seconds per vehicle.
- **Level of Service C** describes operations with average total delay in the range of 15.1 to 25.0 second per vehicle.
- **Level of Service D** describes operations with average total delay in the range of 25.1 to 35.0 seconds per vehicle.
- **Level of Service E** describes operations with average total delay in the range of 35.1 to 50.0 seconds per vehicle.
- **Level of Service F** describes operations with average total delay of 50 seconds per vehicle. LOS F exists when there are insufficient gaps of suitable size to allow a side street demand to cross safely through or enter a major street traffic stream. This level of service is generally evident from extremely long total delays experienced by side street traffic and by queuing on the minor approaches. It is important to note that LOS F may not always result in long queues but may result in adjustments to normal driver behavior.

# E. VDOT Signal Timings

Plan 1

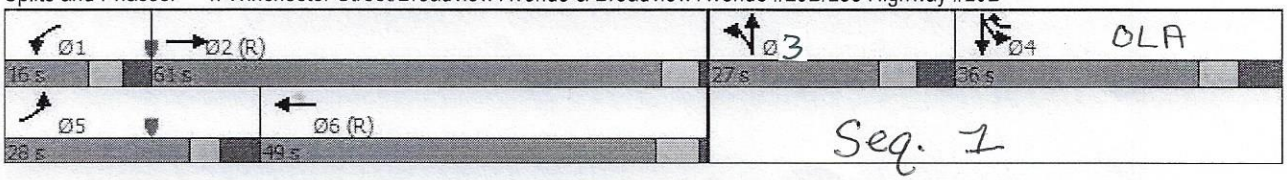
Timing Report, Sorted By Phase
4: Winchester Street/Broadview Avenue & Broadview Avenue #29B/Lee Highway #29B 01/02/2020

| Phase Number | 1 | 2 | 4 | 5 | 6 | 3 |
|---|---|---|---|---|---|---|
| Movement | WBL | EBT | SBTL | EBL | WBT | NBTL |
| Lead/Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize | | | | | | |
| Recall Mode | None | C-Min | None | None | C-Min | None |
| Maximum Split (s) | 16 | 61 | 36 | 28 | 49 | 27 |
| Maximum Split (%) | 11.4% | 43.6% | 25.7% | 20.0% | 35.0% | 19.3% |
| Minimum Split (s) | 12.9 | 27.2 | 15.4 | 13.8 | 32.8 | 14.2 |
| Yellow Time (s) | 3.8 | 4.2 | 4.5 | 3.4 | 4.8 | 4.1 |
| All-Red Time (s) | 3.1 | 1 | 4.9 | 4.4 | 1 | 4.2 |
| Minimum Initial (s) | 6 | 15 | 6 | 6 | 15 | 6 |
| Vehicle Extension (s) | 3 | 3 | 3 | 3 | 3 | 3 |
| Minimum Gap (s) | 3 | 3 | 3 | 3 | 3 | 3 |
| Time Before Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 |
| Time To Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 |
| Walk Time (s) | | 7 | 7 | | 7 | 7 |
| Flash Dont Walk (s) | | 15 | 24 | | 20 | 29 |
| Dual Entry | No | Yes | No | No | Yes | No |
| Inhibit Max | Yes | Yes | Yes | Yes | Yes | Yes |
| Start Time (s) | 112 | 128 | 76 | 112 | 0 | 49 |
| End Time (s) | 128 | 49 | 112 | 0 | 49 | 76 |
| Yield/Force Off (s) | 121.1 | 43.8 | 102.6 | 132.2 | 43.2 | 67.7 |
| Yield/Force Off 170(s) | 121.1 | 28.8 | 78.6 | 132.2 | 23.2 | 39.7 |
| Local Start Time (s) | 124 | 0 | 88 | 124 | 12 | 61 |
| Local Yield (s) | 133.1 | 55.8 | 114.6 | 4.2 | 55.2 | 79.7 |
| Local Yield 170(s) | 133.1 | 40.8 | 90.6 | 4.2 | 35.2 | 51.7 |
| MAX 1 | 40 | 40 | 25 | 25 | 40 | 25 |

| Intersection Summary | |
|---|---|
| Cycle Length | 140 |
| Control Type | Actuated-Coordinated |
| Natural Cycle | 80 |

Offset: 128 (91%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green

Splits and Phases: 4: Winchester Street/Broadview Avenue & Broadview Avenue #29B/Lee Highway #29B

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Plan 2

Timing Report, Sorted By Phase

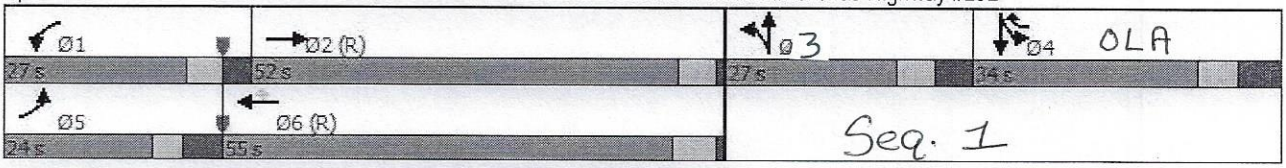
4: Winchester Street/Broadview Avenue & Broadview Avenue #29B/Lee Highway #29B 01/02/2020

| Phase Number | 1 | 2 | 4 | 5 | 6 | 3 |
|---|---|---|---|---|---|---|
| Movement | WBL | EBT | SBTL | EBL | WBT | NBTL |
| Lead/Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize | | | | | | |
| Recall Mode | None | C-Min | None | None | C-Min | None |
| Maximum Split (s) | 27 | 52 | 34 | 24 | 55 | 27 |
| Maximum Split (%) | 19.3% | 37.1% | 24.3% | 17.1% | 39.3% | 19.3% |
| Minimum Split (s) | 12.9 | 27.2 | 15.4 | 13.8 | 32.8 | 14.3 |
| Yellow Time (s) | 3.8 | 4.2 | 4.5 | 3.4 | 4.8 | 4.1 |
| All-Red Time (s) | 3.1 | 1 | 4.9 | 4.4 | 1 | 4.2 |
| Minimum Initial (s) | 6 | 15 | 6 | 6 | 15 | 6 |
| Vehicle Extension (s) | 3 | 3 | 3 | 3 | 3 | 3 |
| Minimum Gap (s) | 3 | 3 | 3 | 3 | 3 | 3 |
| Time Before Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 |
| Time To Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 |
| Walk Time (s) | | 7 | 7 | | 7 | 7 |
| Flash Dont Walk (s) | | 15 | 24 | | 20 | 29 |
| Dual Entry | No | Yes | No | No | Yes | No |
| Inhibit Max | Yes | Yes | Yes | Yes | Yes | Yes |
| Start Time (s) | 121 | 8 | 87 | 121 | 5 | 60 |
| End Time (s) | 8 | 60 | 121 | 5 | 60 | 87 |
| Yield/Force Off (s) | 1.1 | 54.8 | 111.6 | 137.2 | 54.2 | 78.7 |
| Yield/Force Off 170(s) | 1.1 | 39.8 | 87.6 | 137.2 | 34.2 | 50.7 |
| Local Start Time (s) | 116 | 3 | 82 | 116 | 0 | 55 |
| Local Yield (s) | 136.1 | 49.8 | 106.6 | 132.2 | 49.2 | 73.7 |
| Local Yield 170(s) | 136.1 | 34.8 | 82.6 | 132.2 | 29.2 | 45.7 |
| MAX 1 | 40 | 40 | 25 | 25 | 40 | 25 |

| Intersection Summary | |
|---|---|
| Cycle Length | 140 |
| Control Type | Actuated-Coordinated |
| Natural Cycle | 80 |

Offset: 5 (4%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green

Splits and Phases: 4: Winchester Street/Broadview Avenue & Broadview Avenue #29B/Lee Highway #29B

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Timing Report, Sorted By Phase

Plan 3

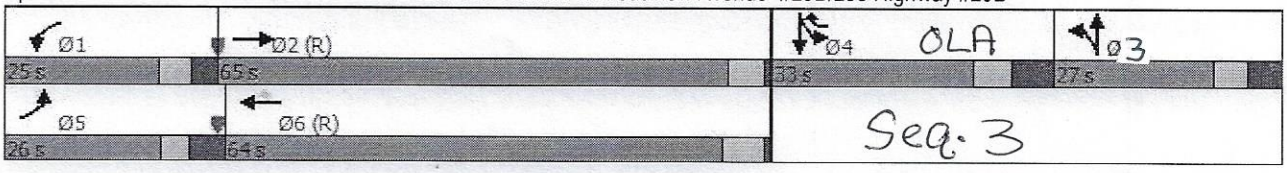
4: Winchester Street/Broadview Avenue & Broadview Avenue #29B/Lee Highway #29B 01/03/2020

| Phase Number | 1 | 2 | 4 | 5 | 6 | 3 |
|---|---|---|---|---|---|---|
| Movement | WBL | EBT | SBTL | EBL | WBT | NBTL |
| Lead/Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize | | | | | | |
| Recall Mode | None | C-Min | None | None | C-Min | None |
| Maximum Split (s) | 25 | 65 | 33 | 26 | 64 | 27 |
| Maximum Split (%) | 16.7% | 43.3% | 22.0% | 17.3% | 42.7% | 18.0% |
| Minimum Split (s) | 14.9 | 27.2 | 15.4 | 13.8 | 32.8 | 14.3 |
| Yellow Time (s) | 3.8 | 4.2 | 4.5 | 3.4 | 4.8 | 4.1 |
| All-Red Time (s) | 3.1 | 1 | 4.9 | 4.4 | 1 | 4.2 |
| Minimum Initial (s) | 6 | 15 | 6 | 6 | 15 | 6 |
| Vehicle Extension (s) | 3 | 3 | 3 | 3 | 3 | 3 |
| Minimum Gap (s) | 3 | 3 | 3 | 3 | 3 | 3 |
| Time Before Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 |
| Time To Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 |
| Walk Time (s) | | 7 | 7 | | 7 | 7 |
| Flash Dont Walk (s) | | 15 | 24 | | 20 | 29 |
| Dual Entry | No | Yes | No | No | Yes | No |
| Inhibit Max | Yes | Yes | Yes | Yes | Yes | Yes |
| Start Time (s) | 31 | 56 | 121 | 31 | 57 | 4 |
| End Time (s) | 56 | 121 | 4 | 57 | 121 | 31 |
| Yield/Force Off (s) | 49.1 | 115.8 | 144.6 | 49.2 | 115.2 | 22.7 |
| Yield/Force Off 170(s) | 49.1 | 100.8 | 120.6 | 49.2 | 95.2 | 144.7 |
| Local Start Time (s) | 125 | 0 | 65 | 125 | 1 | 98 |
| Local Yield (s) | 143.1 | 59.8 | 88.6 | 143.2 | 59.2 | 116.7 |
| Local Yield 170(s) | 143.1 | 44.8 | 64.6 | 143.2 | 39.2 | 88.7 |
| MAX 1 | 40 | 46 | 25 | 25 | 48 | 25 |

| Intersection Summary | |
|---|---|
| Cycle Length | 150 |
| Control Type | Actuated-Coordinated |
| Natural Cycle | 90 |

Offset: 56 (37%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green

Splits and Phases: 4: Winchester Street/Broadview Avenue & Broadview Avenue #29B/Lee Highway #29B




OLA + 4

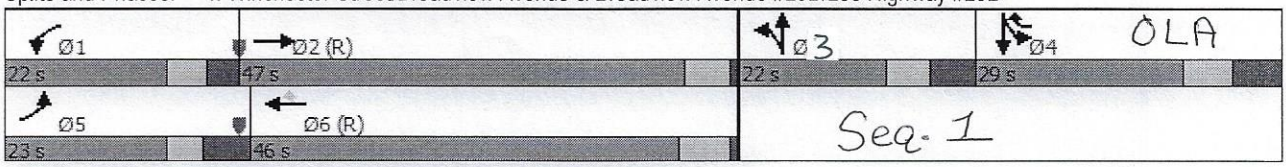
Plan 4

Timing Report, Sorted By Phase
4: Winchester Street/Broadview Avenue & Broadview Avenue #29B/Lee Highway #29B 01/03/2020

| Phase Number | 1 | 2 | 4 | 5 | 6 | 3 |
|---|---|---|---|---|---|---|
| Movement | WBL | EBT | SBTL | EBL | WBT | NBTL |
| Lead/Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize | | | | | | |
| Recall Mode | None | C-Min | None | None | C-Min | None |
| Maximum Split (s) | 22 | 47 | 29 | 23 | 46 | 22 |
| Maximum Split (%) | 18.3% | 39.2% | 24.2% | 19.2% | 38.3% | 18.3% |
| Minimum Split (s) | 12.9 | 27.2 | 15.4 | 13.8 | 32.8 | 14.3 |
| Yellow Time (s) | 3.8 | 4.2 | 4.5 | 3.4 | 4.8 | 4.1 |
| All-Red Time (s) | 3.1 | 1 | 4.9 | 4.4 | 1 | 4.2 |
| Minimum Initial (s) | 6 | 15 | 6 | 6 | 15 | 6 |
| Vehicle Extension (s) | 3 | 3 | 3 | 3 | 3 | 3 |
| Minimum Gap (s) | 3 | 3 | 3 | 3 | 3 | 3 |
| Time Before Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 |
| Time To Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 |
| Walk Time (s) | | 7 | 7 | | 7 | 7 |
| Flash Dont Walk (s) | | 15 | 24 | | 20 | 29 |
| Dual Entry | No | Yes | No | No | Yes | No |
| Inhibit Max | Yes | Yes | Yes | Yes | Yes | Yes |
| Start Time (s) | 115 | 17 | 86 | 115 | 18 | 64 |
| End Time (s) | 17 | 64 | 115 | 18 | 64 | 86 |
| Yield/Force Off (s) | 10.1 | 58.8 | 105.6 | 10.2 | 58.2 | 77.7 |
| Yield/Force Off 170(s) | 10.1 | 43.8 | 81.6 | 10.2 | 38.2 | 49.7 |
| Local Start Time (s) | 98 | 0 | 69 | 98 | 1 | 47 |
| Local Yield (s) | 113.1 | 41.8 | 88.6 | 113.2 | 41.2 | 60.7 |
| Local Yield 170(s) | 113.1 | 26.8 | 64.6 | 113.2 | 21.2 | 32.7 |
| MAX 1 | 40 | 40 | 25 | 25 | 40 | 25 |

| Intersection Summary | | | |
|---|---|---|---|
| Cycle Length | | 120 | |
| Control Type | Actuated-Coordinated | | |
| Natural Cycle | | 80 | |
| Offset: 17 (14%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green | | | |

Splits and Phases: 4: Winchester Street/Broadview Avenue & Broadview Avenue #29B/Lee Highway #29B

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# Timing Report, Sorted By Phase
## 3: Branch Drive & Lee Highway #29B

Plan 1

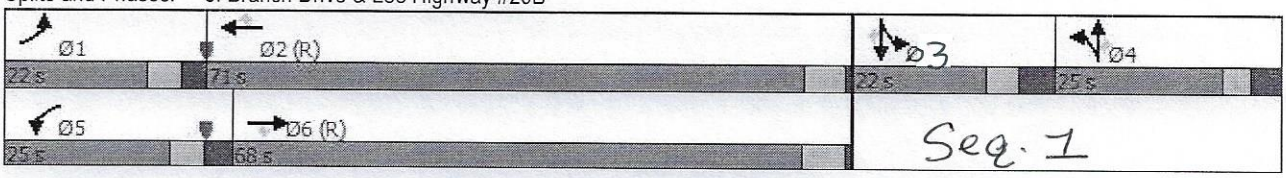
01/02/2020

| Phase Number | 1 | 2 | 4 | 5 | 6 | 3 |
|---|---|---|---|---|---|---|
| Movement | EBL | WBT | NBTL | WBL | EBT | SBTL |
| Lead/Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize | | | | | | |
| Recall Mode | None | C-Min | None | None | C-Min | None |
| Maximum Split (s) | 22 | 71 | 25 | 25 | 68 | 22 |
| Maximum Split (%) | 15.7% | 50.7% | 17.9% | 17.9% | 48.6% | 15.7% |
| Minimum Split (s) | 12.4 | 27.6 | 12.6 | 12.8 | 27.7 | 13.5 |
| Yellow Time (s) | 3.7 | 4.6 | 3 | 3.7 | 4.7 | 3.5 |
| All-Red Time (s) | 2.7 | 1 | 3 | 3.1 | 1 | 4 |
| Minimum Initial (s) | 6 | 15 | 6 | 6 | 15 | 6 |
| Vehicle Extension (s) | 3 | 3 | 3 | 3 | 3 | 3 |
| Minimum Gap (s) | 3 | 3 | 3 | 3 | 3 | 3 |
| Time Before Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 |
| Time To Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 |
| Walk Time (s) | | 7 | 7 | | 7 | |
| Flash Dont Walk (s) | | 17 | 27 | | 12 | |
| Dual Entry | No | Yes | No | No | Yes | No |
| Inhibit Max | yes | yes | yes | yes | yes | yes |
| Start Time (s) | 119 | 1 | 94 | 119 | 4 | 72 |
| End Time (s) | 1 | 72 | 119 | 4 | 72 | 94 |
| Yield/Force Off (s) | 134.6 | 66.4 | 112.4 | 137.2 | 66.3 | 86.5 |
| Yield/Force Off 170(s) | 134.6 | 51.4 | 84.4 | 137.2 | 51.3 | 86.5 |
| Local Start Time (s) | 118 | 0 | 93 | 118 | 3 | 71 |
| Local Yield (s) | 133.6 | 65.4 | 111.4 | 136.2 | 65.3 | 85.5 |
| Local Yield 170(s) | 133.6 | 50.4 | 83.4 | 136.2 | 50.3 | 85.5 |
| MAX 1 | 18 | 45 | 35 | 18 | 45 | 35 |

| Intersection Summary | |
|---|---|
| Cycle Length | 140 |
| Control Type | Actuated-Coordinated |
| Natural Cycle | 70 |

Offset: 1 (1%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green

Splits and Phases: 3: Branch Drive & Lee Highway #29B



# Timing Report, Sorted By Phase
## 3: Branch Drive & Lee Highway #29B

Plan 2

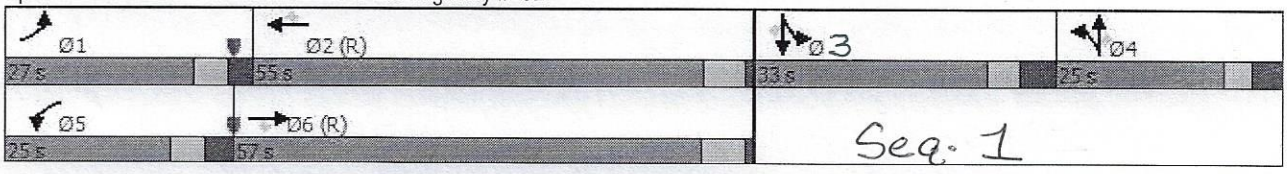
01/02/2020

| Phase Number | 1 | 2 | 4 | 5 | 6 | 3 |
|---|---|---|---|---|---|---|
| Movement | EBL | WBT | NBTL | WBL | EBT | SBTL |
| Lead/Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize | | | | | | |
| Recall Mode | None | C-Min | None | None | C-Min | None |
| Maximum Split (s) | 27 | 55 | 25 | 25 | 57 | 33 |
| Maximum Split (%) | 19.3% | 39.3% | 17.9% | 17.9% | 40.7% | 23.6% |
| Minimum Split (s) | 12.4 | 27.6 | 12.6 | 12.8 | 27.7 | 13.5 |
| Yellow Time (s) | 3.7 | 4.6 | 3 | 3.7 | 4.7 | 3.5 |
| All-Red Time (s) | 2.7 | 1 | 3.6 | 3.1 | 1 | 4 |
| Minimum Initial (s) | 6 | 15 | 6 | 6 | 15 | 6 |
| Vehicle Extension (s) | 3 | 3 | 3 | 3 | 3 | 3 |
| Minimum Gap (s) | 3 | 3 | 3 | 3 | 3 | 3 |
| Time Before Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 |
| Time To Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 |
| Walk Time (s) | | 7 | 7 | | 7 | |
| Flash Dont Walk (s) | | 17 | 27 | | 12 | |
| Dual Entry | No | Yes | No | No | Yes | No |
| Inhibit Max | Yes | Yes | Yes | Yes | Yes | Yes |
| Start Time (s) | 125 | 12 | 100 | 125 | 10 | 67 |
| End Time (s) | 12 | 67 | 125 | 10 | 67 | 100 |
| Yield/Force Off (s) | 5.6 | 61.4 | 118.4 | 3.2 | 61.3 | 92.5 |
| Yield/Force Off 170(s) | 5.6 | 46.4 | 90.4 | 3.2 | 46.3 | 92.5 |
| Local Start Time (s) | 115 | 2 | 90 | 115 | 0 | 57 |
| Local Yield (s) | 135.6 | 51.4 | 108.4 | 133.2 | 51.3 | 82.5 |
| Local Yield 170(s) | 135.6 | 36.4 | 80.4 | 133.2 | 36.3 | 82.5 |
| MAX 1 | 18 | 45 | 35 | 18 | 45 | 35 |

| Intersection Summary | |
|---|---|
| Cycle Length | 140 |
| Control Type | Actuated-Coordinated |
| Natural Cycle | 80 |

Offset: 10 (7%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green

Splits and Phases: 3: Branch Drive & Lee Highway #29B



# Timing Report, Sorted By Phase

## 3: Branch Drive & Lee Highway #29B

Plan 3

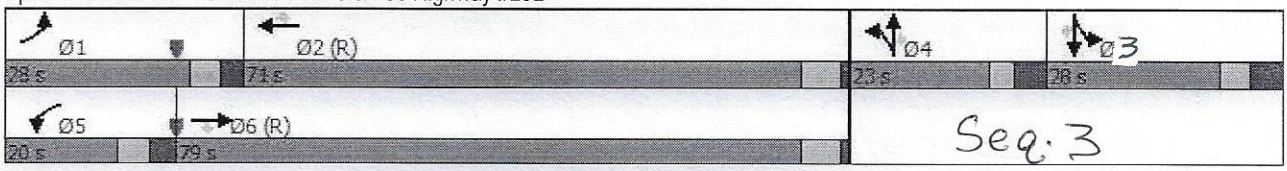
01/03/2020

| Phase Number | 1 | 2 | 4 | 5 | 6 | 3 |
|---|---|---|---|---|---|---|
| Movement | EBL | WBT | NBTL | WBL | EBT | SBTL |
| Lead/Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize | | | | | | |
| Recall Mode | None | C-Min | None | None | C-Min | None |
| Maximum Split (s) | 28 | 71 | 23 | 20 | 79 | 28 |
| Maximum Split (%) | 18.7% | 47.3% | 15.3% | 13.3% | 52.7% | 18.7% |
| Minimum Split (s) | 12.4 | 27.6 | 12.6 | 12.8 | 27.7 | 13.5 |
| Yellow Time (s) | 3.7 | 4.6 | 3 | 3.7 | 4.7 | 3.5 |
| All-Red Time (s) | 2.7 | 1 | 3.6 | 3.1 | 1 | 4 |
| Minimum Initial (s) | 6 | 15 | 6 | 6 | 15 | 6 |
| Vehicle Extension (s) | 3 | 3 | 3 | 3 | 3 | 3 |
| Minimum Gap (s) | 3 | 3 | 3 | 3 | 3 | 3 |
| Time Before Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 |
| Time To Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 |
| Walk Time (s) | | 7 | 7 | | 7 | |
| Flash Dont Walk (s) | | 17 | 27 | | 12 | |
| Dual Entry | No | Yes | No | No | Yes | No |
| Inhibit Max | Yes | Yes | Yes | Yes | Yes | Yes |
| Start Time (s) | 26 | 54 | 125 | 26 | 46 | 148 |
| End Time (s) | 54 | 125 | 148 | 46 | 125 | 26 |
| Yield/Force Off (s) | 47.6 | 119.4 | 141.4 | 39.2 | 119.3 | 18.5 |
| Yield/Force Off 170(s) | 47.6 | 104.4 | 113.4 | 39.2 | 104.3 | 18.5 |
| Local Start Time (s) | 130 | 8 | 79 | 130 | 0 | 102 |
| Local Yield (s) | 1.6 | 73.4 | 95.4 | 143.2 | 73.3 | 122.5 |
| Local Yield 170(s) | 1.6 | 58.4 | 67.4 | 143.2 | 58.3 | 122.5 |
| MAX 1 | 18 | 45 | 35 | 18 | 45 | 35 |

| Intersection Summary | |
|---|---|
| Cycle Length | 150 |
| Control Type | Actuated-Coordinated |
| Natural Cycle | 80 |

Offset: 46 (31%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green

Splits and Phases: 3: Branch Drive & Lee Highway #29B



# Timing Report, Sorted By Phase
## 3: Branch Drive & Lee Highway #29B

Plan 4

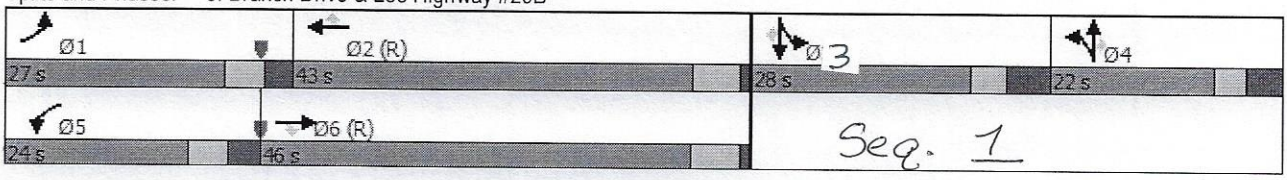
01/03/2020

| Phase Number | 1 | 2 | 4 | 5 | 6 | 3 |
|---|---|---|---|---|---|---|
| Movement | EBL | WBT | NBTL | WBL | EBT | SBTL |
| Lead/Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize | | | | | | |
| Recall Mode | None | C-Min | None | None | C-Min | None |
| Maximum Split (s) | 27 | 43 | 22 | 24 | 46 | 28 |
| Maximum Split (%) | 22.5% | 35.8% | 18.3% | 20.0% | 38.3% | 23.3% |
| Minimum Split (s) | 12.4 | 27.6 | 12.6 | 12.8 | 27.7 | 13.5 |
| Yellow Time (s) | 3.7 | 4.6 | 3 | 3.7 | 4.7 | 3.5 |
| All-Red Time (s) | 2.7 | 1 | 3.6 | 3.1 | 1 | 4 |
| Minimum Initial (s) | 6 | 15 | 6 | 6 | 15 | 6 |
| Vehicle Extension (s) | 3 | 3 | 3 | 3 | 3 | 3 |
| Minimum Gap (s) | 3 | 3 | 3 | 3 | 3 | 3 |
| Time Before Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 |
| Time To Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 |
| Walk Time (s) | | 7 | 7 | | 7 | |
| Flash Dont Walk (s) | | 17 | 27 | | 12 | |
| Dual Entry | No | Yes | No | No | Yes | No |
| Inhibit Max | yes | yes | yes | yes | yes | yes |
| Start Time (s) | 100 | 7 | 78 | 100 | 4 | 50 |
| End Time (s) | 7 | 50 | 100 | 4 | 50 | 78 |
| Yield/Force Off (s) | 0.6 | 44.4 | 93.4 | 117.2 | 44.3 | 70.5 |
| Yield/Force Off 170(s) | 0.6 | 29.4 | 65.4 | 117.2 | 29.3 | 70.5 |
| Local Start Time (s) | 96 | 3 | 74 | 96 | 0 | 46 |
| Local Yield (s) | 116.6 | 40.4 | 89.4 | 113.2 | 40.3 | 66.5 |
| Local Yield 170(s) | 116.6 | 25.4 | 61.4 | 113.2 | 25.3 | 66.5 |
| MAX 1 | 18 | 45 | 35 | 18 | 45 | 35 |

| Intersection Summary | |
|---|---|
| Cycle Length | 120 |
| Control Type | Actuated-Coordinated |
| Natural Cycle | 75 |

Offset: 4 (3%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green

Splits and Phases: 3: Branch Drive & Lee Highway #29B



# F. 2023 Existing Conditions – Capacity Analysis Worksheets



| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 298 | 896 | 38 | 699 | 194 | 83 | 117 | 80 | 117 | 122 | 244 |
| v/c Ratio | 0.72 | 0.51 | 0.37 | 0.48 | 0.21 | 0.49 | 0.62 | 0.21 | 0.59 | 0.58 | 0.41 |
| Control Delay | 69.1 | 26.2 | 96.7 | 21.6 | 3.5 | 68.2 | 73.8 | 1.2 | 69.4 | 67.7 | 11.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 69.1 | 26.2 | 96.7 | 21.6 | 3.5 | 68.2 | 73.8 | 1.2 | 69.4 | 67.7 | 11.1 |
| Queue Length 50th (ft) | 141 | 287 | 38 | 249 | 32 | 76 | 108 | 0 | 112 | 116 | 41 |
| Queue Length 95th (ft) | 186 | 428 | 78 | 143 | 46 | 126 | 166 | 0 | 167 | 171 | 95 |
| Internal Link Dist (ft) | | 1315 | | 334 | | | 509 | | | 538 | |
| Turn Bay Length (ft) | 250 | | 130 | | 200 | 250 | | 125 | 215 | | |
| Base Capacity (vph) | 481 | 1758 | 118 | 1450 | 1006 | 224 | 249 | 447 | 313 | 335 | 621 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.62 | 0.51 | 0.32 | 0.48 | 0.19 | 0.37 | 0.47 | 0.18 | 0.37 | 0.36 | 0.39 |

Intersection Summary

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 5 | 257 | 758 | 31 | 3 | 31 | 615 | 171 | 73 | 103 | 70 | 117 |
| Future Volume (vph) | 5 | 257 | 758 | 31 | 3 | 31 | 615 | 171 | 73 | 103 | 70 | 117 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Grade (%) | | | 0% | | | | -1% | | | 2% | | |
| Total Lost time (s) | | 7.8 | 5.2 | | | 6.9 | 5.8 | 9.4 | 8.3 | 8.3 | 6.9 | 9.4 |
| Lane Util. Factor | | 0.97 | 0.95 | | | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 |
| Frpb, ped/bikes | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | 0.99 | | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 |
| Flt Protected | | 0.95 | 1.00 | | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 |
| Satd. Flow (prot) | | 3338 | 3452 | | | 1814 | 3359 | 1561 | 1655 | 1844 | 1537 | 1649 |
| Flt Permitted | | 0.95 | 1.00 | | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 |
| Satd. Flow (perm) | | 3338 | 3452 | | | 1814 | 3359 | 1561 | 1655 | 1844 | 1537 | 1649 |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 6 | 292 | 861 | 35 | 3 | 35 | 699 | 194 | 83 | 117 | 80 | 133 |
| RTOR Reduction (vph) | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 87 | 0 | 0 | 67 | 0 |
| Lane Group Flow (vph) | 0 | 298 | 895 | 0 | 0 | 38 | 699 | 107 | 83 | 117 | 13 | 117 |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Heavy Vehicles (%) | 0% | 5% | 4% | 3% | 0% | 0% | 8% | 4% | 8% | 2% | 4% | 5% |
| Turn Type | Prot | Prot | NA | | Prot | Prot | NA | pm+ov | Split | NA | custom | Split |
| Protected Phases | 5 | 5 | 2 | | 1 | 1 | 6 | 4 | 3 | 3 | | 4 |
| Permitted Phases | | | | | | | | 6 | | | 1 3 | |
| Actuated Green, G (s) | | 17.4 | 71.0 | | | 8.1 | 60.2 | 77.0 | 14.3 | 14.3 | 22.4 | 16.8 |
| Effective Green, g (s) | | 17.4 | 71.0 | | | 8.1 | 60.2 | 77.0 | 14.3 | 14.3 | 22.4 | 16.8 |
| Actuated g/C Ratio | | 0.12 | 0.51 | | | 0.06 | 0.43 | 0.55 | 0.10 | 0.10 | 0.16 | 0.12 |
| Clearance Time (s) | | 7.8 | 5.2 | | | 6.9 | 5.8 | 9.4 | 8.3 | 8.3 | | 9.4 |
| Vehicle Extension (s) | | 3.0 | 3.0 | | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 |
| Lane Grp Cap (vph) | | 414 | 1750 | | | 104 | 1444 | 858 | 169 | 188 | 245 | 197 |
| v/s Ratio Prot | | c0.09 | c0.26 | | | 0.02 | 0.21 | 0.01 | 0.05 | c0.06 | | c0.07 |
| v/s Ratio Perm | | | | | | | | 0.05 | | | 0.01 | |
| v/c Ratio | | 0.72 | 0.51 | | | 0.37 | 0.48 | 0.12 | 0.49 | 0.62 | 0.05 | 0.59 |
| Uniform Delay, d1 | | 59.0 | 23.0 | | | 63.5 | 28.7 | 15.2 | 59.4 | 60.3 | 49.8 | 58.4 |
| Progression Factor | | 1.00 | 1.00 | | | 1.38 | 0.65 | 2.21 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 5.9 | 1.1 | | | 2.1 | 1.1 | 0.1 | 2.2 | 6.3 | 0.1 | 4.7 |
| Delay (s) | | 64.9 | 24.0 | | | 89.7 | 19.8 | 33.6 | 61.7 | 66.5 | 49.9 | 63.1 |
| Level of Service | | E | C | | | F | B | C | E | E | D | E |
| Approach Delay (s) | | | 34.2 | | | | 25.5 | | | 60.3 | | |
| Approach LOS | | | C | | | | C | | | E | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 36.4 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 140.0 | Sum of lost time (s) | 31.3 |
| Intersection Capacity Utilization | 70.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | SBT | SBR |
|---|---|---|
| Lane Configurations | | |
| Traffic Volume (vph) | 93 | 215 |
| Future Volume (vph) | 93 | 215 |
| Ideal Flow (vphpl) | 1900 | 1900 |
| Grade (%) | -2% | |
| Total Lost time (s) | 9.4 | 9.4 |
| Lane Util. Factor | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 |
| Flt Protected | 0.99 | 1.00 |
| Satd. Flow (prot) | 1769 | 1558 |
| Flt Permitted | 0.99 | 1.00 |
| Satd. Flow (perm) | 1769 | 1558 |
| Peak-hour factor, PHF | 0.88 | 0.88 |
| Adj. Flow (vph) | 106 | 244 |
| RTOR Reduction (vph) | 0 | 127 |
| Lane Group Flow (vph) | 122 | 117 |
| Confl. Peds. (#/hr) | | 3 |
| Heavy Vehicles (%) | 2% | 3% |
| Turn Type | NA | custom |
| Protected Phases | 4 | |
| Permitted Phases | | 4 5 |
| Actuated Green, G (s) | 16.8 | 43.6 |
| Effective Green, g (s) | 16.8 | 43.6 |
| Actuated g/C Ratio | 0.12 | 0.31 |
| Clearance Time (s) | 9.4 | |
| Vehicle Extension (s) | 3.0 | |
| Lane Grp Cap (vph) | 212 | 485 |
| v/s Ratio Prot | 0.07 | |
| v/s Ratio Perm | | 0.07 |
| v/c Ratio | 0.58 | 0.24 |
| Uniform Delay, d1 | 58.2 | 35.9 |
| Progression Factor | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.7 | 0.3 |
| Delay (s) | 62.0 | 36.1 |
| Level of Service | E | D |
| Approach Delay (s) | 49.2 | |
| Approach LOS | D | |

| Intersection Summary |
|---|

HCM 6th Edition methodology expects strict NEMA phasing.

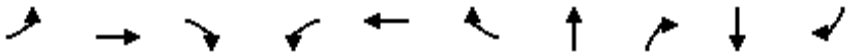
| Intersection | |
|---|---|
| Int Delay, s/veh | 0.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑ | ↱ | | ↑↑ | ↱ | | | ↱ | | | ↱ |
| Traffic Vol, veh/h | 0 | 885 | 63 | 0 | 800 | 31 | 0 | 0 | 29 | 0 | 0 | 20 |
| Future Vol, veh/h | 0 | 885 | 63 | 0 | 800 | 31 | 0 | 0 | 29 | 0 | 0 | 20 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | 110 | - | - | 300 | - | - | 0 | - | - | 0 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 1 | - | - | 3 | - | - | 3 | - | - | -11 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 4 | 3 | 0 | 7 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 0 | 962 | 68 | 0 | 870 | 34 | 0 | 0 | 32 | 0 | 0 | 22 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | 0 | - | - | 0 | - | - | 481 | - | - | 435 |
| Stage 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | - | - | - | 7.26 | - | - | 5.8 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | - | - | - | 3.33 | - | - | 3.3 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | - | - | 0 | 0 | 508 | 0 | 0 | 656 |
| Stage 1 | 0 | - | - | 0 | - | - | 0 | 0 | - | 0 | 0 | - |
| Stage 2 | 0 | - | - | 0 | - | - | 0 | 0 | - | 0 | 0 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | - | - | - | 508 | - | - | 656 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 12.6 | 10.7 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 508 | - | - | - | - | 656 |
| HCM Lane V/C Ratio | 0.062 | - | - | - | - | 0.033 |
| HCM Control Delay (s) | 12.6 | - | - | - | - | 10.7 |
| HCM Lane LOS | B | - | - | - | - | B |
| HCM 95th %tile Q(veh) | 0.2 | - | - | - | - | 0.1 |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBT | NBR | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 40 | 964 | 1 | 48 | 840 | 56 | 23 | 42 | 46 | 55 |
| v/c Ratio | 0.36 | 0.41 | 0.00 | 0.41 | 0.37 | 0.05 | 0.15 | 0.16 | 0.40 | 0.28 |
| Control Delay | 84.6 | 7.2 | 0.0 | 72.4 | 16.2 | 0.1 | 56.4 | 1.4 | 71.9 | 3.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 84.6 | 7.2 | 0.0 | 72.4 | 16.2 | 0.1 | 56.4 | 1.4 | 71.9 | 3.4 |
| Queue Length 50th (ft) | 40 | 127 | 0 | 44 | 188 | 0 | 21 | 0 | 43 | 0 |
| Queue Length 95th (ft) | m80 | 133 | m0 | 88 | 394 | 0 | 43 | 0 | 86 | 0 |
| Internal Link Dist (ft) | | 457 | | | 1504 | | 131 | | 565 | |
| Turn Bay Length (ft) | 240 | | 330 | 150 | | 150 | | 60 | | |
| Base Capacity (vph) | 199 | 2364 | 1143 | 227 | 2284 | 1125 | 286 | 358 | 185 | 248 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.20 | 0.41 | 0.00 | 0.21 | 0.37 | 0.05 | 0.08 | 0.12 | 0.25 | 0.22 |

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

| Movement | EBU | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 7 | 29 | 877 | 1 | 44 | 764 | 51 | 10 | 11 | 38 | 34 | 8 |
| Future Volume (vph) | 7 | 29 | 877 | 1 | 44 | 764 | 51 | 10 | 11 | 38 | 34 | 8 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Grade (%) | | | -4% | | | 2% | | | 0% | | | -1% |
| Total Lost time (s) | | 6.4 | 5.7 | 5.7 | 6.8 | 5.6 | 5.6 | | 6.0 | 6.0 | | 7.5 |
| Lane Util. Factor | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Frt | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | | 1.00 |
| Flt Protected | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | 0.98 | 1.00 | | 0.96 |
| Satd. Flow (prot) | | 1791 | 3541 | 1647 | 1752 | 3372 | 1599 | | 1856 | 1615 | | 1792 |
| Flt Permitted | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | 0.98 | 1.00 | | 0.96 |
| Satd. Flow (perm) | | 1791 | 3541 | 1647 | 1752 | 3372 | 1599 | | 1856 | 1615 | | 1792 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 8 | 32 | 964 | 1 | 48 | 840 | 56 | 11 | 12 | 42 | 37 | 9 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 0 | 0 | 39 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 40 | 964 | 1 | 48 | 840 | 35 | 0 | 23 | 3 | 0 | 46 |
| Heavy Vehicles (%) | 14% | 0% | 4% | 0% | 2% | 6% | 0% | 0% | 0% | 0% | 3% | 0% |
| Turn Type | Prot | Prot | NA | Perm | Prot | NA | Perm | Split | NA | Perm | Split | NA |
| Protected Phases | 1 | 1 | 6 | | 5 | 2 | | 4 | 4 | | 3 | 3 |
| Permitted Phases | | | | 6 | | | 2 | | | 4 | | |
| Actuated Green, G (s) | | 7.5 | 87.3 | 87.3 | 8.1 | 88.4 | 88.4 | | 10.7 | 10.7 | | 7.9 |
| Effective Green, g (s) | | 7.5 | 87.3 | 87.3 | 8.1 | 88.4 | 88.4 | | 10.7 | 10.7 | | 7.9 |
| Actuated g/C Ratio | | 0.05 | 0.62 | 0.62 | 0.06 | 0.63 | 0.63 | | 0.08 | 0.08 | | 0.06 |
| Clearance Time (s) | | 6.4 | 5.7 | 5.7 | 6.8 | 5.6 | 5.6 | | 6.0 | 6.0 | | 7.5 |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 |
| Lane Grp Cap (vph) | | 95 | 2208 | 1027 | 101 | 2129 | 1009 | | 141 | 123 | | 101 |
| v/s Ratio Prot | | 0.02 | c0.27 | | c0.03 | 0.25 | | | c0.01 | | | c0.03 |
| v/s Ratio Perm | | | | 0.00 | | | 0.02 | | | 0.00 | | |
| v/c Ratio | | 0.42 | 0.44 | 0.00 | 0.48 | 0.39 | 0.04 | | 0.16 | 0.03 | | 0.46 |
| Uniform Delay, d1 | | 64.1 | 13.6 | 9.9 | 63.9 | 12.7 | 9.7 | | 60.5 | 59.8 | | 64.0 |
| Progression Factor | | 1.23 | 0.40 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Incremental Delay, d2 | | 2.7 | 0.6 | 0.0 | 3.5 | 0.5 | 0.1 | | 0.5 | 0.1 | | 3.2 |
| Delay (s) | | 81.5 | 6.0 | 9.9 | 67.4 | 13.2 | 9.8 | | 61.0 | 59.9 | | 67.2 |
| Level of Service | | F | A | A | E | B | A | | E | E | | E |
| Approach Delay (s) | | | 9.0 | | | 15.8 | | | 60.3 | | | 64.7 |
| Approach LOS | | | A | | | B | | | E | | | E |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 16.2 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.41 | | |
| Actuated Cycle Length (s) | 140.0 | Sum of lost time (s) | 26.0 |
| Intersection Capacity Utilization | 57.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 50 |
| Future Volume (vph) | 50 |
| Ideal Flow (vphpl) | 1900 |
| Grade (%) | |
| Total Lost time (s) | 7.5 |
| Lane Util. Factor | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1375 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1375 |
| Peak-hour factor, PHF | 0.91 |
| Adj. Flow (vph) | 55 |
| RTOR Reduction (vph) | 52 |
| Lane Group Flow (vph) | 3 |
| Heavy Vehicles (%) | 18% |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 3 |
| Actuated Green, G (s) | 7.9 |
| Effective Green, g (s) | 7.9 |
| Actuated g/C Ratio | 0.06 |
| Clearance Time (s) | 7.5 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 77 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.00 |
| v/c Ratio | 0.04 |
| Uniform Delay, d1 | 62.5 |
| Progression Factor | 1.00 |
| Incremental Delay, d2 | 0.2 |
| Delay (s) | 62.7 |
| Level of Service | E |
| Approach Delay (s) | |
| Approach LOS | |

| Intersection Summary |
|---|

HCM 6th Edition methodology expects strict NEMA phasing.

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.4 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 6 | 15 | 38 | 14 | 11 | 14 | 23 | 65 | 7 | 18 | 67 | 5 |
| Future Vol, veh/h | 6 | 15 | 38 | 14 | 11 | 14 | 23 | 65 | 7 | 18 | 67 | 5 |
| Conflicting Peds, #/hr | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | -8 | - | - | -2 | - | - | 1 | - | - | -1 | - |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 13 | 0 |
| Mvmt Flow | 7 | 18 | 45 | 16 | 13 | 16 | 27 | 76 | 8 | 21 | 79 | 6 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 223 | 262 | 45 | 227 | 261 | 42 | 85 | 0 | 0 | 84 | 0 | 0 |
| Stage 1 | 124 | 124 | - | 134 | 134 | - | - | - | - | - | - | - |
| Stage 2 | 99 | 138 | - | 93 | 127 | - | - | - | - | - | - | - |
| Critical Hdwy | 5.9 | 4.9 | 6.1 | 7.1 | 6.28 | 6.7 | 4.1 | - | - | 4.1 | - | - |
| Critical Hdwy Stg 1 | 4.9 | 3.9 | - | 6.1 | 5.28 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 4.9 | 3.9 | - | 6.1 | 5.28 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4.09 | 3.3 | 2.2 | - | - | 2.2 | - | - |
| Pot Cap-1 Maneuver | 794 | 726 | 1032 | 733 | 645 | 1028 | 1524 | - | - | 1526 | - | - |
| Stage 1 | 922 | 842 | - | 874 | 780 | - | - | - | - | - | - | - |
| Stage 2 | 943 | 836 | - | 919 | 785 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 750 | 702 | 1030 | 669 | 624 | 1028 | 1524 | - | - | 1526 | - | - |
| Mov Cap-2 Maneuver | 750 | 702 | - | 669 | 624 | - | - | - | - | - | - | - |
| Stage 1 | 904 | 830 | - | 857 | 765 | - | - | - | - | - | - | - |
| Stage 2 | 895 | 820 | - | 847 | 774 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 9.4 | 10.1 | 1.8 | 1.5 |
| HCM LOS | A | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1524 | - | - | 890 | 748 | 1526 | - | - |
| HCM Lane V/C Ratio | 0.018 | - | - | 0.078 | 0.061 | 0.014 | - | - |
| HCM Control Delay (s) | 7.4 | 0 | - | 9.4 | 10.1 | 7.4 | 0 | - |
| HCM Lane LOS | A | A | - | A | B | A | A | - |
| HCM 95th %tile Q(veh) | 0.1 | - | - | 0.3 | 0.2 | 0 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↕ | | | ↕ | | | ↰ | ↱ | | ↕ | |
| Traffic Vol, veh/h | 1 | 76 | 75 | 14 | 106 | 1 | 73 | 1 | 12 | 1 | 1 | 1 |
| Future Vol, veh/h | 1 | 76 | 75 | 14 | 106 | 1 | 73 | 1 | 12 | 1 | 1 | 1 |
| Conflicting Peds, #/hr | 4 | 0 | 1 | 1 | 0 | 4 | 0 | 0 | 2 | 2 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 1 | - | - | 2 | - | - | -5 | - |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 0 | 1 | 11 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mvmt Flow | 1 | 89 | 88 | 16 | 125 | 1 | 86 | 1 | 14 | 1 | 1 | 1 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 130 | 0 | 0 | 178 | 0 | 0 | 295 | 298 | 136 | 307 | 342 | 130 |
| Stage 1 | - | - | - | - | - | - | 136 | 136 | - | 162 | 162 | - |
| Stage 2 | - | - | - | - | - | - | 159 | 162 | - | 145 | 180 | - |
| Critical Hdwy | 4.1 | - | - | 4.17 | - | - | 7.5 | 6.9 | 6.4 | 6.1 | 5.5 | 5.7 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.5 | 5.9 | - | 5.1 | 4.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.5 | 5.9 | - | 5.1 | 4.5 | - |
| Follow-up Hdwy | 2.2 | - | - | 2.263 | - | - | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1468 | - | - | 1368 | - | - | 640 | 597 | 911 | 707 | 642 | 942 |
| Stage 1 | - | - | - | - | - | - | 859 | 776 | - | 884 | 803 | - |
| Stage 2 | - | - | - | - | - | - | 833 | 754 | - | 898 | 793 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1463 | - | - | 1367 | - | - | 631 | 586 | 909 | 684 | 630 | 939 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 631 | 586 | - | 684 | 630 | - |
| Stage 1 | - | - | - | - | - | - | 857 | 774 | - | 880 | 790 | - |
| Stage 2 | - | - | - | - | - | - | 820 | 742 | - | 880 | 791 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 0.9 | 11.2 | 10 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 630 | 909 | 1463 | - | - | 1367 | - | - | 729 |
| HCM Lane V/C Ratio | 0.138 | 0.016 | 0.001 | - | - | 0.012 | - | - | 0.005 |
| HCM Control Delay (s) | 11.6 | 9 | 7.5 | 0 | - | 7.7 | 0 | - | 10 |
| HCM Lane LOS | B | A | A | A | - | A | A | - | B |
| HCM 95th %tile Q(veh) | 0.5 | 0 | 0 | - | - | 0 | - | - | 0 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.1 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 83 | 104 | 136 | 44 | 47 | 67 |
| Future Vol, veh/h | 83 | 104 | 136 | 44 | 47 | 67 |
| Conflicting Peds, #/hr | 1 | 0 | 0 | 1 | 0 | 2 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | -3 | 1 | - | -5 | - |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 6 | 1 | 1 | 0 | 17 | 0 |
| Mvmt Flow | 98 | 122 | 160 | 52 | 55 | 79 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 213 | 0 | - | 0 | 505 | 189 |
| Stage 1 | - | - | - | - | 187 | - |
| Stage 2 | - | - | - | - | 318 | - |
| Critical Hdwy | 4.16 | - | - | - | 5.57 | 5.7 |
| Critical Hdwy Stg 1 | - | - | - | - | 4.57 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 4.57 | - |
| Follow-up Hdwy | 2.254 | - | - | - | 3.653 | 3.3 |
| Pot Cap-1 Maneuver | 1334 | - | - | - | 577 | 881 |
| Stage 1 | - | - | - | - | 853 | - |
| Stage 2 | - | - | - | - | 770 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1333 | - | - | - | 530 | 879 |
| Mov Cap-2 Maneuver | - | - | - | - | 530 | - |
| Stage 1 | - | - | - | - | 785 | - |
| Stage 2 | - | - | - | - | 769 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 3.5 | 0 | 11.5 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1333 | - | - | - | 691 |
| HCM Lane V/C Ratio | 0.073 | - | - | - | 0.194 |
| HCM Control Delay (s) | 7.9 | - | - | - | 11.5 |
| HCM Lane LOS | A | - | - | - | B |
| HCM 95th %tile Q(veh) | 0.2 | - | - | - | 0.7 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.9 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 38 | 156 | 152 | 51 | 31 | 19 |
| Future Vol, veh/h | 38 | 156 | 152 | 51 | 31 | 19 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 75 | - | - | - | 0 | 50 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | -5 | 3 | - | 0 | - |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 0 | 4 | 1 | 0 | 0 | 0 |
| Mvmt Flow | 45 | 184 | 179 | 60 | 36 | 22 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 239 | 0 | - | 0 | 483 | 209 |
| Stage 1 | - | - | - | - | 209 | - |
| Stage 2 | - | - | - | - | 274 | - |
| Critical Hdwy | 4.1 | - | - | - | 6.4 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 2.2 | - | - | - | 3.5 | 3.3 |
| Pot Cap-1 Maneuver | 1340 | - | - | - | 546 | 836 |
| Stage 1 | - | - | - | - | 831 | - |
| Stage 2 | - | - | - | - | 777 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1340 | - | - | - | 527 | 836 |
| Mov Cap-2 Maneuver | - | - | - | - | 527 | - |
| Stage 1 | - | - | - | - | 803 | - |
| Stage 2 | - | - | - | - | 777 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 1.5 | 0 | 11.2 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1340 | - | - | - | 527 | 836 |
| HCM Lane V/C Ratio | 0.033 | - | - | - | 0.069 | 0.027 |
| HCM Control Delay (s) | 7.8 | - | - | - | 12.3 | 9.4 |
| HCM Lane LOS | A | - | - | - | B | A |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 0.2 | 0.1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 1 | 1 | 1 | 64 | 1 | 106 | 1 | 407 | 98 | 95 | 355 | 1 |
| Future Vol, veh/h | 1 | 1 | 1 | 64 | 1 | 106 | 1 | 407 | 98 | 95 | 355 | 1 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | 100 | - | 0 | 90 | - | 130 | 225 | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | -2 | - | - | 4 | - | - | 2 | - | - | 3 | - |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 6 | 1 | 5 | 5 | 0 |
| Mvmt Flow | 1 | 1 | 1 | 75 | 1 | 125 | 1 | 479 | 115 | 112 | 418 | 1 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 885 | 1239 | 210 | 915 | 1124 | 240 | 419 | 0 | 0 | 594 | 0 | 0 |
| Stage 1 | 643 | 643 | - | 481 | 481 | - | - | - | - | - | - | - |
| Stage 2 | 242 | 596 | - | 434 | 643 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.1 | 6.7 | 8.3 | 7.3 | 7.32 | 4.1 | - | - | 4.2 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.1 | - | 7.3 | 6.3 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.1 | - | 7.3 | 6.3 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.31 | 2.2 | - | - | 2.25 | - | - |
| Pot Cap-1 Maneuver | 268 | 203 | 811 | 188 | 161 | 744 | 1151 | - | - | 958 | - | - |
| Stage 1 | 465 | 506 | - | 486 | 501 | - | - | - | - | - | - | - |
| Stage 2 | 766 | 529 | - | 523 | 409 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 202 | 179 | 811 | 170 | 142 | 744 | 1151 | - | - | 958 | - | - |
| Mov Cap-2 Maneuver | 202 | 179 | - | 170 | 142 | - | - | - | - | - | - | - |
| Stage 1 | 465 | 447 | - | 486 | 500 | - | - | - | - | - | - | - |
| Stage 2 | 636 | 528 | - | 460 | 361 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 19.3 | 23 | 0 | 1.9 |
| HCM LOS | C | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | WBLn2 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1151 | - | - | 255 | 169 | 744 | 958 | - | - |
| HCM Lane V/C Ratio | 0.001 | - | - | 0.014 | 0.452 | 0.168 | 0.117 | - | - |
| HCM Control Delay (s) | 8.1 | - | - | 19.3 | 42.8 | 10.8 | 9.3 | - | - |
| HCM Lane LOS | A | - | - | C | E | B | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0 | 2.1 | 0.6 | 0.4 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.7 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 1 | 1 | 3 | 5 | 1 | 18 | 13 | 488 | 10 | 15 | 401 | 3 |
| Future Vol, veh/h | 1 | 1 | 3 | 5 | 1 | 18 | 13 | 488 | 10 | 15 | 401 | 3 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | 0 | - | - | 150 | - | 135 | 110 | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 5 | - | - | 3 | - | - | 4 | - | - | -2 | - |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 5 | 0 | 0 | 4 | 0 |
| Mvmt Flow | 1 | 1 | 4 | 6 | 1 | 21 | 15 | 574 | 12 | 18 | 472 | 4 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 828 | 1126 | 238 | 877 | 1116 | 287 | 476 | 0 | 0 | 586 | 0 | 0 |
| Stage 1 | 510 | 510 | - | 604 | 604 | - | - | - | - | - | - | - |
| Stage 2 | 318 | 616 | - | 273 | 512 | - | - | - | - | - | - | - |
| Critical Hdwy | 8.5 | 7.5 | 7.4 | 8.1 | 7.1 | 7.32 | 4.1 | - | - | 4.1 | - | - |
| Critical Hdwy Stg 1 | 7.5 | 6.5 | - | 7.1 | 6.1 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 7.5 | 6.5 | - | 7.1 | 6.1 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.36 | 2.2 | - | - | 2.2 | - | - |
| Pot Cap-1 Maneuver | 212 | 151 | 744 | 212 | 174 | 681 | 1097 | - | - | 999 | - | - |
| Stage 1 | 451 | 469 | - | 413 | 444 | - | - | - | - | - | - | - |
| Stage 2 | 616 | 409 | - | 684 | 496 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 199 | 146 | 744 | 205 | 168 | 681 | 1097 | - | - | 999 | - | - |
| Mov Cap-2 Maneuver | 199 | 146 | - | 205 | 168 | - | - | - | - | - | - | - |
| Stage 1 | 445 | 461 | - | 407 | 438 | - | - | - | - | - | - | - |
| Stage 2 | 587 | 403 | - | 667 | 487 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 16.7 | 13.8 | 0.2 | 0.3 |
| HCM LOS | C | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | WBLn2 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1097 | - | - | 314 | 205 | 587 | 999 | - | - |
| HCM Lane V/C Ratio | 0.014 | - | - | 0.019 | 0.029 | 0.038 | 0.018 | - | - |
| HCM Control Delay (s) | 8.3 | - | - | 16.7 | 23.1 | 11.4 | 8.7 | - | - |
| HCM Lane LOS | A | - | - | C | C | B | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.1 | 0.1 | 0.1 | 0.1 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 8 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 119 | 17 | 71 | 2 | 3 | 3 | 111 | 389 | 31 | 7 | 352 | 50 |
| Future Vol, veh/h | 119 | 17 | 71 | 2 | 3 | 3 | 111 | 389 | 31 | 7 | 352 | 50 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | Yield | - | - | None | - | - | None | - | - | None |
| Storage Length | 100 | - | 230 | 0 | - | - | 160 | - | 175 | 160 | - | 125 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 3 | - | - | -3 | - |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 2 | 0 | 3 | 0 | 0 | 33 | 1 | 5 | 0 | 0 | 3 | 8 |
| Mvmt Flow | 140 | 20 | 84 | 2 | 4 | 4 | 131 | 458 | 36 | 8 | 414 | 59 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 923 | 1186 | 207 | 953 | 1209 | 229 | 473 | 0 | 0 | 494 | 0 | 0 |
| Stage 1 | 430 | 430 | - | 720 | 720 | - | - | - | - | - | - | - |
| Stage 2 | 493 | 756 | - | 233 | 489 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.54 | 6.5 | 6.96 | 7.5 | 6.5 | 7.56 | 4.12 | - | - | 4.1 | - | - |
| Critical Hdwy Stg 1 | 6.54 | 5.5 | - | 6.5 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.54 | 5.5 | - | 6.5 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.52 | 4 | 3.33 | 3.5 | 4 | 3.63 | 2.21 | - | - | 2.2 | - | - |
| Pot Cap-1 Maneuver | 225 | 190 | 796 | 217 | 184 | 687 | 1092 | - | - | 1080 | - | - |
| Stage 1 | 574 | 587 | - | 390 | 435 | - | - | - | - | - | - | - |
| Stage 2 | 526 | 419 | - | 755 | 553 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 199 | 166 | 796 | 159 | 161 | 687 | 1092 | - | - | 1080 | - | - |
| Mov Cap-2 Maneuver | 199 | 166 | - | 159 | 161 | - | - | - | - | - | - | - |
| Stage 1 | 505 | 583 | - | 343 | 383 | - | - | - | - | - | - | - |
| Stage 2 | 456 | 369 | - | 648 | 549 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 38.8 | 21.4 | 1.8 | 0.1 |
| HCM LOS | E | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | EBLn2 | EBLn3 | WBLn1 | WBLn2 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1092 | - | - | 199 | 166 | 796 | 159 | 261 | 1080 | - | - |
| HCM Lane V/C Ratio | 0.12 | - | - | 0.704 | 0.12 | 0.105 | 0.015 | 0.027 | 0.008 | - | - |
| HCM Control Delay (s) | 8.7 | - | - | 57.3 | 29.6 | 10.1 | 28 | 19.2 | 8.4 | - | - |
| HCM Lane LOS | A | - | - | F | D | B | D | C | A | - | - |
| HCM 95th %tile Q(veh) | 0.4 | - | - | 4.4 | 0.4 | 0.3 | 0 | 0.1 | 0 | - | - |



| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 275 | 869 | 68 | 1119 | 110 | 119 | 99 | 70 | 161 | 166 | 402 |
| v/c Ratio | 0.74 | 0.54 | 0.51 | 0.77 | 0.12 | 0.67 | 0.54 | 0.19 | 0.55 | 0.55 | 0.70 |
| Control Delay | 76.6 | 31.9 | 101.5 | 23.6 | 3.3 | 83.1 | 74.3 | 3.8 | 64.7 | 64.4 | 40.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 76.6 | 31.9 | 101.5 | 23.6 | 3.3 | 83.1 | 74.3 | 3.8 | 64.7 | 64.4 | 40.0 |
| Queue Length 50th (ft) | 140 | 356 | 58 | 582 | 38 | 119 | 97 | 0 | 152 | 156 | 257 |
| Queue Length 95th (ft) | 193 | 428 | m119 | 192 | m15 | 188 | 160 | 17 | 251 | 257 | 417 |
| Internal Link Dist (ft) | | 1315 | | 334 | | | 509 | | | 538 | |
| Turn Bay Length (ft) | 250 | | 130 | | 200 | 250 | | 125 | 215 | | |
| Base Capacity (vph) | 412 | 1607 | 218 | 1486 | 922 | 222 | 232 | 465 | 301 | 311 | 581 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.67 | 0.54 | 0.31 | 0.75 | 0.12 | 0.54 | 0.43 | 0.15 | 0.53 | 0.53 | 0.69 |

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 2 | 262 | 794 | 40 | 10 | 56 | 1074 | 106 | 114 | 95 | 67 | 231 |
| Future Volume (vph) | 2 | 262 | 794 | 40 | 10 | 56 | 1074 | 106 | 114 | 95 | 67 | 231 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Grade (%) | | | 0% | | | | -1% | | | 2% | | |
| Total Lost time (s) | | 7.8 | 5.2 | | | 6.9 | 5.8 | 9.4 | 8.3 | 8.3 | 6.9 | 9.4 |
| Lane Util. Factor | | 0.97 | 0.95 | | | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 |
| Frpb, ped/bikes | | 1.00 | 1.00 | | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | 0.99 | | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 |
| Flt Protected | | 0.95 | 1.00 | | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 |
| Satd. Flow (prot) | | 3400 | 3512 | | | 1814 | 3557 | 1570 | 1787 | 1862 | 1563 | 1715 |
| Flt Permitted | | 0.95 | 1.00 | | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 |
| Satd. Flow (perm) | | 3400 | 3512 | | | 1814 | 3557 | 1570 | 1787 | 1862 | 1563 | 1715 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 2 | 273 | 827 | 42 | 10 | 58 | 1119 | 110 | 119 | 99 | 70 | 241 |
| RTOR Reduction (vph) | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 37 | 0 | 0 | 58 | 0 |
| Lane Group Flow (vph) | 0 | 275 | 867 | 0 | 0 | 68 | 1119 | 73 | 119 | 99 | 12 | 161 |
| Confl. Peds. (#/hr) | | | | 3 | | | | 5 | 2 | | 6 | 6 |
| Heavy Vehicles (%) | 0% | 3% | 2% | 0% | 0% | 0% | 2% | 2% | 0% | 1% | 0% | 1% |
| Turn Type | Prot | Prot | NA | | Prot | Prot | NA | pm+ov | Split | NA | custom | Split |
| Protected Phases | 5 | 5 | 2 | | 1 | 1 | 6 | 4 | 3 | 3 | | 4 |
| Permitted Phases | | | | | | | | 6 | | | 1 3 | |
| Actuated Green, G (s) | | 16.5 | 68.6 | | | 11.1 | 61.7 | 87.3 | 14.9 | 14.9 | 26.0 | 25.6 |
| Effective Green, g (s) | | 16.5 | 68.6 | | | 11.1 | 61.7 | 87.3 | 14.9 | 14.9 | 26.0 | 25.6 |
| Actuated g/C Ratio | | 0.11 | 0.46 | | | 0.07 | 0.41 | 0.58 | 0.10 | 0.10 | 0.17 | 0.17 |
| Clearance Time (s) | | 7.8 | 5.2 | | | 6.9 | 5.8 | 9.4 | 8.3 | 8.3 | | 9.4 |
| Vehicle Extension (s) | | 3.0 | 3.0 | | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 |
| Lane Grp Cap (vph) | | 374 | 1606 | | | 134 | 1463 | 913 | 177 | 184 | 270 | 292 |
| v/s Ratio Prot | | 0.08 | c0.25 | | | 0.04 | c0.31 | 0.01 | c0.07 | 0.05 | | 0.09 |
| v/s Ratio Perm | | | | | | | | 0.03 | | | 0.01 | |
| v/c Ratio | | 0.74 | 0.54 | | | 0.51 | 0.76 | 0.08 | 0.67 | 0.54 | 0.04 | 0.55 |
| Uniform Delay, d1 | | 64.6 | 29.3 | | | 66.8 | 37.9 | 13.7 | 65.2 | 64.3 | 51.7 | 56.9 |
| Progression Factor | | 1.00 | 1.00 | | | 1.36 | 0.51 | 1.22 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 7.3 | 1.3 | | | 2.6 | 3.3 | 0.0 | 9.6 | 3.0 | 0.1 | 2.2 |
| Delay (s) | | 72.0 | 30.6 | | | 93.8 | 22.7 | 16.8 | 74.8 | 67.3 | 51.7 | 59.2 |
| Level of Service | | E | C | | | F | C | B | E | E | D | E |
| Approach Delay (s) | | | 40.6 | | | | 25.9 | | | 66.6 | | |
| Approach LOS | | | D | | | | C | | | E | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 39.4 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 150.0 | Sum of lost time (s) | 31.3 |
| Intersection Capacity Utilization | 98.1% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | SBT | SBR |
|---|---|---|
| Lane Configurations | | |
| Traffic Volume (vph) | 83 | 386 |
| Future Volume (vph) | 83 | 386 |
| Ideal Flow (vphpl) | 1900 | 1900 |
| Grade (%) | -2% | |
| Total Lost time (s) | 9.4 | 9.4 |
| Lane Util. Factor | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 |
| Flt Protected | 0.98 | 1.00 |
| Satd. Flow (prot) | 1772 | 1545 |
| Flt Permitted | 0.98 | 1.00 |
| Satd. Flow (perm) | 1772 | 1545 |
| Peak-hour factor, PHF | 0.96 | 0.96 |
| Adj. Flow (vph) | 86 | 402 |
| RTOR Reduction (vph) | 0 | 60 |
| Lane Group Flow (vph) | 166 | 342 |
| Confl. Peds. (#/hr) | | 2 |
| Heavy Vehicles (%) | 0% | 4% |
| Turn Type | NA | custom |
| Protected Phases | 4 | |
| Permitted Phases | | 4 5 |
| Actuated Green, G (s) | 25.6 | 51.5 |
| Effective Green, g (s) | 25.6 | 51.5 |
| Actuated g/C Ratio | 0.17 | 0.34 |
| Clearance Time (s) | 9.4 | |
| Vehicle Extension (s) | 3.0 | |
| Lane Grp Cap (vph) | 302 | 530 |
| v/s Ratio Prot | 0.09 | |
| v/s Ratio Perm | | c0.22 |
| v/c Ratio | 0.55 | 0.64 |
| Uniform Delay, d1 | 56.9 | 41.5 |
| Progression Factor | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.0 | 2.7 |
| Delay (s) | 59.0 | 44.2 |
| Level of Service | E | D |
| Approach Delay (s) | 50.9 | |
| Approach LOS | D | |

| Intersection Summary |
|---|

HCM 6th Edition methodology expects strict NEMA phasing.

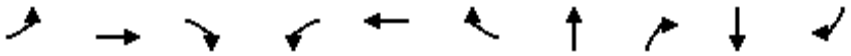
| Intersection | |
|---|---|
| Int Delay, s/veh | 0.6 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑ | ↱ | | ↑↑ | ↱ | | | ↱ | | | ↱ |
| Traffic Vol, veh/h | 0 | 1019 | 83 | 0 | 1167 | 102 | 0 | 0 | 25 | 0 | 0 | 79 |
| Future Vol, veh/h | 0 | 1019 | 83 | 0 | 1167 | 102 | 0 | 0 | 25 | 0 | 0 | 79 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | 110 | - | - | 300 | - | - | 0 | - | - | 0 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 1 | - | - | 3 | - | - | 3 | - | - | -11 | - |
| Peak Hour Factor | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 |
| Heavy Vehicles, % | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| Mvmt Flow | 0 | 1096 | 89 | 0 | 1255 | 110 | 0 | 0 | 27 | 0 | 0 | 85 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | 0 | - | - | 0 | - | - | 548 | - | - | 632 |
| Stage 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | - | - | - | 7.28 | - | - | 5.8 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | - | - | - | 3.34 | - | - | 3.3 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | - | - | 0 | 0 | 454 | 0 | 0 | 519 |
| Stage 1 | 0 | - | - | 0 | - | - | 0 | 0 | - | 0 | 0 | - |
| Stage 2 | 0 | - | - | 0 | - | - | 0 | 0 | - | 0 | 0 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | - | - | - | 454 | - | - | 517 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 13.4 | 13.3 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 454 | - | - | - | - | 517 |
| HCM Lane V/C Ratio | 0.059 | - | - | - | - | 0.164 |
| HCM Control Delay (s) | 13.4 | - | - | - | - | 13.3 |
| HCM Lane LOS | B | - | - | - | - | B |
| HCM 95th %tile Q(veh) | 0.2 | - | - | - | - | 0.6 |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBT | NBR | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 147 | 949 | 2 | 68 | 1160 | 88 | 36 | 79 | 165 | 148 |
| v/c Ratio | 0.72 | 0.44 | 0.00 | 0.54 | 0.63 | 0.10 | 0.31 | 0.30 | 0.76 | 0.44 |
| Control Delay | 87.4 | 12.5 | 0.0 | 82.0 | 28.6 | 0.2 | 72.2 | 3.0 | 85.8 | 10.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 87.4 | 12.5 | 0.0 | 82.0 | 28.6 | 0.2 | 72.2 | 3.0 | 85.8 | 10.0 |
| Queue Length 50th (ft) | 157 | 212 | 0 | 68 | 427 | 0 | 36 | 0 | 164 | 0 |
| Queue Length 95th (ft) | 225 | 226 | m0 | 123 | 610 | 0 | 73 | 0 | 249 | 53 |
| Internal Link Dist (ft) | | 457 | | | 1504 | | 131 | | 565 | |
| Turn Bay Length (ft) | 240 | | 330 | 150 | | 150 | | 60 | | |
| Base Capacity (vph) | 260 | 2159 | 993 | 157 | 1853 | 907 | 202 | 327 | 250 | 363 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.57 | 0.44 | 0.00 | 0.43 | 0.63 | 0.10 | 0.18 | 0.24 | 0.66 | 0.41 |

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

| Movement | EBU | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 9 | 131 | 902 | 2 | 65 | 1102 | 84 | 17 | 17 | 75 | 139 | 18 |
| Future Volume (vph) | 9 | 131 | 902 | 2 | 65 | 1102 | 84 | 17 | 17 | 75 | 139 | 18 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Grade (%) | | | -4% | | | 2% | | | 0% | | | -1% |
| Total Lost time (s) | | 6.4 | 5.7 | 5.7 | 6.8 | 5.6 | 5.6 | | 6.6 | 6.6 | | 7.5 |
| Lane Util. Factor | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Frpb, ped/bikes | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.98 | | 1.00 | 1.00 | | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Frt | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | | 1.00 |
| Flt Protected | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | 0.98 | 1.00 | | 0.96 |
| Satd. Flow (prot) | | 1807 | 3682 | 1602 | 1787 | 3504 | 1558 | | 1854 | 1615 | | 1813 |
| Flt Permitted | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | 0.98 | 1.00 | | 0.96 |
| Satd. Flow (perm) | | 1807 | 3682 | 1602 | 1787 | 3504 | 1558 | | 1854 | 1615 | | 1813 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 9 | 138 | 949 | 2 | 68 | 1160 | 88 | 18 | 18 | 79 | 146 | 19 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 1 | 0 | 0 | 41 | 0 | 0 | 74 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 147 | 949 | 1 | 68 | 1160 | 47 | 0 | 36 | 5 | 0 | 165 |
| Confl. Peds. (#/hr) | | | | 2 | | | 2 | | | | | |
| Heavy Vehicles (%) | 0% | 2% | 0% | 0% | 0% | 2% | 1% | 0% | 0% | 0% | 1% | 0% |
| Turn Type | Prot | Prot | NA | Perm | Prot | NA | Perm | Split | NA | Perm | Split | NA |
| Protected Phases | 1 | 1 | 6 | | 5 | 2 | | 4 | 4 | | 3 | 3 |
| Permitted Phases | | | | 6 | | | 2 | | | 4 | | |
| Actuated Green, G (s) | | 17.1 | 86.7 | 86.7 | 9.3 | 79.4 | 79.4 | | 9.5 | 9.5 | | 17.9 |
| Effective Green, g (s) | | 17.1 | 86.7 | 86.7 | 9.3 | 79.4 | 79.4 | | 9.5 | 9.5 | | 17.9 |
| Actuated g/C Ratio | | 0.11 | 0.58 | 0.58 | 0.06 | 0.53 | 0.53 | | 0.06 | 0.06 | | 0.12 |
| Clearance Time (s) | | 6.4 | 5.7 | 5.7 | 6.8 | 5.6 | 5.6 | | 6.6 | 6.6 | | 7.5 |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 |
| Lane Grp Cap (vph) | | 205 | 2128 | 925 | 110 | 1854 | 824 | | 117 | 102 | | 216 |
| v/s Ratio Prot | | c0.08 | 0.26 | | 0.04 | c0.33 | | | c0.02 | | | c0.09 |
| v/s Ratio Perm | | | | 0.00 | | | 0.03 | | | 0.00 | | |
| v/c Ratio | | 0.72 | 0.45 | 0.00 | 0.62 | 0.63 | 0.06 | | 0.31 | 0.05 | | 0.76 |
| Uniform Delay, d1 | | 64.1 | 18.0 | 13.4 | 68.6 | 24.8 | 17.1 | | 67.1 | 66.0 | | 64.0 |
| Progression Factor | | 1.10 | 0.61 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Incremental Delay, d2 | | 10.2 | 0.6 | 0.0 | 9.9 | 1.6 | 0.1 | | 1.5 | 0.2 | | 14.8 |
| Delay (s) | | 80.8 | 11.6 | 13.4 | 78.5 | 26.4 | 17.3 | | 68.6 | 66.2 | | 78.8 |
| Level of Service | | F | B | B | E | C | B | | E | E | | E |
| Approach Delay (s) | | | 20.9 | | | 28.5 | | | 67.0 | | | 69.4 |
| Approach LOS | | | C | | | C | | | E | | | E |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 31.6 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 150.0 | Sum of lost time (s) | 26.6 |
| Intersection Capacity Utilization | 73.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 141 |
| Future Volume (vph) | 141 |
| Ideal Flow (vphpl) | 1900 |
| Grade (%) | |
| Total Lost time (s) | 7.5 |
| Lane Util. Factor | 1.00 |
| Frpb, ped/bikes | 1.00 |
| Flpb, ped/bikes | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1607 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1607 |
| Peak-hour factor, PHF | 0.95 |
| Adj. Flow (vph) | 148 |
| RTOR Reduction (vph) | 130 |
| Lane Group Flow (vph) | 18 |
| Confl. Peds. (#/hr) | |
| Heavy Vehicles (%) | 1% |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 3 |
| Actuated Green, G (s) | 17.9 |
| Effective Green, g (s) | 17.9 |
| Actuated g/C Ratio | 0.12 |
| Clearance Time (s) | 7.5 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 191 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.01 |
| v/c Ratio | 0.09 |
| Uniform Delay, d1 | 58.8 |
| Progression Factor | 1.00 |
| Incremental Delay, d2 | 0.2 |
| Delay (s) | 59.0 |
| Level of Service | E |
| Approach Delay (s) | |
| Approach LOS | |

| Intersection Summary |
|---|

HCM 6th Edition methodology expects strict NEMA phasing.

| Intersection | |
|---|---|
| Int Delay, s/veh | 8.9 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 17 | 77 | 116 | 45 | 50 | 41 | 94 | 43 | 12 | 48 | 39 | 32 |
| Future Vol, veh/h | 17 | 77 | 116 | 45 | 50 | 41 | 94 | 43 | 12 | 48 | 39 | 32 |
| Conflicting Peds, #/hr | 0 | 0 | 14 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | -8 | - | - | -2 | - | - | 1 | - | - | -1 | - |
| Peak Hour Factor | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Heavy Vehicles, % | 0 | 0 | 2 | 0 | 2 | 5 | 0 | 2 | 0 | 0 | 3 | 0 |
| Mvmt Flow | 18 | 80 | 121 | 47 | 52 | 43 | 98 | 45 | 13 | 50 | 41 | 33 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 403 | 412 | 51 | 423 | 422 | 29 | 74 | 0 | 0 | 58 | 0 | 0 |
| Stage 1 | 158 | 158 | - | 248 | 248 | - | - | - | - | - | - | - |
| Stage 2 | 245 | 254 | - | 175 | 174 | - | - | - | - | - | - | - |
| Critical Hdwy | 5.9 | 4.9 | 6.14 | 7.1 | 6.14 | 6.8 | 4.1 | - | - | 4.1 | - | - |
| Critical Hdwy Stg 1 | 4.9 | 3.9 | - | 6.1 | 5.14 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 4.9 | 3.9 | - | 6.1 | 5.14 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.32 | 3.5 | 4.02 | 3.35 | 2.2 | - | - | 2.2 | - | - |
| Pot Cap-1 Maneuver | 642 | 640 | 1018 | 545 | 547 | 1031 | 1538 | - | - | 1559 | - | - |
| Stage 1 | 895 | 827 | - | 760 | 720 | - | - | - | - | - | - | - |
| Stage 2 | 828 | 784 | - | 832 | 769 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 524 | 577 | 1006 | 392 | 493 | 1031 | 1538 | - | - | 1559 | - | - |
| Mov Cap-2 Maneuver | 524 | 577 | - | 392 | 493 | - | - | - | - | - | - | - |
| Stage 1 | 836 | 799 | - | 710 | 672 | - | - | - | - | - | - | - |
| Stage 2 | 684 | 732 | - | 629 | 743 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 11.8 | 14.2 | 4.7 | 3 |
| HCM LOS | B | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1538 | - | - | 747 | 531 | 1559 | - | - |
| HCM Lane V/C Ratio | 0.064 | - | - | 0.293 | 0.267 | 0.032 | - | - |
| HCM Control Delay (s) | 7.5 | 0 | - | 11.8 | 14.2 | 7.4 | 0 | - |
| HCM Lane LOS | A | A | - | B | B | A | A | - |
| HCM 95th %tile Q(veh) | 0.2 | - | - | 1.2 | 1.1 | 0.1 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↕ | | | ↕ | | | ↰ | ↱ | | ↕ | |
| Traffic Vol, veh/h | 3 | 106 | 86 | 28 | 112 | 2 | 62 | 2 | 37 | 1 | 5 | 1 |
| Future Vol, veh/h | 3 | 106 | 86 | 28 | 112 | 2 | 62 | 2 | 37 | 1 | 5 | 1 |
| Conflicting Peds, #/hr | 4 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 2 | 2 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 1 | - | - | 2 | - | - | -5 | - |
| Peak Hour Factor | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 |
| Heavy Vehicles, % | 0 | 3 | 0 | 4 | 1 | 0 | 3 | 0 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 3 | 119 | 97 | 31 | 126 | 2 | 70 | 2 | 42 | 1 | 6 | 1 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 132 | 0 | 0 | 216 | 0 | 0 | 367 | 368 | 170 | 391 | 415 | 131 |
| Stage 1 | - | - | - | - | - | - | 174 | 174 | - | 193 | 193 | - |
| Stage 2 | - | - | - | - | - | - | 193 | 194 | - | 198 | 222 | - |
| Critical Hdwy | 4.1 | - | - | 4.14 | - | - | 7.53 | 6.9 | 6.43 | 6.1 | 5.5 | 5.7 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.53 | 5.9 | - | 5.1 | 4.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.53 | 5.9 | - | 5.1 | 4.5 | - |
| Follow-up Hdwy | 2.2 | - | - | 2.236 | - | - | 3.527 | 4 | 3.327 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1466 | - | - | 1342 | - | - | 564 | 542 | 863 | 637 | 596 | 941 |
| Stage 1 | - | - | - | - | - | - | 810 | 744 | - | 858 | 786 | - |
| Stage 2 | - | - | - | - | - | - | 789 | 728 | - | 854 | 769 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1461 | - | - | 1342 | - | - | 548 | 526 | 862 | 589 | 578 | 938 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 548 | 526 | - | 589 | 578 | - |
| Stage 1 | - | - | - | - | - | - | 808 | 743 | - | 854 | 764 | - |
| Stage 2 | - | - | - | - | - | - | 763 | 708 | - | 807 | 767 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.1 | 1.5 | 11.4 | 10.9 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 547 | 862 | 1461 | - | - | 1342 | - | - | 613 |
| HCM Lane V/C Ratio | 0.131 | 0.048 | 0.002 | - | - | 0.023 | - | - | 0.013 |
| HCM Control Delay (s) | 12.6 | 9.4 | 7.5 | 0 | - | 7.7 | 0 | - | 10.9 |
| HCM Lane LOS | B | A | A | A | - | A | A | - | B |
| HCM 95th %tile Q(veh) | 0.5 | 0.2 | 0 | - | - | 0.1 | - | - | 0 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.6 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 42 | 128 | 160 | 14 | 67 | 52 |
| Future Vol, veh/h | 42 | 128 | 160 | 14 | 67 | 52 |
| Conflicting Peds, #/hr | 1 | 0 | 0 | 1 | 2 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | -3 | 1 | - | -5 | - |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 2 | 2 | 2 | 0 | 0 | 2 |
| Mvmt Flow | 49 | 151 | 188 | 16 | 79 | 61 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 205 | 0 | - | 0 | 448 | 197 |
| Stage 1 | - | - | - | - | 197 | - |
| Stage 2 | - | - | - | - | 251 | - |
| Critical Hdwy | 4.12 | - | - | - | 5.4 | 5.72 |
| Critical Hdwy Stg 1 | - | - | - | - | 4.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 4.4 | - |
| Follow-up Hdwy | 2.218 | - | - | - | 3.5 | 3.318 |
| Pot Cap-1 Maneuver | 1366 | - | - | - | 648 | 868 |
| Stage 1 | - | - | - | - | 888 | - |
| Stage 2 | - | - | - | - | 853 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1365 | - | - | - | 621 | 867 |
| Mov Cap-2 Maneuver | - | - | - | - | 621 | - |
| Stage 1 | - | - | - | - | 852 | - |
| Stage 2 | - | - | - | - | 852 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 1.9 | 0 | 11.3 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1365 | - | - | - | 709 |
| HCM Lane V/C Ratio | 0.036 | - | - | - | 0.197 |
| HCM Control Delay (s) | 7.7 | - | - | - | 11.3 |
| HCM Lane LOS | A | - | - | - | B |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 0.7 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 5 | 159 | 210 | 2 | 11 | 27 |
| Future Vol, veh/h | 5 | 159 | 210 | 2 | 11 | 27 |
| Conflicting Peds, #/hr | 1 | 0 | 0 | 1 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 75 | - | - | - | 0 | 50 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | -5 | 3 | - | 0 | - |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 0 | 3 | 2 | 0 | 0 | 0 |
| Mvmt Flow | 6 | 187 | 247 | 2 | 13 | 32 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 250 | 0 | - | 0 | 448 | 249 |
| Stage 1 | - | - | - | - | 249 | - |
| Stage 2 | - | - | - | - | 199 | - |
| Critical Hdwy | 4.1 | - | - | - | 6.4 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 2.2 | - | - | - | 3.5 | 3.3 |
| Pot Cap-1 Maneuver | 1327 | - | - | - | 572 | 795 |
| Stage 1 | - | - | - | - | 797 | - |
| Stage 2 | - | - | - | - | 839 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1326 | - | - | - | 568 | 794 |
| Mov Cap-2 Maneuver | - | - | - | - | 568 | - |
| Stage 1 | - | - | - | - | 792 | - |
| Stage 2 | - | - | - | - | 838 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0.2 | 0 | 10.2 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1326 | - | - | - | 568 | 794 |
| HCM Lane V/C Ratio | 0.004 | - | - | - | 0.023 | 0.04 |
| HCM Control Delay (s) | 7.7 | - | - | - | 11.5 | 9.7 |
| HCM Lane LOS | A | - | - | - | B | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.1 | 0.1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.9 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 2 | 1 | 4 | 98 | 1 | 139 | 2 | 370 | 77 | 86 | 501 | 2 |
| Future Vol, veh/h | 2 | 1 | 4 | 98 | 1 | 139 | 2 | 370 | 77 | 86 | 501 | 2 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 1 | 0 | 4 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | 100 | - | 0 | 90 | - | 130 | 225 | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | -2 | - | - | 4 | - | - | 2 | - | - | 3 | - |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, % | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 3 | 4 | 1 | 4 | 0 |
| Mvmt Flow | 2 | 1 | 4 | 109 | 1 | 154 | 2 | 411 | 86 | 96 | 557 | 2 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 964 | 1256 | 284 | 887 | 1171 | 207 | 563 | 0 | 0 | 498 | 0 | 0 |
| Stage 1 | 754 | 754 | - | 416 | 416 | - | - | - | - | - | - | - |
| Stage 2 | 210 | 502 | - | 471 | 755 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.1 | 6.7 | 8.32 | 7.3 | 7.34 | 4.1 | - | - | 4.12 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.1 | - | 7.32 | 6.3 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.1 | - | 7.32 | 6.3 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.51 | 4 | 3.32 | 2.2 | - | - | 2.21 | - | - |
| Pot Cap-1 Maneuver | 237 | 199 | 730 | 197 | 150 | 781 | 1019 | - | - | 1069 | - | - |
| Stage 1 | 404 | 457 | - | 535 | 543 | - | - | - | - | - | - | - |
| Stage 2 | 797 | 577 | - | 491 | 355 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 175 | 180 | 728 | 181 | 136 | 780 | 1016 | - | - | 1068 | - | - |
| Mov Cap-2 Maneuver | 175 | 180 | - | 181 | 136 | - | - | - | - | - | - | - |
| Stage 1 | 402 | 414 | - | 533 | 541 | - | - | - | - | - | - | - |
| Stage 2 | 637 | 575 | - | 443 | 322 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 16.9 | 28 | 0 | 1.3 |
| HCM LOS | C | D | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | WBLn2 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1016 | - | - | 311 | 180 | 780 | 1068 | - | - |
| HCM Lane V/C Ratio | 0.002 | - | - | 0.025 | 0.611 | 0.198 | 0.089 | - | - |
| HCM Control Delay (s) | 8.6 | - | - | 16.9 | 52.2 | 10.8 | 8.7 | - | - |
| HCM Lane LOS | A | - | - | C | F | B | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.1 | 3.4 | 0.7 | 0.3 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.1 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 10 | 1 | 17 | 33 | 1 | 38 | 15 | 401 | 15 | 41 | 556 | 6 |
| Future Vol, veh/h | 10 | 1 | 17 | 33 | 1 | 38 | 15 | 401 | 15 | 41 | 556 | 6 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 5 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | 0 | - | - | 150 | - | 135 | 110 | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 5 | - | - | 3 | - | - | 4 | - | - | -2 | - |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 3 | 0 | 0 | 3 | 0 |
| Mvmt Flow | 11 | 1 | 19 | 37 | 1 | 42 | 17 | 446 | 17 | 46 | 618 | 7 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 977 | 1216 | 318 | 882 | 1202 | 223 | 630 | 0 | 0 | 463 | 0 | 0 |
| Stage 1 | 719 | 719 | - | 480 | 480 | - | - | - | - | - | - | - |
| Stage 2 | 258 | 497 | - | 402 | 722 | - | - | - | - | - | - | - |
| Critical Hdwy | 8.5 | 7.5 | 7.4 | 8.1 | 7.1 | 7.3 | 4.1 | - | - | 4.1 | - | - |
| Critical Hdwy Stg 1 | 7.5 | 6.5 | - | 7.1 | 6.1 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 7.5 | 6.5 | - | 7.1 | 6.1 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.35 | 2.2 | - | - | 2.2 | - | - |
| Pot Cap-1 Maneuver | 159 | 130 | 654 | 211 | 152 | 757 | 962 | - | - | 1109 | - | - |
| Stage 1 | 320 | 357 | - | 499 | 515 | - | - | - | - | - | - | - |
| Stage 2 | 679 | 477 | - | 562 | 385 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 142 | 122 | 651 | 194 | 143 | 757 | 958 | - | - | 1109 | - | - |
| Mov Cap-2 Maneuver | 142 | 122 | - | 194 | 143 | - | - | - | - | - | - | - |
| Stage 1 | 313 | 341 | - | 490 | 506 | - | - | - | - | - | - | - |
| Stage 2 | 628 | 468 | - | 521 | 368 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 20.3 | 18.5 | 0.3 | 0.6 |
| HCM LOS | C | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | WBLn2 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 958 | - | - | 267 | 194 | 682 | 1109 | - | - |
| HCM Lane V/C Ratio | 0.017 | - | - | 0.117 | 0.189 | 0.064 | 0.041 | - | - |
| HCM Control Delay (s) | 8.8 | - | - | 20.3 | 27.8 | 10.6 | 8.4 | - | - |
| HCM Lane LOS | A | - | - | C | D | B | A | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | - | 0.4 | 0.7 | 0.2 | 0.1 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 8.8 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 96 | 61 | 164 | 43 | 27 | 25 | 76 | 310 | 77 | 7 | 493 | 106 |
| Future Vol, veh/h | 96 | 61 | 164 | 43 | 27 | 25 | 76 | 310 | 77 | 7 | 493 | 106 |
| Conflicting Peds, #/hr | 6 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 3 | 3 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | Yield | - | - | None | - | - | None | - | - | None |
| Storage Length | 100 | - | 230 | 0 | - | - | 160 | - | 175 | 160 | - | 125 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 3 | - | - | -3 | - |
| Peak Hour Factor | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 2 | 0 | 1 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 4 | 1 |
| Mvmt Flow | 105 | 67 | 180 | 47 | 30 | 27 | 84 | 341 | 85 | 8 | 542 | 116 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 918 | 1155 | 271 | 833 | 1186 | 180 | 658 | 0 | 0 | 429 | 0 | 0 |
| Stage 1 | 558 | 558 | - | 512 | 512 | - | - | - | - | - | - | - |
| Stage 2 | 360 | 597 | - | 321 | 674 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.54 | 6.5 | 6.92 | 7.5 | 6.5 | 6.9 | 4.12 | - | - | 4.1 | - | - |
| Critical Hdwy Stg 1 | 6.54 | 5.5 | - | 6.5 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.54 | 5.5 | - | 6.5 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.52 | 4 | 3.31 | 3.5 | 4 | 3.3 | 2.21 | - | - | 2.2 | - | - |
| Pot Cap-1 Maneuver | 227 | 199 | 730 | 265 | 190 | 838 | 932 | - | - | 1141 | - | - |
| Stage 1 | 482 | 515 | - | 518 | 540 | - | - | - | - | - | - | - |
| Stage 2 | 631 | 495 | - | 671 | 457 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 176 | 179 | 730 | 131 | 171 | 832 | 932 | - | - | 1138 | - | - |
| Mov Cap-2 Maneuver | 176 | 179 | - | 131 | 171 | - | - | - | - | - | - | - |
| Stage 1 | 439 | 511 | - | 470 | 490 | - | - | - | - | - | - | - |
| Stage 2 | 519 | 449 | - | 436 | 454 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 28.4 | 33 | 1.5 | 0.1 |
| HCM LOS | D | D | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | EBLn2 | EBLn3 | WBLn1 | WBLn2 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 932 | - | - | 176 | 179 | 730 | 131 | 277 | 1138 | - | - |
| HCM Lane V/C Ratio | 0.09 | - | - | 0.599 | 0.374 | 0.247 | 0.361 | 0.206 | 0.007 | - | - |
| HCM Control Delay (s) | 9.2 | - | - | 52.1 | 36.7 | 11.5 | 47.2 | 21.3 | 8.2 | - | - |
| HCM Lane LOS | A | - | - | F | E | B | E | C | A | - | - |
| HCM 95th %tile Q(veh) | 0.3 | - | - | 3.3 | 1.6 | 1 | 1.5 | 0.8 | 0 | - | - |

# G. Background Development and Roadway Improvement Excerpts




# TOWN OF WARRENTON
## CAPITAL IMPROVEMENT PROGRAM

## 2023 - 2028

**Adopted June 16, 2022**

# TABLE OF CONTENTS

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   - b. Introduction
   - c. Policy
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   - f. Defining Capital Asset Projects
   - g. Classifications
   - h. Summary

2. Capital Improvement Projects
   - a. Five-Year Funding Summary
   - b. FY22 Project Funding by Source
   - c. Five-Year Estimated Projects Summary

3. Individual Project Sheets
   - a. Economic Development & Tourism (E)
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   - d. Recreation & Quality of Life (R)
   - e. Transportation & Walkability (T)
   - f. Stormwater & Utilities (U)

# Mission Statement

**In Cooperation With, And For Our Citizens...**

...The Mayor, Town Council and the Staff of Warrenton are dedicated to providing public safety, economic opportunity, and quality public services in an attractive, well-planned community with historic character for the benefit, enjoyment and accessibility of all.

**Affirmed by Town Council**
**August 28, 2018**

# Vision and Value Statement

**To Achieve Our Mission, We Strive To...**

**...**

Provide high level services in a cost-effective manner; display honesty, respectfulness, and fairness in all relationships; support the health and economic well-being of our citizens and businesses; preserve our historic small-town character; encourage opportunities, services and infrastructure that allow people of all means to live, work and visit here; and address public concerns and opportunities promptly and effectively.

We recognize our Mission can be achieved only by the exchange of information and that through teamwork we can maintain an environment in which we can maximize our potential.

**Affirmed by Town Council August 28, 2018**

# INTRODUCTION

The Capital Improvement Program (CIP) provides for an orderly implementation of short and long range plans for construction of Capital Improvement Projects and Land Acquisition. It further provides for the scheduling of the associated expenditures over a period of many years. The first year of the program represents the proposed Capital Budget for the Fiscal Year. In addition, consideration is given to the project's relations to other improvements and plans, and the Town's current and anticipated financial capabilities. The CIP is updated annually, at which time the schedule and the projects reevaluated, new or deferred projects are added, and the time frame is extended by one additional fiscal year.

The Town of Warrenton continues to enhance the structure of the budget and provide a greater understanding of funding commitments. Projects are presented under topical categories to help the community understand the investments that are being proposed and the tie in to priorities of the Town. Next, a Capital Asset Replacement Program (CARP) includes projects that cover standard operating and maintenance items. Unlike items listed in the capital project and acquisition program, these are items necessary for the ongoing operations of the Town and its facilities. Finally, the Town created dedicated Utilities and Stormwater Funds. These modifications to the CIP help move it towards a clearer document that works in conjunction with the budget and stated needs of the community.

# POLICY

The following policies guide the development of the CIP:

1. The CIP should be realistic relative to the projected source of revenue.
2. A reserve fund should be established, as required, to reduce the fiscal impact of major projects in a single year.
3. Projects undertaken in the Enterprise Fund and Stormwater Fund are to be considered separate from the general Fund.

# BENEFITS

A carefully planned CIP will enable the Town to realize several benefits:

1. Major improvements can be anticipated in advance, rather than addressed at the time the need arises.
2. The implementation strategy of the Comprehensive Plan is used as a guide for future needs and investments.
3. The Town Council and Planning Commission are better able to evaluate the needs of the entire community, instead of special projects.
4. Projects can be scheduled when revenue is available and when the community's anticipated ability to finance is determined.
5. Capital programming improves the Town's ability to vitalize state and federal aid. Applications can be timed to fit the development schedule.

# DEFINING CAPITAL IMPROVEMENT PROJECTS

A capital improvement is defined as a major expenditure, beyond maintenance and operating costs, for the acquisition or construction of a needed facility. Salaries, supplies and other overhead expenditures are considered maintenance and operating costs, not provided for the CIP. Capital improvements include such things as utility systems, public buildings, land acquisitions, streets and sidewalks. The improvements are items that will have a significant impact on the community and are too expensive to be financed in the annual operating budget. Cost and frequency are two criteria that will be used to distinguish between a capital expenditure and a capital asset.

1. COST - A capital improvement project shall be $10,000 or more.
2. FREQUENCY - Capital improvement projects should be non-recurring. An interval of three years between expenditures is recommended.

# DEFINING CAPITAL ASSET REPLACEMENT PROGRAM (CARP)

Capital assets, which include property, plant, equipment, and infrastructure assets, are assets with a minimum individual cost of more than $5,000 and a useful life of more than one year. Infrastructure assets capitalized have an original cost of $25,000 or more. Such assets are recorded at historical cost or estimated historical cost if purchased or constructed. Donated capital assets are recorded at acquisition value at the date of donation. The costs of normal maintenance and repairs that do not add to the value of the asset or materially extend asset lives are not capitalized.

* *Development of planning and regulatory documents are typically captured in a budget's operating expense; however, Warrenton recognizes these types of documents here as they do not occur annually and can have a substantial impact on the budget.*

# CATEGORIES

Starting the FY22, CIP projects are being classified around stated priorities of the Town. Projects are numbered under specific topical areas. The CIP further states how projects meet the Comprehensive Plan goals and objectives within the individual project sheets. Below is a general description of the categories.

**The CIP programs are coded using the following information:**

**Economic Development and Tourism (E)** – Economic development and tourism projects position Warrenton to leverage and promote the location of jobs, revenue-generating businesses, and attracting tourism through complementary place-based economic development that encourages local economic growth.

**General Government (G)** – General government projects relate to ensuring the efficiency and needs to run a government that meets the needs of its citizens in a responsive, safe, and transparent fashion.

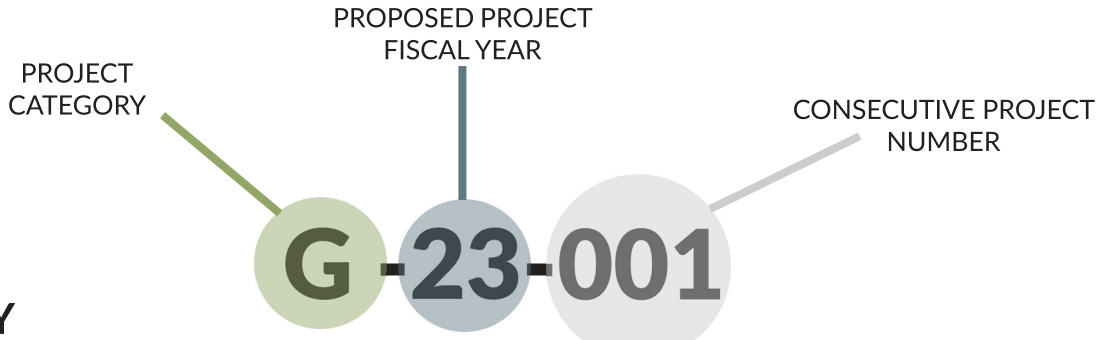
**Public Safety (P) -** Public safety projects relate to the Town of Warrenton's Police Department and Warrenton Volunteer Fire Company needs to ensure the ongoing safety and security of the community.

**Recreation and Quality of Life (R)** – Recreation and quality of life projects are recognized as opportunities for additional cultural, arts, and recreational activities in the Town. These type of investments are an important factor for long term economic sustainability.

**Transportation and Walkability (T)** – Transportation and walkability projects provide for improved multimodal safety by enacting access management strategies, incorporating pedestrian and bike friendly strategies, and deconflicting through-travel and local traffic movements.

**Utilities and Stormwater (U)** – Utilities and stormwater projects locate, maintain, and build community facilities to ensure the service needs of the Town and Federal and state mandates are met.

## EXAMPLE PROJECT NUMBER




# SUMMARY

The CIP is a planning and scheduling document. It does not represent authorization to expend Town funds. It does provide an orderly implementation of proposed short and long range plans for land acquisition and construction. Projects are authorized for implementation only after Town Council adopts and appropriates the Capital Budget. The impact of FY23 capital projects, for both improvement and asset projects, on the Town of Warrenton General Fund is $1,281,289. The impact of FY23 capital projects, for both improvement and asset projects, on the Town of Warrenton Water and Sewer Fund is $4,111,102. The impact of the FY23 capital projects on the Stormwater Utility Fund is $94,918. The Town is also using $976,500 in ARPA funds on projects in FY23. The CIP is an annual process and requires close review by both the Planning Commission and the Town Council.

# CAPITAL IMPROVEMENT PROJECTS

# PROJECT SHEETS

## TRANSPORTATION & WALKABILITY

**PROJECT NUMBER:** T-28-003 **PROJECT TITLE:** Inters. Improv.: Broadview/W. Lee Hwy/Winchester

**CATEGORY (check one):**

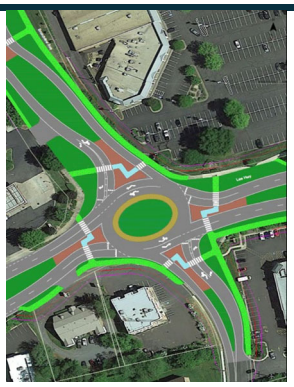
- ☐ Economic Development & Tourism (E)
- ☐ General Government (G)
- ☐ Public Safety (P)
- ☐ Recreation & Quality of Life (R)
- ☐ Stormwater & Utilities (U)
- ☑ Transportation & Walkability (T)

**PROGRAM TYPE (check one):**

- ☐ CARP
- ☑ CIP

**PROGRAM DESCRIPTION**

The Town of Warrenton is interested in creating an improvement plan for this important transportation connection between two key arterial corridors. It is also key to the economic development potential of the surrounding area. Therefore, the Town is working with VDOT on a "pipeline project" for the Lee Highway corridor. This project will be updated upon completion of the study in spring 2022.



**GOAL ADDRESSED**

Plan Warrenton 2040 Transportation and Circulation Near Turn Recommendations page 38.

| ESTIMATED COSTS | FY23 2022-23 | FY24 2023-24 | FY25 2024-25 | FY26 2025-26 | FY27 2026-27 | FY28 & Beyond | Total |
|---|---|---|---|---|---|---|---|
| Land Acquisition | | | | | | $2,325,000 | **$2,325,000** |
| Architecture/Engineering | | | | | | $1,299,486 | **$1,299,486** |
| Construction/Purchase | | | | | | $3,641,809 | **$3,641,809** |
| Other | | | | | | | **$0** |
| **TOTAL** | **$0** | **$0** | **$0** | **$0** | **$0** | **$7,266,295** | **$7,266,295** |

| FUNDING SOURCES | | | | | | | |
|---|---|---|---|---|---|---|---|
| General Fund | | | | | | $7,266,295 | **$7,266,295** |
| Water and Sewer Fund | | | | | | | **$0** |
| Stormwater Fund | | | | | | | **$0** |
| ARPA | | | | | | | **$0** |
| Grant- Federal | | | | | | | **$0** |
| Proffer | | | | | | | **$0** |
| Other | | | | | | | **$0** |
| **TOTAL** | **$0** | **$0** | **$0** | **$0** | **$0** | **$7,266,295** | **$7,266,295** |

| OPERATING IMPACT | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ongoing maintenance | | | | | | | **$0** |
| Other | | | | | | | **$0** |
| **TOTAL** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** |

**PROJECT NUMBER:** T-28-004 **PROJECT TITLE:** Route 17 (Broadview) Roebling Roundabout

**CATEGORY (check one):**

- ☐ Economic Development & Tourism (E)
- ☐ General Government (G)
- ☐ Public Safety (P)
- ☐ Recreation & Quality of Life (R)
- ☐ Stormwater & Utilities (U)
- ☑ Transportation & Walkability (T)

**PROGRAM TYPE (check one):**

- ☐ CARP
- ☑ CIP

**PROGRAM DESCRIPTION**

The intersection at Route 17 (Broadview Avenue) and Roebling Street is subjected to safety issues. As the area around it redevelops, the intersection will need improvements. In 2020 the Town applied for an unsuccessful VDOT Smartscale grant. This application included an assessment of costs associated with a roundabout included below. Therefore, the Town is working with VDOT on a "pipeline project" for the Lee Higway corridor. This project will be updated upon completion of the study in spring of 2022.

**GOAL ADDRESSED**

Plan Warrenton 2040 Transportation and Circulation Near Turn Recommendations page 38.



| ESTIMATED COSTS | FY23 2022-23 | FY24 2023-24 | FY25 2024-25 | FY26 2025-26 | FY27 2026-27 | FY28 & Beyond | Total |
|---|---|---|---|---|---|---|---|
| Land Acquisition | | | | | | $1,987,500 | **$1,987,500** |
| Architecture/Engineering | | | | | | $1,291,020 | **$1,291,020** |
| Construction/Purchase | | | | | | $3,921,045 | **$3,921,045** |
| Other | | | | | | | **$0** |
| **TOTAL** | **$0** | **$0** | **$0** | **$0** | **$0** | **$7,199,565** | **$7,199,565** |

| FUNDING SOURCES | | | | | | | |
|---|---|---|---|---|---|---|---|
| General Fund | | | | | | $7,199,565 | **$7,199,565** |
| Water and Sewer Fund | | | | | | | **$0** |
| Stormwater Fund | | | | | | | **$0** |
| ARPA | | | | | | | **$0** |
| Grant- Commonwealth | | | | | | | **$0** |
| Proffer | | | | | | | **$0** |
| Other | | | | | | | **$0** |
| **TOTAL** | **$0** | **$0** | **$0** | **$0** | **$0** | **$7,199,565** | **$7,199,565** |

| OPERATING IMPACT | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ongoing maintenance | | | | | | | **$0** |
| Other | | | | | | | **$0** |
| **TOTAL** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** |

**PROJECT NUMBER:** T-28-005 **PROJECT TITLE:** Bear Wallow Road/ Roebling Intersection

**CATEGORY (check one):**

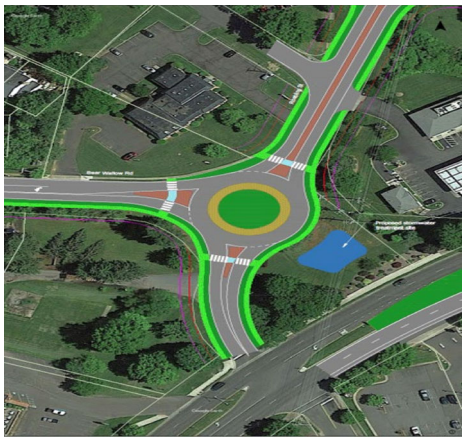
- ☐ Economic Development & Tourism (E)
- ☐ General Government (G)
- ☐ Public Safety (P)
- ☐ Recreation & Quality of Life (R)
- ☐ Stormwater & Utilities (U)
- ☑ Transportation & Walkability (T)

**PROGRAM TYPE (check one):**

- ☐ CARP
- ☑ CIP

**PROGRAM DESCRIPTION**

The intersection at Bear Wallow Road and Roebling Street is subjected to safety issues and an awkward configuration. As the area around it redevelops, the intersection will need improvements. In 2020 the Town applied for an unsuccessful VDOT Smartscale grant. This application included an assessment of costs associated with a roundabout included below.



**GOAL ADDRESSED**

Plan Warrenton 2040 Transportation and Circulation Near Turn Recommendations page 38.

| ESTIMATED COSTS | FY23 2022-23 | FY24 2023-24 | FY25 2024-25 | FY26 2025-26 | FY27 2026-27 | FY28 & Beyond | Total |
|---|---|---|---|---|---|---|---|
| Land Acquisition | | | | | | $1,200,000 | $1,200,000 |
| Architecture/Engineering | | | | | | $1,200,000 | $1,200,000 |
| Construction/Purchase | | | | | | $3,600,000 | $3,600,000 |
| Other | | | | | | | $0 |
| TOTAL | $0 | $0 | $0 | $0 | $0 | $6,000,000 | $6,000,000 |
| **FUNDING SOURCES** | | | | | | | |
| General Fund | | | | | | $6,000,000 | $6,000,000 |
| Water and Sewer Fund | | | | | | | $0 |
| Stormwater Fund | | | | | | | $0 |
| ARPA | | | | | | | $0 |
| Grant- Commonwealth | | | | | | | $0 |
| Proffer | | | | | | | $0 |
| Other | | | | | | | $0 |
| TOTAL | $0 | $0 | $0 | $0 | $0 | $6,000,000 | $6,000,000 |
| **OPERATING IMPACT** | | | | | | | |
| Ongoing maintenance | | | | | | | $0 |
| Other | | | | | | | $0 |
| TOTAL | $0 | $0 | $0 | $0 | $0 | $0 | $0 |

https://www.fauquiernow.com/news/business/warrenton-town-council-greenlights-mixed-use-development-next-to-obriens-pub/article_5e6c8aca-611c-11ed-8421-2751bb1fb016.html

FEATURED

# Warrenton Town Council greenlights mixed-use development next to O'Brien's Pub

James Jarvis, jjarvis@FauquierNow.com
Nov 10, 2022




Rendering of a proposed mixed-use development, dubbed Waterloo Junction, that would be built between Broadview Avenue and Bear Wallow Road.

Farrish Properties & Acquisitions LLC

The Warrenton Town Council voted unanimously Wednesday to approve the construction of a mixed-use development -- including 47 townhomes, six apartments, one retail building and a small park -- on the corner of Lee Highway and Broadview Avenue.

The 4.81-acre development, dubbed Waterloo Junction, will consist of 47 1,800-square-foot townhomes, 3,600 square feet of new retail space, six apartments, parking and a small park with a community play area and benches. One townhome and five apartments – 10% of the proposed units – will be designated as affordable housing for individuals or families whose gross annual income does not exceed 80% of the current Fauquier County area median family income.



Rendering of proposed 47 townhomes that could be built as part of the Waterloo Junction development. Each townhome would be 1,800 square-feet and 45 feet high.

Dan Ryan Builders

According to the application, the townhomes will not exceed the town's zoning ordinance of 45 feet. They'll be priced somewhere between $400,000 and $500,000.

For the project to move forward, the council had to approve a zoning map amendment, special-use permit and Comprehensive Plan amendment.

The Warrenton Planning Commission previously voted 5-1 recommending t council approve the project. Commissioner Ali Zarabi cast the only dissenting vote, noting concerns about traffic mitigation, among other issues.

During the council meeting, Ward 2 representative William Semple urged his colleagues to delay the project. Semple said that while he supported the creation of more affordable housing, he argued it may create a "precedent" in which other developers would be incentivized to propose similar projects along Broadview Avenue that do not align with the 2040 Comprehensive Plan guidelines which the council approved in April 2021.

"I think that we should consider those issues before we adopt this one, because this is going to be what I call the lead horse in a variety of potential development down the road," Semple said.

The Comprehensive Plan states the Experience Broadview District "will allow for mixed-use residential at lower density, but nodal development with mixed-use anchors and improved edges to adjacent single-family neighborhoods. Current commercial uses will be maintained."

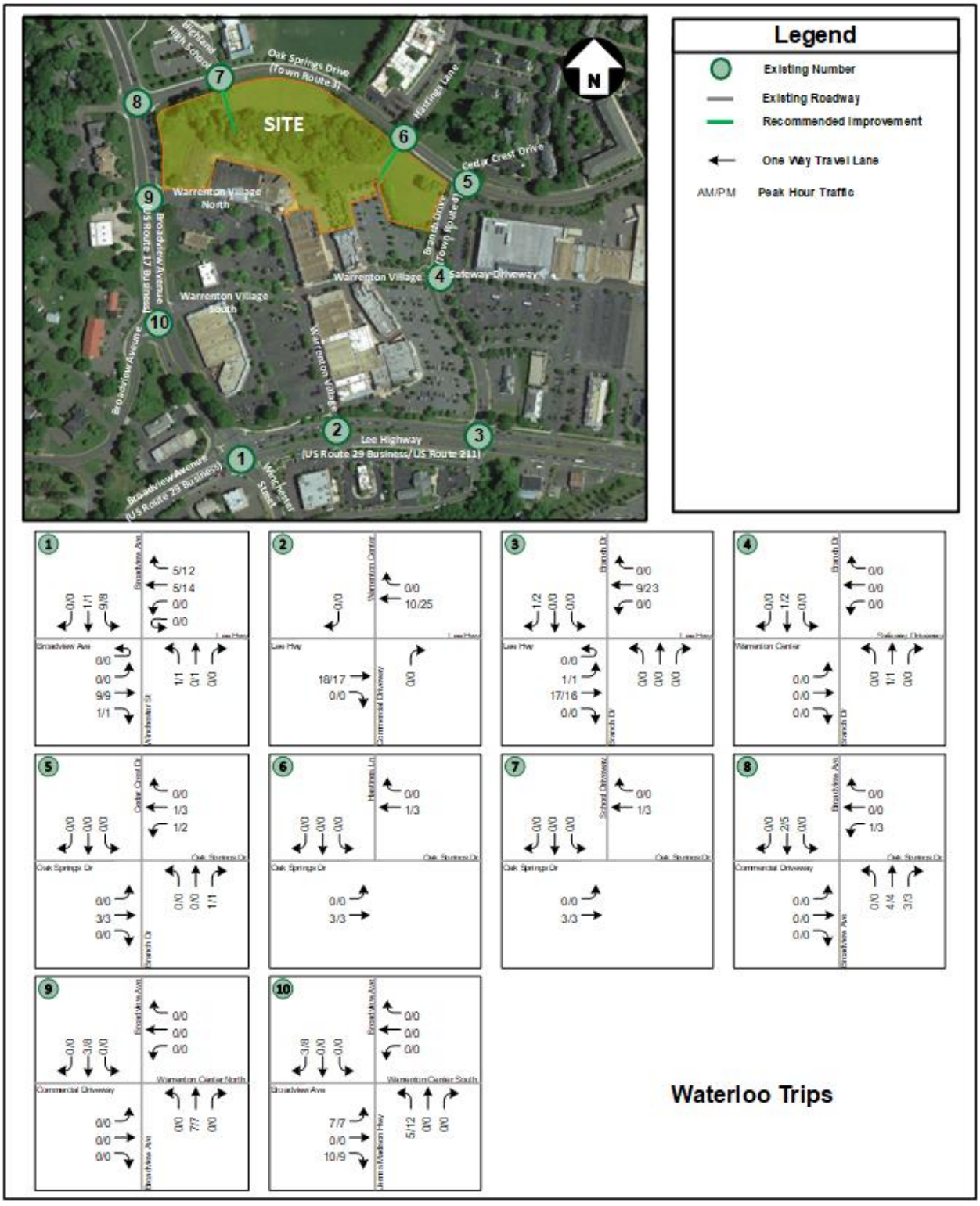
Semple moved to table the project, but it was rejected 6-1, with Semple casting the only supporting vote.

The rest of the council, including Mayor Carter Nevill, praised the project, saying it will be a positive addition to the town.

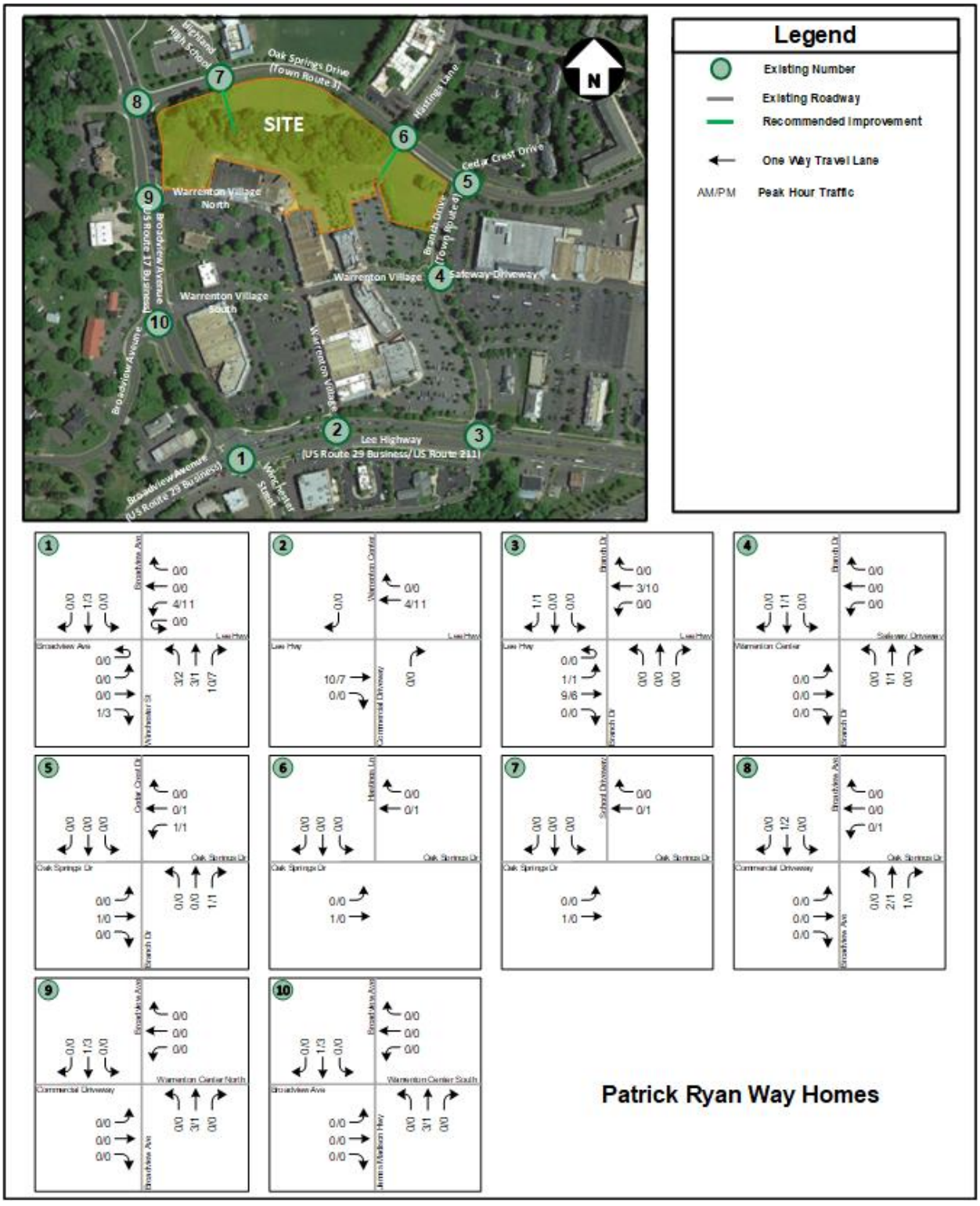
"I think this has been pointed out that the importance of ... bringing people into residential spaces that are close to commercial and entertainment spaces ... it recreates the same sense of community that you see in downtown, where you have people ... walking to restaurants, walking to shops, and I think the more we are able to bring that closer to our neighborhoods, the better we create our built environment to better serve the well-being of our residents," Nevill said.

The renovation of O'Brien's and the apartments above the restaurant – currently vacant – is estimated to take four months. The townhome construction could be completed within 18 months.

James Jarvis


Legend
Existing Number
Existing Roadway
Recommended Improvement
One Way Travel Lane
AM/PM Peak Hour Traffic
SITE
N
Oak Springs Drive (Town Route 1)
Hastings Lane
Cedar Crest Drive
Branch Drive (Town Route 6)
Warrenton Village North
Warrenton Village South
Warrenton Village
Safeway Driveway
Broadview Avenue
Broadview Avenue (US Route 29 Business)
Lee Highway (US Route 29 Business/ US Route 211)
Winchester Street
Warrenton Center
Waterloo Trips




Legend
Existing Number
Existing Roadway
Recommended Improvement
One Way Travel Lane
AM/PM Peak Hour Traffic
N
SITE
Oak Springs Drive (Town Route 3)
Highland High School
Hastings Lane
Cedar Crest Drive
Branch Drive (Town Route 6)
Warrenton Village North
Warrenton Village South
Warrenton Village
Safeway Driveway
Broadview Avenue
Broadview Avenue (US Route 29 Business)
Lee Highway (US Route 29 Business/ US Route 211)
Winchester Street
Patrick Ryan Way Homes

# H. 2027 Future Conditions without Development – Capacity Analysis Worksheet

# LANE LEVEL OF SERVICE

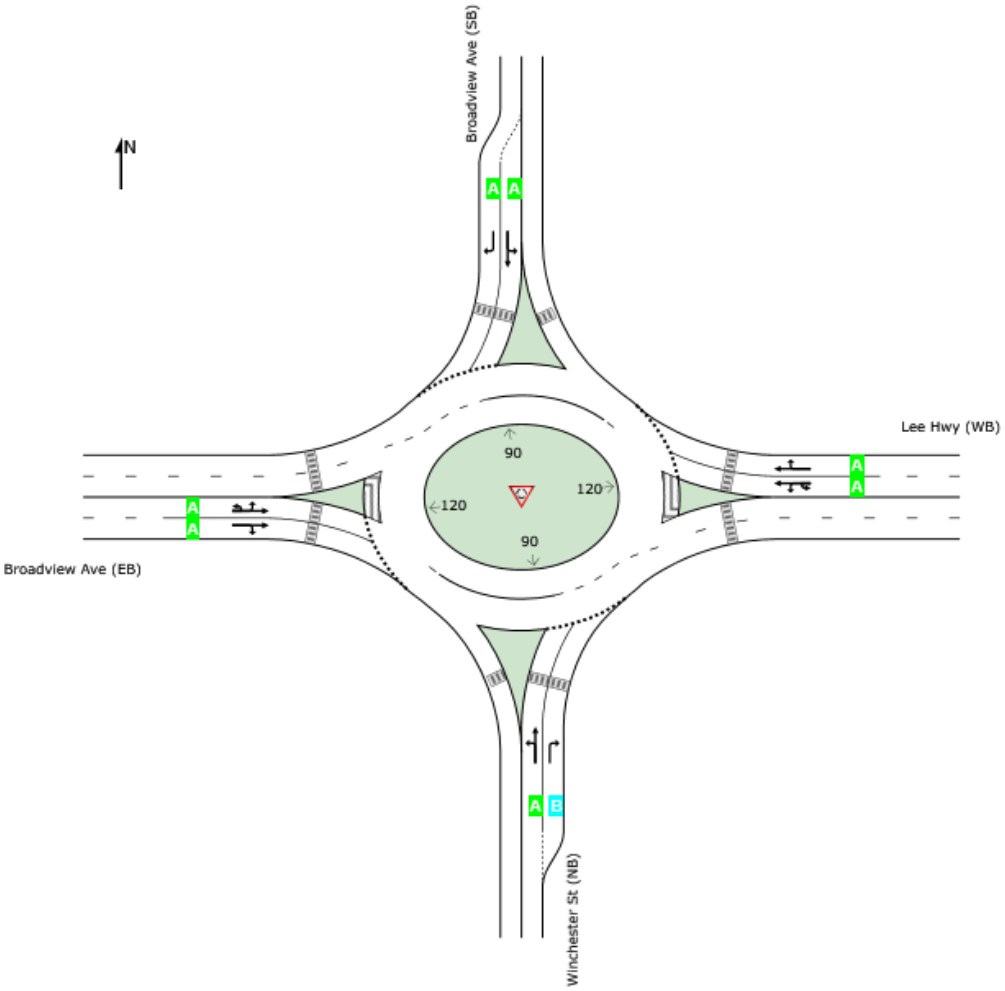
## Lane Level of Service

### Site: 101 [Broadview/Winchester/Lee - 2027 FB AM (Site Folder: General)]

**Output produced by SIDRA INTERSECTION Version: 9.1.2.202**

Warrenton Village Center
2027 Future Background Condtions
AM Peak Hour
Site Category: (None)
Roundabout

| | Approaches | | | | Intersection |
|---|---|---|---|---|---|
| | South | East | North | West | |
| LOS | A | A | A | A | A |




Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

**SIDRA INTERSECTION 9.1 | Copyright © 2000-2022 Akcelik and Associates Pty Ltd | sidrasolutions.com**
Organisation: GOROVE SLADE | Licence: PLUS / 1PC | Processed: Monday, February 12, 2024 2:04:14 AM
Project: U:\3243\001. Warrenton Village Center\Analysis\Sidra\2nd Submission\2027 TF.sip9

# LANE SUMMARY

## Site: 101 [Broadview/Winchester/Lee - 2027 FB AM (Site Folder: General)]

**Output produced by SIDRA INTERSECTION Version: 9.1.2.202**

Warrenton Village Center
2027 Future Background Condtions
AM Peak Hour
Site Category: (None)
Roundabout

### Lane Use and Performance

| | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh | Dist ] ft | Lane Config | Lane Length ft | Cap. Adj. % | Prob. Block. % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Winchester St (NB) | | | | | | | | | | | | | | | |
| Lane 1[d] | 199 | 4.5 | 199 | 4.5 | 664 | 0.300 | 100 | 9.2 | LOS A | 1.4 | 35.5 | Full | 1600 | 0.0 | 0.0 |
| Lane 2 | 87 | 4.0 | 87 | 4.0 | 475 | 0.183 | 100 | 10.2 | LOS B | 0.7 | 18.8 | Short | 250 | 0.0 | NA |
| Approach | 286 | 4.4 | 286 | 4.4 | | 0.300 | | 9.5 | LOS A | 1.4 | 35.5 | | | | |
| East: Lee Hwy (WB) | | | | | | | | | | | | | | | |
| Lane 1 | 430 | 7.2 | 430 | 7.2 | 1024 | 0.420 | 100 | 8.0 | LOS A | 3.0 | 78.4 | Full | 1600 | 0.0 | 0.0 |
| Lane 2[d] | 504 | 6.5 | 504 | 6.5 | 1201 | 0.420 | 100 | 7.2 | LOS A | 3.1 | 80.8 | Full | 1600 | 0.0 | 0.0 |
| Approach | 934 | 6.8 | 934 | 6.8 | | 0.420 | | 7.6 | LOS A | 3.1 | 80.8 | | | | |
| North: Broadview Ave (SB) | | | | | | | | | | | | | | | |
| Lane 1[d] | 240 | 3.7 | 240 | 3.7 | 750 | 0.320 | 100 | 8.6 | LOS A | 1.5 | 39.3 | Short | 215 | 0.0 | NA |
| Lane 2 | 234 | 3.0 | 234 | 3.0 | 682 | 0.343 | 100 | 9.7 | LOS A | 1.7 | 42.6 | Full | 1600 | 0.0 | 0.0 |
| Approach | 474 | 3.4 | 474 | 3.4 | | 0.343 | | 9.1 | LOS A | 1.7 | 42.6 | | | | |
| West: Broadview Ave (EB) | | | | | | | | | | | | | | | |
| Lane 1 | 448 | 4.1 | 448 | 4.1 | 1048 | 0.427 | 100 | 8.0 | LOS A | 3.1 | 79.7 | Full | 1600 | 0.0 | 0.0 |
| Lane 2[d] | 523 | 3.9 | 523 | 3.9 | 1224 | 0.427 | 100 | 7.2 | LOS A | 3.2 | 82.8 | Full | 1600 | 0.0 | 0.0 |
| Approach | 971 | 4.0 | 971 | 4.0 | | 0.427 | | 7.6 | LOS A | 3.2 | 82.8 | | | | |
| All Vehicles | 2664 | 4.9 | 2664 | 4.9 | | 0.427 | | 8.1 | LOS A | 3.2 | 82.8 | | | | |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

d Dominant lane on roundabout approach

### Approach Lane Flows (veh/h)

South: Winchester St (NB)

| Mov. From S To Exit: | L2 W | T1 N | R2 E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 84 | 115 | - | 199 | 4.5 | | 664 | 0.300 | 100 | NA | NA |
| Lane 2 | - | - | 87 | 87 | 4.0 | | 475 | 0.183 | 100 | 0.0 | 1 |
| Approach | 84 | 115 | 87 | 286 | 4.4 | | | 0.300 | | | |
| East: Lee Hwy (WB) | | | | | | | | | | | |
| Mov. From E To Exit: | U<br>E | L2<br>S | T1<br>W | R2<br>N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 3 | 38 | 389 | - | 430 | 7.2 | 1024 | 0.420 | 100 | NA | NA |
| Lane 2 | - | - | 313 | 191 | 504 | 6.5 | 1201 | 0.420 | 100 | NA | NA |
| Approach | 3 | 38 | 701 | 191 | 934 | 6.8 | | 0.420 | | | |
| North: Broadview Ave (SB) | | | | | | | | | | | |
| Mov. From N To Exit: | L2<br>E | T1<br>S | R2<br>W | Total | %HV | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 137 | 103 | - | 240 | 3.7 | | 750 | 0.320 | 100 | 0.0 | 2 |
| Lane 2 | - | - | 234 | 234 | 3.0 | | 682 | 0.343 | 100 | NA | NA |
| Approach | 137 | 103 | 234 | 474 | 3.4 | | | 0.343 | | | |
| West: Broadview Ave (EB) | | | | | | | | | | | |
| Mov. From W To Exit: | U<br>W | L2<br>N | T1<br>E | R2<br>S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 5 | 62 | 380 | - | 448 | 4.1 | 1048 | 0.427 | 100 | NA | NA |
| Lane 2 | - | - | 487 | 36 | 523 | 3.9 | 1224 | 0.427 | 100 | NA | NA |
| Approach | 5 | 62 | 867 | 36 | 971 | 4.0 | | 0.427 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| All Vehicles | 2664 | 4.9 | 0.427 |

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

## Merge Analysis

| | Exit Lane Number | Short Lane Length ft | Percent Opng in Lane % | Opposing Flow Rate veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| There are no Exit Short Lanes for Merge Analysis at this Site. | | | | | | | | | | | | |

## Variable Demand Analysis

| | Initial Queued Demand veh | Residual Queued Demand veh | Time for Residual Demand to Clear sec | Duration of Oversatn sec |
|---|---|---|---|---|
| South: Winchester St (NB) | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane 2 | 0.0 | 0.0 | 0.0 | 0.0 |
| East: Lee Hwy (WB) | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane 2 | 0.0 | 0.0 | 0.0 | 0.0 |
| North: Broadview Ave (SB) | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |

| | | | | |
|---|---|---|---|---|
| Lane 2 | 0.0 | 0.0 | 0.0 | 0.0 |
| West: Broadview Ave (EB) | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane 2 | 0.0 | 0.0 | 0.0 | 0.0 |

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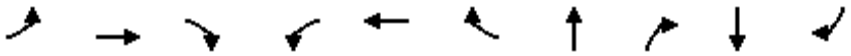
| Intersection | |
|---|---|
| Int Delay, s/veh | 0.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑ | ↱ | | ↑↑ | ↱ | | | ↱ | | | ↱ |
| Traffic Vol, veh/h | 0 | 944 | 63 | 0 | 839 | 31 | 0 | 0 | 29 | 0 | 0 | 20 |
| Future Vol, veh/h | 0 | 944 | 63 | 0 | 839 | 31 | 0 | 0 | 29 | 0 | 0 | 20 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | 110 | - | - | 300 | - | - | 0 | - | - | 0 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 1 | - | - | 3 | - | - | 3 | - | - | -11 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 4 | 3 | 0 | 7 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 0 | 1026 | 68 | 0 | 912 | 34 | 0 | 0 | 32 | 0 | 0 | 22 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | 0 | - | - | 0 | - | - | 513 | - | - | 456 |
| Stage 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | - | - | - | 7.26 | - | - | 5.8 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | - | - | - | 3.33 | - | - | 3.3 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | - | - | 0 | 0 | 483 | 0 | 0 | 640 |
| Stage 1 | 0 | - | - | 0 | - | - | 0 | 0 | - | 0 | 0 | - |
| Stage 2 | 0 | - | - | 0 | - | - | 0 | 0 | - | 0 | 0 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | - | - | - | 483 | - | - | 640 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 13 | 10.8 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 483 | - | - | - | - | 640 |
| HCM Lane V/C Ratio | 0.065 | - | - | - | - | 0.034 |
| HCM Control Delay (s) | 13 | - | - | - | - | 10.8 |
| HCM Lane LOS | B | - | - | - | - | B |
| HCM 95th %tile Q(veh) | 0.2 | - | - | - | - | 0.1 |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBT | NBR | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 42 | 1015 | 1 | 48 | 871 | 55 | 23 | 41 | 46 | 57 |
| v/c Ratio | 0.37 | 0.43 | 0.00 | 0.41 | 0.39 | 0.05 | 0.15 | 0.16 | 0.40 | 0.29 |
| Control Delay | 71.3 | 17.3 | 0.0 | 72.4 | 16.0 | 0.1 | 57.5 | 1.4 | 71.9 | 3.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 71.3 | 17.3 | 0.0 | 72.4 | 16.0 | 0.1 | 57.5 | 1.4 | 71.9 | 3.6 |
| Queue Length 50th (ft) | 39 | 246 | 0 | 44 | 198 | 0 | 21 | 0 | 43 | 0 |
| Queue Length 95th (ft) | 80 | 485 | 0 | 88 | 400 | 0 | 44 | 0 | 86 | 0 |
| Internal Link Dist (ft) | | 457 | | | 1504 | | 131 | | 565 | |
| Turn Bay Length (ft) | 240 | | 330 | 150 | | 150 | | 60 | | |
| Base Capacity (vph) | 199 | 2364 | 1143 | 227 | 2281 | 1124 | 279 | 352 | 185 | 248 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.21 | 0.43 | 0.00 | 0.21 | 0.38 | 0.05 | 0.08 | 0.12 | 0.25 | 0.23 |

Intersection Summary

| Movement | EBU | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 7 | 31 | 934 | 1 | 44 | 801 | 51 | 10 | 11 | 38 | 34 | 8 |
| Future Volume (vph) | 7 | 31 | 934 | 1 | 44 | 801 | 51 | 10 | 11 | 38 | 34 | 8 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Grade (%) | | | -4% | | | 2% | | | 0% | | | -1% |
| Total Lost time (s) | | 6.4 | 5.7 | 5.7 | 6.8 | 5.6 | 5.6 | | 6.0 | 6.0 | | 7.5 |
| Lane Util. Factor | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Frt | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | | 1.00 |
| Flt Protected | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | 0.98 | 1.00 | | 0.96 |
| Satd. Flow (prot) | | 1793 | 3541 | 1647 | 1752 | 3372 | 1599 | | 1856 | 1615 | | 1792 |
| Flt Permitted | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | 0.98 | 1.00 | | 0.96 |
| Satd. Flow (perm) | | 1793 | 3541 | 1647 | 1752 | 3372 | 1599 | | 1856 | 1615 | | 1792 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 8 | 34 | 1015 | 1 | 48 | 871 | 55 | 11 | 12 | 41 | 37 | 9 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 38 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 42 | 1015 | 1 | 48 | 871 | 35 | 0 | 23 | 3 | 0 | 46 |
| Heavy Vehicles (%) | 14% | 0% | 4% | 0% | 2% | 6% | 0% | 0% | 0% | 0% | 3% | 0% |
| Turn Type | Prot | Prot | NA | Perm | Prot | NA | Perm | Split | NA | Perm | Split | NA |
| Protected Phases | 1 | 1 | 6 | | 5 | 2 | | 4 | 4 | | 3 | 3 |
| Permitted Phases | | | | 6 | | | 2 | | | 4 | | |
| Actuated Green, G (s) | | 7.7 | 87.8 | 87.8 | 8.1 | 88.7 | 88.7 | | 10.2 | 10.2 | | 7.9 |
| Effective Green, g (s) | | 7.7 | 87.8 | 87.8 | 8.1 | 88.7 | 88.7 | | 10.2 | 10.2 | | 7.9 |
| Actuated g/C Ratio | | 0.06 | 0.63 | 0.63 | 0.06 | 0.63 | 0.63 | | 0.07 | 0.07 | | 0.06 |
| Clearance Time (s) | | 6.4 | 5.7 | 5.7 | 6.8 | 5.6 | 5.6 | | 6.0 | 6.0 | | 7.5 |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 |
| Lane Grp Cap (vph) | | 98 | 2220 | 1032 | 101 | 2136 | 1013 | | 135 | 117 | | 101 |
| v/s Ratio Prot | | 0.02 | c0.29 | | c0.03 | 0.26 | | | c0.01 | | | c0.03 |
| v/s Ratio Perm | | | | 0.00 | | | 0.02 | | | 0.00 | | |
| v/c Ratio | | 0.43 | 0.46 | 0.00 | 0.48 | 0.41 | 0.03 | | 0.17 | 0.03 | | 0.46 |
| Uniform Delay, d1 | | 64.0 | 13.6 | 9.7 | 63.9 | 12.7 | 9.6 | | 60.9 | 60.3 | | 64.0 |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Incremental Delay, d2 | | 3.0 | 0.7 | 0.0 | 3.5 | 0.6 | 0.1 | | 0.6 | 0.1 | | 3.2 |
| Delay (s) | | 67.0 | 14.3 | 9.7 | 67.4 | 13.3 | 9.7 | | 61.5 | 60.4 | | 67.2 |
| Level of Service | | E | B | A | E | B | A | | E | E | | E |
| Approach Delay (s) | | | 16.4 | | | 15.7 | | | 60.8 | | | 64.7 |
| Approach LOS | | | B | | | B | | | E | | | E |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 19.7 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.43 | | |
| Actuated Cycle Length (s) | 140.0 | Sum of lost time (s) | 26.0 |
| Intersection Capacity Utilization | 58.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 52 |
| Future Volume (vph) | 52 |
| Ideal Flow (vphpl) | 1900 |
| Grade (%) | |
| Total Lost time (s) | 7.5 |
| Lane Util. Factor | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1375 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1375 |
| Peak-hour factor, PHF | 0.92 |
| Adj. Flow (vph) | 57 |
| RTOR Reduction (vph) | 54 |
| Lane Group Flow (vph) | 3 |
| Heavy Vehicles (%) | 18% |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 3 |
| Actuated Green, G (s) | 7.9 |
| Effective Green, g (s) | 7.9 |
| Actuated g/C Ratio | 0.06 |
| Clearance Time (s) | 7.5 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 77 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.00 |
| v/c Ratio | 0.04 |
| Uniform Delay, d1 | 62.5 |
| Progression Factor | 1.00 |
| Incremental Delay, d2 | 0.2 |
| Delay (s) | 62.7 |
| Level of Service | E |
| Approach Delay (s) | |
| Approach LOS | |

| Intersection Summary |
|---|

HCM 6th Edition methodology expects strict NEMA phasing.

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↔ | | | ↔ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 6 | 15 | 38 | 14 | 11 | 14 | 23 | 67 | 7 | 18 | 69 | 5 |
| Future Vol, veh/h | 6 | 15 | 38 | 14 | 11 | 14 | 23 | 67 | 7 | 18 | 69 | 5 |
| Conflicting Peds, #/hr | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | -8 | - | - | -2 | - | - | 1 | - | - | -1 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 13 | 0 |
| Mvmt Flow | 7 | 16 | 41 | 15 | 12 | 15 | 25 | 73 | 8 | 20 | 75 | 5 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 211 | 249 | 42 | 215 | 247 | 41 | 80 | 0 | 0 | 81 | 0 | 0 |
| Stage 1 | 118 | 118 | - | 127 | 127 | - | - | - | - | - | - | - |
| Stage 2 | 93 | 131 | - | 88 | 120 | - | - | - | - | - | - | - |
| Critical Hdwy | 5.9 | 4.9 | 6.1 | 7.1 | 6.28 | 6.7 | 4.1 | - | - | 4.1 | - | - |
| Critical Hdwy Stg 1 | 4.9 | 3.9 | - | 6.1 | 5.28 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 4.9 | 3.9 | - | 6.1 | 5.28 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4.09 | 3.3 | 2.2 | - | - | 2.2 | - | - |
| Pot Cap-1 Maneuver | 805 | 734 | 1036 | 746 | 656 | 1030 | 1531 | - | - | 1529 | - | - |
| Stage 1 | 927 | 845 | - | 882 | 785 | - | - | - | - | - | - | - |
| Stage 2 | 948 | 839 | - | 925 | 790 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 763 | 711 | 1034 | 686 | 636 | 1030 | 1531 | - | - | 1529 | - | - |
| Mov Cap-2 Maneuver | 763 | 711 | - | 686 | 636 | - | - | - | - | - | - | - |
| Stage 1 | 911 | 833 | - | 867 | 772 | - | - | - | - | - | - | - |
| Stage 2 | 904 | 825 | - | 857 | 779 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 9.3 | 10 | 1.8 | 1.4 |
| HCM LOS | A | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1531 | - | - | 898 | 760 | 1529 | - | - |
| HCM Lane V/C Ratio | 0.016 | - | - | 0.071 | 0.056 | 0.013 | - | - |
| HCM Control Delay (s) | 7.4 | 0 | - | 9.3 | 10 | 7.4 | 0 | - |
| HCM Lane LOS | A | A | - | A | B | A | A | - |
| HCM 95th %tile Q(veh) | 0.1 | - | - | 0.2 | 0.2 | 0 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 1 | 80 | 75 | 16 | 107 | 1 | 73 | 1 | 14 | 1 | 1 | 1 |
| Future Vol, veh/h | 1 | 80 | 75 | 16 | 107 | 1 | 73 | 1 | 14 | 1 | 1 | 1 |
| Conflicting Peds, #/hr | 4 | 0 | 1 | 1 | 0 | 4 | 0 | 0 | 2 | 2 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 1 | - | - | 2 | - | - | -5 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 1 | 11 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mvmt Flow | 1 | 87 | 82 | 17 | 116 | 1 | 79 | 1 | 15 | 1 | 1 | 1 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 121 | 0 | 0 | 170 | 0 | 0 | 283 | 286 | 131 | 295 | 327 | 121 |
| Stage 1 | - | - | - | - | - | - | 131 | 131 | - | 155 | 155 | - |
| Stage 2 | - | - | - | - | - | - | 152 | 155 | - | 140 | 172 | - |
| Critical Hdwy | 4.1 | - | - | 4.17 | - | - | 7.5 | 6.9 | 6.4 | 6.1 | 5.5 | 5.7 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.5 | 5.9 | - | 5.1 | 4.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.5 | 5.9 | - | 5.1 | 4.5 | - |
| Follow-up Hdwy | 2.2 | - | - | 2.263 | - | - | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1479 | - | - | 1378 | - | - | 652 | 607 | 917 | 718 | 651 | 952 |
| Stage 1 | - | - | - | - | - | - | 865 | 780 | - | 890 | 807 | - |
| Stage 2 | - | - | - | - | - | - | 841 | 760 | - | 902 | 797 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1474 | - | - | 1377 | - | - | 643 | 596 | 915 | 694 | 639 | 949 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 643 | 596 | - | 694 | 639 | - |
| Stage 1 | - | - | - | - | - | - | 863 | 778 | - | 886 | 794 | - |
| Stage 2 | - | - | - | - | - | - | 828 | 748 | - | 883 | 795 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 1 | 11 | 9.9 |
| HCM LOS | | | B | A |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 642 | 915 | 1474 | - | - | 1377 | - | - | 739 |
| HCM Lane V/C Ratio | 0.125 | 0.017 | 0.001 | - | - | 0.013 | - | - | 0.004 |
| HCM Control Delay (s) | 11.4 | 9 | 7.4 | 0 | - | 7.6 | 0 | - | 9.9 |
| HCM Lane LOS | B | A | A | A | - | A | A | - | A |
| HCM 95th %tile Q(veh) | 0.4 | 0.1 | 0 | - | - | 0 | - | - | 0 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.9 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 83 | 108 | 137 | 44 | 47 | 67 |
| Future Vol, veh/h | 83 | 108 | 137 | 44 | 47 | 67 |
| Conflicting Peds, #/hr | 1 | 0 | 0 | 1 | 0 | 2 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | -3 | 1 | - | -5 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 6 | 1 | 1 | 0 | 17 | 0 |
| Mvmt Flow | 90 | 117 | 149 | 48 | 51 | 73 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 198 | 0 | - | 0 | 471 | 176 |
| Stage 1 | - | - | - | - | 174 | - |
| Stage 2 | - | - | - | - | 297 | - |
| Critical Hdwy | 4.16 | - | - | - | 5.57 | 5.7 |
| Critical Hdwy Stg 1 | - | - | - | - | 4.57 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 4.57 | - |
| Follow-up Hdwy | 2.254 | - | - | - | 3.653 | 3.3 |
| Pot Cap-1 Maneuver | 1351 | - | - | - | 598 | 894 |
| Stage 1 | - | - | - | - | 862 | - |
| Stage 2 | - | - | - | - | 783 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1350 | - | - | - | 554 | 892 |
| Mov Cap-2 Maneuver | - | - | - | - | 554 | - |
| Stage 1 | - | - | - | - | 800 | - |
| Stage 2 | - | - | - | - | 782 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 3.4 | 0 | 11.1 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1350 | - | - | - | 713 |
| HCM Lane V/C Ratio | 0.067 | - | - | - | 0.174 |
| HCM Control Delay (s) | 7.9 | - | - | - | 11.1 |
| HCM Lane LOS | A | - | - | - | B |
| HCM 95th %tile Q(veh) | 0.2 | - | - | - | 0.6 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.9 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 38 | 160 | 153 | 51 | 31 | 19 |
| Future Vol, veh/h | 38 | 160 | 153 | 51 | 31 | 19 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 75 | - | - | - | 0 | 50 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | -5 | 3 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 4 | 1 | 0 | 0 | 0 |
| Mvmt Flow | 41 | 174 | 166 | 55 | 34 | 21 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 221 | 0 | - | 0 | 450 | 194 |
| Stage 1 | - | - | - | - | 194 | - |
| Stage 2 | - | - | - | - | 256 | - |
| Critical Hdwy | 4.1 | - | - | - | 6.4 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 2.2 | - | - | - | 3.5 | 3.3 |
| Pot Cap-1 Maneuver | 1360 | - | - | - | 571 | 853 |
| Stage 1 | - | - | - | - | 844 | - |
| Stage 2 | - | - | - | - | 791 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1360 | - | - | - | 554 | 853 |
| Mov Cap-2 Maneuver | - | - | - | - | 554 | - |
| Stage 1 | - | - | - | - | 819 | - |
| Stage 2 | - | - | - | - | 791 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 1.5 | 0 | 10.9 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1360 | - | - | - | 554 | 853 |
| HCM Lane V/C Ratio | 0.03 | - | - | - | 0.061 | 0.024 |
| HCM Control Delay (s) | 7.7 | - | - | - | 11.9 | 9.3 |
| HCM Lane LOS | A | - | - | - | B | A |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 0.2 | 0.1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.8 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 1 | 1 | 1 | 65 | 1 | 106 | 1 | 413 | 102 | 95 | 358 | 1 |
| Future Vol, veh/h | 1 | 1 | 1 | 65 | 1 | 106 | 1 | 413 | 102 | 95 | 358 | 1 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | 100 | - | 0 | 90 | - | 130 | 225 | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | -2 | - | - | 4 | - | - | 2 | - | - | 3 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 6 | 1 | 5 | 5 | 0 |
| Mvmt Flow | 1 | 1 | 1 | 71 | 1 | 115 | 1 | 449 | 111 | 103 | 389 | 1 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 823 | 1158 | 195 | 852 | 1047 | 225 | 390 | 0 | 0 | 560 | 0 | 0 |
| Stage 1 | 596 | 596 | - | 451 | 451 | - | - | - | - | - | - | - |
| Stage 2 | 227 | 562 | - | 401 | 596 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.1 | 6.7 | 8.3 | 7.3 | 7.32 | 4.1 | - | - | 4.2 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.1 | - | 7.3 | 6.3 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.1 | - | 7.3 | 6.3 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.31 | 2.2 | - | - | 2.25 | - | - |
| Pot Cap-1 Maneuver | 295 | 225 | 829 | 212 | 182 | 762 | 1180 | - | - | 987 | - | - |
| Stage 1 | 494 | 529 | - | 509 | 520 | - | - | - | - | - | - | - |
| Stage 2 | 780 | 546 | - | 551 | 434 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 229 | 201 | 829 | 194 | 163 | 762 | 1180 | - | - | 987 | - | - |
| Mov Cap-2 Maneuver | 229 | 201 | - | 194 | 163 | - | - | - | - | - | - | - |
| Stage 1 | 494 | 474 | - | 508 | 519 | - | - | - | - | - | - | - |
| Stage 2 | 660 | 545 | - | 492 | 389 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 17.8 | 19.7 | 0 | 1.9 |
| HCM LOS | C | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | WBLn2 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1180 | - | - | 284 | 193 | 762 | 987 | - | - |
| HCM Lane V/C Ratio | 0.001 | - | - | 0.011 | 0.372 | 0.151 | 0.105 | - | - |
| HCM Control Delay (s) | 8.1 | - | - | 17.8 | 34.3 | 10.6 | 9.1 | - | - |
| HCM Lane LOS | A | - | - | C | D | B | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0 | 1.6 | 0.5 | 0.3 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.6 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 1 | 1 | 3 | 5 | 1 | 18 | 13 | 498 | 10 | 15 | 405 | 3 |
| Future Vol, veh/h | 1 | 1 | 3 | 5 | 1 | 18 | 13 | 498 | 10 | 15 | 405 | 3 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | 0 | - | - | 150 | - | 135 | 110 | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 5 | - | - | 3 | - | - | 4 | - | - | -2 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 5 | 0 | 0 | 4 | 0 |
| Mvmt Flow | 1 | 1 | 3 | 5 | 1 | 20 | 14 | 541 | 11 | 16 | 440 | 3 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 773 | 1054 | 222 | 822 | 1044 | 271 | 443 | 0 | 0 | 552 | 0 | 0 |
| Stage 1 | 474 | 474 | - | 569 | 569 | - | - | - | - | - | - | - |
| Stage 2 | 299 | 580 | - | 253 | 475 | - | - | - | - | - | - | - |
| Critical Hdwy | 8.5 | 7.5 | 7.4 | 8.1 | 7.1 | 7.32 | 4.1 | - | - | 4.1 | - | - |
| Critical Hdwy Stg 1 | 7.5 | 6.5 | - | 7.1 | 6.1 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 7.5 | 6.5 | - | 7.1 | 6.1 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.36 | 2.2 | - | - | 2.2 | - | - |
| Pot Cap-1 Maneuver | 236 | 170 | 764 | 235 | 194 | 699 | 1128 | - | - | 1028 | - | - |
| Stage 1 | 478 | 492 | - | 436 | 463 | - | - | - | - | - | - | - |
| Stage 2 | 636 | 428 | - | 704 | 518 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 223 | 165 | 764 | 228 | 189 | 699 | 1128 | - | - | 1028 | - | - |
| Mov Cap-2 Maneuver | 223 | 165 | - | 228 | 189 | - | - | - | - | - | - | - |
| Stage 1 | 472 | 484 | - | 431 | 457 | - | - | - | - | - | - | - |
| Stage 2 | 609 | 423 | - | 689 | 510 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 15.6 | 13.2 | 0.2 | 0.3 |
| HCM LOS | C | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | WBLn2 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1128 | - | - | 346 | 228 | 612 | 1028 | - | - |
| HCM Lane V/C Ratio | 0.013 | - | - | 0.016 | 0.024 | 0.034 | 0.016 | - | - |
| HCM Control Delay (s) | 8.2 | - | - | 15.6 | 21.2 | 11.1 | 8.6 | - | - |
| HCM Lane LOS | A | - | - | C | C | B | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0 | 0.1 | 0.1 | 0 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 6.8 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 126 | 17 | 81 | 2 | 3 | 3 | 116 | 392 | 31 | 7 | 353 | 53 |
| Future Vol, veh/h | 126 | 17 | 81 | 2 | 3 | 3 | 116 | 392 | 31 | 7 | 353 | 53 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | Yield | - | - | None | - | - | None | - | - | None |
| Storage Length | 100 | - | 230 | 0 | - | - | 160 | - | 175 | 160 | - | 125 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 3 | - | - | -3 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 0 | 3 | 0 | 0 | 33 | 1 | 5 | 0 | 0 | 3 | 8 |
| Mvmt Flow | 137 | 18 | 88 | 2 | 3 | 3 | 126 | 426 | 34 | 8 | 384 | 58 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 867 | 1112 | 192 | 895 | 1136 | 213 | 442 | 0 | 0 | 460 | 0 | 0 |
| Stage 1 | 400 | 400 | - | 678 | 678 | - | - | - | - | - | - | - |
| Stage 2 | 467 | 712 | - | 217 | 458 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.54 | 6.5 | 6.96 | 7.5 | 6.5 | 7.56 | 4.12 | - | - | 4.1 | - | - |
| Critical Hdwy Stg 1 | 6.54 | 5.5 | - | 6.5 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.54 | 5.5 | - | 6.5 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.52 | 4 | 3.33 | 3.5 | 4 | 3.63 | 2.21 | - | - | 2.2 | - | - |
| Pot Cap-1 Maneuver | 247 | 211 | 814 | 239 | 204 | 705 | 1122 | - | - | 1112 | - | - |
| Stage 1 | 597 | 605 | - | 413 | 455 | - | - | - | - | - | - | - |
| Stage 2 | 545 | 439 | - | 771 | 570 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 221 | 186 | 814 | 179 | 180 | 705 | 1122 | - | - | 1112 | - | - |
| Mov Cap-2 Maneuver | 221 | 186 | - | 179 | 180 | - | - | - | - | - | - | - |
| Stage 1 | 530 | 601 | - | 367 | 404 | - | - | - | - | - | - | - |
| Stage 2 | 478 | 390 | - | 662 | 566 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 30.7 | 19.7 | 1.9 | 0.1 |
| HCM LOS | D | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | EBLn2 | EBLn3 | WBLn1 | WBLn2 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1122 | - | - | 221 | 186 | 814 | 179 | 287 | 1112 | - | - |
| HCM Lane V/C Ratio | 0.112 | - | - | 0.62 | 0.099 | 0.108 | 0.012 | 0.023 | 0.007 | - | - |
| HCM Control Delay (s) | 8.6 | - | - | 44.6 | 26.5 | 10 | 25.4 | 17.8 | 8.3 | - | - |
| HCM Lane LOS | A | - | - | E | D | B | D | C | A | - | - |
| HCM 95th %tile Q(veh) | 0.4 | - | - | 3.6 | 0.3 | 0.4 | 0 | 0.1 | 0 | - | - |

# LANE SUMMARY

## Site: 101 [Broadview/Winchester/Lee - 2027 FB PM (Site Folder: General)]

**Output produced by SIDRA INTERSECTION Version: 9.1.2.202**

Warrenton Village Center
2027 Future Background Conditions
PM Peak Hour
Site Category: (None)
Roundabout

### Lane Use and Performance

| | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh | Dist ] ft | Lane Config | Lane Length ft | Cap. Adj. % | Prob. Block. % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Winchester St (NB) | | | | | | | | | | | | | | | |
| Lane 1[d] | 223 | 0.5 | 223 | 0.5 | 570 | 0.391 | 100 | 12.2 | LOS B | 2.2 | 55.7 | Full | 1600 | 0.0 | 0.0 |
| Lane 2 | 77 | 0.0 | 77 | 0.0 | 376 | 0.205 | 100 | 13.0 | LOS B | 0.9 | 22.4 | Short | 250 | 0.0 | NA |
| Approach | 300 | 0.3 | 300 | 0.3 | | 0.391 | | 12.4 | LOS B | 2.2 | 55.7 | | | | |
| East: Lee Hwy (WB) | | | | | | | | | | | | | | | |
| Lane 1 | 625 | 1.7 | 625 | 1.7 | 888 | 0.703 | 100 | 16.2 | LOS B | 10.0 | 252.3 | Full | 1600 | 0.0 | 0.0 |
| Lane 2[d] | 758 | 2.0 | 758 | 2.0 | 1078 | 0.703 | 100 | 14.0 | LOS B | 10.5 | 267.5 | Full | 1600 | 0.0 | 0.0 |
| Approach | 1382 | 1.9 | 1382 | 1.9 | | 0.703 | | 15.0 | LOS B | 10.5 | 267.5 | | | | |
| North: Broadview Ave (SB) | | | | | | | | | | | | | | | |
| Lane 1 | 340 | 0.7 | 340 | 0.7 | 435 | 0.780 | 100 | 35.1 | LOS D | 6.4 | 161.1 | Short | 215 | 0.0 | NA |
| Lane 2[d] | 402 | 4.0 | 402 | 4.0 | 498 | 0.808 | 100 | 34.4 | LOS C | 7.4 | 190.7 | Full | 1600 | 0.0 | 0.0 |
| Approach | 742 | 2.5 | 742 | 2.5 | | 0.808 | | 34.7 | LOS C | 7.4 | 190.7 | | | | |
| West: Broadview Ave (EB) | | | | | | | | | | | | | | | |
| Lane 1 | 538 | 2.5 | 538 | 2.5 | 923 | 0.583 | 100 | 11.9 | LOS B | 6.2 | 158.2 | Full | 1600 | 0.0 | 0.0 |
| Lane 2[d] | 652 | 1.9 | 652 | 1.9 | 1118 | 0.583 | 100 | 10.4 | LOS B | 6.2 | 158.3 | Full | 1600 | 0.0 | 0.0 |
| Approach | 1191 | 2.1 | 1191 | 2.1 | | 0.583 | | 11.1 | LOS B | 6.2 | 158.3 | | | | |
| All Vehicles | 3615 | 2.0 | 3615 | 2.0 | | 0.808 | | 17.6 | LOS B | 10.5 | 267.5 | | | | |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

d Dominant lane on roundabout approach

### Approach Lane Flows (veh/h)

South: Winchester St (NB)

| Mov. From S To Exit: | L2 W | T1 N | R2 E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 122 | 101 | - | 223 | 0.5 | | 570 | 0.391 | 100 | NA | NA |
| Lane 2 | - | - | 77 | 77 | 0.0 | | 376 | 0.205 | 100 | 0.0 | 1 |
| Approach | 122 | 101 | 77 | 300 | 0.3 | | | 0.391 | | | |
| East: Lee Hwy (WB) | | | | | | | | | | | |
| Mov. From E To Exit: | U E | L2 S | T1 W | R2 N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 10 | 70 | 544 | - | 625 | 1.7 | 888 | 0.703 | 100 | NA | NA |
| Lane 2 | - | - | 635 | 123 | 758 | 2.0 | 1078 | 0.703 | 100 | NA | NA |
| Approach | 10 | 70 | 1179 | 123 | 1382 | 1.9 | | 0.703 | | | |
| North: Broadview Ave (SB) | | | | | | | | | | | |
| Mov. From N To Exit: | L2 E | T1 S | R2 W | Total | %HV | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 249 | 91 | - | 340 | 0.7 | | 435 | 0.780 | 100 | 0.0 | 2 |
| Lane 2 | - | - | 402 | 402 | 4.0 | | 498 | 0.808 | 100 | NA | NA |
| Approach | 249 | 91 | 402 | 742 | 2.5 | | | 0.808 | | | |
| West: Broadview Ave (EB) | | | | | | | | | | | |
| Mov. From W To Exit: | U W | L2 N | T1 E | R2 S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 2 | 273 | 263 | - | 538 | 2.5 | 923 | 0.583 | 100 | NA | NA |
| Lane 2 | - | - | 606 | 46 | 652 | 1.9 | 1118 | 0.583 | 100 | NA | NA |
| Approach | 2 | 273 | 870 | 46 | 1191 | 2.1 | | 0.583 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| All Vehicles | 3615 | 2.0 | 0.808 |

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

## Merge Analysis

| | Exit Lane Number | Short Lane Length ft | Percent Opng in Lane % | Opposing Flow Rate veh/h | Critical Gap pcu/h | Follow-up Headway sec | Lane Flow Rate sec | Capacity veh/h | Deg. Satn veh/h | Min. Delay v/c | Merge Delay sec | sec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| There are no Exit Short Lanes for Merge Analysis at this Site. | | | | | | | | | | | | |

## Variable Demand Analysis

| | Initial Queued Demand veh | Residual Queued Demand veh | Time for Residual Demand to Clear sec | Duration of Oversatn sec |
|---|---|---|---|---|
| South: Winchester St (NB) | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane 2 | 0.0 | 0.0 | 0.0 | 0.0 |
| East: Lee Hwy (WB) | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane 2 | 0.0 | 0.0 | 0.0 | 0.0 |
| North: Broadview Ave (SB) | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |

| | | | | |
|---|---|---|---|---|
| Lane 2 | 0.0 | 0.0 | 0.0 | 0.0 |
| West: Broadview Ave (EB) | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane 2 | 0.0 | 0.0 | 0.0 | 0.0 |

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# LANE LEVEL OF SERVICE

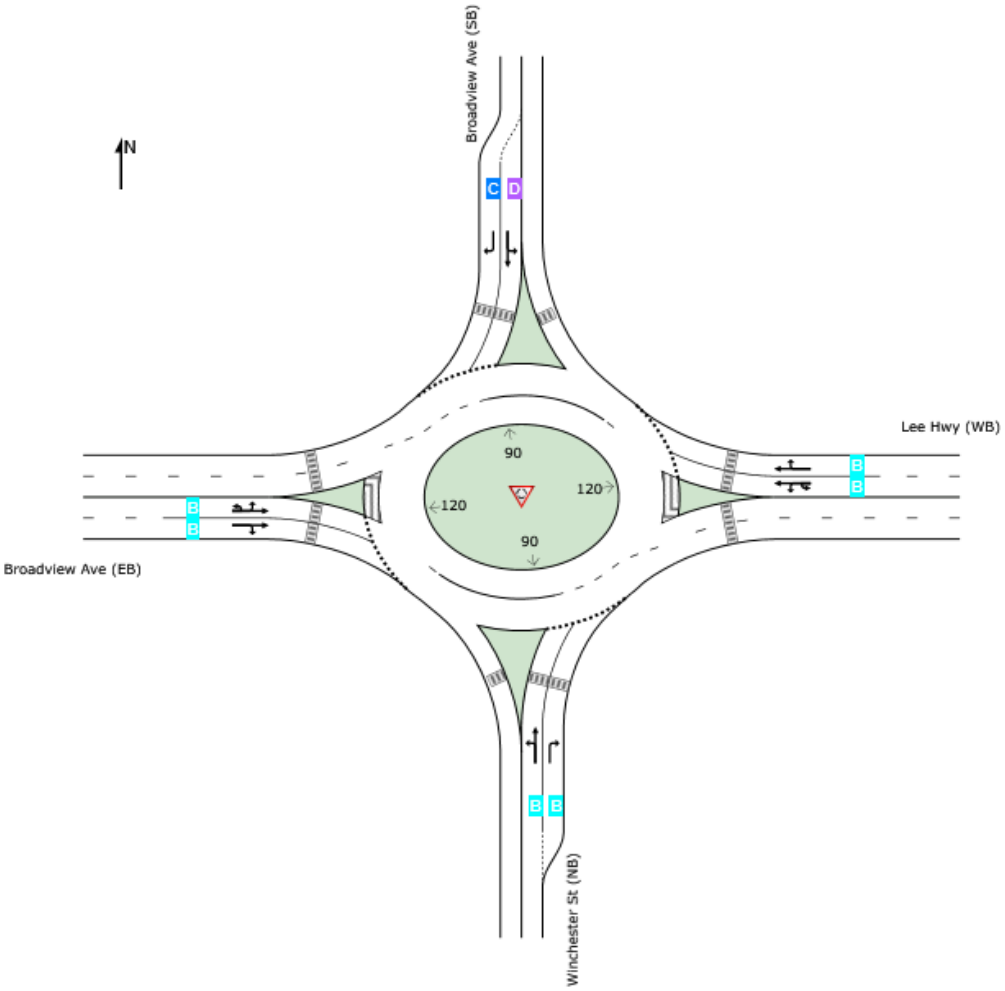
## Lane Level of Service

### Site: 101 [Broadview/Winchester/Lee - 2027 FB PM (Site Folder: General)]

**Output produced by SIDRA INTERSECTION Version: 9.1.2.202**

Warrenton Village Center
2027 Future Background Conditions
PM Peak Hour
Site Category: (None)
Roundabout

| | Approaches | | | | Intersection |
|---|---|---|---|---|---|
| | South | East | North | West | |
| LOS | B | B | C | B | B |




Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

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Organisation: GOROVE SLADE | Licence: PLUS / 1PC | Processed: Monday, February 12, 2024 2:04:22 AM
Project: U:\3243\001. Warrenton Village Center\Analysis\Sidra\2nd Submission\2027 TF.sip9

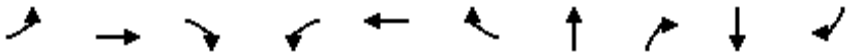
| Intersection | |
|---|---|
| Int Delay, s/veh | 0.6 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑ | ↱ | | ↑↑ | ↱ | | | ↱ | | | ↱ |
| Traffic Vol, veh/h | 0 | 1075 | 83 | 0 | 1247 | 102 | 0 | 0 | 25 | 0 | 0 | 79 |
| Future Vol, veh/h | 0 | 1075 | 83 | 0 | 1247 | 102 | 0 | 0 | 25 | 0 | 0 | 79 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | 110 | - | - | 300 | - | - | 0 | - | - | 0 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 1 | - | - | 3 | - | - | 3 | - | - | -11 | - |
| Peak Hour Factor | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 |
| Heavy Vehicles, % | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| Mvmt Flow | 0 | 1156 | 89 | 0 | 1341 | 110 | 0 | 0 | 27 | 0 | 0 | 85 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | 0 | - | - | 0 | - | - | 578 | - | - | 675 |
| Stage 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | - | - | - | 7.28 | - | - | 5.8 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | - | - | - | 3.34 | - | - | 3.3 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | - | - | 0 | 0 | 433 | 0 | 0 | 493 |
| Stage 1 | 0 | - | - | 0 | - | - | 0 | 0 | - | 0 | 0 | - |
| Stage 2 | 0 | - | - | 0 | - | - | 0 | 0 | - | 0 | 0 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | - | - | - | 433 | - | - | 491 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 13.9 | 13.9 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 433 | - | - | - | - | 491 |
| HCM Lane V/C Ratio | 0.062 | - | - | - | - | 0.173 |
| HCM Control Delay (s) | 13.9 | - | - | - | - | 13.9 |
| HCM Lane LOS | B | - | - | - | - | B |
| HCM 95th %tile Q(veh) | 0.2 | - | - | - | - | 0.6 |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBT | NBR | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 149 | 1006 | 2 | 68 | 1241 | 88 | 36 | 79 | 165 | 152 |
| v/c Ratio | 0.72 | 0.47 | 0.00 | 0.54 | 0.67 | 0.10 | 0.31 | 0.30 | 0.76 | 0.45 |
| Control Delay | 82.8 | 20.6 | 0.0 | 82.0 | 30.0 | 0.2 | 72.2 | 3.0 | 85.8 | 10.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 82.8 | 20.6 | 0.0 | 82.0 | 30.0 | 0.2 | 72.2 | 3.0 | 85.8 | 10.8 |
| Queue Length 50th (ft) | 148 | 310 | 0 | 68 | 475 | 0 | 36 | 0 | 164 | 0 |
| Queue Length 95th (ft) | 224 | 441 | 0 | 123 | 675 | 0 | 73 | 0 | 249 | 58 |
| Internal Link Dist (ft) | | 457 | | | 1504 | | 131 | | 565 | |
| Turn Bay Length (ft) | 240 | | 330 | 150 | | 150 | | 60 | | |
| Base Capacity (vph) | 260 | 2159 | 993 | 157 | 1850 | 906 | 202 | 327 | 250 | 363 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.57 | 0.47 | 0.00 | 0.43 | 0.67 | 0.10 | 0.18 | 0.24 | 0.66 | 0.42 |

Intersection Summary

| Movement | EBU | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 9 | 133 | 956 | 2 | 65 | 1179 | 84 | 17 | 17 | 75 | 139 | 18 |
| Future Volume (vph) | 9 | 133 | 956 | 2 | 65 | 1179 | 84 | 17 | 17 | 75 | 139 | 18 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Grade (%) | | | -4% | | | 2% | | | 0% | | | -1% |
| Total Lost time (s) | | 6.4 | 5.7 | 5.7 | 6.8 | 5.6 | 5.6 | | 6.6 | 6.6 | | 7.5 |
| Lane Util. Factor | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Frpb, ped/bikes | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.98 | | 1.00 | 1.00 | | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Frt | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | | 1.00 |
| Flt Protected | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | 0.98 | 1.00 | | 0.96 |
| Satd. Flow (prot) | | 1807 | 3682 | 1602 | 1787 | 3504 | 1558 | | 1854 | 1615 | | 1813 |
| Flt Permitted | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | 0.98 | 1.00 | | 0.96 |
| Satd. Flow (perm) | | 1807 | 3682 | 1602 | 1787 | 3504 | 1558 | | 1854 | 1615 | | 1813 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 9 | 140 | 1006 | 2 | 68 | 1241 | 88 | 18 | 18 | 79 | 146 | 19 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 1 | 0 | 0 | 41 | 0 | 0 | 74 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 149 | 1006 | 1 | 68 | 1241 | 47 | 0 | 36 | 5 | 0 | 165 |
| Confl. Peds. (#/hr) | | | | 2 | | | 2 | | | | | |
| Heavy Vehicles (%) | 0% | 2% | 0% | 0% | 0% | 2% | 1% | 0% | 0% | 0% | 1% | 0% |
| Turn Type | Prot | Prot | NA | Perm | Prot | NA | Perm | Split | NA | Perm | Split | NA |
| Protected Phases | 1 | 1 | 6 | | 5 | 2 | | 4 | 4 | | 3 | 3 |
| Permitted Phases | | | | 6 | | | 2 | | | 4 | | |
| Actuated Green, G (s) | | 17.2 | 86.7 | 86.7 | 9.3 | 79.3 | 79.3 | | 9.5 | 9.5 | | 17.9 |
| Effective Green, g (s) | | 17.2 | 86.7 | 86.7 | 9.3 | 79.3 | 79.3 | | 9.5 | 9.5 | | 17.9 |
| Actuated g/C Ratio | | 0.11 | 0.58 | 0.58 | 0.06 | 0.53 | 0.53 | | 0.06 | 0.06 | | 0.12 |
| Clearance Time (s) | | 6.4 | 5.7 | 5.7 | 6.8 | 5.6 | 5.6 | | 6.6 | 6.6 | | 7.5 |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 |
| Lane Grp Cap (vph) | | 207 | 2128 | 925 | 110 | 1852 | 823 | | 117 | 102 | | 216 |
| v/s Ratio Prot | | c0.08 | 0.27 | | 0.04 | c0.35 | | | c0.02 | | | c0.09 |
| v/s Ratio Perm | | | | 0.00 | | | 0.03 | | | 0.00 | | |
| v/c Ratio | | 0.72 | 0.47 | 0.00 | 0.62 | 0.67 | 0.06 | | 0.31 | 0.05 | | 0.76 |
| Uniform Delay, d1 | | 64.1 | 18.4 | 13.4 | 68.6 | 25.8 | 17.2 | | 67.1 | 66.0 | | 64.0 |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Incremental Delay, d2 | | 11.4 | 0.8 | 0.0 | 9.9 | 1.9 | 0.1 | | 1.5 | 0.2 | | 14.8 |
| Delay (s) | | 75.4 | 19.1 | 13.4 | 78.5 | 27.8 | 17.3 | | 68.6 | 66.2 | | 78.8 |
| Level of Service | | E | B | B | E | C | B | | E | E | | E |
| Approach Delay (s) | | | 26.4 | | | 29.6 | | | 67.0 | | | 69.3 |
| Approach LOS | | | C | | | C | | | E | | | E |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 34.0 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 150.0 | Sum of lost time (s) | 26.6 |
| Intersection Capacity Utilization | 76.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 144 |
| Future Volume (vph) | 144 |
| Ideal Flow (vphpl) | 1900 |
| Grade (%) | |
| Total Lost time (s) | 7.5 |
| Lane Util. Factor | 1.00 |
| Frpb, ped/bikes | 1.00 |
| Flpb, ped/bikes | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1607 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1607 |
| Peak-hour factor, PHF | 0.95 |
| Adj. Flow (vph) | 152 |
| RTOR Reduction (vph) | 134 |
| Lane Group Flow (vph) | 18 |
| Confl. Peds. (#/hr) | |
| Heavy Vehicles (%) | 1% |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 3 |
| Actuated Green, G (s) | 17.9 |
| Effective Green, g (s) | 17.9 |
| Actuated g/C Ratio | 0.12 |
| Clearance Time (s) | 7.5 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 191 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.01 |
| v/c Ratio | 0.09 |
| Uniform Delay, d1 | 58.8 |
| Progression Factor | 1.00 |
| Incremental Delay, d2 | 0.2 |
| Delay (s) | 59.1 |
| Level of Service | E |
| Approach Delay (s) | |
| Approach LOS | |

| Intersection Summary |
|---|

HCM 6th Edition methodology expects strict NEMA phasing.

| Intersection | |
|---|---|
| Int Delay, s/veh | 8.9 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 17 | 77 | 116 | 45 | 50 | 41 | 94 | 45 | 12 | 48 | 42 | 32 |
| Future Vol, veh/h | 17 | 77 | 116 | 45 | 50 | 41 | 94 | 45 | 12 | 48 | 42 | 32 |
| Conflicting Peds, #/hr | 0 | 0 | 14 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | -8 | - | - | -2 | - | - | 1 | - | - | -1 | - |
| Peak Hour Factor | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Heavy Vehicles, % | 0 | 0 | 2 | 0 | 2 | 5 | 0 | 2 | 0 | 0 | 3 | 0 |
| Mvmt Flow | 18 | 80 | 121 | 47 | 52 | 43 | 98 | 47 | 13 | 50 | 44 | 33 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 407 | 417 | 53 | 426 | 427 | 30 | 77 | 0 | 0 | 60 | 0 | 0 |
| Stage 1 | 161 | 161 | - | 250 | 250 | - | - | - | - | - | - | - |
| Stage 2 | 246 | 256 | - | 176 | 177 | - | - | - | - | - | - | - |
| Critical Hdwy | 5.9 | 4.9 | 6.14 | 7.1 | 6.14 | 6.8 | 4.1 | - | - | 4.1 | - | - |
| Critical Hdwy Stg 1 | 4.9 | 3.9 | - | 6.1 | 5.14 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 4.9 | 3.9 | - | 6.1 | 5.14 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.32 | 3.5 | 4.02 | 3.35 | 2.2 | - | - | 2.2 | - | - |
| Pot Cap-1 Maneuver | 639 | 637 | 1015 | 542 | 544 | 1030 | 1535 | - | - | 1556 | - | - |
| Stage 1 | 893 | 826 | - | 759 | 718 | - | - | - | - | - | - | - |
| Stage 2 | 827 | 784 | - | 831 | 767 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 521 | 575 | 1003 | 390 | 491 | 1030 | 1535 | - | - | 1556 | - | - |
| Mov Cap-2 Maneuver | 521 | 575 | - | 390 | 491 | - | - | - | - | - | - | - |
| Stage 1 | 834 | 798 | - | 709 | 671 | - | - | - | - | - | - | - |
| Stage 2 | 683 | 732 | - | 628 | 741 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 11.8 | 14.3 | 4.7 | 2.9 |
| HCM LOS | B | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1535 | - | - | 744 | 529 | 1556 | - | - |
| HCM Lane V/C Ratio | 0.064 | - | - | 0.294 | 0.268 | 0.032 | - | - |
| HCM Control Delay (s) | 7.5 | 0 | - | 11.8 | 14.3 | 7.4 | 0 | - |
| HCM Lane LOS | A | A | - | B | B | A | A | - |
| HCM 95th %tile Q(veh) | 0.2 | - | - | 1.2 | 1.1 | 0.1 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↕ | | | ↕ | | | ↰ | ↗ | | ↕ | |
| Traffic Vol, veh/h | 3 | 109 | 86 | 31 | 116 | 2 | 62 | 2 | 39 | 1 | 5 | 1 |
| Future Vol, veh/h | 3 | 109 | 86 | 31 | 116 | 2 | 62 | 2 | 39 | 1 | 5 | 1 |
| Conflicting Peds, #/hr | 4 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 2 | 2 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 1 | - | - | 2 | - | - | -5 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 3 | 0 | 4 | 1 | 0 | 3 | 0 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 3 | 118 | 93 | 34 | 126 | 2 | 67 | 2 | 42 | 1 | 5 | 1 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 132 | 0 | 0 | 211 | 0 | 0 | 369 | 371 | 167 | 394 | 416 | 131 |
| Stage 1 | - | - | - | - | - | - | 171 | 171 | - | 199 | 199 | - |
| Stage 2 | - | - | - | - | - | - | 198 | 200 | - | 195 | 217 | - |
| Critical Hdwy | 4.1 | - | - | 4.14 | - | - | 7.53 | 6.9 | 6.43 | 6.1 | 5.5 | 5.7 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.53 | 5.9 | - | 5.1 | 4.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.53 | 5.9 | - | 5.1 | 4.5 | - |
| Follow-up Hdwy | 2.2 | - | - | 2.236 | - | - | 3.527 | 4 | 3.327 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1466 | - | - | 1348 | - | - | 562 | 539 | 867 | 635 | 595 | 941 |
| Stage 1 | - | - | - | - | - | - | 813 | 747 | - | 853 | 782 | - |
| Stage 2 | - | - | - | - | - | - | 784 | 723 | - | 857 | 772 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1461 | - | - | 1348 | - | - | 545 | 522 | 866 | 585 | 576 | 938 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 545 | 522 | - | 585 | 576 | - |
| Stage 1 | - | - | - | - | - | - | 811 | 746 | - | 849 | 759 | - |
| Stage 2 | - | - | - | - | - | - | 756 | 701 | - | 810 | 770 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.1 | 1.6 | 11.4 | 11 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 544 | 866 | 1461 | - | - | 1348 | - | - | 611 |
| HCM Lane V/C Ratio | 0.128 | 0.049 | 0.002 | - | - | 0.025 | - | - | 0.012 |
| HCM Control Delay (s) | 12.6 | 9.4 | 7.5 | 0 | - | 7.7 | 0 | - | 11 |
| HCM Lane LOS | B | A | A | A | - | A | A | - | B |
| HCM 95th %tile Q(veh) | 0.4 | 0.2 | 0 | - | - | 0.1 | - | - | 0 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.5 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 42 | 131 | 164 | 14 | 67 | 52 |
| Future Vol, veh/h | 42 | 131 | 164 | 14 | 67 | 52 |
| Conflicting Peds, #/hr | 1 | 0 | 0 | 1 | 2 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | -3 | 1 | - | -5 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 0 | 0 | 2 |
| Mvmt Flow | 46 | 142 | 178 | 15 | 73 | 57 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 194 | 0 | - | 0 | 423 | 187 |
| Stage 1 | - | - | - | - | 187 | - |
| Stage 2 | - | - | - | - | 236 | - |
| Critical Hdwy | 4.12 | - | - | - | 5.4 | 5.72 |
| Critical Hdwy Stg 1 | - | - | - | - | 4.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 4.4 | - |
| Follow-up Hdwy | 2.218 | - | - | - | 3.5 | 3.318 |
| Pot Cap-1 Maneuver | 1379 | - | - | - | 665 | 878 |
| Stage 1 | - | - | - | - | 895 | - |
| Stage 2 | - | - | - | - | 863 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1378 | - | - | - | 640 | 877 |
| Mov Cap-2 Maneuver | - | - | - | - | 640 | - |
| Stage 1 | - | - | - | - | 862 | - |
| Stage 2 | - | - | - | - | 862 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 1.9 | 0 | 11 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1378 | - | - | - | 726 |
| HCM Lane V/C Ratio | 0.033 | - | - | - | 0.178 |
| HCM Control Delay (s) | 7.7 | - | - | - | 11 |
| HCM Lane LOS | A | - | - | - | B |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 0.6 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 5 | 162 | 214 | 2 | 11 | 27 |
| Future Vol, veh/h | 5 | 162 | 214 | 2 | 11 | 27 |
| Conflicting Peds, #/hr | 1 | 0 | 0 | 1 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 75 | - | - | - | 0 | 50 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | -5 | 3 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 3 | 2 | 0 | 0 | 0 |
| Mvmt Flow | 5 | 176 | 233 | 2 | 12 | 29 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 236 | 0 | - | 0 | 421 | 235 |
| Stage 1 | - | - | - | - | 235 | - |
| Stage 2 | - | - | - | - | 186 | - |
| Critical Hdwy | 4.1 | - | - | - | 6.4 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 2.2 | - | - | - | 3.5 | 3.3 |
| Pot Cap-1 Maneuver | 1343 | - | - | - | 593 | 809 |
| Stage 1 | - | - | - | - | 809 | - |
| Stage 2 | - | - | - | - | 851 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1342 | - | - | - | 589 | 808 |
| Mov Cap-2 Maneuver | - | - | - | - | 589 | - |
| Stage 1 | - | - | - | - | 805 | - |
| Stage 2 | - | - | - | - | 850 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0.2 | 0 | 10.1 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1342 | - | - | - | 589 | 808 |
| HCM Lane V/C Ratio | 0.004 | - | - | - | 0.02 | 0.036 |
| HCM Control Delay (s) | 7.7 | - | - | - | 11.2 | 9.6 |
| HCM Lane LOS | A | - | - | - | B | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.1 | 0.1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.9 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 2 | 1 | 4 | 102 | 1 | 139 | 2 | 375 | 80 | 86 | 508 | 2 |
| Future Vol, veh/h | 2 | 1 | 4 | 102 | 1 | 139 | 2 | 375 | 80 | 86 | 508 | 2 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 1 | 0 | 4 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | 100 | - | 0 | 90 | - | 130 | 225 | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | -2 | - | - | 4 | - | - | 2 | - | - | 3 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 3 | 4 | 1 | 4 | 0 |
| Mvmt Flow | 2 | 1 | 4 | 111 | 1 | 151 | 2 | 408 | 87 | 93 | 552 | 2 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 952 | 1243 | 281 | 876 | 1157 | 205 | 558 | 0 | 0 | 496 | 0 | 0 |
| Stage 1 | 743 | 743 | - | 413 | 413 | - | - | - | - | - | - | - |
| Stage 2 | 209 | 500 | - | 463 | 744 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.1 | 6.7 | 8.32 | 7.3 | 7.34 | 4.1 | - | - | 4.12 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.1 | - | 7.32 | 6.3 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.1 | - | 7.32 | 6.3 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.51 | 4 | 3.32 | 2.2 | - | - | 2.21 | - | - |
| Pot Cap-1 Maneuver | 241 | 202 | 733 | 201 | 153 | 784 | 1023 | - | - | 1071 | - | - |
| Stage 1 | 410 | 461 | - | 538 | 545 | - | - | - | - | - | - | - |
| Stage 2 | 798 | 578 | - | 497 | 360 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 180 | 183 | 731 | 185 | 139 | 783 | 1020 | - | - | 1070 | - | - |
| Mov Cap-2 Maneuver | 180 | 183 | - | 185 | 139 | - | - | - | - | - | - | - |
| Stage 1 | 408 | 420 | - | 536 | 543 | - | - | - | - | - | - | - |
| Stage 2 | 641 | 576 | - | 450 | 328 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 16.6 | 27.9 | 0 | 1.3 |
| HCM LOS | C | D | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | WBLn2 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1020 | - | - | 317 | 184 | 783 | 1070 | - | - |
| HCM Lane V/C Ratio | 0.002 | - | - | 0.024 | 0.608 | 0.193 | 0.087 | - | - |
| HCM Control Delay (s) | 8.5 | - | - | 16.6 | 51 | 10.7 | 8.7 | - | - |
| HCM Lane LOS | A | - | - | C | F | B | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.1 | 3.4 | 0.7 | 0.3 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.1 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 10 | 1 | 17 | 33 | 1 | 38 | 15 | 409 | 15 | 41 | 567 | 6 |
| Future Vol, veh/h | 10 | 1 | 17 | 33 | 1 | 38 | 15 | 409 | 15 | 41 | 567 | 6 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 5 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | 0 | - | - | 150 | - | 135 | 110 | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 5 | - | - | 3 | - | - | 4 | - | - | -2 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 3 | 0 | 0 | 3 | 0 |
| Mvmt Flow | 11 | 1 | 18 | 36 | 1 | 41 | 16 | 445 | 16 | 45 | 616 | 7 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 970 | 1208 | 317 | 876 | 1195 | 223 | 628 | 0 | 0 | 461 | 0 | 0 |
| Stage 1 | 715 | 715 | - | 477 | 477 | - | - | - | - | - | - | - |
| Stage 2 | 255 | 493 | - | 399 | 718 | - | - | - | - | - | - | - |
| Critical Hdwy | 8.5 | 7.5 | 7.4 | 8.1 | 7.1 | 7.3 | 4.1 | - | - | 4.1 | - | - |
| Critical Hdwy Stg 1 | 7.5 | 6.5 | - | 7.1 | 6.1 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 7.5 | 6.5 | - | 7.1 | 6.1 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.35 | 2.2 | - | - | 2.2 | - | - |
| Pot Cap-1 Maneuver | 161 | 132 | 655 | 213 | 154 | 757 | 964 | - | - | 1111 | - | - |
| Stage 1 | 322 | 359 | - | 502 | 517 | - | - | - | - | - | - | - |
| Stage 2 | 683 | 480 | - | 565 | 387 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 144 | 124 | 652 | 197 | 145 | 757 | 960 | - | - | 1111 | - | - |
| Mov Cap-2 Maneuver | 144 | 124 | - | 197 | 145 | - | - | - | - | - | - | - |
| Stage 1 | 315 | 343 | - | 493 | 508 | - | - | - | - | - | - | - |
| Stage 2 | 634 | 472 | - | 525 | 370 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 20 | 18.3 | 0.3 | 0.6 |
| HCM LOS | C | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | WBLn2 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 960 | - | - | 270 | 197 | 683 | 1111 | - | - |
| HCM Lane V/C Ratio | 0.017 | - | - | 0.113 | 0.182 | 0.062 | 0.04 | - | - |
| HCM Control Delay (s) | 8.8 | - | - | 20 | 27.3 | 10.6 | 8.4 | - | - |
| HCM Lane LOS | A | - | - | C | D | B | A | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | - | 0.4 | 0.6 | 0.2 | 0.1 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 9.8 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 103 | 61 | 173 | 43 | 27 | 25 | 88 | 311 | 77 | 7 | 496 | 114 |
| Future Vol, veh/h | 103 | 61 | 173 | 43 | 27 | 25 | 88 | 311 | 77 | 7 | 496 | 114 |
| Conflicting Peds, #/hr | 6 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 3 | 3 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | Yield | - | - | None | - | - | None | - | - | None |
| Storage Length | 100 | - | 230 | 0 | - | - | 160 | - | 175 | 160 | - | 125 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 3 | - | - | -3 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 0 | 1 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 4 | 1 |
| Mvmt Flow | 112 | 66 | 188 | 47 | 29 | 27 | 96 | 338 | 84 | 8 | 539 | 124 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 937 | 1172 | 270 | 852 | 1212 | 178 | 663 | 0 | 0 | 425 | 0 | 0 |
| Stage 1 | 555 | 555 | - | 533 | 533 | - | - | - | - | - | - | - |
| Stage 2 | 382 | 617 | - | 319 | 679 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.54 | 6.5 | 6.92 | 7.5 | 6.5 | 6.9 | 4.12 | - | - | 4.1 | - | - |
| Critical Hdwy Stg 1 | 6.54 | 5.5 | - | 6.5 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.54 | 5.5 | - | 6.5 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.52 | 4 | 3.31 | 3.5 | 4 | 3.3 | 2.21 | - | - | 2.2 | - | - |
| Pot Cap-1 Maneuver | 219 | 194 | 731 | 256 | 184 | 841 | 928 | - | - | 1145 | - | - |
| Stage 1 | 484 | 516 | - | 503 | 528 | - | - | - | - | - | - | - |
| Stage 2 | 612 | 484 | - | 673 | 454 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 167 | 172 | 731 | 122 | 164 | 835 | 928 | - | - | 1142 | - | - |
| Mov Cap-2 Maneuver | 167 | 172 | - | 122 | 164 | - | - | - | - | - | - | - |
| Stage 1 | 434 | 512 | - | 450 | 473 | - | - | - | - | - | - | - |
| Stage 2 | 495 | 433 | - | 432 | 451 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 31.9 | 35.5 | 1.7 | 0.1 |
| HCM LOS | D | E | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | EBLn2 | EBLn3 | WBLn1 | WBLn2 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 928 | - | - | 167 | 172 | 731 | 122 | 267 | 1142 | - | - |
| HCM Lane V/C Ratio | 0.103 | - | - | 0.67 | 0.385 | 0.257 | 0.383 | 0.212 | 0.007 | - | - |
| HCM Control Delay (s) | 9.3 | - | - | 62 | 38.5 | 11.6 | 51.8 | 22.1 | 8.2 | - | - |
| HCM Lane LOS | A | - | - | F | E | B | F | C | A | - | - |
| HCM 95th %tile Q(veh) | 0.3 | - | - | 3.9 | 1.7 | 1 | 1.6 | 0.8 | 0 | - | - |

# I. 2027 Future Conditions with Development – Capacity Analysis Worksheets

# LANE SUMMARY

## Site: 101 [Broadview/Winchester/Lee - 2027 TF AM (Site Folder: General)]

**Output produced by SIDRA INTERSECTION Version: 9.1.2.202**

Warrenton Village Center
2027 Future  with Development
AM Peak Hour
Site Category: (None)
Roundabout

### Lane Use and Performance

| | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh | Dist ] ft | Lane Config | Lane Length ft | Cap. Adj. % | Prob. Block. % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Winchester St (NB) | | | | | | | | | | | | | | | |
| Lane 1[d] | 203 | 4.5 | 203 | 4.5 | 569 | 0.357 | 100 | 11.5 | LOS B | 1.8 | 46.7 | Full | 1600 | 0.0 | 0.0 |
| Lane 2 | 87 | 4.0 | 87 | 4.0 | 397 | 0.219 | 100 | 12.7 | LOS B | 0.9 | 22.9 | Short | 250 | 0.0 | NA |
| Approach | 290 | 4.3 | 290 | 4.3 | | 0.357 | | 11.9 | LOS B | 1.8 | 46.7 | | | | |
| East: Lee Hwy (WB) | | | | | | | | | | | | | | | |
| Lane 1 | 418 | 7.2 | 418 | 7.2 | 813 | 0.514 | 100 | 11.4 | LOS B | 4.4 | 115.6 | Full | 1600 | 0.0 | 0.0 |
| Lane 2[d] | 517 | 6.5 | 517 | 6.5 | 1005 | 0.514 | 100 | 9.8 | LOS A | 4.5 | 117.1 | Full | 1600 | 0.0 | 0.0 |
| Approach | 935 | 6.8 | 935 | 6.8 | | 0.514 | | 10.5 | LOS B | 4.5 | 117.1 | | | | |
| North: Broadview Ave (SB) | | | | | | | | | | | | | | | |
| Lane 1[d] | 253 | 3.6 | 253 | 3.6 | 717 | 0.353 | 100 | 9.5 | LOS A | 1.8 | 47.0 | Short | 215 | 0.0 | NA |
| Lane 2 | 251 | 3.0 | 251 | 3.0 | 653 | 0.385 | 100 | 10.8 | LOS B | 2.1 | 52.8 | Full | 1600 | 0.0 | 0.0 |
| Approach | 504 | 3.3 | 504 | 3.3 | | 0.385 | | 10.1 | LOS B | 2.1 | 52.8 | | | | |
| West: Broadview Ave (EB) | | | | | | | | | | | | | | | |
| Lane 1 | 549 | 4.5 | 549 | 4.5 | 1025 | 0.535 | 100 | 10.0 | LOS A | 4.3 | 111.1 | Full | 1600 | 0.0 | 0.0 |
| Lane 2[d] | 646 | 3.9 | 646 | 3.9 | 1207 | 0.535 | 100 | 8.9 | LOS A | 4.5 | 115.6 | Full | 1600 | 0.0 | 0.0 |
| Approach | 1195 | 4.2 | 1195 | 4.2 | | 0.535 | | 9.4 | LOS A | 4.5 | 115.6 | | | | |
| All Vehicles | 2924 | 4.9 | 2924 | 4.9 | | 0.535 | | 10.1 | LOS B | 4.5 | 117.1 | | | | |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

d  Dominant lane on roundabout approach

### Approach Lane Flows (veh/h)

South: Winchester St (NB)

| Mov. From S To Exit: | L2 W | T1 N | R2 E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 84 | 120 | - | 203 | 4.5 | | 569 | 0.357 | 100 | NA | NA |
| Lane 2 | - | - | 87 | 87 | 4.0 | | 397 | 0.219 | 100 | 0.0 | 1 |
| Approach | 84 | 120 | 87 | 290 | 4.3 | | | 0.357 | | | |
| East: Lee Hwy (WB) | | | | | | | | | | | |
| Mov. From E To Exit: | U E | L2 S | T1 W | R2 N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 3 | 38 | 377 | - | 418 | 7.2 | 813 | 0.514 | 100 | NA | NA |
| Lane 2 | - | - | 326 | 191 | 517 | 6.5 | 1005 | 0.514 | 100 | NA | NA |
| Approach | 3 | 38 | 702 | 191 | 935 | 6.8 | | 0.514 | | | |
| North: Broadview Ave (SB) | | | | | | | | | | | |
| Mov. From N To Exit: | L2 E | T1 S | R2 W | Total | %HV | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 137 | 116 | - | 253 | 3.6 | | 717 | 0.353 | 100 | 0.0 | 2 |
| Lane 2 | - | - | 251 | 251 | 3.0 | | 653 | 0.385 | 100 | NA | NA |
| Approach | 137 | 116 | 251 | 504 | 3.3 | | | 0.385 | | | |
| West: Broadview Ave (EB) | | | | | | | | | | | |
| Mov. From W To Exit: | U W | L2 N | T1 E | R2 S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 5 | 286 | 257 | - | 549 | 4.5 | 1025 | 0.535 | 100 | NA | NA |
| Lane 2 | - | - | 610 | 36 | 646 | 3.9 | 1207 | 0.535 | 100 | NA | NA |
| Approach | 5 | 286 | 867 | 36 | 1195 | 4.2 | | 0.535 | | | |
| | Total | %HV | Deg.Satn (v/c) | | | | | | | | |
| All Vehicles | 2924 | 4.9 | 0.535 | | | | | | | | |

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

## Merge Analysis

| | Exit Lane Number | Short Lane Length ft | Percent Opng in Lane % | Opposing Flow Rate veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| There are no Exit Short Lanes for Merge Analysis at this Site. | | | | | | | | | | | | |

## Variable Demand Analysis

| | Initial Queued Demand veh | Residual Queued Demand veh | Time for Residual Demand to Clear sec | Duration of Oversatn sec |
|---|---|---|---|---|
| South: Winchester St (NB) | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane 2 | 0.0 | 0.0 | 0.0 | 0.0 |
| East: Lee Hwy (WB) | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane 2 | 0.0 | 0.0 | 0.0 | 0.0 |
| North: Broadview Ave (SB) | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |

| | | | | |
|---|---|---|---|---|
| Lane 2 | 0.0 | 0.0 | 0.0 | 0.0 |
| West: Broadview Ave (EB) | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane 2 | 0.0 | 0.0 | 0.0 | 0.0 |

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# LANE LEVEL OF SERVICE

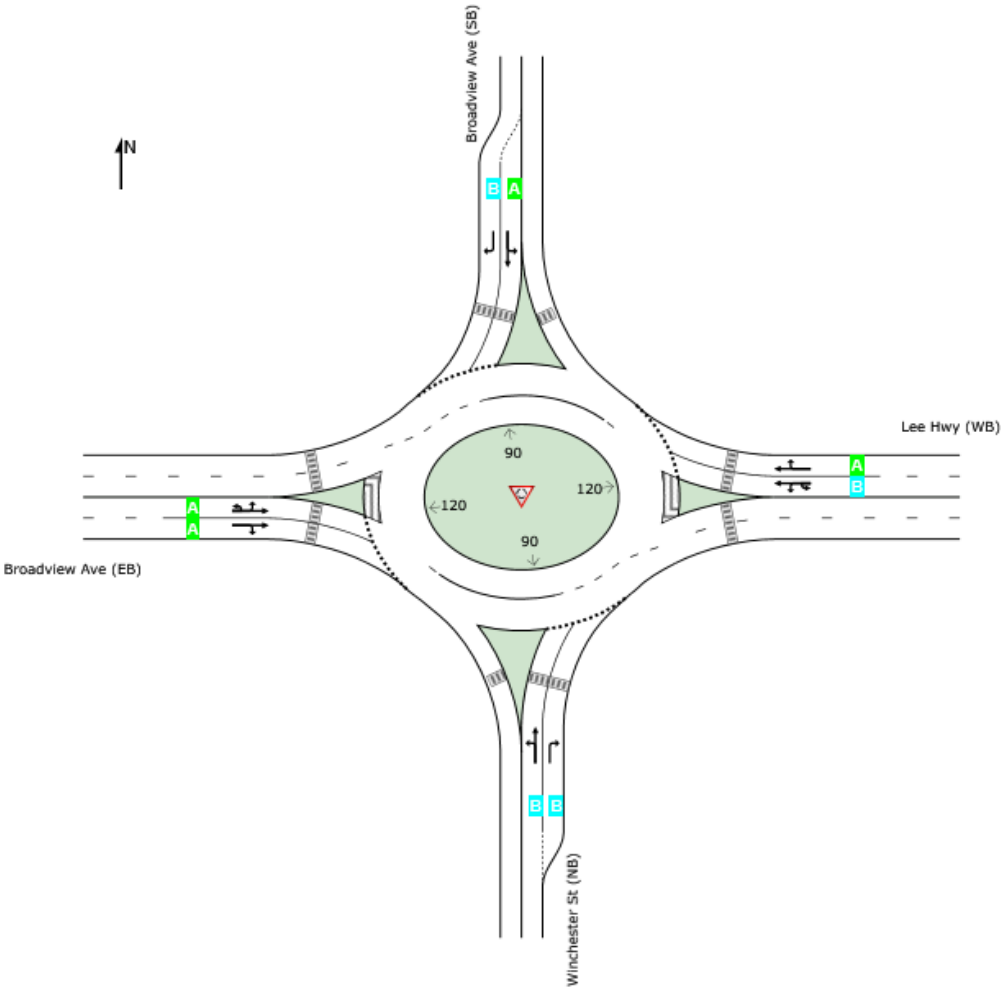
## Lane Level of Service

## Site: 101 [Broadview/Winchester/Lee - 2027 TF AM (Site Folder: General)]

**Output produced by SIDRA INTERSECTION Version: 9.1.2.202**

Warrenton Village Center
2027 Future  with Development
AM Peak Hour
Site Category: (None)
Roundabout

| | Approaches | | | | Intersection |
|---|---|---|---|---|---|
| | South | East | North | West | |
| LOS | B | B | B | A | B |




Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

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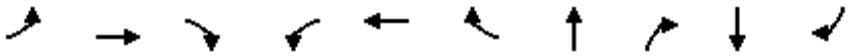
| Intersection | |
|---|---|
| Int Delay, s/veh | 0.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑ | ↱ | | ↑↑ | ↱ | | | ↱ | | | ↱ |
| Traffic Vol, veh/h | 0 | 944 | 63 | 0 | 839 | 32 | 0 | 0 | 29 | 0 | 0 | 21 |
| Future Vol, veh/h | 0 | 944 | 63 | 0 | 839 | 32 | 0 | 0 | 29 | 0 | 0 | 21 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | 110 | - | - | 300 | - | - | 0 | - | - | 0 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 1 | - | - | 3 | - | - | 3 | - | - | -11 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 4 | 3 | 0 | 7 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 0 | 1026 | 68 | 0 | 912 | 35 | 0 | 0 | 32 | 0 | 0 | 23 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | 0 | - | - | 0 | - | - | 513 | - | - | 456 |
| Stage 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | - | - | - | 7.26 | - | - | 5.8 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | - | - | - | 3.33 | - | - | 3.3 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | - | - | 0 | 0 | 483 | 0 | 0 | 640 |
| Stage 1 | 0 | - | - | 0 | - | - | 0 | 0 | - | 0 | 0 | - |
| Stage 2 | 0 | - | - | 0 | - | - | 0 | 0 | - | 0 | 0 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | - | - | - | 483 | - | - | 640 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 13 | 10.8 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 483 | - | - | - | - | 640 |
| HCM Lane V/C Ratio | 0.065 | - | - | - | - | 0.036 |
| HCM Control Delay (s) | 13 | - | - | - | - | 10.8 |
| HCM Lane LOS | B | - | - | - | - | B |
| HCM 95th %tile Q(veh) | 0.2 | - | - | - | - | 0.1 |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBT | NBR | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 42 | 1015 | 1 | 48 | 872 | 75 | 23 | 41 | 110 | 57 |
| v/c Ratio | 0.37 | 0.47 | 0.00 | 0.41 | 0.42 | 0.07 | 0.17 | 0.17 | 0.62 | 0.23 |
| Control Delay | 71.3 | 19.4 | 0.0 | 72.4 | 18.1 | 0.1 | 60.7 | 1.6 | 74.9 | 2.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 71.3 | 19.4 | 0.0 | 72.4 | 18.1 | 0.1 | 60.7 | 1.6 | 74.9 | 2.2 |
| Queue Length 50th (ft) | 39 | 273 | 0 | 44 | 221 | 0 | 21 | 0 | 102 | 0 |
| Queue Length 95th (ft) | 80 | 485 | 0 | 88 | 400 | 0 | 47 | 0 | 163 | 0 |
| Internal Link Dist (ft) | | 457 | | | 1504 | | 131 | | 565 | |
| Turn Bay Length (ft) | 240 | | 330 | 150 | | 150 | | 60 | | |
| Base Capacity (vph) | 199 | 2178 | 1063 | 227 | 2104 | 1047 | 261 | 338 | 200 | 259 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.21 | 0.47 | 0.00 | 0.21 | 0.41 | 0.07 | 0.09 | 0.12 | 0.55 | 0.22 |

Intersection Summary

| Movement | EBU | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 7 | 31 | 934 | 1 | 44 | 802 | 69 | 10 | 11 | 38 | 93 | 8 |
| Future Volume (vph) | 7 | 31 | 934 | 1 | 44 | 802 | 69 | 10 | 11 | 38 | 93 | 8 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Grade (%) | | | -4% | | | 2% | | | 0% | | | -1% |
| Total Lost time (s) | | 6.4 | 5.7 | 5.7 | 6.8 | 5.6 | 5.6 | | 6.0 | 6.0 | | 7.5 |
| Lane Util. Factor | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Frt | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | | 1.00 |
| Flt Protected | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | 0.98 | 1.00 | | 0.96 |
| Satd. Flow (prot) | | 1793 | 3541 | 1647 | 1752 | 3372 | 1599 | | 1856 | 1615 | | 1777 |
| Flt Permitted | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | 0.98 | 1.00 | | 0.96 |
| Satd. Flow (perm) | | 1793 | 3541 | 1647 | 1752 | 3372 | 1599 | | 1856 | 1615 | | 1777 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 8 | 34 | 1015 | 1 | 48 | 872 | 75 | 11 | 12 | 41 | 101 | 9 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 0 | 0 | 38 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 42 | 1015 | 1 | 48 | 872 | 45 | 0 | 23 | 3 | 0 | 110 |
| Heavy Vehicles (%) | 14% | 0% | 4% | 0% | 2% | 6% | 0% | 0% | 0% | 0% | 3% | 0% |
| Turn Type | Prot | Prot | NA | Perm | Prot | NA | Perm | Split | NA | Perm | Split | NA |
| Protected Phases | 1 | 1 | 6 | | 5 | 2 | | 4 | 4 | | 3 | 3 |
| Permitted Phases | | | | 6 | | | 2 | | | 4 | | |
| Actuated Green, G (s) | | 7.7 | 83.0 | 83.0 | 8.1 | 83.9 | 83.9 | | 8.9 | 8.9 | | 14.0 |
| Effective Green, g (s) | | 7.7 | 83.0 | 83.0 | 8.1 | 83.9 | 83.9 | | 8.9 | 8.9 | | 14.0 |
| Actuated g/C Ratio | | 0.06 | 0.59 | 0.59 | 0.06 | 0.60 | 0.60 | | 0.06 | 0.06 | | 0.10 |
| Clearance Time (s) | | 6.4 | 5.7 | 5.7 | 6.8 | 5.6 | 5.6 | | 6.0 | 6.0 | | 7.5 |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 |
| Lane Grp Cap (vph) | | 98 | 2099 | 976 | 101 | 2020 | 958 | | 117 | 102 | | 177 |
| v/s Ratio Prot | | 0.02 | c0.29 | | c0.03 | 0.26 | | | c0.01 | | | c0.06 |
| v/s Ratio Perm | | | | 0.00 | | | 0.03 | | | 0.00 | | |
| v/c Ratio | | 0.43 | 0.48 | 0.00 | 0.48 | 0.43 | 0.05 | | 0.20 | 0.03 | | 0.62 |
| Uniform Delay, d1 | | 64.0 | 16.3 | 11.6 | 63.9 | 15.2 | 11.6 | | 62.2 | 61.5 | | 60.5 |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Incremental Delay, d2 | | 3.0 | 0.8 | 0.0 | 3.5 | 0.7 | 0.1 | | 0.8 | 0.1 | | 6.6 |
| Delay (s) | | 67.0 | 17.1 | 11.6 | 67.4 | 15.8 | 11.7 | | 63.0 | 61.6 | | 67.1 |
| Level of Service | | E | B | B | E | B | B | | E | E | | E |
| Approach Delay (s) | | | 19.0 | | | 18.0 | | | 62.1 | | | 63.7 |
| Approach LOS | | | B | | | B | | | E | | | E |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 23.1 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.48 | | |
| Actuated Cycle Length (s) | 140.0 | Sum of lost time (s) | 26.0 |
| Intersection Capacity Utilization | 59.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 52 |
| Future Volume (vph) | 52 |
| Ideal Flow (vphpl) | 1900 |
| Grade (%) | |
| Total Lost time (s) | 7.5 |
| Lane Util. Factor | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1375 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1375 |
| Peak-hour factor, PHF | 0.92 |
| Adj. Flow (vph) | 57 |
| RTOR Reduction (vph) | 51 |
| Lane Group Flow (vph) | 6 |
| Heavy Vehicles (%) | 18% |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 3 |
| Actuated Green, G (s) | 14.0 |
| Effective Green, g (s) | 14.0 |
| Actuated g/C Ratio | 0.10 |
| Clearance Time (s) | 7.5 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 137 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.00 |
| v/c Ratio | 0.04 |
| Uniform Delay, d1 | 56.9 |
| Progression Factor | 1.00 |
| Incremental Delay, d2 | 0.1 |
| Delay (s) | 57.1 |
| Level of Service | E |
| Approach Delay (s) | |
| Approach LOS | |

| Intersection Summary |
|---|

HCM 6th Edition methodology expects strict NEMA phasing.

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.7 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↔ | | | ↔ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 6 | 15 | 44 | 14 | 11 | 14 | 24 | 84 | 7 | 18 | 122 | 5 |
| Future Vol, veh/h | 6 | 15 | 44 | 14 | 11 | 14 | 24 | 84 | 7 | 18 | 122 | 5 |
| Conflicting Peds, #/hr | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | -8 | - | - | -2 | - | - | 1 | - | - | -1 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 13 | 0 |
| Mvmt Flow | 7 | 16 | 48 | 15 | 12 | 15 | 26 | 91 | 8 | 20 | 133 | 5 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 280 | 327 | 71 | 264 | 325 | 50 | 138 | 0 | 0 | 99 | 0 | 0 |
| Stage 1 | 176 | 176 | - | 147 | 147 | - | - | - | - | - | - | - |
| Stage 2 | 104 | 151 | - | 117 | 178 | - | - | - | - | - | - | - |
| Critical Hdwy | 5.9 | 4.9 | 6.1 | 7.1 | 6.28 | 6.7 | 4.1 | - | - | 4.1 | - | - |
| Critical Hdwy Stg 1 | 4.9 | 3.9 | - | 6.1 | 5.28 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 4.9 | 3.9 | - | 6.1 | 5.28 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4.09 | 3.3 | 2.2 | - | - | 2.2 | - | - |
| Pot Cap-1 Maneuver | 743 | 688 | 999 | 693 | 597 | 1017 | 1458 | - | - | 1507 | - | - |
| Stage 1 | 881 | 819 | - | 860 | 770 | - | - | - | - | - | - | - |
| Stage 2 | 939 | 830 | - | 892 | 749 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 702 | 665 | 997 | 630 | 577 | 1017 | 1458 | - | - | 1507 | - | - |
| Mov Cap-2 Maneuver | 702 | 665 | - | 630 | 577 | - | - | - | - | - | - | - |
| Stage 1 | 864 | 808 | - | 844 | 755 | - | - | - | - | - | - | - |
| Stage 2 | 893 | 814 | - | 819 | 739 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 9.5 | 10.4 | 1.6 | 0.9 |
| HCM LOS | A | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1458 | - | - | 864 | 708 | 1507 | - | - |
| HCM Lane V/C Ratio | 0.018 | - | - | 0.082 | 0.06 | 0.013 | - | - |
| HCM Control Delay (s) | 7.5 | 0 | - | 9.5 | 10.4 | 7.4 | 0 | - |
| HCM Lane LOS | A | A | - | A | B | A | A | - |
| HCM 95th %tile Q(veh) | 0.1 | - | - | 0.3 | 0.2 | 0 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.1 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↕ | | | ↕ | | | ↰ | ↗ | | ↕ | |
| Traffic Vol, veh/h | 1 | 91 | 128 | 16 | 111 | 1 | 90 | 1 | 14 | 1 | 1 | 1 |
| Future Vol, veh/h | 1 | 91 | 128 | 16 | 111 | 1 | 90 | 1 | 14 | 1 | 1 | 1 |
| Conflicting Peds, #/hr | 4 | 0 | 1 | 1 | 0 | 4 | 0 | 0 | 2 | 2 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 1 | - | - | 2 | - | - | -5 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 1 | 11 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mvmt Flow | 1 | 99 | 139 | 17 | 121 | 1 | 98 | 1 | 15 | 1 | 1 | 1 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 126 | 0 | 0 | 239 | 0 | 0 | 329 | 332 | 172 | 341 | 401 | 126 |
| Stage 1 | - | - | - | - | - | - | 172 | 172 | - | 160 | 160 | - |
| Stage 2 | - | - | - | - | - | - | 157 | 160 | - | 181 | 241 | - |
| Critical Hdwy | 4.1 | - | - | 4.17 | - | - | 7.5 | 6.9 | 6.4 | 6.1 | 5.5 | 5.7 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.5 | 5.9 | - | 5.1 | 4.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.5 | 5.9 | - | 5.1 | 4.5 | - |
| Follow-up Hdwy | 2.2 | - | - | 2.263 | - | - | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1473 | - | - | 1299 | - | - | 606 | 570 | 869 | 678 | 604 | 946 |
| Stage 1 | - | - | - | - | - | - | 819 | 746 | - | 885 | 804 | - |
| Stage 2 | - | - | - | - | - | - | 835 | 756 | - | 868 | 759 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1468 | - | - | 1298 | - | - | 597 | 559 | 867 | 654 | 593 | 943 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 597 | 559 | - | 654 | 593 | - |
| Stage 1 | - | - | - | - | - | - | 817 | 745 | - | 881 | 790 | - |
| Stage 2 | - | - | - | - | - | - | 821 | 743 | - | 849 | 757 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 1 | 11.8 | 10.2 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 597 | 867 | 1468 | - | - | 1298 | - | - | 702 |
| HCM Lane V/C Ratio | 0.166 | 0.018 | 0.001 | - | - | 0.013 | - | - | 0.005 |
| HCM Control Delay (s) | 12.2 | 9.2 | 7.5 | 0 | - | 7.8 | 0 | - | 10.2 |
| HCM Lane LOS | B | A | A | A | - | A | A | - | B |
| HCM 95th %tile Q(veh) | 0.6 | 0.1 | 0 | - | - | 0 | - | - | 0 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.8 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 83 | 170 | 1 | 2 | 156 | 44 | 5 | 1 | 2 | 47 | 1 | 67 |
| Future Vol, veh/h | 83 | 170 | 1 | 2 | 156 | 44 | 5 | 1 | 2 | 47 | 1 | 67 |
| Conflicting Peds, #/hr | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | -3 | - | - | 1 | - | - | 0 | - | - | -5 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 6 | 1 | 2 | 2 | 1 | 0 | 2 | 2 | 2 | 17 | 2 | 0 |
| Mvmt Flow | 90 | 185 | 1 | 2 | 170 | 48 | 5 | 1 | 2 | 51 | 1 | 73 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 219 | 0 | 0 | 186 | 0 | 0 | 603 | 589 | 186 | 566 | 565 | 197 |
| Stage 1 | - | - | - | - | - | - | 366 | 366 | - | 199 | 199 | - |
| Stage 2 | - | - | - | - | - | - | 237 | 223 | - | 367 | 366 | - |
| Critical Hdwy | 4.16 | - | - | 4.12 | - | - | 7.12 | 6.52 | 6.22 | 6.27 | 5.52 | 5.7 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.12 | 5.52 | - | 5.27 | 4.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.12 | 5.52 | - | 5.27 | 4.52 | - |
| Follow-up Hdwy | 2.254 | - | - | 2.218 | - | - | 3.518 | 4.018 | 3.318 | 3.653 | 4.018 | 3.3 |
| Pot Cap-1 Maneuver | 1327 | - | - | 1388 | - | - | 411 | 421 | 856 | 483 | 508 | 873 |
| Stage 1 | - | - | - | - | - | - | 653 | 623 | - | 813 | 778 | - |
| Stage 2 | - | - | - | - | - | - | 766 | 719 | - | 690 | 689 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1326 | - | - | 1388 | - | - | 353 | 388 | 856 | 452 | 468 | 871 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 353 | 388 | - | 452 | 468 | - |
| Stage 1 | - | - | - | - | - | - | 603 | 576 | - | 750 | 776 | - |
| Stage 2 | - | - | - | - | - | - | 698 | 717 | - | 635 | 637 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 2.6 | 0.1 | 13.8 | 12.2 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 419 | 1326 | - | - | 1388 | - | - | 628 |
| HCM Lane V/C Ratio | 0.021 | 0.068 | - | - | 0.002 | - | - | 0.199 |
| HCM Control Delay (s) | 13.8 | 7.9 | 0 | - | 7.6 | 0 | - | 12.2 |
| HCM Lane LOS | B | A | A | - | A | A | - | B |
| HCM 95th %tile Q(veh) | 0.1 | 0.2 | - | - | 0 | - | - | 0.7 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 38 | 161 | 6 | 19 | 158 | 51 | 20 | 1 | 62 | 31 | 1 | 19 |
| Future Vol, veh/h | 38 | 161 | 6 | 19 | 158 | 51 | 20 | 1 | 62 | 31 | 1 | 19 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 75 | - | - | - | - | - | - | - | - | - | - | 50 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | -5 | - | - | 3 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 4 | 2 | 2 | 1 | 0 | 2 | 2 | 2 | 0 | 2 | 0 |
| Mvmt Flow | 41 | 175 | 7 | 21 | 172 | 55 | 22 | 1 | 67 | 34 | 1 | 21 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 227 | 0 | 0 | 182 | 0 | 0 | 514 | 530 | 179 | 537 | 506 | 200 |
| Stage 1 | - | - | - | - | - | - | 261 | 261 | - | 242 | 242 | - |
| Stage 2 | - | - | - | - | - | - | 253 | 269 | - | 295 | 264 | - |
| Critical Hdwy | 4.1 | - | - | 4.12 | - | - | 7.12 | 6.52 | 6.22 | 7.1 | 6.52 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.1 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.1 | 5.52 | - |
| Follow-up Hdwy | 2.2 | - | - | 2.218 | - | - | 3.518 | 4.018 | 3.318 | 3.5 | 4.018 | 3.3 |
| Pot Cap-1 Maneuver | 1353 | - | - | 1393 | - | - | 471 | 455 | 864 | 458 | 469 | 846 |
| Stage 1 | - | - | - | - | - | - | 744 | 692 | - | 766 | 705 | - |
| Stage 2 | - | - | - | - | - | - | 751 | 687 | - | 718 | 690 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1353 | - | - | 1393 | - | - | 442 | 434 | 864 | 406 | 447 | 846 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 442 | 434 | - | 406 | 447 | - |
| Stage 1 | - | - | - | - | - | - | 722 | 671 | - | 743 | 693 | - |
| Stage 2 | - | - | - | - | - | - | 719 | 675 | - | 641 | 669 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 1.4 | 0.6 | 10.9 | 12.7 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 696 | 1353 | - | - | 1393 | - | - | 407 | 846 |
| HCM Lane V/C Ratio | 0.13 | 0.031 | - | - | 0.015 | - | - | 0.085 | 0.024 |
| HCM Control Delay (s) | 10.9 | 7.7 | - | - | 7.6 | 0 | - | 14.7 | 9.4 |
| HCM Lane LOS | B | A | - | - | A | A | - | B | A |
| HCM 95th %tile Q(veh) | 0.4 | 0.1 | - | - | 0 | - | - | 0.3 | 0.1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 1 | 1 | 1 | 80 | 1 | 116 | 1 | 415 | 107 | 97 | 359 | 1 |
| Future Vol, veh/h | 1 | 1 | 1 | 80 | 1 | 116 | 1 | 415 | 107 | 97 | 359 | 1 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | 100 | - | 0 | 90 | - | 130 | 225 | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | -2 | - | - | 4 | - | - | 2 | - | - | 3 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 6 | 1 | 5 | 5 | 0 |
| Mvmt Flow | 1 | 1 | 1 | 87 | 1 | 126 | 1 | 451 | 116 | 105 | 390 | 1 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 829 | 1170 | 196 | 859 | 1054 | 226 | 391 | 0 | 0 | 567 | 0 | 0 |
| Stage 1 | 601 | 601 | - | 453 | 453 | - | - | - | - | - | - | - |
| Stage 2 | 228 | 569 | - | 406 | 601 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.1 | 6.7 | 8.3 | 7.3 | 7.32 | 4.1 | - | - | 4.2 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.1 | - | 7.3 | 6.3 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.1 | - | 7.3 | 6.3 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.31 | 2.2 | - | - | 2.25 | - | - |
| Pot Cap-1 Maneuver | 292 | 222 | 828 | 209 | 180 | 761 | 1179 | - | - | 981 | - | - |
| Stage 1 | 491 | 527 | - | 507 | 518 | - | - | - | - | - | - | - |
| Stage 2 | 779 | 542 | - | 546 | 431 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 223 | 198 | 828 | 191 | 161 | 761 | 1179 | - | - | 981 | - | - |
| Mov Cap-2 Maneuver | 223 | 198 | - | 191 | 161 | - | - | - | - | - | - | - |
| Stage 1 | 491 | 471 | - | 506 | 517 | - | - | - | - | - | - | - |
| Stage 2 | 648 | 541 | - | 486 | 385 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 18.1 | 22.3 | 0 | 1.9 |
| HCM LOS | C | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | WBLn2 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1179 | - | - | 279 | 191 | 761 | 981 | - | - |
| HCM Lane V/C Ratio | 0.001 | - | - | 0.012 | 0.461 | 0.166 | 0.107 | - | - |
| HCM Control Delay (s) | 8.1 | - | - | 18.1 | 39 | 10.7 | 9.1 | - | - |
| HCM Lane LOS | A | - | - | C | E | B | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0 | 2.2 | 0.6 | 0.4 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.9 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 1 | 1 | 3 | 17 | 1 | 20 | 13 | 503 | 14 | 16 | 420 | 3 |
| Future Vol, veh/h | 1 | 1 | 3 | 17 | 1 | 20 | 13 | 503 | 14 | 16 | 420 | 3 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | 0 | - | - | 150 | - | 135 | 110 | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 5 | - | - | 3 | - | - | 4 | - | - | -2 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 5 | 0 | 0 | 4 | 0 |
| Mvmt Flow | 1 | 1 | 3 | 18 | 1 | 22 | 14 | 547 | 15 | 17 | 457 | 3 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 795 | 1083 | 230 | 838 | 1069 | 274 | 460 | 0 | 0 | 562 | 0 | 0 |
| Stage 1 | 493 | 493 | - | 575 | 575 | - | - | - | - | - | - | - |
| Stage 2 | 302 | 590 | - | 263 | 494 | - | - | - | - | - | - | - |
| Critical Hdwy | 8.5 | 7.5 | 7.4 | 8.1 | 7.1 | 7.32 | 4.1 | - | - | 4.1 | - | - |
| Critical Hdwy Stg 1 | 7.5 | 6.5 | - | 7.1 | 6.1 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 7.5 | 6.5 | - | 7.1 | 6.1 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.36 | 2.2 | - | - | 2.2 | - | - |
| Pot Cap-1 Maneuver | 226 | 162 | 754 | 228 | 187 | 696 | 1112 | - | - | 1019 | - | - |
| Stage 1 | 464 | 480 | - | 432 | 460 | - | - | - | - | - | - | - |
| Stage 2 | 633 | 423 | - | 694 | 506 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 213 | 157 | 754 | 221 | 181 | 696 | 1112 | - | - | 1019 | - | - |
| Mov Cap-2 Maneuver | 213 | 157 | - | 221 | 181 | - | - | - | - | - | - | - |
| Stage 1 | 458 | 472 | - | 426 | 454 | - | - | - | - | - | - | - |
| Stage 2 | 604 | 418 | - | 678 | 497 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 16 | 16.3 | 0.2 | 0.3 |
| HCM LOS | C | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | WBLn2 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1112 | - | - | 332 | 221 | 613 | 1019 | - | - |
| HCM Lane V/C Ratio | 0.013 | - | - | 0.016 | 0.084 | 0.037 | 0.017 | - | - |
| HCM Control Delay (s) | 8.3 | - | - | 16 | 22.8 | 11.1 | 8.6 | - | - |
| HCM Lane LOS | A | - | - | C | C | B | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.1 | 0.3 | 0.1 | 0.1 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 7.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 126 | 17 | 81 | 3 | 3 | 3 | 116 | 401 | 32 | 7 | 380 | 53 |
| Future Vol, veh/h | 126 | 17 | 81 | 3 | 3 | 3 | 116 | 401 | 32 | 7 | 380 | 53 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | Yield | - | - | None | - | - | None | - | - | None |
| Storage Length | 100 | - | 230 | 0 | - | - | 160 | - | 175 | 160 | - | 125 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 3 | - | - | -3 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 0 | 3 | 0 | 0 | 33 | 1 | 5 | 0 | 0 | 3 | 8 |
| Mvmt Flow | 137 | 18 | 88 | 3 | 3 | 3 | 126 | 436 | 35 | 8 | 413 | 58 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 901 | 1152 | 207 | 920 | 1175 | 218 | 471 | 0 | 0 | 471 | 0 | 0 |
| Stage 1 | 429 | 429 | - | 688 | 688 | - | - | - | - | - | - | - |
| Stage 2 | 472 | 723 | - | 232 | 487 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.54 | 6.5 | 6.96 | 7.5 | 6.5 | 7.56 | 4.12 | - | - | 4.1 | - | - |
| Critical Hdwy Stg 1 | 6.54 | 5.5 | - | 6.5 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.54 | 5.5 | - | 6.5 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.52 | 4 | 3.33 | 3.5 | 4 | 3.63 | 2.21 | - | - | 2.2 | - | - |
| Pot Cap-1 Maneuver | 233 | 199 | 796 | 229 | 193 | 699 | 1094 | - | - | 1101 | - | - |
| Stage 1 | 574 | 587 | - | 407 | 450 | - | - | - | - | - | - | - |
| Stage 2 | 542 | 434 | - | 756 | 554 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 207 | 175 | 796 | 170 | 170 | 699 | 1094 | - | - | 1101 | - | - |
| Mov Cap-2 Maneuver | 207 | 175 | - | 170 | 170 | - | - | - | - | - | - | - |
| Stage 1 | 508 | 583 | - | 360 | 398 | - | - | - | - | - | - | - |
| Stage 2 | 473 | 384 | - | 646 | 550 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 34.5 | 21.2 | 1.8 | 0.1 |
| HCM LOS | D | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | EBLn2 | EBLn3 | WBLn1 | WBLn2 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1094 | - | - | 207 | 175 | 796 | 170 | 273 | 1101 | - | - |
| HCM Lane V/C Ratio | 0.115 | - | - | 0.662 | 0.106 | 0.111 | 0.019 | 0.024 | 0.007 | - | - |
| HCM Control Delay (s) | 8.7 | - | - | 51 | 28 | 10.1 | 26.6 | 18.5 | 8.3 | - | - |
| HCM Lane LOS | A | - | - | F | D | B | D | C | A | - | - |
| HCM 95th %tile Q(veh) | 0.4 | - | - | 4 | 0.3 | 0.4 | 0.1 | 0.1 | 0 | - | - |

# LANE LEVEL OF SERVICE

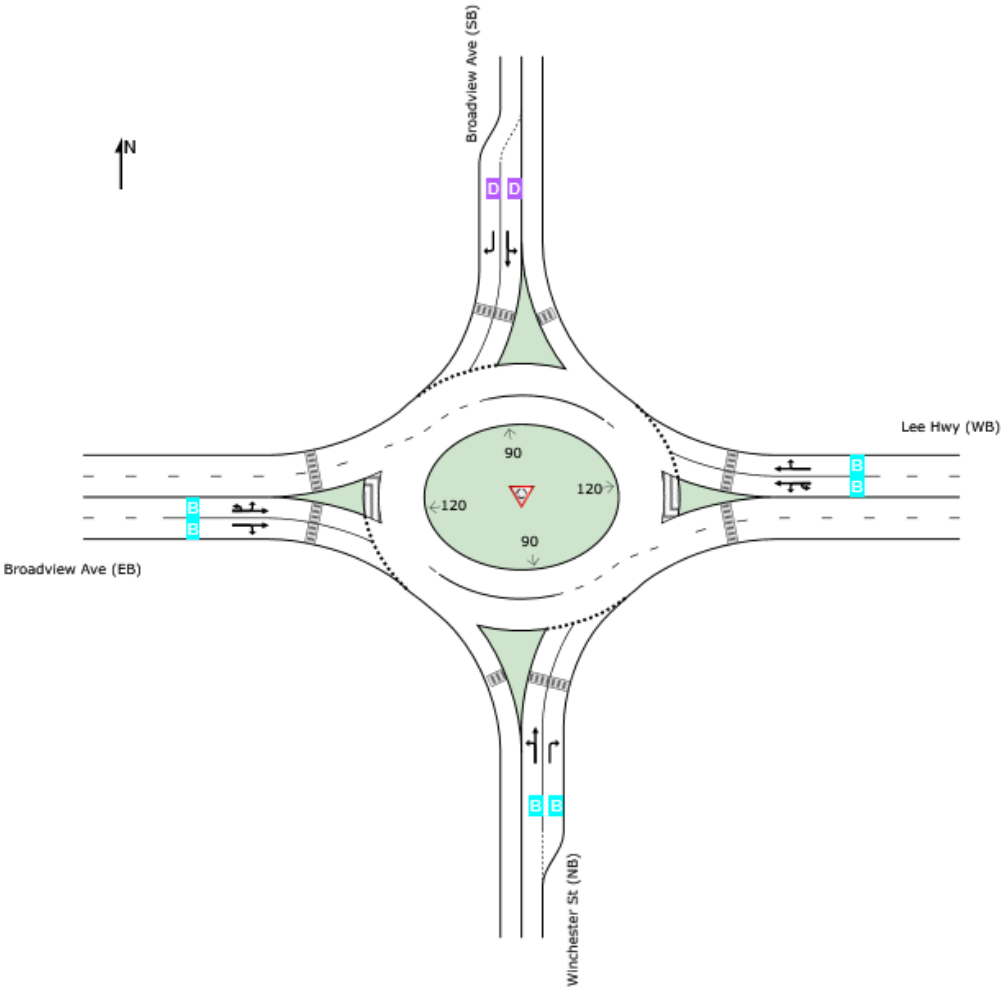
## Lane Level of Service

### Site: 101 [Broadview/Winchester/Lee - 2027 TF PM (Site Folder: General)]

**Output produced by SIDRA INTERSECTION Version: 9.1.2.202**

Warrenton Village Center
2027 Future  with Development
PM Peak Hour
Site Category: (None)
Roundabout

| | Approaches | | | | Intersection |
|---|---|---|---|---|---|
| | South | East | North | West | |
| LOS | B | B | D | B | B |




Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

**SIDRA INTERSECTION 9.1 | Copyright © 2000-2022 Akcelik and Associates Pty Ltd | sidrasolutions.com**
Organisation: GOROVE SLADE | Licence: PLUS / 1PC | Processed: Monday, February 12, 2024 1:51:53 AM
Project: U:\3243\001. Warrenton Village Center\Analysis\Sidra\2nd Submission\2027 TF.sip9

# LANE SUMMARY

## Site: 101 [Broadview/Winchester/Lee - 2027 TF PM (Site Folder: General)]

**Output produced by SIDRA INTERSECTION Version: 9.1.2.202**

Warrenton Village Center
2027 Future  with Development
PM Peak Hour
Site Category: (None)
Roundabout

### Lane Use and Performance

| | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh | Dist ] ft | Lane Config | Lane Length ft | Cap. Adj. % | Prob. Block. % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Winchester St (NB) | | | | | | | | | | | | | | | |
| Lane 1[d] | 235 | 0.5 | 235 | 0.5 | 556 | 0.423 | 100 | 13.2 | LOS B | 2.5 | 62.1 | Full | 1600 | 0.0 | 0.0 |
| Lane 2 | 77 | 0.0 | 77 | 0.0 | 361 | 0.214 | 100 | 13.7 | LOS B | 0.9 | 23.2 | Short | 250 | 0.0 | NA |
| Approach | 313 | 0.4 | 313 | 0.4 | | 0.423 | | 13.3 | LOS B | 2.5 | 62.1 | | | | |
| East: Lee Hwy (WB) | | | | | | | | | | | | | | | |
| Lane 1 | 623 | 1.7 | 623 | 1.7 | 857 | 0.726 | 100 | 17.7 | LOS B | 10.7 | 271.5 | Full | 1600 | 0.0 | 0.0 |
| Lane 2[d] | 761 | 2.0 | 761 | 2.0 | 1047 | 0.726 | 100 | 15.3 | LOS B | 11.5 | 291.4 | Full | 1600 | 0.0 | 0.0 |
| Approach | 1383 | 1.9 | 1383 | 1.9 | | 0.726 | | 16.3 | LOS B | 11.5 | 291.4 | | | | |
| North: Broadview Ave (SB) | | | | | | | | | | | | | | | |
| Lane 1 | 347 | 0.7 | 347 | 0.7 | 426 | 0.815 | 100 | 39.5 | LOS D | 7.1 | 177.8 | Short | 215 | 0.0 | NA |
| Lane 2[d] | 413 | 4.0 | 413 | 4.0 | 487 | 0.848 | 100 | 39.7 | LOS D | 8.4 | 216.0 | Full | 1600 | 0.0 | 0.0 |
| Approach | 759 | 2.5 | 759 | 2.5 | | 0.848 | | 39.6 | LOS D | 8.4 | 216.0 | | | | |
| West: Broadview Ave (EB) | | | | | | | | | | | | | | | |
| Lane 1 | 547 | 2.5 | 547 | 2.5 | 913 | 0.599 | 100 | 12.4 | LOS B | 6.7 | 169.7 | Full | 1600 | 0.0 | 0.0 |
| Lane 2[d] | 664 | 1.9 | 664 | 1.9 | 1108 | 0.599 | 100 | 10.8 | LOS B | 6.8 | 171.5 | Full | 1600 | 0.0 | 0.0 |
| Approach | 1210 | 2.2 | 1210 | 2.2 | | 0.599 | | 11.5 | LOS B | 6.8 | 171.5 | | | | |
| All Vehicles | 3666 | 2.0 | 3666 | 2.0 | | 0.848 | | 19.3 | LOS B | 11.5 | 291.4 | | | | |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

d  Dominant lane on roundabout approach

### Approach Lane Flows (veh/h)

South: Winchester St (NB)

| Mov. From S To Exit: | L2 W | T1 N | R2 E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 122 | 114 | - | 235 | 0.5 | | 556 | 0.423 | 100 | NA | NA |
| Lane 2 | - | - | 77 | 77 | 0.0 | | 361 | 0.214 | 100 | 0.0 | 1 |
| Approach | 122 | 114 | 77 | 313 | 0.4 | | | 0.423 | | | |
| East: Lee Hwy (WB) | | | | | | | | | | | |
| Mov. From E To Exit: | U E | L2 S | T1 W | R2 N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 10 | 70 | 543 | - | 623 | 1.7 | 857 | 0.726 | 100 | NA | NA |
| Lane 2 | - | - | 638 | 123 | 761 | 2.0 | 1047 | 0.726 | 100 | NA | NA |
| Approach | 10 | 70 | 1180 | 123 | 1383 | 1.9 | | 0.726 | | | |
| North: Broadview Ave (SB) | | | | | | | | | | | |
| Mov. From N To Exit: | L2 E | T1 S | R2 W | Total | %HV | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 249 | 98 | - | 347 | 0.7 | | 426 | 0.815 | 100 | 0.0 | 2 |
| Lane 2 | - | - | 413 | 413 | 4.0 | | 487 | 0.848 | 100 | NA | NA |
| Approach | 249 | 98 | 413 | 759 | 2.5 | | | 0.848 | | | |
| West: Broadview Ave (EB) | | | | | | | | | | | |
| Mov. From W To Exit: | U W | L2 N | T1 E | R2 S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 2 | 293 | 252 | - | 547 | 2.5 | 913 | 0.599 | 100 | NA | NA |
| Lane 2 | - | - | 618 | 46 | 664 | 1.9 | 1108 | 0.599 | 100 | NA | NA |
| Approach | 2 | 293 | 870 | 46 | 1210 | 2.2 | | 0.599 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| All Vehicles | 3666 | 2.0 | 0.848 |

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

## Merge Analysis

| | Exit Lane Number | Short Lane Length ft | Percent Opng in Lane % | Opposing Flow Rate veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| There are no Exit Short Lanes for Merge Analysis at this Site. | | | | | | | | | | | | |

## Variable Demand Analysis

| | Initial Queued Demand veh | Residual Queued Demand veh | Time for Residual Demand to Clear sec | Duration of Oversatn sec |
|---|---|---|---|---|
| South: Winchester St (NB) | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane 2 | 0.0 | 0.0 | 0.0 | 0.0 |
| East: Lee Hwy (WB) | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane 2 | 0.0 | 0.0 | 0.0 | 0.0 |
| North: Broadview Ave (SB) | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |

| | | | | |
|---|---|---|---|---|
| Lane 2 | 0.0 | 0.0 | 0.0 | 0.0 |
| West: Broadview Ave (EB) | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane 2 | 0.0 | 0.0 | 0.0 | 0.0 |

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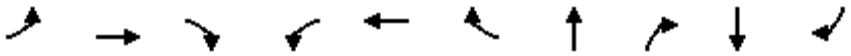
| Intersection | |
|---|---|
| Int Delay, s/veh | 0.6 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑ | ↱ | | ↑↑ | ↱ | | | ↱ | | | ↱ |
| Traffic Vol, veh/h | 0 | 1075 | 83 | 0 | 1247 | 104 | 0 | 0 | 25 | 0 | 0 | 80 |
| Future Vol, veh/h | 0 | 1075 | 83 | 0 | 1247 | 104 | 0 | 0 | 25 | 0 | 0 | 80 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | 110 | - | - | 300 | - | - | 0 | - | - | 0 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 1 | - | - | 3 | - | - | 3 | - | - | -11 | - |
| Peak Hour Factor | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 |
| Heavy Vehicles, % | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| Mvmt Flow | 0 | 1156 | 89 | 0 | 1341 | 112 | 0 | 0 | 27 | 0 | 0 | 86 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | 0 | - | - | 0 | - | - | 578 | - | - | 675 |
| Stage 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | - | - | - | 7.28 | - | - | 5.8 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | - | - | - | 3.34 | - | - | 3.3 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | - | - | 0 | 0 | 433 | 0 | 0 | 493 |
| Stage 1 | 0 | - | - | 0 | - | - | 0 | 0 | - | 0 | 0 | - |
| Stage 2 | 0 | - | - | 0 | - | - | 0 | 0 | - | 0 | 0 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | - | - | - | 433 | - | - | 491 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 13.9 | 13.9 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 433 | - | - | - | - | 491 |
| HCM Lane V/C Ratio | 0.062 | - | - | - | - | 0.175 |
| HCM Control Delay (s) | 13.9 | - | - | - | - | 13.9 |
| HCM Lane LOS | B | - | - | - | - | B |
| HCM 95th %tile Q(veh) | 0.2 | - | - | - | - | 0.6 |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBT | NBR | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 149 | 1006 | 2 | 68 | 1243 | 151 | 36 | 79 | 204 | 152 |
| v/c Ratio | 0.72 | 0.48 | 0.00 | 0.54 | 0.70 | 0.17 | 0.31 | 0.30 | 0.80 | 0.41 |
| Control Delay | 82.8 | 22.5 | 0.0 | 82.0 | 32.7 | 2.3 | 72.2 | 3.0 | 83.9 | 9.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 82.8 | 22.5 | 0.0 | 82.0 | 32.7 | 2.3 | 72.2 | 3.0 | 83.9 | 9.8 |
| Queue Length 50th (ft) | 148 | 333 | 0 | 68 | 508 | 0 | 36 | 0 | 201 | 0 |
| Queue Length 95th (ft) | 224 | 441 | 0 | 123 | 675 | 28 | 73 | 0 | #344 | 58 |
| Internal Link Dist (ft) | | 457 | | | 1504 | | 131 | | 565 | |
| Turn Bay Length (ft) | 240 | | 330 | 150 | | 150 | | 60 | | |
| Base Capacity (vph) | 260 | 2078 | 960 | 157 | 1773 | 876 | 202 | 327 | 268 | 377 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.57 | 0.48 | 0.00 | 0.43 | 0.70 | 0.17 | 0.18 | 0.24 | 0.76 | 0.40 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| Movement | EBU | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 9 | 133 | 956 | 2 | 65 | 1181 | 143 | 17 | 17 | 75 | 176 | 18 |
| Future Volume (vph) | 9 | 133 | 956 | 2 | 65 | 1181 | 143 | 17 | 17 | 75 | 176 | 18 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Grade (%) | | | -4% | | | 2% | | | 0% | | | -1% |
| Total Lost time (s) | | 6.4 | 5.7 | 5.7 | 6.8 | 5.6 | 5.6 | | 6.6 | 6.6 | | 7.5 |
| Lane Util. Factor | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Frpb, ped/bikes | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.98 | | 1.00 | 1.00 | | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Frt | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | | 1.00 |
| Flt Protected | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | 0.98 | 1.00 | | 0.96 |
| Satd. Flow (prot) | | 1807 | 3682 | 1602 | 1787 | 3504 | 1558 | | 1854 | 1615 | | 1810 |
| Flt Permitted | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | 0.98 | 1.00 | | 0.96 |
| Satd. Flow (perm) | | 1807 | 3682 | 1602 | 1787 | 3504 | 1558 | | 1854 | 1615 | | 1810 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 9 | 140 | 1006 | 2 | 68 | 1243 | 151 | 18 | 18 | 79 | 185 | 19 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 1 | 0 | 0 | 74 | 0 | 0 | 74 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 149 | 1006 | 1 | 68 | 1243 | 77 | 0 | 36 | 5 | 0 | 204 |
| Confl. Peds. (#/hr) | | | | 2 | | | 2 | | | | | |
| Heavy Vehicles (%) | 0% | 2% | 0% | 0% | 0% | 2% | 1% | 0% | 0% | 0% | 1% | 0% |
| Turn Type | Prot | Prot | NA | Perm | Prot | NA | Perm | Split | NA | Perm | Split | NA |
| Protected Phases | 1 | 1 | 6 | | 5 | 2 | | 4 | 4 | | 3 | 3 |
| Permitted Phases | | | | 6 | | | 2 | | | 4 | | |
| Actuated Green, G (s) | | 17.2 | 83.4 | 83.4 | 9.3 | 76.0 | 76.0 | | 9.5 | 9.5 | | 21.2 |
| Effective Green, g (s) | | 17.2 | 83.4 | 83.4 | 9.3 | 76.0 | 76.0 | | 9.5 | 9.5 | | 21.2 |
| Actuated g/C Ratio | | 0.11 | 0.56 | 0.56 | 0.06 | 0.51 | 0.51 | | 0.06 | 0.06 | | 0.14 |
| Clearance Time (s) | | 6.4 | 5.7 | 5.7 | 6.8 | 5.6 | 5.6 | | 6.6 | 6.6 | | 7.5 |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 |
| Lane Grp Cap (vph) | | 207 | 2047 | 890 | 110 | 1775 | 789 | | 117 | 102 | | 255 |
| v/s Ratio Prot | | c0.08 | 0.27 | | 0.04 | c0.35 | | | c0.02 | | | c0.11 |
| v/s Ratio Perm | | | | 0.00 | | | 0.05 | | | 0.00 | | |
| v/c Ratio | | 0.72 | 0.49 | 0.00 | 0.62 | 0.70 | 0.10 | | 0.31 | 0.05 | | 0.80 |
| Uniform Delay, d1 | | 64.1 | 20.3 | 14.8 | 68.6 | 28.3 | 19.2 | | 67.1 | 66.0 | | 62.3 |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Incremental Delay, d2 | | 11.4 | 0.8 | 0.0 | 9.9 | 2.3 | 0.2 | | 1.5 | 0.2 | | 16.3 |
| Delay (s) | | 75.4 | 21.2 | 14.8 | 78.5 | 30.6 | 19.4 | | 68.6 | 66.2 | | 78.6 |
| Level of Service | | E | C | B | E | C | B | | E | E | | E |
| Approach Delay (s) | | | 28.2 | | | 31.7 | | | 67.0 | | | 69.1 |
| Approach LOS | | | C | | | C | | | E | | | E |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 36.0 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 150.0 | Sum of lost time (s) | 26.6 |
| Intersection Capacity Utilization | 76.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 144 |
| Future Volume (vph) | 144 |
| Ideal Flow (vphpl) | 1900 |
| Grade (%) | |
| Total Lost time (s) | 7.5 |
| Lane Util. Factor | 1.00 |
| Frpb, ped/bikes | 1.00 |
| Flpb, ped/bikes | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1607 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1607 |
| Peak-hour factor, PHF | 0.95 |
| Adj. Flow (vph) | 152 |
| RTOR Reduction (vph) | 131 |
| Lane Group Flow (vph) | 21 |
| Confl. Peds. (#/hr) | |
| Heavy Vehicles (%) | 1% |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 3 |
| Actuated Green, G (s) | 21.2 |
| Effective Green, g (s) | 21.2 |
| Actuated g/C Ratio | 0.14 |
| Clearance Time (s) | 7.5 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 227 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.01 |
| v/c Ratio | 0.09 |
| Uniform Delay, d1 | 56.0 |
| Progression Factor | 1.00 |
| Incremental Delay, d2 | 0.2 |
| Delay (s) | 56.2 |
| Level of Service | E |
| Approach Delay (s) | |
| Approach LOS | |

| Intersection Summary |
|---|

HCM 6th Edition methodology expects strict NEMA phasing.

| Intersection | |
|---|---|
| Int Delay, s/veh | 8.4 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 17 | 77 | 120 | 45 | 50 | 41 | 97 | 101 | 12 | 48 | 75 | 32 |
| Future Vol, veh/h | 17 | 77 | 120 | 45 | 50 | 41 | 97 | 101 | 12 | 48 | 75 | 32 |
| Conflicting Peds, #/hr | 0 | 0 | 14 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | -8 | - | - | -2 | - | - | 1 | - | - | -1 | - |
| Peak Hour Factor | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Heavy Vehicles, % | 0 | 0 | 2 | 0 | 2 | 5 | 0 | 2 | 0 | 0 | 3 | 0 |
| Mvmt Flow | 18 | 80 | 125 | 47 | 52 | 43 | 101 | 105 | 13 | 50 | 78 | 33 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 476 | 515 | 70 | 507 | 525 | 59 | 111 | 0 | 0 | 118 | 0 | 0 |
| Stage 1 | 195 | 195 | - | 314 | 314 | - | - | - | - | - | - | - |
| Stage 2 | 281 | 320 | - | 193 | 211 | - | - | - | - | - | - | - |
| Critical Hdwy | 5.9 | 4.9 | 6.14 | 7.1 | 6.14 | 6.8 | 4.1 | - | - | 4.1 | - | - |
| Critical Hdwy Stg 1 | 4.9 | 3.9 | - | 6.1 | 5.14 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 4.9 | 3.9 | - | 6.1 | 5.14 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.32 | 3.5 | 4.02 | 3.35 | 2.2 | - | - | 2.2 | - | - |
| Pot Cap-1 Maneuver | 589 | 586 | 994 | 479 | 483 | 988 | 1492 | - | - | 1483 | - | - |
| Stage 1 | 866 | 810 | - | 701 | 678 | - | - | - | - | - | - | - |
| Stage 2 | 802 | 756 | - | 813 | 744 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 471 | 524 | 982 | 336 | 432 | 988 | 1492 | - | - | 1483 | - | - |
| Mov Cap-2 Maneuver | 471 | 524 | - | 336 | 432 | - | - | - | - | - | - | - |
| Stage 1 | 803 | 781 | - | 650 | 629 | - | - | - | - | - | - | - |
| Stage 2 | 652 | 701 | - | 607 | 717 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 12.5 | 16 | 3.6 | 2.4 |
| HCM LOS | B | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1492 | - | - | 701 | 467 | 1483 | - | - |
| HCM Lane V/C Ratio | 0.068 | - | - | 0.318 | 0.303 | 0.034 | - | - |
| HCM Control Delay (s) | 7.6 | 0.1 | - | 12.5 | 16 | 7.5 | 0.1 | - |
| HCM Lane LOS | A | A | - | B | C | A | A | - |
| HCM 95th %tile Q(veh) | 0.2 | - | - | 1.4 | 1.3 | 0.1 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↕ | | | ↕ | | | ↰ | ↗ | | ↕ | |
| Traffic Vol, veh/h | 3 | 116 | 119 | 31 | 128 | 2 | 118 | 2 | 39 | 1 | 5 | 1 |
| Future Vol, veh/h | 3 | 116 | 119 | 31 | 128 | 2 | 118 | 2 | 39 | 1 | 5 | 1 |
| Conflicting Peds, #/hr | 4 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 2 | 2 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 1 | - | - | 2 | - | - | -5 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 3 | 0 | 4 | 1 | 0 | 3 | 0 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 3 | 126 | 129 | 34 | 139 | 2 | 128 | 2 | 42 | 1 | 5 | 1 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 145 | 0 | 0 | 255 | 0 | 0 | 408 | 410 | 193 | 433 | 473 | 144 |
| Stage 1 | - | - | - | - | - | - | 197 | 197 | - | 212 | 212 | - |
| Stage 2 | - | - | - | - | - | - | 211 | 213 | - | 221 | 261 | - |
| Critical Hdwy | 4.1 | - | - | 4.14 | - | - | 7.53 | 6.9 | 6.43 | 6.1 | 5.5 | 5.7 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.53 | 5.9 | - | 5.1 | 4.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.53 | 5.9 | - | 5.1 | 4.5 | - |
| Follow-up Hdwy | 2.2 | - | - | 2.236 | - | - | 3.527 | 4 | 3.327 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1450 | - | - | 1298 | - | - | 527 | 511 | 837 | 605 | 562 | 927 |
| Stage 1 | - | - | - | - | - | - | 785 | 726 | - | 843 | 775 | - |
| Stage 2 | - | - | - | - | - | - | 771 | 713 | - | 836 | 748 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1445 | - | - | 1298 | - | - | 511 | 494 | 836 | 557 | 543 | 924 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 511 | 494 | - | 557 | 543 | - |
| Stage 1 | - | - | - | - | - | - | 783 | 725 | - | 839 | 751 | - |
| Stage 2 | - | - | - | - | - | - | 743 | 691 | - | 788 | 747 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.1 | 1.5 | 13.2 | 11.3 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 511 | 836 | 1445 | - | - | 1298 | - | - | 579 |
| HCM Lane V/C Ratio | 0.255 | 0.051 | 0.002 | - | - | 0.026 | - | - | 0.013 |
| HCM Control Delay (s) | 14.4 | 9.5 | 7.5 | 0 | - | 7.8 | 0 | - | 11.3 |
| HCM Lane LOS | B | A | A | A | - | A | A | - | B |
| HCM 95th %tile Q(veh) | 1 | 0.2 | 0 | - | - | 0.1 | - | - | 0 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 42 | 170 | 5 | 6 | 226 | 14 | 3 | 1 | 1 | 67 | 1 | 52 |
| Future Vol, veh/h | 42 | 170 | 5 | 6 | 226 | 14 | 3 | 1 | 1 | 67 | 1 | 52 |
| Conflicting Peds, #/hr | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | -3 | - | - | 1 | - | - | 0 | - | - | -5 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 0 | 2 | 2 | 2 | 0 | 2 | 2 |
| Mvmt Flow | 46 | 185 | 5 | 7 | 246 | 15 | 3 | 1 | 1 | 73 | 1 | 57 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 262 | 0 | 0 | 190 | 0 | 0 | 577 | 556 | 190 | 552 | 551 | 255 |
| Stage 1 | - | - | - | - | - | - | 280 | 280 | - | 269 | 269 | - |
| Stage 2 | - | - | - | - | - | - | 297 | 276 | - | 283 | 282 | - |
| Critical Hdwy | 4.12 | - | - | 4.12 | - | - | 7.12 | 6.52 | 6.22 | 6.1 | 5.52 | 5.72 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.12 | 5.52 | - | 5.1 | 4.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.12 | 5.52 | - | 5.1 | 4.52 | - |
| Follow-up Hdwy | 2.218 | - | - | 2.218 | - | - | 3.518 | 4.018 | 3.318 | 3.5 | 4.018 | 3.318 |
| Pot Cap-1 Maneuver | 1302 | - | - | 1384 | - | - | 428 | 439 | 852 | 522 | 515 | 812 |
| Stage 1 | - | - | - | - | - | - | 727 | 679 | - | 799 | 740 | - |
| Stage 2 | - | - | - | - | - | - | 712 | 682 | - | 788 | 733 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1301 | - | - | 1384 | - | - | 383 | 418 | 851 | 501 | 491 | 811 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 383 | 418 | - | 501 | 491 | - |
| Stage 1 | - | - | - | - | - | - | 698 | 652 | - | 766 | 735 | - |
| Stage 2 | - | - | - | - | - | - | 657 | 677 | - | 753 | 704 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 1.5 | 0.2 | 13.3 | 12.7 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 439 | 1301 | - | - | 1384 | - | - | 600 |
| HCM Lane V/C Ratio | 0.012 | 0.035 | - | - | 0.005 | - | - | 0.217 |
| HCM Control Delay (s) | 13.3 | 7.9 | 0 | - | 7.6 | 0 | - | 12.7 |
| HCM Lane LOS | B | A | A | - | A | A | - | B |
| HCM 95th %tile Q(veh) | 0 | 0.1 | - | - | 0 | - | - | 0.8 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.7 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 5 | 167 | 22 | 62 | 217 | 2 | 12 | 1 | 39 | 11 | 1 | 27 |
| Future Vol, veh/h | 5 | 167 | 22 | 62 | 217 | 2 | 12 | 1 | 39 | 11 | 1 | 27 |
| Conflicting Peds, #/hr | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 75 | - | - | - | - | - | - | - | - | - | - | 50 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | -5 | - | - | 3 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 3 | 2 | 2 | 2 | 0 | 2 | 2 | 2 | 0 | 2 | 0 |
| Mvmt Flow | 5 | 182 | 24 | 67 | 236 | 2 | 13 | 1 | 42 | 12 | 1 | 29 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 239 | 0 | 0 | 206 | 0 | 0 | 590 | 577 | 194 | 598 | 588 | 238 |
| Stage 1 | - | - | - | - | - | - | 204 | 204 | - | 372 | 372 | - |
| Stage 2 | - | - | - | - | - | - | 386 | 373 | - | 226 | 216 | - |
| Critical Hdwy | 4.1 | - | - | 4.12 | - | - | 7.12 | 6.52 | 6.22 | 7.1 | 6.52 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.1 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.1 | 5.52 | - |
| Follow-up Hdwy | 2.2 | - | - | 2.218 | - | - | 3.518 | 4.018 | 3.318 | 3.5 | 4.018 | 3.3 |
| Pot Cap-1 Maneuver | 1340 | - | - | 1365 | - | - | 419 | 427 | 847 | 417 | 421 | 806 |
| Stage 1 | - | - | - | - | - | - | 798 | 733 | - | 653 | 619 | - |
| Stage 2 | - | - | - | - | - | - | 637 | 618 | - | 781 | 724 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1339 | - | - | 1365 | - | - | 384 | 401 | 847 | 377 | 395 | 805 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 384 | 401 | - | 377 | 395 | - |
| Stage 1 | - | - | - | - | - | - | 795 | 730 | - | 650 | 583 | - |
| Stage 2 | - | - | - | - | - | - | 578 | 582 | - | 738 | 721 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.2 | 1.7 | 11 | 11.2 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 652 | 1339 | - | - | 1365 | - | - | 378 | 805 |
| HCM Lane V/C Ratio | 0.087 | 0.004 | - | - | 0.049 | - | - | 0.035 | 0.036 |
| HCM Control Delay (s) | 11 | 7.7 | - | - | 7.8 | 0 | - | 14.9 | 9.6 |
| HCM Lane LOS | B | A | - | - | A | A | - | B | A |
| HCM 95th %tile Q(veh) | 0.3 | 0 | - | - | 0.2 | - | - | 0.1 | 0.1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 7.2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 2 | 1 | 4 | 111 | 1 | 145 | 2 | 376 | 96 | 97 | 510 | 2 |
| Future Vol, veh/h | 2 | 1 | 4 | 111 | 1 | 145 | 2 | 376 | 96 | 97 | 510 | 2 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 1 | 0 | 4 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | 100 | - | 0 | 90 | - | 130 | 225 | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | -2 | - | - | 4 | - | - | 2 | - | - | 3 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 3 | 4 | 1 | 4 | 0 |
| Mvmt Flow | 2 | 1 | 4 | 121 | 1 | 158 | 2 | 409 | 104 | 105 | 554 | 2 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 978 | 1287 | 282 | 902 | 1184 | 206 | 560 | 0 | 0 | 514 | 0 | 0 |
| Stage 1 | 769 | 769 | - | 414 | 414 | - | - | - | - | - | - | - |
| Stage 2 | 209 | 518 | - | 488 | 770 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.1 | 6.7 | 8.32 | 7.3 | 7.34 | 4.1 | - | - | 4.12 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.1 | - | 7.32 | 6.3 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.1 | - | 7.32 | 6.3 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.51 | 4 | 3.32 | 2.2 | - | - | 2.21 | - | - |
| Pot Cap-1 Maneuver | 232 | 191 | 732 | 192 | 147 | 782 | 1021 | - | - | 1055 | - | - |
| Stage 1 | 397 | 450 | - | 537 | 544 | - | - | - | - | - | - | - |
| Stage 2 | 798 | 568 | - | 478 | 348 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 169 | 171 | 730 | 175 | 132 | 781 | 1018 | - | - | 1054 | - | - |
| Mov Cap-2 Maneuver | 169 | 171 | - | 175 | 132 | - | - | - | - | - | - | - |
| Stage 1 | 395 | 404 | - | 535 | 542 | - | - | - | - | - | - | - |
| Stage 2 | 634 | 566 | - | 427 | 312 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 17.2 | 33.7 | 0 | 1.4 |
| HCM LOS | C | D | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | WBLn2 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1018 | - | - | 302 | 174 | 781 | 1054 | - | - |
| HCM Lane V/C Ratio | 0.002 | - | - | 0.025 | 0.7 | 0.202 | 0.1 | - | - |
| HCM Control Delay (s) | 8.5 | - | - | 17.2 | 63.4 | 10.8 | 8.8 | - | - |
| HCM Lane LOS | A | - | - | C | F | B | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.1 | 4.2 | 0.8 | 0.3 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 10 | 1 | 17 | 40 | 1 | 39 | 15 | 425 | 28 | 43 | 576 | 6 |
| Future Vol, veh/h | 10 | 1 | 17 | 40 | 1 | 39 | 15 | 425 | 28 | 43 | 576 | 6 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 5 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | 0 | - | - | 150 | - | 135 | 110 | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 5 | - | - | 3 | - | - | 4 | - | - | -2 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 3 | 0 | 0 | 3 | 0 |
| Mvmt Flow | 11 | 1 | 18 | 43 | 1 | 42 | 16 | 462 | 30 | 47 | 626 | 7 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 993 | 1253 | 322 | 902 | 1226 | 231 | 638 | 0 | 0 | 492 | 0 | 0 |
| Stage 1 | 729 | 729 | - | 494 | 494 | - | - | - | - | - | - | - |
| Stage 2 | 264 | 524 | - | 408 | 732 | - | - | - | - | - | - | - |
| Critical Hdwy | 8.5 | 7.5 | 7.4 | 8.1 | 7.1 | 7.3 | 4.1 | - | - | 4.1 | - | - |
| Critical Hdwy Stg 1 | 7.5 | 6.5 | - | 7.1 | 6.1 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 7.5 | 6.5 | - | 7.1 | 6.1 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.35 | 2.2 | - | - | 2.2 | - | - |
| Pot Cap-1 Maneuver | 154 | 123 | 650 | 203 | 147 | 748 | 956 | - | - | 1082 | - | - |
| Stage 1 | 314 | 352 | - | 489 | 506 | - | - | - | - | - | - | - |
| Stage 2 | 673 | 461 | - | 557 | 380 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 137 | 115 | 647 | 187 | 138 | 748 | 952 | - | - | 1082 | - | - |
| Mov Cap-2 Maneuver | 137 | 115 | - | 187 | 138 | - | - | - | - | - | - | - |
| Stage 1 | 307 | 335 | - | 481 | 497 | - | - | - | - | - | - | - |
| Stage 2 | 623 | 453 | - | 516 | 362 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 20.7 | 20.3 | 0.3 | 0.6 |
| HCM LOS | C | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | WBLn2 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 952 | - | - | 259 | 187 | 674 | 1082 | - | - |
| HCM Lane V/C Ratio | 0.017 | - | - | 0.118 | 0.233 | 0.065 | 0.043 | - | - |
| HCM Control Delay (s) | 8.8 | - | - | 20.7 | 30 | 10.7 | 8.5 | - | - |
| HCM Lane LOS | A | - | - | C | D | B | A | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | - | 0.4 | 0.9 | 0.2 | 0.1 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 10.7 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 103 | 61 | 173 | 44 | 27 | 25 | 88 | 340 | 79 | 7 | 512 | 114 |
| Future Vol, veh/h | 103 | 61 | 173 | 44 | 27 | 25 | 88 | 340 | 79 | 7 | 512 | 114 |
| Conflicting Peds, #/hr | 6 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 3 | 3 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | Yield | - | - | None | - | - | None | - | - | None |
| Storage Length | 100 | - | 230 | 0 | - | - | 160 | - | 175 | 160 | - | 125 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 3 | - | - | -3 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 0 | 1 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 4 | 1 |
| Mvmt Flow | 112 | 66 | 188 | 48 | 29 | 27 | 96 | 370 | 86 | 8 | 557 | 124 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 971 | 1224 | 279 | 893 | 1262 | 194 | 681 | 0 | 0 | 459 | 0 | 0 |
| Stage 1 | 573 | 573 | - | 565 | 565 | - | - | - | - | - | - | - |
| Stage 2 | 398 | 651 | - | 328 | 697 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.54 | 6.5 | 6.92 | 7.5 | 6.5 | 6.9 | 4.12 | - | - | 4.1 | - | - |
| Critical Hdwy Stg 1 | 6.54 | 5.5 | - | 6.5 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.54 | 5.5 | - | 6.5 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.52 | 4 | 3.31 | 3.5 | 4 | 3.3 | 2.21 | - | - | 2.2 | - | - |
| Pot Cap-1 Maneuver | 207 | 181 | 721 | 239 | 171 | 821 | 914 | - | - | 1113 | - | - |
| Stage 1 | 472 | 507 | - | 482 | 511 | - | - | - | - | - | - | - |
| Stage 2 | 599 | 468 | - | 664 | 446 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 155 | 161 | 721 | 110 | 152 | 815 | 914 | - | - | 1110 | - | - |
| Mov Cap-2 Maneuver | 155 | 161 | - | 110 | 152 | - | - | - | - | - | - | - |
| Stage 1 | 422 | 503 | - | 430 | 456 | - | - | - | - | - | - | - |
| Stage 2 | 482 | 418 | - | 423 | 443 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 35.9 | 40.7 | 1.6 | 0.1 |
| HCM LOS | E | E | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | EBLn2 | EBLn3 | WBLn1 | WBLn2 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 914 | - | - | 155 | 161 | 721 | 110 | 250 | 1110 | - | - |
| HCM Lane V/C Ratio | 0.105 | - | - | 0.722 | 0.412 | 0.261 | 0.435 | 0.226 | 0.007 | - | - |
| HCM Control Delay (s) | 9.4 | - | - | 72.8 | 42.2 | 11.7 | 60.8 | 23.6 | 8.3 | - | - |
| HCM Lane LOS | A | - | - | F | E | B | F | C | A | - | - |
| HCM 95th %tile Q(veh) | 0.3 | - | - | 4.3 | 1.8 | 1 | 1.9 | 0.8 | 0 | - | - |

# J. Turn Lane Warrant Tables and Charts

# Left Turn Lane Warrant Assessment

## Two-Lane Highways

Based on AASHTO / VDOT RDM Appendix F

**Background:**

Warrants for left-turn storage lanes on two-lane highways at unsignalized intersections are based on Figure 3-4 to Figure 3-21 in Appendix F of the Virginia Department of Transportation's (VDOT) ***Road Design Manual*** (RDM). The figures provide a graphical representation for determining the necessity of a left turn lane by comparing the advancing volumes of a given approach and the respective opposing volumes and are differentiated by design speed and percent left turning volume.

**Project Information:**

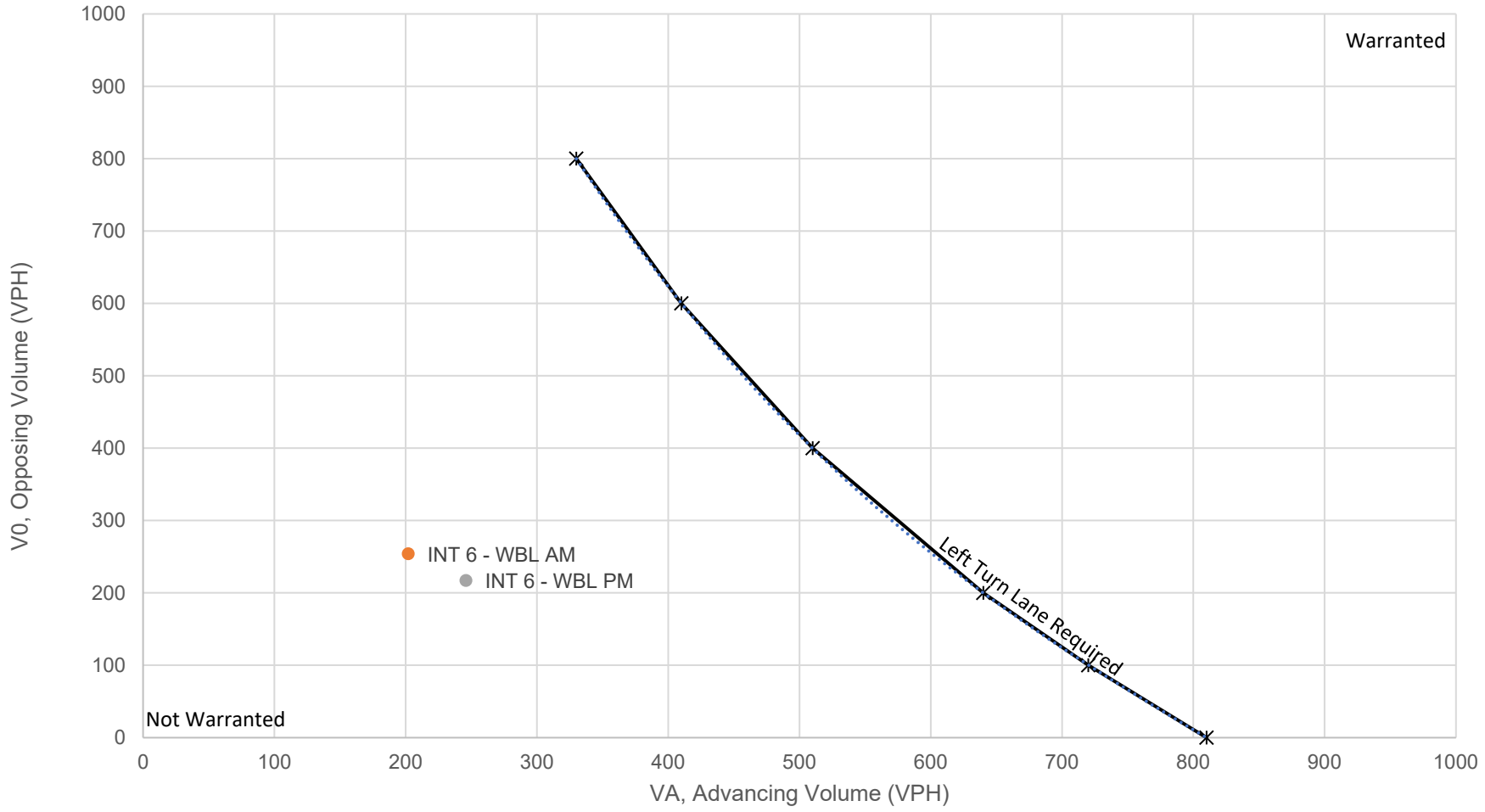
| | |
|---|---|
| **Project:** | Warrenton Village |
| **Project ID:** | |
| **Intersection(s) and Movement(s):** | 6 - Oak Springs Drive at Hastings Lane / Future Access (WB)<br>7 - Oak Springs Drive at High School Driveway / Future Garage Access (WB) |
| **Scenario:** | 2027 Future Conditions with Development |
| **Analysis:** | Gorove Slade |

| | | |
|---|---|---|
| **Design Speed (mph):** | **40** | **(40, 50, or 60?)** |

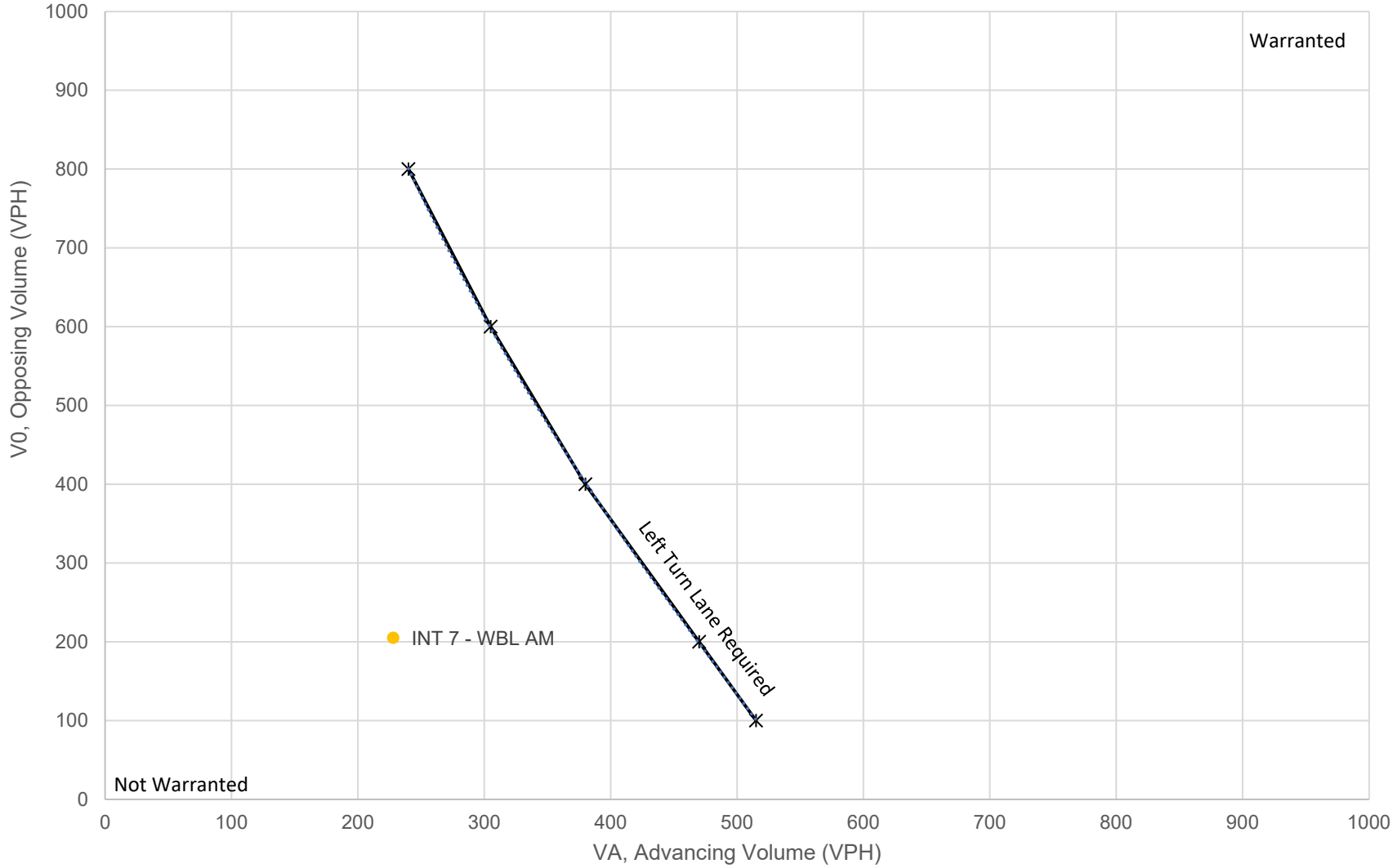
**Assessment Summary:**

| Input | | | | VDOT Calculated Thesholds | | | |
|---|---|---|---|---|---|---|---|
| Study Scenario | Opposing Vol. (VPH) | Advancing Vol. (VPH) | Left Turn Vol. (VPH) | Left Turn % | Minimum Opposing Threshold (VPH) | VDOT RDM F Figure | Treatment |
| **INT 6 - WBL AM** | 254 | 202 | 2 | 0.99% | 1,208 | Fig. 3-4 | Not Warranted |
| **INT 6 - WBL PM** | 217 | 246 | 6 | 2.44% | 1,054 | Fig. 3-4 | Not Warranted |
| **INT 7 - WBL AM** | 205 | 228 | 19 | 8.33% | 841 | Fig. 3-5 | Not Warranted |
| **INT 7 - WBL PM** | 194 | 281 | 62 | 22.06% | 274 | Fig. 3-8 | Not Warranted |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

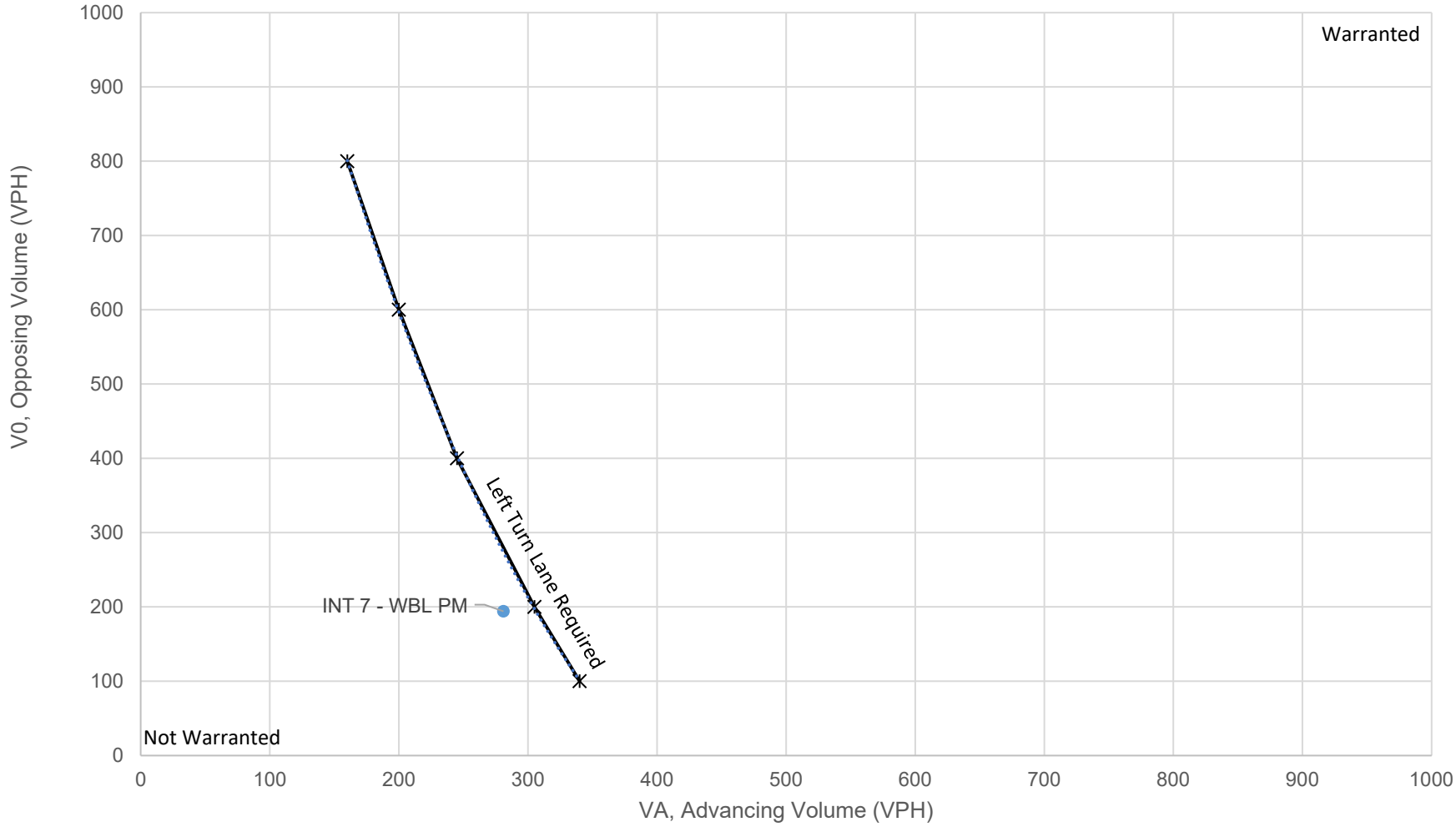
# VDOT RDM-F Figure 3-4
# Warrant for Left Turn Storage Lanes on 2-Lane Highways at 40-mph & 5% Left Turns



# VDOT RDM-F Figure 3-5
# Warrant for Left Turn Storage Lanes on 2-Lane Highways at 40-mph & 10% Left Turns



# VDOT RDM-F Figure 3-8
# Warrant for Left Turn Storage Lanes on 2-Lane Highways at 40-mph & 30% Left Turns



# *Left Turn Lane Warrant Assessment*

## *Four-Lane Highways*

### Background:

Warrants for left-turn storage lanes on four-lane highways at unsignalized intersections are based on Figure 3-3 in Appendix F of the Virginia Department of Transportation's (VDOT) ***Road Design Manual*** (RDM). The figure provides a graphical representation for determining the necessity of a left turn lane for divided and undivided roadway conditions by comparing the left turning volumes of a given approach and the respective opposing traffic volume.

### Project Information:

| | |
|---|---|
| **Project:** | |
| **Project ID:** | |
| **Intersection(s) and Movement(s):** | 4 - Branch Drive at Warrenton Village Center Driveway / Safeway Driveway (NBL & SBL) |
| **Scenario:** | 2023 Existing Conditions |
| **Analysis:** | Gorove Slade |

### Assessment Summary:

| Input | | | | Result | |
|---|---|---|---|---|---|
| **Study Scenario** | **Opposing Vol. (VPH)** | **Advancing Vol. (VPH)** | **Left Turning Vol. (VPH)** | **Left Turn %** | **Treatment** |
| **INT 4 - NBL - 2023 EX AM Peak** | 90 | 95 | 23 | 24.2% | Not Warranted |
| **INT 4 - NBL - 2023 EX PM Peak** | 119 | 149 | 94 | 63.1% | Full-width Turn Lane and Taper Warranted (for Undivided and Divided) |
| **INT 4 - SBL - 2023 EX AM Peak** | 95 | 90 | 18 | 20.0% | Not Warranted |
| **INT 4 - SBL - 2023 EX PM Peak** | 149 | 119 | 48 | 40.3% | Full-width Turn Lane and Taper Warranted (for Undivided) |
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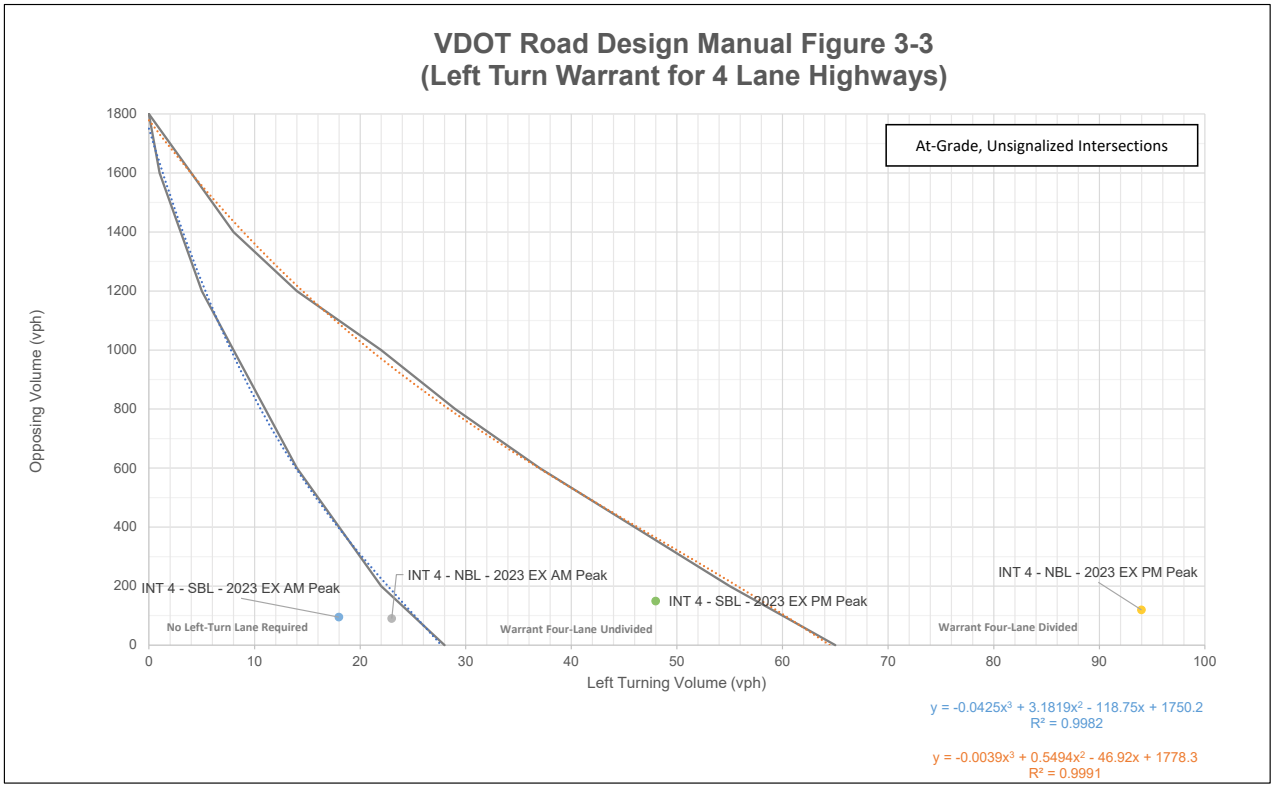

# *Left Turn Lane Warrant Assessment*

## *Four-Lane Highways*

### Background:

Warrants for left-turn storage lanes on four-lane highways at unsignalized intersections are based on Figure 3-3 in Appendix F of the Virginia Department of Transportation's (VDOT) ***Road Design Manual*** (RDM). The figure provides a graphical representation for determining the necessity of a left turn lane for divided and undivied roadway conditions by comparing the left turning volumes of a given approach and the respective opposing traffic volume.

### Project Information:

| | |
|---|---|
| **Project:** | Warrenton Village Center |
| **Project ID:** | |
| **Intersection(s) and Movement(s):** | 4 - Branch Drive at Warrenton Village Center Driveway / Safeway Driveway (NBL & SBL) |
| **Scenario:** | 2027 Future Conditions with Development |
| **Analysis:** | Gorove Slade |

### Assessment Summary:

| Input | | | | Result | |
|---|---|---|---|---|---|
| **Study Scenario** | **Opposing Vol. (VPH)** | **Advancing Vol. (VPH)** | **Left Turning Vol. (VPH)** | **Left Turn %** | **Treatment** |
| **INT 4 - NBL - 2027 TF AM Peak** | 145 | 115 | 24 | 20.9% | Not Warranted |
| **INT 4 - NBL - 2027 TF PM Peak** | 155 | 210 | 97 | 46.2% | Full-width Turn Lane and Taper Warranted (for Undivided and Divided) |
| **INT 4 - SBL - 2027 TF AM Peak** | 115 | 145 | 18 | 12.4% | Not Warranted |
| **INT 4 - SBL - 2027 TF PM Peak** | 210 | 155 | 48 | 31.0% | Full-width Turn Lane and Taper Warranted (for Undivided) |
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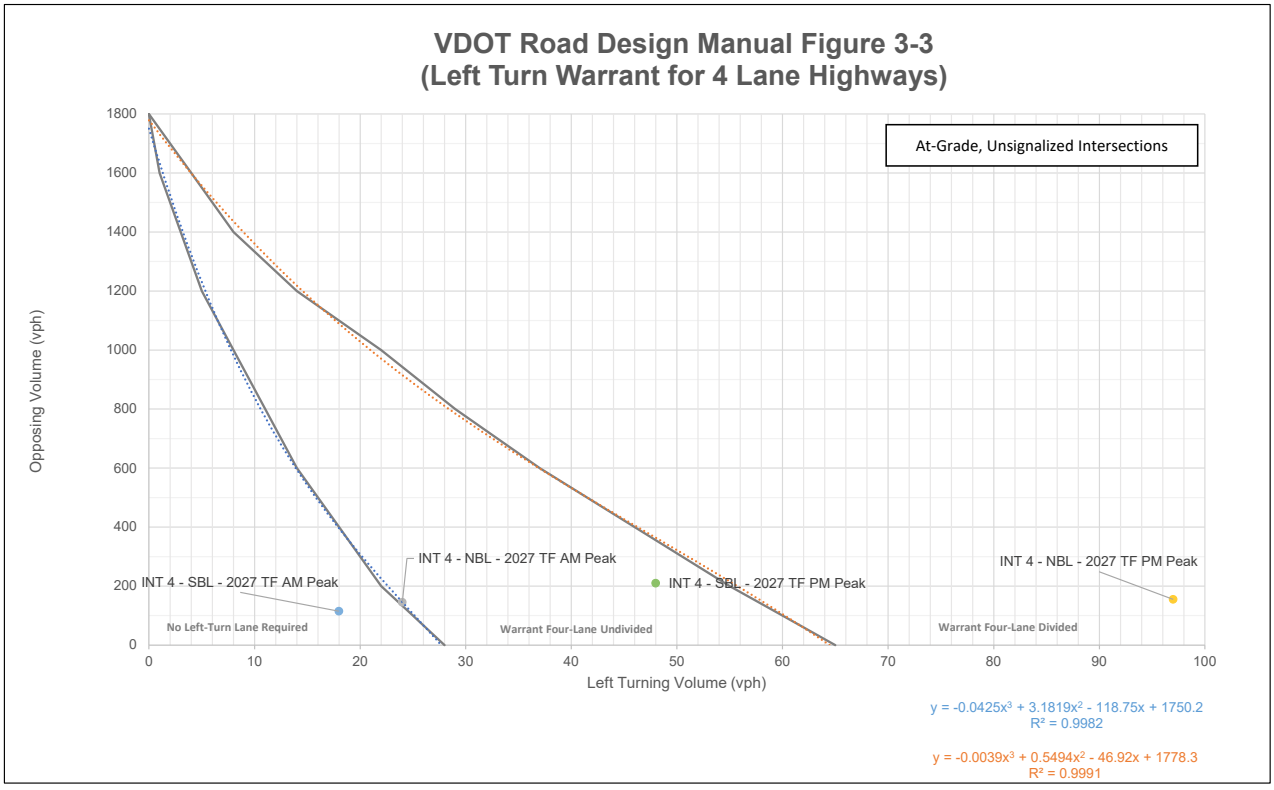

# *Right Turn Lane Warrant Assessment*

## *Two-Lane Highways*

Based on NCHRP Report 279 / VDOT RDM Appendix F
"Intersection Channelization Guide"

**Background:**

Warrants for right-turn storage lanes on two-lane highways at unsignalized intersections are based on Figure 3-26 in Appendix F of the Virginia Department of Transportation's (VDOT) ***Road Design Manual*** (RDM). This figure provides a graphical representation for determining the necessity of a right turn lane and / or taper by comparing the total volumes of a given approach with their respective right turn volumes.

**Project Information:**

| | |
|---|---|
| **Project:** | Warrenton Village Center |
| **Project ID:** | |
| **Intersection(s) and Movement(s):** | 6 - Oak Springs Drive at Hastings Lane / Future Access (EB) |
| | 7 - Oak Springs Drive at High School Driveway / Future Garage Access (EB) |
| | |
| | |
| **Scenario:** | 2027 Future Condtitions with Development |
| **Analyst:** | Gorove Slade |

| Study Scenario | Approach Volume | Right Turn Volume | Minimum Right Turn Taper Threshold | Minimum Right Turn Full Lane Threshold | Treatment |
|---|---|---|---|---|---|
| **INT 6 - EBR AM** | 254 | 1 | 45 | 85 | Not Warranted |
| **INT 6 - EBR PM** | 217 | 5 | 48 | 90 | Not Warranted |
| **INT 7 - EBR AM** | 205 | 6 | 50 | 91 | Not Warranted |
| **INT 7 - EBR PM** | 194 | 22 | 51 | 93 | Not Warranted |
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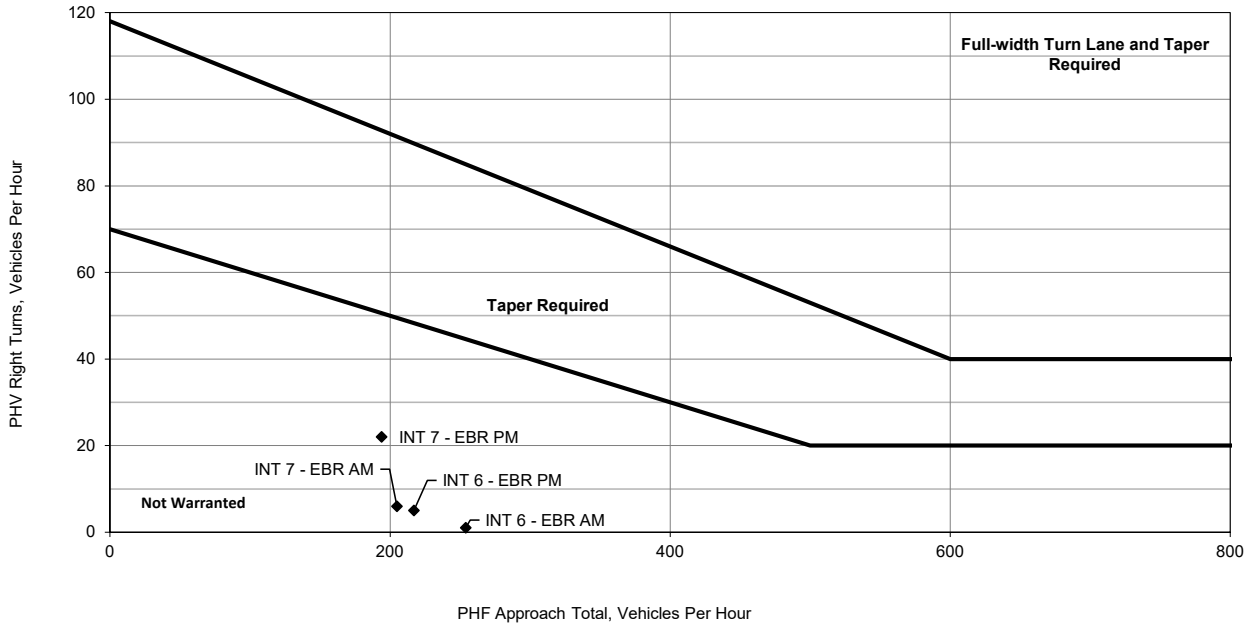
**Right Turn Lane Warrant for 2-Lane Highways**
**(VDOT RDM Appendix F Figure 3-26)**



# *Right Turn Lane Warrant Assessment*

## *Four-Lane Highways*

Based on NCHRP Report 279 / VDOT RDM Appendix F
"Intersection Channelization Guide"

**Background:**

Warrants for right-turn storage lanes on four-lane highways at unsignalized intersections are based on Figure 3-27 in Appendix F of the Virginia Department of Transportation's (VDOT) ***Road Design Manual*** (RDM). This figure provides a graphical representation for determining the necessity of a right turn lane and / or taper by comparing the total volumes of a given approach with their respective right turn volumes.

**Project Information:**

| | |
|---|---|
| **Project:** | |
| **Project ID:** | |
| **Intersection(s) and Movement(s):** | 4 -Branch Drive at Warrenton Village Center Driveway / Safeway Driveway (NBR & SBR) |
| **Scenario:** | 2027 Future Conditions with Development |
| **Analyst:** | Gorove Slade |

| Study Scenario | Approach Volume | Right Turn Volume | Minimum Right Turn Taper Threshold | Minimum Right Turn Full Lane Threshold | Treatment |
|---|---|---|---|---|---|
| **INT 4 - NBR - 2027 TF AM Peak** | 95 | 7 | 37 | 90 | Not Warranted |
| **INT 4 - NBR - 2027 TF PM Peak** | 149 | 12 | 36 | 90 | Not Warranted |
| **INT 4 - SBR - 2027 TF AM Peak** | 90 | 5 | 37 | 90 | Not Warranted |
| **INT 4 - SBR - 2027 TF PM Peak** | 119 | 32 | 36 | 90 | Not Warranted |
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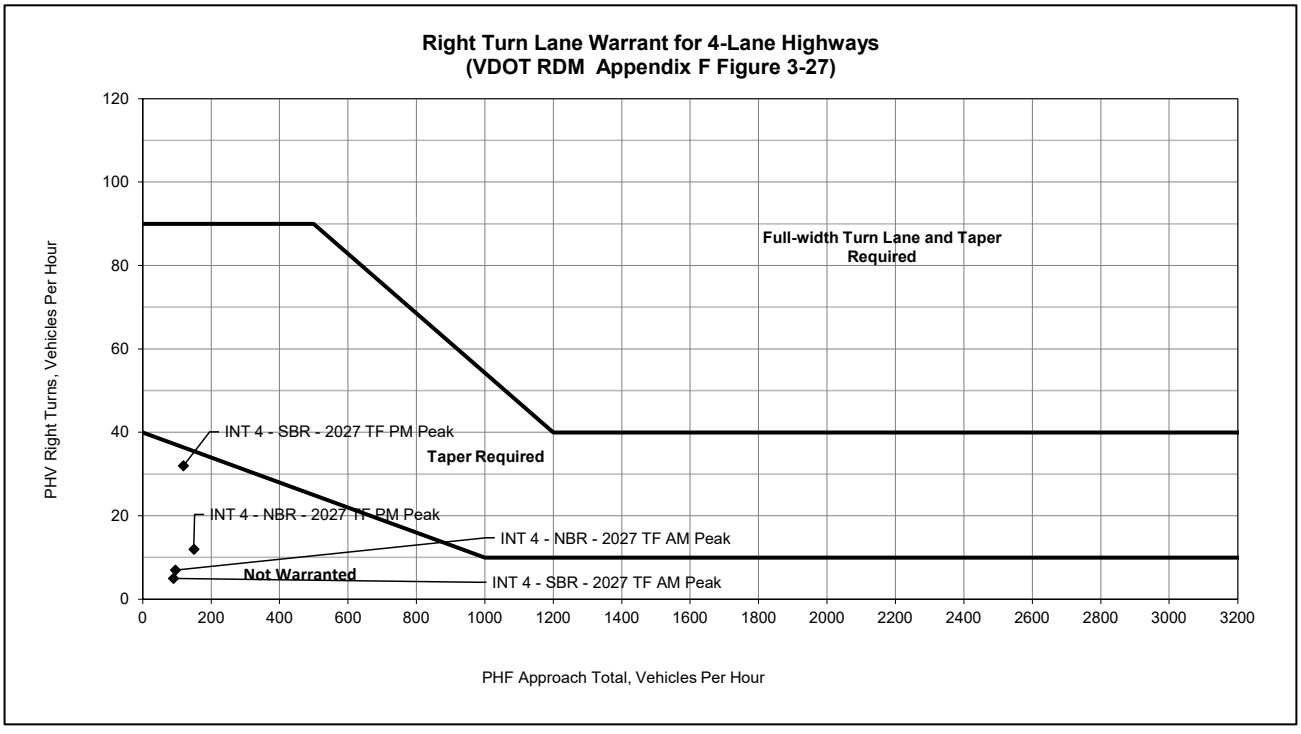


# K. MUTCD 4-Hour Warrant

# CHAPTER 4C. TRAFFIC CONTROL SIGNAL NEEDS STUDIES

## Section 4C.01 Studies and Factors for Justifying Traffic Control Signals

**Standard:**

01 **An engineering study of traffic conditions, pedestrian characteristics, and physical characteristics of the location shall be performed to determine whether installation of a traffic control signal is justified at a particular location.**

02 **The investigation of the need for a traffic control signal shall include an analysis of factors related to the existing operation and safety at the study location and the potential to improve these conditions, and the applicable factors contained in the following traffic signal warrants:**

**Warrant 1, Eight-Hour Vehicular Volume**
**Warrant 2, Four-Hour Vehicular Volume**
**Warrant 3, Peak Hour**
**Warrant 4, Pedestrian Volume**
**Warrant 5, School Crossing**
**Warrant 6, Coordinated Signal System**
**Warrant 7, Crash Experience**
**Warrant 8, Roadway Network**
**Warrant 9, Intersection Near a Grade Crossing**

03 **The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.**

Support:

04 Sections 8C.09 and 8C.10 contain information regarding the use of traffic control signals instead of gates and/or flashing-light signals at highway-rail grade crossings and highway-light rail transit grade crossings, respectively.

*Guidance:*

05 *A traffic control signal should not be installed unless one or more of the factors described in this Chapter are met.*

06 *A traffic control signal should not be installed unless an engineering study indicates that installing a traffic control signal will improve the overall safety and/or operation of the intersection.*

07 *A traffic control signal should not be installed if it will seriously disrupt progressive traffic flow.*

08 *The study should consider the effects of the right-turn vehicles from the minor-street approaches. Engineering judgment should be used to determine what, if any, portion of the right-turn traffic is subtracted from the minor-street traffic count when evaluating the count against the signal warrants listed in Paragraph 2.*

09 *Engineering judgment should also be used in applying various traffic signal warrants to cases where approaches consist of one lane plus one left-turn or right-turn lane. The site-specific traffic characteristics should dictate whether an approach is considered as one lane or two lanes. For example, for an approach with one lane for through and right-turning traffic plus a left-turn lane, if engineering judgment indicates that it should be considered a one-lane approach because the traffic using the left-turn lane is minor, the total traffic volume approaching the intersection should be applied against the signal warrants as a one-lane approach. The approach should be considered two lanes if approximately half of the traffic on the approach turns left and the left-turn lane is of sufficient length to accommodate all left-turn vehicles.*

10 *Similar engineering judgment and rationale should be applied to a street approach with one through/left-turn lane plus a right-turn lane. In this case, the degree of conflict of minor-street right-turn traffic with traffic on the major street should be considered. Thus, right-turn traffic should not be included in the minor-street volume if the movement enters the major street with minimal conflict. The approach should be evaluated as a one-lane approach with only the traffic volume in the through/left-turn lane considered.*

11 *At a location that is under development or construction and where it is not possible to obtain a traffic count that would represent future traffic conditions, hourly volumes should be estimated as part of an engineering study for comparison with traffic signal warrants. Except for locations where the engineering study uses the satisfaction of Warrant 8 to justify a signal, a traffic control signal installed under projected conditions should have an engineering study done within 1 year of putting the signal into stop-and-go operation to determine if the signal is justified. If not justified, the signal should be taken out of stop-and-go operation or removed.*

12 *For signal warrant analysis, a location with a wide median, even if the median width is greater than 30 feet, should be considered as one intersection.*

Option:

13 At an intersection with a high volume of left-turn traffic from the major street, the signal warrant analysis may be performed in a manner that considers the higher of the major-street left-turn volumes as the "minor-street" volume and the corresponding single direction of opposing traffic on the major street as the "major-street" volume.

14 For signal warrants requiring conditions to be present for a certain number of hours in order to be satisfied, any four sequential 15-minute periods may be considered as 1 hour if the separate 1-hour periods used in the warrant analysis do not overlap each other and both the major-street volume and the minor-street volume are for the same specific one-hour periods.

15 For signal warrant analysis, bicyclists may be counted as either vehicles or pedestrians.

Support:

16 When performing a signal warrant analysis, bicyclists riding in the street with other vehicular traffic are usually counted as vehicles and bicyclists who are clearly using pedestrian facilities are usually counted as pedestrians.

Option:

17 Engineering study data may include the following:

A. The number of vehicles entering the intersection in each hour from each approach during 12 hours of an average day. It is desirable that the hours selected contain the greatest percentage of the 24-hour traffic volume.
B. Vehicular volumes for each traffic movement from each approach, classified by vehicle type (heavy trucks, passenger cars and light trucks, public-transit vehicles, and, in some locations, bicycles), during each 15-minute period of the 2 hours in the morning and 2 hours in the afternoon during which total traffic entering the intersection is greatest.
C. Pedestrian volume counts on each crosswalk during the same periods as the vehicular counts in Item B and during hours of highest pedestrian volume. Where young, elderly, and/or persons with physical or visual disabilities need special consideration, the pedestrians and their crossing times may be classified by general observation.
D. Information about nearby facilities and activity centers that serve the young, elderly, and/or persons with disabilities, including requests from persons with disabilities for accessible crossing improvements at the location under study. These persons might not be adequately reflected in the pedestrian volume count if the absence of a signal restrains their mobility.
E. The posted or statutory speed limit or the 85$^{th}$-percentile speed on the uncontrolled approaches to the location.
F. A condition diagram showing details of the physical layout, including such features as intersection geometrics, channelization, grades, sight-distance restrictions, transit stops and routes, parking conditions, pavement markings, roadway lighting, driveways, nearby railroad crossings, distance to nearest traffic control signals, utility poles and fixtures, and adjacent land use.
G. A collision diagram showing crash experience by type, location, direction of movement, severity, weather, time of day, date, and day of week for at least 1 year.

18 The following data, which are desirable for a more precise understanding of the operation of the intersection, may be obtained during the periods described in Item B of Paragraph 17:

A. Vehicle-hours of stopped time delay determined separately for each approach.
B. The number and distribution of acceptable gaps in vehicular traffic on the major street for entrance from the minor street.
C. The posted or statutory speed limit or the 85$^{th}$-percentile speed on controlled approaches at a point near to the intersection but unaffected by the control.
D. Pedestrian delay time for at least two 30-minute peak pedestrian delay periods of an average weekday or like periods of a Saturday or Sunday.
E. Queue length on stop-controlled approaches.

## Section 4C.02 Warrant 1, Eight-Hour Vehicular Volume

Support:

01 The Minimum Vehicular Volume, Condition A, is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

02 The Interruption of Continuous Traffic, Condition B, is intended for application at locations where Condition A is not satisfied and where the traffic volume on a major street is so heavy that traffic on a minor intersecting street suffers excessive delay or conflict in entering or crossing the major street.

03 It is intended that Warrant 1 be treated as a single warrant. If Condition A is satisfied, then Warrant 1 is satisfied and analyses of Condition B and the combination of Conditions A and B are not needed. Similarly, if Condition B is satisfied, then Warrant 1 is satisfied and an analysis of the combination of Conditions A and B is not needed.

**Standard:**

04 **The need for a traffic control signal shall be considered if an engineering study finds that one of the following conditions exist for each of any 8 hours of an average day:**

**A. The vehicles per hour given in both of the 100 percent columns of Condition A in Table 4C-1 exist on the major-street and the higher-volume minor-street approaches, respectively, to the intersection; or**

**B. The vehicles per hour given in both of the 100 percent columns of Condition B in Table 4C-1 exist on the major-street and the higher-volume minor-street approaches, respectively, to the intersection.**

**In applying each condition the major-street and minor-street volumes shall be for the same 8 hours. On the minor street, the higher volume shall not be required to be on the same approach during each of these 8 hours.**

Option:

05 If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, the traffic volumes in the 70 percent columns in Table 4C-1 may be used in place of the 100 percent columns.

*Guidance:*

06 *The combination of Conditions A and B is intended for application at locations where Condition A is not satisfied and Condition B is not satisfied and should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.*

**Standard:**

07 **The need for a traffic control signal shall be considered if an engineering study finds that both of the following conditions exist for each of any 8 hours of an average day:**

**A. The vehicles per hour given in both of the 80 percent columns of Condition A in Table 4C-1 exist on the major-street and the higher-volume minor-street approaches, respectively, to the intersection; and**

**B. The vehicles per hour given in both of the 80 percent columns of Condition B in Table 4C-1 exist on the major-street and the higher-volume minor-street approaches, respectively, to the intersection.**

**These major-street and minor-street volumes shall be for the same 8 hours for each condition; however, the 8 hours satisfied in Condition A shall not be required to be the same 8 hours satisfied in Condition B. On the minor street, the higher volume shall not be required to be on the same approach during each of the 8 hours.**

## Table 4C-1. Warrant 1, Eight-Hour Vehicular Volume

**Condition A—Minimum Vehicular Volume**

| Number of lanes for moving traffic on each approach | | Vehicles per hour on major street (total of both approaches) | | | | Vehicles per hour on higher-volume minor-street approach (one direction only) | | | |
|---|---|---|---|---|---|---|---|---|---|
| Major Street | Minor Street | 100%[a] | 80%[b] | 70%[c] | 56%[d] | 100%[a] | 80%[b] | 70%[c] | 56%[d] |
| 1 | 1 | 500 | 400 | 350 | 280 | 150 | 120 | 105 | 84 |
| 2 or more | 1 | 600 | 480 | 420 | 336 | 150 | 120 | 105 | 84 |
| 2 or more | 2 or more | 600 | 480 | 420 | 336 | 200 | 160 | 140 | 112 |
| 1 | 2 or more | 500 | 400 | 350 | 280 | 200 | 160 | 140 | 112 |

**Condition B—Interruption of Continuous Traffic**

| Number of lanes for moving traffic on each approach | | Vehicles per hour on major street (total of both approaches) | | | | Vehicles per hour on higher-volume minor-street approach (one direction only) | | | |
|---|---|---|---|---|---|---|---|---|---|
| Major Street | Minor Street | 100%[a] | 80%[b] | 70%[c] | 56%[d] | 100%[a] | 80%[b] | 70%[c] | 56%[d] |
| 1 | 1 | 750 | 600 | 525 | 420 | 75 | 60 | 53 | 42 |
| 2 or more | 1 | 900 | 720 | 630 | 504 | 75 | 60 | 53 | 42 |
| 2 or more | 2 or more | 900 | 720 | 630 | 504 | 100 | 80 | 70 | 56 |
| 1 | 2 or more | 750 | 600 | 525 | 420 | 100 | 80 | 70 | 56 |

[a] Basic minimum hourly volume

[b] Used for combination of Conditions A and B after adequate trial of other remedial measures

[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

[d] May be used for combination of Conditions A and B after adequate trial of other remedial measures when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

Option:

08 If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, the traffic volumes in the 56 percent columns in Table 4C-1 may be used in place of the 80 percent columns.

## Section 4C.03 Warrant 2, Four-Hour Vehicular Volume

Support:

01 The Four-Hour Vehicular Volume signal warrant conditions are intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

**Standard:**

02 **The need for a traffic control signal shall be considered if an engineering study finds that, for each of any 4 hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) all fall above the applicable curve in Figure 4C-1 for the existing combination of approach lanes. On the minor street, the higher volume shall not be required to be on the same approach during each of these 4 hours.**

Option:

03 If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, Figure 4C-2 may be used in place of Figure 4C-1.

## Section 4C.04 Warrant 3, Peak Hour

Support:

01 The Peak Hour signal warrant is intended for use at a location where traffic conditions are such that for a minimum of 1 hour of an average day, the minor-street traffic suffers undue delay when entering or crossing the major street.

**Standard:**

02 **This signal warrant shall be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.**

03 **The need for a traffic control signal shall be considered if an engineering study finds that the criteria in either of the following two categories are met:**

**A. If all three of the following conditions exist for the same 1 hour (any four consecutive 15-minute periods) of an average day:**

**1. The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach; and**

**2. The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; and**

**3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.**

**B. The plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) for 1 hour (any four consecutive 15-minute periods) of an average day falls above the applicable curve in Figure 4C-3 for the existing combination of approach lanes.**

Option:

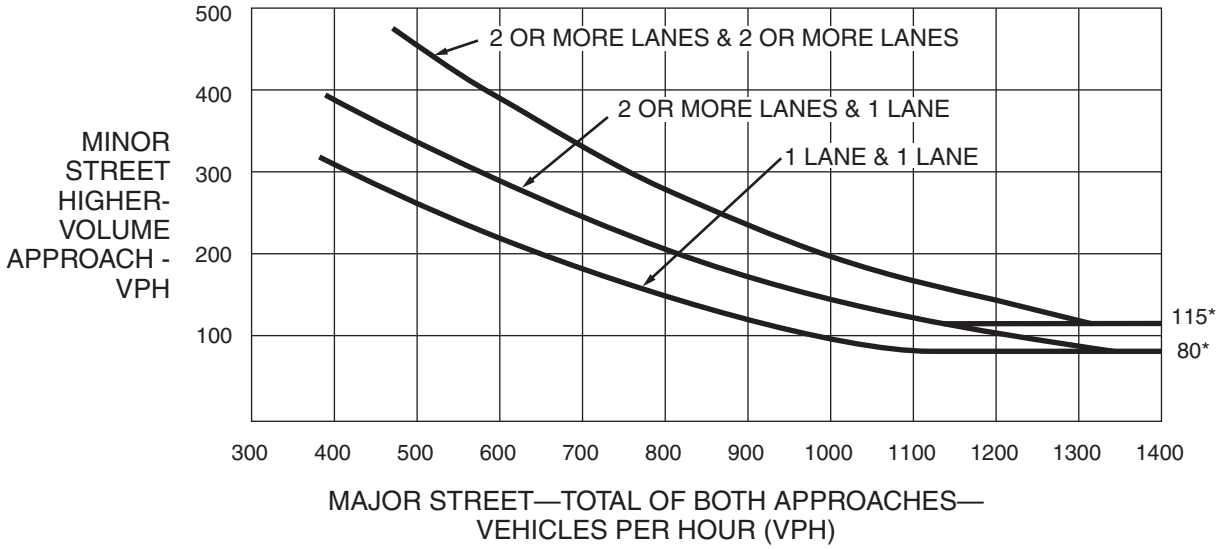
04 If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, Figure 4C-4 may be used in place of Figure 4C-3 to evaluate the criteria in the second category of the Standard.

05 If this warrant is the only warrant met and a traffic control signal is justified by an engineering study, the traffic control signal may be operated in the flashing mode during the hours that the volume criteria of this warrant are not met.

*Guidance:*

06 *If this warrant is the only warrant met and a traffic control signal is justified by an engineering study, the traffic control signal should be traffic-actuated.*

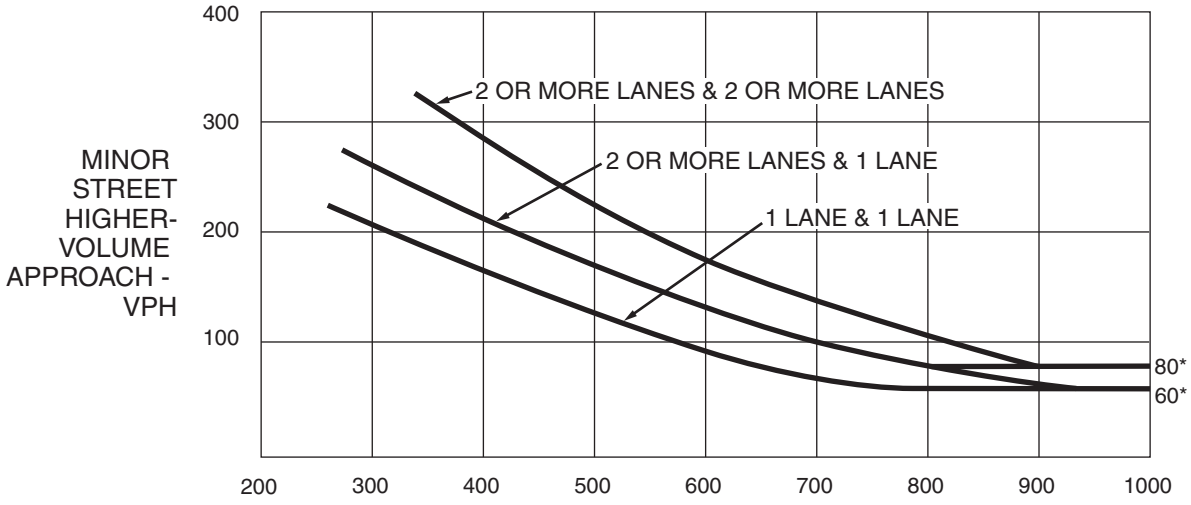
## Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume




*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

## Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

**(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)**




*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

# Market and Fiscal Impacts Analyses
# Warrenton Village
# Town of Warrenton, Virginia

**Prepared for:**
**Jess Achenbach**
**Castle Development Partners**

**June 2023**

▪ S. PATZ & ASSOCIATES, INC ▪
▪ REAL ESTATE CONSULTANTS ▪

June 12, 2023

Jess Achenbach
Castle Development Partners
230 Court Square, Suite 202
Charlottesville, Virginia 22902

Jess:

Attached is our full-narrative market study and resulting Fiscal Impacts Analysis (FIA) for the proposed Warrenton Village proposal, to include 376 rental units. The proposal is for three residential components: a 320-unit elevator-served apartment building alongside 36 two-over-two and 20 townhome units. All rental units proposed for Warrenton Village will have market rents and no age restrictions.

The report is presented in three sections. The first is a description of the study site and development proposal. Detailed data describe the Warrenton Village site. The second section is a brief market analysis for the new rental units planned. The market study is not prepared in the same depth as a study for a lender package, as all building and unit designs are not yet set, but sufficient data are provided to determine market support for the proposed 376 rental units. The third section, based on market data, shows the net tax benefits to the Town of Warrenton from the development proposal. The analysis to follow shows full market support for the apartment units at the proposed rents.

The FIA, based on the result of the market analysis, shows a net benefit for the proposal to the Town of Warrenton at $46,100± annually, after build-out. Most of the revenue to the Town will be generated from off-site impacts, as the Town of Warrenton levies low real estate and personal property tax rates. This is reflected in the General Fund revenues. The following table presents the FIA conclusions at build-out.

**Summary of On-Site and Off-Site Fiscal Impacts of Apartments, Warrenton Village at Build-Out, Warrenton, Virginia**
(Constant 2023 Dollars)

| Source of Fiscal Impacts on the Town | Impacts On-Site in Warrenton | Impacts Off-Site in Warrenton | Total Fiscal Impacts |
|---|---|---|---|
| **Apartments (320 Units)** | | | |
| Revenues to the Town | $117,560 | $338,870 | $456,430 |
| Town Costs | -$280,280 | -$145,920 | -$426,200 |
| *Subtotal* | *-$162,720* | *$192,950* | *$30,230* |
| **Two-Over-Two (36 Units)** | | | |
| Revenues to the Town | $14,550 | $55,520 | $70,070 |
| Town Costs | -$42,740 | -$23,490 | -$66,230 |
| *Subtotal* | *-$28,190* | *$32,030* | *$3,840* |
| **Townhomes (20 Units)** | | | |
| Revenues to the Town | $8,050 | $41,150 | $49,200 |
| Town Costs | -$23,310 | -$13,860 | -$37,170 |
| *Subtotal* | *-$15,260* | *$27,290* | *$12,030* |
| **Total Residential (376 units)** | | | |
| Revenues to the Town | $140,160 | $435,540 | $575,700 |
| Town Costs | -$346,330 | -$183,270 | -$529,600 |
| **Net Fiscal Benefits** | **-$206,170** | **$252,270** | **$46,100** |

Source: Town of Warrenton, VA; S. Patz & Associates, Inc.

All detailed market and economic data that support our findings and conclusions are presented in the attached report. Please call if additional data or clarification are needed.

Sincerely,

Ariel Goldring

Ariel Goldring
President

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## Section I: Introduction

This will set forth our market and Fiscal Impacts Analysis (FIA) for the proposed Warrenton Village apartment community, planned for a well-located 6.46-acre site along the south side of Oak Springs Drive and just north of W. Lee Highway in the Town of Warrenton, Virginia. The vacant property benefits from its close proximity to several large shopping centers, including the Safeway-anchored Warrenton Village, Marshalls-anchored Warrenton Center, and Giant-anchored Oak Springs Plaza. The site is currently zoned C (Commercial). The sponsor is submitting for a Special Use Permit under the existing zoning.

The proposal is for an attractive 376-unit rental community consisting of 320 elevator-served apartment units, alongside 36 two-over-two and 20 townhome units. The complex will offer a wide range of amenities, including a clubhouse, fitness center and outdoor swimming pool. No such concept currently exists in the Town of Warrenton or elsewhere in Fauquier County, and once built, Warrenton Village will be a "step above" the existing apartment market in the Town and County. Construction is planned to begin in late-2024 with a late-2026 delivery.

The Special Use Permit requires a Fiscal Impacts Analysis (FIA), which calculates the net tax benefits that will accrue to the Town of Warrenton at project build-out. The FIA to follow includes net tax benefits from on-site development and off-site expenditures in the Town, as will be fully explained later in the report. The FIA is based on the ability of the site to be developed, as planned, which is described in the market analysis undertaken for this report.

The report to follow is presented in three sections. The first, the Introduction, is an analysis of the Warrenton Village site and a description of the development proposal. Also part of the description is an analysis of the local economy, which shows the level of job growth that supports the magnitude of new housing unit demand planned for the study site.

Section II is an overview analysis of the Warrenton area apartment market. This is not a full-narrative market analysis that would be acceptable by a lender or investor. Rather, it provides

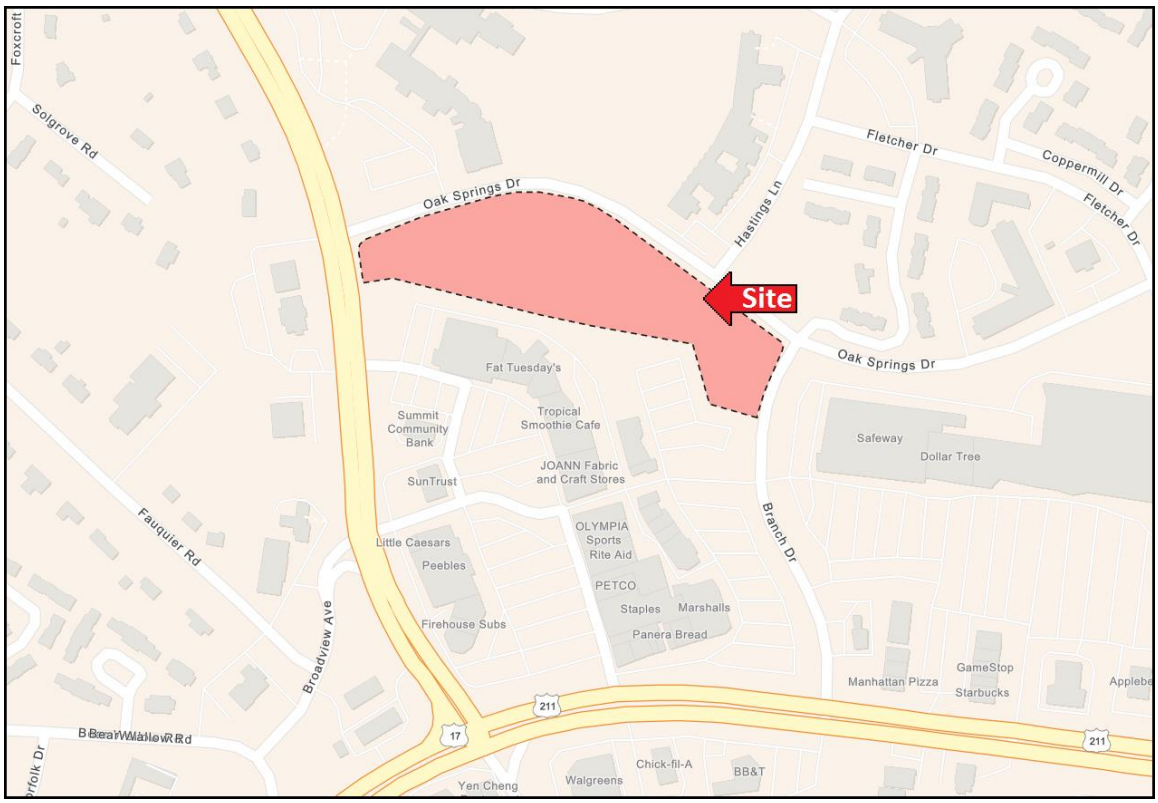
sufficient market data to support the development proposal, as planned. The Conclusions of the market analysis will be the base data for the preparation of the FIA.

Section III is the calculation of the full-narrative FIA that documents annual net tax revenue from the Warrenton Village proposal, based on on-site and off-site revenues from on-site expenditures. Town costs are subtracted from the revenue estimates to establish a net fiscal benefit. For this analysis, all tax revenue and cost data are presented in constant 2023 dollars.

## Warrenton Village

### Site Description

Map A shows the location of the study site along the southern side of Oak Springs Drive in the Town of Warrenton. The site is bounded to the west by Broadview Drive and to the east by Branch Drive. Its southern boundary is the Warrenton Village Shopping Center, with tenants including Petco, Staples and Marshalls. The study site is shown to be near W Lee Highway, which is a major arterial roadway in the Town that provides direct access to Fauquier Health in the south and U.S. Route 15 in the east.

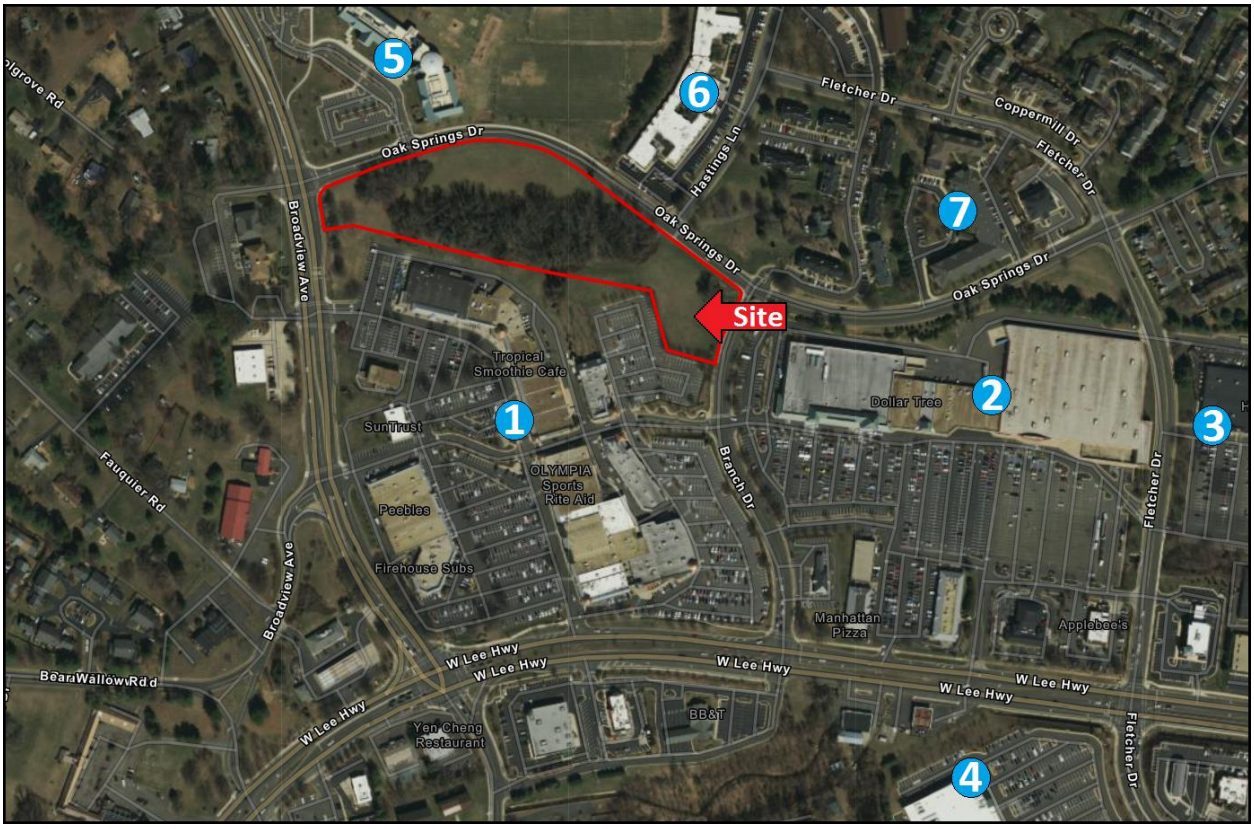



**Map A – Site Location**

Shown next is a northern aerial of the study site. The aerial shows the irregularly shaped site to be located within a mixed-use setting. Commercial uses generally flank W Lee Highway to the south. This includes the Marshalls-anchored Warrenton Center (Note 1), Safeway-anchored Warrenton Village (Note 2), Giant-anchored Oak Springs Plaza (Note 3) and Harris Teeter-anchored North Rock Shopping Center (Note 4). This is the largest commercial concentration in the Warrenton area. Many of the area restaurants and retailers are within walking distance of the Warrenton Village site.

To the north of the study site is a large private school with over 500 students called Highland School (Note 5) as well as the 130-bed Brookside Rehab & Nursing Center (Note 6). Residential areas are situated to the northeast of the study site and include The Oaks of Warrenton (Note 7), a 111-unit affordable, age-restricted apartment community that was built in two phases

in 1996 and 2001. Most of the other nearby homes are townhomes and condos that have generally sold in the $200,000s and $300,000s.




**Northern Aerial**

Overall, the study site is well-located and in close proximity to local arterial streets, an interchange with U.S. Route 15, nearby employment centers, and a host of big-box and small retailers that serve the existing residential market.

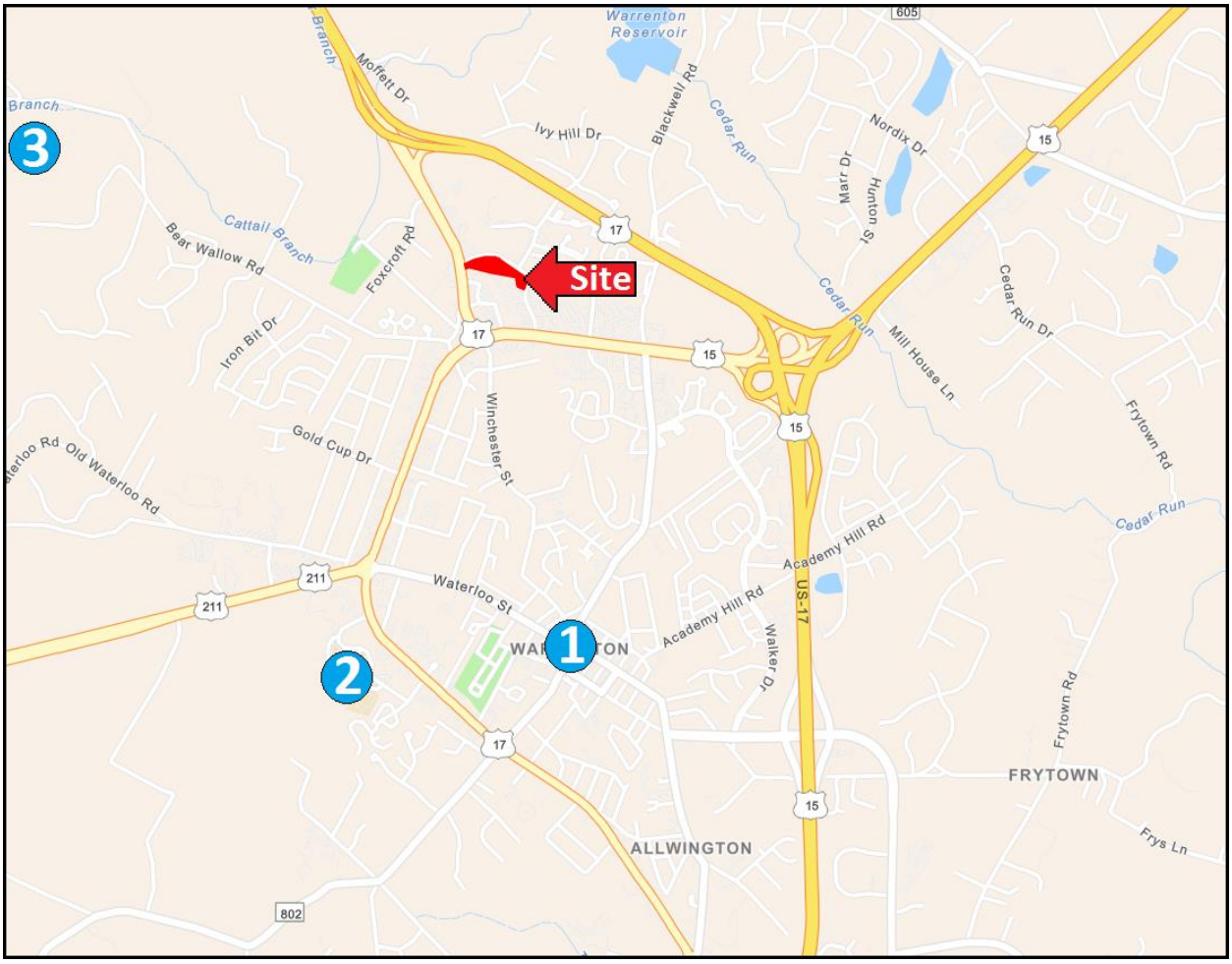
Map C, on page 10, depicts the site setting within the Town of Warrenton. As previously noted, the site is located near W Lee Highway, which accesses U.S. Route 15 less than a mile to the east. This roadway provides direct access to the greater Gainesville/ Haymarket area of western Prince William County, which is the nearest employment cluster outside of Fauquier County. Gainesville is an approximately 12-mile drive from the study site and is the location of

an interchange with I-66 that extends to other major employment centers elsewhere in Northern Virginia.

U.S. Route 17 is also shown to be located just north of the study site via Broadview Avenue. This roadway accesses the community of Marshall at the northern edge of Fauquier County, as well as Bealeton to the south. Both locations are primarily residential. In addition, Map C shows the site's close proximity to Downtown Warrenton, approximately 1.5 miles from the study site. This is the location of several restaurants, specialty retailers and professional office space.

Also shown to be located near the study site is Fauquier Hospital (Note 2), which is located at 500 Hospital Drive in Warrenton. This is a 97-bed, acute care hospital offering surgical services (including robotics), a 24-hour Emergency Department, extensive medical imaging capabilities and an Intensive Care Unit. Construction was recently completed in 2020 on the hospital's new 25,640± square foot Cancer Center. There is approximately 50,000 square feet of medical office space adjacent to Fauquier Hospital. North of the hospital is the large Fauquier Health Rehabilitation and Nursing Center and four office structures that are occupied by County officials.

Map C also shows the site to be located within close proximity of the Warrenton Training Center (Note 3), which is a 346-acre classified United States government communication complex. County staff estimate that the complex employs approximately 350 people.




**Map C - Site Setting**

Shown next are photos of the study site. The site is shown to be partially wooded and fully vacant.




**Southern View of site from Oak Springs Drive**

## Development Program

The development program for Warrenton Village involves the development of a vacant 6.46-acre parcel with a mix of an elevator-served apartment building alongside two-over-two and townhomes for rent.

Table 1 provides a detailed description of the study proposal, with data on unit sizes, unit mix and proposed rents. The table shows a mix of 133 one-bedroom, 159 two-bedroom and 84 three-bedroom units. One-bedroom apartment units will be spacious and range in size between 642 and 950 square feet, or an average of 771 square feet. Two-bedroom units, each with two full bathrooms will also be large, ranging in size between 980 and 1,184 square feet, or an average of 1,103 square feet. The three-bedroom apartment units will range in size between 1,388 and 2,583 square feet. The three-bedroom two-over-two units will be 1,586 and 2,583 square feet. The three-bedroom townhome units will all measure 2,050 square feet. The three-bedroom units will have between 2.0 and 3.5 bathrooms.

Rents will exclude utilities but will include in-unit washers and dryers at no additional cost to the tenant. One-bedroom rents are proposed to range between $1,650 and $1,900, or an average of $1,750. The smaller two-bedroom apartment units will rent for $2,200 while the larger two-bedroom apartment units will rent for $2,350. The two-bedroom units will rent for an average of $2,250. The three-bedroom apartment units will rent for between $2,400 and $2,550. The three-

bedroom two-over-two units will rent for between $2,800 and $3,000. The three-bedroom townhome units will rent for between $3,100 and $3,200.

**Table 1: Proposed Unit Characteristics, Warrenton Village, June 2022**

| | Unit Type | Bathrooms | Total Units | Unit Sizes (Sq. Ft.) | Proposed Rents 1/ |
|---|---|---|---|---|---|
| **One-Bedroom** | | | | | |
| A1 | Apartment | 1.0 | 50 | 642 | $1,650 |
| A2 | Apartment | 1.0 | 28 | 725 | $1,725 |
| A3 | Apartment | 1.0 | 2 | 790 | $1,750 |
| A4 | Apartment | 1.0 | 22 | 768 | $1,750 |
| A5 | Apartment | 1.0 | 11 | 850 | $1,800 |
| A5A | Apartment | 1.0 | 3 | 950 | $1,900 |
| A6 | Apartment | 1.0 | 6 | 750 | $1,750 |
| A7A | Apartment | 1.0 | 4 | 724 | $1,700 |
| A7B | Apartment | 1.0 | 4 | 738 | $1,725 |
| A8 | Apartment | 1.0 | 3 | 775 | $1,750 |
| *Subtotal/ Average* | | | *133* | *771* | *$1,750* |
| **Two-Bedroom** | | | | | |
| B1 | Apartment | 2.0 | 92 | 1,054 | $2,200 |
| B2 | Apartment | 2.0 | 45 | 1,167 | $2,300 |
| B3 | Apartment | 2.0 | 7 | 1,040 | $2,200 |
| B4 | Apartment | 2.0 | 4 | 1,130 | $2,300 |
| B5A | Apartment | 2.0 | 3 | 1,184 | $2,350 |
| B5B | Apartment | 2.0 | 4 | 1,164 | $2,300 |
| B6 | Apartment | 2.0 | 4 | 980 | $2,100 |
| *Subtotal/ Average* | | | *159* | *1,103* | *$2,250* |
| **Three-Bedroom** | | | | | |
| C1 | Apartment | 2.0 | 17 | 1,388 | $2,400 |
| C2 | Apartment | 2.0 | 4 | 1,425 | $2,500 |
| C3 | Apartment | 3.0 | 7 | 1,496 | $2,550 |
| D1 | Two-Over Two | 2.5 | 18 | 1,586 | $2,800 |
| D2 | Two-Over Two | 2.5 | 18 | 2,583 | $3,000 |
| E1 | Townhome | 2.5 | 10 | 2,050 | $3,100 |
| E2 | Townhome | 3.5 | 10 | 2,050 | $3,200 |
| *Subtotal/ Average* | | | *84* | *1,797* | *$2,793* |
| **Total** | | | **376** | | |

Notes: 1/ Excludes utilities. Includes washer/ dryers.

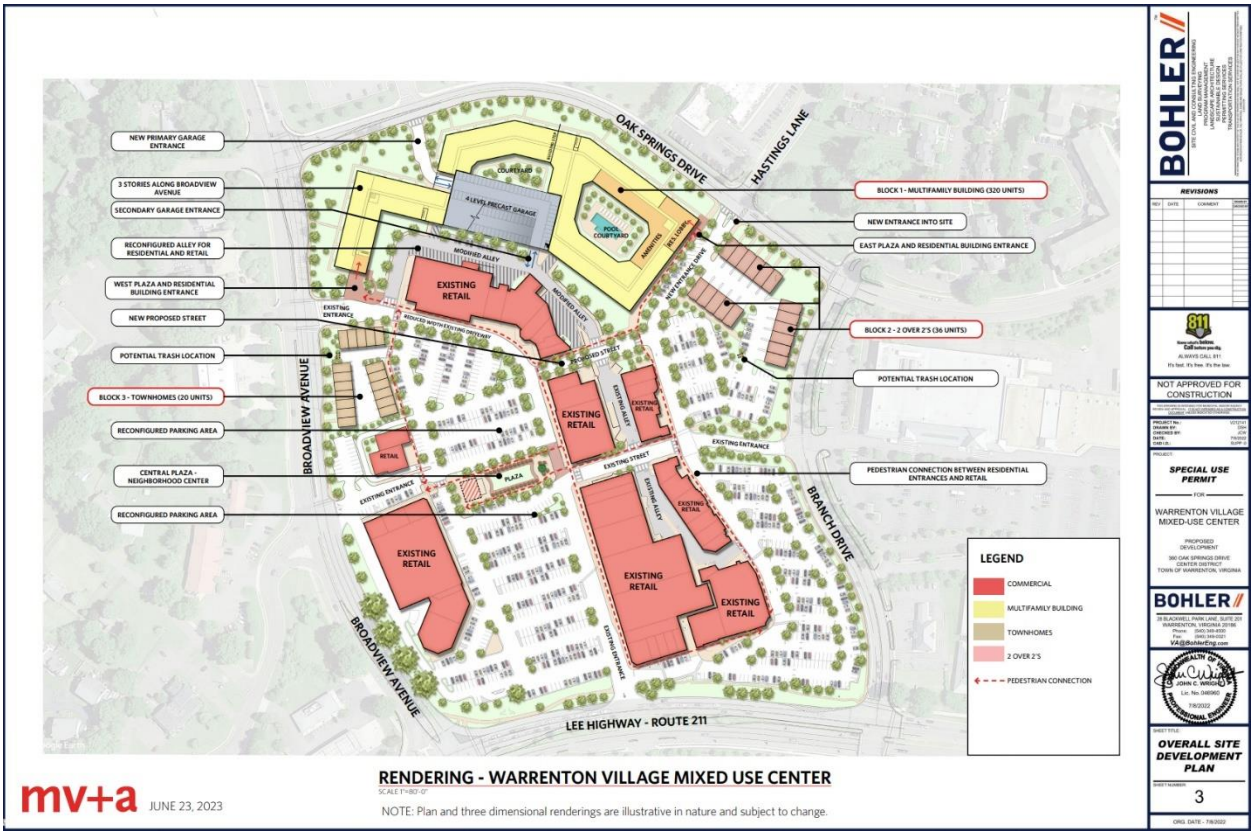
Source: Castle Development Partners

The Warrenton Village proposal will considerably exceed the quality, designs, finishes, and amenities at the market area's apartment properties. The rental units will be comparatively large and, unlike any other rental units in the market area, within walking distance of a host of area retailers and restaurants. Unit features will include granite countertops, stainless steel

appliances, LVT plank throughout (with exception of carpet in bedrooms), 9' ceilings, LED lights, and balconies in all apartment units.

Shown next is the proposed site plan for Warrenton Village. The site plan shows that the apartment community will be accessed from Oak Springs Drive in the north by a newly built roadway.

The community will consist of two development areas. To the west will be a large three- and four-story 320-unit, elevator apartment building. This building will contain 10,000± square feet of amenity space, including a leasing office, large clubroom, fitness center and business center. It will also contain two landscaped courtyards, one of which will include a large outdoor swimming pool. The building will also access a four-story, 445-space parking garage. The eastern side of the property will include the remaining rental units. There will be a total of 574 parking spaces. This equates to a parking ratio of 1.53 spaces per housing unit.




**Warrenton Village Site Plan**

A rendering of the proposed apartment community is presented next. The renderings show a contemporary and attractive flat roof design that is well above the competition in terms of curb appeal and design features. The building exteriors will contain a mix of masonry, wood siding and white cement panel. Overall, Warrenton Village will be an attractive, upscale community with no direct area competition.




**Warrenton Village Rendering**

## Market Area Economic Overview

This part of Section I of the market analysis presents an economic overview of Fauquier County, with base data for all of Fauquier County, which includes the Town of Warrenton. Data from the U.S. Bureau of Labor Statistics do not provide employment data on the Town level. Three economic factors are presented and analyzed to show the economic stability of the County: (1) at-place job growth, (2) employment and labor force trends, and (3) an evaluation of active development plans that are expected to generate new job and employment growth. These are the primary factors that show the level of economic stability in the market area and the ability for new investments, particularly for new housing.

The three economic factors under study are analyzed in the paragraphs to follow. Key to this analysis is that job growth supports growth in population and households, and therefore,

housing unit demand, particularly of the type of housing under study. Thus, the establishment of the market area's economic stability is a key issue related to the demographic growth of the market area. The economic analysis is presented to support the demographic projections used to support future apartment unit demand.

**At-Place Jobs**

At-place employment refers to jobs physically based at employers in Fauquier County, whether the job is based in private sector or government offices, manufacturing facilities, schools, retail stores, restaurants, nursing home or other facilities. As of year-end 2019, and prior to the more recent pandemic-induced job losses, Fauquier County had 22,250± at-place jobs, which exceeds the 2008 total by over 850 jobs, or four percent.

The County faced heavy job losses between 2008 and 2010 due to the recession of that time and a period in which at-place employment declined by 1,250±. Net job growth began soon after in 2011, with at-place jobs exceeding the pre-recession peak in 2013. Most recently, employment expanded by 300± in 2018, but fell by 170± in 2019. The job losses in 2019 were not associated with any mass layoffs and were principally driven by the loss of 120± jobs in the Accommodations/ Food sector.

Public sector jobs account for the majority of employment in the County, with nearly 20 percent of jobs in Fauquier County associated with local, state of federal employment. Most of these public sector jobs are associated with local government and tied to the Fauquier County School Board. Much of the federal employment is related to the U.S. Department of Transportation, which operates a facility in Warrenton. Public sector employment has also been a source of modest job growth, with nearly 360 public sector jobs added since 2008.

The largest private employment sector in Fauquier County is the Retail Trade sector, which accounts for nearly 13 percent of County-wide employment. Much of this employment is clustered in and around Warrenton, and to a smaller extent the Bealeton area. Several of the

County's larger employers are in this sector, including Walmart, Food Lion and Home Depot. Employment in this sector has expanded by 160± since 2008.

The next largest private employment sector in the County is the Health Care sector, accounting for 2,550± jobs, or 11.5 percent of County employment. Much of this employment is associated with the Fauquier Health System, which is the largest private employment in the County with over 1,000 employees.

Several other employment sectors have recorded job growth during this period. These include Professional/ Technical Services (420± new jobs), Accommodations/ Food (230± new jobs), Administrative/ Waste Services (160± new jobs), Education (120± new jobs), Education (120± new jobs), Other Services (80± new jobs), Finance/ Insurance (70± new jobs), Manufacturing (60± new jobs) and Real Estate (40± new jobs).

Only four employment sectors have recorded a net loss of jobs since 2008. The heaviest job losses were concentrated in the Construction sector, which has 350 fewer jobs as of year-end 2019 compared to year-end 2018. Most of these losses, however, occurred in the years immediately following the Great Recession. Construction employment has grown every year since 2014, with over 500 jobs added since that time. Other sectors with job losses since 2008 include Wholesale Trade (240± jobs lost), Information (70± jobs lost) and Management of Companies (40± jobs lost).

**Table 2: Trends in Average At-Place Employment, Fauquier County, Virginia, 2008-2019**

| Industry | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agriculture | 550 | 393 | 401 | ND | ND | ND | 396 | 396 | 392 | ND | ND | ND |
| Mining | 57 | 53 | 51 | ND | ND | ND | 54 | 56 | 64 | ND | ND | ND |
| Utilities | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 116 |
| Construction | 2,880 | 2,316 | 2,248 | 2,112 | 2,066 | 2,023 | 2,117 | 2,210 | 2,292 | 2,350 | 2,459 | 2,530 |
| Manufacturing | 863 | 797 | 756 | 794 | 798 | 825 | 873 | 918 | 950 | 958 | 935 | 923 |
| Wholesale Trade | 727 | 615 | 546 | 563 | 481 | 448 | 420 | 434 | 448 | 507 | 490 | 485 |
| Retail Trade | 2,713 | 2,573 | 2,637 | 2,673 | 2,790 | 2,864 | 2,859 | 2,994 | 3,044 | 2,950 | 2,899 | 2,873 |
| Transport./ Wareh. | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 239 |
| Information | 246 | 197 | 162 | 147 | 160 | 101 | 113 | 128 | 133 | 140 | 137 | 181 |
| Finance/Insurance | 479 | 445 | 486 | 509 | 501 | 504 | 515 | 467 | 497 | 496 | 526 | 553 |
| Real Estate | 218 | 315 | 318 | 308 | 365 | 377 | 363 | 288 | 262 | 271 | 253 | 258 |
| Prof./Tech. | 1,307 | 1,339 | 1,352 | 1,632 | 1,662 | 1,658 | 1,654 | 1,716 | 1,761 | 1,690 | 1,792 | 1,727 |
| Mgmt of Co.s | 212 | 213 | 192 | ND | 242 | 175 | 174 | 181 | 178 | 176 | 167 | 169 |
| Admin./Waste | 487 | 432 | 413 | ND | 534 | 485 | 472 | 484 | 522 | 548 | 622 | 645 |
| Education | 365 | 350 | 319 | 322 | 339 | 338 | 342 | 421 | 448 | 482 | 524 | 484 |
| Health Care | 2,415 | 2,499 | 2,386 | 2,386 | 2,703 | 2,781 | 2,747 | 2,686 | 2,575 | 2,532 | 2,544 | 2,549 |
| Arts/Enter./Rec. | 442 | 414 | 467 | 444 | 417 | 411 | 359 | 346 | 334 | 328 | 303 | 306 |
| Accom./Food | 2,067 | 1,932 | 1,962 | 1,969 | 2,025 | 2,095 | 2,050 | 2,201 | 2,370 | 2,407 | 2,414 | 2,293 |
| Other Services | 998 | 943 | 972 | 972 | 1,081 | 1,009 | 1,060 | 1,110 | 1,119 | 1,154 | 1,192 | 1,080 |
| Local Gov. | 3,199 | 3,268 | 3,264 | 3,434 | 3,314 | 3,302 | 3,226 | 3,194 | 3,263 | 3,280 | 3,314 | 3,350 |
| State Gov. | 392 | 398 | 401 | 389 | 404 | 413 | 409 | 393 | 391 | 390 | 394 | 394 |
| Federal Gov. | 421 | 435 | 454 | 564 | 623 | 610 | 597 | 581 | 601 | 610 | 618 | 625 |
| **Total** | **21,395** | **20,273** | **20,145** | **20,781** | **21,387** | **21,213** | **21,076** | **21,549** | **22,054** | **22,116** | **22,417** | **22,249** |

Notes: ND = Data do not meet BLS or State agency disclosure standards.

Source: United States Department of Labor, Bureau of Labor Statistics

Table 3 shows the net change in at-place job totals since 2008. Very few sectors experienced job losses during this period. Job growth has been spread among a diverse set of sectors. The key figure shown in Table 3 is the 4.0 percent net growth in new jobs since 2008, for a net increase of 850± jobs.

**Table 3: Change in Average At-Place Employment, Fauquier County, Virginia, 2008-2019**

| Industry | Net Change | Percent Change |
|---|---|---|
| Construction | -350 | -12.2% |
| Manufacturing | 60 | 7.0% |
| Wholesale Trade | -242 | -33.3% |
| Retail Trade | 160 | 5.9% |
| Information | -65 | -26.4% |
| Finance/Insurance | 74 | 15.4% |
| Real Estate | 40 | 18.3% |
| Prof./Tech. | 420 | 32.1% |
| Mgmt of Co.s | -43 | -20.3% |
| Admin./Waste | 158 | 32.4% |
| Education | 119 | 32.6% |
| Health Care | 134 | 5.5% |
| Arts/Enter./Rec. | -136 | -30.8% |
| Accom./Food | 226 | 10.9% |
| Other Services | 82 | 8.2% |
| Local Gov. | 151 | 4.7% |
| State Gov. | 2 | 0.5% |
| Federal Gov. | 204 | 48.5% |
| **Total** | **854** | **4.0%** |

Notes: ND = Data do not meet BLS or State agency disclosure standards.
Source: United States Department of Labor, Bureau of Labor Statistics

Next shown, in Table 4, are the employment changes that occurred in 2020, which is an outlier year given the unusual impact of the COVID-19 pandemic. The data show a significant loss of jobs, with a reduction in employment of over 880, or by 4.0 percent.

These losses occurred across most employment sectors, with the heaviest job losses impacting the Accommodations/ Food services sector (370± jobs lost), Local Government sector (190± jobs lost) and Health Care sector (170± jobs lost). Although these losses are sizeable, many of these layoffs are expected to be temporary and will likely be recovered once 2021 employment data are released. The local housing market has not been negatively affected by these job losses.

Of note is that several employment sectors did add jobs in 2020, including the Professional/ Technical Services sector (130± new jobs), Retail Trade sector (50± new jobs) and the Transportation/ Warehousing sector (50± new jobs).

Data for 2021 show an increase of 440± jobs in Fauquier County, which signals a continued recovery. Several employment categories recorded net job growth. There are just over 430 fewer at-place jobs at year-end 2021 compared to the pre-pandemic peak.

**Table 4: Change in Total At-Place Employment, Fauquier County, Virginia, 2019-2021**

| | 2019 | 2020 | 2021 | Net Change |
|---|---|---|---|---|
| Utilities | 116 | 122 | 117 | 1 |
| Construction | 2,530 | 2,527 | 2,624 | 94 |
| Manufacturing | 923 | 841 | 960 | 37 |
| Wholesale Trade | 485 | 473 | 454 | -31 |
| Retail Trade | 2,873 | 2,921 | 2,944 | 71 |
| Transportation/Warehousing | 239 | 286 | 311 | 72 |
| Information | 181 | 163 | 179 | -2 |
| Finance/Insurance | 553 | 550 | 549 | -4 |
| Real Estate | 258 | 260 | 268 | 10 |
| Professional/Technical Services | 1,727 | 1,859 | 1,871 | 144 |
| Management of Companies | 169 | 158 | 126 | -43 |
| Admin./Waste Services | 645 | 593 | 622 | -23 |
| Educational Services | 484 | 460 | 504 | 20 |
| Health Care | 2,549 | 2,379 | 2,269 | -280 |
| Arts/Entertainment/Recreation | 306 | 235 | 241 | -65 |
| Accommodations/Food | 2,293 | 1,926 | 2,058 | -235 |
| Other Services | 1,080 | 955 | 1,061 | -19 |
| Local Government | 3,350 | 3,161 | 3,209 | -141 |
| State Government | 394 | 396 | 362 | -32 |
| Federal Government | 625 | 652 | 659 | 34 |
| **Total** | **22,249** | **21,370** | **21,813** | **-436** |

Source: United States Department of Labor

The U.S. Bureau of Labor Statistics has not yet released year-end data for 2022. However, as of September 2022, the date for which the most recent data are available, Fauquier County totals nearly 22,400 at-place jobs, which is in line with pre-pandemic employment levels.

## Employment and Labor Force

Employment differs from at-place jobs as it refers to the number of market area residents who are employed, no matter where the job is located. At-place jobs refer to where the job is located, i.e., within Fauquier County. Data are current to year-end 2021 for Employment and Labor Force.

Fauquier County realized a net increase in employment of 770± over the twelve-year period between 2008 and 2019. Like at-place job trends, employment grew early in the decade, up until 2008, when employment reached a pre-recession peak of 36,400± jobs.

Employment totals are larger than at-place job totals, which means net out-commuting occurs into neighboring jurisdictions. These trends are an indication of the market for housing in Fauquier County, with a high percentage of County labor force working across the Washington Region. However, they are selecting homes in Fauquier County.

Employment fell sharply in 2009 when 940± jobs were lost, pushing the unemployment rate from 3.6 percent to 5.6 percent in a single year. A slow recovery began soon after in 2011. Growth in employment occurred every year since, with total employment exceeding pre-recession levels in 2019. The labor force has also grown every year between 2015 and 2019, suggesting sustained confidence in the labor market. This has pushed the overall unemployment rate higher than it otherwise would be.

Recent years have been characterized by a steady increase in the pace of job growth. Employment grew by 350± in 2017, 1,010± in 2018 and 1,070± in 2019. This exceeds the level of growth of at-place jobs and denotes that part of the growth in the resident population of Fauquier County was driven by new jobs in neighboring communities.

Data in Table 5 show that the unemployment rate was a low 2.4 percent in 2019, down from 3.9 percent in 2015. The low unemployment rate means that new job growth will require new residents for the County.

Total employment declined by 2,110± in 2020, pushing the unemployment rate up from a low 2.4 percent in 2019 to 4.7 percent, the highest unemployment rate since 2013. Data for 2021 show some improvements, with employment expanding by 80±. The labor for declined by 560± in 2021, which contributed to the low unemployment rate of 3.0 percent.

**Table 5: Trends in Employment and Unemployment, Fauquier County, Virginia, 2008-2021**

| | Labor Force | Employment | Unemployment | Percent Unemployed |
|---|---|---|---|---|
| 2008 | 37,765 | 36,403 | 1,362 | 3.6% |
| 2009 | 37,560 | 35,459 | 2,101 | 5.6% |
| 2010 | 35,805 | 33,536 | 2,269 | 6.3% |
| 2011 | 36,073 | 34,092 | 1,981 | 5.5% |
| 2012 | 35,975 | 34,162 | 1,813 | 5.0% |
| 2013 | 35,928 | 34,198 | 1,730 | 4.8% |
| 2014 | 36,049 | 34,427 | 1,622 | 4.5% |
| 2015 | 35,873 | 34,477 | 1,396 | 3.9% |
| 2016 | 35,977 | 34,745 | 1,232 | 3.4% |
| 2017 | 36,269 | 35,091 | 1,178 | 3.2% |
| 2018 | 37,054 | 36,096 | 958 | 2.6% |
| 2019 | 38,085 | 37,168 | 917 | 2.4% |
| 2020 | 36,777 | 35,058 | 1,719 | 4.7% |
| 2021 | 36,217 | 35,138 | 1,079 | 3.0% |
| **Net Change** | **-1,548** | **-1,265** | **-283** | **-0.6%** |

Source: United States Department of Labor, Bureau of Labor Statistics

## COVID-19 and Employment

Table 6 shows monthly employment data as of April 2023 in Fauquier County to illustrate the local employment impact of the COVID-19 pandemic. This is the date for which the most recent data are available. Trend data show that total employment has increased by nearly 1,400 since January 2020, with the number of unemployed shrinking by over 120. These data show considerable economic improvements.

The unemployment rate, as of April 2023, is a very low 2.1 percent, down from 9.1 percent in April 2020. The low unemployment rate reflects the difficulty that local employers report in hiring new staff and necessitates new residents to the County to fill vacant and future jobs.

**Table 6: Trends in Employment and Unemployment, Fauquier County, Virginia, 2020-2023 YTD**

| | Labor Force | Employment | Unemployment | Percent Unemployed |
|---|---|---|---|---|
| January 2020 | 37,631 | 36,674 | 957 | 2.5% |
| February 2020 | 37,692 | 36,824 | 868 | 2.3% |
| March 2020 | 37,237 | 36,207 | 1,030 | 2.8% |
| April 2020 | 35,897 | 32,638 | 3,259 | 9.1% |
| May 2020 | 35,376 | 32,643 | 2,733 | 7.7% |
| June 2020 | 36,700 | 33,899 | 2,801 | 7.6% |
| July 2020 | 36,521 | 34,131 | 2,390 | 6.5% |
| August 2020 | 36,545 | 34,630 | 1,915 | 5.2% |
| September 2020 | 35,851 | 34,310 | 1,541 | 4.3% |
| October 2020 | 36,555 | 35,198 | 1,357 | 3.7% |
| November 2020 | 36,289 | 34,973 | 1,316 | 3.6% |
| December 2020 | 36,117 | 34,929 | 1,188 | 3.3% |
| January 2021 | 36,048 | 34,716 | 1,332 | 3.7% |
| February 2021 | 35,894 | 34,635 | 1,259 | 3.5% |
| March 2021 | 36,013 | 34,747 | 1,266 | 3.5% |
| April 2021 | 36,141 | 35,085 | 1,056 | 2.9% |
| May 2021 | 36,334 | 35,173 | 1,161 | 3.2% |
| June 2021 | 37,478 | 36,109 | 1,369 | 3.7% |
| July 2021 | 37,536 | 36,293 | 1,243 | 3.3% |
| August 2021 | 37,231 | 36,054 | 1,177 | 3.2% |
| September 2021 | 36,740 | 35,719 | 1,021 | 2.8% |
| October 2021 | 37,217 | 36,329 | 888 | 2.4% |
| November 2021 | 36,843 | 36,218 | 625 | 1.7% |
| December 2021 | 37,157 | 36,284 | 873 | 2.3% |
| January 2022 | 37,155 | 36,215 | 940 | 2.5% |
| February 2022 | 37,078 | 36,203 | 875 | 2.4% |
| March 2022 | 37,349 | 36,459 | 890 | 2.4% |
| April 2022 | 37,520 | 36,729 | 791 | 2.1% |
| May 2022 | 37,611 | 36,624 | 987 | 2.6% |
| June 2022 | 38,342 | 37,327 | 1,015 | 2.6% |
| July 2022 | 38,549 | 37,524 | 1,025 | 2.7% |
| August 2022 | 38,216 | 37,051 | 1,165 | 3.0% |
| September 2022 | 37,678 | 36,664 | 1,014 | 2.7% |
| October 2022 | 38,207 | 37,193 | 1,014 | 2.7% |
| November 2022 | 37,968 | 36,945 | 1,023 | 2.7% |
| December 2022 | 37,974 | 37,115 | 859 | 2.3% |
| January 2023 | 38,232 | 37,132 | 1,100 | 2.9% |
| February 2023 | 38,299 | 37,320 | 979 | 2.6% |
| March 2023 | 38,759 | 37,783 | 976 | 2.5% |
| April 2023 | 38,846 | 38,012 | 834 | 2.1% |
| **Net Change** | **1,215** | **1,338** | **-123** | **-0.4%** |

Notes: 1/ Preliminary. Subject to change.

Source: U.S. Department of Labor, Bureau of Labor Statistics

## Current Developments

Most businesses in Fauquier County are small, with over 90 percent having fewer than 20 employees. The largest employer in the County is the Fauquier County School Board, with over 1,900 employees. The second largest employer is the Fauquier Health System, which employs over 1,000 people. The next two largest employers are the U.S. Department of Transportation and Walmart. All of these employers are located within quick driving distance of the Warrenton Village site.

The agriculture and forestry industries directly employ over 500 people, with many more employed in related industries. Tourism represents a growing segment of the economic sector in Fauquier County with nearly 30 vineyards and wineries spread across the County. More recently, the County has also targeted defense and other government contractors as a vital sector, with over 100 firms operating in the County.

Recent job generating development activity in Fauquier County include:

- **E-Z Treat**, a manufacturer of residential and commercial wastewater treatment systems, announced in December 2022 that it would expand its Catlett operations with a new 33,000± square foot building that will generate 16 new engineering and manufacturing jobs.

- **Silver Branch Brewing**, a Maryland-based brewery, announced in June, 2023 that it would open a location in Fauquier County, adding 38 new jobs. The expansion will be the second location for the brewery. Silver Branch is taking over the Warrenton location of the former Wort Hog Brewing Co., which closed in early-2022. The brewery will have 18 to 24 rotating taps at each location. The Warrenton location will add between 750 to 1,000 barrels of capacity. The facility is expected to open in the fall of 2023.

- **Piedmont Urgent Care** announced in September 2021 that it would build a single-story, 7,540± square foot urgent care facility and pharmacy on the corner of Blackwell Road and Walker Drive in Warrenton. The facility has since opened.

- **Oak View National Bank** announced in May 2021 that it would build a 7,000± square foot building on a vacant lot on Waterloo Street, near its current headquarters on Broadview Avenue in Warrenton. The new Warrenton facility will feature a drive thru. Construction was completed in 2022.

- **Lord Fairfax Community College**. Construction was completed in June 2022 on a new science and technology building on the Fauquier campus of Lord Fairfax Community College to be called Eleanor C. and William A. Hazel Hall. The two-story, 40,000± square foot building houses a nursing skills lab, science labs, engineering and fabrication labs, classrooms, a board room, faculty offices, study spaces and a lounge and a conference center with banquet seating for 275 people. The college also has plans currently under review to construct a single-story, 8,130± square foot trades lab building. The new building will allow the college to offer trades classes for the first time on the Fauquier Campus, including a new carpentry program. Other programs planned for the new building include electrical, HVAC, plumbing and heavy equipment operator.

- **Catlett Data Center Park**. This is a proposal to construct two data centers of 1.4 million square feet at Route 28 and Gaskins Lane.

- **Royal Farms**. Construction was completed in 2022 on new Royal Farms at the southwest corner of Routes 17 and 29 at Opal. The development includes a 4,650± square foot convenience store and 14 fuel pumps. Future development of the remaining 2.1 acres calls for an unspecified 3,160± square foot fast-food restaurant, which would share the same entrance with Royal Farms.

- **Hilton Home2 Suites at Mintbrook**. This is proposed four-story, 90- to 100-room hotel planned for a site within the Mintbrook development in Bealeton. The proposal is currently under review.

- **Puller Veterans Care Center**. Construction was completed in March 2022 on this long-term care center at Vint Hill for military veterans at Vint Hill Road and MacIntosh Drive in eastern Fauquier. The 145,000± square foot, 128-bed facility has eight, 16-bed "houses" flanking the "community center." Each resident has a private room and bathroom. The center has a large dining area, but each house also has a kitchen for smaller meal gatherings, including those with family members. The facility employs approximately 220 people.

- **Lock-It-Up Self Storage**. Plans were submitted in mid-2022 to construct a self-service storage facility, to include storage units and an office, at 10526 Global Way in Bealeton. The facility will consist of six self-storage buildings, totaling 65,750± square feet. The individual storage buildings range from 4,400± square feet to 21,750± square feet. Approximately 1,050± square feet within one of the buildings will be dedicated for office space for the facility.

- **Wexford Village**. Plans were submitted in mid-2022 for commercial development on the west side of Marsh Road across from Village Center Drive in Bealeton. Plans call for a car wash as well as a total of 90,000± square feet of warehouse/self-storage facility use.

- **The Bank of Clarke County** opened a new branch at 530 Blackwell Road in Warrenton in July 2022.

- **17/66 Industrial Park Lot 8**. Plans were submitted in mid-2022 for the construction of a 104,700± square foot warehouse building along Whitting Road between the Norfolk Southern Railroad and Brampton Court. The proposal is still under review.

- **Vint Hill Independent /Assisted Living**. This is a proposal for a retirement community to be built near the intersection of Rogues Road and Farm Station Road in the Vint Hill area. The facility, which is currently under review, is proposed for 90 apartment units.

- **Amazon Web Services** announced in June 2022 that it would build a 220,200± square foot data center in Warrenton, at the intersection of Blackwell Road and Lee Highway. The Warrenton Town Council approved a special use permit for the project in February 2023. The facility is expected to employ approximately 52 people.

It is difficult to quantify the level of future job growth in Fauquier County, as many employers are small and therefore their expansion plans are not tracked by local or state economic development agencies. Economic development officials note that many local employers have vacant positions that they are struggling to fill, partially due to housing availability for prospective employees.

In addition is a significant level of future job growth in neighboring Prince William County. Data in Table 3 and Table 5 above show that Fauquier County is the location of a considerable number of commuters, and thus the local housing market is greatly impacted by job growth elsewhere in Northern Virginia.

Research from S. Patz & Associates has identified at least 3,500 new jobs that have been publicly announced over the next few years within neighboring Prince William County. This total likely undercounts the level of future job growth as many expansions are smaller in scale and not publicly reported. Many of these jobs are in the western portion of Prince William County and near Fauquier County. In addition are several million square feet within multiple data centers that are planned and under construction in this part of the county that will generate new, high-paid jobs.

## Demographic Trends and Projections

Demographic trends for Fauquier County, which include the Town of Warrenton, as well as the adjacent areas of western Prince William County, are presented in Table 7. The Prince William County portion of the market area includes the community of Gainesville and the Town of Haymarket. This portion of Prince William County was included in the market area based on interviews with area apartment managers who note a very limited supply of upscale apartment units in Warrenton, with Warrenton likely to compete with the greater Gainesville/ Haymarket area for the upscale rental market.

The market area's population, as of 2022, is estimated to total 203,890±, based on calculations from the Weldon Cooper Center for Public Service and derived from the most recent 2020 U.S. Census count. For Fauquier County, the 2022 population total of 73,540± exceeds the 2010 census count by 8,340±, or an annual population growth rate of nearly 700. This means that population growth in the County for the 2010 decade is below the rate of the 2000 decade, when the population increased by an annual average of approximately 1,000 people. The Prince William County portion of the market area had a significant increase in population since 2010, with the population expanding by over 28,000. This was a slower pace of population growth compared to the 2000s.

The slower level population growth that has occurred in Fauquier County and western Prince William County since 2010 is due to a lack of new housing development and readily available land for the development of new homes. Modest employment growth in Fauquier County is a second factor. The analysis to follow shows only a limited number of new and proposed apartment communities in the market area at this time. Based on population trends, planned housing developments and some job growth, the market area population is projected to reach 219,280± by 2027.

The target market for the new apartment units at Warrenton Village is renter households earning incomes of $66,000 and above, when incomes are reported in constant 2023 dollars.

Households in this income category can afford net rents of $1,650 and above, based on 30 percent of income allocated toward net rents.

As of 2022, the market area has approximately 8,780 renter households in the target income category. This total is 2,640± more than in 2010, with much of this growth supported almost by renters in scattered rental units within for-sale subdivisions. As will be shown below, the market area has very few "upscale" apartment communities, and most are now mature. Trend data and future employment growth support a continued net increase in renters within this income category, with an expectation to reach 9,880± target renter households by 2027, the forecast date of this report. This represents an increase of 1,100± households.

**Table 7: Trends and Projections of Population and Households, Warrenton Village Market Area, 1990-2027**
(Constant 2023 dollars)

| | 1990 | 2000 | 2010 | 2022 | 2027 |
|---|---|---|---|---|---|
| Market Area Population | 69,950 | 93,140 | 166,960 | 203,890 | 219,280 |
| Fauquier County | 48,740 | 55,140 | 65,200 | 73,540 | -- |
| Prince William County Portion 3/ | 21,210 | 38,000 | 101,760 | 130,350 | -- |
| Group Quarters Population | 1,470 | 770 1/ | 750 | 1,150 | 1,150 |
| Household Population | 68,480 | 92,370 | 166,210 | 202,740 | 218,130 |
| Persons Per Household | 2.84 | 2.74 | 2.91 | 2.90 | 2.89 |
| Total Households | 24,140 | 33,770 | 57,040 | 71,630 | 75,480 |
| Renter Households | 7,100 | 8,740 | 13,240 | 18,160 | 20,210 |
| Percent Renter Households | 29.4% | 25.9% | 23.2% | 25.4% | 26.7% |
| **Target Market** ($66,000+) | | | | | |
| Total Households | 3,070 | 3,960 | 6,140 | 8,780 | 9,880 |
| Percent of Renter Households | 43.2% | 45.3% | 46.4% | 48.3% | 48.9% |

Notes: 1/ Decline due to closure of Vint Hill Station in 1997, a U.S. Army and NSA signals intelligence and electronic warfare facility.
2/ Growth driven by opening of White Springs Senior Living, Poet's Walk Warrenton, The Villa at Suffield Meadows, and Puller Veterans Station.
3/ Includes the following U.S. Census tracts in Prince William County, VA: 9014.03, 9014.07, 9014.08, 9014.09, 9014.10, 9014.11, 9014.12, 9014.13, 9014.14, 9014.15, 9014.16, 9014.17, 9015.03, 9015.04, 9015.05, 9015.06, 9015.07, 9015.08, 9015.09, 9015.10 and 9015.11.

Source: U.S. Census Bureau; Weldon Cooper Center for Public Service; S. Patz & Associates, Inc.

It should be noted that the demographic trends and projections detailed in Table 7 include the Town of Warrenton. Demographic trends and projections are analyzed for the entire market area, which is comprised of Fauquier County (including Warrenton), as well as the adjacent areas of Gainesville and Haymarket in Prince William County. The market area is the geographic area from which the majority of future tenants at Warrenton Village are expected to originate from and where the competitive rental housing alternatives are located. An analysis of demographic trends and projections of only the Town of Warrenton would understate the market for future renters.

Data in Table 8 show the demographic trends and projections within the Town of Warrenton for comparison purposes. The projections shown are opportunity projections, as they rely on the ability of the Warrenton Village proposal to be built and occupied. Absent this proposal, the projected population in the Town would be reduced.

The data show modest growth among target income households prior to 2022, which is principally due to a lack of new apartment unit development targeting the upscale market. A comparison to the data in Table 7 shows that most target income households have resorted to renting outside of the Town of Warrenton.

**Table 8: Trends and Projections of Population and Households, Town of Warrenton, Virginia, 1990-2027**
(Constant 2023 dollars)

| | 1990 | 2000 | 2010 | 2022 | 2027 |
|---|---|---|---|---|---|
| Town of Warrenton Population | 4,830 | 6,670 | 9,610 | 10,200 | 10,850 |
| Group Quarters Population | 270 | 410 | 340 | 340 | 340 |
| Household Population | 4,560 | 6,260 | 9,270 | 9,860 | 10,510 |
| Persons Per Household | 2.34 | 2.34 | 2.48 | 2.48 | 2.47 |
| Total Households | 1,950 | 2,680 | 3,740 | 3,980 | 4,260 |
| Renter Households | 920 | 1,140 | 1,510 | 1,570 | 1,950 |
| Percent Renter Households | 47.1% | 42.3% | 40.3% | 39.5% | 45.8% |
| **Target Market** ($66,000+) | | | | | |
| Total Households | 460 | 440 | 590 | 630 | 1,030 |
| Percent of Renter Households | 50.0% | 38.6% | 38.9% | 40.1% | 52.8% |

Source: U.S. Census Bureau; S. Patz & Associates, Inc.

The key point in Table 8 is that the Town of Warrenton has historically had a small number of renter households, particularly in the targeted income range under study. This is a supply, rather than a demand issue, as the shortage of quality rental housing has pushed prospective renters outside of the Town and in many cases outside of Fauquier County. The construction of a new and attractive rental community, of the type proposed for Warrenton Village, provides an opportunity to reverse these past trends. Again, it should be noted that while Warrenton Village will clearly impact the Town of Warrenton the most, it is likely to attract renters from outside of the Town as well.

## Section II: Apartment Market Analysis

This part of the report studies the depth of the greater Warrenton area "better" apartment market. The analysis is intended to determine market support for the apartment units proposed at Warrenton Village. As will be shown, there are no upscale, professionally managed market rate apartment properties in Fauquier County.

In addition to the analysis of the current apartment market, the last subsection of Section II studies the apartment unit pipeline in the market area. These apartment properties are studied for development status, project size and comparison with the Warrenton Village proposal.

### Characteristics of the Current Apartment Market

#### Competitive Apartment Market

The existing professionally managed apartment market in the greater Warrenton area is small, with nearly all professionally managed apartment buildings having income- or age-restrictions in place. Thus, most apartment communities in the Warrenton area and elsewhere in Fauquier County serve a separate population compared to the Warrenton Village proposal. The small number of market rate apartment units in the area are mature, and not fully competitive with the upscale and fully-amenitized Warrenton Village proposal.

The existing market rate apartments in the greater Warrenton area include the 100-unit Aspen Apartments South, 24-unit Green Street Apartments and 24-unit Victoria Gardens Apartments. These are mature, modest rental properties that were built between the 1960s and 1980s and are routinely at full occupancy. They serve a more modest income market compared to the Warrenton Village proposal with lower, non-competitive rents. They therefore do not represent true competition for the Warrenton Village proposal.

The demographic analysis shown above in Table 7 identifies a considerable number of higher-income renter households in the market area, with over 40 percent of renters earning

annual incomes over $66,000. These renters almost entirely occupy scattered townhomes and single-family homes that were not initially built as rental properties, but are instead leased by private individuals, realtors and property management firms. Most are two- and three-bedroom units, with two-bedroom units renting between $1,600 and $2,100 and three-bedroom units primarily renting for over $2,000. Essentially all of these homes are occupied at this time. Data in Table 8 show that a small share of these households currently resides in the Town of Warrenton, with the small percentage due to the persistent limited supply of upscale rental housing.

The closest upscale apartment cluster to Warrenton is the greater Gainesville/ Haymarket area of western Prince William County, which is an approximately 20-minute drive from Warrenton. Management at apartment properties in this area note that they partially compete with the Warrenton market given the severely limited supply of "better" apartments there. There are only three "somewhat" upscale apartments in this part of western Prince William County, as detailed in Table 9 below.

All are now becoming somewhat mature, with two properties—Somerhill Farms and Marque Apartments—now 17 years old, and one property—Somerset Pointe—over 20 years old. Marque Apartments generates one-bedroom rents of between $2,205 and $2,215. Two-bedroom rents at Somerhill Farms and Marque Apartments exceed $2,200. Somerset Pointe has more modest rents as this is an older apartment property. These rents have been readily accepted by the market as all three properties are at or near full occupancy.

The one-bedroom rents at Warrenton Village are proposed to be below the one-bedroom rooms at Marque Apartments and Somerhill Farms. The two-bedroom rents proposed for Warrenton Village will be approximately $200 below the two-bedroom rents at Marque Apartments and Somerhill Farms, on average. The proposed three-bedroom rents of between $2,400 and $3,000 are similar to the rents being generated at area scattered three-bedroom units, most of which offer no on-site amenities and require tenants to cover the costs of landscaping and snow removal. Most are now at least a decade old and with lesser levels of unit finishes and

features compared to the Warrenton Village proposal. The proposed three-bedroom rents are above the rents at Somerset Pointe, which is now over two decades old.

**Table 9: Characteristics of Better Apartment Communities, Gainesville/Haymarket, VA, June 2022**

| | Year Built | Total Units | Vacant Units | One-Bedroom | Two-Bedroom | Three-Bedroom |
|---|---|---|---|---|---|---|
| Residences at Somerhill Farms 1/ | 2006 | 140 | 1 | $1,893-$1,967 | $2,262-$2,924 | $2,398 |
| Marque Apartments | 2006 | 200 | 7 | $2,205-$2,215 | $2,214-$2,466 | $2,963-$2,998 |
| Somerset Pointe | 2001 | 173 | 3 | $1,517 | $1,815 | $2,088 |
| **Proposed Rents** | | | | **$1,650-$1,900** | **$2,200-$2,350** | **$2,400-$3,000** |

Notes: 1/ Rent data only provided for vacant and soon-to-be vacant units.
Source: Field and Telephone Survey by S. Patz and Associates, Inc.

Shown next are photos of the above apartment properties. All are multi-level buildings, but none have contemporary designs, and none are as attractive as the Warrenton Village proposal.




**Somerhill Farms**




**Marque Apartments**



**Somerset Pointe**

The key point is that the Town of Warrenton does not currently offer any upscale, professionally managed apartment units that would be fully competitive with Warrenton Village. The same is true for other locations in Fauquier County. Western Prince William County does have a small number of more upscale apartment units, but these are now becoming mature and do not offer the same level of amenities and features as other newly built apartment properties in Northern Virginia.

Despite the lack of inventory, the market area does have a considerable number of higher-income renter households, with nearly half of these renters earning annual incomes above $66,000. This denotes that most of these renters are leasing scattered, non-amenitized townhomes and single-family homes. Many of these households can afford "better" apartment units but have few available options. Most of the newer scattered rental units are renting at similar rents to those proposed for Warrenton Village. There is clearly a market for upscale rental housing that is not being adequately served at this time.

## Apartment Pipeline

There is currently only one apartment community in active planning in Fauquier County, and none under construction. Vint Hill Lofts is proposed for 183 apartment units to be built at

the former Vint Hill Farm Station Barrack at 4221 Sigler Road and 4285 Bludau Drive. The community will contain a mix of 29 studio, 128 one-bedroom and 26 two-bedroom apartment units. Studio rents will start at $1,175, one-bedroom rents will start at $1,550 and two-bedroom rents will start at $2,050. Rents will include water, sewage, trash and basic high-speed internet. All units will be equipped with a washer and dryer. The developers, Echelon Resources, have not yet secured all County approvals.

**Apartment Market Summary and Demand Analysis**

At this time, the rental market under study is fully occupied and a sizable pent-up demand exists due to job growth in Warrenton, elsewhere in Fauquier County and neighboring jurisdictions in Northern Virginia. Coupled with this job growth is the longstanding lack of upscale apartment unit development in the area. Area employers, many of which are actively filling open positions, report challenges with attracting new employees, which is partially a function of a very limited supply of apartments in the greater Warrenton area.

The Town of Warrenton and Fauquier County have not been the location of new market rate apartment unit development in several decades. This is despite the fact that the number of higher income renters has steadily increased in the area since 2000, denoting that many of these households have resorted to renting scattered, non-amenitized rental units within for-sale subdivisions. Western Prince William County has also not been the location of new apartment unit development, with the newest apartments now 17 years old. This is partially due to a lack of property zoned land for apartment unit development. The better apartment properties in this portion of Prince William County are typically fully occupied or with very few vacant apartment units.

Many protentional renters who are employed locally have resorted to renting outside of the market area due to the limited apartment unit supply, a trend that could be reversed if a new attractive apartment community were to be built in Warrenton. Additionally, commuters who may want to select Warrenton as an attractive location to relocate have limited options. Some

renters have also resorted to leasing less desirable units due to the extremely limited rental housing supply.

The net demand analysis is shown below based on the projection of new apartment units less vacant and pipeline proposals. From the 1,100± total apartment unit demand projection is subtracted 183 pipeline apartment units proposed for Vint Hill Lofts and the 376-unit Warrenton Village proposal. There are essentially no vacancies in the market area for comparable upscale rental units. The net demand analysis shows an underserved market, resulting in a surplus demand of 540± apartment units.

The 1,100 figure is an extrapolation from the analysis of demographic trends and projections, which begins on Page 27. This number represents the total growth in demand for the competitive apartment market area, distinct from the County itself. The boundaries of the market area are detailed in Table 8, which includes small portions of Prince William County.

Our demand projection is likely to "be in the ballpark," but it is difficult to make projections within a marketplace that has not added new market rate apartment units in several years. Nevertheless, the demand analysis is defined as positive.

**Net Demand Analysis**
**(2022-2027)**

| | **Total Units** |
|---|---|
| Demand | 1,100 |
| Less: | |
| Pipeline Units | 183 |
| Warrenton Village | 376 |
| *(Subtotal)* | *(559)* |
| **Surplus Demand** | **541** |

We are aware that the Warrenton Village proposal is large, but the analysis above clearly indicates a pent-up demand for new, upscale apartment units. The proposal offers a diversity of unit types, including three-bedroom townhomes attractive to families, and elevator-served apartment units that will likely attract young professionals and active seniors. The contemporary

design, expansive amenity package and walkability to area retailers, grocery stores and restaurants will set Warrenton Village apart from all of the existing apartments in Fauquier County and the greater Gainesville area. If built as proposed, Warrenton Village should be successful in terms of lease up and at the rents proposed.

## Section III: Fiscal Impacts Analysis

This section of the report outlines the methodology and findings of the Fiscal Impacts Analysis (FIA) for the proposed residential development comprising Warrenton Village in the Town of Warrenton at build-out. The FIA compares the tax revenues expected from the proposal, as previously described, with the tax-supported costs the Town of Warrenton will incur to serve the project once it is fully developed. The net fiscal benefits will be the difference between those revenues and the various costs to the Town associated with new development. As noted above, the development plan involves constructing 376 rental units.

On-site fiscal impacts from Warrenton Village pertain to development on the site itself. Fiscal impacts generated off-site, due to the spin-off effects of resident and employee expenditures within the Town of Warrenton, are examined separately. For off-site impacts, economic impact assessments are undertaken to demonstrate how consumer expenditures will stimulate new business within the Town, based on new business receipts, employment, and employee earnings resulting from those expenditures.

### Summary of Fiscal Impacts

Table 10 presents a summary of the revenues, costs and net fiscal benefits (revenue surplus or deficit) for the proposed 320 apartment, 36 two-over-two and 20 rental townhome units that are proposed for the Warrenton Village site and for the economic activity that would be generated in the Town of Warrenton by residents off-site.

The data in Table 10 show negative on-site impacts, which is primarily due to two factors. For one, the Town of Warrenton levies a low real estate tax rate of only $0.0401 per $100 of value. Thus, while Warrenton Village will likely be assessed at over $100 million, the taxable amount to the Town of Warrenton for the property would be relatively modest. Second, the largest revenue sources for the General Fund Budget are other local taxes. These include nine different local taxes, most of which do not generate on-site revenues. The majority of local tax revenues, for instance,

are generated by the Meals Tax, BPOL and Local Sales Taxes. As a consequence of the above two factors, a large share of total fiscal impacts will be generated by off-site economic activity.

In total, and at build-out, the full development and occupancy of the new rental units at Warrenton Village will generate a positive annual fiscal benefit of approximately $46,100, reported in constant 2023 dollars.

**Table 10: Summary of On-Site and Off-Site Fiscal Impacts of Apartments, Warrenton Village at Build-Out, Warrenton, Virginia**
(Constant 2023 Dollars)

| Source of Fiscal Impacts on the Town | Impacts On-Site in Warrenton | Impacts Off-Site in Warrenton | Total Fiscal Impacts |
|---|---|---|---|
| **Apartments (320 Units)** | | | |
| Revenues to the Town | $117,560 | $338,870 | $456,430 |
| Town Costs | -$280,280 | -$145,920 | -$426,200 |
| *Subtotal* | *-$162,720* | *$192,950* | *$30,230* |
| **Two-Over-Two (36 Units)** | | | |
| Revenues to the Town | $14,550 | $55,520 | $70,070 |
| Town Costs | -$42,740 | -$23,490 | -$66,230 |
| *Subtotal* | *-$28,190* | *$32,030* | *$3,840* |
| **Townhomes (20 Units)** | | | |
| Revenues to the Town | $8,050 | $41,150 | $49,200 |
| Town Costs | -$23,310 | -$13,860 | -$37,170 |
| *Subtotal* | *-$15,260* | *$27,290* | *$12,030* |
| **Total Residential (376 units)** | | | |
| Revenues to the Town | $140,160 | $435,540 | $575,700 |
| Town Costs | -$346,330 | -$183,270 | -$529,600 |
| **Net Fiscal Benefits** | **-$206,170** | **$252,270** | **$46,100** |

Source: Town of Warrenton, VA; S. Patz & Associates, Inc.

In addition to the on-site fiscal impacts, the economic impacts off-site in the Town of Warrenton from new resident expenditures would generate additional tax revenue. Based on anticipated household incomes, resident expenditures could equal approximately $26.4 million annually at businesses in the Town, with another $52.3 million in business expenditures to be generated by the "ripple effect" of resident expenditures across the local economy. This would generate a total of over $78.6 million in business activity in the Town.

The off-site expenditures will generate new jobs. These would be added region-wide and not just in the Town of Warrenton. Annual earnings from these new jobs would provide additional fiscal impacts across the region. These calculations were reduced by 30 percent to account for consumer expenditures outside of the Town, particularly elsewhere in Fauquier County and in neighboring communities such as Prince William County. Thus, the off-site calculations capture expenditures only within Warrenton.

The following analysis presents the derivation of the fiscal impacts to be derived from the development at the Warrenton Village site. These impacts include the net fiscal benefits of the proposed rental units, being the difference between tax revenue generated for the Town of Warrenton and the costs of public services to serve residents of the new development. As stated above, economic impacts include new business revenue, employees, and employee earnings that would accrue in the Town as a result of resident expenditures in the Town annually.

## On-Site Fiscal Impacts: From New Rental Units

The following analyses derive the revenues generated for the Town of Warrenton from Warrenton Village "on-site." "On-site" denotes revenues that are derived directly from real estate development and personal property taxes, while "off-site" impacts are generated from local business growth based on new resident expenditures. Off-site impacts will be treated separately as "economic impacts," although their fiscal benefits are also assessed. Data in the tables to follow are rounded off to the nearest ten dollars and represent annual amounts after build-out. All data are presented in constant 2023 dollars.

Table 11 summarizes the various revenues to accrue to the Town of Warrenton from the development and lease-up of the 376 rental units to be built at the study site. Real Estate taxes would account for nearly 38 percent of the revenue to be generated on-site. Personal Property and Consumer Utility taxes would account for the remainder of the $140,160 in on-site tax revenue.

**Table 11: Summary of Annual On-Site Revenues, Warrenton Village at Build-Out, Warrenton, Virginia**
(Constant 2023 Dollars)

| | Amount | Percent of Total |
|---|---|---|
| **Apartments** | | |
| Real Estate Tax | $44,060 | 37.5% |
| Personal Property Tax | $13,980 | 11.9% |
| Consumer Utility Tax | $59,520 | 50.6% |
| *Subtotal* | *$117,560* | *100.0%* |
| **Two-Over-Two** | | |
| Real Estate Tax | $5,530 | 38.0% |
| Personal Property Tax | $2,300 | 15.8% |
| Consumer Utility Tax | $6,720 | 46.2% |
| *Subtotal* | *$14,550* | *100.0%* |
| **Townhomes** | | |
| Real Estate Tax | $3,150 | 39.1% |
| Personal Property Tax | $1,250 | 15.5% |
| Consumer Utility Tax | $3,650 | 45.3% |
| *Subtotal* | *$8,050* | *100.0%* |
| **Total** | | |
| Real Estate Tax | $52,740 | 37.6% |
| Personal Property Tax | $17,530 | 12.5% |
| Consumer Utility Tax | $69,890 | 49.9% |
| **Total Revenue** | **$140,160** | **100.0%** |

Source: Town of Warrenton; S. Patz & Associates, Inc.

Each revenue source will be explained in the paragraphs to follow. A separate section of the report will address the costs of services and facilities that the Town of Warrenton must provide to serve the future development.

## Real Estate Tax

Development costs for Warrenton Village are detailed in Table 12. Total development costs are expected to be approximately $343,277 per apartment unit, $383,277 per two-over-two and $393,277 per townhome unit, including site preparation and land acquisition costs. These costs are based on data provided by the sponsor and are consistent with developments costs for other new, upscale rental communities in this part of Virginia. The total property development cost is approximately $131.5 million. At the Town's real estate tax rate of $0.0401 per $100 of

assessed value, real estate taxes would total $52,740 each year after buildout, in constant 2023 dollars.

**Table 12: Real Estate Tax, Warrenton Village at Build-Out, Warrenton, Virginia**
(Constant 2023 dollars)

| | Apartments | Two-Over-Two | Townhomes | Total |
|---|---|---|---|---|
| Cost/Price per Unit | $343,277 | $383,277 | $393,277 | $349,852 |
| Number of Units | 320 | 36 | 20 | 376 |
| Total Cost | $109,880,640 | $13,797,972 | $7,865,540 | $131,544,152 |
| Tax Rate | $0.0401/$100 | $0.0401/$100 | $0.0401/$100 | $0.0401/$100 |
| **Real Estate Tax** | **$44,060** | **$5,530** | **$3,150** | **$52,740** |

Source: Town of Warrenton, VA; S. Patz & Associates, Inc.

## Personal Property Tax

Personal property taxes for residences in Virginia are based on the depreciated values of vehicles used solely for residential purposes. Residents at Warrenton Village are projected to own approximately 575 vehicles, based on an estimated 1.53 vehicles per apartment unit and 2.00 per two-over two and townhome units at the community. This is in line with the average car ownership rate in the Town of Warrenton.

Residents of Warrenton are required to pay a flat fee of $25 per vehicle, as well as a personal property tax on vehicles at a rate of $1.00 per $100 in assessed value. The Town exempts the personal property tax on vehicles valued at less than $20,000 and exempts the tax on the first $20,000 of value for those that are worth more. To be conservative, only 15 percent of vehicles are estimated to be valued above $20,000. At this value, the total on-site personal property value for residents would come to approximately $298,000. At the tax rate of $1.00 per $100 of assessed value, on-site personal property taxes would be $2,980 annually in constant 2023 dollars. Added to this total is a flat fee of $25 per vehicle, which adds an additional revenue of $14,550 for a total revenue of $17,530. This is shown in Table 13.

**Table 13: Personal Property Taxes, Warrenton Village at Build-Out, Warrenton, Virginia**
(Constant 2023 Dollars)

| | Apartments | Two-Over-Two | Townhomes | Total |
|---|---|---|---|---|
| Number of Units | 320 | 36 | 20 | 376 |
| Percent Occupied | 97.0% | 97.0% | 97.0% | 97.0% |
| Occupied Units | 310 | 35 | 19 | 364 |
| Vehicles per Unit | 1.53 | 2.00 | 2.00 | 1.60 |
| Number of Vehicles | 474 | 70 | 38 | 582 |
| Number of Vehicles above $20,000 (15%) | 71 | 11 | 6 | 88 |
| Depreciated Value Per Vehicle (Above $20,000) | $3,000 | $5,000 | $5,000 | $3,350 |
| Total Depreciated Value | $213,000 | $55,000 | $30,000 | $298,000 |
| **Tax at $1.00/$100** | **$2,130** | **$550** | **$300** | **$2,980** |
| **+$25/Vehicle** | **$11,850** | **$1,750** | **$950** | **$14,550** |
| **Total Tax** | **$13,980** | **$2,300** | **$1,250** | **$17,530** |

Source: Town of Warrenton; S. Patz & Associates, Inc.

## Consumer Utility Tax

Consumer utility taxes are taxes on expenditures on consumer utilities including electricity, natural gas and telephone utilities. These taxes are collected by the utility companies and remitted to the Town. While the tax rates for the different utilities vary, experience has shown that the average tax is about $4.00 per utility, per month. This analysis assumes an occupancy rate of 97 percent to allow for lease-up and normal turnover. At this rate, there would be 364 occupied rental units. For four utilities per household, averaging $4.00 per utility per month for 12 months, the total utility tax for Warrenton Village would be $69,890 annually. This is shown in Table 14.

**Table 14: Consumer Utility Taxes, Warrenton Village at Build-Out, Warrenton, Virginia**
(Constant 2023 Dollars)

| | Apartments | Two-Over-Two | Townhomes | Total |
|---|---|---|---|---|
| Number of Units | 320 | 36 | 20 | 376 |
| Percent Occupied | 97.0% | 97.0% | 97.0% | 97.0% |
| Occupied Units | 310 | 35 | 19 | 364 |
| Utilities Per Unit | 4 | 4 | 4 | 4 |
| Each Utility Average | $4.00 | $4.00 | $4.00 | $4.00 |
| Number of Months | 12 | 12 | 12 | 12 |
| **Total Utility Tax** | **$59,520** | **$6,720** | **$3,650** | **$69,890** |

Source: Town of Warrenton; S. Patz & Associates, Inc.

## On-Site Fiscal Impacts: Town Costs to Serve Warrenton Village

The focus of the on-site fiscal impacts of costs to the Town of Warrenton from Warrenton Village is the General Fund Budget expenditures expressed on a per capita basis. Per capita expenditures are allocated (by type) to residents and businesses (in terms of numbers of employees) on a proportional basis according to utilization by each type of persons. These costs cover both other operations for services and capital improvements in the form of annual debt service to support the capital improvements programs of the Town. There are no impacts on schools, as public schools are funded by county, state and federal sources.

Budget expenditures will be discussed below, and per capita costs will be calculated based on current types of users. Applying these costs per capita to the residents of Warrenton Village produces an estimate of the annual costs to the Town for services to the proposed new apartment units.

For the Town's adopted FY 2023 budget, approximately 67.8 percent of all General Fund expenditures are supported by local taxes, the remainder being revenues from the state and federal governments. An examination of budgeted revenues for the year will demonstrate this proportion. The fiscal impact costs are based on General Fund expenditures supported by local taxes.

**Table 15: General Fund Revenue by Type from Local Taxes, Town of Warrenton, Virginia**

| | Amount | Percent of Total |
|---|---|---|
| General Property Taxes | $1,449,235 | 8.8% |
| Other Local Taxes | $9,675,138 | 58.9% |
| *Subtotal Local Taxes* | *$11,124,373* | *67.8%* |
| Non-Tax Revenue | $5,288,712 | 32.2% |
| **Total General Fund Revenue** | **$16,413,085** | **100.0%** |

Source: Adopted FY 2023 Budget for the Town of Warrenton

When the expenditures for each type of user are determined, and the tax-supported proportions are calculated, these costs are divided by the number of persons by type. The population of the Town of Warrenton is estimated to total 10,330± as of 2023, based on recent census data. Regarding jobs in the Town, data from the U.S. Bureau of Labor Statistics (BLS) only track the number of at-place jobs at the county-wide level and not the town level. This is the standard source of employment data for analyses of this type. Data from the Fauquier County Department of Economic Development show that approximately 14,000 people are employed within the Town limits. This is nearly 70 percent of total employment in Fauquier County.

When the expenditures for each type of user are determined, and the tax-supported proportions are calculated, these costs are divided by the number of persons by type. For residents, this is calculated at $558 per person, while it stands at $388 per employee for businesses. The disparity is due to approximately $2.61 million allocated to the Town's Parks and Recreation department.

The budget total for the Town for FY 2023, is $16.41 million, with 42.5 percent of that cost for the Town's population and 57.5 percent for employment, or persons with jobs in the Town.

**Table 16: Allocation of General Fund Expenditures by Type for Residents (Population) and Businesses (Employees), Town of Warrenton, Virginia**
(Constant 2023 dollars)

| | Adopted FY 2023 Population | Adopted FY 2023 Employment | Adopted FY 2023 Total |
|---|---|---|---|
| General Gov't Admin. | $915,956 | $1,241,372 | $2,157,328 |
| Public Safety | $1,806,918 | $2,448,872 | $4,255,790 |
| Public Works | $1,939,681 | $2,628,802 | $4,568,483 |
| Parks, Rec. & Culture | $2,608,455 | $0 | $2,608,455 |
| Community Development | $571,657 | $774,754 | $1,346,411 |
| Contributions | $29,022 | $39,332 | $68,354 |
| Non-departmental | $149,726 | $202,919 | $352,645 |
| Dept Service | $358,785 | $492,341 | $855,618 |
| Transfer to Capital | $84,916 | $115,084 | $200,000 |
| **Total General Fund Expenditures** | **$8,465,114** | **$7,943,477** | **$16,413,084** |
| | | | |
| Percent Tax Support | 67.78% | 67.78% | 67.78% |
| Tax-supported Expenditures | $5,737,440 | $5,383,888 | $11,124,372 |
| Number of Persons | 10,330 | 14,000 | 24,330 |
| Per Capita Tax Support | $555 | $385 | $457 |

Sources: FY 2023 Adopted Budget for Town of Warrenton, VA; U.S. Census Bureau, Fauquier County Department of Economic Development;

## Tax-Supported Costs of Warrenton Village

As explained above, costs to the Town to serve Warrenton Village are derived by multiplying the per capita costs of residents and employees by the numbers of those persons. These are tax-supported costs, to be compared to the taxes generated by Warrenton Village. The costs will cover costs of facilities in terms of debt service for capital improvements.

There is expected to be about 624 residents at Warrenton Village at build out, at a ratio of 1.3 people for one-bedroom units, 1.8 people for two-bedroom units and 2.2 persons for three-bedroom units. These data are based on current demographic trends at the existing newly built apartment complexes in the market area. Data were derived from interviews with on-site property managers in the region.

It was shown above in Table 16 that the average tax-supported cost for residents in the Town is $555 per resident. For the residents of Warrenton Village, total tax-supported costs to the

Town of Warrenton would be approximately $346,330. This calculation is presented in Table 17 below.

**Table 17: Tax Supported Costs for Residents, Warrenton Village, at Build-Out, Warrenton, Virginia**
(Constant 2023 Dollars)

| | Apartments | Two-Over-Two | Townhomes | Total |
|---|---|---|---|---|
| Number of Units | 320 | 36 | 20 | 376 |
| Percent Occupied | 97.0% | 97.0% | 97.0% | 97.0% |
| Occupied Units | 310 | 35 | 19 | 364 |
| Persons per Unit | 1.63 | 2.20 | 2.20 | 1.71 |
| Residents | 505 | 77 | 42 | 624 |
| Expenditure Per Capita | $555 | $555 | $555 | $555 |
| **Population Expenditures** | **$280,280** | **$42,740** | **$23,310** | **$346,330** |

Source: Town of Warrenton; S. Patz & Associates, Inc.

## On-Site Fiscal Impacts

Data in Table 18 below compares the calculated on-site tax revenues expected from Warrenton Village at build-out with the tax-supported costs required to serve the residents of the new rental units to be built. The annual net fiscal benefit will be a deficit of $206,170, in constant 2023 dollars.

**Table 18: Net On-Site Fiscal Tax Benefit, Warrenton Village, at Build-Out, Warrenton, Virginia**
(Constant 2023 dollars)

| | Apartments | Two-Over-Two | Townhomes | Total |
|---|---|---|---|---|
| Total Tax Revenue | $117,560 | $14,550 | $8,050 | $140,160 |
| Population Expenditures | -$280,280 | -$42,740 | -$23,310 | -$346,330 |
| **Net Fiscal Benefit** | **-$162,720** | **-$28,190** | **-$15,260** | **-$206,170** |

Source: Town of Warrenton; S. Patz & Associates, Inc.

## Off-Site Impacts: Economic and Fiscal

In addition to the revenues and costs that accrue to the Town of Warrenton from the apartments "on-site" – that is, due to the apartments and residents themselves in their dwellings, there are also off-site impacts that occur, as residents spend part of their income in the Town for consumer goods, and as businesses re-spend the income from purchases by residents by the

purchase of goods and services from other vendors in the Town. Calculations to follow are reduced by 30 percent to account for expenditure that occurs to businesses outside of the Town. This ratio is based on the number of employees in the Town relative to the County. This is a conservative estimate.

The U.S. Bureau of Labor Statistics details average consumer expenditure by location and income levels. There is no direct budget information for Fauquier County or the Town of Warrenton. Instead, national data for a budget for household incomes, based on national averages, has been chosen for this calculation. Among the larger expenditures by consumers are over 20± percent for housing and over 25± percent for retail trade, including automobiles.

Consumer expenditures made off-site in Warrenton are translated into economic impacts in the Town using multiplier matrices provided for the local area by the U.S. Bureau of Economic Analysis, Department of Commerce. These multipliers capture the round-by-round flows of expenditures in the Town initiated by residents at the new homes. There are separate matrices for business receipts, employment and employee earnings. The items in the consumer budget are multiplied in turn by these expenditure-specific categories in each matrix and summed to give the "ripple effect" of circulation of money through the economy. The ripple effects, plus the original consumer expenditures, equal the total economic impacts of homes residents on the Town economy.

**Business Receipts**

Residents of Warrenton Village are anticipated to allocate approximately 78.9 percent of their total income towards non-housing expenditures. The residual income is predominantly apportioned towards taxes and personal savings. The income estimates of future tenants are deduced from the proposed rents outlined in Table 1, with an assumption that a typical household will have an income that is approximately 15.0 percent higher than the minimum required to qualify for residency in the community. This requirement stipulates that a minimum of 30 percent of income be allocated towards net rent. This income range is conservative and is

representative of the anticipated typical renter demographic within the community, as the majority are expected to earn above the established minimum threshold.

Overall, this equates to $26.4 million in annual consumer expenditures from the expected residents at full build-out. The ripple, or multiplier effect, will generate another $52.3 million in annual receipts among Town businesses, for a total business receipts impact of $78.6 million. These business receipts will form the basis for many tax receipts for the Town of Warrenton from the impacted businesses.

| Source of Impact | Apartments | Two-Over-Two | Townhomes | Total |
|---|---|---|---|---|
| Direct Consumer Expenditures | $20,324,220 | $3,268,300 | $2,753,100 | $26,345,620 |
| Indirect Ripple Effect | $41,637,240 | $6,695,610 | $3,948,100 | $52,280,950 |
| **Total Business Receipts** | **$61,961,460** | **$9,963,910** | **$6,701,200** | **$78,626,570** |

## Employment and Earnings

Since there are only a few employees on-site for the apartment units, essentially all employment and employee earnings impacts come from the ripple or multiplier effects on businesses, i.e., employee earnings that support increased business receipts in the Town. There will be approximately 476 new full-time equivalent employment positions created from resident expenditures at Warrenton Village, over time, with total earnings for these employees of $21.5 million.

| Spinoff Employment and Salaries | | | |
|---|---|---|---|
| | Employees | Average Salary | Total Earnings |
| Apartments | 379 | $45,185 | $17,125,115 |
| Two-Over-Two | 61 | $45,183 | $2,756,163 |
| Townhomes | 36 | $45,450 | $1,636,200 |
| **Total/ Average** | **476** | **$45,273** | **$21,517,478** |

The new jobs to be created by the construction of Warrenton Village would not only enhance Warrenton's economic vitality but also diversify the employment base. The creation of these new jobs will span various sectors, reflecting the broad impact of the proposed

development. It is important to underscore that this job growth will have a multiplier effect, stimulating other sectors of the local economy indirectly. The new jobs, along with the associated attraction of new residents and increased patronage of local businesses, would significantly contribute to attracting further investment from potential employers.

Furthermore, the proposed development aligns with Warrenton's comprehensive plan which envisions the Town as a hub for culture, entertainment, and the arts. The design elements of the project are formulated to enrich the Town's cultural fabric, including providing a diversity of home types. As such, the merits of this development extend beyond immediate economic advantages and aim to cultivate a long-term vision for Warrenton.

**Off-Site Fiscal Impact**

Table 19 summarizes the revenues and costs to the Town of Warrenton from the off-site impacts of Warrenton Village. These impacts derive primarily from the $78.6 million in new business receipts in the Town, plus estimates of real property and business personal property for a typical commercial operation. It is proper to look at these impacts as long-term. That is, it is not likely that the projected 476 new employees will be immediate or lead to abrupt expansion of the property tax base, but this should happen over time as part of business expansion in the Town.

Other tax receipts should accrue as soon as consumers at Warrenton Village begin making expenditures, that is, as soon as the property is built out and stabilized occupancies are achieved. In the short run, revenues should start at approximately $65,330 rising to $435,540 as businesses expand physically. Costs are based on 476 new employees within the Town at a cost to the Town of $385 per employee, as derived above in Table 16. With costs of $183,270, the net fiscal benefits from off-site expenditures from Warrenton Village residents should be approximately $252,270.

**Table 19: Off-Site Fiscal Impact of Consumer Expenditures by Type, Residents of Warrenton Village, at Build-Out, Warrenton, Virginia**
(Constant 2023 dollars)

| | Apartments | Two-Over-Two | Townhomes | Total |
|---|---|---|---|---|
| **Annual Revenues for the Town:** | | | | |
| Real Estate Tax | $12,150 | $1,950 | $1,640 | $15,740 |
| Business Property Tax | $37,870 | $6,090 | $5,100 | $49,060 |
| Cigarette Tax | $2,190 | $350 | $210 | $2,750 |
| Machinery and Tools Tax | $34,820 | $5,600 | $4,720 | $45,140 |
| Retail Sales Tax | $38,890 | $6,250 | $5,270 | $50,410 |
| BPOL Tax | $37,910 | $6,100 | $5,130 | $49,140 |
| Transient Occupancy Tax | $24,880 | $4,000 | $3,370 | $32,250 |
| Utility Tax | $13,040 | $2,130 | $1,290 | $16,460 |
| Bank Franchise Tax | $10,950 | $2,760 | $1,640 | $15,350 |
| Meals Tax | $105,680 | $16,990 | $10,020 | $132,690 |
| Motor Vehicle Licenses | $10,650 | $1,720 | $1,430 | $13,800 |
| Personal Property Tax | $9,840 | $1,580 | $1,330 | $12,750 |
| **Total Revenue** | **$338,870** | **$55,520** | **$41,150** | **$435,540** |
| **Less Costs to the Town** | **-$145,920** | **-$23,490** | **-$13,860** | **-$183,270** |
| **Net Fiscal Benefit to the Town** | **$192,950** | **$32,030** | **$27,290** | **$252,270** |

Source: RIMS II Modeling System; U.S. Bureau of Economic Analysis; S. Patz & Associates, Inc.

## Warrenton Village Conclusions

Table 20 shows a summary of net tax benefits for the proposed rental units at Warrenton Village. On-site benefits will produce a deficit of $206,170 due to the Town's low real estate tax rates. The off-site benefits will total $252,270, and therefore fully offset any on-site losses. Combined, this will generate a fiscal surplus of $46,100 annually at build-out for the Town of Warrenton.

**Table 20: Summary of On-Site and Off-Site Fiscal Impacts of Apartments, Warrenton Village at Build-Out, Warrenton, Virginia**
(Constant 2023 Dollars)

| Source of Fiscal Impacts on the Town | Impacts On-Site in Warrenton | Impacts Off-Site in Warrenton | Total Fiscal Impacts |
|---|---|---|---|
| **Apartments (320 Units)** | | | |
| Revenues to the Town | $117,560 | $338,870 | $456,430 |
| Town Costs | -$280,280 | -$145,920 | -$426,200 |
| *Subtotal* | *-$162,720* | *$192,950* | *$30,230* |
| **Two-Over-Two (36 Units)** | | | |
| Revenues to the Town | $14,550 | $55,520 | $70,070 |
| Town Costs | -$42,740 | -$23,490 | -$66,230 |
| *Subtotal* | *-$28,190* | *$32,030* | *$3,840* |
| **Townhomes (20 Units)** | | | |
| Revenues to the Town | $8,050 | $41,150 | $49,200 |
| Town Costs | -$23,310 | -$13,860 | -$37,170 |
| *Subtotal* | *-$15,260* | *$27,290* | *$12,030* |
| **Total Residential (376 units)** | | | |
| Revenues to the Town | $140,160 | $435,540 | $575,700 |
| Town Costs | -$346,330 | -$183,270 | -$529,600 |
| **Net Fiscal Benefits** | **-$206,170** | **$252,270** | **$46,100** |

Source: Town of Warrenton, VA; S. Patz & Associates, Inc.

EXPERIENCE WARRENTON VIRGINIA EST. 1810

# Planning Commission Work Session
# SUP 2022-04 Warrenton Village Center Mixed Use
# March 19, 2024

*PC Decision Deadline June 27,2024 Unless Applicant Defers*

# Special Use Permit Application

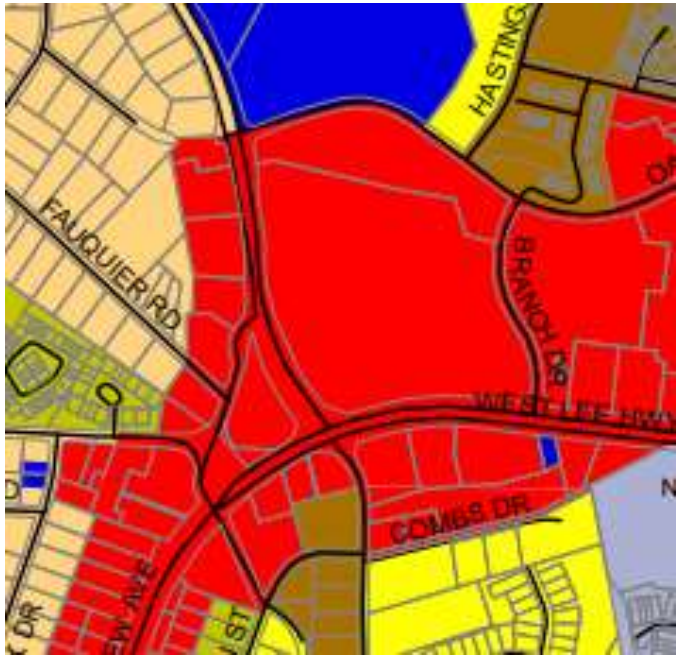
- **GPINs:** 6984-20-7247-000/6984-29-6753-000
- **Property Owner:** Warrenton Center LLC/Jefferson Associates LP
- **Representative:** Jess Achenbach, Castle Development Partners
- **Zoning: C** (Commercial)
- **Comprehensive Plan:** New Town Character District
- **SUP** to allow for mixed use development on approximately 29.05 Acres
- Maximum 386 Residential Dwellings
  - 320 Rental Apartments 1-3 BD
  - Approximately 36 2 over 2
  - Approximately 30 Townhomes
  - 10% Affordable Dwelling Unit

## Location



# Adjacent Land Uses

## Zoning Map




Existing Commercial

Public/Semi Public School

Senior Care

Apartments



# Future Land Use Map



# Plan Warrenton 2040

- Walkability Audit & Complete Streets
- 10 Guiding Principles
  - Discernible Center
  - Connected Sidewalks, Street Trees, Lighting
  - Buildings close to the street
  - Parking behind buildings
  - Variety of Dwelling Types
  - Park/Trail/Activity Center ½ mile radius
- Broadview = Gateway
- Lee Highway = Boulevard
- Oak Springs Drive/ Branch = Neighborhood



**New Town Warrenton District**

With large lots, direct access from Route 29, and high visibility, this district could be a location for a signature office/jobs center; with greater intensity of mixed use and strong live, work, and play options. A mix of uses could be organized around an internal street network and public amenities, such as civic spaces, parks, green space, and public gathering areas.

# Smart Scale Projects









# Proposal




## Proposal Includes

- 320 Apartments 1-3 BD, 4 story parking garage
- 36 2 over 2 4 story, 1 car garage
- 30 Townhomes 3 Story, 2 car garage
- 10% Affordable Dwellings
- Central Plaza
- Dog Park
- Pedestrian Connectivity/Crosswalks
- Hastings Lane Extension

# Elevations





# Elevations





# Agency Reviews



- Full site
- Transportation and Internal Circulation
- Parking
- Walkability/Bicycle/Grid Connections
- Landscaping/Signage
- Lighting
- VDOT Pipeline Study/Smart Scale
- Plan Warrenton 2040

# Requested Modifications and Waivers

- Increase in maximum density
- Broadview Avenue Setbacks
- Side and Rear Yard Setbacks
- Decrease Buffers between Commercial and Residential Uses
- Building Heights; plus along Oak Springs and Broadview

NEWCASTLE
DEVELOPMENT GROUP

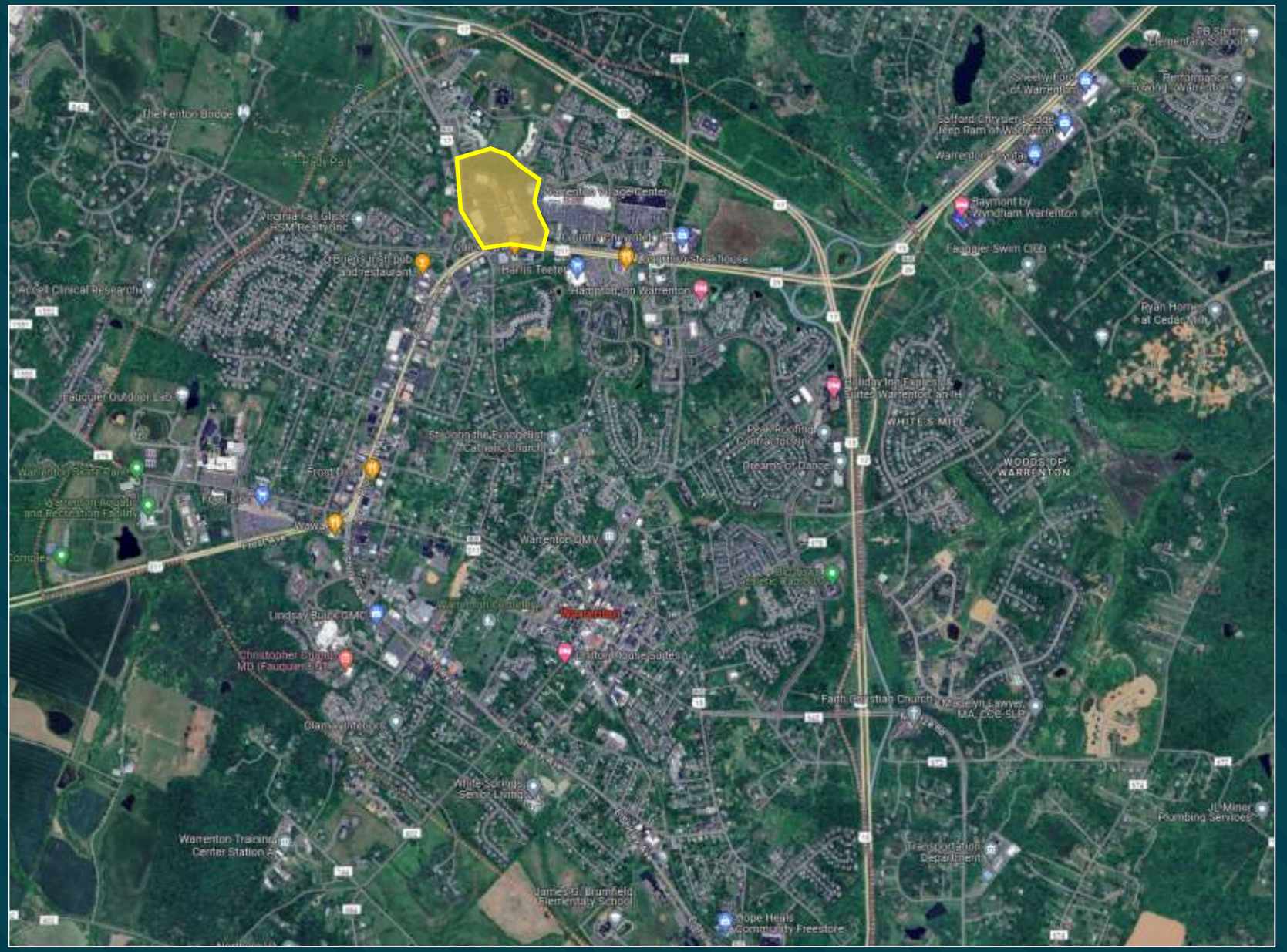
# SPECIAL USE PERMIT #SUP 22-5

## WARRENTON VILLAGE CENTER

***PLANNING COMMISSION WORK SESSION***
***MARCH 19, 2024***



# LOCATION




**Warrenton Village Center**
Built in 1959

**West Lee Hwy.**
Warrenton, VA 20186

**218,000 SF**
Existing Commercial Space

**~6.5 acres**
Currently Vacant Land

# EXISTING CONDITIONS



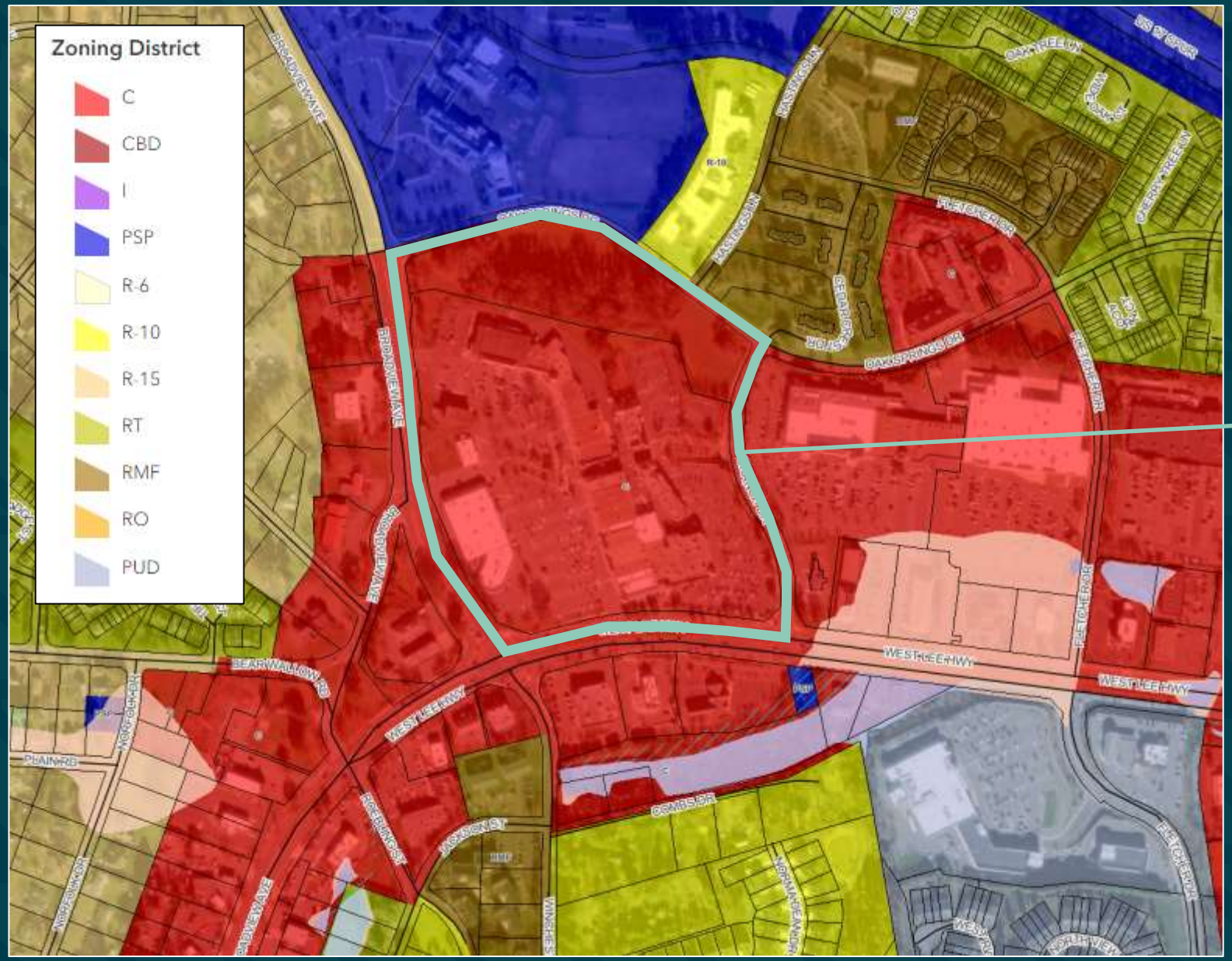


**Proposed Development Area**

**Existing Commercial Center**

# ZONING






**Commercial (C)**

# COMPREHENSIVE PLAN

EXPERIENCE WARRENTON VIRGINIA

## PLAN WARRENTON 2040

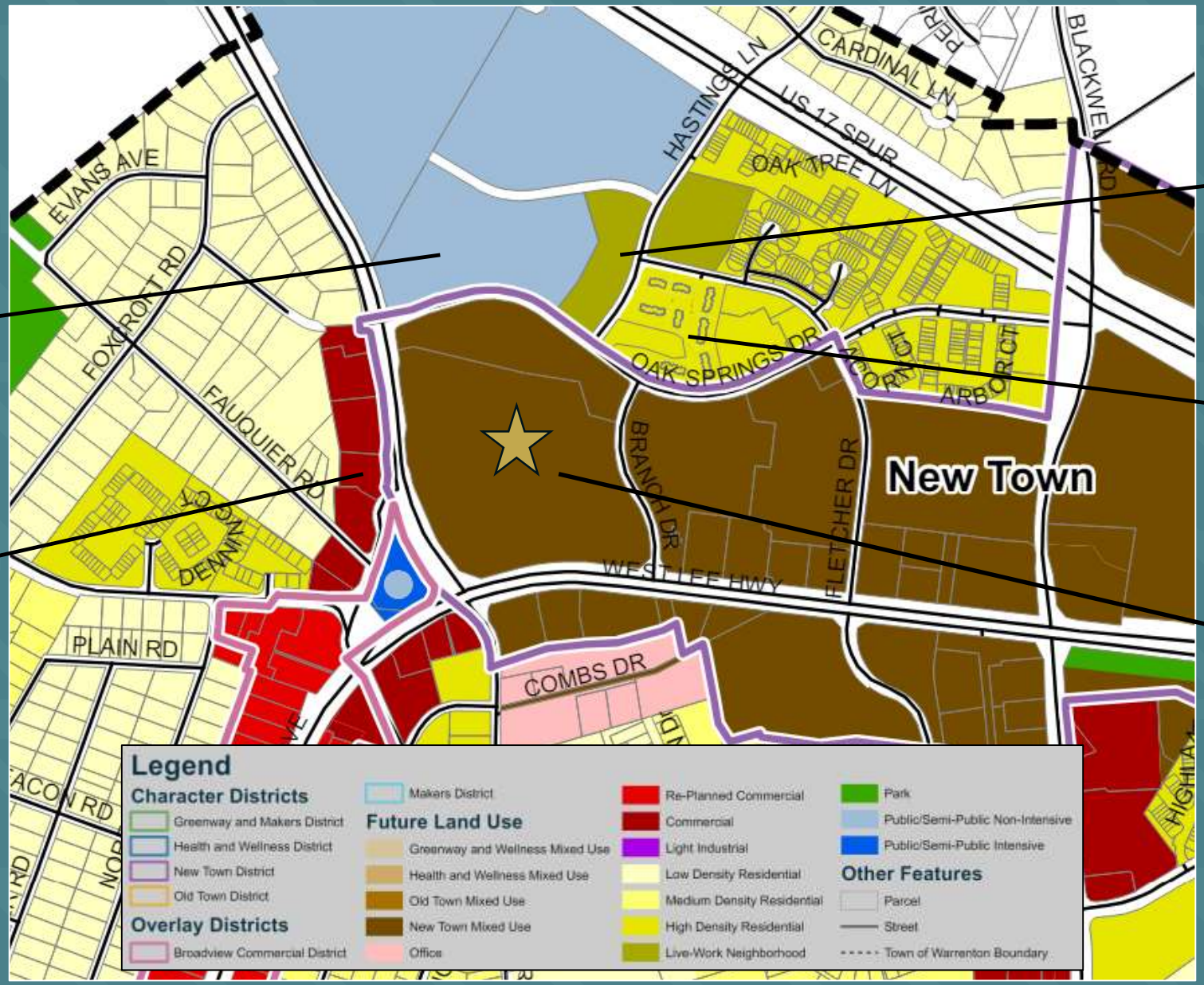


# FUTURE LAND USE MAP



Public/Semi-Public Non-Intensive

Commercial




Live-Work Neighborhood

High Density Residential

New Town Mixed Use

# CHARACTER DISTRICTS





New Town Warrenton District

With large lots, direct access from Route 29, and high visibility, this district could be a location for a signature office/jobs center; with greater intensity of mixed use and strong live, work, and play options. A mix of uses could be organized around an internal street network and public amenities, such as civic spaces, parks, green space, and public gathering areas.

## THE TEN GUIDING PRINCIPLES FOR CHARACTER DISTRICTS

1. **A discernible center.** Every neighborhood should have a discernible center that is walkable within a quarter-mile radius. The center can accommodate programmed or spontaneous events, or simply be a place people relax or meet friends. The center is often a hardscaped plaza or a green or park space; sometimes it can even be a busy street corner or a main street.
2. **Connected sidewalks with a clear pedestrian path, street trees, and lighting.** Streets within the Character District form a connected network, which disperses traffic by providing a variety of pedestrian and vehicular routes to any destination. There is an interconnected street grid network that disperses traffic and eases walking.
3. **Buildings that are placed close to the street to create a sense of place.** All buildings are directly accessible with front doors from the street.
4. **Parking placed behind buildings and away from street frontages.** Interior access roads to services and parking are designed into the site plan.
5. **Complete streets create a balance between cars, pedestrians, and bicyclists.** Complete Streets have no singular design prescription. Each one is unique and responds to its community context; however, complete streets are designed to balance drivers, pedestrians, and bicyclists.
6. **Compact street blocks encourage walking.** Compact street blocks that are 200 to 400 feet wide and up to 600-feet deep provide a comfortable neighborhood scale that facilitates a fine-grain development pattern and walking experience. For blocks that exceed the maximum recommended length of 600 feet, a mid-block pedestrian path is recommended to allow for passage.
7. **A park, trail, or activity center is within a half mile walking radius.** Linkages to pedestrian amenities can be made with continuous sidewalks, street trees, and through-block pedestrian pathways.
8. **A variety of dwelling types accommodates a wide range of family sizes and income levels and commercial activity.** The variety provides synergy among uses and creates an immediate critical mass to sustain retail and commercial uses.
9. **Neighborhood identity connects district wayfinding and identification with a larger marketing effort to bring private investment to the neighborhood.** Neighborhood identity provides the brand and image of the area, and a basis for a marketing strategy to promote businesses, events, and future development opportunities.
10. **The neighborhood edge provides the means of transition from the Character District to adjoining properties.** The edge would transition to adjacent established neighborhoods and future land-use categories and exhibit compatibility in scale, massing, and setback with existing and planned developed on adjacent land.

# COMPREHENSIVE PLAN





## WHAT CAN NEW TOWN WARRENTON DISTRICT BE IN THE YEAR 2040?



Internal walkable streets and hardscaped plazas that can accommodate events and pedestrian activity.



Multi-purpose public areas can accommodate annual and regional events.



A mix of employment, residential, and commercial uses can be designed around public amenities.



The development along the neighborhood edge is compatible with adjoining neighborhoods.



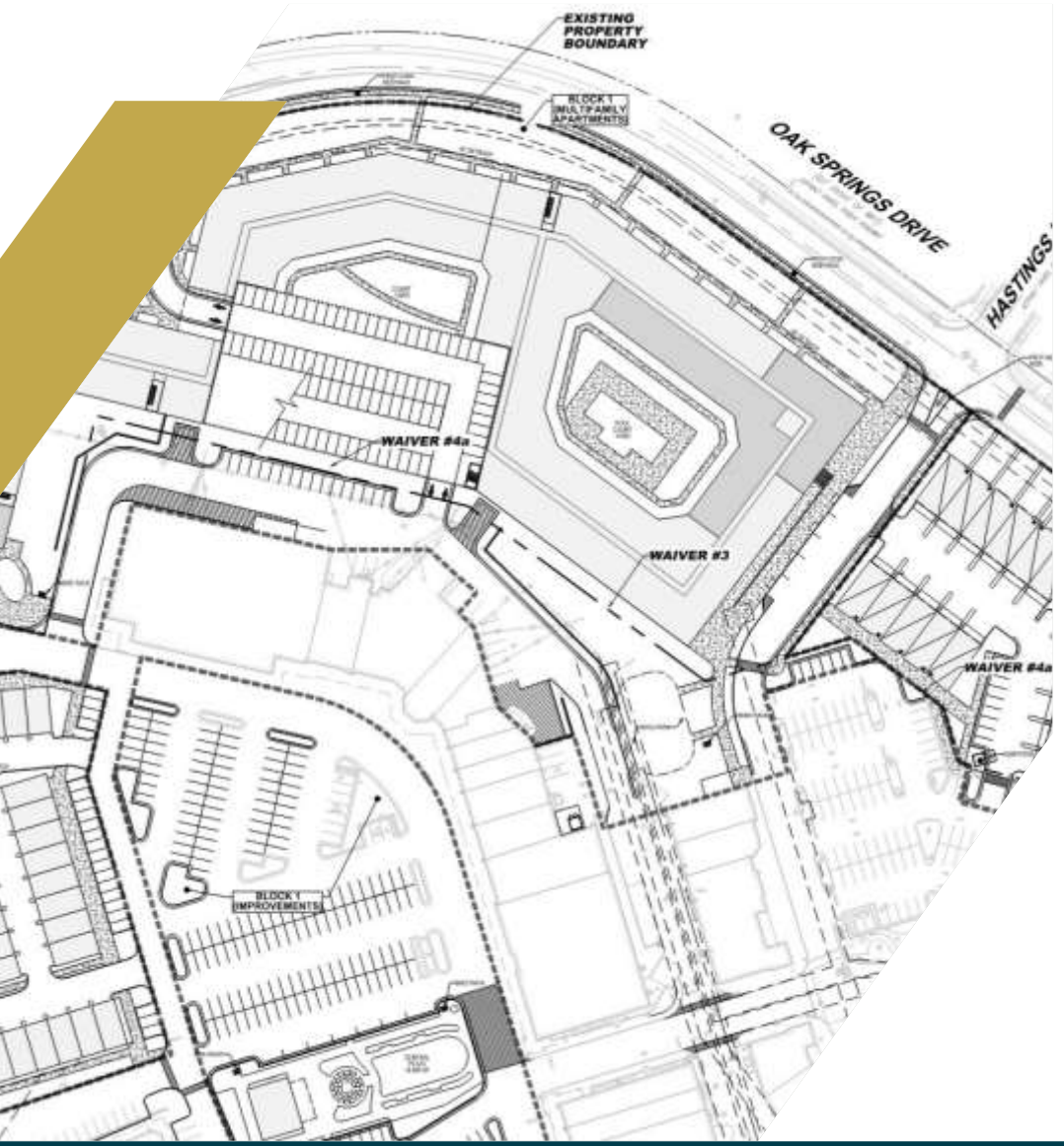
Daylighting flood plains (as a flood control project) provides an opportunity to create park with pedestrian amenities. Carroll Creek Park. Frederick, MD



Create residential communities with visual sight lines through the development, and where possible, with pedestrian pathways.

# SUP MODIFICATION & WAIVERS






- **Waiver Request #1:** Increase density to 386 units or 13.28 per acre
- **Waiver Request #2:** Decrease minimum setback to 14′ along Broadview Avenue
- **Waiver Request #3:** Decrease side/rear yard setbacks to 0′
- **Waiver Request #4a:** Decrease buffer width between commercial and residential uses to 0′
- **Waiver Request #4b:** Decrease rear buffer width for residential uses from public ROW to 14′
- **Waiver Request #5:** Increase height limit for dwellings as follows:
  - 54′ max height for Block 1, Oak Springs Drive Frontage
  - 36′ max height for Block 1, Broadview Drive Frontage
  - 45′ max height for Block 2
  - 36′ max height for Block 3

# BENEFITS OF PROPOSAL

## PLAN 2040

Advances all goals of Plan 2040 Character Districts

## HOUSING SUPPLY

Provides much needed additional housing supply near retail and other services/facilities via infill development and not urban sprawl

## HOUSING TYPES

Provides much needed housing types unique to the Town, including "missing middle" townhomes, 2-over-2s and the first new multifamily community in decades

## AFFORDABLE HOUSING

10% of units within each residential block will be dedicated as Affordable Dwelling Units, restricted to residents with household incomes below 80% AMI at restricted rental rates

## PEDESTRIAN ACCESS

Provides new and improved, safe pedestrian access to and circulation within Warrenton Village Center for new residents and existing neighbors

## PUBLIC SPACES

The Central Plaza will be the new centerpiece of the Center, featuring activity and eating areas and a splashpad; a new dog park and picnic area will also be open to for public use

## INCREASED PATRONAGE

New resident supply will provide increased patronage to all of Warrenton's existing businesses

## ECONOMIC IMPACT

$46,100 projected annual surplus for the Town of Warrenton

# RESIDENTIAL BLOCK 1

## Multi-Family Apartments

- Location: Vacant land on north side of the Center along Oak Springs Drive
- Units: Up to 320 total units
- Types: 1-, 2-, and 3-bedroom apartment units
- Parking: Internal 4-level parking garage
- Amenities:
  - 10,000 square foot leasing and amenity center
  - Central Plaza
  - East & West “Entrance” Plazas
  - Dog Park & Picnic Area
  - Pedestrian connectivity and circulation



# RESIDENTIAL BLOCK 1






*West facing elevation from Hastings Lane*




*East facing elevation from Broadview Ave*

# RESIDENTIAL BLOCK 1




*South facing elevation from Oak Springs Drive (left side)*




*South facing elevation from Oak Springs Drive (right side)*

# RESIDENTIAL BLOCK 1



*Leasing entrance at intersection of Oaks Springs Drive & Hastings Lane*



# RESIDENTIAL BLOCK 1

*View from intersection of Oaks Springs Drive & Hasting Lane*
**Block 1 (Apartment Bldg.) on right; Block 2 (2-Over-2s) on left*



# RESIDENTIAL BLOCK 1

*View from intersection of Oaks Springs Drive & Broadview Avenue*



# RESIDENTIAL BLOCK 1

*View from Broadview Avenue entrance into Warrenton Village Center*



# RESIDENTIAL BLOCK 1

*View from Hastings Lane out towards Oaks Springs Drive entrance*
**Block 1 (Apartment Bldg.) on left; Block 2 (2-Over-2s) on right*



# RESIDENTIAL BLOCK 1

*View from within Center out towards Broadview Avenue entrance*
**Block 1 (Apartment Bldg.) on right; Block 3 (Townhomes) on left*



# RESIDENTIAL BLOCK 2

## Multi-Family 2-Over-2

- Location: Vacant land at northeast corner of the Center at intersection of Oak Springs Drive and Branch Drive
- Units: Up to 36 total units
- Widths: Units currently proposed with 24' widths, yielding a plan count of 34 units. Proposal is up to 36 total units to account for width flexibility, which could impact total unit count.
- Types: 2-story, 3-bedroom "condo" units
- Parking: Each unit has one internal parking garage and one dedicated exterior surface space



# RESIDENTIAL BLOCK 2






*Front and side elevations*

# RESIDENTIAL BLOCK 2



*View from Oak Springs Drive*

# RESIDENTIAL BLOCK 3

## Multi-Family Townhomes

- Location: West side of the Center along Broadview Avenue, currently occupied by Summit Community bank and a vacant commercial bank building
- Units: Up to 30 total units
- Widths: Units currently proposed with 20' widths, yielding a plan count of 29 units. Proposal is up to 30 total units to account for width flexibility, which could impact total unit count.
- Types: 3-story, 3-bedroom townhome units
- Parking: Each unit has two internal parking garages and two dedicated exterior surface spaces



# RESIDENTIAL BLOCK 3






*Front and side elevations*

# RESIDENTIAL BLOCK 3





*View from Broadview Avenue*

# RESIDENTIAL BLOCK 3





*View of townhomes from within the Center*

# PROJECT IMPROVEMENTS



## CENTRAL PLAZA

A new vehicular and pedestrian hub that will function as the heart of the Center and is sized, programmed, and planned to allow for community activities as well as everyday use

## EAST & WEST PLAZAS

Smaller public plazas are proposed at the Broadview Avenue entrance and the Hasting Lane entrance to serve as “doorways” into the Center and enhance walkability between uses

## DOG PARK / PICNIC AREA

New off-leash, fenced dog park and picnic areas will be accessible to the public.

## OAK SPRINGS CROSSWALKS

Two crosswalks are proposed on Oak Springs Drive—one at Hastings Lane and one at the Highland School entrance, which will provide safe access for neighbors to the north

## SIDEWALK RING COMPLETION

Proposal will complete a full ring of sidewalk around the entire Center, including the addition of a missing section of sidewalk behind Galaxy Strike Bowling

## HASTINGS LANE EXTENSION

New vehicular and pedestrian entrance into the Center is proposed at the Oak Springs Drive and Hastings Lane intersection

## MODIFIED ALLEY

Will serve as a secondary vehicular ingress/egress into the garage, as well as provide both residential and commercial loading and trash pickup areas

## PEDESTRIAN CIRCULATION

Proposal includes an enhanced system of sidewalks, crosswalks and wayfinding to improve the safety and ease of pedestrian access the Center’s businesses

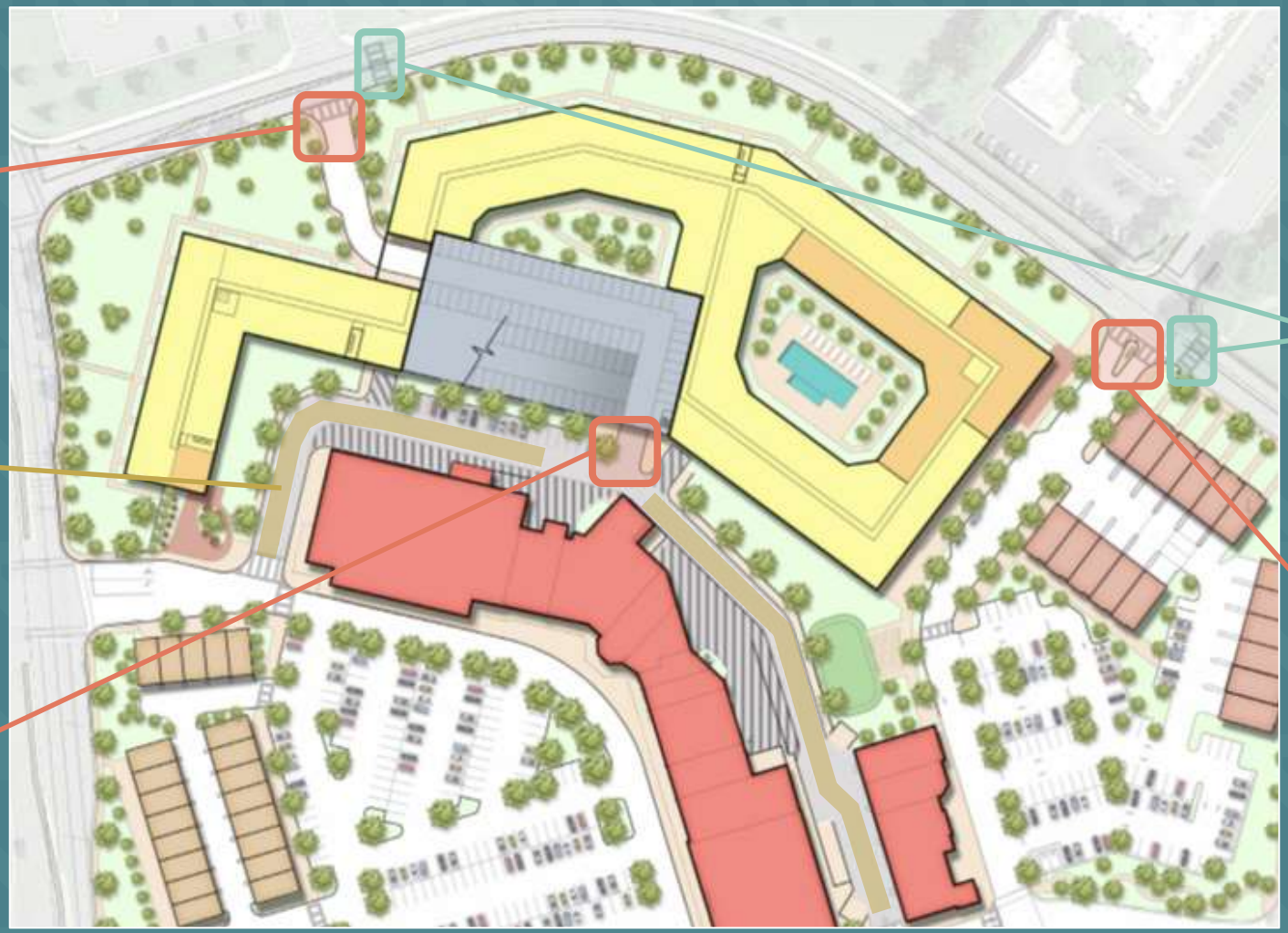
# PROJECT IMPROVEMENTS – TRAFFIC



Oak Springs Entrance

Modified Alley

Secondary Garage Entrance



Oak Springs Crosswalks

Hastings Lane Entrance

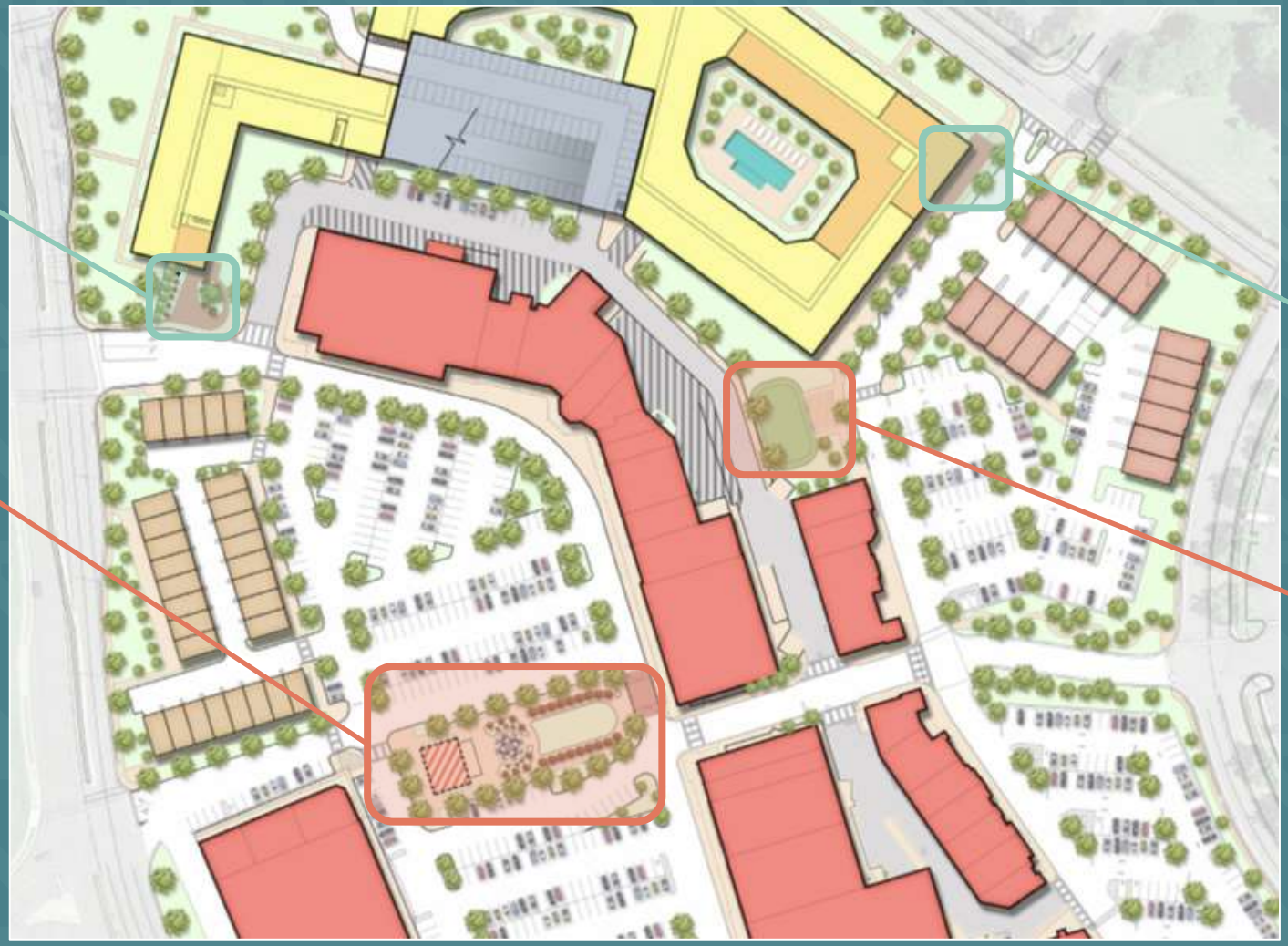
# PROJECT IMPROVEMENTS – PUBLIC SPACE



West Plaza

Central Plaza

Pedestrian Circulation



East Plaza

Dog Park & Picnic Area

# PROJECT IMPROVEMENTS






*Bird's eye view of Central Plaza*

# PROJECT IMPROVEMENTS





*Alternate bird's eye view of Central Plaza (Note Blocks 1 & 2 in background)*

# PROJECT IMPROVEMENTS






*Ground level view of Central Plaza*

# PROJECT IMPROVEMENTS






*Ground level view within Central Plaza (Note Blocks 1 & 3 in background)*

# PROJECT IMPROVEMENTS






*Ground level view of pedestrian access to Central Plaza (Note Block 3 in background)*

# PROJECT IMPROVEMENTS






*Ground level view of Central Plaza*

# PROJECT IMPROVEMENTS





*Ground level view of West Plaza*

# PROJECT IMPROVEMENTS






*Ground level view of East Plaza*

NEWCASTLE
DEVELOPMENT GROUP

# SPECIAL USE PERMIT #SUP 22-5

## WARRENTON VILLAGE CENTER

***PLANNING COMMISSION WORK SESSION***
***APRIL 16, 2024***



# AGENDAS



## WORK SESSION #2 – APRIL 16TH, 2024

- A Product of Plan Warrenton 2040
- Warrenton Housing Market & Economic Impacts
- Architecture
- Public Improvements

## WORK SESSION #3 – APRIL 23RD, 2024

- Modification/Waiver Requests
- Water/Sewer Impacts
- Transportation
- Schools

# A PRODUCT OF PLAN WARRENTON 2040

# WHY HERE, WHY NOW?

Warrenton Economic White Papers

- Plan Warrenton 2040 Economic Goals & Fiscal Sustainability
  - Emphasis on Mixed-Use Development, Infill Revitalization, Live/Work/Play
    - Creation of the New Town Character District
      - Warrenton Village Center SUP Proposal

# WHITE PAPER FINDINGS – ECONOMIC BASE (RKG)

- Since the ‘08 Recession, the Regional economy has become more robust with more high-skilled, high paying occupations compared to Warrenton
- Three primary factors that have driven Regional economic growth, relative to Warrenton:
    1) Strong integration of services and entertainment venues with work locations
    2) Strong transportation connectivity between employment and residences
    3) Diversity in housing types and prices
- The strongest growth markets have created the strongest live-work-play environments
- These markets attract workers at all skill levels
- Warrenton does not offer the same amenities and housing options that draw a more diverse workforce and makes attracting companies more challenging given their respective options regionally

# WHITE PAPER FINDINGS – FISCAL SUSTAINABILITY (RKG)

- An economic model was created to determine the impact of land use decisions and the resulting economic ramifications
- The model weighed the cost of the Town's desired capital projects against different growth scenarios:

| Scenario | Intended Growth Strategy | New Housing Units (by 2039) | Annual Net Fiscal Impact |
|---|---|---|---|
| 1 | Minimal growth, i.e. 2010 – 2019 trends | Minimal | ($508,808) |
| 2 | Become a stronger livable community | 750+ | ($240,682) |
| 3 | Become a livable destination community | 1,150+ | $102,185 |
| 4 | Become a regional live/work community | 2,100+ | $335,535 |

**RKG Conclusion:**

- To achieve the level of services and amenities desired by the citizens of Warrenton, the Town must increase its development activity
- Warrenton cannot "save its way" (i.e. cut back on spending) to fiscal sustainability
- Without residential development, "the Town does not have the demand to continue to increase retail services."

# WHITE PAPER FINDINGS – FISCAL SUSTAINABILITY (RKG)

RKG summarizes,

"Balancing the uses between residential and nonresidential uses will be critical from both a market perspective and a fiscal one. Simply put, growth in commercial development (particularly retail and dining venues) will require greater consumer spending, which primarily comes from local households… Having a high quality, well-integrated live/work/recreate community is a fundamental need to attracting these workers (and as a result, their companies)."

# PLAN WARRENTON 2040

- The White Paper recommendations, particularly with respect to the need for additional housing, heavily influenced the creation of the Warrenton 2040 Plan
- It is incorporated by reference into the Plan
- The ability to satisfy this housing need is addressed throughout the Plan: **Specifically, Character Districts are envisioned to contain a variety of attainable housing types**

> **H-2.2:** Increase opportunities for multi-family and mixed-use residential development by updating the commercial corridors in the Character Districts to allow for appropriate use and scale transitions into existing neighborhoods.



**New Town Warrenton District**

With large lots, direct access from Route 29, and high visibility, this district could be a location for a signature office/jobs center; with greater intensity of mixed use and strong live, work, and play options. A mix of uses could be organized around an internal street network and public amenities, such as civic spaces, parks, green space, and public gathering areas.

## GOALS

**H-1: Ensure equitable, attainable housing opportunities across residents of all ages, incomes, and abilities by catering to the needs of a diverse community, including young families, professionals early in their careers, essential workforce, and those entering retirement.**

### POLICIES & STRATEGIES

**H-1.1:** Encourage development of the "Missing Middle" housing types beyond traditional single-family homes, townhouses, and apartments by updating the Zoning Ordinance to create a beneficial mix.

**H-2: Character Districts will accommodate a balance of available housing typologies that are compatible to existing neighborhoods in scale, character, and transition.**

# WHY HERE, WHY NOW?



The Warrenton Village Center SUP proposal is the desired result of a lengthy process of review, comparison analysis and decision making by the Town of Warrenton – from the White Papers through the Plan Warrenton 2040 drafting and adoption – and will serve as the building block upon which to create a highly desirable live/work/play community that is the goal of the Plan Warrenton 2040 New Town Character District

# WARRENTON HOUSING MARKET & ECONOMIC IMPACTS

# IMPACT OF THE WARRENTON HOUSING SUPPLY

- As forecast by the White Papers, the lack of housing supply and typology has had impacts that we can see on today's Warrenton housing market and overall economics:
  - Potential renters who are employed locally must often rent outside of Warrenton
  - Commuters to D.C. based jobs can't consider Warrenton when searching for relocation options
  - Area employers have challenges attracting new employees
- Due to the scarcity of rental units, potential renters do one of three things:
  - 1) pay above market rents for the few desirable units available
  - 2) resort to leasing less desirable units
  - 3) look elsewhere, outside of Warrenton
- These outcomes are all detrimental to the Warrenton economy and the existing community

# CURRENT RENTAL ENVIRONMENT

## 1) APARTMENT COMMUNITIES

- There are six (6) apartment communities in the Warrenton area that are income and/or age restricted
- There is one (1) market rate apartment community in Warrenton
- Per a 4/4/24 search, there were zero (0) apartment units available for immediate occupancy in any of Warrenton's apartment communities

| Apartment Communities | Year Built | Total Units | Available Units* | Age Restricted | Income Restricted |
|---|---|---|---|---|---|
| Moffett Manor | 2007 | 98 | 0 | Senior (55+) | 50% & 60% AMI Programs |
| Steeplechase | 2000 | 56 | 0 | Senior (55+) | 50% & 60% AMI Programs |
| The Oaks | 1996 | 111 | 0 | Senior (55+) | 50% & 60% AMI Programs |
| Highland Commons | 1994 | 96 | 0 | No | 50% & 60% AMI Programs |
| Warrenton Manor | 1985 | 98 | 0 | Senior (55+) | 30%, 50%, 60% & 80% AMI Programs |
| Academy Hill | 1983 | 31 | 0 | No | USDA Section 515 Rental Program |
| Victoria Gardens | 1979 | 24 | 0 | None | None – Market Rate |
| Totals | | 514 | 0 | | |

**Per Apartments.com results taken on 4/4/24*

# CURRENT RENTAL ENVIRONMENT

## 2) SINGLE FAMILY OR CONDO RENTAL DWELLINGS

- Per a 4/4/24 search, there were eight (8) rental units available for immediate occupancy in single family rentals and condo buildings
- With the exception of a single unit built in 2006, all available units are 30+ years old

| Unit Type | Condo Apartment | Townhomes | Houses | Total Units |
|---|---|---|---|---|
| 1-Bedroom | 2 Units<br>$1,500 (1975)<br>$1,665 (1949) | | | 2 |
| 2-Bedroom | | 3 Units<br>$1,600 (1993)<br>$1,750 (1975)<br>$1,750 (1980) | | 3 |
| 3-Bedroom | | | 2 Units<br>$1,695 (1978)<br>$2,875 (1986) | 2 |
| 4-Bedroom | | | 1 Unit<br>$3,500 (2006) | 1 |
| Totals | | | | 8 units |

**Per Zillow.com results taken on 4/4/24*

# RENTAL SUPPLY VERSUS DEMAND

## RENTAL SUMMARY

- Assuming current growth trends (i.e. “status quo” with no increased growth plan), the Warrenton rental market area will have a rental housing demand of 1,100 units between 2022 and 2027*
- As of 4/4/24, there were eight (8) available rental dwelling units in all of Warrenton and only one pipeline apartment community in the market (Vint Hill Lofts, 183 units)
  - Demand: 1,100
  - New Units: 183
  - **Rental Shortage: 917**

**This number will go up significantly if Warrenton continues to encourage live/work/play environments that will attract new companies and additional renters**

*Market and Fiscal Impacts Analysis, S. Patz & Associates

# WHEN PEOPLE CAN'T FIND HOUSING IN WARRENTON…

- The new commercial amenities and services that are so desired by the existing community are not fiscally achievable without the economic improvement generated by an increase in residents
- Not only will new and improved retail not come to Warrenton, existing retail will continue to decline and deteriorate
- Consumer spending is trending down, commercial vacancy is trending up – these trends will continue
- Existing retailers will continue to see diminished business activity, leading to potential viability concerns
- New potential retailers will choose alternative destinations outside of Warrenton

# WARRENTON POPULATION & EMPLOYMENT GROWTH

- Warrenton's population has remained relatively stagnant over the last 15 years
- An increased growth rate is not anticipated going forward
- Lack of growth is largely due to lack of available housing
- Warrenton's employment increased by 574 jobs between 2006-2019—a growth rate of 0.4% per year
- Over that same period of time, the Northern Virginia Region increased its jobs by 1.9% annually—**nearly five times the Town's growth rate**

| Year | At-Place Jobs | # Change | % Change |
|---|---|---|---|
| 1990 | 4,830 | | |
| 2000 | 6,670 | 1,840 | 38.1% |
| 2010 | 9,622 | 2,952 | 44.3% |
| 2011 | 9,721 | 99 | 1.0% |
| 2012 | 9,784 | 63 | 0.7% |
| 2013 | 9,829 | (28) | (0.3%) |
| 2014 | 9,831 | 47 | 0.5% |
| 2015 | 9,857 | (34) | (0.3%) |
| 2016 | 9,891 | 60 | 0.6% |
| 2017 | 9,898 | 69 | 0.7% |
| 2018 | 9,949 | 51 | 0.5% |
| 2019 | 10,038 | 89 | 0.9% |
| 2020 | 10,043 | 5 | 0.1% |
| 2021 | 10,174 | 131 | 1.3% |
| 2022 | 10,197 | 23 | 0.2% |
| 2023 | 10,274 | 77 | 0.8% |
| 2024 | 10,351 | 77 | 0.8% |
| 2025 | 10,428 | 77 | 0.7% |

*Source: Worldpopulationreview.com

# ECONOMIC IMPACTS

- The Market and Fiscal Impacts Analysis performed by S. Patz & Associates, Inc. concluded the following:
  - The project will have a Net Fiscal Benefit to the Town of Warrenton—meaning that the taxes generated by the project (both direct and indirect) will outweigh the capital expenditures connected with the project
  - At full buildout, residents will generate $26.4M in direct annual consumer expenditures (i.e. business activity)
  - The project, along with the increased business activity that it generates, will yield 476 new full-time jobs in the community

# AFFORDABLE DWELLING UNITS

- In accordance with the Plan Warrenton 2040 guidelines, the proposal conditions that 10% of all units will be leased to households earning less than 80% of AMI and rents will be capped at 80% AMI rental rate limits
- 80% AMI income and rent limits are defined as the current Fauquier County Area Median Income published by the U.S. Department of Housing and Urban Development (HUD)
- 10% of the units within each individual residential block will be allocated as affordable dwelling units

# ARCHITECTURE

# WARRENTON VILLAGE CENTER

# DESIGN STORY

WARRENTON, VIRGINIA | FEBRUARY 14, 2024

NEWCASTLE DEVELOPMENT GROUP

DYNAMIK INTERIORS DYNAMIK DESIG













## DESIGN OBJECTIVE

To transform the existing Warrenton Village retail center into a thriving, walkable, mixed-use, community destination with a sense of place that celebrates the character of Warrenton, while introducing a new, fresh, modern aesthetic.









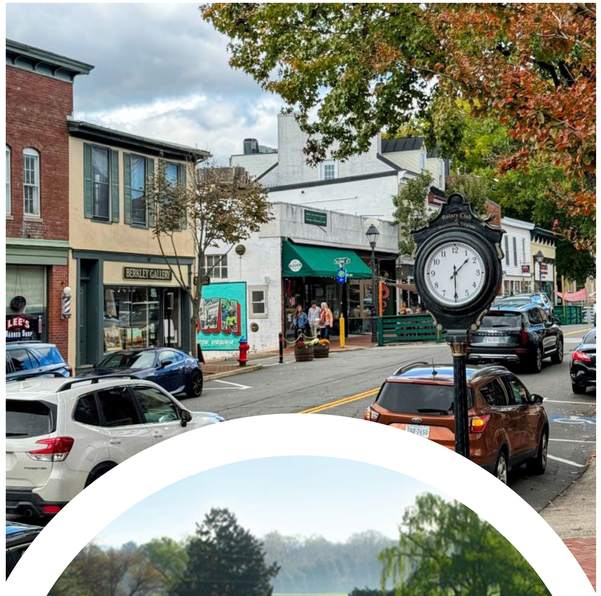

## DESIGN IMPLEMENTATION

- Purposeful integration of new buildings to create a Live/Work/Play community in line with the goals of the 2040 Warrenton Plan.
- Revitalization of the existing retail with new public gathering spaces, pedestrian connectivity, reduced vehicles speeds, a new Central Plaza for village events, enhanced green spaces, and activated streetscapes.
- Fusion of a new contemporary aesthetic with the warmth of local and historical design influences.



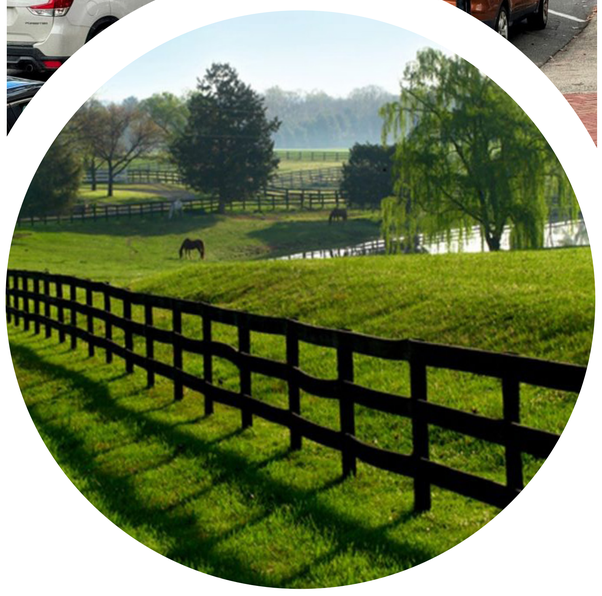













## WARRENTON CONTEXT

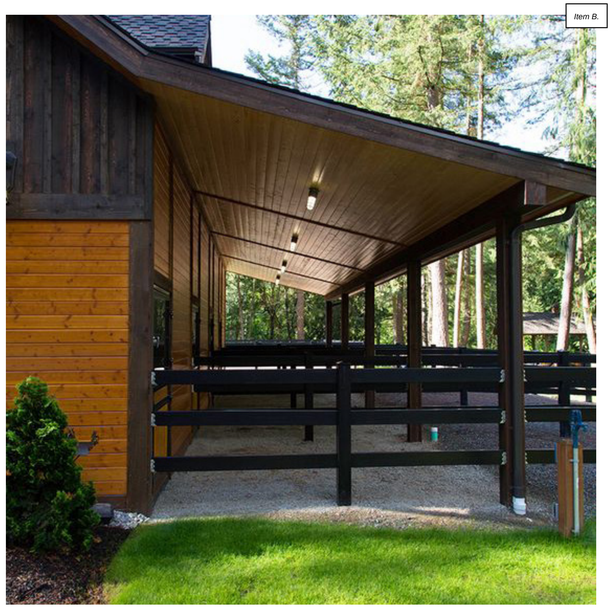
- Historical downtown Warrenton provides inspiration with its textures of brick and stone, dark metal accents and awnings, historical lighting fixtures, traditional lap siding, classic masonry banding and detailing, large windows with dark mullions, and pedestrian friendly streetscapes.
- The greater Warrenton area has deep equine and agricultural industry roots, featuring iconic horse farms and celebrated bucolic landscapes. Inspirations include classic equestrian design features, rich colors and textures, dark metal accents, warm woods, and farmhouse inspired lap siding and stone.

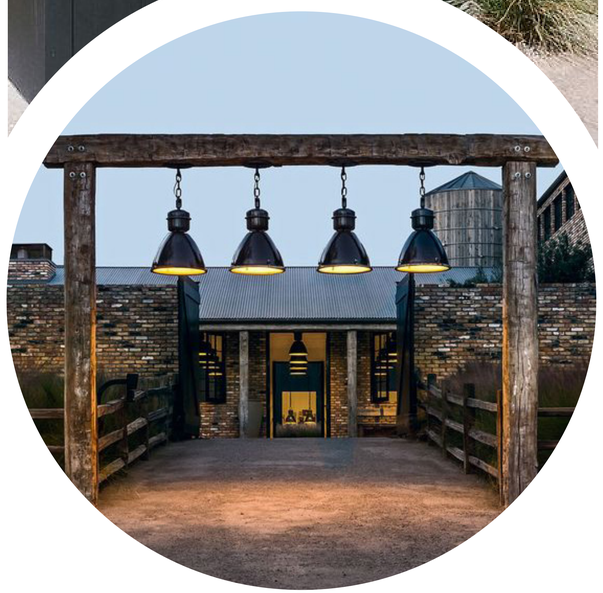






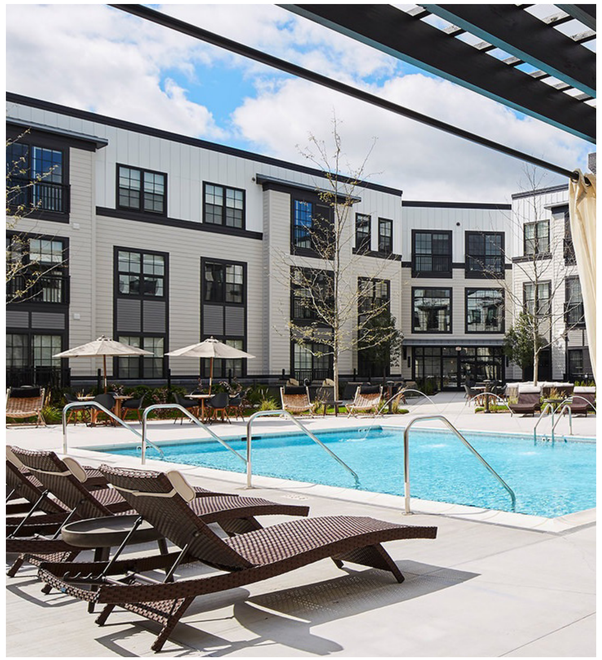








## DESIGN APPLICATION

Warrenton's past becomes Warrenton's future. The rich palette of historic materials, textures, and architectural details are reclaimed with a fresh perspective and contemporary context.

# RESIDENTIAL DESIGN

The three and four story massing of the residential development is designed to emulate the scale of a walkable town center. A clean, light modern aesthetic is grounded with rich masonry and architectural detailing. The street level is activated with resident access, generous sidewalks and rich landscaping. The articulated façade and generous fenestration break down the scale of the buildings and create visual interest for pedestrians.







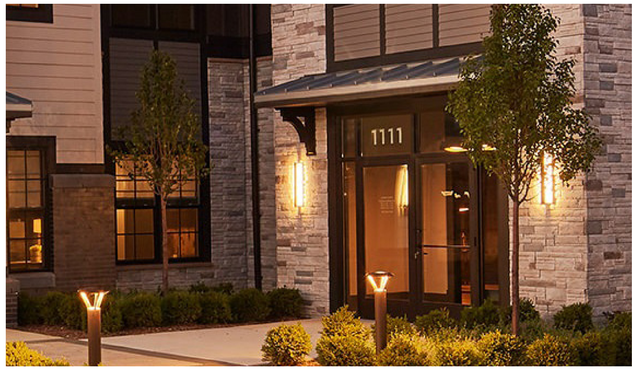





## MATERIALS

- Stacked stone
- Masonry with banding and detailing
- Exterior reveal panel system
- Classic lap siding
- Brick masonry with contemporary color palette
- Wood tones to infuse warmth





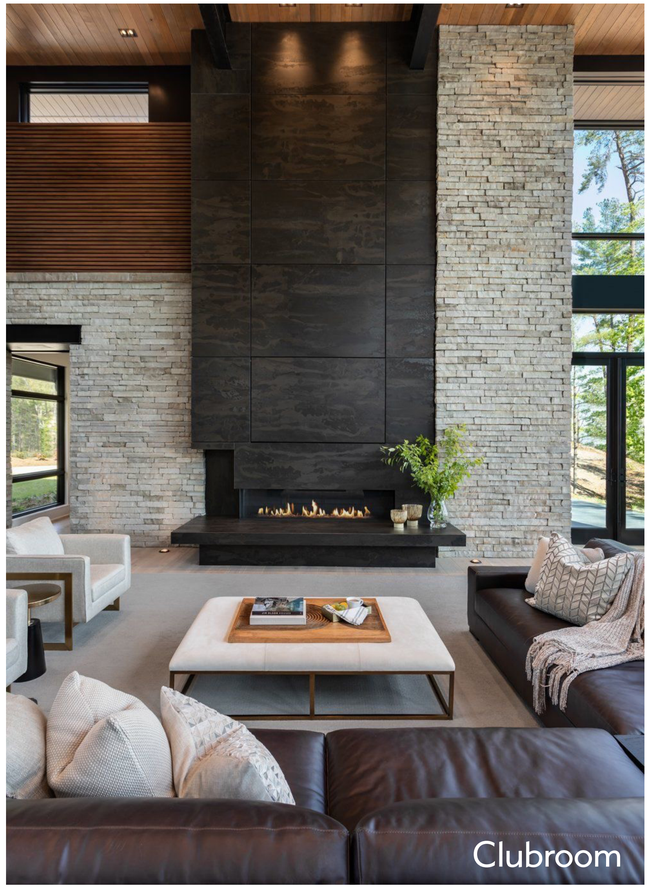


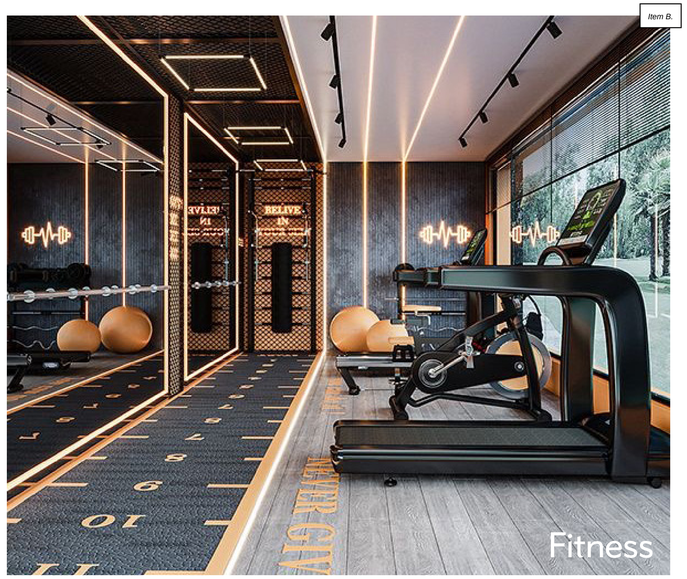

## ACCENT FEATURES & STREETSCAPE

- Metal accents & awnings
- Equestrian inspired light fixtures
- Large windows with dark mullions and lintels
- Architectural detailing to provide visual interest at pedestrian level
- Residential street level entries activating the sidewalk
- Pedestrian Connectivity
- Walkable Environment





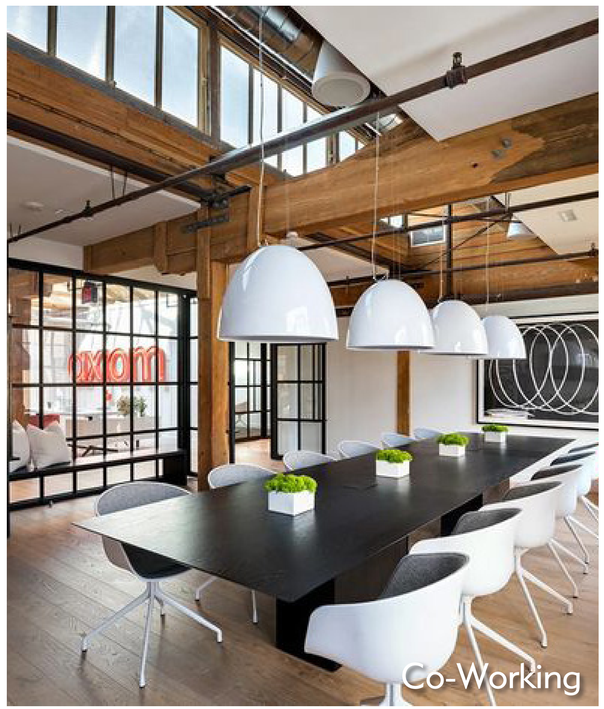

















## INTERIOR DESIGN CONCEPT

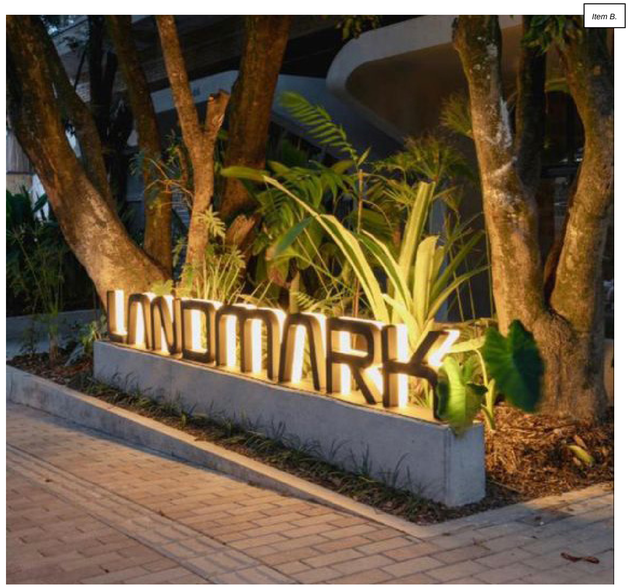
Urban Farmhouse aesthetic blends classic, timeless materials and natural textures with crisp, clean lines, neutral color palettes and light, open spaces. Old is blended with the new to provide spaces that are comfortable and approachable with a nod toward the trends of tomorrow.






















## SIGNAGE

Signage and wayfinding are designed to combine key historical elements or notable community themes with clean, sophisticated materials, fonts and applications, bridging the old and the new.

# RESIDENTIAL BLOCK 1



*Leasing entrance at intersection of Oaks Springs Drive & Hastings Lane*



# RESIDENTIAL BLOCKS 1 & 2



*View from intersection of Oaks Springs Drive & Hasting Lane*
**Block 1 (Apartment Bldg.) on right; Block 2 (2-Over-2s) on left*



# RESIDENTIAL BLOCK 1

*View from intersection of Oaks Springs Drive & Broadview Avenue*



# RESIDENTIAL BLOCK 1

*View from Broadview Avenue entrance into Warrenton Village Center*



# RESIDENTIAL BLOCKS 1 & 2

*View from Hastings Lane out towards Oaks Springs Drive entrance*
**Block 1 (Apartment Bldg.) on left; Block 2 (2-Over-2s) on right*



# RESIDENTIAL BLOCK 1

*View from within Center out towards Broadview Avenue entrance*
**Block 1 (Apartment Bldg.) on right; Block 3 (Townhomes) on left*



# RESIDENTIAL BLOCK 2





*View from Oak Springs Drive*

# RESIDENTIAL BLOCK 3





*View from Broadview Avenue*

# RESIDENTIAL BLOCK 3






*View of townhomes from within the Center*

# PUBLIC IMPROVEMENTS

# LIST OF IMPROVEMENTS FOR PUBLIC USE & BENEFIT

- Central Plaza
- East & West Plazas
- Dog Park and Picnic Area
- Oak Springs Drive Pedestrian Crosswalks
- Completion of outer sidewalk ring around Warrenton Village Center
- Internal pedestrian system – sidewalks, crosswalks, wayfinding, vehicle slowing measures
- Hastings Lane extension

# CENTRAL PLAZA




*Bird's eye view of Central Plaza*

# CENTRAL PLAZA






*Alternate bird's eye view of Central Plaza (Note Blocks 1 & 2 in background)*

# CENTRAL PLAZA

*View of splashpad at Central Plaza*



# CENTRAL PLAZA




*Ground level view of Central Plaza*

# CENTRAL PLAZA






*Ground level view within Central Plaza (Note Blocks 1 & 3 in background)*

# CENTRAL PLAZA




*Ground level view of pedestrian access to Central Plaza (Note Block 3 in background)*

# CENTRAL PLAZA






*Ground level view of Central Plaza*

# WEST PLAZA





*Ground level view of West Plaza*

# EAST PLAZA






*Ground level view of East Plaza*

NEWCASTLE
DEVELOPMENT GROUP

# SPECIAL USE PERMIT #SUP 22-5

## WARRENTON VILLAGE CENTER

***PLANNING COMMISSION WORK SESSION***
***APRIL 23, 2024***



# AGENDAS

## WORK SESSION #2 – APRIL 16TH, 2024

- A Product of Plan Warrenton 2040
- Warrenton Housing Market & Economic Impacts
- Architecture
- Public Improvements

## WORK SESSION #3 – APRIL 23RD, 2024

- Water/Sewer Impacts
- Transportation
- Schools
- Modification/Waiver Requests

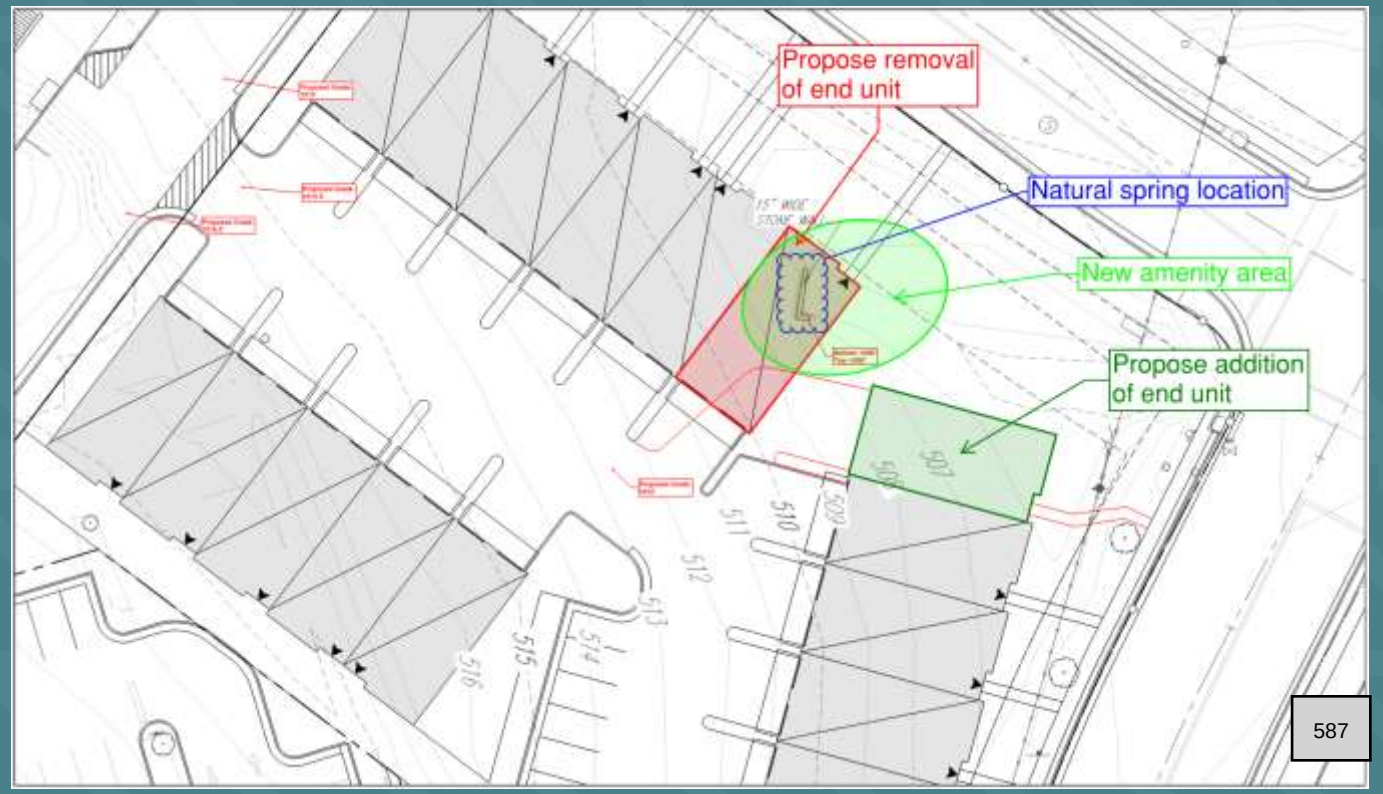
# FOLLOW UP FROM WORK SESSION #2 (4/16/23)

# OAK SPRING

- It has been requested that we explore the preservation and restoration of Oak Spring—located near the intersection of Oak Spring Drive and Branch Drive
- Restoration of this natural spring will preserve a unique piece of Warrenton history and character
- We are looking into a site plan revision that will allow the spring to be preserved and reconditioned into a public amenity







# INCREASE SHADE AT SPLASHPAD

- Shade trees have been added to the Central Plaza to provided coverage for the surrounding seating areas



# STORMWATER MANAGEMENT



Storm Water Management Plan is conceptual at this time and will be fully designed and approved during Site Development Plan.

Bohler Engineering is here tonight to answer general questions pertaining to the potential system; however, the scope and methodology of the system are yet to be determined.

# ARCHITECTURE

- While the goal of our proposed aesthetic is to introduce a modern and fresh design to Warrenton, we recognize the request to incorporate more components that reflect the character of the community
- Renderings here show a revised color pallet, with incorporation of beige brick in lieu of white and softening of previously dark gray siding to a lighter brown
- Our team is currently studying additional design enhancements with the goal of implementing features that are more representative of the Town's character





# WATER / SEWER IMPACTS

# WATER / SEWER IMPACTS

- NewCastle's average daily water usage across its Virginia apartment community portfolio:

| Community | Units | Total Usage (GAL) | Total Daily Usage (GAL) | Daily Usage Per Unit (GAL) |
|---|---|---|---|---|
| Community 1 | 250 | 3,295,006 | 9,027 | 36.1 |
| Community 2 | 316 | 7,344,232 | 20,121 | 63.7 |
| Community 3 | 212 | 5,543,803 | 15,188 | 71.6 |
| Community 4 | 280 | 6,729,187 | 18,436 | 65.8 |
| Community 5 | 242 | 5,181,400 | 14,196 | 58.7 |
| Community 6 | 452 | 14,757,676 | 33,449 | 74.0 |
| Avg. / Total ** | 1,752 | | 20,278 | 67.0 |

*Data is from January ,1 2023 through December 31, 2023
**Community 1 was finishing lease up for the first half of 2023 so data does not represent a full calendar year of stabilized occupancy. Community 1 data has been excluded from average data presented and was excluded from usage analysis.

- Average daily community usage across Virginia portfolio is 20,278 gallons per day (GPD)
- Assuming the daily usage per unit of 67.0 GPD, we would project 25,862 GPD for Warrenton Village Center (386 units x 67.0 GPD)

# WATER / SEWER IMPACTS



- Town of Warrenton uses their own daily usage amounts when making their capacity determination:
  - For 386 residential units, the Town assumes 116,000 gallons per day
- This is significantly higher than the data collected across NewCastle's Virginia communities – 25,862 GPD vs. 116,000 GPD

- **Even with the assumed usage of 116,000 GPD, the Public Works Department has determined that there is adequate capacity for this project**

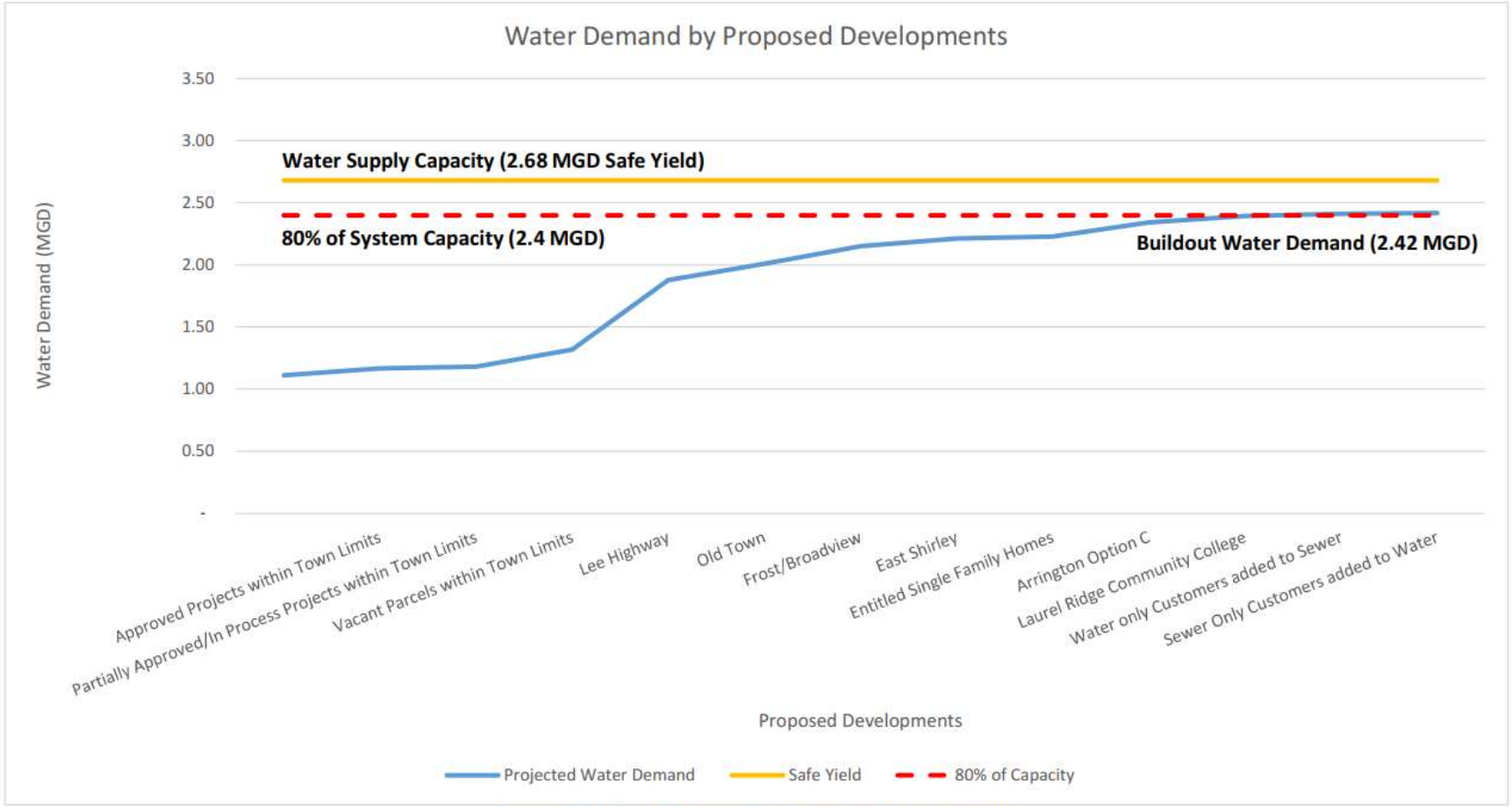



**Figure 5.1: Water Demand by Proposed Developments**

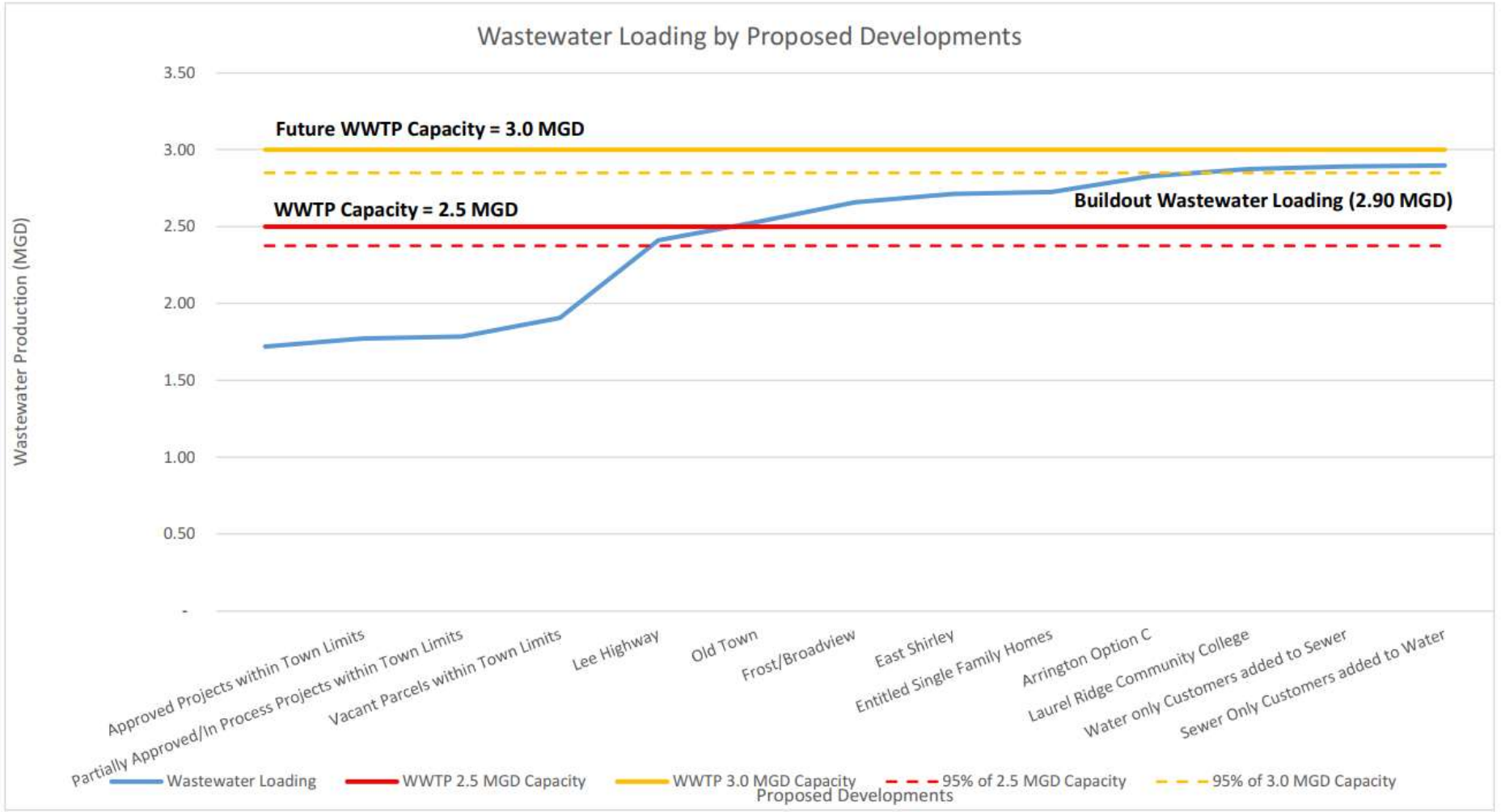



**Figure 6.1: Wastewater Loading by Proposed Developments**

# TRANSPORTATION

# SITE PLAN OVERVIEW

Primary vehicular access:

- Full-movement entry on Oak Springs Dr, forming 4th leg of Highland School Driveway intersection
- Full-movement driveway on Oak Springs Dr, forming 4th leg of Hastings Ln intersection
- Access also provided via existing shopping center connections to the south
- A total of 6 access points to the surrounding streets



# SITE PLAN OVERVIEW

Pedestrian Connectivity:

- Extensive sidewalk network proposed along all streets and within site to promote walkability
- Connects to and augments pedestrian network within existing center
- Crosswalks will be added on Oak Spring Dr at Hastings Ln and Highland School to promote safe pedestrian access from the north
- Retain crosswalks on Broadview Ave and Branch Dr



# TRAFFIC STUDY AREA



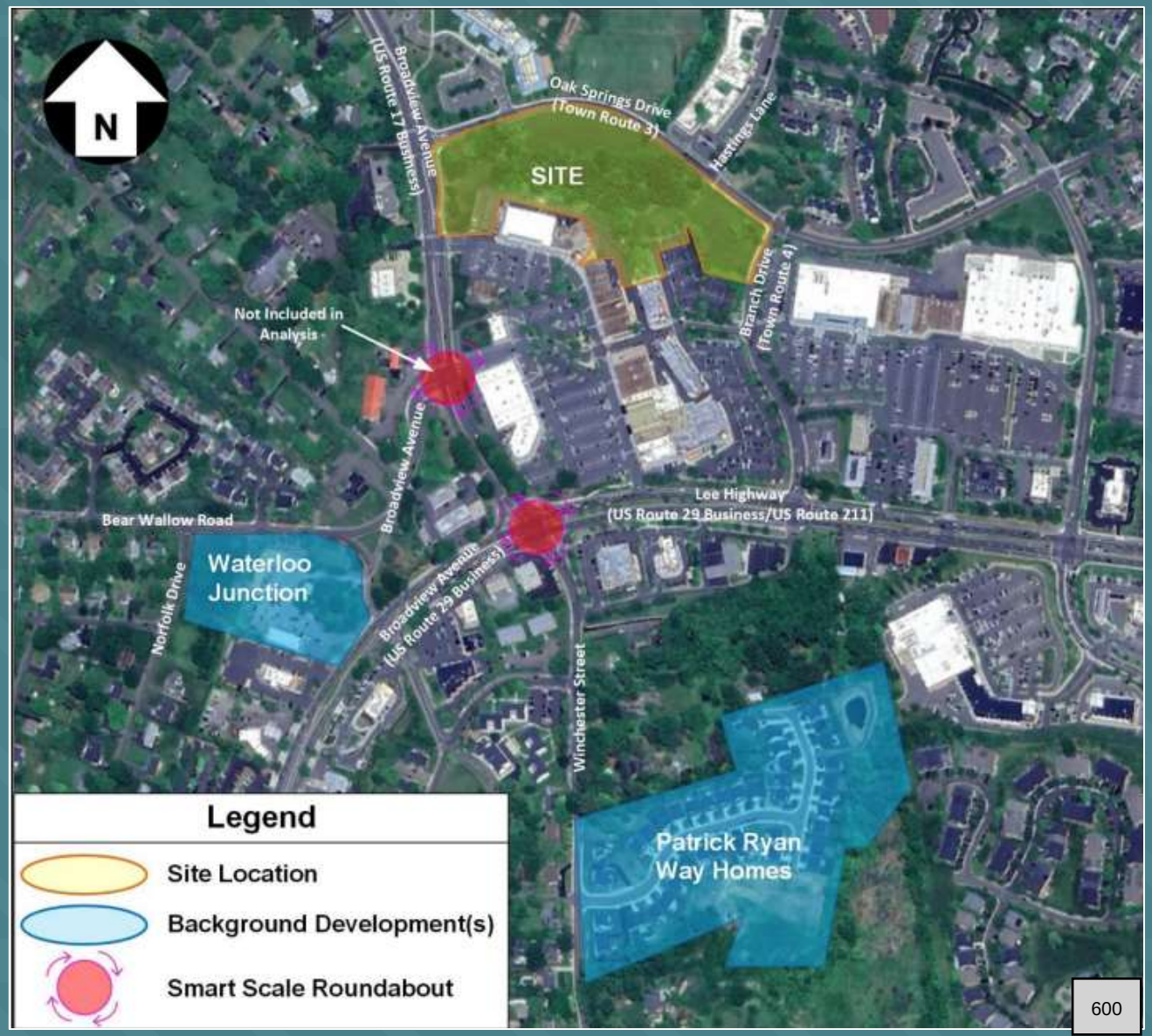


# FUTURE CONDITIONS WITHOUT PROPOSED DEVELOPMENT



## Assumptions:

- Accounted for 1% annual regional growth on Lee Hwy mainline
- Other approved developments in the area will add some traffic, including 47 new townhomes and 40 new single-family homes
- Roundabout at Broadview Avenue, Broadview Avenue, and shopping center entrance not funded through SMARTScale



# FUTURE CONDITIONS WITHOUT PROPOSED DEVELOPMENT



## Assumptions (cont.):

- Planned Roundabout at Rt 29/211 and Broadview Ave Intersection:
  - Separate VDOT project, not triggered by this development
  - $29M in SMARTScale funding awarded for this and Blackwell Road roundabout
  - Expected to improve traffic operations and safety
  - Includes accommodations for pedestrians

DRPT · Office of Intermodal Planning and Investment · VDOT

## PROJECT PIPELINE

Roundabout: reconfigures the intersection to a multi-lane hybrid roundabout. The roundabout can improve operations by 60%, reduce crashes up to 60%, and improve the safety of pedestrian crossings.

*Figure 17. Broadview Avenue Roundabout Concept*



# FUTURE CONDITIONS WITHOUT PROPOSED DEVELOPMENT



Traffic Operations:

- Overall, the road network assuming the "future without development" condition is expected to continue operating similar to the existing conditions
- Some minor increases in delays are projected for some movements at unsignalized intersections, but signalized intersections and the new roundabout would operate efficiently
- The maximum "future without development" increase in delay at any study intersection is 7 seconds, as compared to existing conditions
- The planned infrastructure improvements, like the roundabout, will improve traffic flow compared to existing conditions

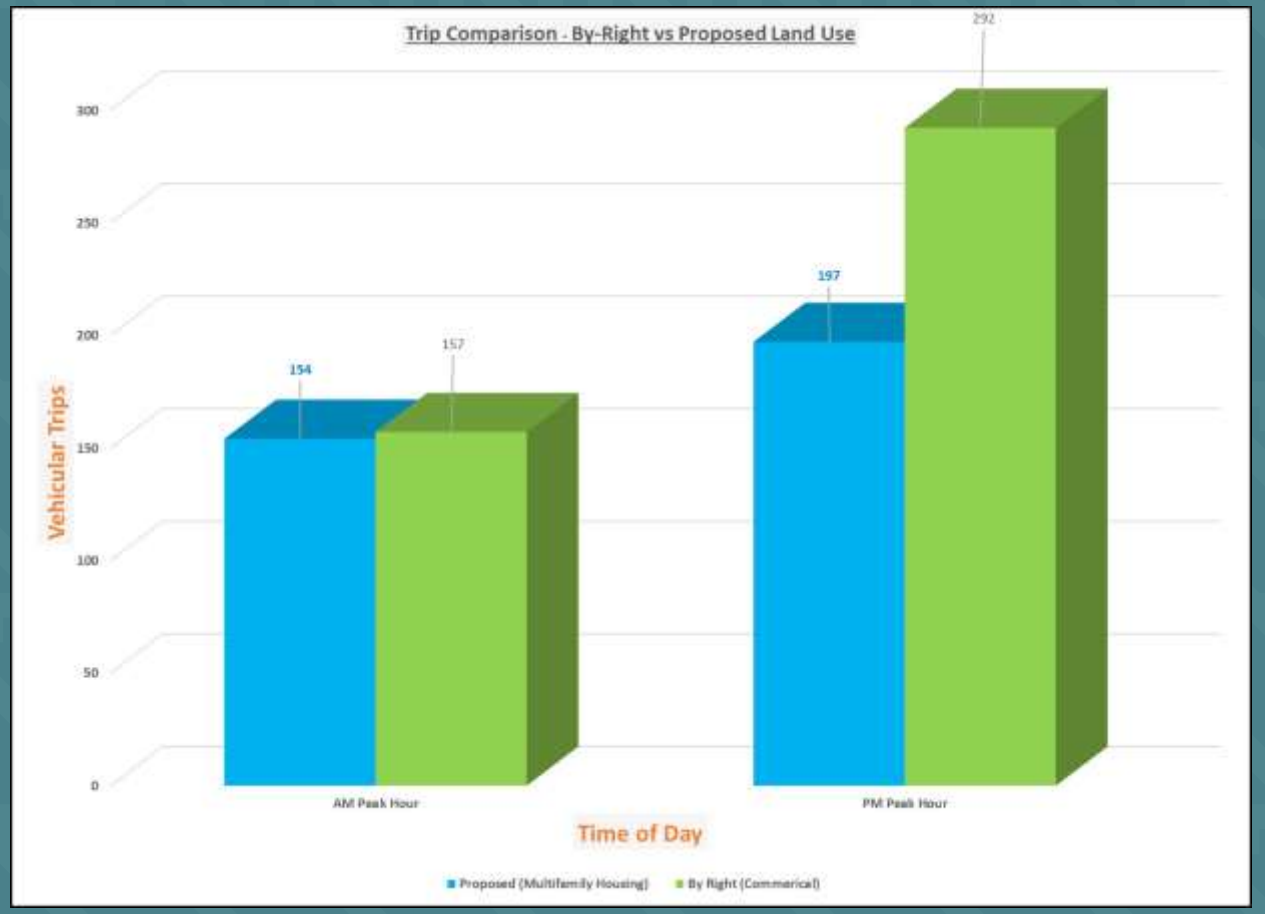
# SITE TRIP GENERATION

New Trips Generated by the Development:

- The proposed 386 new residential units are expected to generate around 154 new vehicle trips during the morning commute hour and 197 new vehicle trips during the evening commute hour
- These are distributed across the internal connections and 6 access points, reducing impact at any single location

Less Than By-Right Commercial Development:

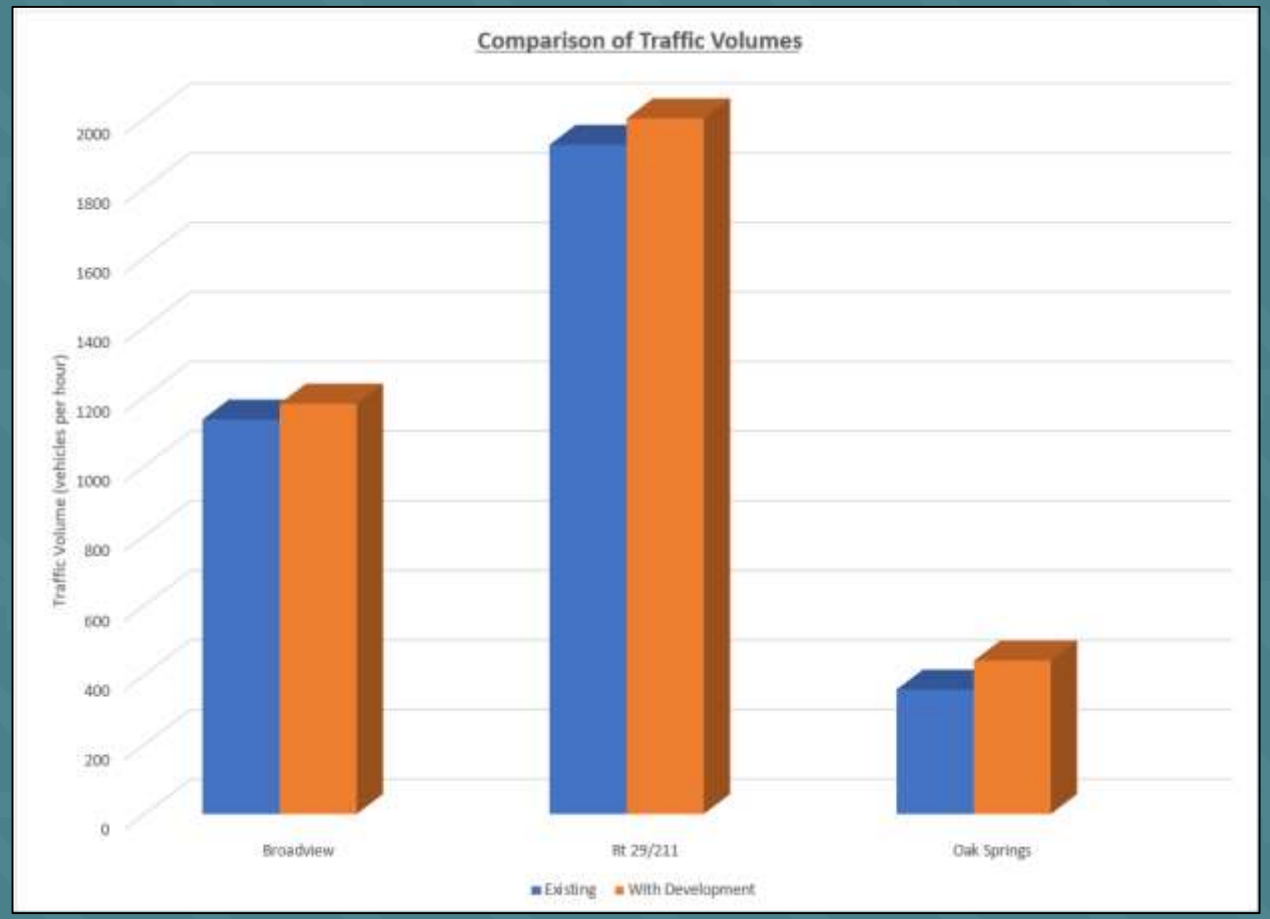
- The residential traffic volumes are lower than what would be seen if the site was developed by right with 40,000 sf of retail instead



# SITE TRIP IMPACTS

Minimal Traffic Impact:

- Site-generated traffic represents a small percentage of the existing volumes:
  - 3 - 4% on Broadview Avenue
  - 0.1 - 4% on Rt 29/211
  - Greater proportion on Oak Spring Dr and Branch Dr, where current volumes are lower
- Capacity analysis confirms these modest additions can be accommodated by the surrounding road network without degrading operations



# INTERSECTION CAPACITY ANALYSIS - 2027 WITH DEVELOPMENT

Minimal Impact on Intersection Operations:

- The addition of site-generated traffic does not significantly increase delays when compared to the future conditions without the development

Maintaining Efficient Traffic Flow:

- Signalized intersections and the new planned roundabout will continue operating efficiently, demonstrating the surrounding network can accommodate the new trips

Manageable Impacts at Unsignalized Intersections:

- The unsignalized intersection of Warrenton Village South Driveway and Broadview Avenue is anticipated to operate with higher delays, but the site-generated traffic only constitutes approximately 3.5% of the total volume at this location
- At all other unsignalized study intersections, the minor increases in delay represent conditions no worse than what is projected to occur without the development

Accommodating Site Traffic:

- Queues can still be fully accommodated within the available storage at all intersections, similar to the existing and future no-build conditions

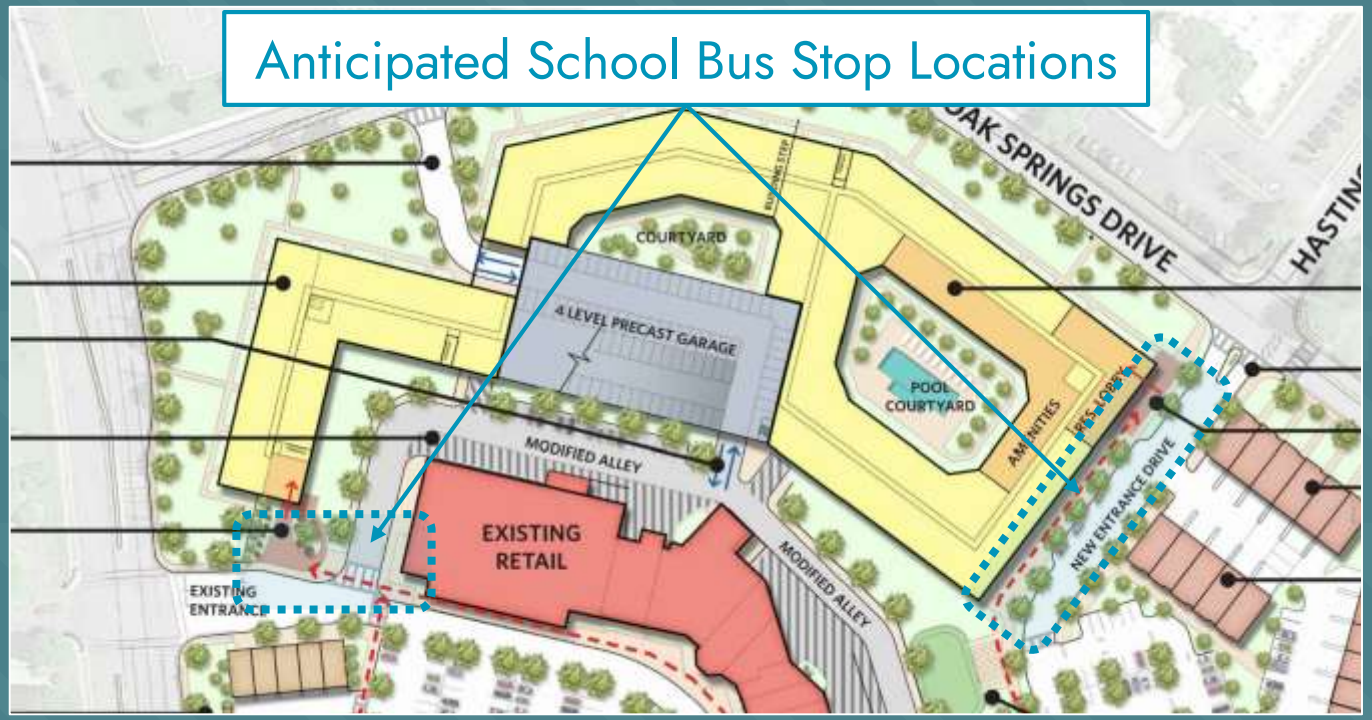
# SCHOOL BUS ACCOMMODATIONS

School Bus Stops:

- The developer will work with County schools on exact locations of school bus stops
- Expected to be near the residential lobbies

Impact on Traffic:

- Anticipated that buses will stop on internal streets, rather than adjacent public roads
- Maintain the flow of through traffic on the surrounding streets during peak school travel times



# HIGHLAND SCHOOL TRAFFIC

Balancing Access and Minimizing Disruption:

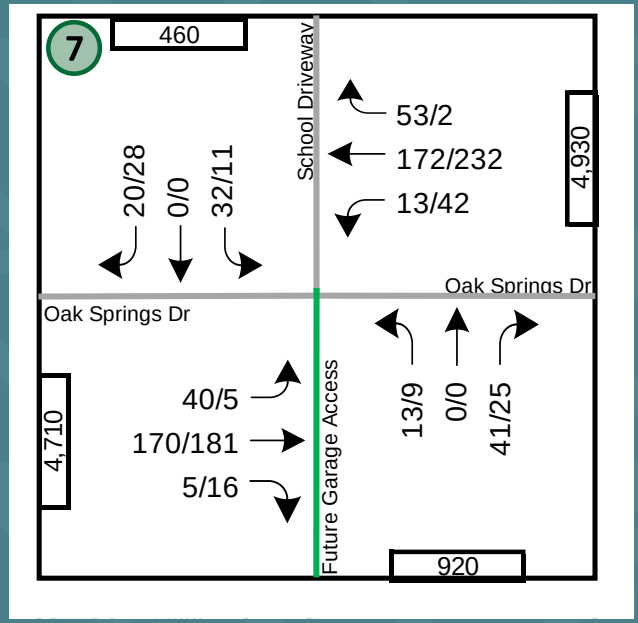
- The proposed parking deck entry is positioned across from the Highland School driveway to balance access needs while minimizing disruption to the existing intersection

Minimizing Conflicts with School Peak Hours:

- Analysis found Highland School and residential AM peak hours have a 15-minute overlap, during which conflicts are expected to be minimal
- Analysis found no overlap in PM peak hours
- It is anticipated that residents will use secondary garage entrance during AM peak hours, which will further reduce conflicts

Accommodating School Operations:

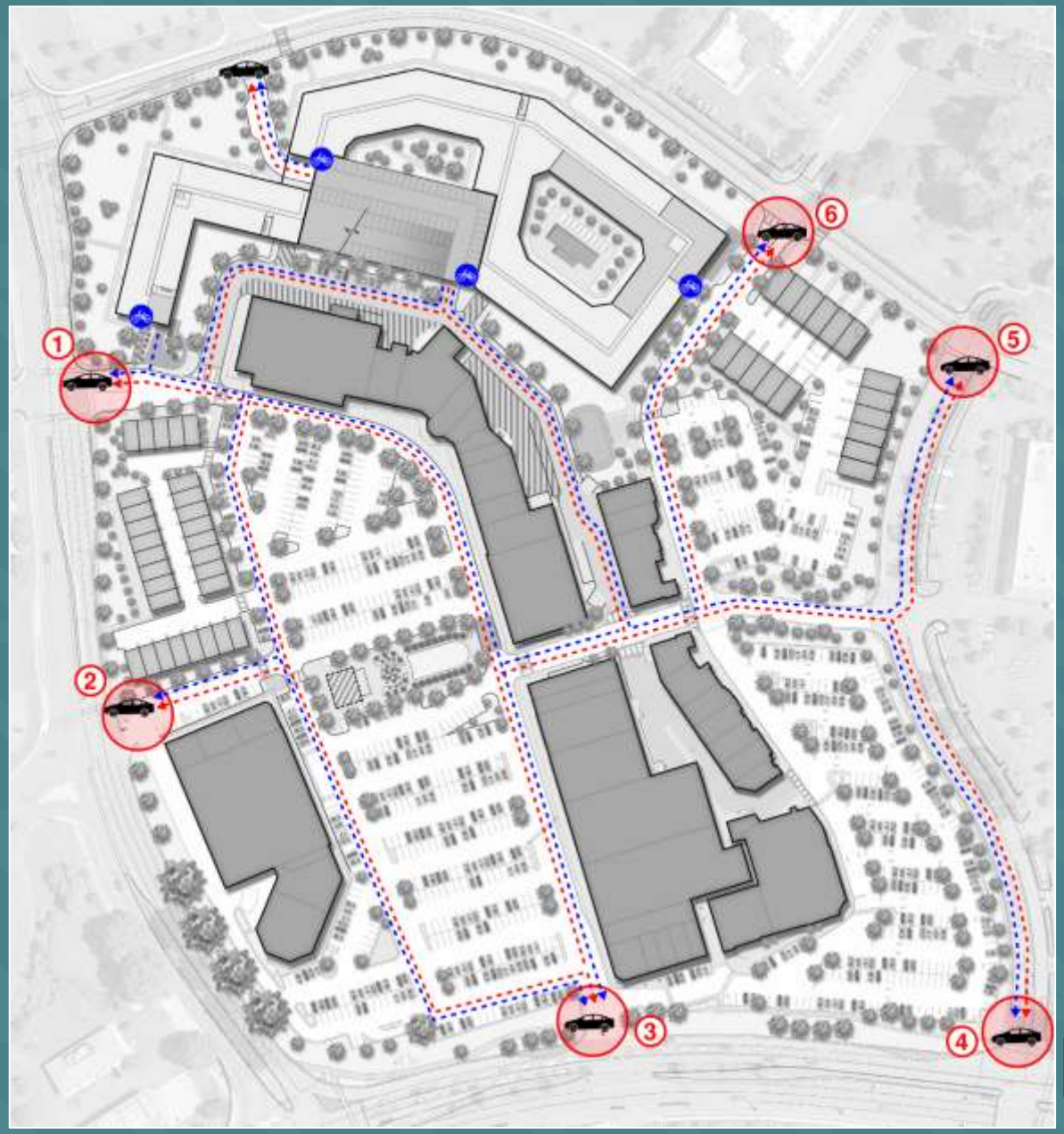
- Observations showed limited queuing of vehicles along Oak Springs Dr at the existing Highland School access point, even during peak times
- The school has multiple pickup/drop-off locations and two entrances, which helps distribute the traffic




Overall, the traffic impacts from the proposed development are not anticipated to significantly disrupt or impede the normal operations of Highland School

# HIGHLAND SCHOOL TRAFFIC

- Residents of Warrenton Village Center will want to avoid traffic as much as those dropping off/picking up students at Highlands School
- The site provides 6 alternative points of ingress/egress for vehicles and bicycles that will be the preferable route of travel during peak traffic hours to avoid congestion on Oak Springs Drive
- These alternative points of ingress/egress will further reduce what the Traffic Impact Analysis has determined to be minimal conflicts to the Highland School traffic



# ROAD IMPROVEMENTS



Turn Lane Warrant Analysis:

- No new turn lanes warranted at proposed site access points per VDOT standards
- No new turn lanes recommended to be constructed by the development

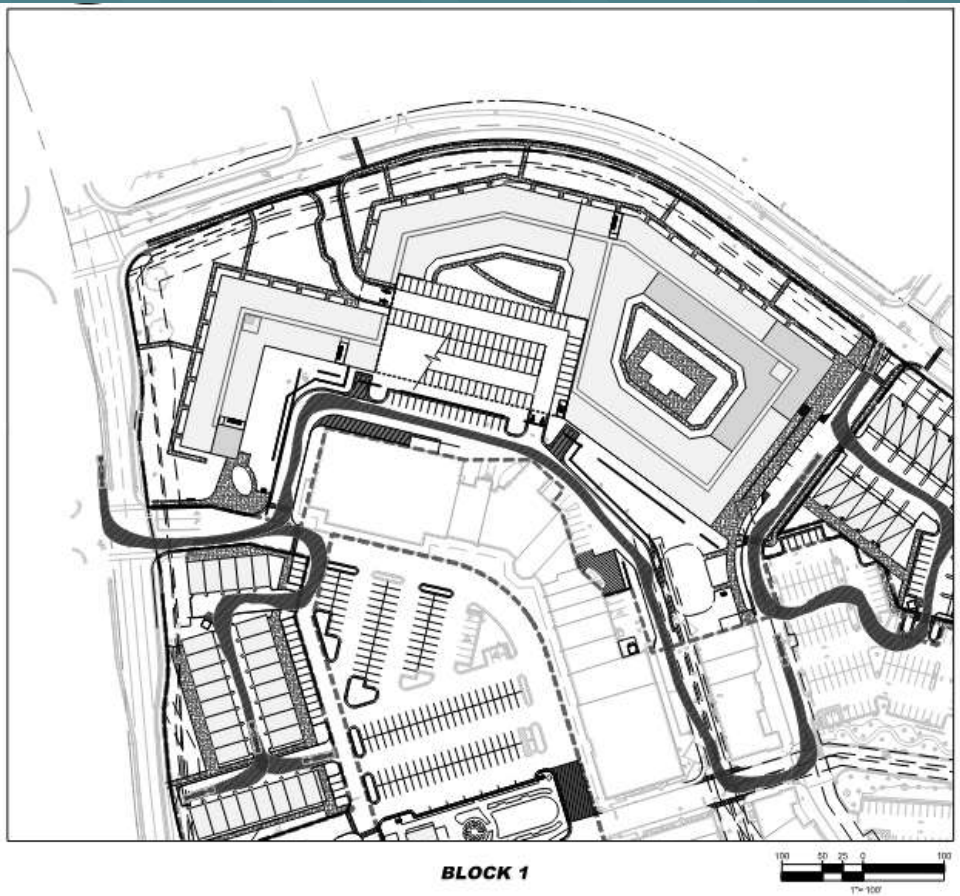
Signal Warrant Analysis:

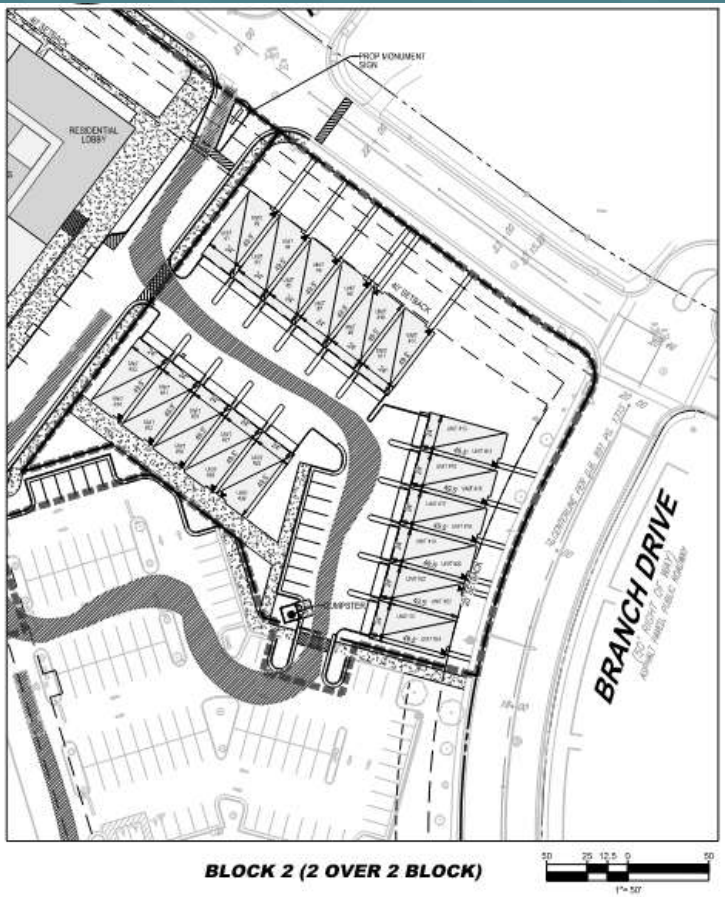
- Signal warrant analysis performed for Broadview Ave/Oak Springs Rd intersection
- Traffic volumes do not meet MUTCD signal warrants, so signalization is not recommended
- Unsignalized operations projected to function acceptably at LOS C or better

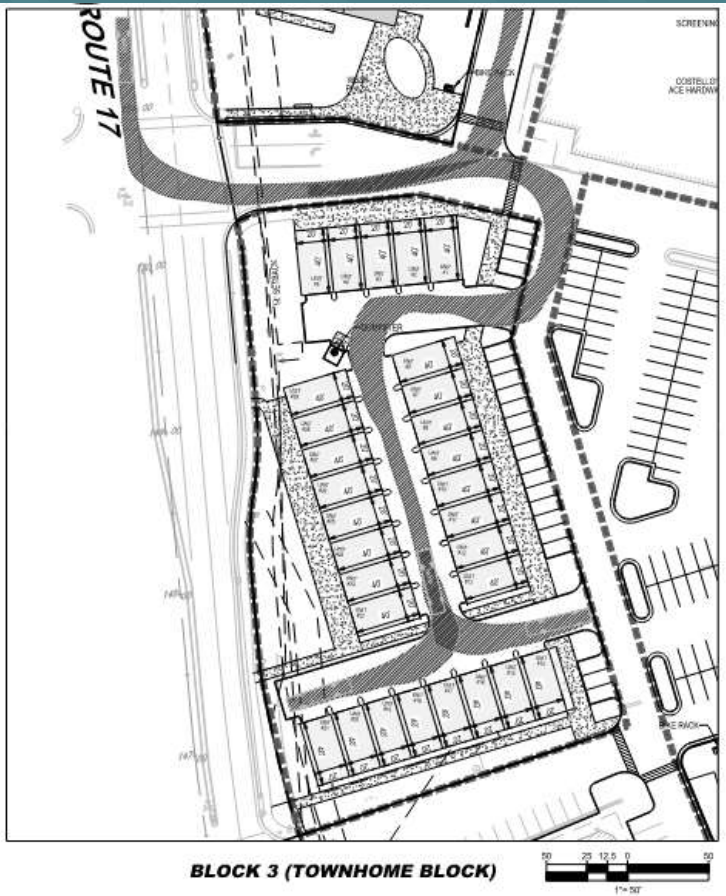
**The Warrenton Village Center development does not necessitate any additional roadway improvements beyond what is already planned by VDOT and the Town**

# EMERGENCY & DELIVERY VEHICLE MOVEMENTS

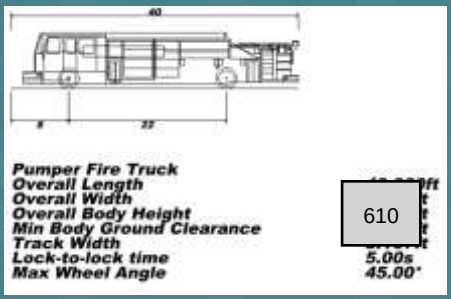





- Vehicle turning analysis has confirmed maneuverability throughout all blocks
- Mountable curbs can be included at desired locations during site plan



# SUMMARY OF IMPACTS

Additional Traffic:

- The proposed 386 residential units will generate 154 new trips in the AM peak and 197 in the PM peak hour
- This equates to about 4% of the current traffic on most surrounding roadways

Dispersed Access Points:

- Multiple entry/exit locations directly to Oak Springs Dr and through shopping center driveways
- Distributes new trips across the road network, avoiding concentration at a single point

# SUMMARY OF IMPACTS

Leveraging Existing and Planned Infrastructure:

- The mixed-use nature of the development will help reduce external trips generated, as some trips can be captured internally
- Surrounding street grid offers multiple route choices, dispersing trips
- Planned roundabout will improve operation at Rt 29/211 and Broadview Ave
- Capacity analysis confirms surrounding intersections and roads can accommodate the new traffic with minimal impact

Outcome:

- The Warrenton Village Center development would improve walkability, vibrancy, and housing choices, with a marginal increase in traffic that does not warrant new road improvements

# SCHOOLS

# PROJECTED STUDENTS

Fauquier County Student Generation Calculation:

- 0.72 students per single family detached dwelling
- 0.45 students per single family attached dwelling
- 0.20 students per apartment dwelling

- Allocation per school type assumption is:
  - 52% elementary school
  - 22% middle school
  - 26% high school

# PROJECTED STUDENTS

Warrenton Village Center Projection at Full Buildout and Occupancy:

- Block 1: 320 apartments x 0.20 = 64 students
- Block 2: 36 attached dwellings x 0.45 = 16
- Block 3: 30 attached dwellings x 0.45 = 14
- Total proposed students = 94

- Allocation per school:
  - Bradley (52%) = 49
  - Taylor (22%) = 21
  - FHS (26%) = 24

# FAUQUIER COUNTY ENROLLMENT PROJECTIONS

## Enrollment Projection

This is an 5-year analysis of program capacity based on projected enrollment. This analysis is a cohort progression model, looking at birth rates and considers a growth factor. Areas of concern are:

- Elementary (South and Central)
- Middle School Growth
- Liberty HS

| | Program Capacity | 95% Cap | Actual Enrollment 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 | % Cap | Projected Enrollment 2024-25 | 2025-26 | 2026-27 | 2027-28 | 2028-29 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ES South | | | | | | | | | | | | | |
| Miller | 580 | 551 | 493 | 476 | 484 | 489 | 506 | 87.2% | 503 | 492 | 504 | 505 | 522 |
| Pearson | 532 | 505 | 385 | 347 | 365 | 367 | 381 | 71.6% | 397 | 394 | 407 | 422 | 433 |
| Pierce | 560 | 532 | 550 | 487 | 514 | 531 | 533 | 95.2% | 537 | 548 | 554 | 543 | 551 |
| Walter | 588 | 559 | 410 | 363 | 412 | 399 | 396 | 67.3% | 409 | 430 | 451 | 452 | 474 |
| **Subtotal South** | **2,260** | **2,147** | **1,838** | **1,673** | **1,775** | **1,786** | **1,816** | **80.4%** | **1,846** | **1,864** | **1,916** | **1,922** | **1,980** |
| ES Central | | | | | | | | | | | | | |
| Bradley | 588 | 559 | 369 | 332 | 339 | 356 | 349 | 59.4% | 341 | 354 | 355 | 363 | 360 |
| Brumfield | 716 | 680 | 495 | 458 | 482 | 492 | 508 | 70.9% | 530 | 560 | 580 | 608 | 644 |
| Greenville | 604 | 574 | 531 | 437 | 479 | 495 | 494 | 81.8% | 506 | 506 | 498 | 468 | 471 |
| Ritchie | 548 | 521 | 483 | 416 | 478 | 491 | 522 | 95.3% | 532 | 529 | 543 | 547 | 563 |
| Smith | 572 | 543 | 414 | 356 | 414 | 418 | 393 | 68.7% | 418 | 443 | 465 | 505 | 524 |
| **Subtotal Central** | **3,028** | **2,877** | **2,292** | **1,999** | **2,192** | **2,252** | **2,266** | **74.8%** | **2,327** | **2,394** | **2,441** | **2,491** | **2,562** |
| ES North | | | | | | | | | | | | | |
| Coleman | 520 | 494 | 347 | 276 | 311 | 332 | 315 | 60.6% | 312 | 302 | 280 | 270 | 266 |
| Thompson | 368 | 350 | 254 | 224 | 257 | 256 | 262 | 71.2% | 267 | 280 | 310 | 327 | 344 |
| **Subtotal North** | **888** | **844** | **601** | **500** | **568** | **588** | **577** | **65.0%** | **579** | **582** | **590** | **597** | **610** |
| **TOTAL ELEMENTARY** | **6,176** | **5,867** | **4,731** | **4,172** | **4,535** | **4,626** | **4,659** | **75.4%** | **4,752** | **4,840** | **4,947** | **5,010** | **5,152** |
| **Available Capacity** | | | **1,445** | **2,004** | **1,641** | **1,550** | **1,517** | **24.6%** | **1,424** | **1,336** | **1,229** | **1,166** | **1,024** |
| Middle Schools | | | | | | | | | | | | | |
| Auburn | 622 | 591 | 568 | 513 | 575 | 552 | 578 | 92.9% | 588 | 590 | 613 | 647 | 668 |
| Cedar Lee | 900 | 855 | 650 | 622 | 613 | 596 | 837 | 93.0% | 877 | 864 | 805 | 851 | 859 |
| Marshall | 654 | 621 | 466 | 445 | 419 | 408 | 405 | 61.9% | 396 | 391 | 391 | 413 | 414 |
| Taylor | 618 | 587 | 470 | 422 | 435 | 424 | 607 | 98.2% | 607 | 601 | 569 | 601 | 606 |
| Warrenton | - | - | 432 | 368 | 366 | 392 | - | | - | - | - | - | - |
| **TOTAL MIDDLE** | **2,794** | **2,654** | **2,586** | **2,370** | **2,408** | **2,372** | **2,427** | **86.9%** | **2,468** | **2,445** | **2,379** | **2,512** | **2,547** |
| **Available Capacity** | | | **208** | **424** | **386** | **422** | **367** | **13.1%** | **326** | **349** | **415** | **282** | **247** |
| High Schools | | | | | | | | | | | | | |
| Fauquier | 1,612 | 1,531 | 1,254 | 1,217 | 1,170 | 1,134 | 1,122 | 69.6% | 1,089 | 1,111 | 1,153 | 1,147 | 1,170 |
| Kettle Run | 1,360 | 1,292 | 1,184 | 1,147 | 1,112 | 1,172 | 1,164 | 85.6% | 1,165 | 1,214 | 1,233 | 1,241 | 1,267 |
| Liberty | 1,370 | 1,302 | 1,250 | 1,252 | 1,259 | 1,324 | 1,300 | 94.9% | 1,261 | 1,283 | 1,328 | 1,341 | 1,368 |
| **TOTAL HIGH** | **4,342** | **4,125** | **3,688** | **3,616** | **3,541** | **3,630** | **3,586** | **82.6%** | **3,515** | **3,608** | **3,714** | **3,729** | **3,805** |
| **Available Capacity** | | | **654** | **726** | **801** | **712** | **756** | **17.4%** | **827** | **734** | **628** | **613** | **537** |
| District Total | 13,312 | 12,646 | 11,005 | 10,158 | 10,484 | 10,628 | 10,672 | 80.2% | 10,735 | 10,893 | 11,040 | 11,251 | 11,504 |

*Data provided by Fauquier County Public Schools

# NEW STUDENTS VS. AVAILABLE CAPACITY

- Bradley
  - New students = 49
  - Available Capacity (min.) = 225
- Taylor/Warrenton Middle
  - New students = 21
  - Available Capacity (min.) = 243
- FHS
  - New students = 24
  - Available Capacity (min.) = 464

| | | *Actuals* | *% of Capacity* | *Projections* | | | | |
|---|---|---|---|---|---|---|---|---|
| **Bradley Elementary School** | | | | | | | | |
| Max Capacity | 588 | | | | | | | |
| | | *2023-24* | | *2024-25* | *2025-26* | *2026-27* | *2027-28* | *2028-29* |
| Enrollment | | 349 | 59.4% | 341 | 354 | 355 | 363 | 360 |
| Available Capacity | | 239 | | 247 | 234 | 233 | 225 | 228 |
| **Taylor/Warrenton Middle School** | | | | | | | | |
| Max Capacity | 850 | *School Year 2023-24* | | *2024-25* | *2025-26* | *2026-27* | *2027-28* | *2028-29* |
| Enrollment | | 607 | 71.4% | 607 | 601 | 569 | 601 | 606 |
| Available Capacity | | 243 | | 243 | 249 | 281 | 249 | 244 |
| **Fauquier High School** | | | | | | | | |
| Max Capacity | 1,634 | *School Year 2023-24* | | *2024-25* | *2025-26* | *2026-27* | *2027-28* | *2028-29* |
| Enrollment | | 1,122 | 68.7% | 1,089 | 1,111 | 1,153 | 1,147 | 1,170 |
| Available Capacity | | 512 | | 545 | 523 | 481 | 487 | 464 |
| **COMBINED** | | | | | | | | |
| Max Capacity | 3,072 | *School Year 2023-24* | | *2024-25* | *2025-26* | *2026-27* | *2027-28* | *2028-29* |
| Enrollment | | 2,078 | 67.6% | 2,037 | 2,066 | 2,077 | 2,111 | 2,136 |
| Available Capacity | | 994 | | 1,035 | 1,006 | 995 | 961 | 936 |

# MODIFICATIONS & WAIVERS

# ZONING ORDINANCE 9-25: MIXED-USE DEVELOPMENT OPTIC

The mixed-use development option is created within the Commercial District to allow a mixture of uses when consistent with the Comprehensive Plan. The mixed-use option is intended to encourage development in a creative and integrated manner that encourages pedestrian walkability, shared open spaces and an alternative form of housing within the Town.

Section J. – Modifications:

Modifications from the standards set forth in Section 9-25 may be approved by Town Council in conjunction with the Special Use Permit upon a determination that the intent of the Comprehensive Plan is being met.

# SUP MODIFICATION & WAIVERS – WAIVER REQUEST #1



- Section 3-4.10.3 of the Zoning Ordinance provides that density in a mixed-use development within a Commercial zone may be calculated pursuant to Sec. 9-25 of the Zoning Ordinance
- Sec. 9-25 allows for calculation of density in a mixed-use development to be up to 1 dwelling unit per 500 square feet of non-residential space. This section also provides that density above 5 units per acre must be approved by the Town Council.
- While this is a modification of Sec. 3-4.10.3, the requested density is fully consistent with the provisions of Sec. 9-25 for a mixed-use development, and less than what could be achieved
- This modification will allow for realization of the concentrated increased density that is a primary objective of the New Town Character District
- **Waiver Request #1:** Increase density above 5 units per acre to 13.28 units per acre, which will yield 386 units

# DENSITY CALCULATIONS



By-Right Density Calculation:

- 5 dwelling units per acre
- 5 x 29.05 acres = 145 units

By-Right Density Calculation, with affordable housing bonus:

- 10 dwelling units per acre
- 10 x 29.05 acres = 290 units

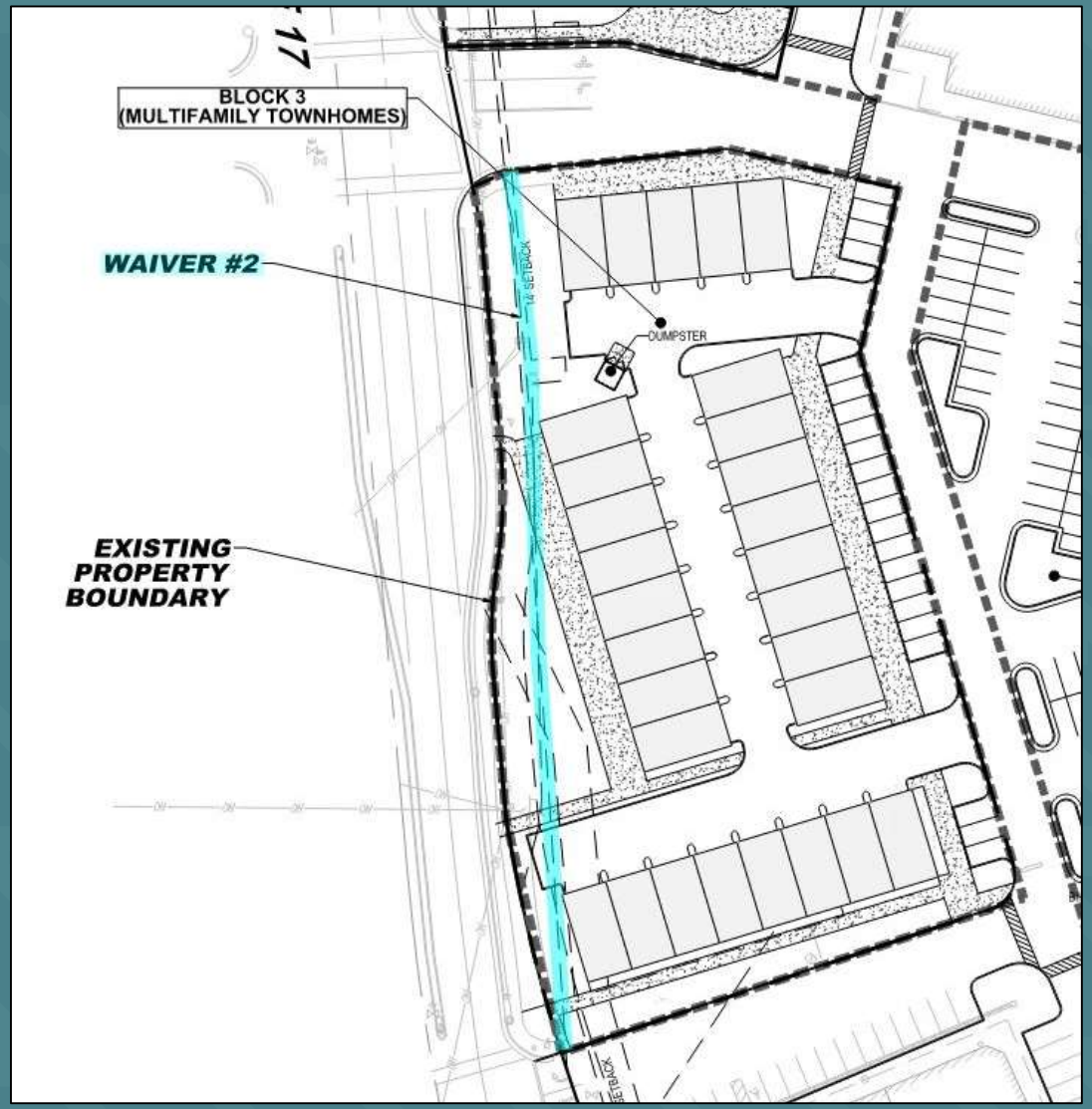
Mixed-Use Density Calculation (with SUP approval):

- 1 dwelling unit per 500 GSF of non-residential floor space
- 218,142 GSF / 500 = 436 units (15 units per acre)

- Requested Density = 386 (13.28 units per acre)

# SUP MODIFICATION & WAIVERS – WAIVER REQUEST #2

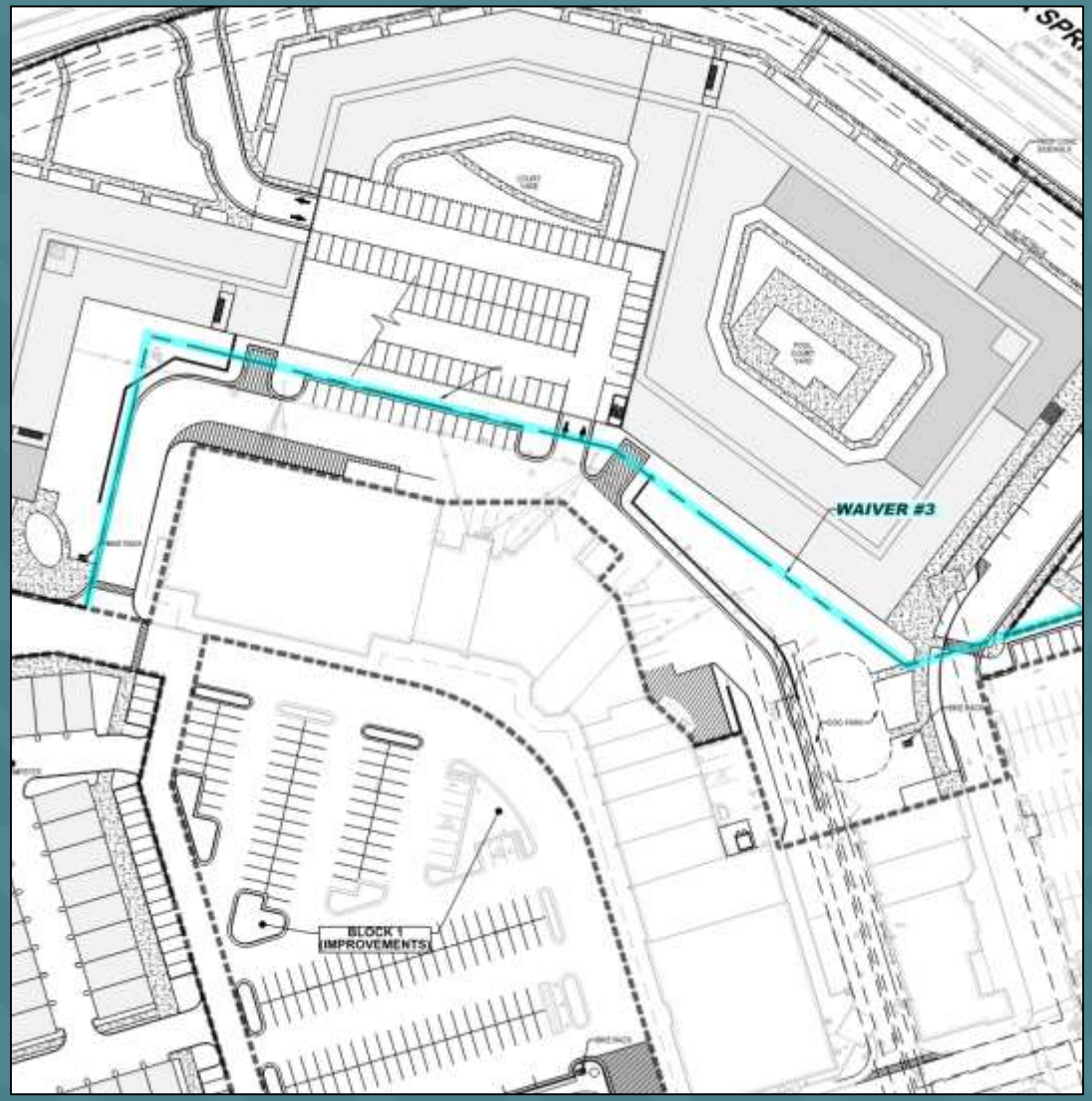





- Article 3-4.10.4: Required front yard setback from ROW greater than 50' is 40' minimum, if no parking or loading is proposed.
- This modification will allow the units to be closer to the street, creating a more consistent edge that is representative of the New Town Character district
- **Waiver Request #2**: Decrease minimum setback to 14' along Broadview Avenue



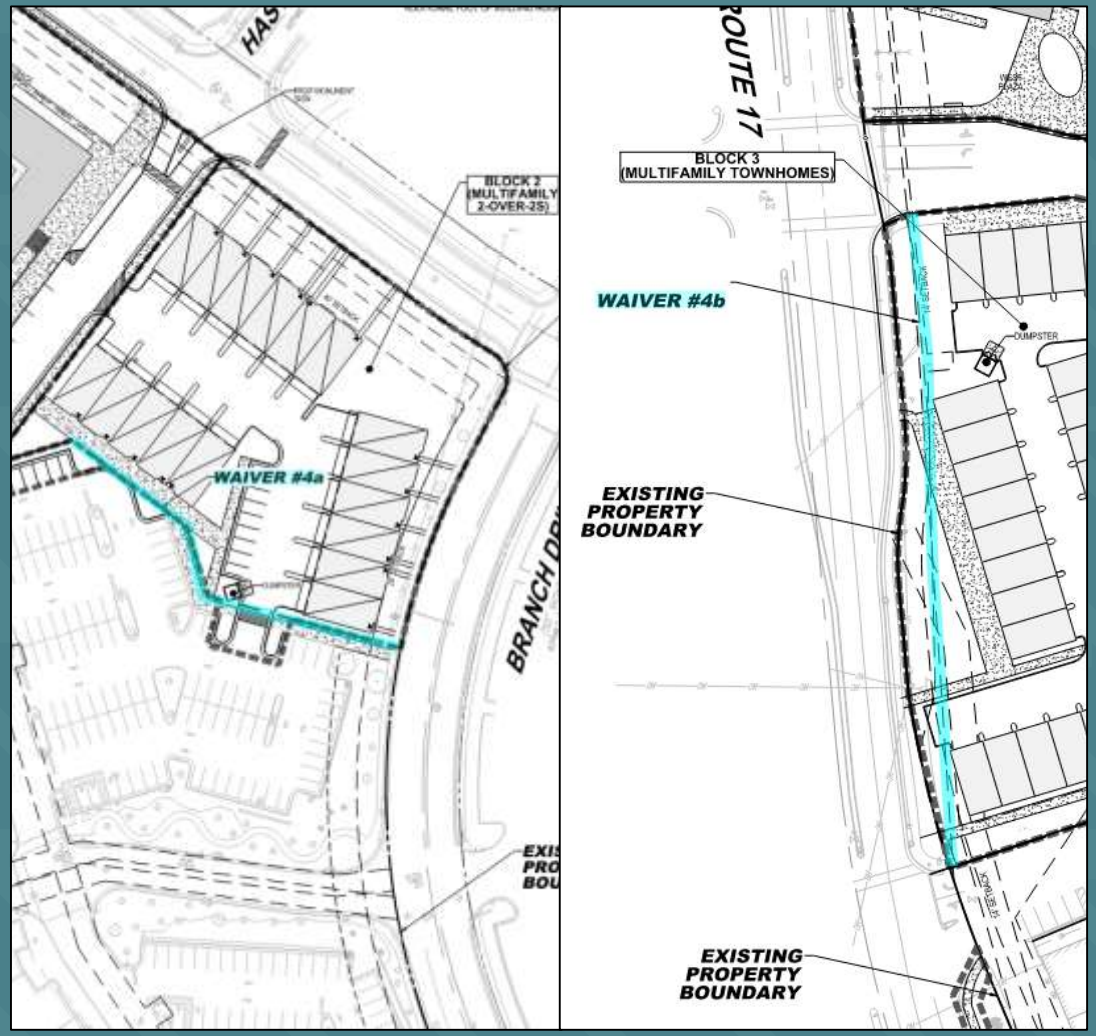
# SUP MODIFICATION & WAIVERS – WAIVER REQUEST #3




- Article 3-4.10.4: Required side/rear yard setbacks is 5′ minimum.
- This modification will allow the overall development to function as a true mixed-use development that will not be segmented by internal separations.
- **Waiver Request #3:** Decrease side/rear yard setbacks along internal proposed and existing property lines to 0′

# SUP MODIFICATION & WAIVERS – WAIVER REQUEST #4






- Article 8-8.5: Minimum buffer width for commercial uses adjacent to residential uses is 25', plus 1' for each foot of building height over 35'. Minimum buffer width for rear boundaries of residential uses from public ROW is 25'.
- This modification will allow the overall development to function as a true mixed-use development that will not be segmented by internal separations
- This modification will allow the units to be closer to the street, creating a more consistent edge that is representative of the New Town Character district
- **Waiver Request #4a:** Decrease buffer width between commercial and residential uses to 0'
- **Waiver Request #4b:** Decrease rear buffer width for residential uses from public ROW to 14'

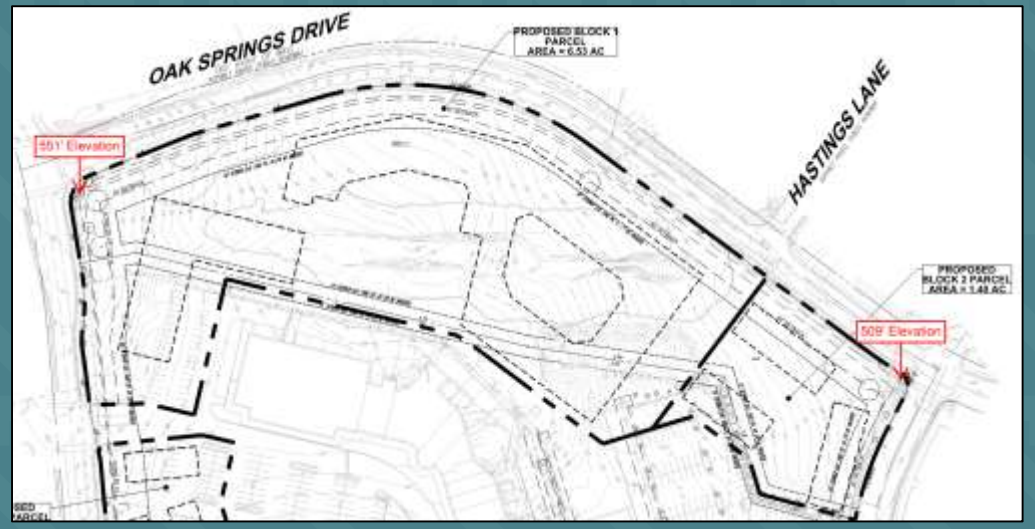
# SUP MODIFICATION & WAIVERS – WAIVER REQUEST #5



- Article 2-20: Height limit for dwellings may be increased up to 45' and up to three stories provided that front, side and rear setbacks increase 1' for each additional foot of building height over 35'.
- **Waiver Request #5**: Increase height limit for dwellings as follows:
  - 54' max height for Block 1, Oak Springs Drive Frontage
  - 36' max height for Block 1, Broadview Drive Frontage
  - 45' max height for Block 2
  - 36' max height for Block 3

# WHY ADDITIONAL HEIGHT IS NEEDED

- Site drops 42’ from Broadview Avenue to Branch Drive
- The building starts as 3-stories on the west side at the higher elevation and increases to 4-stories on the east side as the elevation drops
- Increasing height as a building moves down a hill is a technique to keep consistency in scale across a building’s elevation, as well as a way to conceal retaining walls within the building’s foundation, as opposed to creating unsightly external walls



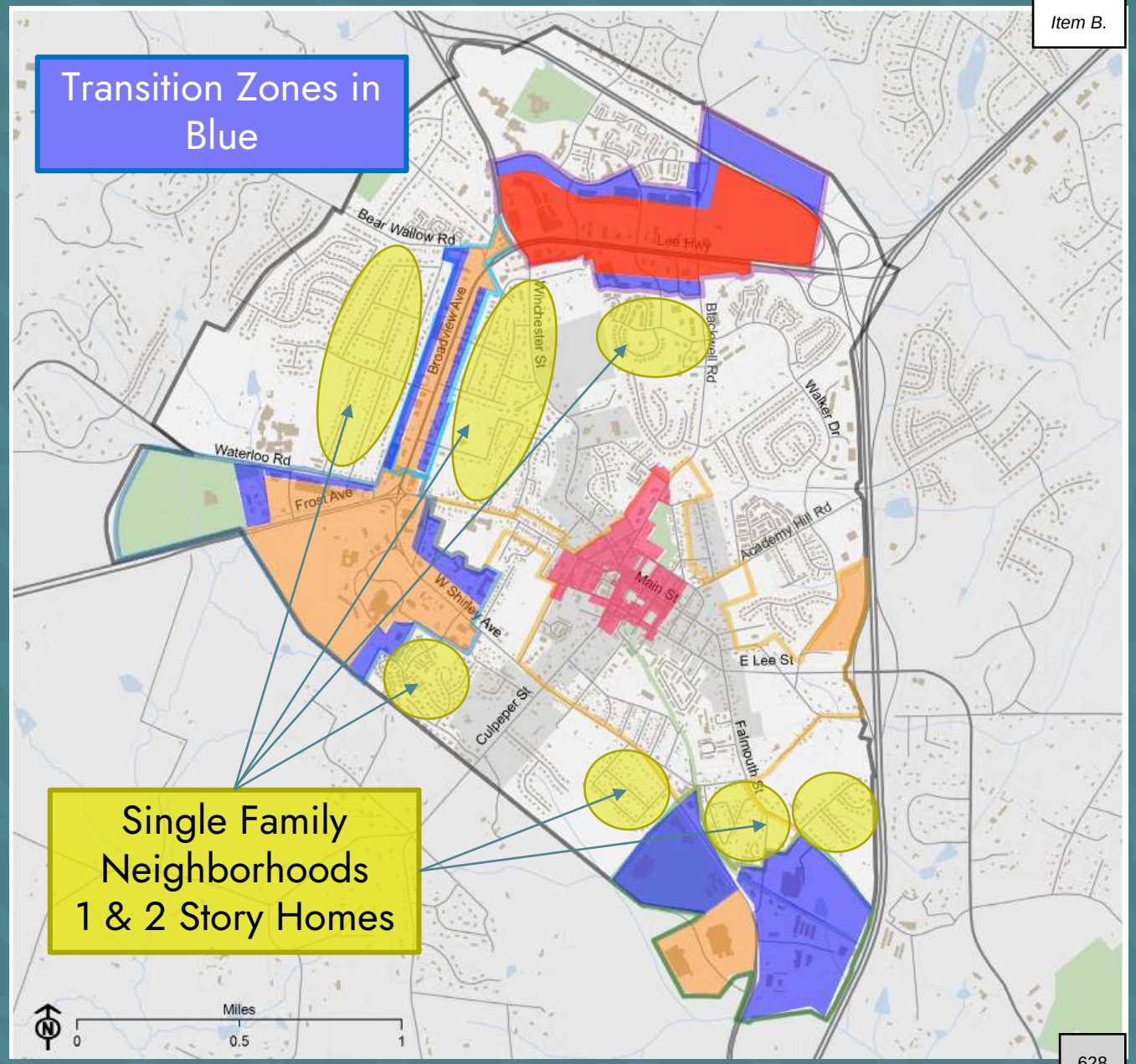
# WHY ADDITIONAL HEIGHT IS NEEDED



- The New Town Character District has been established in Plan Warrenton 2040 as a designated area of high density—3-story residential does not allow for the concentrated density desired in the District
- The New Town Character District calls for "greater intensity of mixed-use and strong live, work, and play options" and notes that this district has "high visibility," due to its proximity to Route 29. The requested modifications to increase density and height support the need for greater intensities and higher visibility in this Character District.
- 4-stories allows for the internal parking garage to be hidden from the exterior of the building

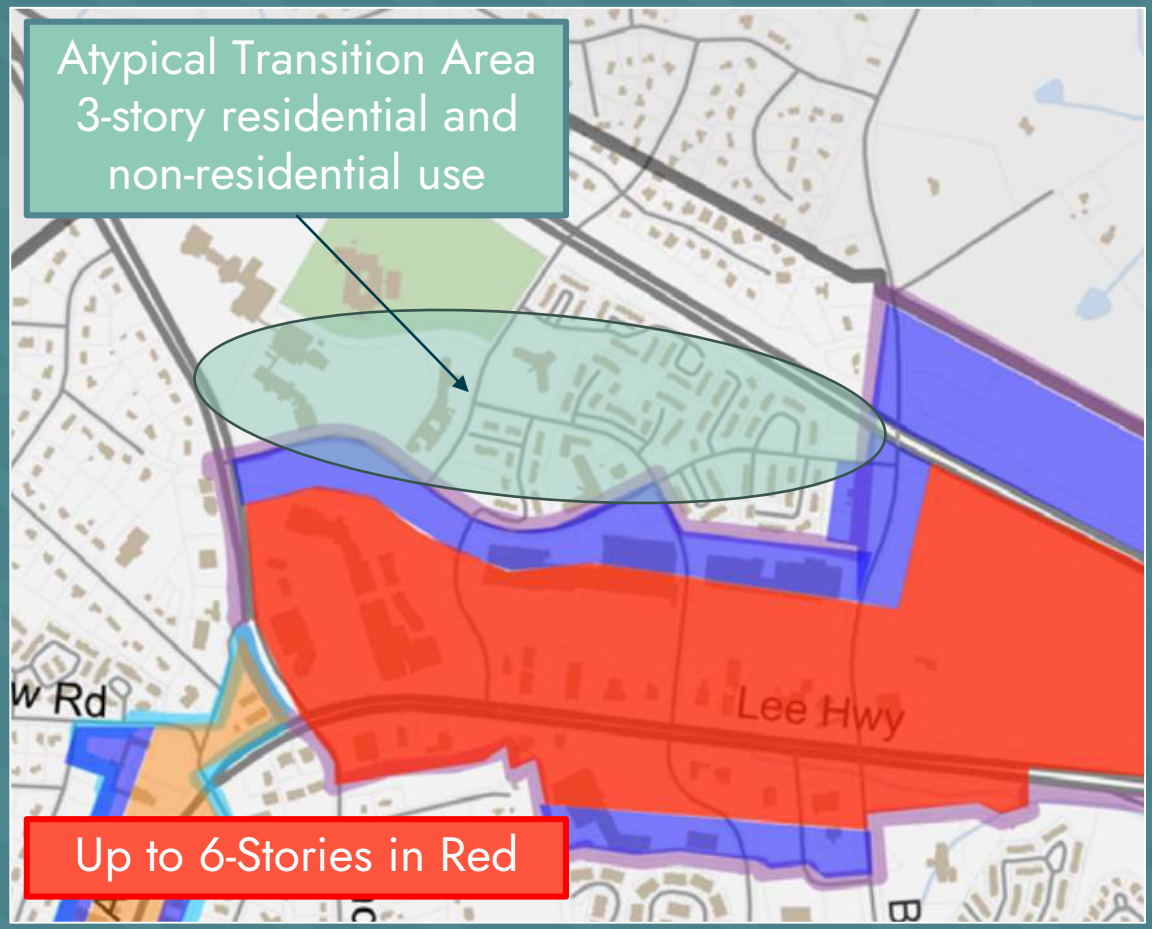
# TRANSITION ZONES

- The area along the south side of Oak Springs Drive is located within in a “Transition Zone” as defined by Plan Warrenton 2040
- Transition Zones are “specifically defined as adjoining neighborhoods to articulate a step down in the number of stories for greater compatibility to adjoining single-family neighborhoods”
- These areas are intended to be a max of 3-stories to provide a step down to the adjacent 1- and 2-story single family neighborhoods
- Transition Zones have been placed in accordance with this definition across the Future Land Use map



# TRANSITION ZONES

- With the exception of the Transition Zone placed along Oak Springs Drive
- The uses on the north side of Oak Springs Drive are not 1- & 2-story single family neighborhoods
- This area is occupied with 3- & 4-story apartments, 3-story townhomes, Brookside Rehab & Nursing Center and Highland School
- Because of this, increasing building heights to 4-stories at Warrenton Village Center still provides the intended step-down affect, given that the uses on the north side are atypical, 3-story and non-residential uses and the uses along Lee Hwy may go up to 6-stories



# SURROUNDING BUILDING HEIGHTS





# NOTABLE WARRENTON BUILDING HEIGHTS

- Warrenton Manor Apartments
  - Stories: 4
  - Location: Hastings Lane
  - Zoning: Residential Multi-Family
  - Future Use: Live-Work Neighborhood



- 98 Alexandria Pike Office Building
  - Stories: 5
  - Location: North of Old Town
  - Zoning: Central Business District
  - Future Use: Old Town Mixed Use



# NOTABLE WARRENTON BUILDING HEIGHTS

- 28 Blackwell Park Lane Office Building
  - Stories: 3
  - Location: Blackwell Business Park
  - Zoning: Commercial
  - Future Use: Commercial



- Hampton Inn
  - Stories: 5
  - Location: Blackwell Road
  - Zoning: Commercial
  - Future Use: Commercial



# NOTABLE WARRENTON BUILDING HEIGHTS

- Fauquier County High School
  - Stories: 4
  - Location: 705 Waterloo Road
  - Zoning: Public-Semi-Institutional
  - Future Use: Public/Semi-Public Non-Intensive

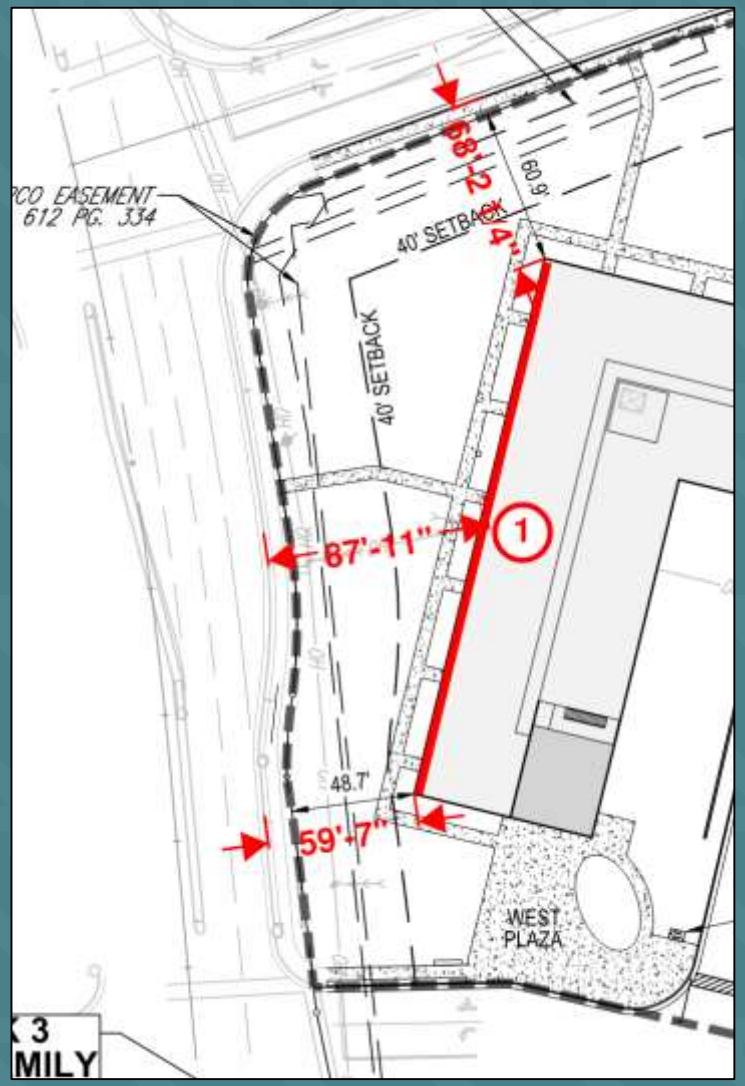


- Fauquier Health
  - Stories: 5
  - Location: 500 Hospital Drive
  - Zoning: Public-Semi-Institutional
  - Future Use: Public/Semi-Public Intensive



# BUILDING HEIGHTS & SETBACKS – FROM BROADVIEW









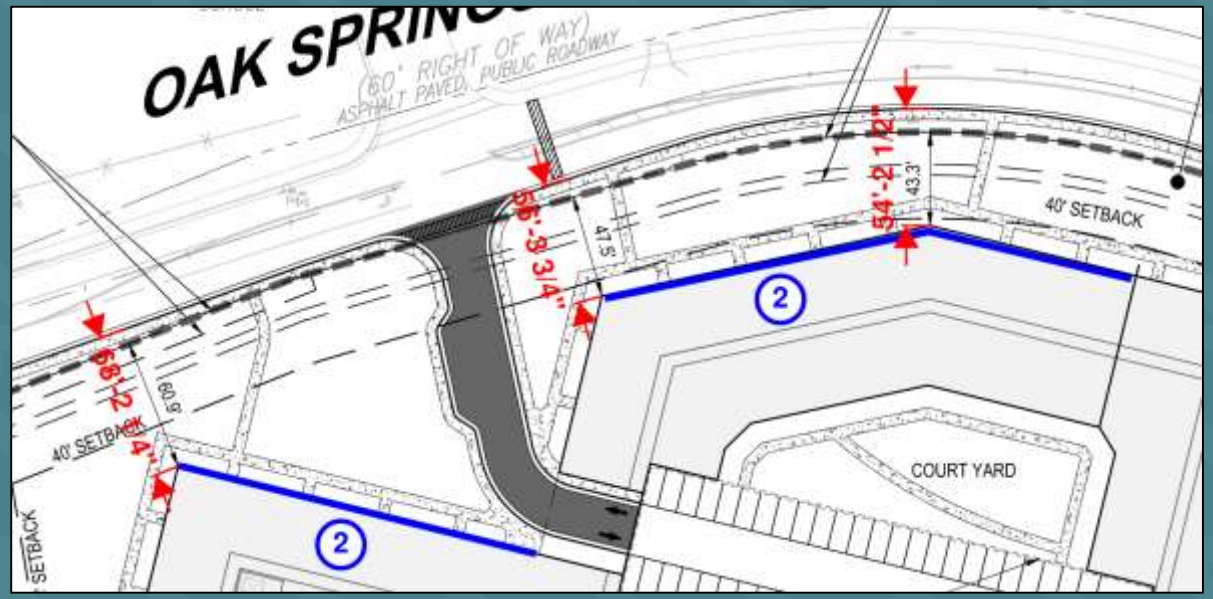
| Number of Stories | Average Building Height | Max Building Height Per Waiver | Minimum Setback from Curb |
|---|---|---|---|
| 3 | 32′-11″ | 36′-0″ | 59′-7″ |

- Setback to Height Ratio = 1.7 : 1

# BUILDING HEIGHTS & SETBACKS – FROM OAK SPRINGS





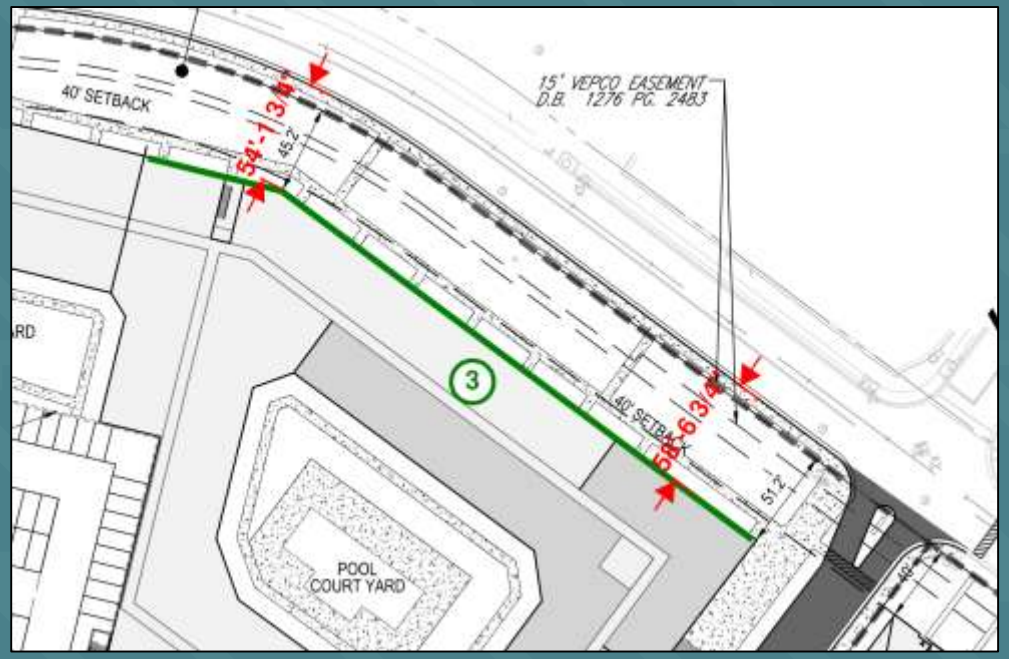

| Number of Stories | Average Building Height | Max Building Height Per Waiver | Minimum Setback from Curb |
|---|---|---|---|
| 4 | 42′-11″ | 54′-0″ | 54′-2″ |

- Setback to Height Ratio = 1 : 1

# BUILDING HEIGHTS & SETBACKS – FROM OAK SPRINGS






| Number of Stories | Average Building Height | Max Building Height Per Waiver | Minimum Setback from Curb |
|---|---|---|---|
| 4 | 45′-0″ | 54′-0″ | 54′-2″ |

- Setback to Height Ratio = 1 : 1

# BUILDING HEIGHTS & SETBACKS – FROM OAK SPRINGS





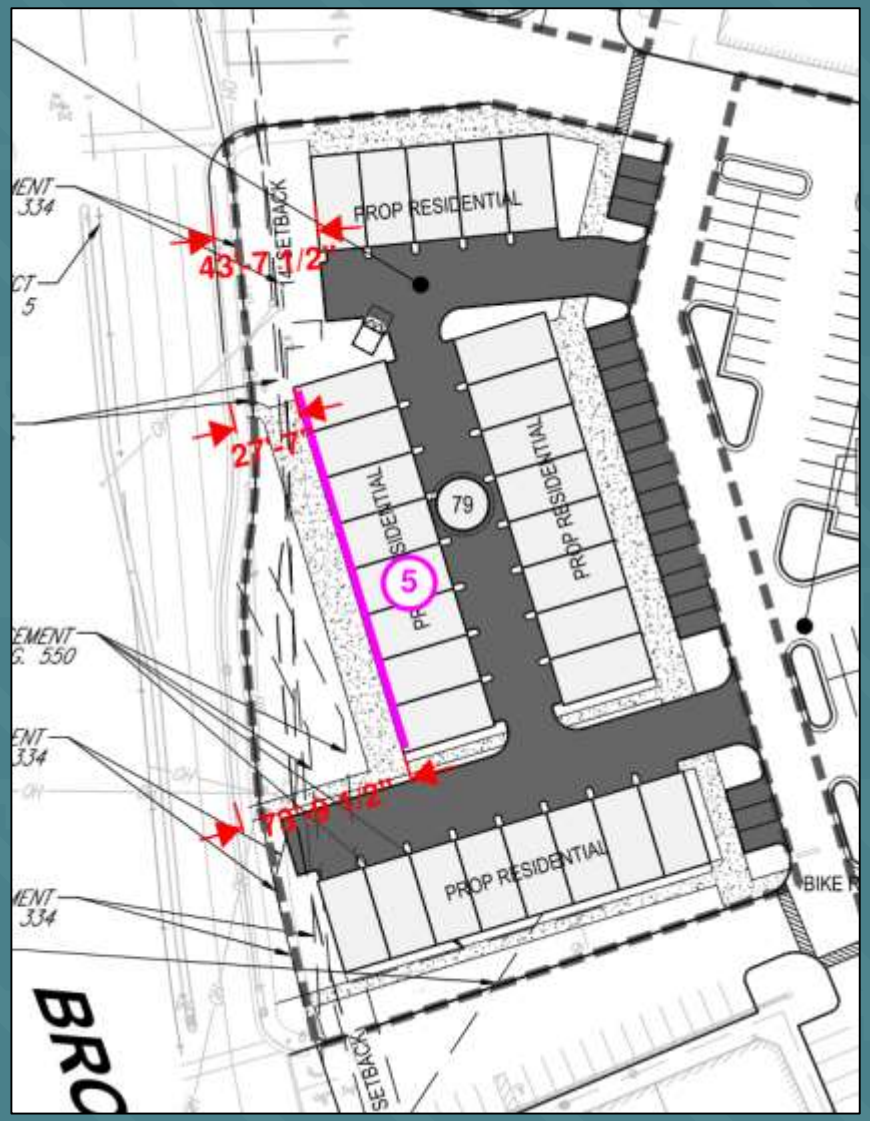


| Number of Stories | Average Building Height | Max Building Height Per Waiver | Minimum Setback from Curb (Oak Springs Dr.) | Minimum Setback from Curb (Branch Dr.) |
|---|---|---|---|---|
| 4 | 43′-6″ | 45′-0″ | 46′-11″ | 21′-6″ |

- Setback to Height Ratio = ~1 : 1 on Oak Springs Dr
- Setback to Height Ratio = ~0.5 : 1 on Branch Dr

# BUILDING HEIGHTS & SETBACKS – FROM BROADVIEW







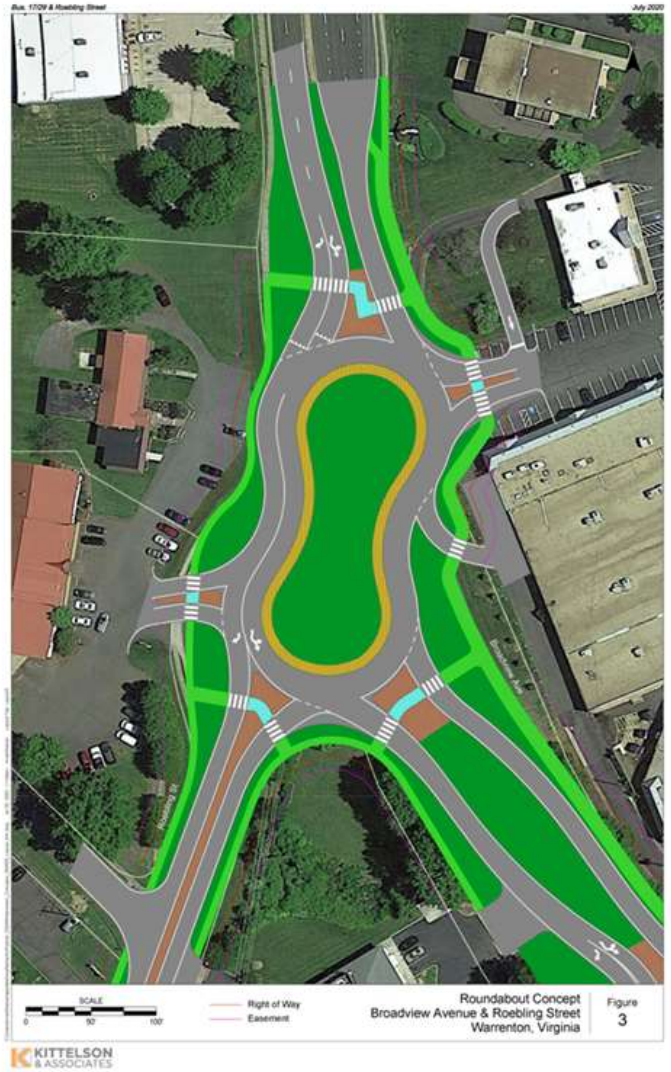


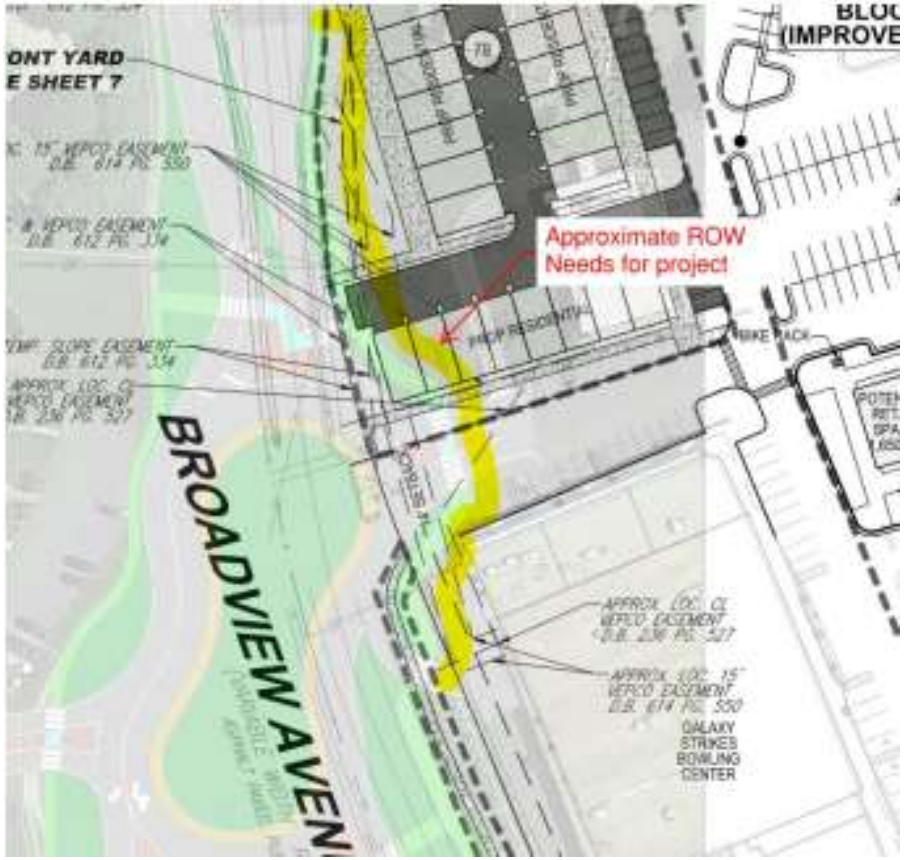
| Number of Stories | Average Building Height | Max Building Height Per Waiver | Minimum Setback from Curb |
|---|---|---|---|
| 3 | 32′-11″ | 36′-0″ | 27′-7″ |

- Setback to Height Ratio = 0.8 : 1

# TOWN OF WARRENTON SMART SCALE ROUND 6 – DRAFT CONCEPT






639

NEWCASTLE
DEVELOPMENT GROUP

# SPECIAL USE PERMIT #SUP 22-5

## WARRENTON VILLAGE CENTER

***PLANNING COMMISSION WORK SESSION***
***APRIL 23, 2024***




640

# AGENDAS

## WORK SESSION #2 – APRIL 16TH, 2024

- A Product of Plan Warrenton 2040
- Warrenton Housing Market & Economic Impacts
- Architecture
- Public Improvements

## WORK SESSION #3 – APRIL 23RD, 2024

- Water/Sewer Impacts
- Transportation
- Schools
- Modification/Waiver Requests

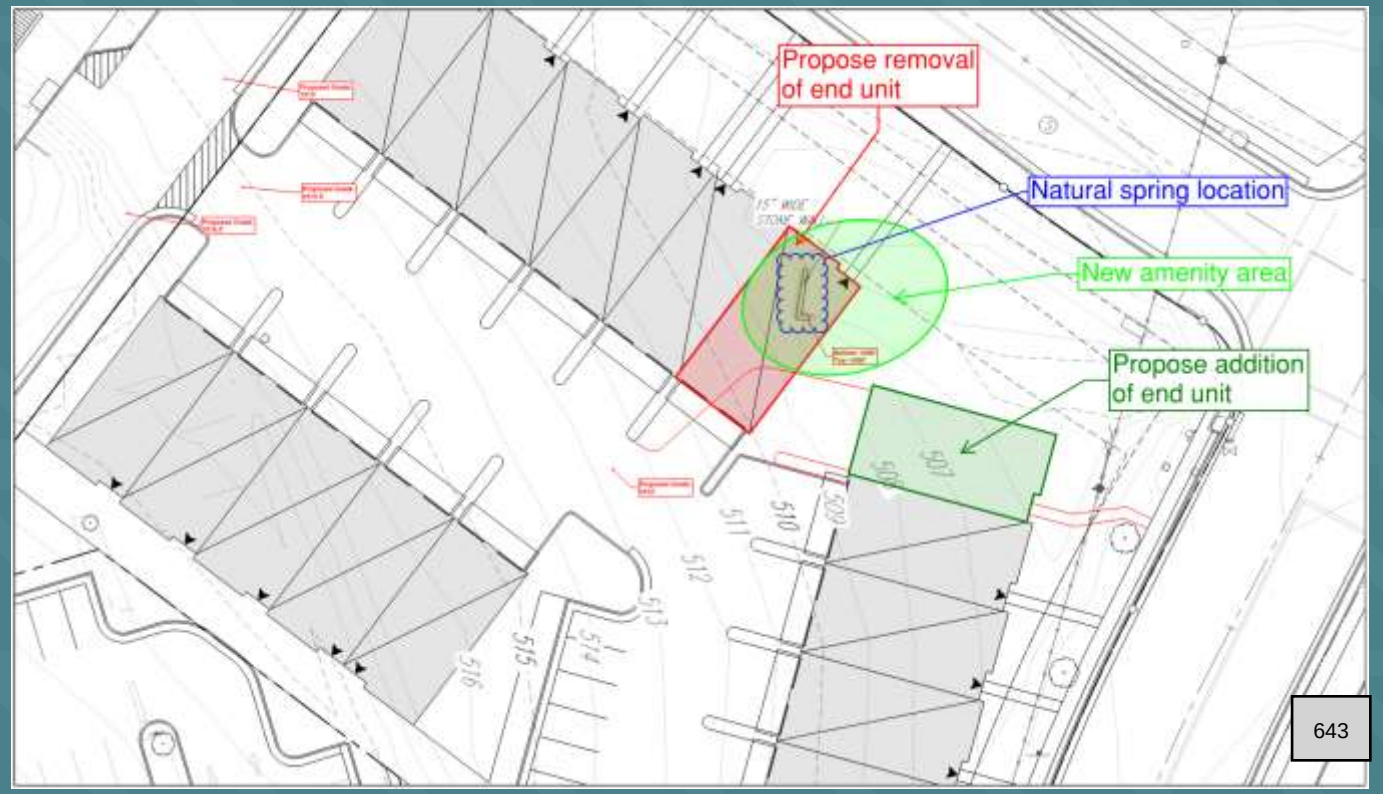
# FOLLOW UP FROM WORK SESSION #2 (4/16/23)

# OAK SPRING

- It has been requested that we explore the preservation and restoration of Oak Spring—located near the intersection of Oak Spring Drive and Branch Drive
- Restoration of this natural spring will preserve a unique piece of Warrenton history and character
- We are looking into a site plan revision that will allow the spring to be preserved and reconditioned into a public amenity







# INCREASE SHADE AT SPLASHPAD

- Shade trees have been added to the Central Plaza to provided coverage for the surrounding seating areas



# STORMWATER MANAGEMENT



Storm Water Management Plan is conceptual at this time and will be fully designed and approved during Site Development Plan.

Bohler Engineering is here tonight to answer general questions pertaining to the potential system; however, the scope and methodology of the system are yet to be determined.

# ARCHITECTURE

- While the goal of our proposed aesthetic is to introduce a modern and fresh design to Warrenton, we recognize the request to incorporate more components that reflect the character of the community
- Renderings here show a revised color pallet, with incorporation of beige brick in lieu of white and softening of previously dark gray siding to a lighter brown
- Our team is currently studying additional design enhancements with the goal of implementing features that are more representative of the Town's character





# WATER / SEWER IMPACTS

# WATER / SEWER IMPACTS

- NewCastle's average daily water usage across its Virginia apartment community portfolio:

| Community | Units | Total Usage (GAL) | Total Daily Usage (GAL) | Daily Usage Per Unit (GAL) |
|---|---|---|---|---|
| Community 1 | 250 | 3,295,006 | 9,027 | 36.1 |
| Community 2 | 316 | 7,344,232 | 20,121 | 63.7 |
| Community 3 | 212 | 5,543,803 | 15,188 | 71.6 |
| Community 4 | 280 | 6,729,187 | 18,436 | 65.8 |
| Community 5 | 242 | 5,181,400 | 14,196 | 58.7 |
| Community 6 | 452 | 14,757,676 | 33,449 | 74.0 |
| Avg. / Total ** | 1,752 | | 20,278 | 67.0 |

*Data is from January ,1 2023 through December 31, 2023
**Community 1 was finishing lease up for the first half of 2023 so data does not represent a full calendar year of stabilized occupancy. Community 1 data has been excluded from average data presented and was excluded from usage analysis.

- Average daily community usage across Virginia portfolio is 20,278 gallons per day (GPD)
- Assuming the daily usage per unit of 67.0 GPD, we would project 25,862 GPD for Warrenton Village Center (386 units x 67.0 GPD)

# WATER / SEWER IMPACTS



- Town of Warrenton uses their own daily usage amounts when making their capacity determination:
  - For 386 residential units, the Town assumes 116,000 gallons per day
- This is significantly higher than the data collected across NewCastle's Virginia communities – 25,862 GPD vs. 116,000 GPD

- **Even with the assumed usage of 116,000 GPD, the Public Works Department has determined that there is adequate capacity for this project**

# TRANSPORTATION

# SITE PLAN OVERVIEW

Primary vehicular access:

- Full-movement entry on Oak Springs Dr, forming 4th leg of Highland School Driveway intersection
- Full-movement driveway on Oak Springs Dr, forming 4th leg of Hastings Ln intersection
- Access also provided via existing shopping center connections to the south
- A total of 6 access points to the surrounding streets



# SITE PLAN OVERVIEW

Pedestrian Connectivity:

- Extensive sidewalk network proposed along all streets and within site to promote walkability
- Connects to and augments pedestrian network within existing center
- Crosswalks will be added on Oak Spring Dr at Hastings Ln and Highland School to promote safe pedestrian access from the north
- Retain crosswalks on Broadview Ave and Branch Dr



# TRAFFIC STUDY AREA



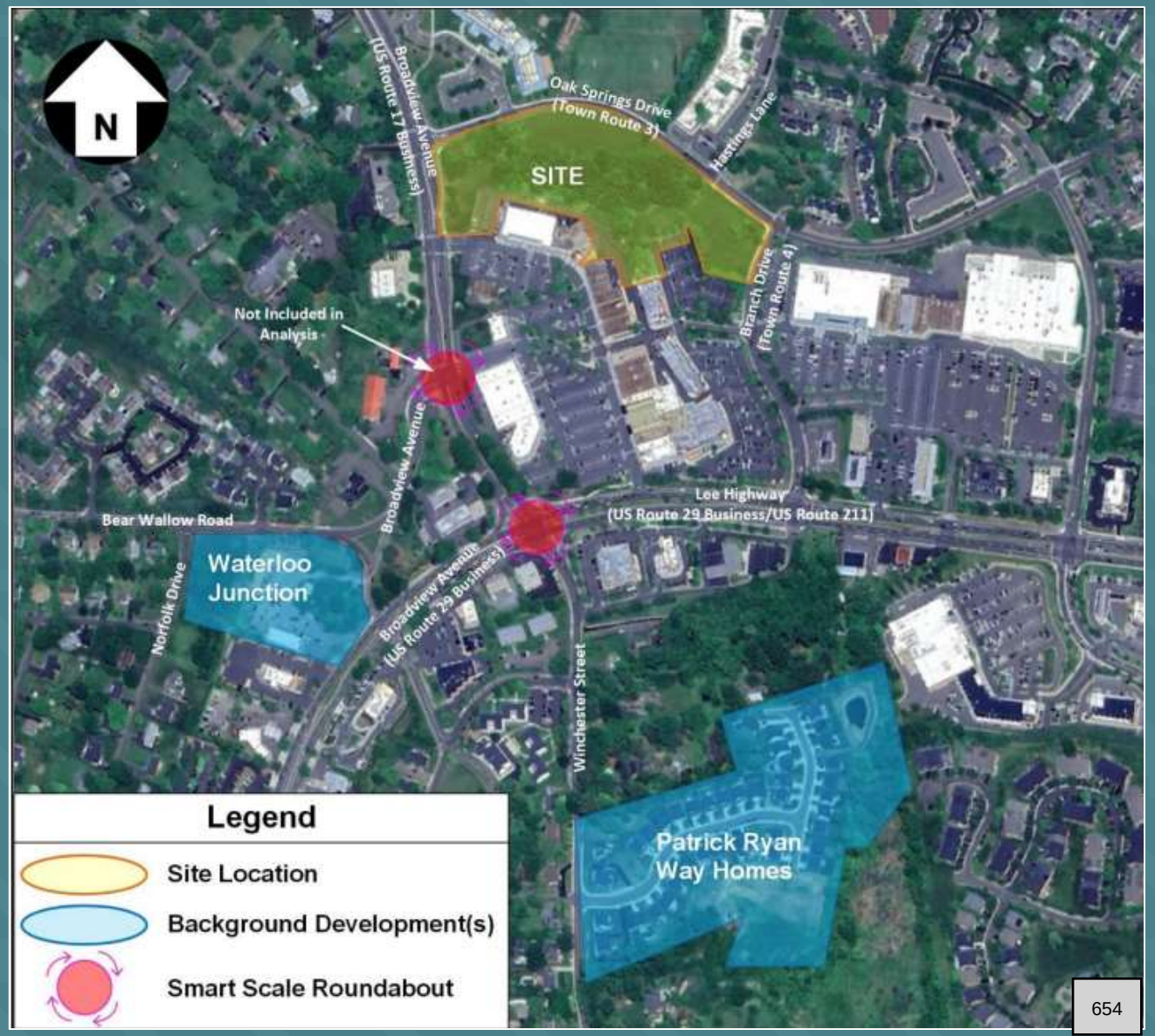


# FUTURE CONDITIONS WITHOUT PROPOSED DEVELOPMENT



Assumptions:

- Accounted for 1% annual regional growth on Lee Hwy mainline
- Other approved developments in the area will add some traffic, including 47 new townhomes and 40 new single-family homes
- Roundabout at Broadview Avenue, Broadview Avenue, and shopping center entrance not funded through SMARTScale



# FUTURE CONDITIONS WITHOUT PROPOSED DEVELOPMENT



## Assumptions (cont.):

- Planned Roundabout at Rt 29/211 and Broadview Ave Intersection:
  - Separate VDOT project, not triggered by this development
  - $29M in SMARTScale funding awarded for this and Blackwell Road roundabout
  - Expected to improve traffic operations and safety
  - Includes accommodations for pedestrians

DRPT · Office of Intermodal Planning and Investment · VDOT

**PROJECT PIPELINE**

Roundabout: reconfigures the intersection to a multi-lane hybrid roundabout. The roundabout can improve operations by 60%, reduce crashes up to 60%, and improve the safety of pedestrian crossings.

*Figure 17. Broadview Avenue Roundabout Concept*



# FUTURE CONDITIONS WITHOUT PROPOSED DEVELOPMENT



Traffic Operations:

- Overall, the road network assuming the "future without development" condition is expected to continue operating similar to the existing conditions
- Some minor increases in delays are projected for some movements at unsignalized intersections, but signalized intersections and the new roundabout would operate efficiently
- The maximum "future without development" increase in delay at any study intersection is 7 seconds, as compared to existing conditions
- The planned infrastructure improvements, like the roundabout, will improve traffic flow compared to existing conditions

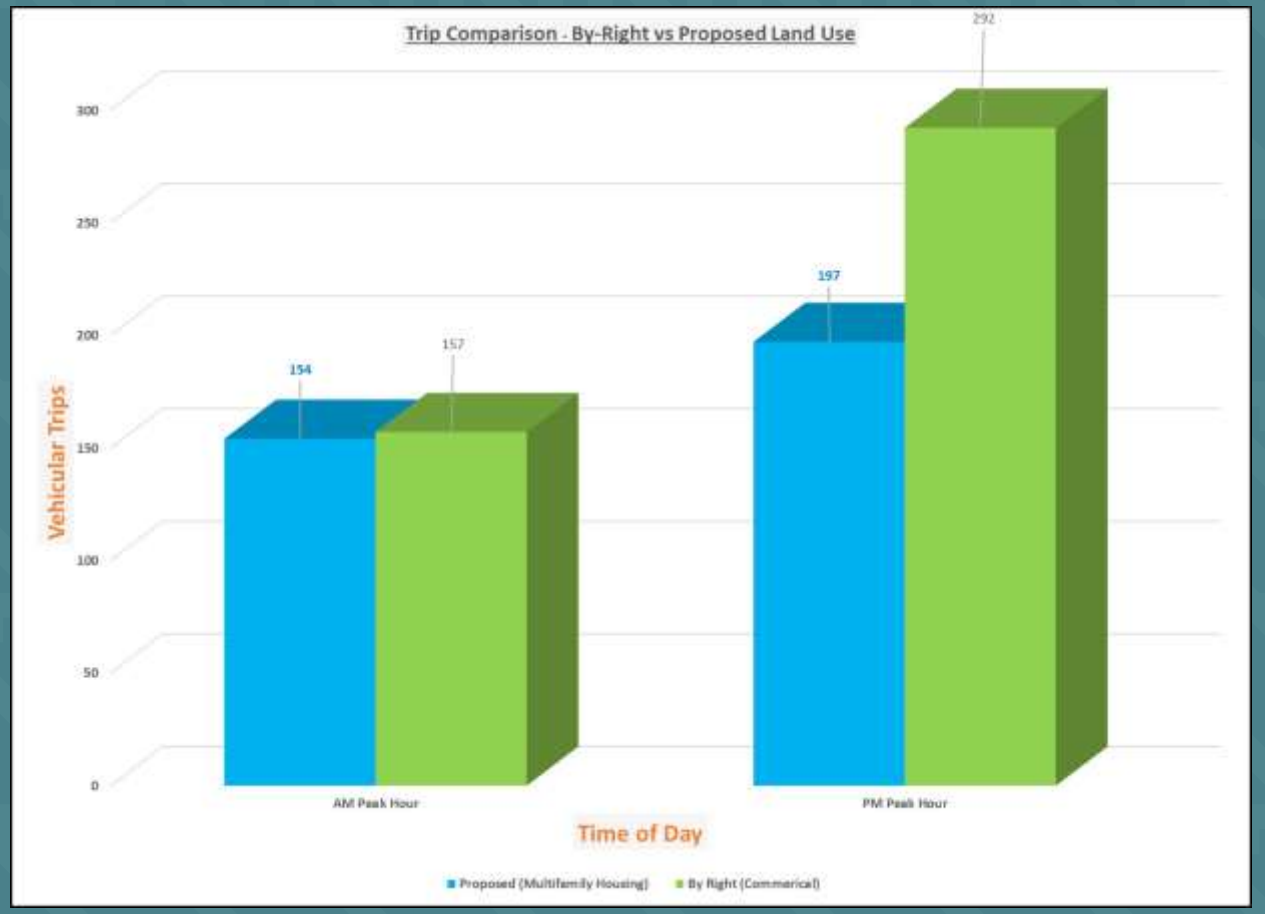
# SITE TRIP GENERATION

New Trips Generated by the Development:

- The proposed 386 new residential units are expected to generate around 154 new vehicle trips during the morning commute hour and 197 new vehicle trips during the evening commute hour
- These are distributed across the internal connections and 6 access points, reducing impact at any single location

Less Than By-Right Commercial Development:

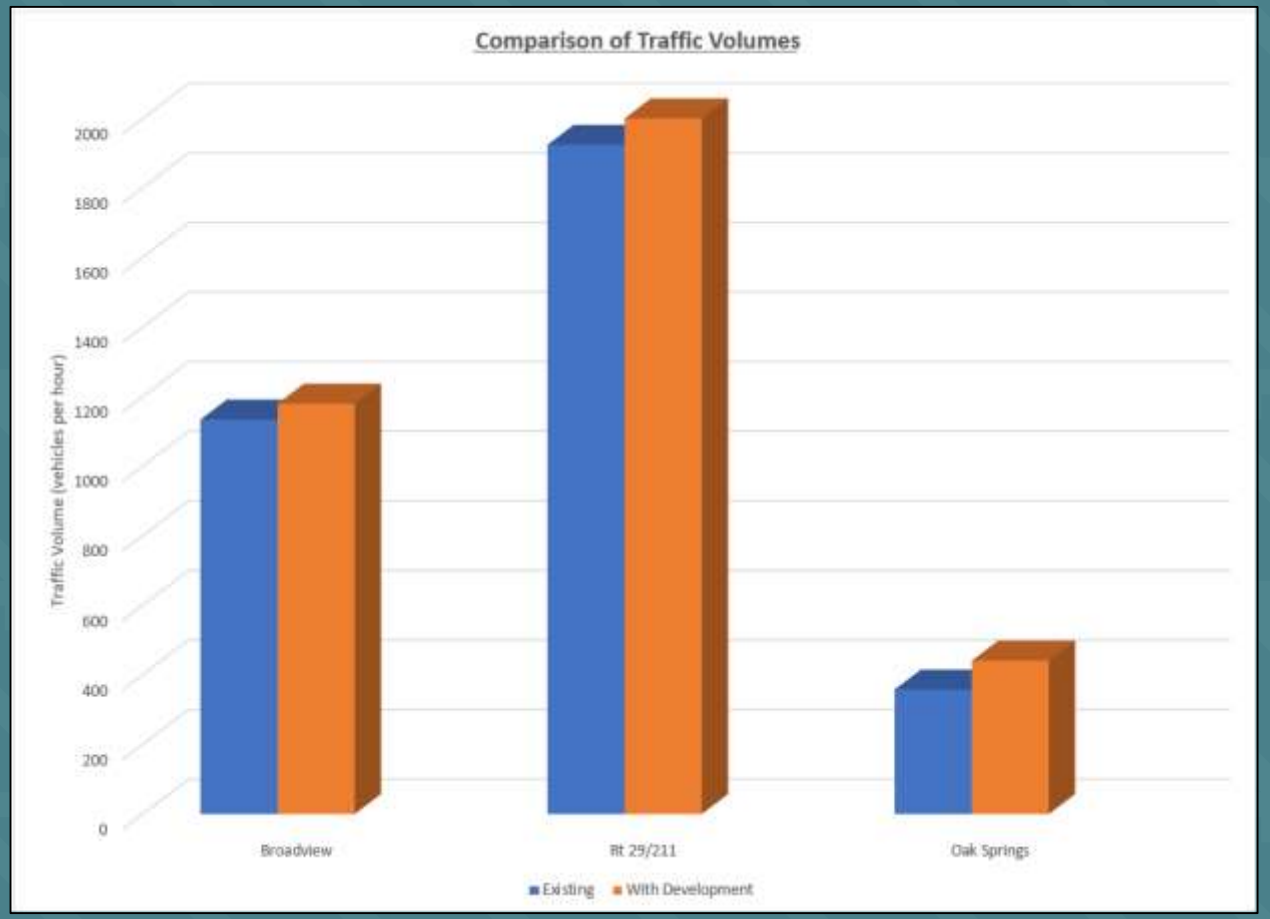
- The residential traffic volumes are lower than what would be seen if the site was developed by right with 40,000 sf of retail instead



# SITE TRIP IMPACTS

Minimal Traffic Impact:

- Site-generated traffic represents a small percentage of the existing volumes:
  - 3 - 4% on Broadview Avenue
  - 0.1 - 4% on Rt 29/211
  - Greater proportion on Oak Spring Dr and Branch Dr, where current volumes are lower
- Capacity analysis confirms these modest additions can be accommodated by the surrounding road network without degrading operations



# INTERSECTION CAPACITY ANALYSIS - 2027 WITH DEVELOPMENT

Minimal Impact on Intersection Operations:

- The addition of site-generated traffic does not significantly increase delays when compared to the future conditions without the development

Maintaining Efficient Traffic Flow:

- Signalized intersections and the new planned roundabout will continue operating efficiently, demonstrating the surrounding network can accommodate the new trips

Manageable Impacts at Unsignalized Intersections:

- The unsignalized intersection of Warrenton Village South Driveway and Broadview Avenue is anticipated to operate with higher delays, but the site-generated traffic only constitutes approximately 3.5% of the total volume at this location
- At all other unsignalized study intersections, the minor increases in delay represent conditions no worse than what is projected to occur without the development

Accommodating Site Traffic:

- Queues can still be fully accommodated within the available storage at all intersections, similar to the existing and future no-build conditions

# SCHOOL BUS ACCOMMODATIONS

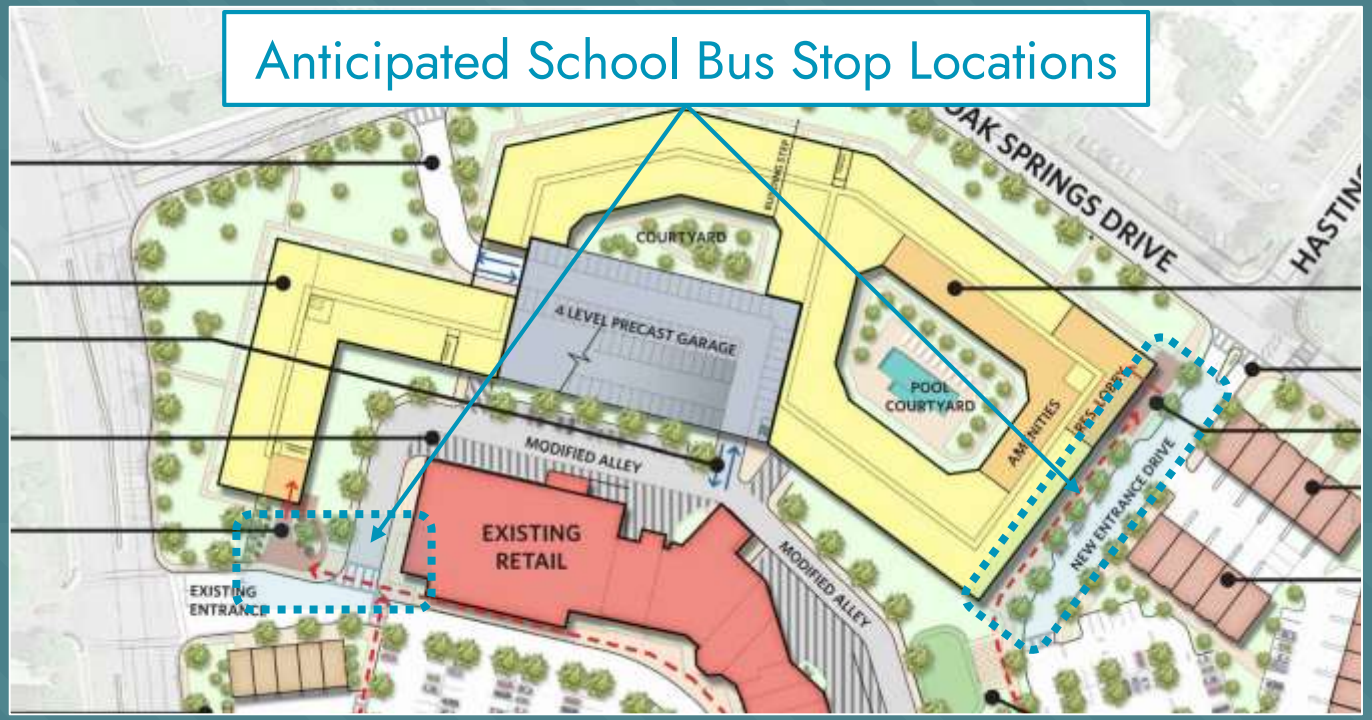


School Bus Stops:

- The developer will work with County schools on exact locations of school bus stops
- Expected to be near the residential lobbies

Impact on Traffic:

- Anticipated that buses will stop on internal streets, rather than adjacent public roads
- Maintain the flow of through traffic on the surrounding streets during peak school travel times



# HIGHLAND SCHOOL TRAFFIC

Balancing Access and Minimizing Disruption:

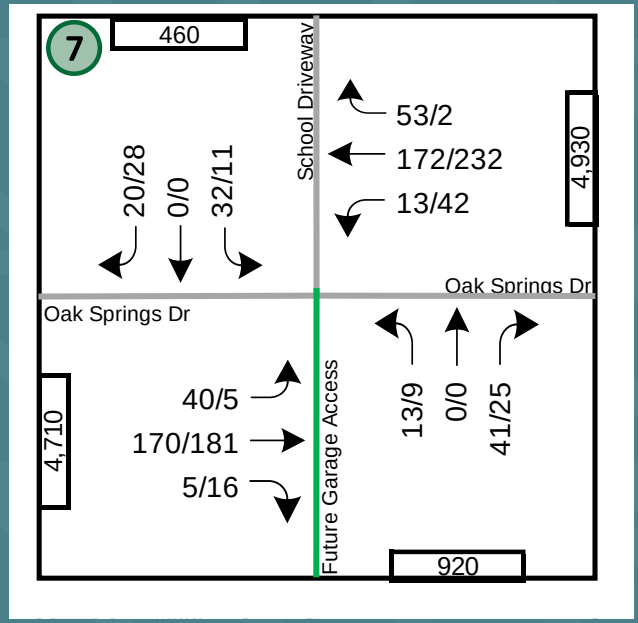
- The proposed parking deck entry is positioned across from the Highland School driveway to balance access needs while minimizing disruption to the existing intersection

Minimizing Conflicts with School Peak Hours:

- Analysis found Highland School and residential AM peak hours have a 15-minute overlap, during which conflicts are expected to be minimal
- Analysis found no overlap in PM peak hours
- It is anticipated that residents will use secondary garage entrance during AM peak hours, which will further reduce conflicts

Accommodating School Operations:

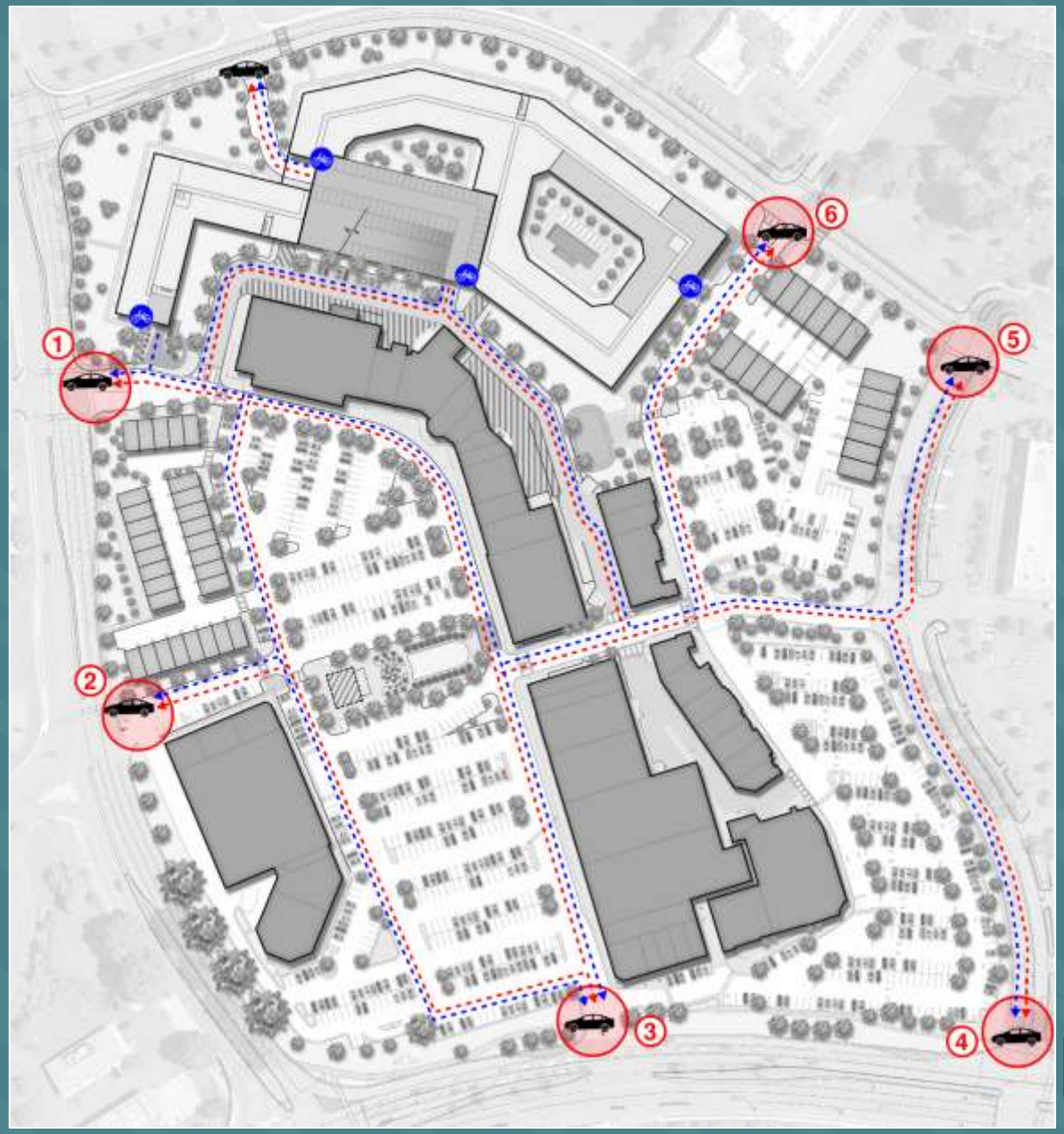
- Observations showed limited queuing of vehicles along Oak Springs Dr at the existing Highland School access point, even during peak times
- The school has multiple pickup/drop-off locations and two entrances, which helps distribute the traffic




Overall, the traffic impacts from the proposed development are not anticipated to significantly disrupt or impede the normal operations of Highland School

# HIGHLAND SCHOOL TRAFFIC

- Residents of Warrenton Village Center will want to avoid traffic as much as those dropping off/picking up students at Highlands School
- The site provides 6 alternative points of ingress/egress for vehicles and bicycles that will be the preferable route of travel during peak traffic hours to avoid congestion on Oak Springs Drive
- These alternative points of ingress/egress will further reduce what the Traffic Impact Analysis has determined to be minimal conflicts to the Highland School traffic



# ROAD IMPROVEMENTS

Turn Lane Warrant Analysis:

- No new turn lanes warranted at proposed site access points per VDOT standards
- No new turn lanes recommended to be constructed by the development

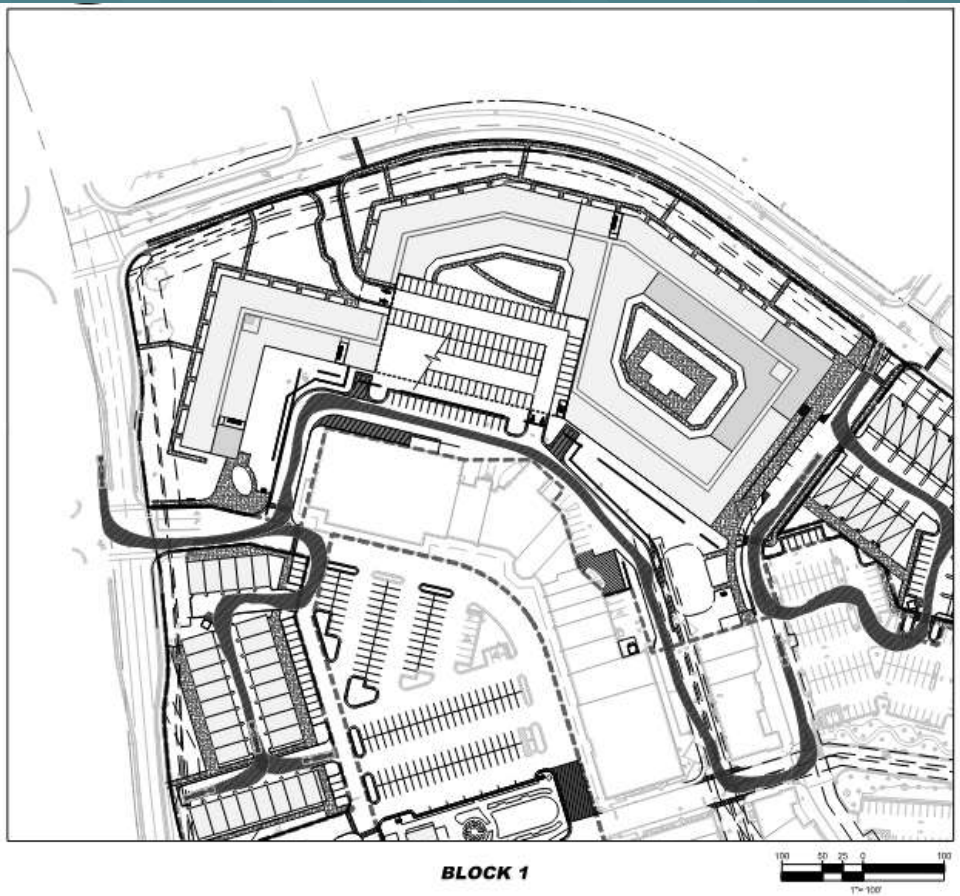
Signal Warrant Analysis:

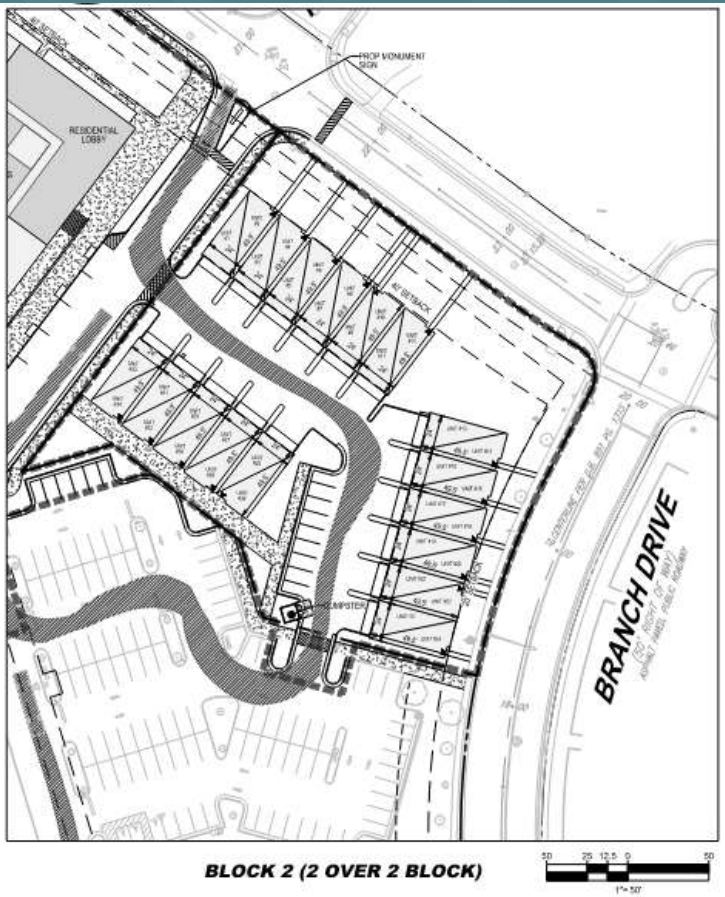
- Signal warrant analysis performed for Broadview Ave/Oak Springs Rd intersection
- Traffic volumes do not meet MUTCD signal warrants, so signalization is not recommended
- Unsignalized operations projected to function acceptably at LOS C or better

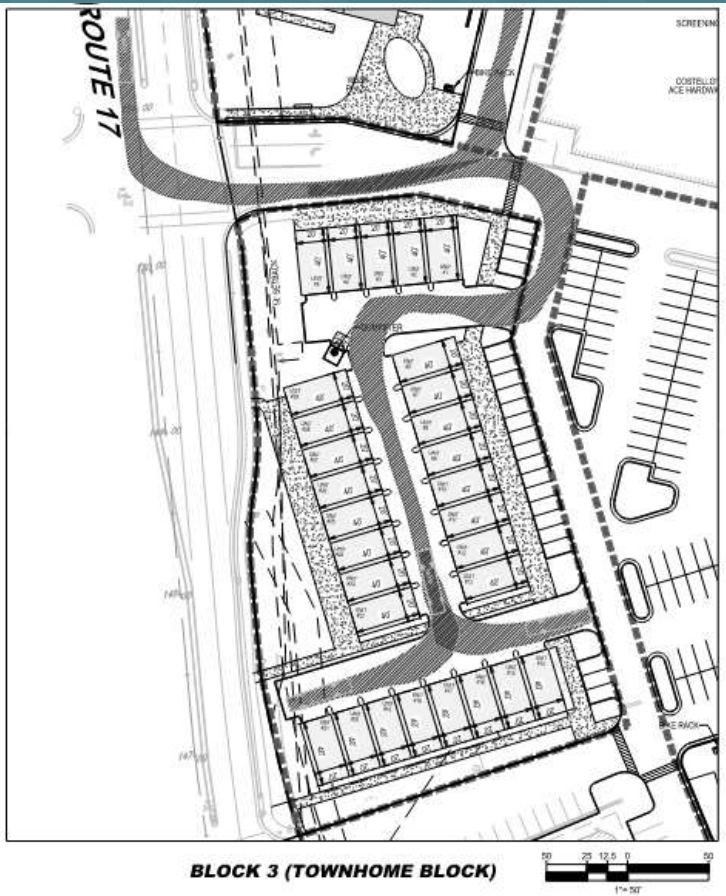
**The Warrenton Village Center development does not necessitate any additional roadway improvements beyond what is already planned by VDOT and the Town**

# EMERGENCY & DELIVERY VEHICLE MOVEMENTS

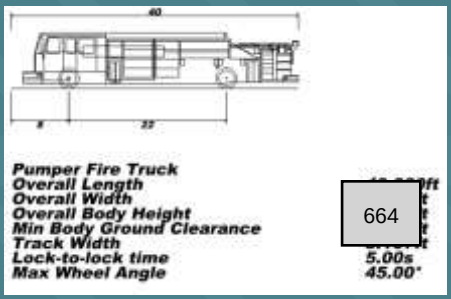





- Vehicle turning analysis has confirmed maneuverability throughout all blocks
- Mountable curbs can be included at desired locations during site plan



# SUMMARY OF IMPACTS

Additional Traffic:

- The proposed 386 residential units will generate 154 new trips in the AM peak and 197 in the PM peak hour
- This equates to about 4% of the current traffic on most surrounding roadways

Dispersed Access Points:

- Multiple entry/exit locations directly to Oak Springs Dr and through shopping center driveways
- Distributes new trips across the road network, avoiding concentration at a single point

# SUMMARY OF IMPACTS

Leveraging Existing and Planned Infrastructure:

- The mixed-use nature of the development will help reduce external trips generated, as some trips can be captured internally
- Surrounding street grid offers multiple route choices, dispersing trips
- Planned roundabout will improve operation at Rt 29/211 and Broadview Ave
- Capacity analysis confirms surrounding intersections and roads can accommodate the new traffic with minimal impact

Outcome:

- The Warrenton Village Center development would improve walkability, vibrancy, and housing choices, with a marginal increase in traffic that does not warrant new road improvements

# SCHOOLS

# PROJECTED STUDENTS

Fauquier County Student Generation Calculation:

- 0.72 students per single family detached dwelling
- 0.45 students per single family attached dwelling
- 0.20 students per apartment dwelling

- Allocation per school type assumption is:
  - 52% elementary school
  - 22% middle school
  - 26% high school

# PROJECTED STUDENTS

Warrenton Village Center Projection at Full Buildout and Occupancy:

- Block 1: 320 apartments x 0.20 = 64 students
- Block 2: 36 attached dwellings x 0.45 = 16
- Block 3: 30 attached dwellings x 0.45 = 14
- Total proposed students = 94

- Allocation per school:
  - Bradley (52%) = 49
  - Taylor (22%) = 21
  - FHS (26%) = 24

# FAUQUIER COUNTY ENROLLMENT PROJECTIONS

## Enrollment Projection

This is an 5-year analysis of program capacity based on projected enrollment. This analysis is a cohort progression model, looking at birth rates and considers a growth factor. Areas of concern are:

- Elementary (South and Central)
- Middle School Growth
- Liberty HS

| | Program Capacity | 95% Cap | Actual Enrollment 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 | % Cap | Projected Enrollment 2024-25 | 2025-26 | 2026-27 | 2027-28 | 2028-29 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ES South | | | | | | | | | | | | | |
| Miller | 580 | 551 | 493 | 476 | 484 | 489 | 506 | 87.2% | 503 | 492 | 504 | 505 | 522 |
| Pearson | 532 | 505 | 385 | 347 | 365 | 367 | 381 | 71.6% | 397 | 394 | 407 | 422 | 433 |
| Pierce | 560 | 532 | 550 | 487 | 514 | 531 | 533 | 95.2% | 537 | 548 | 554 | 543 | 551 |
| Walter | 588 | 559 | 410 | 363 | 412 | 399 | 396 | 67.3% | 409 | 430 | 451 | 452 | 474 |
| **Subtotal South** | **2,260** | **2,147** | **1,838** | **1,673** | **1,775** | **1,786** | **1,816** | **80.4%** | **1,846** | **1,864** | **1,916** | **1,922** | **1,980** |
| ES Central | | | | | | | | | | | | | |
| Bradley | 588 | 559 | 369 | 332 | 339 | 356 | 349 | 59.4% | 341 | 354 | 355 | 363 | 360 |
| Brumfield | 716 | 680 | 495 | 458 | 482 | 492 | 508 | 70.9% | 530 | 560 | 580 | 608 | 644 |
| Greenville | 604 | 574 | 531 | 437 | 479 | 495 | 494 | 81.8% | 506 | 506 | 498 | 468 | 471 |
| Ritchie | 548 | 521 | 483 | 416 | 478 | 491 | 522 | 95.3% | 532 | 529 | 543 | 547 | 563 |
| Smith | 572 | 543 | 414 | 356 | 414 | 418 | 393 | 68.7% | 418 | 443 | 465 | 505 | 524 |
| **Subtotal Central** | **3,028** | **2,877** | **2,292** | **1,999** | **2,192** | **2,252** | **2,266** | **74.8%** | **2,327** | **2,394** | **2,441** | **2,491** | **2,562** |
| ES North | | | | | | | | | | | | | |
| Coleman | 520 | 494 | 347 | 276 | 311 | 332 | 315 | 60.6% | 312 | 302 | 280 | 270 | 266 |
| Thompson | 368 | 350 | 254 | 224 | 257 | 256 | 262 | 71.2% | 267 | 280 | 310 | 327 | 344 |
| **Subtotal North** | **888** | **844** | **601** | **500** | **568** | **588** | **577** | **65.0%** | **579** | **582** | **590** | **597** | **610** |
| **TOTAL ELEMENTARY** | **6,176** | **5,867** | **4,731** | **4,172** | **4,535** | **4,626** | **4,659** | **75.4%** | **4,752** | **4,840** | **4,947** | **5,010** | **5,152** |
| **Available Capacity** | | | **1,445** | **2,004** | **1,641** | **1,550** | **1,517** | **24.6%** | **1,424** | **1,336** | **1,229** | **1,166** | **1,024** |
| Middle Schools | | | | | | | | | | | | | |
| Auburn | 622 | 591 | 568 | 513 | 575 | 552 | 578 | 92.9% | 588 | 590 | 613 | 647 | 668 |
| Cedar Lee | 900 | 855 | 650 | 622 | 613 | 596 | 837 | 93.0% | 877 | 864 | 805 | 851 | 859 |
| Marshall | 654 | 621 | 466 | 445 | 419 | 408 | 405 | 61.9% | 396 | 391 | 391 | 413 | 414 |
| Taylor | 618 | 587 | 470 | 422 | 435 | 424 | 607 | 98.2% | 607 | 601 | 569 | 601 | 606 |
| Warrenton | - | - | 432 | 368 | 366 | 392 | - | | - | - | - | - | - |
| **TOTAL MIDDLE** | **2,794** | **2,654** | **2,586** | **2,370** | **2,408** | **2,372** | **2,427** | **86.9%** | **2,468** | **2,445** | **2,379** | **2,512** | **2,547** |
| **Available Capacity** | | | **208** | **424** | **386** | **422** | **367** | **13.1%** | **326** | **349** | **415** | **282** | **247** |
| High Schools | | | | | | | | | | | | | |
| Fauquier | 1,612 | 1,531 | 1,254 | 1,217 | 1,170 | 1,134 | 1,122 | 69.6% | 1,089 | 1,111 | 1,153 | 1,147 | 1,170 |
| Kettle Run | 1,360 | 1,292 | 1,184 | 1,147 | 1,112 | 1,172 | 1,164 | 85.6% | 1,165 | 1,214 | 1,233 | 1,241 | 1,267 |
| Liberty | 1,370 | 1,302 | 1,250 | 1,252 | 1,259 | 1,324 | 1,300 | 94.9% | 1,261 | 1,283 | 1,328 | 1,341 | 1,368 |
| **TOTAL HIGH** | **4,342** | **4,125** | **3,688** | **3,616** | **3,541** | **3,630** | **3,586** | **82.6%** | **3,515** | **3,608** | **3,714** | **3,729** | **3,805** |
| **Available Capacity** | | | **654** | **726** | **801** | **712** | **756** | **17.4%** | **827** | **734** | **628** | **613** | **537** |
| District Total | 13,312 | 12,646 | 11,005 | 10,158 | 10,484 | 10,628 | 10,672 | 80.2% | 10,735 | 10,893 | 11,040 | 11,251 | 11,504 |

*Data provided by Fauquier County Public Schools

# NEW STUDENTS VS. AVAILABLE CAPACITY

- Bradley
  - New students = 49
  - Available Capacity (min.) = 225
- Taylor/Warrenton Middle
  - New students = 21
  - Available Capacity (min.) = 243
- FHS
  - New students = 24
  - Available Capacity (min.) = 464

| | | *Actuals* | *% of Capacity* | *Projections* | | | | |
|---|---|---|---|---|---|---|---|---|
| **Bradley Elementary School** | | | | | | | | |
| Max Capacity | 588 | | | | | | | |
| | | *2023-24* | | *2024-25* | *2025-26* | *2026-27* | *2027-28* | *2028-29* |
| Enrollment | | 349 | 59.4% | 341 | 354 | 355 | 363 | 360 |
| Available Capacity | | 239 | | 247 | 234 | 233 | 225 | 228 |
| **Taylor/Warrenton Middle School** | | | | | | | | |
| Max Capacity | 850 | *School Year 2023-24* | | *2024-25* | *2025-26* | *2026-27* | *2027-28* | *2028-29* |
| Enrollment | | 607 | 71.4% | 607 | 601 | 569 | 601 | 606 |
| Available Capacity | | 243 | | 243 | 249 | 281 | 249 | 244 |
| **Fauquier High School** | | | | | | | | |
| Max Capacity | 1,634 | *School Year 2023-24* | | *2024-25* | *2025-26* | *2026-27* | *2027-28* | *2028-29* |
| Enrollment | | 1,122 | 68.7% | 1,089 | 1,111 | 1,153 | 1,147 | 1,170 |
| Available Capacity | | 512 | | 545 | 523 | 481 | 487 | 464 |
| **COMBINED** | | | | | | | | |
| Max Capacity | 3,072 | *School Year 2023-24* | | *2024-25* | *2025-26* | *2026-27* | *2027-28* | *2028-29* |
| Enrollment | | 2,078 | 67.6% | 2,037 | 2,066 | 2,077 | 2,111 | 2,136 |
| Available Capacity | | 994 | | 1,035 | 1,006 | 995 | 961 | 936 |

# MODIFICATIONS & WAIVERS

# ZONING ORDINANCE 9-25: MIXED-USE DEVELOPMENT OPTIC

The mixed-use development option is created within the Commercial District to allow a mixture of uses when consistent with the Comprehensive Plan. The mixed-use option is intended to encourage development in a creative and integrated manner that encourages pedestrian walkability, shared open spaces and an alternative form of housing within the Town.

Section J. – Modifications:

Modifications from the standards set forth in Section 9-25 may be approved by Town Council in conjunction with the Special Use Permit upon a determination that the intent of the Comprehensive Plan is being met.

# SUP MODIFICATION & WAIVERS – WAIVER REQUEST #1



- Section 3-4.10.3 of the Zoning Ordinance provides that density in a mixed-use development within a Commercial zone may be calculated pursuant to Sec. 9-25 of the Zoning Ordinance
- Sec. 9-25 allows for calculation of density in a mixed-use development to be up to 1 dwelling unit per 500 square feet of non-residential space. This section also provides that density above 5 units per acre must be approved by the Town Council.
- While this is a modification of Sec. 3-4.10.3, the requested density is fully consistent with the provisions of Sec. 9-25 for a mixed-use development, and less than what could be achieved
- This modification will allow for realization of the concentrated increased density that is a primary objective of the New Town Character District
- **Waiver Request #1:** Increase density above 5 units per acre to 13.28 units per acre, which will yield 386 units

# DENSITY CALCULATIONS



By-Right Density Calculation:

- 5 dwelling units per acre
- 5 x 29.05 acres = 145 units

By-Right Density Calculation, with affordable housing bonus:

- 10 dwelling units per acre
- 10 x 29.05 acres = 290 units

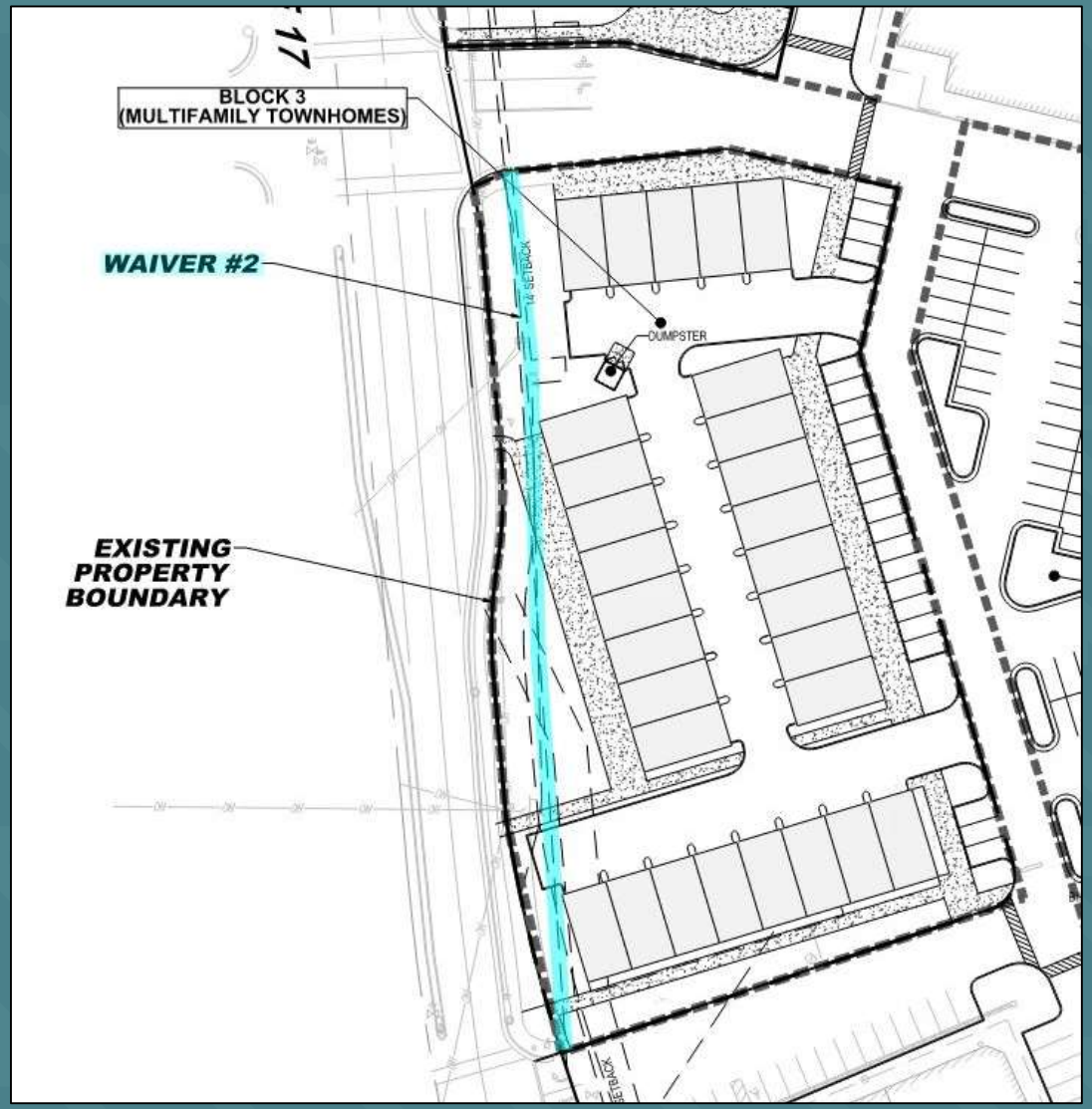
Mixed-Use Density Calculation (with SUP approval):

- 1 dwelling unit per 500 GSF of non-residential floor space
- 218,142 GSF / 500 = 436 units (15 units per acre)

- Requested Density = 386 (13.28 units per acre)

# SUP MODIFICATION & WAIVERS – WAIVER REQUEST #2

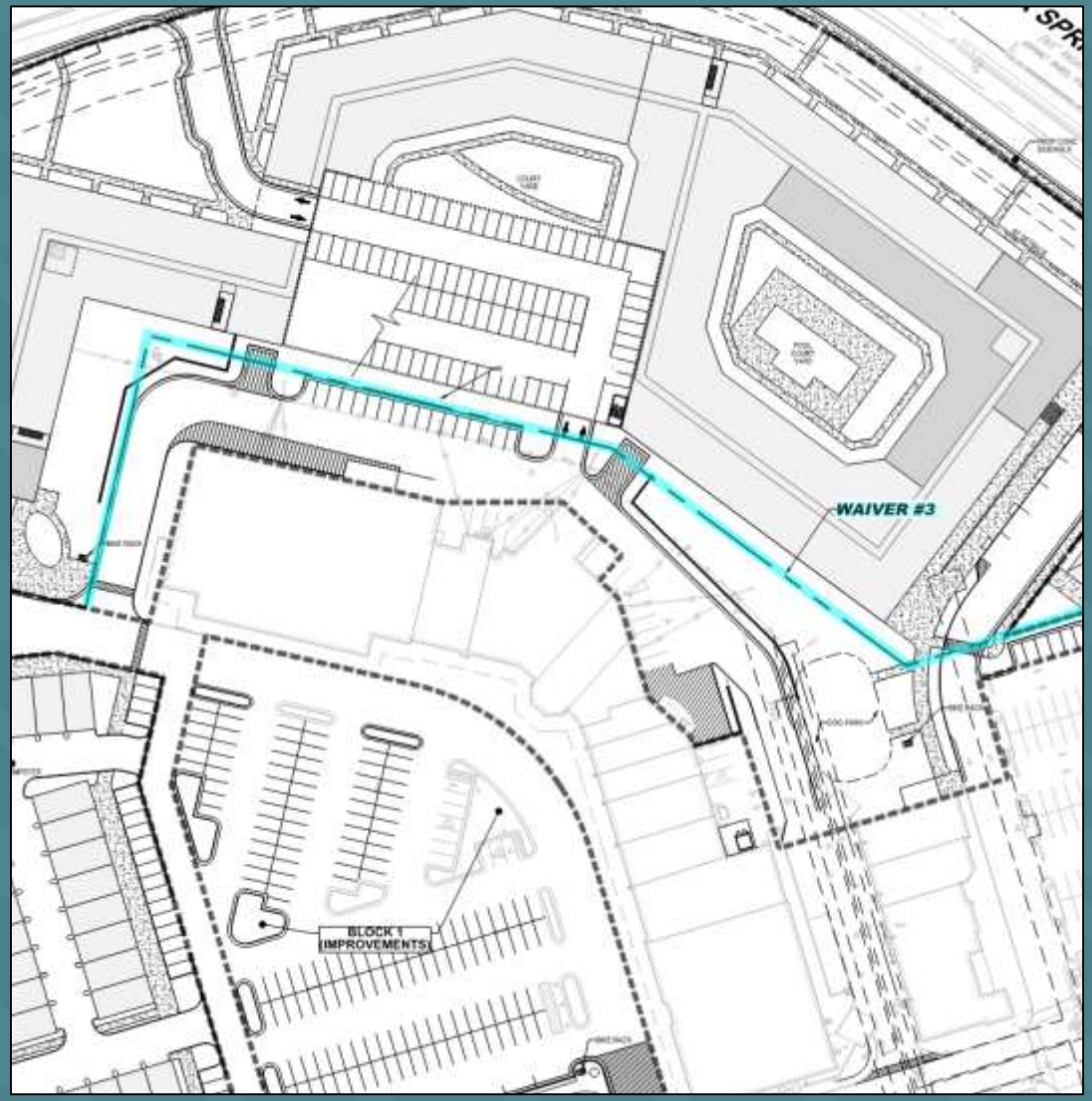





- Article 3-4.10.4: Required front yard setback from ROW greater than 50' is 40' minimum, if no parking or loading is proposed.
- This modification will allow the units to be closer to the street, creating a more consistent edge that is representative of the New Town Character district
- **Waiver Request #2**: Decrease minimum setback to 14' along Broadview Avenue



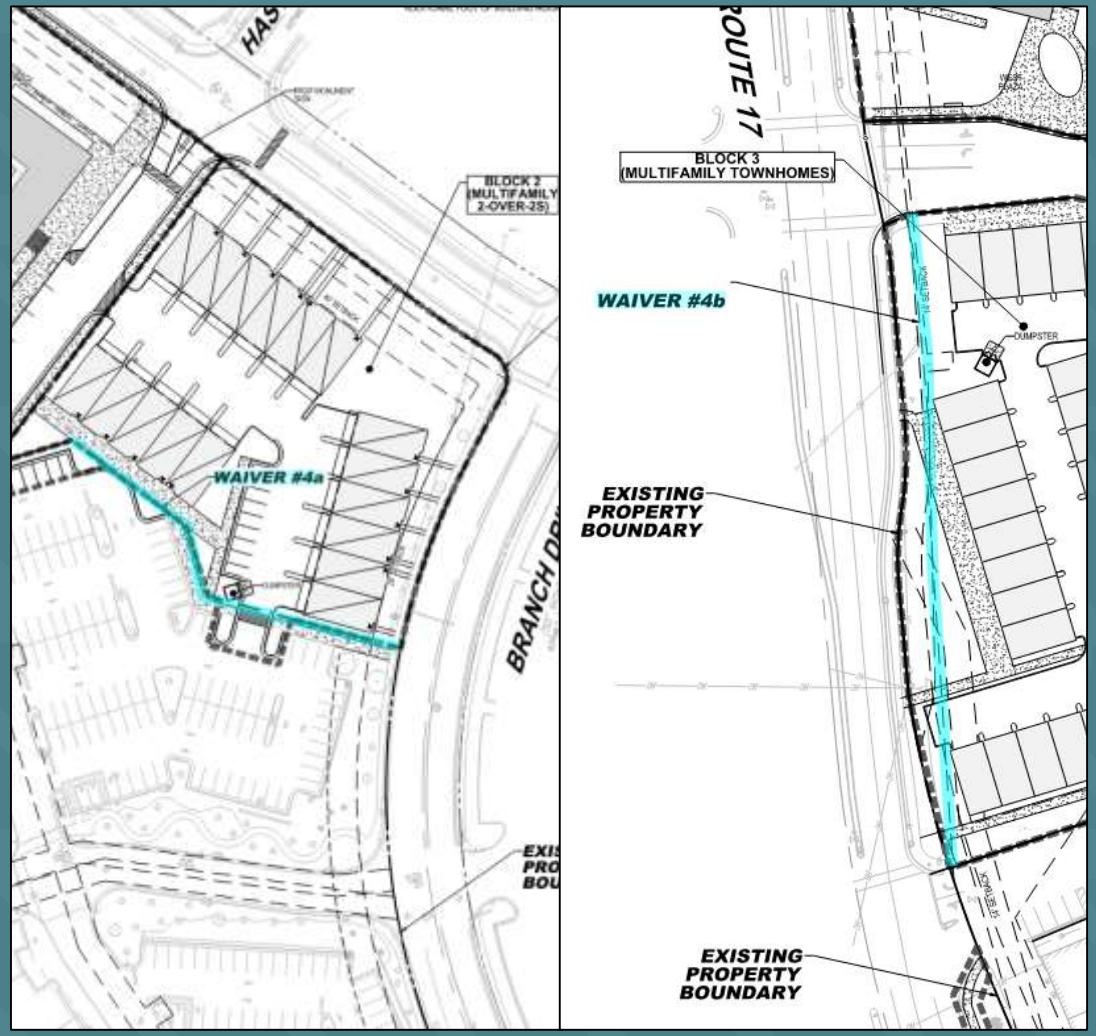
# SUP MODIFICATION & WAIVERS – WAIVER REQUEST #3




- Article 3-4.10.4: Required side/rear yard setbacks is 5′ minimum.
- This modification will allow the overall development to function as a true mixed-use development that will not be segmented by internal separations.
- **Waiver Request #3:** Decrease side/rear yard setbacks along internal proposed and existing property lines to 0′

# SUP MODIFICATION & WAIVERS – WAIVER REQUEST #4






- Article 8-8.5: Minimum buffer width for commercial uses adjacent to residential uses is 25', plus 1' for each foot of building height over 35'. Minimum buffer width for rear boundaries of residential uses from public ROW is 25'.
- This modification will allow the overall development to function as a true mixed-use development that will not be segmented by internal separations
- This modification will allow the units to be closer to the street, creating a more consistent edge that is representative of the New Town Character district
- **Waiver Request #4a:** Decrease buffer width between commercial and residential uses to 0'
- **Waiver Request #4b:** Decrease rear buffer width for residential uses from public ROW to 14'

# SUP MODIFICATION & WAIVERS – WAIVER REQUEST #5

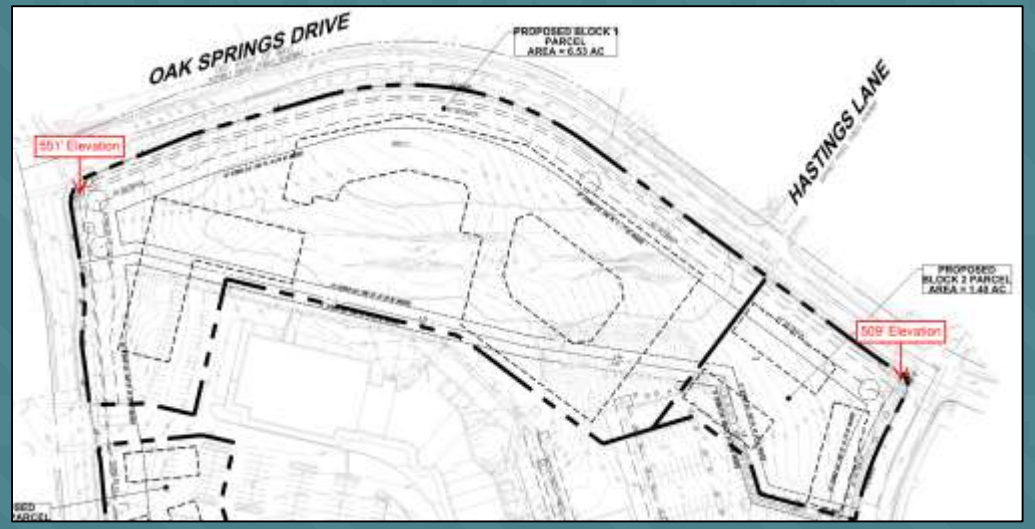


- Article 2-20: Height limit for dwellings may be increased up to 45' and up to three stories provided that front, side and rear setbacks increase 1' for each additional foot of building height over 35'.
- **Waiver Request #5**: Increase height limit for dwellings as follows:
  - 54' max height for Block 1, Oak Springs Drive Frontage
  - 36' max height for Block 1, Broadview Drive Frontage
  - 45' max height for Block 2
  - 36' max height for Block 3

# WHY ADDITIONAL HEIGHT IS NEEDED



- Site drops 42’ from Broadview Avenue to Branch Drive
- The building starts as 3-stories on the west side at the higher elevation and increases to 4-stories on the east side as the elevation drops
- Increasing height as a building moves down a hill is a technique to keep consistency in scale across a building’s elevation, as well as a way to conceal retaining walls within the building’s foundation, as opposed to creating unsightly external walls



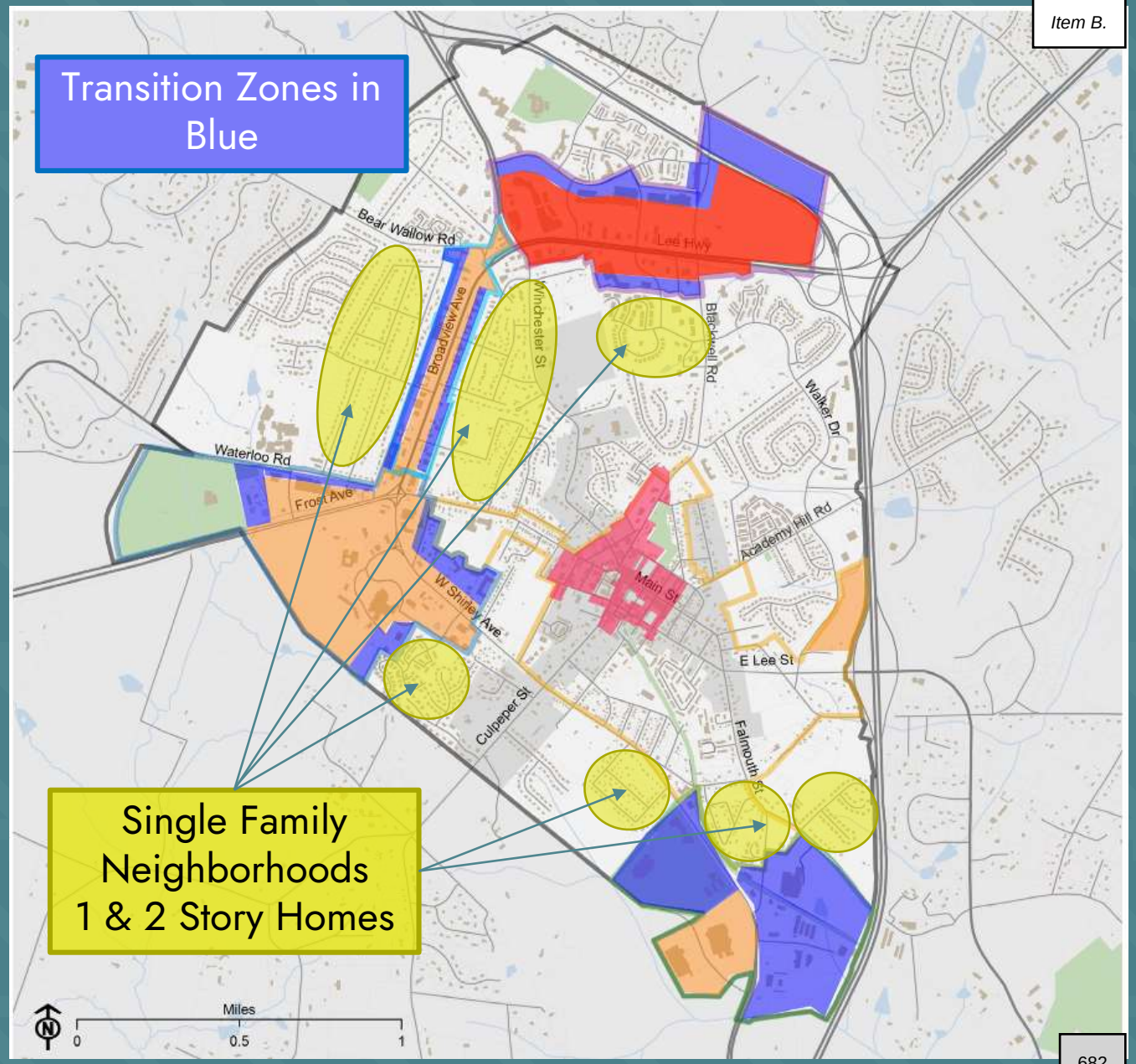
# WHY ADDITIONAL HEIGHT IS NEEDED



- The New Town Character District has been established in Plan Warrenton 2040 as a designated area of high density—3-story residential does not allow for the concentrated density desired in the District
- The New Town Character District calls for "greater intensity of mixed-use and strong live, work, and play options" and notes that this district has "high visibility," due to its proximity to Route 29. The requested modifications to increase density and height support the need for greater intensities and higher visibility in this Character District.
- 4-stories allows for the internal parking garage to be hidden from the exterior of the building

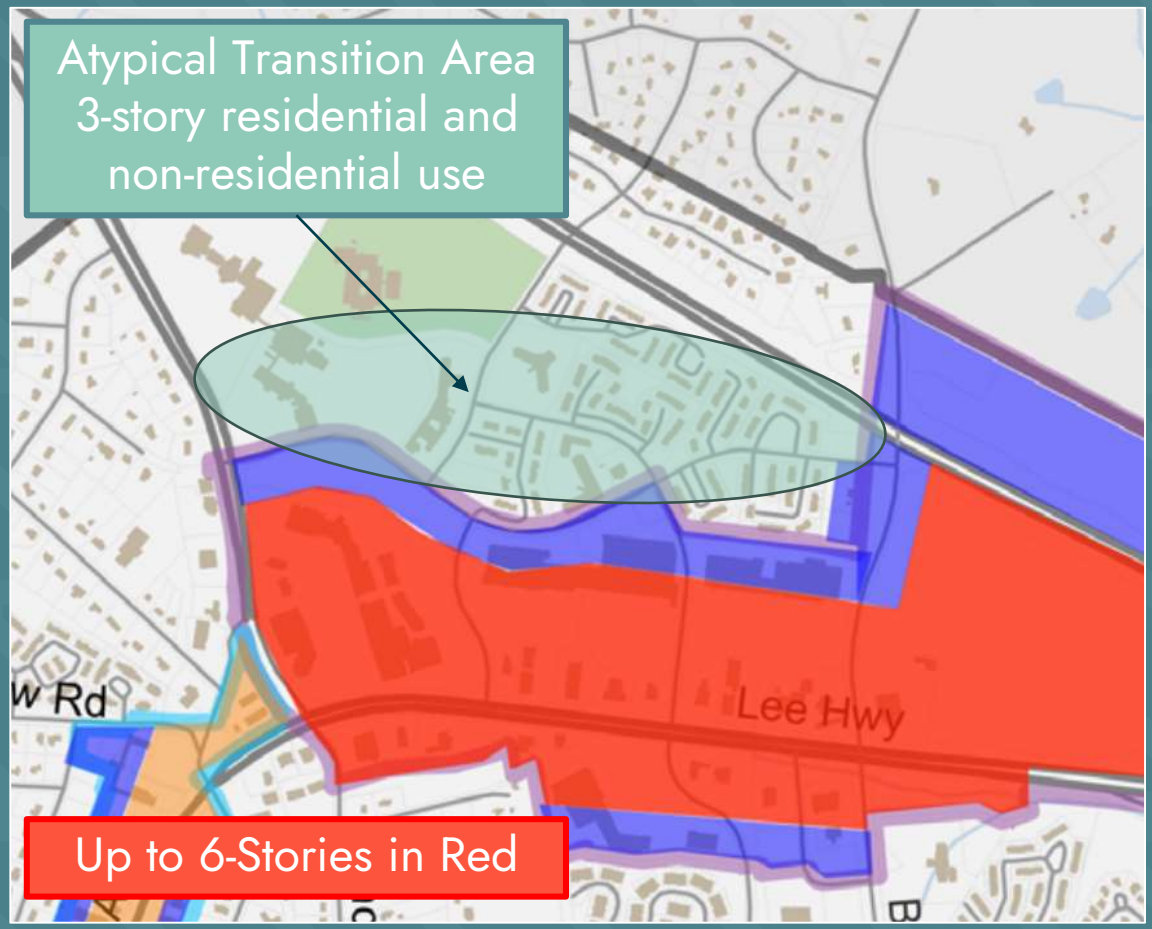
# TRANSITION ZONES

- The area along the south side of Oak Springs Drive is located within in a “Transition Zone” as defined by Plan Warrenton 2040
- Transition Zones are “specifically defined as adjoining neighborhoods to articulate a step down in the number of stories for greater compatibility to adjoining single-family neighborhoods”
- These areas are intended to be a max of 3-stories to provide a step down to the adjacent 1- and 2-story single family neighborhoods
- Transition Zones have been placed in accordance with this definition across the Future Land Use map



# TRANSITION ZONES

- With the exception of the Transition Zone placed along Oak Springs Drive
- The uses on the north side of Oak Springs Drive are not 1- & 2-story single family neighborhoods
- This area is occupied with 3- & 4-story apartments, 3-story townhomes, Brookside Rehab & Nursing Center and Highland School
- Because of this, increasing building heights to 4-stories at Warrenton Village Center still provides the intended step-down affect, given that the uses on the north side are atypical, 3-story and non-residential uses and the uses along Lee Hwy may go up to 6-stories



# SURROUNDING BUILDING HEIGHTS





# NOTABLE WARRENTON BUILDING HEIGHTS

- Warrenton Manor Apartments
  - Stories: 4
  - Location: Hastings Lane
  - Zoning: Residential Multi-Family
  - Future Use: Live-Work Neighborhood



- 98 Alexandria Pike Office Building
  - Stories: 5
  - Location: North of Old Town
  - Zoning: Central Business District
  - Future Use: Old Town Mixed Use



# NOTABLE WARRENTON BUILDING HEIGHTS

- 28 Blackwell Park Lane Office Building
  - Stories: 3
  - Location: Blackwell Business Park
  - Zoning: Commercial
  - Future Use: Commercial



- Hampton Inn
  - Stories: 5
  - Location: Blackwell Road
  - Zoning: Commercial
  - Future Use: Commercial



# NOTABLE WARRENTON BUILDING HEIGHTS

- Fauquier County High School
  - Stories: 4
  - Location: 705 Waterloo Road
  - Zoning: Public-Semi-Institutional
  - Future Use: Public/Semi-Public Non-Intensive

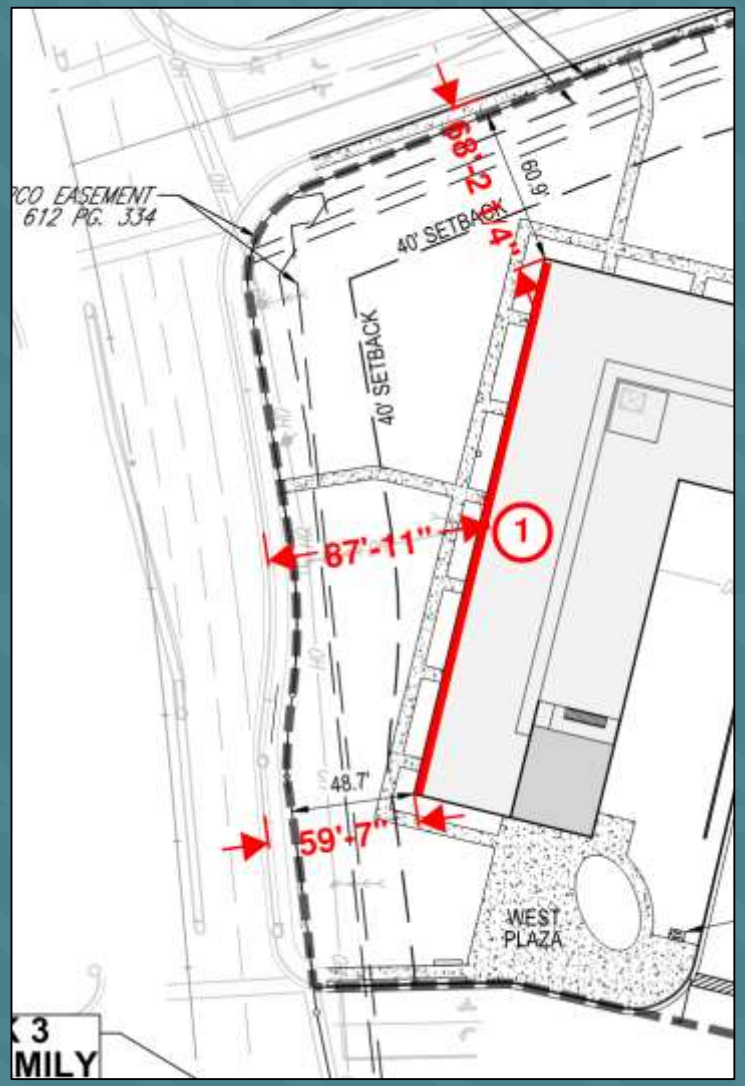


- Fauquier Health
  - Stories: 5
  - Location: 500 Hospital Drive
  - Zoning: Public-Semi-Institutional
  - Future Use: Public/Semi-Public Intensive



# BUILDING HEIGHTS & SETBACKS – FROM BROADVIEW









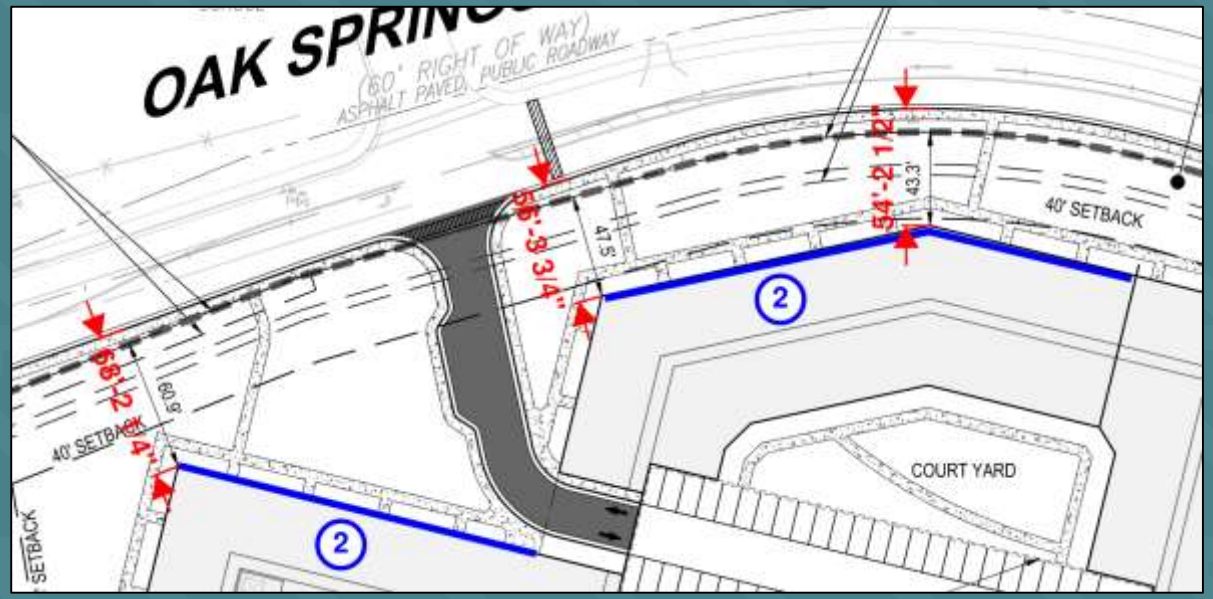
| Number of Stories | Average Building Height | Max Building Height Per Waiver | Minimum Setback from Curb |
|---|---|---|---|
| 3 | 32′-11″ | 36′-0″ | 59′-7″ |

- Setback to Height Ratio = 1.7 : 1

# BUILDING HEIGHTS & SETBACKS – FROM OAK SPRINGS





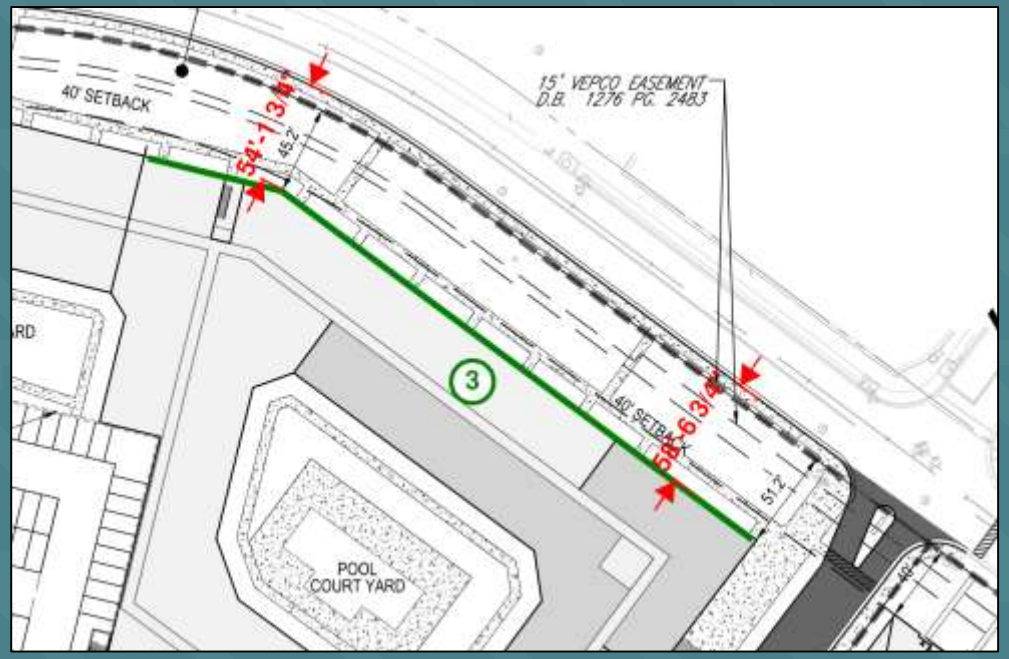

| Number of Stories | Average Building Height | Max Building Height Per Waiver | Minimum Setback from Curb |
|---|---|---|---|
| 4 | 42′-11″ | 54′-0″ | 54′-2″ |

- Setback to Height Ratio = 1 : 1

# BUILDING HEIGHTS & SETBACKS – FROM OAK SPRINGS






| Number of Stories | Average Building Height | Max Building Height Per Waiver | Minimum Setback from Curb |
|---|---|---|---|
| 4 | 45′-0″ | 54′-0″ | 54′-2″ |

- Setback to Height Ratio = 1 : 1

# BUILDING HEIGHTS & SETBACKS – FROM OAK SPRINGS





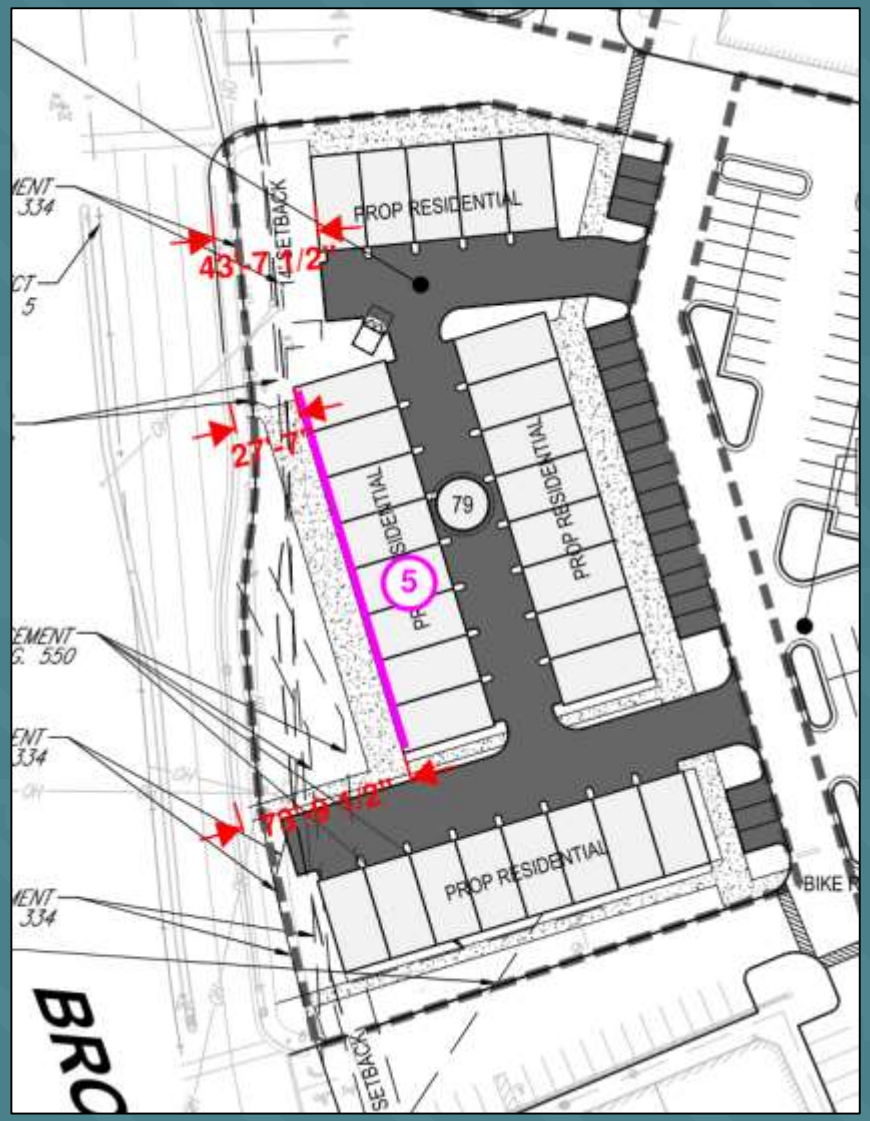


| Number of Stories | Average Building Height | Max Building Height Per Waiver | Minimum Setback from Curb (Oak Springs Dr.) | Minimum Setback from Curb (Branch Dr.) |
|---|---|---|---|---|
| 4 | 43′-6″ | 45′-0″ | 46′-11″ | 21′-6″ |

- Setback to Height Ratio = ~1 : 1 on Oak Springs Dr
- Setback to Height Ratio = ~0.5 : 1 on Branch Dr

# BUILDING HEIGHTS & SETBACKS – FROM BROADVIEW









| Number of Stories | Average Building Height | Max Building Height Per Waiver | Minimum Setback from Curb |
|---|---|---|---|
| 3 | 32′-11″ | 36′-0″ | 27′-7″ |

- Setback to Height Ratio = 0.8 : 1

NEWCASTLE
DEVELOPMENT GROUP

# SPECIAL USE PERMIT #SUP 22-5

## WARRENTON VILLAGE CENTER

***PLANNING COMMISSION PUBLIC HEARING***
***JUNE 18, 2024***



# REQUESTS/PROCESS

- Recommendation of approval of Special Use Permit in accordance with Sec. 11-3.10
- Permitted under Sec. 9-25 as Mixed-Use Development, which permits waivers of standards
- Project Timeline:



# SUPPORTED BY POLICY DOCUMENTS

- Town commissioned study calls for growth as only way to avoid budget shortfalls.
- Comprehensive Plan calls for achieving this growth through Character Districts, and this location is designated as part of the New Town Character District.
- Zoning Ordinance amendments allow for development in accordance with the Plan.

# WHITE PAPER FINDINGS – FISCAL SUSTAINABILITY (RKG)

- An economic model was created to determine the impact of land use decisions and the resulting economic ramifications
- The model weighed the cost of the Town's desired capital projects against different growth scenarios:

| Scenario | Intended Growth Strategy | New Housing Units (by 2039) | Annual Net Fiscal Impact |
|---|---|---|---|
| 1 | Minimal growth, i.e. 2010 – 2019 trends | Minimal | ($508,808) |
| 2 | Become a stronger livable community | 750+ | ($240,682) |
| 3 | Become a livable destination community | 1,150+ | $102,185 |
| 4 | Become a regional live/work community | 2,100+ | $335,535 |

**RKG Conclusion:**

- To achieve the level of services and amenities desired by the citizens of Warrenton, the Town must increase its development activity
- Warrenton cannot "save its way" (i.e. cut back on spending) to fiscal sustainability
- Without residential development, "the Town does not have the demand to continue to increase retail services."

# PLAN WARRENTON 2040





## New Town Warrenton District

With large lots, direct access from Route 29, and high visibility, this district could be a location for a signature office/jobs center; with greater intensity of mixed use and strong live, work, and play options. A mix of uses could be organized around an internal street network and public amenities, such as civic spaces, parks, green space, and public gathering areas.

## GOALS

**H-1: Ensure equitable, attainable housing opportunities across residents of all ages, incomes, and abilities by catering to the needs of a diverse community, including young families, professionals early in their careers, essential workforce, and those entering retirement.**

### POLICIES & STRATEGIES

**H-1.1:** Encourage development of the "Missing Middle" housing types beyond traditional single-family homes, townhouses, and apartments by updating the Zoning Ordinance to create a beneficial mix.

**H-2: Character Districts will accommodate a balance of available housing typologies that are compatible to existing neighborhoods in scale, character, and transition.**

# WATER / SEWER IMPACTS





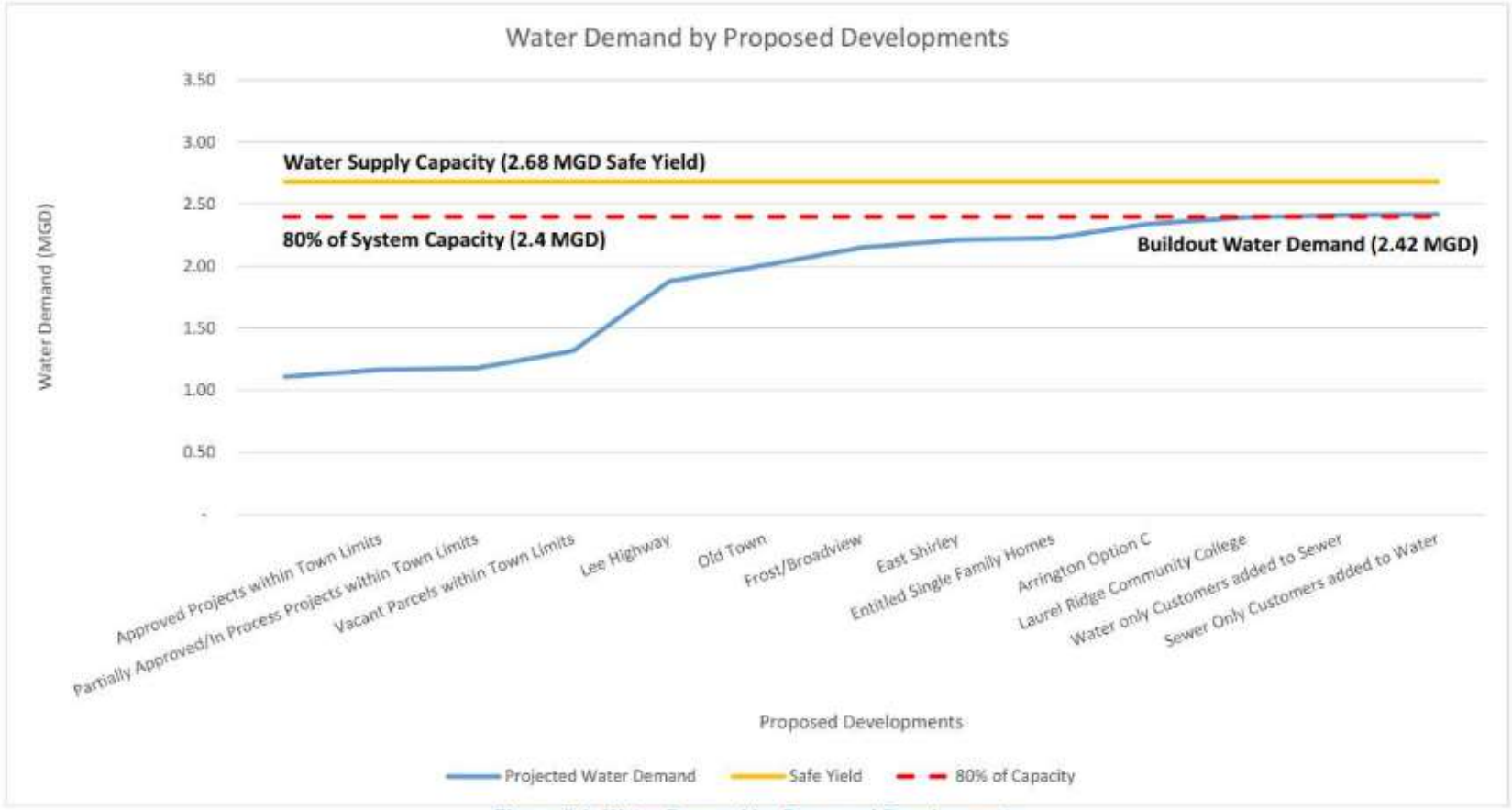



**Figure 5.1: Water Demand by Proposed Developments**

# WATER / SEWER IMPACTS





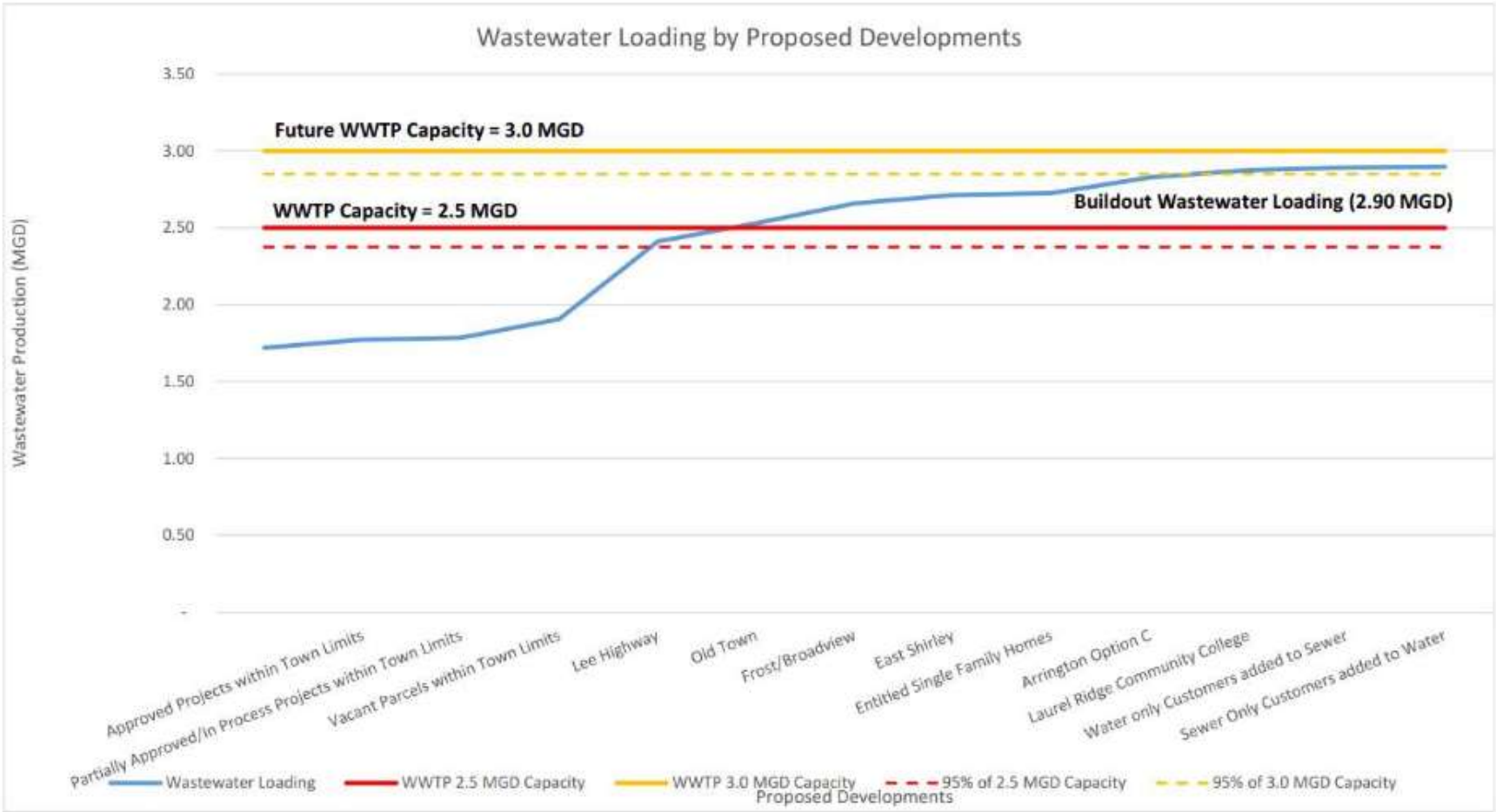



**Figure 6.1: Wastewater Loading by Proposed Developments**

# INTERSECTION CAPACITY ANALYSIS - 2027 WITH DEVELOPMENT

Minimal Impact on Intersection Operations:

- The addition of site-generated traffic does not significantly increase delays when compared to the future conditions without the development

Maintaining Efficient Traffic Flow:

- Signalized intersections and the new planned roundabout will continue operating efficiently, demonstrating the surrounding network can accommodate the new trips

Manageable Impacts at Unsignalized Intersections:

- The unsignalized intersection of Warrenton Village South Driveway and Broadview Avenue is anticipated to operate with higher delays, but the site-generated traffic only constitutes approximately 3.5% of the total volume at this location
- At all other unsignalized study intersections, the minor increases in delay represent conditions no worse than what is projected to occur without the development

Accommodating Site Traffic:

- Queues can still be fully accommodated within the available storage at all intersections, similar to the existing and future no-build conditions

# NEW STUDENTS VS. AVAILABLE CAPACITY

- Bradley
  - New students = 49
  - Available Capacity (min.) = 225
- Taylor/Warrenton Middle
  - New students = 21
  - Available Capacity (min.) = 243
- FHS
  - New students = 24
  - Available Capacity (min.) = 464

| | | *Actuals* | *% of Capacity* | *Projections* | | | | |
|---|---|---|---|---|---|---|---|---|
| **Bradley Elementary School** | | | | | | | | |
| Max Capacity | 588 | | | | | | | |
| | | *2023-24* | | *2024-25* | *2025-26* | *2026-27* | *2027-28* | *2028-29* |
| Enrollment | | 349 | 59.4% | 341 | 354 | 355 | 363 | 360 |
| Available Capacity | | 239 | | 247 | 234 | 233 | 225 | 228 |
| **Taylor/Warrenton Middle School** | | | | | | | | |
| Max Capacity | 850 | *School Year 2023-24* | | *2024-25* | *2025-26* | *2026-27* | *2027-28* | *2028-29* |
| Enrollment | | 607 | 71.4% | 607 | 601 | 569 | 601 | 606 |
| Available Capacity | | 243 | | 243 | 249 | 281 | 249 | 244 |
| **Fauquier High School** | | | | | | | | |
| Max Capacity | 1,634 | *School Year 2023-24* | | *2024-25* | *2025-26* | *2026-27* | *2027-28* | *2028-29* |
| Enrollment | | 1,122 | 68.7% | 1,089 | 1,111 | 1,153 | 1,147 | 1,170 |
| Available Capacity | | 512 | | 545 | 523 | 481 | 487 | 464 |
| **COMBINED** | | | | | | | | |
| Max Capacity | 3,072 | *School Year 2023-24* | | *2024-25* | *2025-26* | *2026-27* | *2027-28* | *2028-29* |
| Enrollment | | 2,078 | 67.6% | 2,037 | 2,066 | 2,077 | 2,111 | 2,136 |
| Available Capacity | | 994 | | 1,035 | 1,006 | 995 | 961 | 936 |

# WHY HERE, WHY NOW?



The Warrenton Village Center SUP proposal is the desired result of a lengthy process of review, comparison analysis and decision making by the Town of Warrenton – from the White Papers through the Plan Warrenton 2040 drafting and adoption – and will serve as the building block upon which to create a highly desirable live/work/play community that is the goal of the Plan Warrenton 2040 New Town Character District

# WHAT WE HAVE HEARD

- As shown above, this proposal has gone through significant public review, both through public work sessions with the PC and individual meetings with stakeholders
- Topics of discussion included:
  - Affordable Housing
  - Architecture
  - Traffic
  - Oak Springs Impacts
- We have taken this feedback into account and made changes to the proposal to address these issues

# AFFORDABLE DWELLING UNITS

- ADU Unit Counts:
  - 80% AMI ADUs: 39 units
  - 70% AMI ADUs: 10 units
  - 60% AMI ADUs: 5 units
  - TOTAL ADUs: 54 units (14% of total proposed units)
- Income and rent limits will be in accordance with the current Multifamily Tax Subsidy Program (MTSP) Income and Rent Limits for Fauquier County as published by the Virginia Housing (formerly VHDA).

# EXISTING CONDITIONS



**Proposed Development Area**

**Existing Commercial Center**

# RESIDENTIAL BLOCK 1

## Multi-Family Apartments

- Location: Vacant land on north side of the Center along Oak Springs Drive
- Units: Up to 320 total units
- Types: 1-, 2-, and 3-bedroom apartment units
- Parking: Internal 4-level parking garage
- Amenities:
  - 10,000 square foot leasing and amenity center
  - Central Plaza
  - East & West “Entrance” Plazas
  - Dog Park & Picnic Area
  - Pedestrian connectivity and circulation



# RESIDENTIAL BLOCK 2

## Multi-Family Townhomes

- Location: Vacant land at northeast corner of the Center at intersection of Oak Springs Drive and Branch Drive
- Units: Up to 26 townhome units
- Widths: Units currently proposed with 20' widths, yielding a plan count of 26 units. Proposal is up to 26 total units to account for width flexibility, which could impact total unit count.
- Types: 3-story, 3-bedroom townhome units
- Parking: Each unit has two internal parking garages



# RESIDENTIAL BLOCK 3

## Multi-Family 2-Over-2s

- Location: West side of the Center along Broadview Avenue, currently occupied by Summit Community bank and a vacant commercial bank building
- Units: Up to 40 total units
- Widths: Units currently proposed with 24′ and 20′ widths, yielding a plan count of 40 units. Proposal is up to 40 total units to account for width flexibility, which could impact total unit count.
- Types: 2-story, 3-bedroom 2-over-2 “condo” units
  3-story, 3-bedroom townhome units
- Parking: Each unit has one internal parking garage and one dedicated exterior surface space



# PROJECT AMENITY IMPROVEMENTS



## CENTRAL PLAZA

A new vehicular and pedestrian hub that will function as the heart of the Center and is sized, programmed, and planned to allow for community activities as well as everyday use

## EAST & WEST PLAZAS

Smaller public plazas are proposed at the Broadview Avenue entrance and the Hasting Lane entrance to serve as "doorways" into the Center and enhance walkability between uses

## DOG PARK / PICNIC AREA

New off-leash, fenced dog park and picnic areas will be accessible to the public.

## OAK SPRINGS CROSSWALKS

Two crosswalks are proposed on Oak Springs Drive—one at Hastings Lane and one at the Highland School entrance, which will provide safe access for neighbors to the north

## SIDEWALK RING COMPLETION

Proposal will complete a full ring of sidewalk around the entire Center, including the addition of a missing section of sidewalk behind Galaxy Strike Bowling

## HASTINGS LANE EXTENSION

New vehicular and pedestrian entrance into the Center is proposed at the Oak Springs Drive and Hastings Lane intersection

## MODIFIED ALLEY

Will serve as a secondary vehicular ingress/egress into the garage, as well as provide both residential and commercial loading and trash pickup areas

## PEDESTRIAN CIRCULATION

Proposal includes an enhanced system of sidewalks, crosswalks and wayfinding to improve the safety and ease of pedestrian access the Center's businesses

# SITE PLAN OVERVIEW

Primary vehicular access:

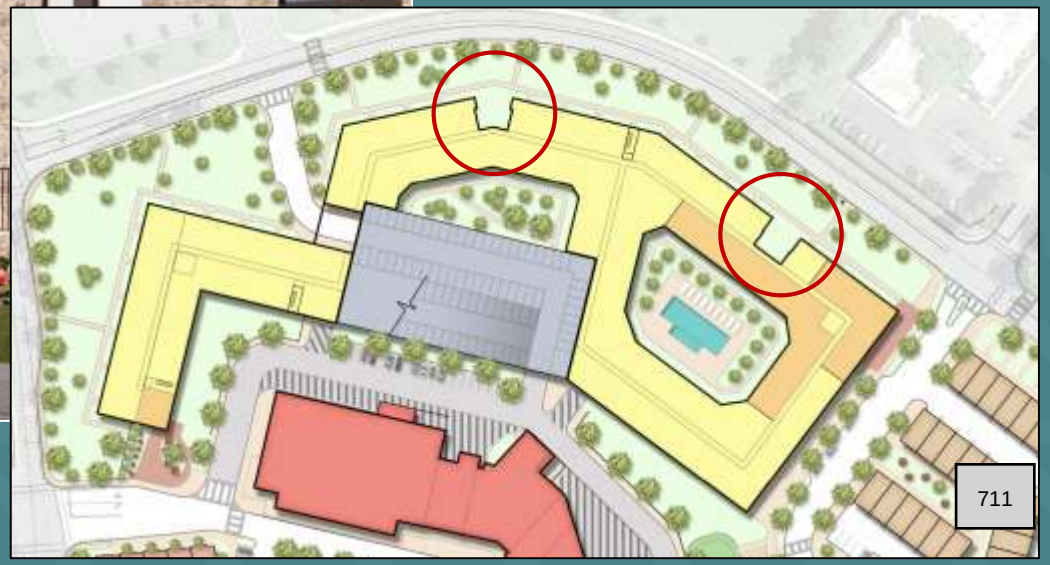
- Full-movement entry on Oak Springs Dr, forming 4th leg of Highland School Driveway intersection
- Full-movement driveway on Oak Springs Dr, forming 4th leg of Hastings Ln intersection
- Access also provided via existing shopping center connections to the south
- A total of 6 access points to the surrounding streets
- Agree to install traffic mitigation measures at Oak Springs Drive garage exit during Highland School “peak” hours – access gate, signage, lighting, etc.



# BLOCK 1 BUILDING “INSETS”







# RESIDENTIAL BLOCK 1 – *WEST FACING ELEVATION FROM HASTINGS LANE*






# RESIDENTIAL BLOCK 1 – *EAST FACING ELEVATION FROM BROADVIEW AVE*






# RESIDENTIAL BLOCK 1 – *SOUTH FACING ELEVATION FROM OAK SPRINGS DRIV*






# RESIDENTIAL BLOCK 1 – *SOUTH FACING ELEVATION FROM OAK SPRINGS D*






# RESIDENTIAL BLOCK 2








# RESIDENTIAL BLOCK 3








# ARCHITECTURAL OPTION 1



*Leasing entrance at intersection of Oaks Springs Drive & Hastings Lane*



# ARCHITECTURAL OPTION 2

*Leasing entrance at intersection of Oaks Springs Drive & Hastings Lane*



# ARCHITECTURAL OPTION 1

*View from intersection of Oaks Springs Drive & Hasting Lane*
**Block 1 (Apartment Bldg.) on right; Block 2 (2-Over-2s) on left*



# ARCHITECTURAL OPTION 2

*View from intersection of Oaks Springs Drive & Hasting Lane*
**Block 1 (Apartment Bldg.) on right; Block 2 (2-Over-2s) on left*



# ARCHITECTURAL OPTION 1



*View from intersection of Oaks Springs Drive & Broadview Avenue*



# ARCHITECTURAL OPTION 2



*View from intersection of Oaks Springs Drive & Broadview Avenue*



# ARCHITECTURAL OPTION 1

*View from Broadview Avenue entrance into Warrenton Village Center*



# ARCHITECTURAL OPTION 2

*View from Broadview Avenue entrance into Warrenton Village Center*



# ARCHITECTURAL OPTION 1

*View from Hastings Lane out towards Oaks Springs Drive entrance*
**Block 1 (Apartment Bldg.) on left; Block 2 (Townhomes) on right*



# ARCHITECTURAL OPTION 2

*View from Hastings Lane out towards Oaks Springs Drive entrance*
**Block 1 (Apartment Bldg.) on left; Block 2 (Townhomes) on right*



# ARCHITECTURAL OPTION 1

*View from within Center out towards Broadview Avenue entrance*
**Block 1 (Apartment Bldg.) on right; Block 3 (Townhomes) on left*



# ARCHITECTURAL OPTION 2

*View from within Center out towards Broadview Avenue entrance*
**Block 1 (Apartment Bldg.) on right; Block 3 (Townhomes) on left*



# ARCHITECTURAL OPTION 1



*View from Oak Springs Drive*

# ARCHITECTURAL OPTION 2



*View from Oak Springs Drive*

# ARCHITECTURAL OPTION 1





*View from Broadview Avenue*

# ARCHITECTURAL OPTION 2





*View from Broadview Avenue*

EXPERIENCE WARRENTON VIRGINIA EST. 1810

# Planning Commission Public Hearing
# SUP 2022-05 Warrenton Village Center Mixed Use
# June 18, 2024

*PC Decision Deadline June 27,2024 Unless Applicant Defers*

# Special Use Permit Application

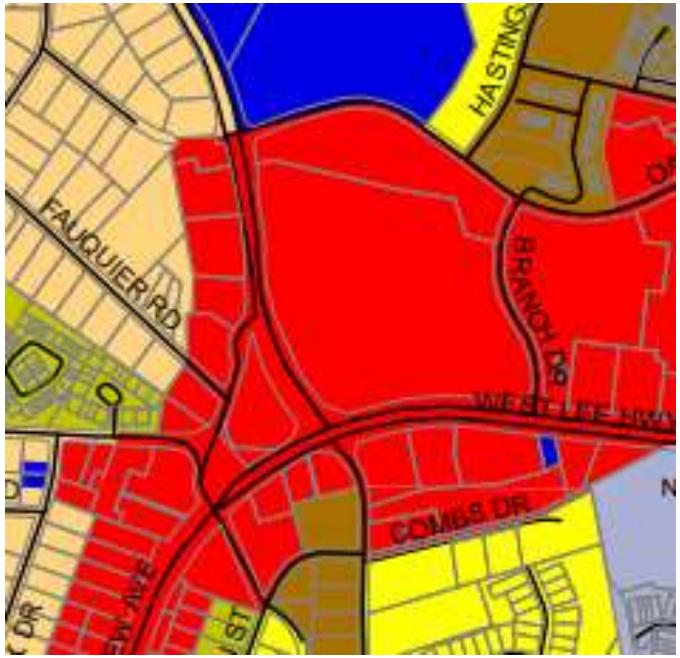
- **GPINs:** 6984-20-7247-000/6984-29-6753-000
- **Property Owner:** Warrenton Center LLC/Jefferson Associates LP
- **Representative:** Jess Achenbach, NewCastle Development Partners
- **Zoning: C** (Commercial)
- **Comprehensive Plan:** New Town Character District
- **SUP** to allow for mixed use development on approximately 29.05 Acres
- Maximum 386 Residential Dwellings
  - 320 Rental Apartments 1-3 BD
  - Approximately 34 2 over 2
  - Approximately 32 Townhomes
  - 10% Affordable Dwelling Unit

## Location



# Adjacent Land Uses

## Zoning Map




Existing Commercial

Public/Semi Public School

Senior Care

Apartments



# Future Land Use Map



# Plan Warrenton 2040

- Walkability Audit & Complete Streets
- 10 Guiding Principles
  - Discernible Center
  - Connected Sidewalks, Street Trees, Lighting
  - Buildings close to the street
  - Parking behind buildings
  - Variety of Dwelling Types
  - Park/Trail/Activity Center ½ mile radius
- Broadview = Gateway
- Lee Highway = Boulevard
- Oak Springs Drive/ Branch = Neighborhood



**New Town Warrenton District**

With large lots, direct access from Route 29, and high visibility, this district could be a location for a signature office/jobs center; with greater intensity of mixed use and strong live, work, and play options. A mix of uses could be organized around an internal street network and public amenities, such as civic spaces, parks, green space, and public gathering areas.

# Smart Scale Projects









# PC Work Sessions

- Full site Design
- Schools
- Traffic Impact Analysis/Transportation
- Walkability/Bicycle/Grid Connections
- Open Space/Historic Resources/Public Amenities
- Affordable Dwelling Units
- Water and Sewer
- Plan Warrenton 2040

# Proposal




## Proposal Includes

- BLOCK 1 - 320 Apartments 1-3 BD, 4 story parking garage
- BLOCK 2 – 26 Townhomes 3 story
- BLOCK 3 - 34 2 over 2 4 story, 6 Townhomes 3 Story garage
- 10% Affordable Dwellings at 80%; 10 at 70%; 5 at 60%
- Central Plaza
- Dog Park
- Pedestrian Connectivity/Crosswalks
- Hastings Lane Extension

# Elevations

**5/31/2024**

**vs**

**2/13/2024**





# Elevations

## Multi Family





# Elevations

## 4 Story





# Elevations

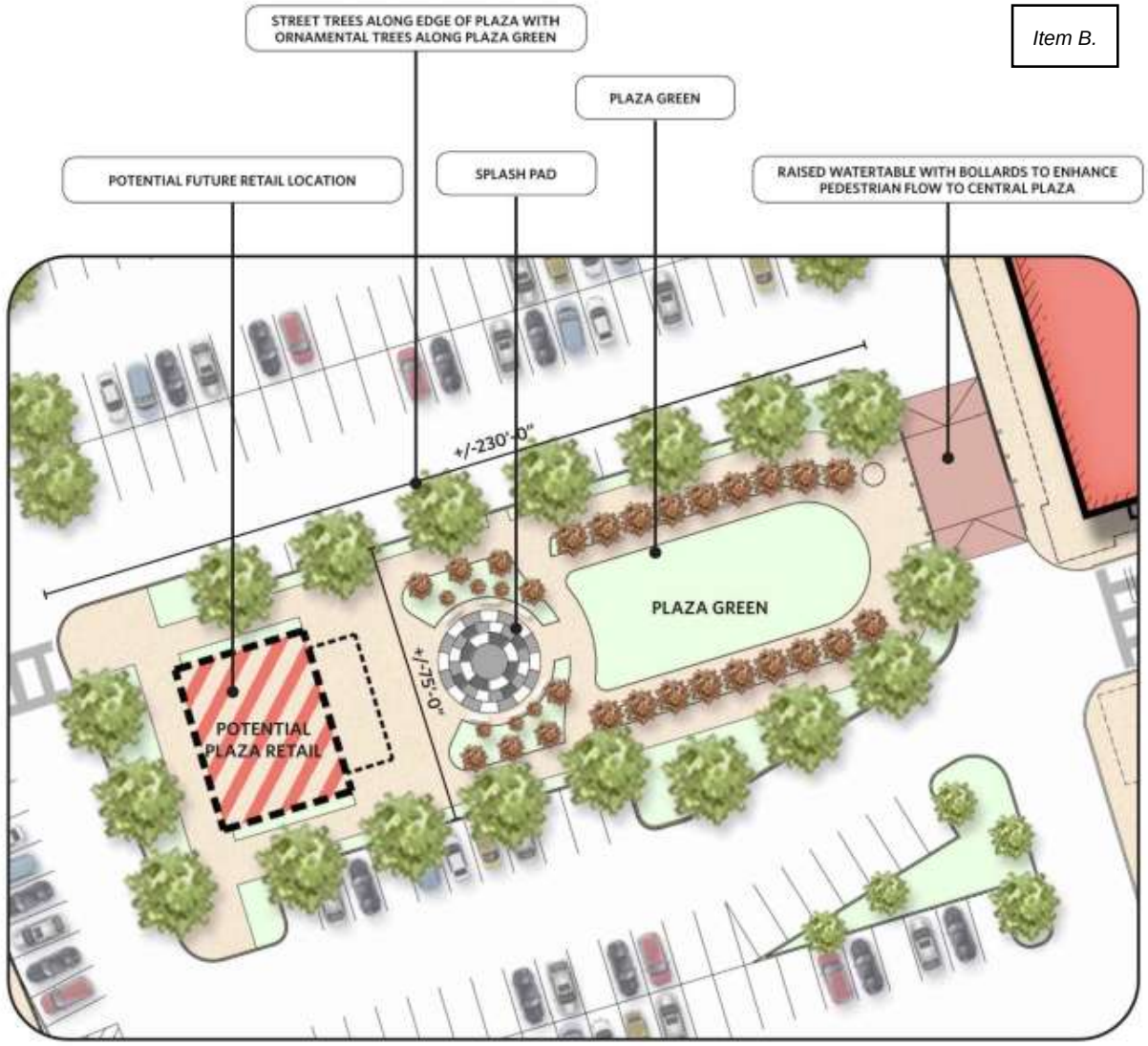
## 3 Story





# Central Plaza






ENLARGED CONCEPTUAL CENTRAL PLAZA PLAN

SCALE 1"=20'-0"

# Requested Modifications and Waivers

- Increase in maximum density
- Broadview Avenue Setbacks
- Side and Rear Yard Setbacks
- Decrease Buffers between Commercial and Residential Uses
- Building Heights; plus along Oak Springs and Broadview
- Allow Retaining Walls over Six Feet

# Draft Conditions of Approval

- Block 1, 2, or 3 in any order with triggers
- Elevations for 2/14/24 and 5/31/24
- Parking Garage South Facing Screening
- National Green Building Standard
- Prohibited Materials
- Signage and Lighting
- Refuse and Site Maintenance

# Draft Conditions of Approval

- Affordable Dwelling Units 25 Years
  - 10% in each block at 80% AMI
  - Additional 10 in Block 1 70% AMI
  - Additional 5 in Block 1 60% AMI
  - Multifamily Tax Subsidy Program VA Housing
  - Similar architecture/fixtures
  - Warrenton/Fauquier Resident Preference
  - Condo Sale Provisions

# Draft Conditions of Approval

- Transportation
  - Parking Garage
  - Sidewalks
  - Crosswalks on Oak Springs
  - EV Charging Stations
  - Modified Alley
  - Loading and Unloading

# Draft Conditions of Approval

- Waivers and Modifications
  - Article 2-6.1 allow for increased density for 386 units/13.28 units per acre
  - Article 3-4.10.4 decrease Broadview Avenue front yard setback to 14', side/rear yard setback to 0'
  - Article 8-8.5 decrease buffer width commercial and residential to 0', decrease rear buffer for residential uses from public ROW to 14'
  - Article 2-20 Increase heights Block 1 54' Oak Springs Drive, Block 1 36' Broadview Ave, Block 2 36', Block 3 45'
  - Article 3-4.4.5.3 Allow TH grouping from 6 to 7
  - Article 2-19 Allow retaining walls and fences over 6'

# Next Steps

- Hold Public Hearing
- Resolution for Recommendation to Town Council
- Decision Deadline June 27, 2024 – Unless Applicant Defers

EXPERIENCE WARRENTON VIRGINIA EST. 1810

# Planning Commission Public Hearing
# SUP 2022-05 Warrenton Village Center Mixed Use
# June 18, 2024

*PC Decision Deadline June 27,2024 Unless Applicant Defers*

# In Town

## Planning Commission Public Hearing Citizen Comments

As of Noon

June 18, 2024

**Matthew Cute**

**From:** noreply@civicplus.com
**Sent:** Sunday, May 12, 2024 6:31 AM
**To:** citizencomment
**Subject:** Online Form Submittal: Public Comment

**[EXTERNAL EMAIL]** DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

## Public Comment

| | |
|---|---|
| Name | Joyce Lisbeth |
| Address | [redacted] |
| City | Warrenton |
| State | VA |
| Zip Code | 20186 |
| Email Address | [redacted] |
| Phone Number | [redacted] |
| Committee, Board, or Commission Type | Town Council |
| Agenda Item | Warrenton Village Shopping Center High-Density |
| Comment | No no no! We live in Warrington to escape this nonsense. Are you going to build new schools first? Do we really need the traffic of northern Virginia every day in our little town? Whoever proposed to the traffic circles around here and the 4 way stops when people don't understand driving laws hence how to use them is bad enough.<br><br>And another increase in the water and sugar bills? Almost a 50% hike in those costs in 1 year is absolutely ridiculous. People are having trouble providing food for their families with this inflation and you're going to make water and sewer another stress? |

Email not displaying correctly? View it in your browser.

**Matthew Cute**

**From:** noreply@civicplus.com
**Sent:** Wednesday, May 8, 2024 7:13 AM
**To:** citizencomment
**Subject:** Online Form Submittal: Public Comment

**[EXTERNAL EMAIL]** DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

## Public Comment

| | |
|---|---|
| Name | Benjamin Maas |
| Address | [redacted] |
| City | Warrenton |
| State | VA |
| Zip Code | 20186 |
| Email Address | [redacted] |
| Phone Number | [redacted] |
| Committee, Board, or Commission Type | Town Council |
| Agenda Item | High density housing |
| Comment | I enthusiastically support the planned housing development. Our community lacks the kind of housing that will draw our children back to Warrenton as adults. We also lack an adequate inventory of "affordable" housing for those who educate our children, care for our infirm, and protect our community. This is but a start and this is a far far cry from plunging off a cliff into becoming (pick your overgrown northern Virginia community). This is smart and necessary growth. |

Email not displaying correctly? View it in your browser.

**Matthew Cute**

**From:** noreply@civicplus.com
**Sent:** Tuesday, April 30, 2024 12:18 PM
**To:** citizencomment
**Subject:** Online Form Submittal: Public Comment

**[EXTERNAL EMAIL]** DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

## Public Comment

| | |
|---|---|
| Name | Carol C Colins |
| Address | [redacted] |
| City | Warrenton |
| State | va |
| Zip Code | 20186 |
| Email Address | [redacted] |
| Phone Number | [redacted] |
| Committee, Board, or Commission Type | *Field not completed.* |
| Agenda Item | Warrenton Village Center |
| Comment | If this kind of high-density is within the town plan, I believe we need a revision to that plan.<br>While the proposed project is attractive, the density is overwhelming to a modest-sized town such as ours. We are already concerned about capacity of water and sewer services; and already have increased traffic, thanks to development in our neighboring county of Culpeper.<br>If you can keep this from going forward that would be in our best interest.<br>A similar development--of a much smaller size--would be more appropriate. |

Email not displaying correctly? View it in your browser.

**Matthew Cute**

**From:** William Goodrich [redacted]
**Sent:** Tuesday, April 16, 2024 4:15 PM
**To:** Planning Department
**Subject:** Warrenton Village Center Project

Some people who received this message don't often get email from williamgoodrich@hotmail.com. Learn why this is important

**[EXTERNAL EMAIL]** DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

I live in Warrenton on Broadview and I do not want a project that big going up just across the street from me. The reason I moved her is to avoid this kind of living. People move to Warrenton to escape Northern Virginia. Keep that crap out of here. Thank you

## Matthew Cute

**From:** Michele Burwitz [redacted]
**Sent:** Monday, April 15, 2024 5:20 PM
**To:** Planning Department
**Subject:** Proposed Warrenton Village Center

Some people who received this message don't often get email from mlburwitz@yahoo.com. Learn why this is important

**[EXTERNAL EMAIL]** DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

Hello. I live in the town of Warrenton in the Bear Wallow Knolls townhomes. I want to share my thoughts on the proposed Warrenton Village Center, and I hope you will consider my views in your decision making.

I am against this proposed project for a couple of reasons. I was born and raised in this area, and Warrenton has always been my home for the last 52 years. I love living here, because it still feels like a small town, despite its recent growth. While I believe there are already too many people in this town, it is still relatively quiet and has maintained its quaint appeal. I believe what you are proposing will completely change the atmosphere for the worse. The last thing I want to see when I walk my dog or look across my back yard is a four-story apartment building, including a hideous parking garage as well as three-story townhouses crowding and towering above the beautiful landscape that is Warrenton. Also, the traffic has gotten worse and is already congested. This proposed population increase would only further congest Warrenton and make the traffic unbearable. There is plenty of land on the outskirts of town and out of town limits for all these buildings to go.

I realize that it is always nice to add income to the town, but not at the expense of those of us already living here. I live in Warrenton, because it isn't Gainesville or Manassas. Look what all the growth has done to those cities. I do not want it here.

Please consider my views when you are planning for the future of this town. I am a lifetime Warrenton resident, and it is my future too.

Thank you,

Michele Burwitz
[redacted]

**Matthew Cute**

**From:** joanne nistico [redacted]
**Sent:** Monday, April 15, 2024 4:18 PM
**To:** Planning Department
**Subject:** High - density housing project

Some people who received this message don't often get email from joannenistico@gmail.com. Learn why this is important

**[EXTERNAL EMAIL]** DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

Dear Planning Commission, **I am expressing my strong opposition to the proposed high-density housing project.**

*This development does not align with our community's existing character and housing mix and poses significant safety concerns for the children who attend school near the complex.*

Please represent our interests in opposing this project and working towards restoring Warrenton's planning and zoning to a more sensible approach that remains in line with our community's values.

Sincerely,

Joanne Nistico

[redacted]

--

**Joanne Nistico CTA, CWE**
[redacted]

**Matthew Cute**

**From:** Denise Harris
**Sent:** Monday, April 8, 2024 9:01 AM
**To:** Jess Achenbach
**Subject:** FW: Historic Preservation Opportunity with Warrenton Village Center Development
**Attachments:** IMG_2326.jpeg; IMG_2328.jpeg; IMG_2327.jpeg

FYI

**From:** Steven and Ann Rose Wojcik [redacted]
**Sent:** Monday, April 8, 2024 8:57 AM
**To:** Planning Department <Planning@warrentonva.gov>; Carter Nevill <cnevill@warrentonva.gov>; Paul Mooney <pmooney@warrentonva.gov>; David McGuire <dmcguire@warrentonva.gov>; Eric Gagnon <egagnon@warrentonva.gov>; Heather Sutphin <hsutphin@warrentonva.gov>; Brett Hamby <bhamby@warrentonva.gov>; James Hartman <jhartman@warrentonva.gov>; William Semple <wsemple@warrentonva.gov>
**Cc:** Rob Walton <rwalton@warrentonva.gov>; Denise Harris <dharris@warrentonva.gov>; Casey Squyres <csquyres@warrentonva.gov>
**Subject:** Historic Preservation Opportunity with Warrenton Village Center Development

**[EXTERNAL EMAIL]** DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

Dear Mr. Mayor, members of the Planning Commission, and members of the Town Council:

While there are many issues you are considering as you weigh the SUP for the Warrenton Village Center development, there is also an opportunity for restoration and reviving of a historic natural resource on the property in consideration, which, if taken, would emphasize the unique history and character of Warrenton. I hope it will be part of this project if it is approved. I appreciate the opportunity for you and the developer to consider it. It would be an amenity for the whole community that would not require altering the current plans of the developer and I believe would not add much to the developer's costs.

At the northwest tip of the property along the corners of Oak Springs Drive and Branch Drive amidst overgrown vegetation and fallen tree limbs lies Oak Spring, the natural spring with its stone fortifications that gave its name to the colonial era estate that once existed on this and the surrounding land. The spring gave its name to Oak Spring Manor, which still exists across the street from the spring. The spring, the house, and part of the family cemetery a few blocks further, are all that remain of the estate of the Edmonds Blackwell family, early settlers of the area during the colonial period, one of whose members was an officer in the Revolutionary War.

It would be an asset to the community to restore the stonework, clear the deadwood and vegetative overgrowth around the spring, plant a few oaks, add a few benches and a walkway, and install a plaque with historic information about Oak Spring Manor on this corner. Upon examining the developer's plans presented to the town, approximately a half acre of green space is planned on this

spot in residence block #2 of the proposal. So it appears that adding the enhancements suggested above to the plans would not affect the rest of the project. It would also be an amenity to the new residences as well as something the broader community could enjoy. As a natural spring exists there, I do not believe that any structure could be built there anyway. I know of at least one other property in town with continuous problems since a parking lot sits on top of a spring.

Restoring and enhancing this historic, natural component would ground the development in its surroundings and history. It would also connect the development to the surrounding Oak Springs neighborhood and help preserve this part of Warrenton's sense of place. Thirdly, it would be an additional green space for residents of Warrenton to enjoy nature and perhaps learn about this part of the town's history. As the developer stated at the planning commission work session, the proposed development "aims to honor the town's unique history." Restoring the spring's stonework and creating a green space around it for townspeople to enjoy would be a fitting, meaningful, ideal way to do this. In my view, it's a win-win for both townspeople and the developer.

I am attaching photos of the current state of the spring as well as a video history of the spring and Oak Spring Manor. Tho local historian talks about the spring starting at 2 minutes 20 seconds into the video and ends around the 3 minute mark. Link to video: https://www.youtube.com/watch?v=22A-UD7uy2s

Thank you for consideration of this small, but important proposal as you consider the SUP. It is an opportunity to add to the historic and natural amenities of the town.

Best regards,

Steve Wojcik
621 Old Meetze Rd
Warrenton, VA 20186
540 878-2009

# Out of Town

Planning Commission Public Hearing Citizen Comments

As of Noon

June 18, 2024

**Matthew Cute**

**From:** noreply@civicplus.com
**Sent:** Wednesday, June 12, 2024 11:30 AM
**To:** citizencomment
**Subject:** Online Form Submittal: Public Comment

**[EXTERNAL EMAIL]** DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

## Public Comment

| | |
|---|---|
| Name | Kaitlyn Worley |
| Address | [redacted] |
| City | Warrenton |
| State | VA |
| Zip Code | 20187 |
| Email Address | [redacted] |
| Phone Number | [redacted] |
| Committee, Board, or Commission Type | Planning Commission |
| Agenda Item | SUP 2022-05 Warrenton Village Center |
| Comment | *Revised with proper Agenda Item name and details.* |

Hello,

I would like to share my support for the Warrenton Village Center development project. I believe this form of mixed use development would be a wonderful addition to the Warrenton housing supply and business community. I believe that the proposed location seems very appropriate for this sort of development. I believe the addition of smaller housing units, placed on top of business units is a responsible use of space and has the opportunity to provide housing for a variety of individuals and families, including but not limited to those in need or in search of affordable housing and walkable

amenities. I hope that the developer allows for a variety of income levels to have the opportunity to reside in this community.

My family includes two young boys who attend or will attend Highland School. I would ask that all plans for development ensure the fullest, most robust possible pedestrian safety measures not only for residents, business owners, and visitors who drive to the Warrenton Village Center, but also for those of us who will walk from the surrounding residential communities, other businesses along Broadview Avenue, or schools (Highland School and CM Bradley Elementary School) to visit the development. Pedestrian safety should be a critical design measure along Oak Springs Drive, Business 17, and Business 29. Speed reductions along these routes should be considered to allow for the safest possible pedestrian experience within and surrounding this mixed-use community.

Safety should also be highly considered with parking and pedestrian interactions within the development itself - Ideally, people and car interactions should be limited as much as possible to allow for a fully walkable experience. This would also provide more opportunities for safe, relatively quiet outdoor dining and/or recreation spaces. Eating a meal and engaging in conversation while sitting close to moving traffic isn't such an enjoyable experience.

Thank you,
Kaitlyn

Email not displaying correctly? View it in your browser.

**Matthew Cute**

**From:** Barbara [redacted]
**Sent:** Tuesday, April 16, 2024 4:45 PM
**To:** Planning Department
**Subject:** High-Density Housing at Warrenton Village Shopping Center

Some people who received this message don't often get email from bcominsky@aol.com. Learn why this is important

**[EXTERNAL EMAIL]** DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

We are county residents and have lived in Fauquier County since 1989 where we started our business, raised our family and enjoyed the life of residential Virginia with its small-town atmosphere. We have enjoyed the quiet, peaceful small-town/county life until recent pushes to make us into "Northern Virginia". Let this pass from us and go to another county who would welcome the hustle/bustle, increased traffic, crime, residential growth creating stress on roads, schools, water/sewer, and just life in general. I understand the tax revenues look enticing, but life in the country doesn't need all the whistles and bells to be a rewarding/well-lived community, as we have experienced since 1989!

We already have bumper to bumper traffic coming into Warrenton now with the new homes off 211. The water/sewer system is beyond what it can handle now and in desperate need of a rebuild - building it to accommodate what is being proposed will be beyond belief. The school system struggles now to accommodate Warrenton's young people - not to mention trying to recruit teachers/staff at the low salaries being offered in Fauquier County. The electric grid will struggle to keep up with the staggering usage of all these proposed townhouses, homes, condos, etc.... Not to mention the horrendous traffic that will be coming into the town/county especially within Warrenton proper.

My husband and I strongly urged this proposal be voted DOWN to allow Warrenton to remain the beautiful, country community it is known for.

Ken & Barbara Cominsky
[redacted]

**Matthew Cute**

**From:** noreply@civicplus.com
**Sent:** Friday, April 5, 2024 9:32 AM
**To:** citizencomment
**Subject:** Online Form Submittal: Public Comment

You don't often get email from noreply@civicplus.com. Learn why this is important

**[EXTERNAL EMAIL]** DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

## Public Comment

| | |
|---|---|
| Name | MICHAEL Allen MAYS |
| Address | [redacted] |
| City | Warrenton, VA 20187 |
| State | VA |
| Zip Code | 20187 |
| Email Address | [redacted] |
| Phone Number | [redacted] |
| Committee, Board, or Commission Type | Town Council |
| Agenda Item | Proposed development on Oak Springs Drive |
| Comment | My wife and I strongly object to the proposed development on Oak Springs Road which is an extension of the Warrenton Village Center. We live in the Ivy Hill Subdivision, less than a mile from the proposed development. Hastings Lane, which intersects with Oak Springs Drive, comes directly into Ivy Hill. Now, many non-residents use Oak Springs Drive and Hastings Lane to come through Ivy Hill to avoid lights on Rt 29 and to make a short cut from Oak Springs Drive to Ivy Hill Drive. If this development is approved and built, we foresee a significant increase in the amount of vehicle traffic on Oak Springs Drive and Hastings Lane. This will significantly reduce the quality of life in our neighborhood and could reduce our home values as well. We object. |

# Organizations

Planning Commission Public Hearing Citizen Comments

As of Noon

June 18, 2024

**Matthew Cute**

**From:** Jody Warfield [redacted]
**Sent:** Monday, April 22, 2024 3:13 PM
**To:** Planning Department; Denise Harris
**Subject:** Highland School information for 4-23-24 work session on Warrenton Village Center SUP
**Attachments:** Highland School letter to Warrenton Planning Commission for 4-23-24 work session on WVC.pdf

Some people who received this message don't often get email from jwarfield@highlandschool.org. Learn why this is important

**[EXTERNAL EMAIL]** DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

As a preliminary matter, Highland School understands that this proposal is still in the Staff/Applicant work session phase. We also respect that public comment is not generally accepted during the work session phase. However, we note that all the substantive waiver requests by the Applicant with regard to the impacts on traffic, transportation and schools – among other areas – will be discussed on April 23. We believe that this summary of serious concerns should be forwarded now in order to assure a next meaningful work session.

Please see the attached, which contains contact information for representatives for Highland School during this phase of your review and work.

Sincerely,
Jody Warfield, Chair
Highland School Board of Trustees

HIGHLAND SCHOOL

To: Warrenton Planning Commission
From: Highland School and Highland School Educational Foundation
Re: SUP 2022-03 Warrenton Village Center
Date: April 23, 2024

**Introduction**

As a preliminary matter, Highland School understands that this proposal is still in the Staff/Applicant work session phase. We also respect that public comment is not generally accepted during the work session phase. However, we note that all the substantive waiver requests by the Applicant with regard to the impacts on traffic, transportation and schools – among other areas – will be discussed on April 23. We believe that this summary of serious concerns should be forwarded now in order to assure a next meaningful work session.

To provide additional context, the entrance to Highland School's Lower School is located directly across Oak Springs Drive from the entrance to Block 1of 320 units and parking garage as currently sought. Of course, we value good neighbor relationships and being a good Town citizen. That said, we believe that noting those areas where it appears the Applicant and its experts were not aware of certain important factors that impact one of its closest and largest neighbors as well as ready access to the Applicant's parking garage serves all parties at this stage. Accordingly, we note certain assertions made by the Applicant and additional relevant facts not apparent in its Application below.

Of course, we are happy to host a site visit to the Highland School grounds to review and illustrate the facts discussed here, as well as other impact areas pertinent to your deliberations on the applicant's proposed waivers vs the goals and particular zoning requirements of Plan Warrenton 2040.

Highland School will be making further comments on the Applicant's proposal and waiver requests during the public comment phase, but to make the most efficient use of your time, this document focuses on only the issues the Chair indicated will be discussed in the April 23 work session.

**Peak Traffic Hours**

Applicant's Current Position: Applicant's Traffic Impact Analysis, and all waiver requests impacting traffic, assert that Highland School has only 1 peak time in the morning and 1 in the afternoon. Applicant's documents also refer to the School as "Highland High School".

Additional Facts:

1) Highland School is a pre-K2 through grade 12 school. The division of Highland School located along Oak Springs Drive is our preschool and lower school – accommodating grades PK-2 through 4, with children from ages 2 to 10. These are the students most vulnerable to negative impacts of high density traffic.

2) Highland's preschool and lower school have two morning drop off times – 7:30-8:00 and 8:30-9:00. The 8:30-9:00 peak traffic time is actually the larger of the two, but the Applicant's SUP and Traffic Impact Study do not appear to capture these 2 different peak times.

3) Highland's preschool and lower school have three afternoon pick up times – 11:45-12:15, 12:45-1:15 and 2:45-3:30. None of these times are included as peak traffic hours in the Applicant's materials.

4) At all of the peak times listed above, cars are waiting in both the westbound and eastbound lanes of Oak Springs Drive to turn into the School. Highland takes every measure possible to move cars through the pickup and dropoff process promptly, but even the minimal traffic on Oak Springs Drive with its current density causes 3 significant backups: i) on Oak Springs at the School entrance; ii) at the Oak Springs Drive intersection with Broadview Avenue (especially for those turning left); iii) and in the left turn lane for Oak Springs Drive from Broadview Avenue southbound.

**Construction Impacts**

Applicant's Current Position: The Statement of Justification with regard to Construction Impacts states that its Traffic Impact Analysis concludes "turn lanes are not warranted on Oak Springs Drive".

Additional Facts:

1) The existing left turn lane on Oak Springs Drive eastbound at the Highland School driveway accommodates only 4-5 vehicles. At all 5 peak times for Highland School ingress and egress, that turn lane is at capacity, thus often causing longer wait times and backups in the existing turn lanes from Broadview Avenue southbound and northbound at the intersection with Oak Springs Drive.

2) The lack of a right turn lane on Oak Springs Drive westbound at the Highland School driveway results in a line of waiting cars – from 2 to 10 – at all 5 peak times for the School.

3) The current traffic load consists almost exclusively of personal automobiles. The additional impact of construction vehicles and building supply delivery vehicles will significantly increase the per-vehicle impact on Oak Springs Drive and Broadview Avenue, and the residents of both.

4) The placement of the driveway to the WVC parking garage – the primary ingress and egress for both the garage and the delivery area alley for the retail shops, according to applicant's documents – directly across from Highland's driveway places the highest impact of traffic at the exact site of the highest level of current traffic and peak time usage.

**Traffic Impacts**

Applicant's Current Position: Applicant's Traffic Impact Study states that the WVC, with its requested density of 386 dwelling units, will generate only "154 new trips during AM peak hours and 197 new trips during the PM peak hours."

Additional Facts:

1) With 386 units designed primarily as workforce, or "missing middle", housing, even if there were only 1 resident per unit, these numbers are significantly understated. Plan Warrenton 2040 envisions the New Town Character District's mixed-use developments as serving the population of working singles and young families for whom affordable rental housing currently does not exist. Presumably, at least one resident in most of the 386 dwelling units will be leaving home to go to work each weekday, and the vast majority (320 of the 386 units) of those "new trips" outbound will occur from the parking garage exit directly across from the Highland driveway during the School's AM peak hours.

2) The bottleneck at the intersection of the Highland School's driveway and the WVC parking garage driveway will make left turns out of the WVC virtually impossible, thus forcing more of the traffic load eastbound on Oak Springs Drive, causing a significant increase in traffic past the residential areas – which include a nursing/rehab facility, the entrance road to Bradley Elementary School, the senior living complex of The Oaks, and the family-oriented townhouses at the east end of Oak Springs.

Applicant's Current Position: Applicant touts the crosswalks it will construct across Oak Springs Drive at the intersection of the parking garage and the Highland School driveway, and at the existing and proposed extension of Hastings Lane.

Additional Facts: The exponential increase in traffic from the proposed 386 dwelling units – 320 of them served by the parking garage that will exit directly onto Oak Springs Drive at the Highland School driveway – will make safe pedestrian crossings impossible. This is true

especially if they are parents walking their young children to either Highland School or Bradley Elementary School, or senior citizens walking to the retail establishments from the Brookside Rehab facility or The Oaks residential complex.

**Schools Impact**

Applicant's Current Position: Applicant states the 386 new dwelling units will produce only 26 school-age children for the Fauquier County Public Schools. Applicant also claims the FCPS are currently under capacity by 477 students.

Additional Facts: While Highland School cannot speak to the argument that Fauquier County Public Schools are under capacity by 477 students, it is highly unlikely that one of the two target demographics for the dwelling units – people in the 25-35 age group – would produce only 26 school-age children, based on the age range of parents of Highland's current student body. Highland School would not be a likely recipient of these children, as our independent school tuition can be a barrier for families who are seeking rental housing in the affordable, "missing middle" category.

**Design Plans vs Plan Warrenton 2040 Goals**

Applicant's Current Position: "The overall aesthetic of the new WVC brand and identity will be a contemporary design that thoughtfully incorporates Warrenton's rich history, focusing on equestrian inspired materials and character." (page 30 of the Statement of Justification dated 2-14-24 – hereinafter "SOJ 2-14-24)

Additional Facts: The modern, industrial flat-roofed design conflicts directly and substantively with the gabled roofs and standing-seam roof materials of the existing Warrenton Center buildings and the neighboring Highland School, and which are prominent throughout the homes and farms of the Warrenton area.

Applicant's Current Position: "The buildings are designed to scale appropriately with the adjacent current and future uses ...". (page 31 of SOJ 2-14-24)

Additional Facts: The waiver request for 4-story buildings along the entire expanse of Oak Spring Drive to Hastings Lane would tower over the Highland School buildings, which are two stories, with a peaked roof creating a 3-story height, but start from a level substantially below the grade of the proposed development. The combination of the modern/industrial design and the substantial height difference create a jarring, rather than appropriate, transition.

Applicant's Current Position: "Noise & Exhaust: The proposed development will not produce any noticeable increase in noise or odor." (page 26 of SOJ 2-14-24)

Additional Facts: 386 residential units, with even just one car per unit, and the trash generated by this density, cannot possibly produce no increase in noise and odor.

Applicant's Current Position: "Open Space, Parks & Environmental Goals: Goals P-3 and P-3.1 focus on providing residents with access to green and public spaces. The Proposal meets this goal by providing significant open space in close proximity to new residential housing, most notably, at the newly proposed Central, East and West plazas." (page 27 of SOJ 2-14-24)

Additional Facts: "Central Plaza" in the 2-14-24 Statement of Justification was later identified in the applicant's 4-16-24 presentation as the "dog park". It cannot be both, and its small size cannot possibly accommodate all the residents of the 386 new units PLUS "all residents of Warrenton" – either as a site for "community activities" or as a "dog park". Further, the East and West "plazas" are simply slightly expanded concrete sidewalk areas, with no green space included.

.....

In conclusion, we are happy to answer any questions the Planning Commission or Staff may have on these issues. Please contact either of the following representatives of Highland School:

Jody Warfield, Chair, Highland School Board of Trustees
(jwarfield@highlandschool.org).

Donna Tomlinson, Assistant Head for Institutional Advancement
(DTomlinson@Highland School.org).

Jeremy B. Root, Partner
Blankingship & Keith, PC
(jroot@bklawva.com)

Wells+Associates
6.14.2024

# Peak Period Traffic Summary Data
# Highland (Lower) School – Oaks Spring Drive Entrance

- AM Peak Hour: (8:37-9:12 AM)
  - 26 EBL + 29 WBR= 55 total inbound vehicles
  - 9 NBL + 6 NBR= 15 total outbound vehicles
  - 70 Total AM peak hour trips

- Mid-Day Peak Hour: (11:42-11:51 AM)
  - 8 EBL + 4 WBR= 12 total inbound vehicles
  - 3 NBL + 1 NBR= 4 total outbound vehicles
  - 16 Total Mid-Day peak hour trips

- PM Peak Hour: (2:56-3:30 PM)
  - 26 EBL + 43 WBR= 69 total inbound vehicles
  - 23 NBL + 14 NBR= 37 total outbound vehicles
  - 106 Total PM peak hour trips

- 70/16/106 (AM/MD/PM) Total Peak Hour Volumes

**Matthew Cute**

**From:** NAACP7059 Housing [redacted]
**Sent:** Monday, April 22, 2024 10:07 PM
**To:** Carter Nevill; Brett Hamby; David McGuire; Eric Gagnon; Heather Sutphin; James Hartman; Planning Department; Paul Mooney; William Semple
**Cc:** DEBRA COPELAND; connie630@fastmail.fm; Denise Harris; naacpfauquiercounty@gmail.com; townmanager
**Subject:** Concerns regarding recent flyers and fair process

Some people who received this message don't often get email from naacpfauquierco.housing@gmail.com. Learn why this is important

**[EXTERNAL EMAIL]** DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

To Town council members, Planning commission members, Mayor and staff,

It has come to our attention that council-member Eric Gagnon of Ward 5, on copy, has distributed flyers to his constituents in opposition to the proposed mixed use development at Warrenton Village Center. (See attached)

In reviewing the flyers, they appear to violate the Town's Code of Ethics. The inflammatory language and grotesque cartoon play into xenophobic stereotypes and communicate that only a certain type of person is welcome in Warrenton. The NAACP has been fighting these types of inflammatory images, veiled language and dog whistles since 1909.

These flyers serve to sow division in our community and sully the process to fairly evaluate these proposals.

We want to emphasize the importance of making decisions on this proposal and future proposals based on their merits as described in the ethics code.

We understand that you have new council and commission members and suggest you revisit the code of ethics, comprehensive plan, and also reach out to the PD9 staff to get an update on the state of the housing needs in our county and the town of Warrenton.

Providing affordable housing to our community is a multifaceted effort. It's not just one project, one policy or one zoning update. It can include developments like Heroes Bridge, adding Accessory Dwelling Units, adding more market rate apartment buildings/townhouses with an affordable component, fully income restricted development, missing middle and more.

Now is the time for all of us to FAIRLY evaluate affordable housing options for our community. Our friends, our neighbors, and our loved ones can't afford to stay here and people who serve our communities, who work in our stores, teach our children, respond to our emergencies can't afford to live here.

We are hosting a fair housing webinar on June 18, 2024 at 7PM with Housing Opportunities Made Eq
(HOME) whose mission is to ensure equal access to housing for all people. We'll be sure to send along
that invite.

Thank you all for your service to our community.

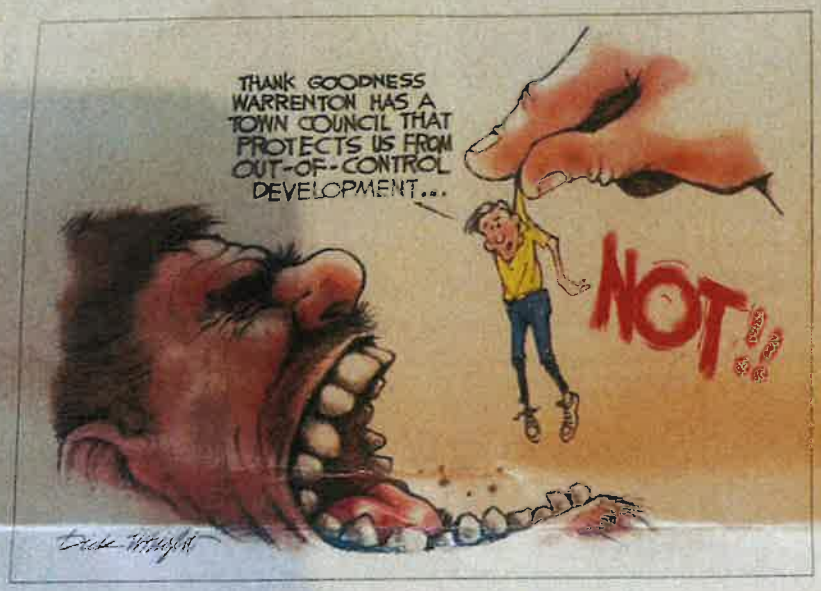
Thank you,

Conway Porter, Branch President
Miggy Strano, Housing Committee Chair
Fauquier NAACP Branch 7059

# Take Action Now—Here's What You Can Do:

**The Warrenton Village Center project is currently being reviewed by the Warrenton Planning Commission. If you are against this project, they need to hear from you:**

Best Option: **Show up and speak out at the upcoming Planning Commission meeting, April 16th, 7:00 P.M. at Town Hall, 21 Main Street.** Speaking out in person makes a big difference—the more citizens they hear from, the better;




**Send e-mail** to the Planning Commission at:
**planning@warrentonva.gov**

**Contact me directly, at**
**(540) 645-6156**, or at
**egagnon@warrentonva.gov**

## Your Voice Matters—Now Is the Time to Speak Out If You Are Against This Proposed Development

**As your Town Council Representative, my job is to represent your interests** in Warrenton, and to serve and protect your public health, safety, and welfare.

**All too often, we don't hear about these development projects until it's too late** to do anything about them, and I'm determined to change this.

**So, if you are against this project, it's not to late to stop it. Make your voice heard and let me know what you think,** and I will represent your interests when this project comes to a final vote on the Town Council.

**As always, contact me if you have any questions about this or any other issue** that's important to you and your life here in Warrenton.

Best Wishes,

ERIC

Eric Gagnon
Town Council • Ward 5
Cell: (540) 645-6156
egagnon@warrentonva.gov

**Attention Neighbors On:** Fauquier Road • Foxcroft Road • Broadview Avenue • Solgrove Road • Denning, Forest, and Tiffany Courts • Bear Wallow Road

# Proposed High-Density Housing Development Near You At The Warrenton Village Shopping Center



An artist's rendering of the proposed mixed-use development at Warrenton Village Center.
Courtesy of MV+A Architects




Dear Neighbor:

**As your Town Council representative, I want to alert you to a new development that is proposed to be built across from your neighborhood at the Warrenton Village Shopping Center,** between the Ace Hardware Store and the Highland School on Broadview Avenue (see map above).

**This proposed development, called the Warrenton Village Center, would be a high-density housing project** with a proposed multi-story, 450-space parking garage, a four-story apartment building with 386 units, 30 stacked, three-story townhouses and 36 two-story townhouses, estimated by the developer to add over 700 new residents—a 7% population increase for our Town.

**In my view, the high-density design of this project will bring unwanted Manassas- and Reston-style development to Warrenton that is grossly out of character with the conventional mix of housing in our community.** Additionally, there are legitimate concerns about the significant increase in traffic on Broadview Avenue and surrounding roadways, as well as serious concern about the strain of this development on our Town's water and sewer systems.

**As a nearby homeowner, you will be negatively impacted by this project if it is built:** Higher traffic and potential congestion, four-story apartment and parking garage buildings nearby, in a high-density project that looks more like it belongs in Manassas, Reston, or Arlington.

**This and other proposed housing projects threaten to destroy the small-town character of the Warrenton we all know and love.**

**Turn Over for Action Steps You Can Take To Make Your Voice Heard . . .**

# Take Action Now—Here's What You Can Do:

**The Warrenton Village Center project is currently being reviewed by the Warrenton Planning Commission. If you are against this project, they need to hear from you:**

**Best Option: Show up and speak out at the upcoming Planning Commission meeting, April 16th, 7:00 P.M. at Town Hall, 21 Main Street.** Speaking out in person makes a big difference—the more citizens they hear from, the better;

**Send e-mail** to the Planning Commission at: **planning@warrentonva.gov**

**Contact me directly, at (540) 645-6156**, or at **egagnon@warrentonva.gov**

**Scan this code below with your phone** to cast your "vote" in my online survey on this issue:

## Your Voice Matters—Now Is the Time to Speak Out If You Are Against This Proposed Development

**As your Town Council Representative, my job is to represent your interests** in Warrenton, and to serve and protect your public health, safety, and welfare.

**All too often, we don't hear about these development projects until it's too late** to do anything about them, and I'm determined to change this.

**So, if you are against this project, it's not to late to stop it. Make your voice heard and let me know what you think,** and I will represent your interests when this project comes to a final vote on the Town Council.

**As always, contact me if you have any questions about this or any other issue** that's important to you and your life here in Warrenton.

Best Wishes,

ERIC

Eric Gagnon
Town Council • Ward 5
Cell: (540) 645-6156
egagnon@warrentonva.gov

# Unknown Address

Planning Commission Public Hearing Citizen Comments

As of Noon

June 18, 2024

**Matthew Cute**

**From:** M RGR [redacted]
**Sent:** Sunday, May 12, 2024 8:25 AM
**To:** Planning Department
**Subject:** Housing Proposal near Warrenton Village

Some people who received this message don't often get email from mbr.19552019@gmail.com. Learn why this is important

**[EXTERNAL EMAIL]** DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

Dear Members of the Planning Commission-
As residents of the Town of Warrenton, we are **highly concerned and also AGAINST** this big housing proposal. Aside from the strain on all the Town services, (water /sewer) we are already at the brink with the increased traffic in the Town Limits. We understand the need for revenue, but it should not be accomplished at the expense of the existing community. Another important issue, as a long-time teacher in FCPS, will be the increase in the school population, especially at Taylor Middle, where #s are already an issue and will remain so until the new school is built.
Solutions:

- Build a bi-pass that will take care of the traffic headed towards 211 and from 211 to areas past Warrenton,
- Design the "new housing plan" along that route- outside our Town Limits.
- Just as families do, year to year, look at the budget and examine where all our tax dollars are being spent. Is there over/ wasteful spending?

Bottom line, we do not want to become Manassass.

Most Sincerely-
Ken and Magaly Reder

**Matthew Cute**

**From:** Jim [redacted]
**Sent:** Sunday, May 5, 2024 11:50 AM
**To:** Planning Department
**Subject:** Warrenton Village Center project

Some people who received this message don't often get email from jim415680@gmail.com. Learn why this is important

**[EXTERNAL EMAIL]** DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

Good afternoon,

I strongly object to the proposed project. This kind of development will bring too much traffic and congestion to that area. In addition, it is not the kind of residential development the town needs. The town already has too much traffic through Broadview Avenue. Leave these kinds of creations to other areas like Gainesville and Fairfax. We don't need parking garages. The water and sewer plant is already falling apart. This will not help the situation at all. Thank you for your consideration.

**Matthew Cute**

**From:** Mary Judkins [redacted]
**Sent:** Friday, April 26, 2024 4:03 PM
**To:** Planning Department
**Subject:** Proposed high density development at Warrington Village

Some people who received this message don't often get email from maryjdkns@gmail.com. Learn why this is important

**[EXTERNAL EMAIL]** DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

I am vehemently opposed to this, in particular due to the size.

Mary Judkins
Warrenton

## Matthew Cute

**From:** Tammy Lake [redacted]
**Sent:** Monday, April 15, 2024 8:16 AM
**To:** Planning Department
**Subject:** Opposition to Proposed Warrenton Village Center Project

[Some people who received this message don't often get email from tammy.lake@gmail.com. Learn why this is important at https://aka.ms/LearnAboutSenderIdentification ]

[EXTERNAL EMAIL] DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

Dear Planning Commission Members:

I am OPPOSED to the proposed Warrenton Village Center project.

**Matthew Cute**

**From:** Bridget Hinchman [redacted]
**Sent:** Thursday, March 28, 2024 9:47 AM
**To:** citizencomment
**Subject:** Future Development

You don't often get email from blhinchman@gmail.com. Learn why this is important

**[EXTERNAL EMAIL]** DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

Dear Sir or Madam,

I read an article online about Warrenton's desire to build apartments behind the shopping center off Lee Highway.

I was talking with my son the other day because he was walking along Lee Highway to get a drink from Starbucks. He walked right by the Rip Van Winkle Hotel and Red Roof Inn.

I told him not to walk by there in the future as that area is dangerous due to the transient clients that these businesses attract. Surely, the City of Warrenton has considered development on that part of Lee Highway?

I would think the goal of adding more apartments for our community would also include eliminating businesses that would present safety concerns. This is especially true as many apartment renters are families getting started in life. Also, this area is right next to the fast food businesses, which kids from high school go to when out with their friends.

I would greatly appreciate it if this particular section of town was considered for redevelopment.

Respectfully,
Bridget Hinchman

**Matthew Cute**

**From:** Alexander Hazelworth [redacted]
**Sent:** Monday, March 25, 2024 6:41 PM
**To:** citizencomment
**Subject:** Public Comment on SUP 2022-03 GPINs 6985-20-7247 and 6984-29-6753
**Attachments:** Alternative3.jpeg; Alternative1.jpg; Alternative2.jpg

You don't often get email from hazelworth.alexander@gmail.com. Learn why this is important

**[EXTERNAL EMAIL]** DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

Hello,

This is a comment pertaining to SUP 2022-03, GPINs 6985-20-7247 and 6984-29-6753. I support the direction this plan takes Warrenton. I greatly do not support this shoebox style of architecture. I have attached some alternative renders with their proposal and what is more beautiful and cohesive. They could have greenish roofs like their current Safeway building to stay consistent. If this is approved with the proposed architecture style then it sets a low bar for future Warrenton projects.

Thank you,
-Alexander


WARRENTON







# WARRENTON VILLAGE / NEW CASTLE DEVELOPMENT "NO" FOR SO MANY REASONS

## DENSITY & HEIGHT

Warrenton Village's non-conforming height and over-concentrated density is *in the wrong place*...just as Amazon's hulking, walled-off data center will be allowed *in the wrong place*.

This project alone could swell Town population 10%. The Prince William Times called New Castle's Development's proposal "radical" - meaning *extreme* change. Warrenton Planning Commissioner James Lawrence adeptly cautioned: *"I think all of us are concerned; can the town handle this traffic, infrastructure, etc.? How badly does the town need this?"*

A special-use permit exception to increase the 3-story limit on Oak Springs drive would also be *in the wrong place*. Why should these 3 too-condensed in-town complexes *tower over* the rooftops of two 1-story shopping centers, buildings across Rte 17, two adjacent 1-story schools, a 1-story nursing home, two elderly apartment complexes, and every other of the neighboring residential units? Why did everyone else agree to conform to the 3-story limit except New Castle? A 4-story apartment complex and a 4-story garage is an aesthetic affront to all those unfortunate to live around Warrenton Village, and to all town residents.

## "AFFORDABLE" HOUSING

New Castle Development Group *knows* the term "*affordable*" is chump bait. Our Council would be shamefully gullible to bite that hook. Of the 320 apartments and 66 townhomes only 10% may be "low-income." That's only 38 units, whereas 333 units, 90% will NOT be low-income, NOT be so affordable. And Developers have not been transparent on just how "affordable" their cheapest *initial* rental rate will be for their most undesirable units.

There's also snake oil in Warrenton Village hawking RENTALS, because that is an ever-escalating income stream. New Castle are not altruists; they seek hand-over-fist rental profits. Rentals return far more than sales. HUD reports: *last year alone*, rental rates soared 12.6% to home sales' 8.3%. The Town's support would subjugate these renters to recurrent landlord profiteering increases - most egregiously for the 10% of affordable's.

And 20% of all renters fall behind on payments. So, would Council approval of Warrenton Village create the region's 'eviction central' for those 76, or more rent-delinquent families?

## PARKING GARAGE

Warrenton's 2040 comprehensive plan calls for "*creating a sense of place.*" A 4-story garage would be antithetical in every way and definition – destroying our small Town's not out-of-scale, not out-of-portion, bucolic, and Historic and Landmarks Register *character.*

Mixed retail-residential Gainesville does not have a parking garage. Culpeper does not have a garage. Neither Haymarket, or Marshall has a garage, nor New Baltimore, Vint Hill, Bealton, or Catlett. If an elevated concrete garage is incongruous for *every one* of our neighboring communities, who is our Town Council wanting us to be, *Fairfax*?

Our Eastern gateway will be degraded by Amazon's fenced, behemoth concrete data-bunker. On our Southern gateway, Arrington Developers' splay of 217 homes will rival

# *Please,* Deny Warrenton Village

We beg you, *please* shoulder the responsibility *to your own community residents* and DO NOT sell-out to the Warrenton Village / New Castle Developers.

Their hulking apartments-townhouses-garage complex will NOT benefit our Town; rather it is *entirely contrary* to our Warrenton lifestyle. An indefensible approval would be a subjugation to, and gifted windfall income-stream for the private-equity group - *at our expense. Please,* don't play 'Santa' to New Castle to our detriment.

Warrenton Village is masquerading under a guise of "low-income" housing. A *mere* 38 "low-income" rentals are NOT a justifiable, equitable trade-off for *three* 4-story towers of **333** NOT low-income units, and a **4**-story **450** car parking garage. Such over-scaled monstrosities would irreparably destroy the character of our bucolic, historic small Town. Towers and a Parking Deck are antithetical to what our motto means "Experience Warrenton." *Please,* don't *cram-in* hi-rise towers here *like Fairfax.*

4-stories that would front, and desecrate our Town's northern gateway are unconscionable *in a 1-story setting* of a nursing home, two senior residences, two schools, and family homes. *None of them were exempted* from the 3-story height limit. It is the wrong setting for *towers*...the wrong setting for *unprecedented density.*

There is no comparable obesely-dense concentration of residences on such a small parcel here. And there is no capacity for, nor betterment when 450 garaged cars choke Oak Springs Drive to Broadview Avenue at its busiest bend-in-the-road every day of every year.

4 developers (New Castle, Arrington, Farish Properties, Heroes Bridge) purport *at-minimum* an avalanche of 1,500 added residents that would swell our Town's population well over 10%. If not untenable, that size of influx *will* inarguably, radically overwhelm us, our traffic lights and roads, all our services, and all the aesthetic, in-proportion good balance-and-scaling we have striven to achieve. *Please,* don't *adulterate* and vote-away our small town's soul.

Warrenton *does not* have the infrastructure, and certainly does *not* have the *homeowner* tax base to carry the increased costs for 4 new developments' added needs. Renters will not contribute to our tax base. And no New Castle token proffer will ameliorate those deficiencies. You will condemn Warrenton *homeowners* to the quicksand of ever-ballooning costs by your approval. Culpeper can substantiate that their town's expansion of residential housing has failed to offset all of the increased costs incurred for community services. *Please,* heed that 'red flag.'

Warrenton Village's colossus structures and Amazon's foreboding data center would be *only .4 of a mile apart!* WHY must just this one area pay the punishing full-price for *all* of our town's growth? Quaint, quiet Oak Springs Drive would become Warrenton's '*street from hell.*' By allowing these two affronts to Oak Springs neighborhood residents, the Planning Commission will diminish their homes' marketable values by concentrating there the *worst* two environments in all of Warrenton.

*Please, do not do uncalculatable harm.* Deny approval to New Castle Developers.

EXPERIENCE WARRENTON VIRGINIA EST. 1810

# Town Council Work Session
# SUP 2022-05 Warrenton Village Center Mixed Use
# July 9, 2024

# Special Use Permit Application

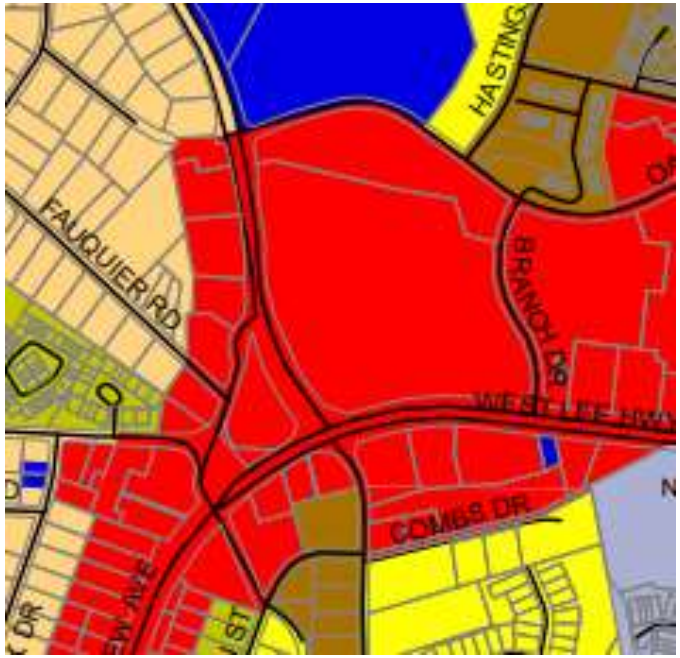
- **GPINs:** 6984-20-7247-000/6984-29-6753-000
- **Property Owner:** Warrenton Center LLC/Jefferson Associates LP
- **Representative:** Jess Achenbach, NewCastle Development Partners
- **Zoning: C** (Commercial)
- **Comprehensive Plan:** New Town Character District
- **SUP** to allow for mixed use development on approximately 29.05 Acres
- Maximum 386 Residential Dwellings
  - 320 Rental Apartments 1-3 BD
  - Approximately 34 2 over 2
  - Approximately 32 Townhomes
  - 10% Affordable Dwelling Unit

## Location



# Adjacent Land Uses

## Zoning Map




Existing Commercial

Public/Semi Public School

Senior Care

Apartments

**Zoning Districts**

- R-15
- R-10
- R-6
- RT
- RMF
- RO
- PSP
- C

# Future Land Use Map



# Plan Warrenton 2040

- Walkability Audit & Complete Streets
- 10 Guiding Principles
  - Discernible Center
  - Connected Sidewalks, Street Trees, Lighting
  - Buildings close to the street
  - Parking behind buildings
  - Variety of Dwelling Types
  - Park/Trail/Activity Center ½ mile radius
- Broadview = Gateway
- Lee Highway = Boulevard
- Oak Springs Drive/ Branch = Neighborhood



**New Town Warrenton District**

With large lots, direct access from Route 29, and high visibility, this district could be a location for a signature office/jobs center; with greater intensity of mixed use and strong live, work, and play options. A mix of uses could be organized around an internal street network and public amenities, such as civic spaces, parks, green space, and public gathering areas.

# Smart Scale Projects









# Three PC Work Sessions

- Full site Design
- Schools
- Traffic Impact Analysis/Transportation
- Walkability/Bicycle/Grid Connections
- Open Space/Historic Resources/Public Amenities
- Affordable Dwelling Units
- Water and Sewer
- Plan Warrenton 2040

# Proposal

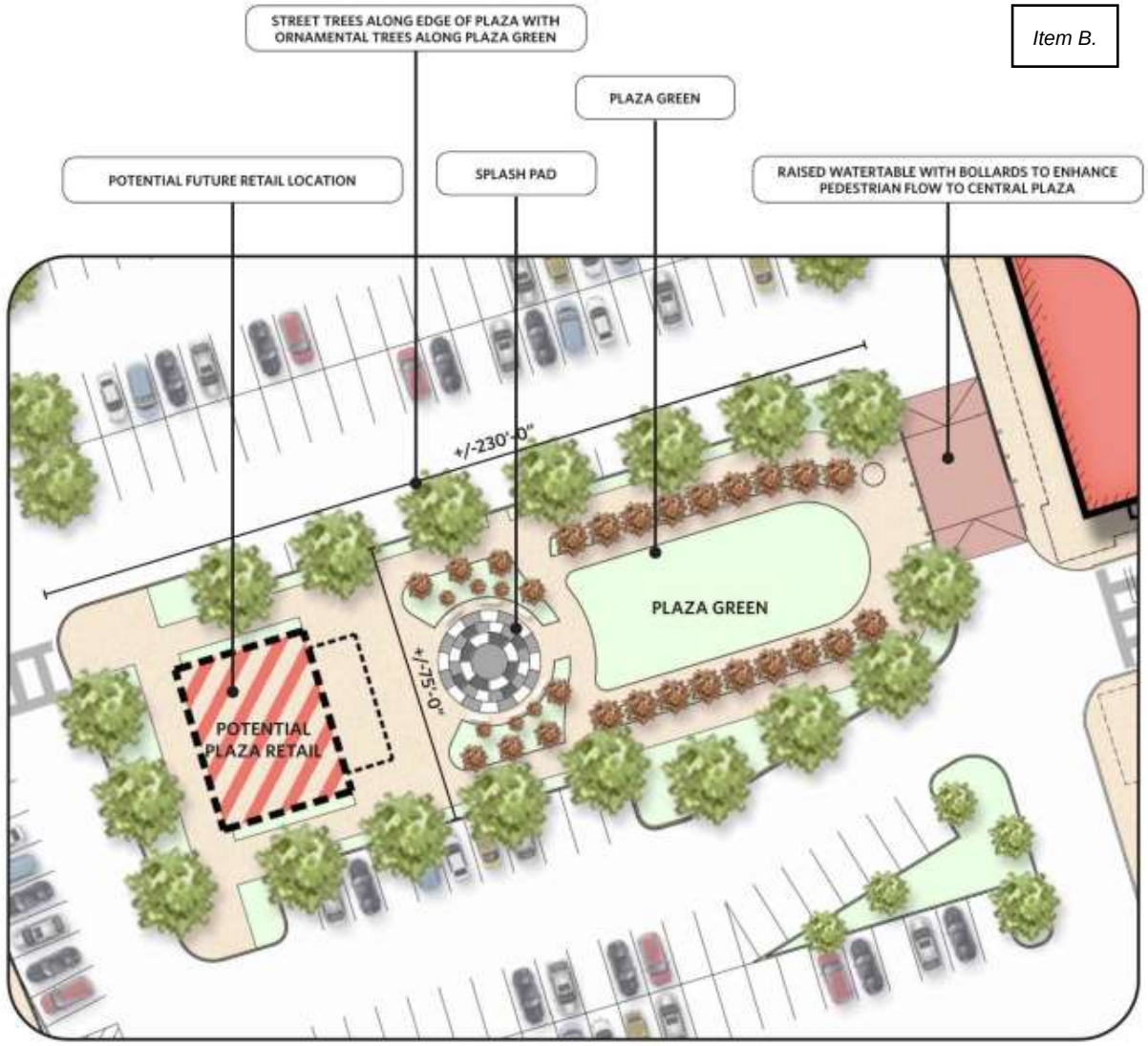



## Proposal Includes

- BLOCK 1 - 320 Apartments 1-3 BD, 4 story parking garage
- BLOCK 2 – 26 Townhomes 3 story
- BLOCK 3 - 34 2 over 2 4 story, 6 Townhomes 3 Story garage
- 10% Affordable Dwellings at 80%; 10 at 70%; 5 at 60%
- Central Plaza
- Dog Park
- Pedestrian Connectivity/Crosswalks
- Hastings Lane Extension

# Central Plaza






ENLARGED CONCEPTUAL CENTRAL PLAZA PLAN

SCALE 1"=20'-0"

# Elevations

## 5/31/2024

## vs

## 2/13/2024





# Requested Modifications and Waivers

- Increase in maximum density
- Broadview Avenue Setbacks
- Side and Rear Yard Setbacks
- Decrease Buffers between Commercial and Residential Uses
- Building Heights; plus along Oak Springs and Broadview
- Allow Retaining Walls over Six Feet

# Planning Commission Recommendation

- June 18, 2024 Public Hearing
- 12 Citizens Spoke
- Voted 4-0-1 (Ainsworth Absent) Recommend Approval with Conditions of Approval

# Draft Conditions of Approval

- Block 1, 2, or 3 in any order with triggers
- Elevations for 2/14/24 and 5/31/24
- Parking Garage South Facing Screening
- National Green Building Standard
- Prohibited Materials
- Signage and Lighting
- Refuse and Site Maintenance

# Draft Conditions of Approval

- Affordable Dwelling Units 25 Years
  - 10% in each block at 80% AMI
  - Additional 10 in Block 1 70% AMI
  - Additional 5 in Block 1 60% AMI
  - Multifamily Tax Subsidy Program VA Housing
  - Similar architecture/fixtures
  - Warrenton/Fauquier Resident Preference
  - Condo Sale Provisions

# Draft Conditions of Approval

- Transportation
  - Parking Garage
  - Sidewalks
  - Crosswalks on Oak Springs
  - EV Charging Stations
  - Modified Alley
  - Loading and Unloading

# Draft Conditions of Approval

- Waivers and Modifications
  - Article 2-6.1 allow for increased density for 386 units/13.28 units per acre
  - Article 3-4.10.4 decrease Broadview Avenue front yard setback to 14', side/rear yard setback to 0'
  - Article 8-8.5 decrease buffer width commercial and residential to 0', decrease rear buffer for residential uses from public ROW to 14'
  - Article 2-20 Increase heights Block 1 54' Oak Springs Drive, Block 1 36' Broadview Ave, Block 2 36', Block 3 45'
  - Article 3-4.4.5.3 Allow TH grouping from 6 to 7
  - Article 2-19 Allow retaining walls and fences over 6'

# Next Steps

- Hold Work Session
  - Applicant to Speak to Application Details
  - Subject Matter Experts on Transportation, Water and Sewer
- August Public Hearing

EXPERIENCE

WARRENTON

VIRGINIA

EST. 1810

# Town Council Work Session
# SUP 2022-05 Warrenton Village Center Mixed Use
# July 9, 2024

NEWCASTLE
DEVELOPMENT GROUP

# SPECIAL USE PERMIT #SUP 22-5

## WARRENTON VILLAGE CENTER

***TOWN COUNCIL WORK SESSION***
***JULY 9, 2024***



# EXISTING CONDITIONS



**Proposed Development Area**

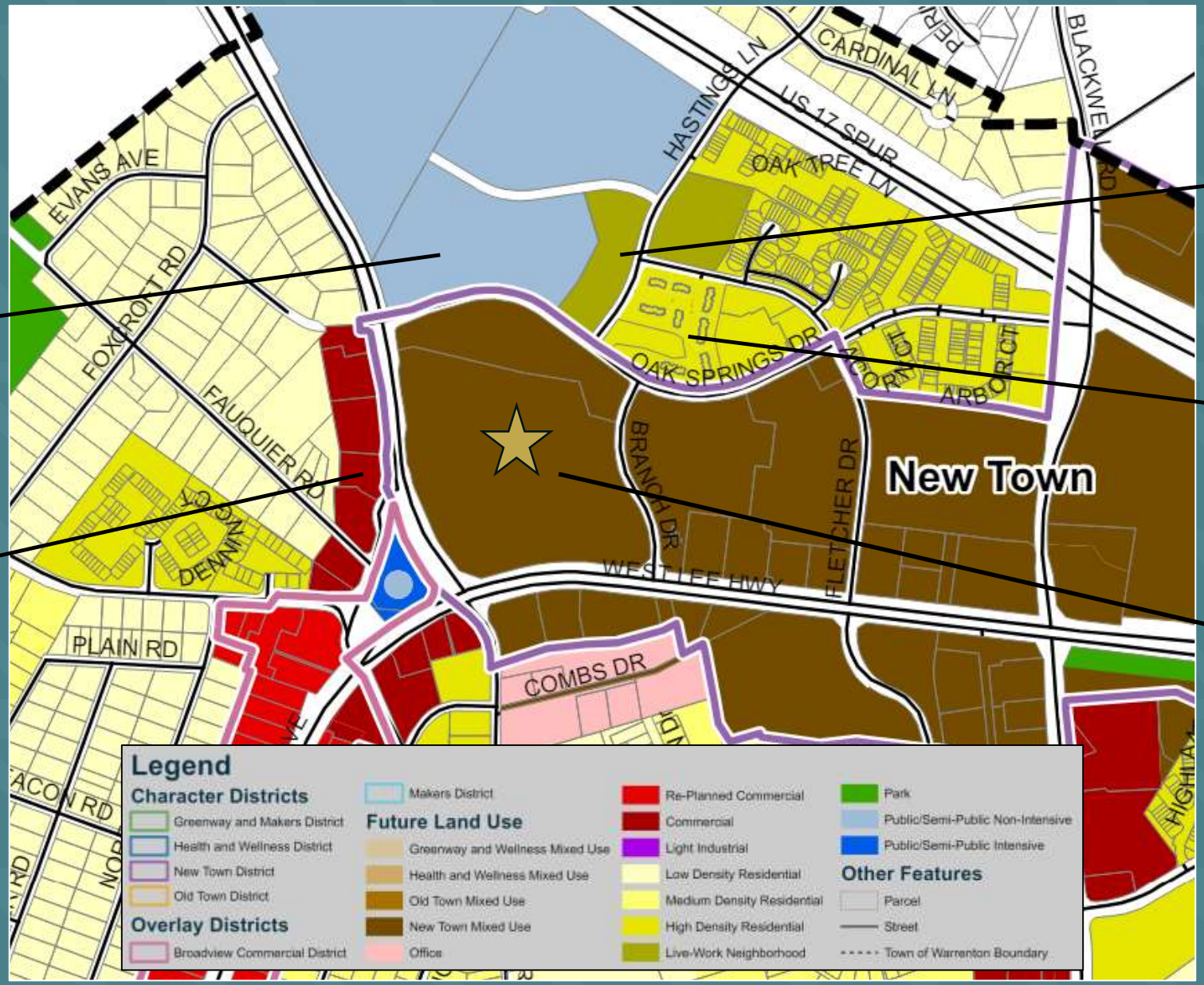
**Existing Commercial Center**

# FUTURE LAND USE MAP



Public/Semi-Public Non-Intensive

Commercial




Live-Work Neighborhood

High Density Residential

New Town Mixed Use

# RESIDENTIAL BLOCK 1

## Multi-Family Apartments

- Location: Vacant land on north side of the Center along Oak Springs Drive
- Units: Up to 320 total units
- Types: 1-, 2-, and 3-bedroom apartment units
- Parking: Internal 4-level parking garage
- Amenities:
  - 10,000 square foot leasing and amenity center
  - Central Plaza
  - East & West “Entrance” Plazas
  - Dog Park & Picnic Area
  - Pedestrian connectivity and circulation



# RESIDENTIAL BLOCK 2

## Multi-Family Townhomes

- Location: Vacant land at northeast corner of the Center at intersection of Oak Springs Drive and Branch Drive
- Units: Up to 26 townhome units
- Widths: Units currently proposed with 20' widths, yielding a plan count of 26 units. Proposal is up to 26 total units to account for width flexibility, which could impact total unit count.
- Types: 3-story, 3-bedroom townhome units
- Parking: Each unit has two internal parking garages



# RESIDENTIAL BLOCK 3

## Multi-Family 2-Over-2s

- Location: West side of the Center along Broadview Avenue, currently occupied by Summit Community bank and a vacant commercial bank building
- Units: Up to 40 total units
- Widths: Units currently proposed with 24′ and 20′ widths, yielding a plan count of 40 units. Proposal is up to 40 total units to account for width flexibility, which could impact total unit count.
- Types: 2-story, 3-bedroom 2-over-2 “condo” units
  3-story, 3-bedroom townhome units
- Parking: Each unit has one internal parking garage and one dedicated exterior surface space



# BENEFITS OF PROPOSAL



## PLAN 2040

Advances all goals of Plan 2040 Character Districts

## HOUSING SUPPLY

Provides much needed additional housing supply near retail and other services/facilities via infill development and not urban sprawl

## HOUSING TYPES

Provides much needed housing types unique to the Town, including "missing middle" townhomes, 2-over-2s and the first new multifamily community in decades

## AFFORDABLE HOUSING

10% of units within each residential block will be dedicated as Affordable Dwelling Units, restricted to residents with household incomes below 80% AMI at restricted rental rates

## PEDESTRIAN ACCESS

Provides new and improved, safe pedestrian access to and circulation within Warrenton Village Center for new residents and existing neighbors

## PUBLIC SPACES

The Central Plaza will be the new centerpiece of the Center, featuring activity and eating areas and a splashpad; a new dog park and picnic area will also be open to for public use

## INCREASED PATRONAGE

New resident supply will provide increased patronage to all of Warrenton's existing businesses

## ECONOMIC IMPACT

$46,100 projected annual surplus for the Town of Warrenton

# MODIFICATIONS & WAIVERS

# ZONING ORDINANCE 9-25: MIXED-USE DEVELOPMENT OPTIC

The mixed-use development option is created within the Commercial District to allow a mixture of uses when consistent with the Comprehensive Plan. The mixed-use option is intended to encourage development in a creative and integrated manner that encourages pedestrian walkability, shared open spaces and an alternative form of housing within the Town.

Section J. – Modifications:

Modifications from the standards set forth in Section 9-25 may be approved by Town Council in conjunction with the Special Use Permit upon a determination that the intent of the Comprehensive Plan is being met.

# SUP MODIFICATION & WAIVERS – WAIVER REQUEST #1

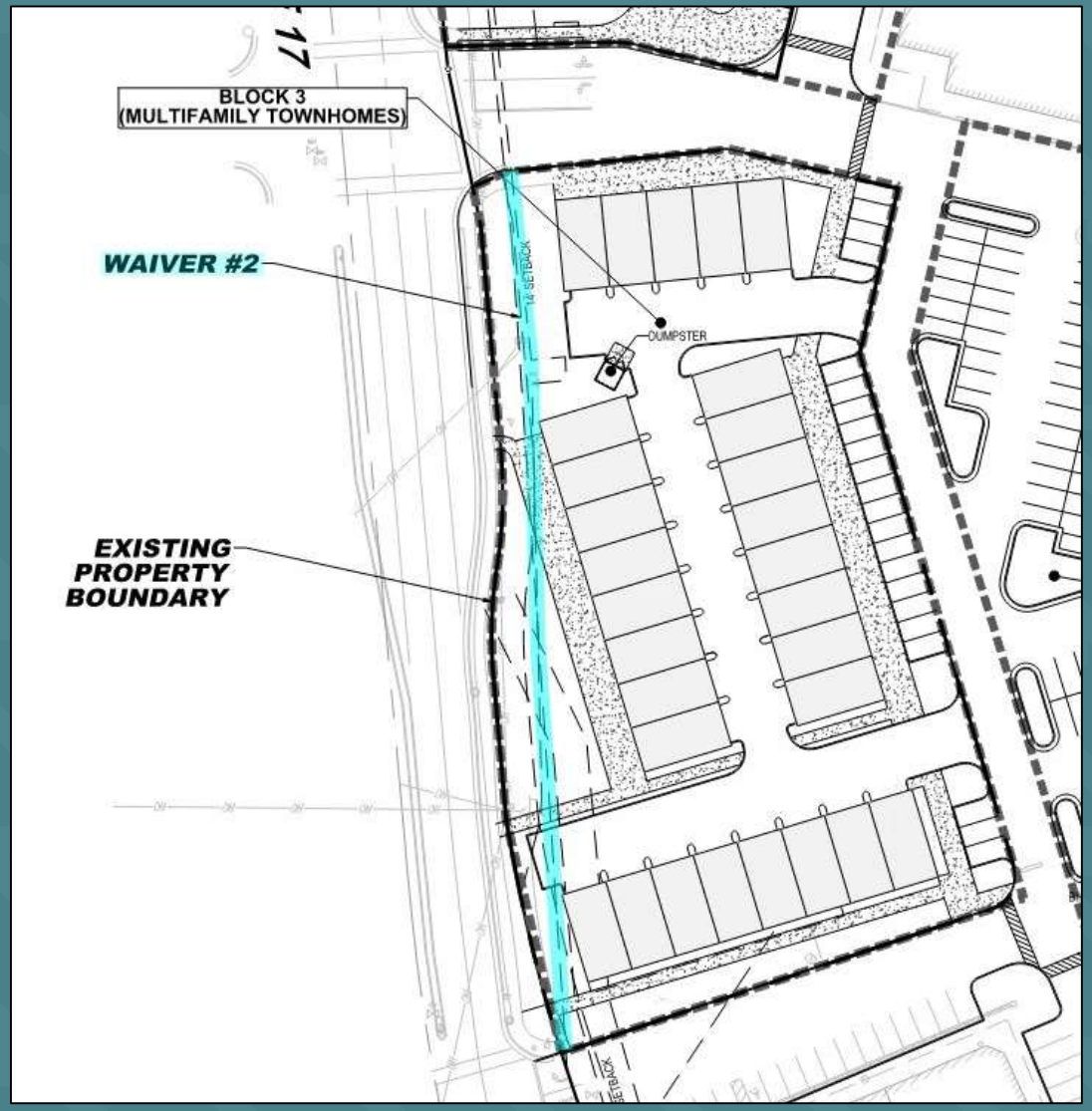




- Section 3-4.10.3 of the Zoning Ordinance provides that density in a mixed-use development within a Commercial zone may be calculated pursuant to Sec. 9-25 of the Zoning Ordinance
- Sec. 9-25 allows for calculation of density in a mixed-use development to be up to 1 dwelling unit per 500 square feet of non-residential space. This section also provides that density above 5 units per acre must be approved by the Town Council.
- While this is a modification of Sec. 3-4.10.3, the requested density is fully consistent with the provisions of Sec. 9-25 for a mixed-use development, and less than what could be achieved.
- This modification will allow for realization of the concentrated increased density that is a primary objective of the New Town Character District
- **Waiver Request #1:** Increase density above 5 units per acre to 13.28 units per acre, which will yield 386 units

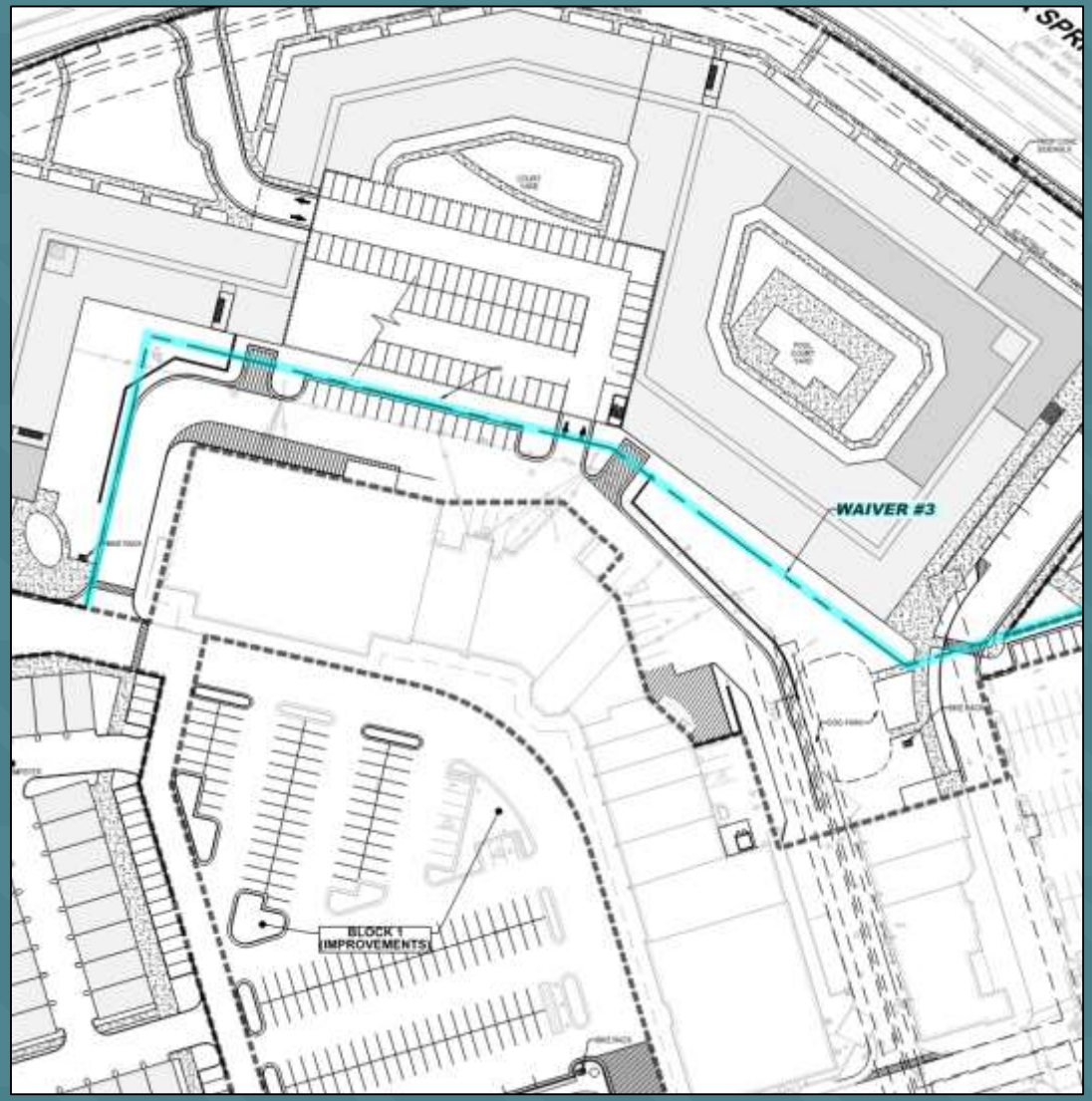
# SUP MODIFICATION & WAIVERS – WAIVER REQUEST #2






- Article 3-4.10.4: Required front yard setback from ROW greater than 50' is 40' minimum, if no parking or loading is proposed.
- This modification will allow the units to be closer to the street, creating a more consistent edge that is representative of the New Town Character district.
- **Waiver Request #2**: Decrease minimum setback to 14' along Broadview Avenue

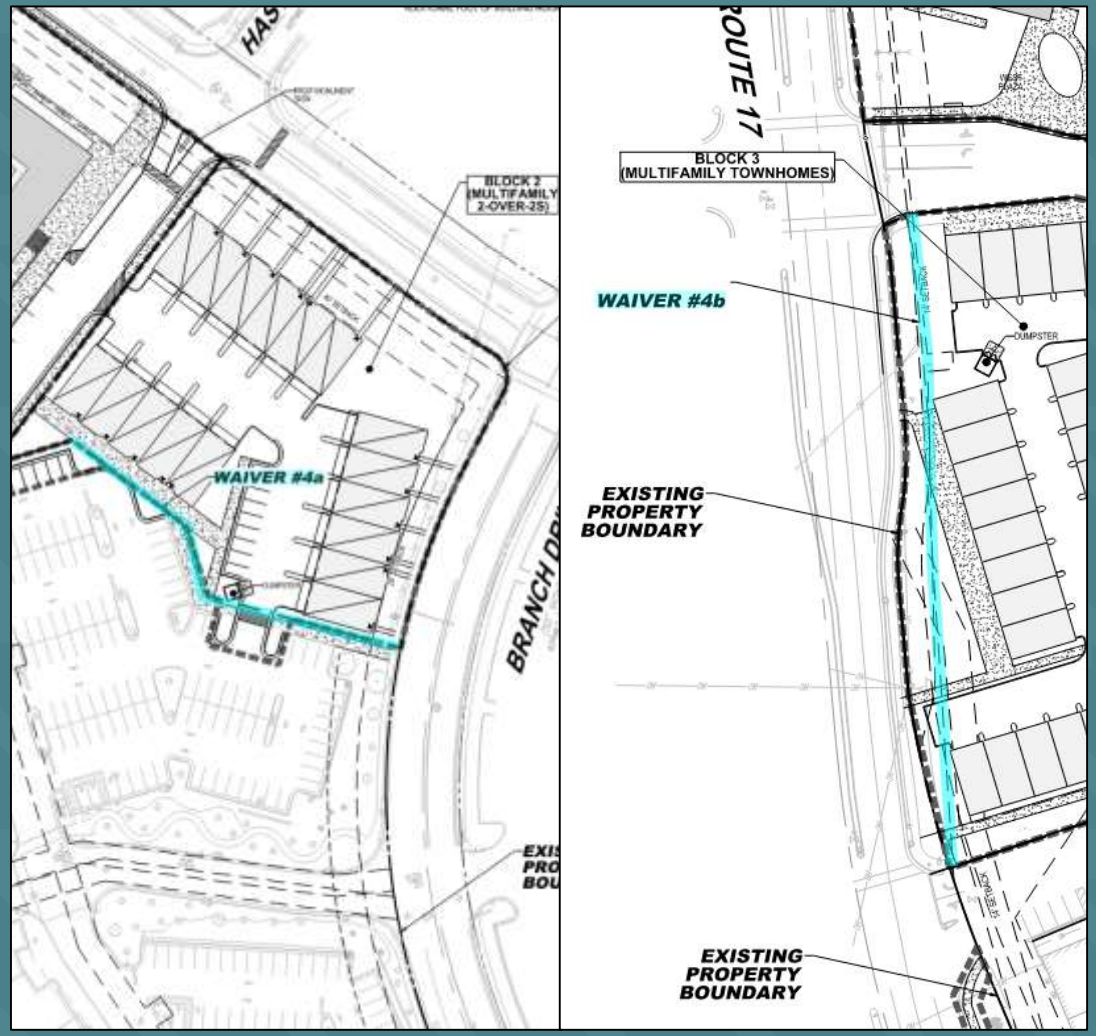
# SUP MODIFICATION & WAIVERS – WAIVER REQUEST #3




- Article 3-4.10.4: Required side/rear yard setbacks is 5' minimum.
- This modification will allow the overall development to function as a true mixed-use development that will not be segmented by internal separations.
- **Waiver Request #3:** Decrease side/rear yard setbacks along internal proposed and existing property lines to 0'

# SUP MODIFICATION & WAIVERS – WAIVER REQUEST #4






- Article 8-8.5: Minimum buffer width for commercial uses adjacent to residential uses is 25', plus 1' for each foot of building height over 35'. Minimum buffer width for rear boundaries of residential uses from public ROW is 25'.
- This modification will allow the overall development to function as a true mixed-use development that will not be segmented by internal separations.
- This modification will allow the units to be closer to the street, creating a more consistent edge that is representative of the New Town Character district.
- **Waiver Request #4a:** Decrease buffer width between commercial and residential uses to 0'
- **Waiver Request #4b:** Decrease rear buffer width for residential uses from public ROW to 14'

# SUP MODIFICATION & WAIVERS – WAIVER REQUEST #5



- Article 2-20: Height limit for dwellings may be increased up to 45' and up to three stories provided that front, side and rear setbacks increase 1' for each additional foot of building height over 35'.
- **Waiver Request #5**: Increase height limit for dwellings as follows:
  - 54' max height for Block 1, Oak Springs Drive Frontage
  - 36' max height for Block 1, Broadview Drive Frontage
  - 45' max height for Block 2
  - 36' max height for Block 3

# WHY ADDITIONAL HEIGHT IS NEEDED



- The New Town Character District has been established in Plan Warrenton 2040 as a designated area of high density—3-story residential does not allow for the concentrated density desired in the District
- The New Town Character District calls for "greater intensity of mixed-use and strong live, work, and play options" and notes that this district has "high visibility," due to its proximity to Route 29. The requested modifications to increase density and height support the need for greater intensities and higher visibility in this Character District.
- 4-stories allows for the internal parking garage to be hidden from the exterior of the building

# SUP MODIFICATION & WAIVERS – WAIVER REQUEST #6




- Article 3-4.4.5.3: No more than six townhouse units shall be grouped contiguously to each other.
- This modification is necessary to provide increased supply of "missing middle" housing type and aligns with several other existing residential communities in Warrenton include grouping of seven or eight units.
- **Waiver Request #6:** Increase maximum grouping of townhouse units from six to seven

# SUP MODIFICATION & WAIVERS – WAIVER REQUEST #7





- Article 2-19.4: Retaining walls shall not exceed a height of 6′.
- This modification is necessary to mitigate the grade change along the Block 1 apartment building. These walls will appear as part of the building foundation and will provide sidewalk access to all first-floor units.
- **Waiver Request #6:** Allow retaining walls in excess of 6′

# A PRODUCT OF PLAN WARRENTON 2040

# WHITE PAPER FINDINGS – FISCAL SUSTAINABILITY (RKG)



- An economic model was created to determine the impact of land use decisions and the resulting economic ramifications
- The model weighed the cost of the Town's desired capital projects against different growth scenarios:

| Scenario | Intended Growth Strategy | New Housing Units (by 2039) | Annual Net Fiscal Impact |
|---|---|---|---|
| 1 | Minimal growth, i.e. 2010 – 2019 trends | Minimal | ($508,808) |
| 2 | Become a stronger livable community | 750+ | ($240,682) |
| 3 | Become a livable destination community | 1,150+ | $102,185 |
| 4 | Become a regional live/work community | 2,100+ | $335,535 |

**RKG Conclusion:**

- To achieve the level of services and amenities desired by the citizens of Warrenton, the Town must increase its development activity
- Warrenton cannot "save its way" (i.e. cut back on spending) to fiscal sustainability
- Without residential development, "the Town does not have the demand to continue to increase retail services."

# PLAN WARRENTON 2040



- The White Paper recommendations, particularly with respect to the need for additional housing, heavily influenced the creation of the Warrenton 2040 Plan
- It is incorporated by reference into the Plan
- The ability to satisfy this housing need is addressed throughout the Plan: **Specifically, Character Districts are envisioned to contain a variety of attainable housing types**

> **H-2.2:** Increase opportunities for multi-family and mixed-use residential development by updating the commercial corridors in the Character Districts to allow for appropriate use and scale transitions into existing neighborhoods.

# WARRENTON HOUSING MARKET & ECONOMIC IMPACTS

# IMPACT OF THE WARRENTON HOUSING SUPPLY

- As forecast by the White Papers, the lack of housing supply and typology has had impacts that we can see on today's Warrenton housing market and overall economics:
  - Potential renters who are employed locally must often rent outside of Warrenton
  - Commuters to D.C. based jobs can't consider Warrenton when searching for relocation options
  - Area employers have challenges attracting new employees
- Due to the scarcity of rental units, potential renters do one of three things:
  - 1) pay above market rents for the few desirable units available
  - 2) resort to leasing less desirable units
  - 3) look elsewhere, outside of Warrenton
- These outcomes are all detrimental to the Warrenton economy and the existing community

# CURRENT RENTAL ENVIRONMENT

## 1) APARTMENT COMMUNITIES

- There are six (6) apartment communities in the Warrenton area that are income and/or age restricted
- There is one (1) market rate apartment community in Warrenton
- Per a 4/4/24 search, there were zero (0) apartment units available for immediate occupancy in any of Warrenton's apartment communities

| Apartment Communities | Year Built | Total Units | Available Units* | Age Restricted | Income Restricted |
|---|---|---|---|---|---|
| Moffett Manor | 2007 | 98 | 0 | Senior (55+) | 50% & 60% AMI Programs |
| Steeplechase | 2000 | 56 | 0 | Senior (55+) | 50% & 60% AMI Programs |
| The Oaks | 1996 | 111 | 0 | Senior (55+) | 50% & 60% AMI Programs |
| Highland Commons | 1994 | 96 | 0 | No | 50% & 60% AMI Programs |
| Warrenton Manor | 1985 | 98 | 0 | Senior (55+) | 30%, 50%, 60% & 80% AMI Programs |
| Academy Hill | 1983 | 31 | 0 | No | USDA Section 515 Rental Program |
| Victoria Gardens | 1979 | 24 | 0 | None | None – Market Rate |
| Totals | | 514 | 0 | | |

**Per Apartments.com results taken on 4/4/24*

# CURRENT RENTAL ENVIRONMENT

## 2) SINGLE FAMILY OR CONDO RENTAL DWELLINGS

- Per a 4/4/24 search, there were eight (8) rental units available for immediate occupancy in single family rentals and condo buildings
- With the exception of a single unit built in 2006, all available units are 30+ years old

| Unit Type | Condo Apartment | Townhomes | Houses | Total Units |
|---|---|---|---|---|
| 1-Bedroom | 2 Units<br>$1,500 (1975)<br>$1,665 (1949) | | | 2 |
| 2-Bedroom | | 3 Units<br>$1,600 (1993)<br>$1,750 (1975)<br>$1,750 (1980) | | 3 |
| 3-Bedroom | | | 2 Units<br>$1,695 (1978)<br>$2,875 (1986) | 2 |
| 4-Bedroom | | | 1 Unit<br>$3,500 (2006) | 1 |
| Totals | | | | 8 units |

**Per Zillow.com results taken on 4/4/24*

# WHEN PEOPLE CAN'T FIND HOUSING IN WARRENTON…

- The new commercial amenities and services that are so desired by the existing community are not fiscally achievable without the economic improvement generated by an increase in residents
- Not only will new and improved retail not come to Warrenton, existing retail will continue to decline and deteriorate
- Consumer spending is trending down, commercial vacancy is trending up – these trends will continue
- Existing retailers will continue to see diminished business activity, leading to potential viability concerns
- New potential retailers will choose alternative destinations outside of Warrenton

# WARRENTON POPULATION & EMPLOYMENT GROWTH

- Warrenton's population has remained relatively stagnant over the last 15 years
- An increased growth rate is not anticipated going forward
- Lack of growth is largely due to lack of available housing
- Warrenton's employment increased by 574 jobs between 2006-2019—a growth rate of 0.4% per year
- Over that same period of time, the Northern Virginia Region increased its jobs by 1.9% annually—**nearly five times the Town's growth rate**

| Year | At-Place Jobs | # Change | % Change |
|---|---|---|---|
| 1990 | 4,830 | | |
| 2000 | 6,670 | 1,840 | 38.1% |
| 2010 | 9,622 | 2,952 | 44.3% |
| 2011 | 9,721 | 99 | 1.0% |
| 2012 | 9,784 | 63 | 0.7% |
| 2013 | 9,829 | (28) | (0.3%) |
| 2014 | 9,831 | 47 | 0.5% |
| 2015 | 9,857 | (34) | (0.3%) |
| 2016 | 9,891 | 60 | 0.6% |
| 2017 | 9,898 | 69 | 0.7% |
| 2018 | 9,949 | 51 | 0.5% |
| 2019 | 10,038 | 89 | 0.9% |
| 2020 | 10,043 | 5 | 0.1% |
| 2021 | 10,174 | 131 | 1.3% |
| 2022 | 10,197 | 23 | 0.2% |
| 2023 | 10,274 | 77 | 0.8% |
| 2024 | 10,351 | 77 | 0.8% |
| 2025 | 10,428 | 77 | 0.7% |

*Source: Worldpopulationreview.com

# ECONOMIC IMPACTS

- The Market and Fiscal Impacts Analysis performed by S. Patz & Associates, Inc. concluded the following:
  - The project will have a Net Fiscal Benefit to the Town of Warrenton—meaning that the taxes generated by the project (both direct and indirect) will outweigh the capital expenditures connected with the project
  - At full buildout, residents will generate $26.4M in direct annual consumer expenditures (i.e. business activity)
  - The project, along with the increased business activity that it generates, will yield 476 new full-time jobs in the community

# PUBLIC IMPROVEMENTS

# LIST OF IMPROVEMENTS FOR PUBLIC USE & BENEFIT



- Central Plaza
- East & West Plazas
- Oak Spring (natural spring) restoration
- Dog Park and Picnic Area
- Oak Springs Drive Pedestrian Crosswalks
- Completion of outer sidewalk ring around Warrenton Village Center
- Internal pedestrian system – sidewalks, crosswalks, wayfinding, vehicle slowing measures
- Hastings Lane extension

# CENTRAL PLAZA






*Bird's eye view of Central Plaza*

# CENTRAL PLAZA





*Alternate bird's eye view of Central Plaza (Note Blocks 1 & 2 in background)*

# CENTRAL PLAZA



*View of splashpad at Central Plaza*



# CENTRAL PLAZA




*Ground level view of Central Plaza*

# CENTRAL PLAZA






*Ground level view within Central Plaza (Note Blocks 1 & 3 in background)*

# CENTRAL PLAZA






*Ground level view of pedestrian access to Central Plaza (Note Block 3 in background)*

# CENTRAL PLAZA




*Ground level view of Central Plaza*

# WEST PLAZA





*Ground level view of West Plaza*

# EAST PLAZA

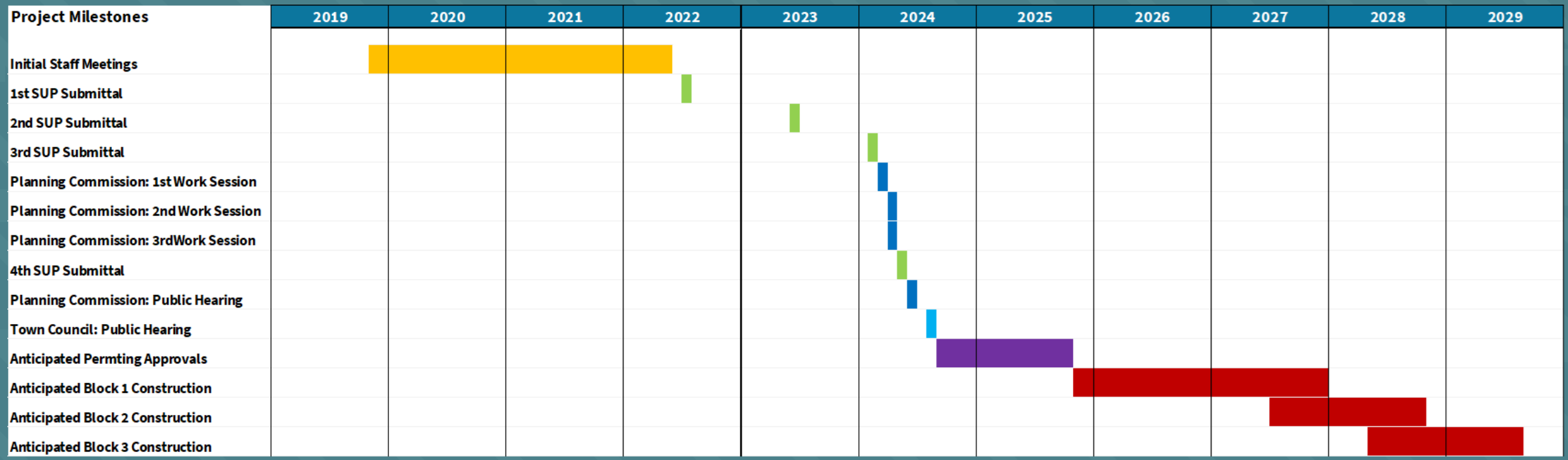



*Ground level view of East Plaza*

# CONCERNS ADDRESSED

# PROJECT TIMELINE





# WHAT WE HAVE HEARD

- As shown above, this proposal has gone through significant public review, both through public work sessions with the PC and individual meetings with stakeholders
- Primary topics of discussion included:
  - Water/Sewer Impacts
  - Transportation Impacts
  - School Impacts
  - Affordable Housing
  - Oak Springs Impacts
  - Architecture
- We have taken this feedback into account and made changes to the proposal to address these issues

# WATER / SEWER IMPACTS

# WATER / SEWER IMPACTS





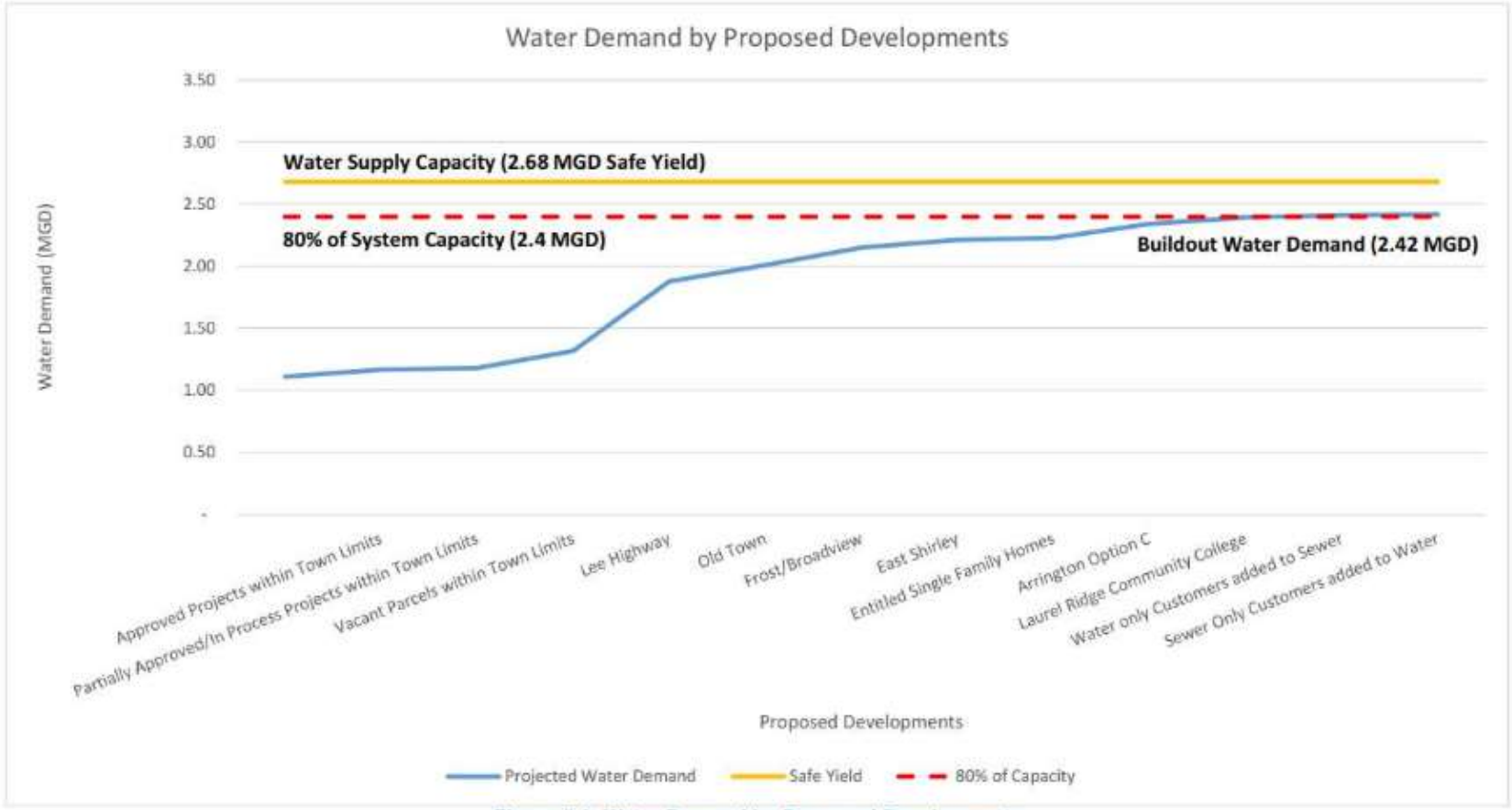



**Figure 5.1: Water Demand by Proposed Developments**

# WATER / SEWER IMPACTS





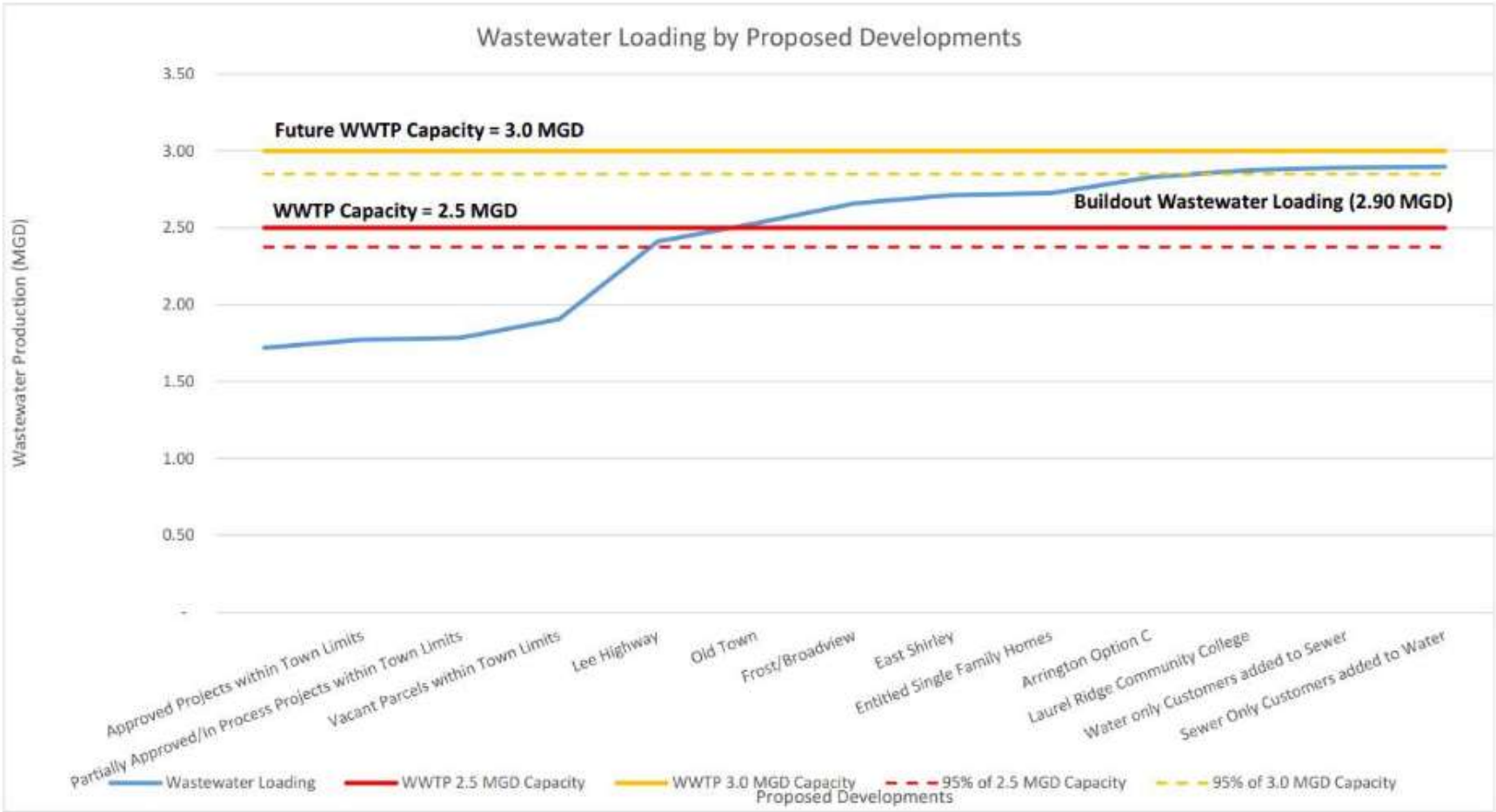



**Figure 6.1: Wastewater Loading by Proposed Developments**

# TRANSPORTATION

# SITE PLAN OVERVIEW

Primary vehicular access:

- Full-movement entry on Oak Springs Dr, forming 4th leg of Highland School Driveway intersection
- Full-movement driveway on Oak Springs Dr, forming 4th leg of Hastings Ln intersection
- Access also provided via existing shopping center connections to the south
- A total of 6 access points to the surrounding streets
- Agree to install traffic mitigation measures at Oak Springs Drive garage exit during Highland School “peak” hours – access gate, signage, lighting, etc.



# SITE PLAN OVERVIEW

Pedestrian Connectivity:

- Extensive sidewalk network proposed along all streets and within site to promote walkability
- Connects to and augments pedestrian network within existing center
- Crosswalks will be added on Oak Spring Dr at Hastings Ln and Highland School to promote safe pedestrian access from the north
- Retain crosswalks on Broadview Ave and Branch Dr



# TRAFFIC STUDY AREA



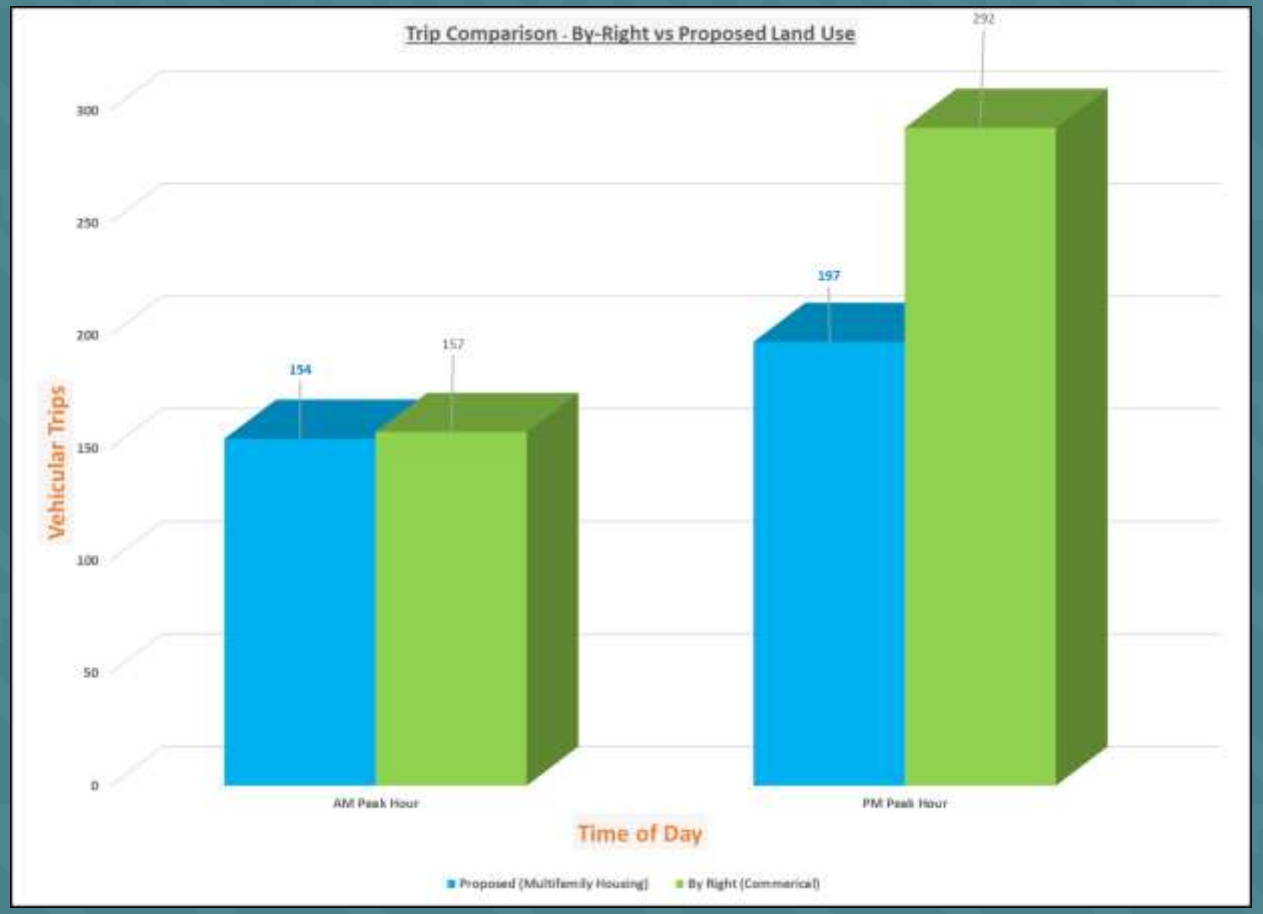
# SITE TRIP GENERATION

New Trips Generated by the Development:

- The proposed 386 new residential units are expected to generate around 154 new vehicle trips during the morning commute hour and 197 new vehicle trips during the evening commute hour
- These are distributed across the internal connections and 6 access points, reducing impact at any single location

Less Than By-Right Commercial Development:

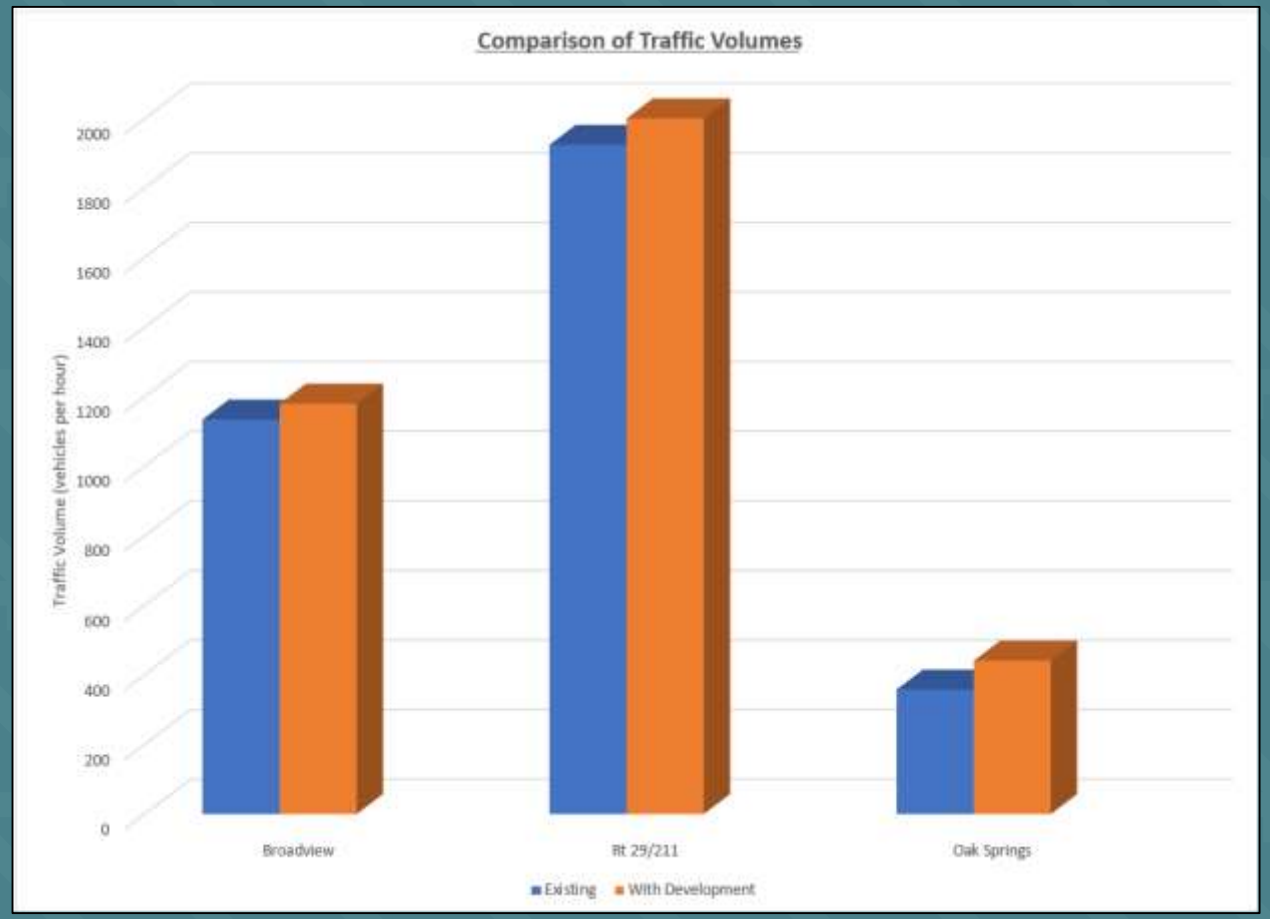
- The residential traffic volumes are lower than what would be seen if the site was developed by right with 40,000 sf of retail instead



# SITE TRIP IMPACTS

Minimal Traffic Impact:

- Site-generated traffic represents a small percentage of the existing volumes:
  - 3 - 4% on Broadview Avenue
  - 0.1 - 4% on Rt 29/211
  - Greater proportion on Oak Spring Dr and Branch Dr, where current volumes are lower
- Capacity analysis confirms these modest additions can be accommodated by the surrounding road network without degrading operations



# INTERSECTION CAPACITY ANALYSIS - 2027 WITH DEVELOPMENT



Minimal Impact on Intersection Operations:

- The addition of site-generated traffic does not significantly increase delays when compared to the future conditions without the development

Maintaining Efficient Traffic Flow:

- Signalized intersections and the new planned roundabout will continue operating efficiently, demonstrating the surrounding network can accommodate the new trips

Manageable Impacts at Unsignalized Intersections:

- The unsignalized intersection of Warrenton Village South Driveway and Broadview Avenue is anticipated to operate with higher delays, but the site-generated traffic only constitutes approximately 3.5% of the total volume at this location
- At all other unsignalized study intersections, the minor increases in delay represent conditions no worse than what is projected to occur without the development

Accommodating Site Traffic:

- Queues can still be fully accommodated within the available storage at all intersections, similar to the existing and future no-build conditions

# HIGHLAND SCHOOL TRAFFIC

Balancing Access and Minimizing Disruption:

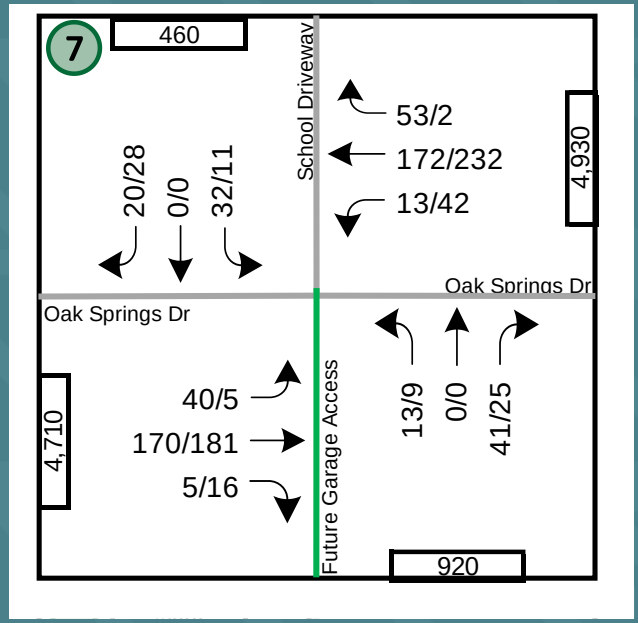
- The proposed parking deck entry is positioned across from the Highland School driveway to balance access needs while minimizing disruption to the existing intersection

Minimizing Conflicts with School Peak Hours:

- Analysis found Highland School and residential AM peak hours have a 15-minute overlap, during which conflicts are expected to be minimal
- Analysis found no overlap in PM peak hours
- It is anticipated that residents will use secondary garage entrance during AM peak hours, which will further reduce conflicts

Accommodating School Operations:

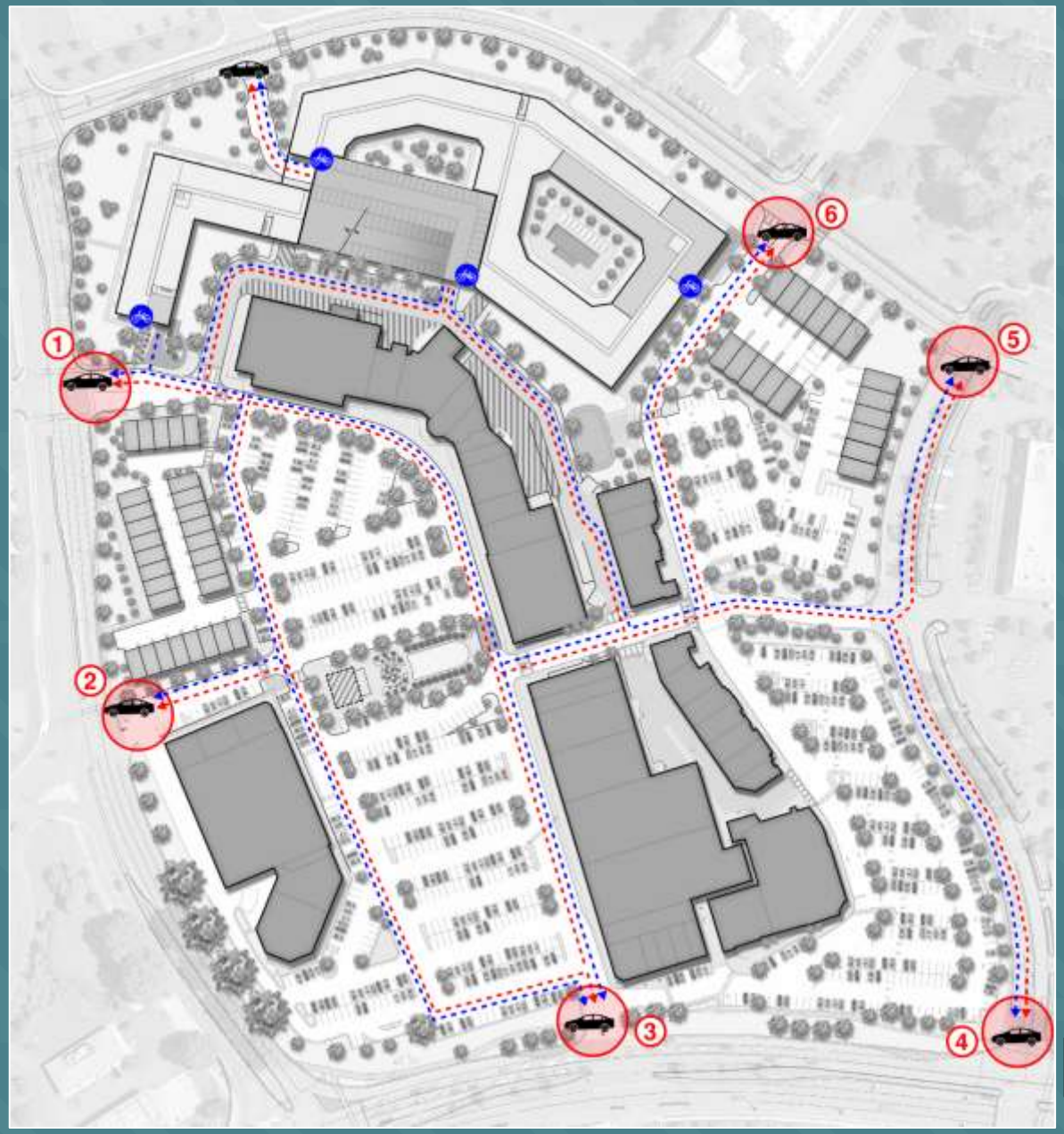
- Observations showed limited queuing of vehicles along Oak Springs Dr at the existing Highland School access point, even during peak times
- The school has multiple pickup/drop-off locations and two entrances, which helps distribute the traffic




Overall, the traffic impacts from the proposed development are not anticipated to significantly disrupt or impede the normal operations of Highland School

# HIGHLAND SCHOOL TRAFFIC

- Residents of Warrenton Village Center will want to avoid traffic as much as those dropping off/picking up students at Highlands School
- The site provides 6 alternative points of ingress/egress for vehicles and bicycles that will be the preferable route of travel during peak traffic hours to avoid congestion on Oak Springs Drive
- These alternative points of ingress/egress will further reduce what the Traffic Impact Analysis has determined to be minimal conflicts to the Highland School traffic



# ROAD IMPROVEMENTS



Turn Lane Warrant Analysis:

- No new turn lanes warranted at proposed site access points per VDOT standards
- No new turn lanes recommended to be constructed by the development

Signal Warrant Analysis:

- Signal warrant analysis performed for Broadview Ave/Oak Springs Rd intersection
- Traffic volumes do not meet MUTCD signal warrants, so signalization is not recommended
- Unsignalized operations projected to function acceptably at LOS C or better

**The Warrenton Village Center development does not necessitate any additional roadway improvements beyond what is already planned by VDOT and the Town**

# SUMMARY OF IMPACTS

Additional Traffic:

- The proposed 386 residential units will generate 154 new trips in the AM peak and 197 in the PM peak hour
- This equates to about 4% of the current traffic on most surrounding roadways

Dispersed Access Points:

- Multiple entry/exit locations directly to Oak Springs Dr and through shopping center driveways
- Distributes new trips across the road network, avoiding concentration at a single point

# SUMMARY OF IMPACTS

Leveraging Existing and Planned Infrastructure:

- The mixed-use nature of the development will help reduce external trips generated, as some trips can be captured internally
- Surrounding street grid offers multiple route choices, dispersing trips
- Planned roundabout will improve operation at Rt 29/211 and Broadview Ave
- Capacity analysis confirms surrounding intersections and roads can accommodate the new traffic with minimal impact

Outcome:

- The Warrenton Village Center development would improve walkability, vibrancy, and housing choices, with a marginal increase in traffic that does not warrant new road improvements

# SCHOOLS

# PROJECTED STUDENTS

Warrenton Village Center Projection at Full Buildout and Occupancy:

- Block 1: 320 apartments x 0.20 = 64 students
- Block 2: 36 attached dwellings x 0.45 = 16
- Block 3: 30 attached dwellings x 0.45 = 14
- Total proposed students = 94

- Allocation per school:
  - Bradley (52%) = 49
  - Taylor (22%) = 21
  - FHS (26%) = 24

# NEW STUDENTS VS. AVAILABLE CAPACITY

- Bradley
  - New students = 49
  - Available Capacity (min.) = 225
- Taylor/Warrenton Middle
  - New students = 21
  - Available Capacity (min.) = 243
- FHS
  - New students = 24
  - Available Capacity (min.) = 464

| | | *Actuals* | *% of Capacity* | *Projections* | | | | |
|---|---|---|---|---|---|---|---|---|
| **Bradley Elementary School** | | | | | | | | |
| Max Capacity | 588 | | | | | | | |
| | | *2023-24* | | *2024-25* | *2025-26* | *2026-27* | *2027-28* | *2028-29* |
| Enrollment | | 349 | 59.4% | 341 | 354 | 355 | 363 | 360 |
| Available Capacity | | 239 | | 247 | 234 | 233 | 225 | 228 |
| **Taylor/Warrenton Middle School** | | | | | | | | |
| Max Capacity | 850 | *School Year 2023-24* | | *2024-25* | *2025-26* | *2026-27* | *2027-28* | *2028-29* |
| Enrollment | | 607 | 71.4% | 607 | 601 | 569 | 601 | 606 |
| Available Capacity | | 243 | | 243 | 249 | 281 | 249 | 244 |
| **Fauquier High School** | | | | | | | | |
| Max Capacity | 1,634 | *School Year 2023-24* | | *2024-25* | *2025-26* | *2026-27* | *2027-28* | *2028-29* |
| Enrollment | | 1,122 | 68.7% | 1,089 | 1,111 | 1,153 | 1,147 | 1,170 |
| Available Capacity | | 512 | | 545 | 523 | 481 | 487 | 464 |
| **COMBINED** | | | | | | | | |
| Max Capacity | 3,072 | *School Year 2023-24* | | *2024-25* | *2025-26* | *2026-27* | *2027-28* | *2028-29* |
| Enrollment | | 2,078 | 67.6% | 2,037 | 2,066 | 2,077 | 2,111 | 2,136 |
| Available Capacity | | 994 | | 1,035 | 1,006 | 995 | 961 | 936 |

# AFFORDABLE HOUSING

# AFFORDABLE DWELLING UNITS



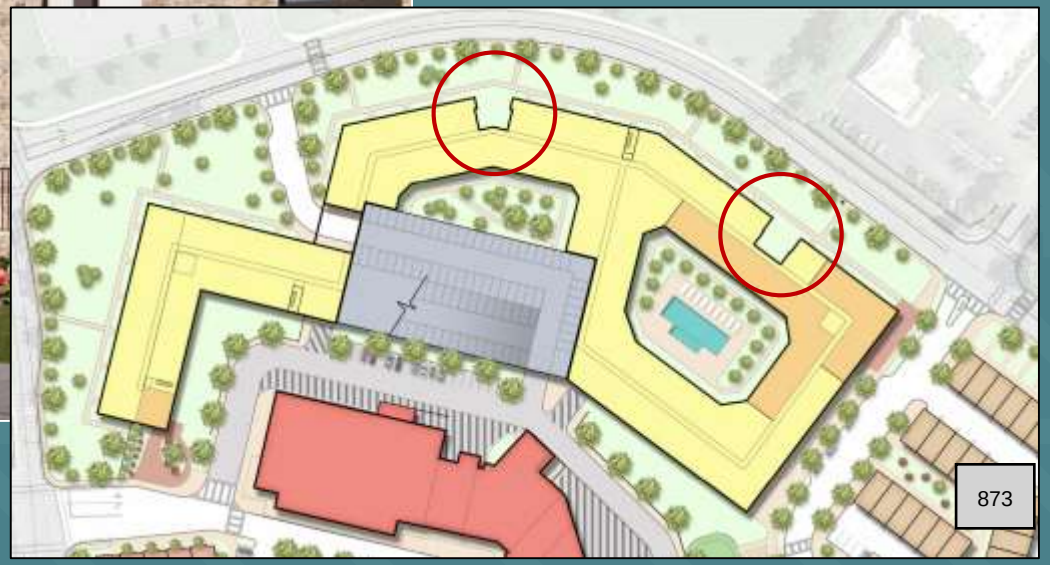
- ADU Unit Counts:
  - 80% AMI ADUs: 39 units
  - 70% AMI ADUs: 10 units
  - 60% AMI ADUs: 5 units
  - TOTAL ADUs: 54 units (14% of total proposed units)
- Income and rent limits will be in accordance with the current Multifamily Tax Subsidy Program (MTSP) Income and Rent Limits for Fauquier County as published by the Virginia Housing (formerly VHDA).

# ARCHITECTURE

# BLOCK 1 BUILDING “INSETS”







# RESIDENTIAL BLOCK 1 – *WEST FACING ELEVATION FROM HASTINGS LANE*






# RESIDENTIAL BLOCK 1 – *EAST FACING ELEVATION FROM BROADVIEW AVE*






# RESIDENTIAL BLOCK 1 – *SOUTH FACING ELEVATION FROM OAK SPRINGS DRIV*






# RESIDENTIAL BLOCK 1 – *SOUTH FACING ELEVATION FROM OAK SPRINGS D*






# RESIDENTIAL BLOCK 2








# RESIDENTIAL BLOCK 3








# ARCHITECTURAL OPTION 1



*Leasing entrance at intersection of Oaks Springs Drive & Hastings Lane*



# ARCHITECTURAL OPTION 2

*Leasing entrance at intersection of Oaks Springs Drive & Hastings Lane*



# ARCHITECTURAL OPTION 1



*View from intersection of Oaks Springs Drive & Hasting Lane*
**Block 1 (Apartment Bldg.) on right; Block 2 (2-Over-2s) on left*



# ARCHITECTURAL OPTION 2



*View from intersection of Oaks Springs Drive & Hasting Lane*
**Block 1 (Apartment Bldg.) on right; Block 2 (2-Over-2s) on left*



# ARCHITECTURAL OPTION 1



*View from intersection of Oaks Springs Drive & Broadview Avenue*



# ARCHITECTURAL OPTION 2



*View from intersection of Oaks Springs Drive & Broadview Avenue*



# ARCHITECTURAL OPTION 1

*View from Broadview Avenue entrance into Warrenton Village Center*



# ARCHITECTURAL OPTION 2

*View from Broadview Avenue entrance into Warrenton Village Center*



# ARCHITECTURAL OPTION 1

*View from Hastings Lane out towards Oaks Springs Drive entrance*
**Block 1 (Apartment Bldg.) on left; Block 2 (Townhomes) on right*



# ARCHITECTURAL OPTION 2

*View from Hastings Lane out towards Oaks Springs Drive entrance*
**Block 1 (Apartment Bldg.) on left; Block 2 (Townhomes) on right*



# ARCHITECTURAL OPTION 1

*View from within Center out towards Broadview Avenue entrance*
**Block 1 (Apartment Bldg.) on right; Block 3 (Townhomes) on left*



# ARCHITECTURAL OPTION 2

*View from within Center out towards Broadview Avenue entrance*
**Block 1 (Apartment Bldg.) on right; Block 3 (Townhomes) on left*



# ARCHITECTURAL OPTION 1





*View from Oak Springs Drive*

# ARCHITECTURAL OPTION 2



*View from Oak Springs Drive*

# ARCHITECTURAL OPTION 1





*View from Broadview Avenue*

# ARCHITECTURAL OPTION 2





*View from Broadview Avenue*

Office of the Town Manager
Frank Cassidy

# STAFF REPORT

**Warrenton Town Council**
Carter Nevill, Mayor
Heather Sutphin, Ward 1
William Semple, Ward 2
Brett Hamby, Ward 3
James Hartman, Ward 4 Vice Mayor
Eric Gagnon, Ward 5
Paul Mooney, At Large
David McGuire, At Large

| | |
|---|---|
| **Council Meeting Date:** | July 9th, 2024 |
| **Agenda Title:** | Rezoning REZN-23-021163, Wargo Properties, LLC (Owner/Applicant) – Wargo Property |
| **Requested Action:** | Initiate Amendment of Tri-Party Agreement |
| **Department / Agency Lead:** | Public Utilities |
| **Staff Lead:** | Steven Friend, Staff |

## EXECUTIVE SUMMARY

Wargo Properties, LLC is requesting to amend the zoning ("rezone") of PIN 6984-95-2640-000 from R-1 to R-4. Rezoning the subject parcel will allow an increase in residential lot density from the existing one (1) allowable dwelling to a total of six (6) dwellings, similar and compatible with the adjacent properties, particularly Millfield Subdivision and White's Mill. This increase to density was not part of nor factored into the most recent 2022 capacity study that was completed by staff and WRA.

## BACKGROUND

Currently the property is zoned R-1 (Residential District, 1 Dwelling Unit/Acre) and consists of one (1) owner-occupied single-family residence and detached garage, once rezoned, the applicant proposes that the subject parcel will be subdivided into six (6) – 10,000 SF (minimum) single-family residential lots as shown on the attached Conceptual Subdivision Plan.
The proposed subdivision will be developed in accordance with all R-4 zoning district requirements.

## STAFF RECOMMENDATION

Due to not being factored into the capacity study staff recommend that any request to amend the Tri-Party Agreement or additional service requests be thoroughly vetted prior to any approval that would increase density. At this time staff recommends that any increase in density be postponed until all modernizations to the facilities and a system wide capacity study is completed.

## Service Level/Collaborative Impact

Adoption of rezoning will increase the density of allowable homes increasing the demand of water, sewer, infrastructure maintenance, and meter reads.

## Policy Direction/Warrenton Plan 2040

Community Facilities Goals
CF-4 Ensure healthy, safe, adequate water and wastewater services.

## Fiscal Impact

Cost association in relation to added water and wastewater treatment, infrastructure and meter maintenance, and utility billing.

## Legal Impact

Review of Tri-Party Agreement

## ATTACHMENTS

1. Statement of Justification
2. Concept Development Plan
3. Tri-Part Modification Letter Request
4. Related Emails

# *Rezoning*
# *STATEMENT OF JUSTIFICATION*
# *REZN-23-021163*

## PIN 6984-95-2640-000
## 6415 Academy Hill Road

## Fauquier County, Virginia

*Applicant:*

*Wargo Properties, LLC*
*6415 Academy Hill Road*
*Warrenton, Virginia 20187*

*Prepared By:*

*Hinchey & Baines, PLC*
*R. Lee Baines, P.E.*
*125 East Davis Street*
*Suite 201*
*Culpeper, Virginia 22701*
*(540) 829-2220*

*November 2023*

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**Land Use**

*Existing Zoning and Use*

*Proposed Zoning and Use*

**Site Design**

**Access and Transportation**

*Trip Generation*

**Environment**

**Comprehensive Plan Compliance**

**ATTACHMENTS**

Photo of site (Google Maps – Street View)
Aerial with topography Map (Fauquier County GIS)
Zoning Map (Fauquier County GIS)
Future Land Use Map (Fauquier County GIS)
Warrenton Service District Map (Fauquier County GIS)
Wetlands Potential Map (National Wetlands Inventory Mapper)
Soils Map (USDA Web Soil Survey)
Hydrologic Soils Group Map (USDA Web Soil Survey)
Shrink-Swell Potential Map (Fauquier County GIS)

## REZONING REQUEST OVERVIEW

Wargo Properties, LLC is requesting to amend the zoning ("rezone") of PIN 6984-95-2640-000 from R-1 to R-4. Rezoning the subject parcel will allow residential lot density that is similar and compatible with the adjacent properties, particularly Millfield Subdivision and White's Mill.

## SITE DESCRIPTION

| PIN | Current Owner | Zoning District | Acreage |
|---|---|---|---|
| 6984-95-2640 | Wargo Properties LLC | R-1 | 1.68 |

| | |
|---|---|
| Current Zoning District: | R-1 (Residential District, 1 Dwelling Unit/Acre) |
| Current Use: | Single-Family Residential |
| Service District: | Warrenton |
| Magisterial District: | Cedar Run |
| Elementary School District: | Smith |
| Middle School District: | Taylor/Warrenton |
| High School District: | Kettle Run |
| Agricultural/Forestal: | No |
| FEMA Floodplain: | No |
| Shrink Swell Soil Potential: | Moderate |

The property is bounded on the north by Academy Hill Road, on the east by dedicated open space for Woods of Warrenton and on the south and west by Millfield Subdivision.

## LAND USE

### *Existing Zoning and Use*

Currently the property is zoned R-1 (Residential District, 1 Dwelling Unit/Acre) and consists of one (1) owner-occupied single-family residence and detached garage.

No Special/Overlay Districts apply to the subject parcel.
The subject parcel is located within the Warrenton Service District.

### *Proposed Zoning and Use*

The applicant proposes changing the zoning to R-4 (Residential District, 4 Dwelling Units/Acre).

Once rezoned, the applicant proposes that the subject parcel will be subdivided into six (6) – 10,000 SF (minimum) single-family residential lots as shown on the attached Conceptual Subdivision Plan. This lot size and density is similar and compatible with the adjacent Millfield Subdivision.

The proposed subdivision will be developed in accordance with all R-4 zoning district requirements.

## SITE DESIGN

In general, the site will be developed consistent with Millfield Subdivision.

Major Watters Lane will be extended from its current temporary cul-de-sac in the Millfield Subdivision and connected to Academy Hill Road. Major Watters Lane right-of-way, street cross-section will be maintained.

Domestic water and sanitary sewer systems within Millfield Subdivision will be extended into the subject parcel to serve all proposed lots. The water and sanitary sewer systems will be dedicated to the Town of Warrenton.

Stormwater management (quantity) will be provided in the existing stormwater management facility located in the Millfield Subdivision. Stormwater management (quality) will likely be provided by purchasing water quality credits from an accredited nutrient bank.

## ACCESS AND TRANSPORATION

The applicant proposes to extend Major Watters Lane from its current temporary terminus and connect it with Academy Hill Road. Major Watters Lane was constructed as part of Millfield Phase 4 and terminated at the common property line with the subject parcel with a temporary turn-around and future road extension sign.

### *Trip Generation*

The proposed development will generate approximately 60 vehicles per day (10 vehicles per day per lot). A total of 220 vpd are anticipated at the proposed Major Watters Lane/Academy Hill Road intersection. These trips include traffic from 16 existing lots in Millfield and the 6 proposed lots on the Wargo property (22 lots x 10 vpd/lot). Since total number of trips are less than 400 vpd, the proposed road extension will remain as a local subdivision road. The trips from the existing Millfield lots will reduce the total trips to the Millfield Drive/Academy Hill Road intersection and reduce interior traffic within the Millfield Subdivison.

## ENVIRONMENT

National Wetlands Inventory mapping indicates that there are no potential wetland areas on the subject parcel, therefore, impacts to environmentally sensitive areas are not anticipated. If areas of concern are discovered, site design techniques will be utilized to avoid and or minimize impacts to any environmentally sensitive areas on or adjacent to the property.

Stormwater Management for any developed areas, if required, will comply with Fauquier County Stormwater Management Ordinance and Virginia Stormwater Management Regulations. Natural drainage patterns will be maintained.

## COMPREHENSIVE PLAN COMPLIANCE

The Introduction of the Fauquier County Comprehensive Plan states: *"The Fauquier County Comprehensive Plan presents a long-range vision for the County. The Comprehensive Plan sets forth a guide for development within the County to promote, preserve and protect the health, safety and general welfare of its citizens. The purpose of this document is not to regulate, but rather to guide land use, transportation, infrastructure and resources decisions. The*

*Comprehensive Plan is a vital tool in understanding and influencing outcomes, by providing direction to protect resources and permit orderly development, ensuring a continued quality of life for the citizens and businesses of Fauquier County."*

*Guiding Principle B: The County's unique communities, from rural and agricultural to village settlements to urbanized, are integral to the County's collective identity.*
The proposed rezoning and development supports Policy #2, #3 and #5 under this Guiding Principle.

*Policy #2: Focus development within the areas of the County designated to have the infrastructure to serve higher density and intensity development.*
The subject parcel is within the Warrenton Service District. Water and sewer services are readily available to the site.

*Policy #3: Accommodate housing needs for all stages of life. This would involve a range of housing from affordable and accessible units for singles and young families just entering the housing market in the form of multi-family, townhouses and small single-family homes to larger homes as well as active adult and assisted care facilities.*
The proposed development offering 10,000 SF lots provides for affordable and accessible housing options.

*Policy #5: Provide quality recreational and cultural opportunities.*
The subject parcel is directly adjacent to Warrenton Greenway Open Space and Linear Trail System.

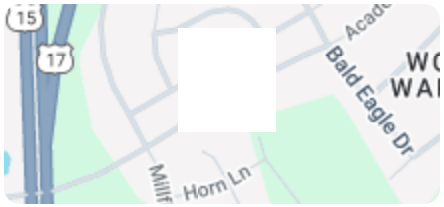
Item C.

# 6430 Academy Hill Extended

6415 Academy Hill Road




Image capture: Jun 2022 © 2023 Google




903

# Aerial with Topography Map






11/16/2023, 12:30:13 PM

1:1,128

0 0.01 0.01 0.03 mi

0 0.01 0.02 0.04 km

Road Centerlines_without labels_1K
- MAJOR
- MINOR; RAMP
- COUNTY
- LOCAL
- PRIVATE
- TaxParcel_1K

Encumbrances_1K
Railroad_1K
Current
Municipal
School Location_1K
5' Contours

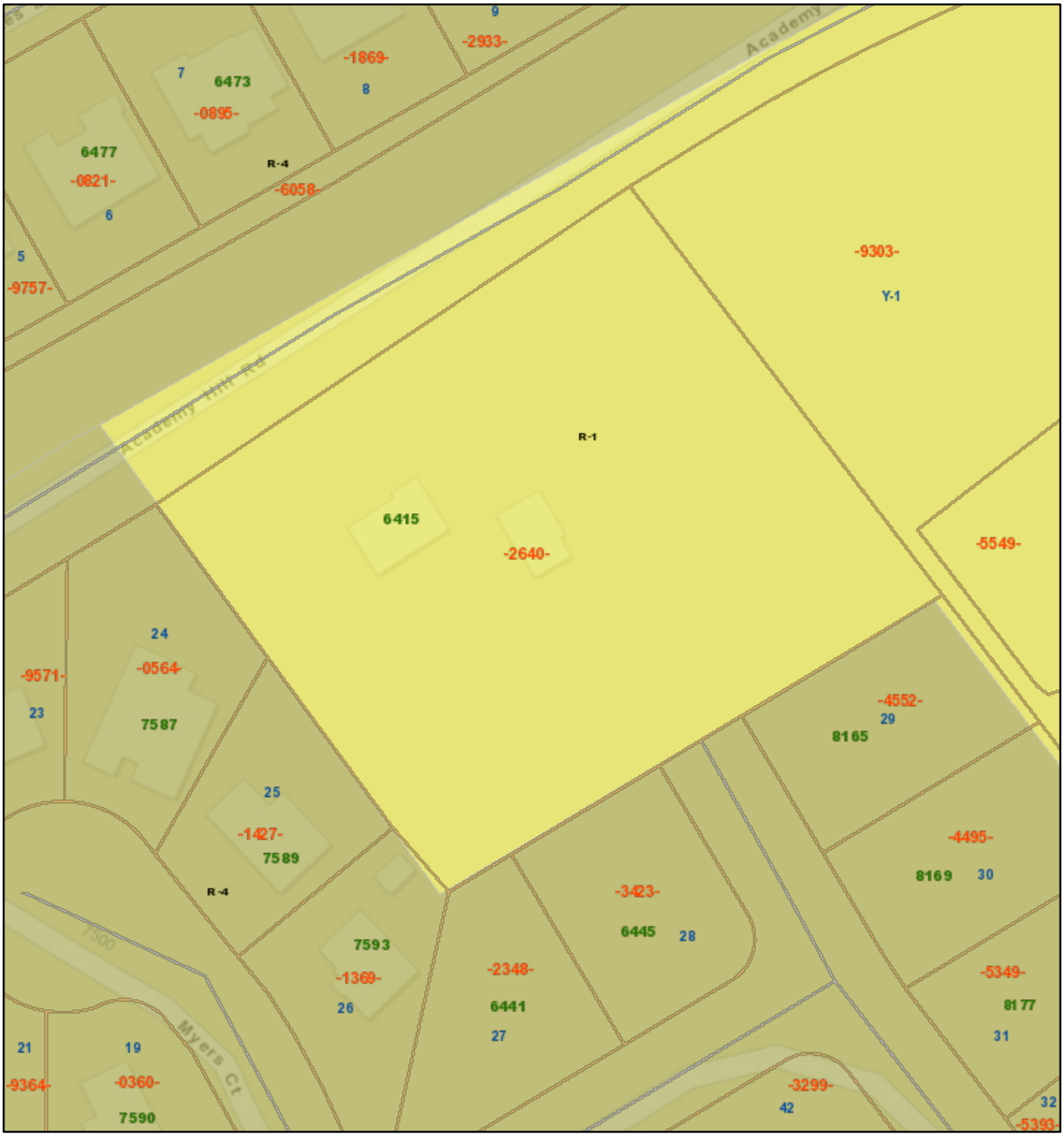
Maxar, Microsoft, Bloomfield Township MI, Esri., Inc.



Fauquier County GIS
Bloomfield Township MI, Esri., Inc. | Maxar, Microsoft |

# Current Zoning Map



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0 0.01 0.02 0.04 km

Road Centerlines_without labels_1K
- MAJOR
- MINOR; RAMP
- COUNTY
- LOCAL
- PRIVATE
- TaxParcel_1K
- Encumbrances_1K
- Railroad_1K
- Current
- Municipal
- School Location_1K

Zoning Districts
- Rural Agricultural
- Rural Conservation
- Village
- Rural Residential
- Residential -1 Dwelling Units/Acre
- Residential -2 Dwelling Units/Acre
- Residential -4 Dwelling Units/Acre
- Townhouse
- Manufactured Dwelling Park
- Garden Apartment
- Marshall Residential
- Marshall Town
- Marshall Gateway
- Planned Residential Development
- Commercial Village
- Commercial Neighborhood
- Commercial Highway
- Shopping Center, Community/Regional
- Business Park
- Industrial Park
- Industrial General
- Planned Commercial Industrial Development
- Mixed Use Bealeton

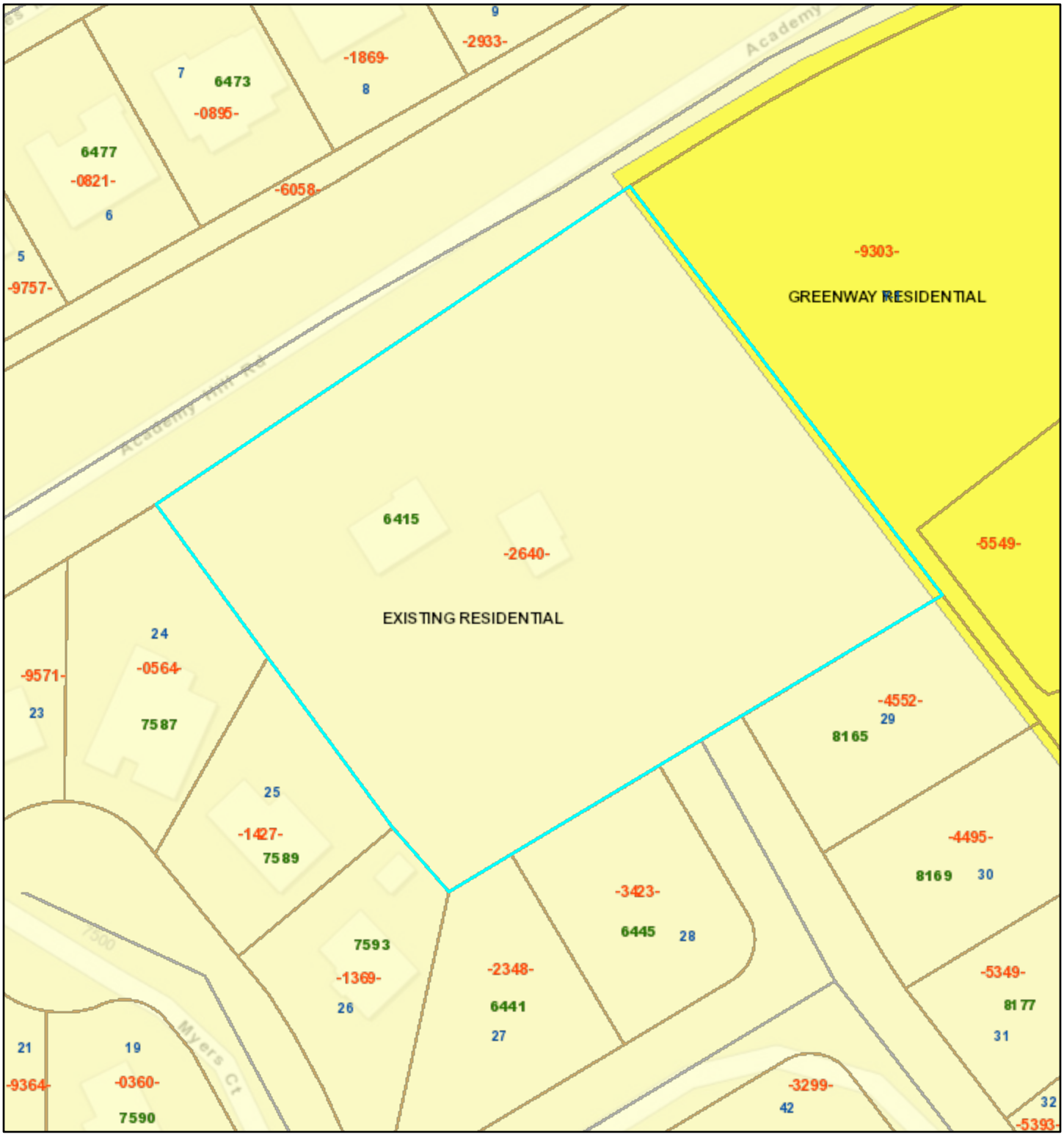
Bloomfield Township MI, Esri., Inc., VITA, Esri, HERE, Garmin, INCREMENT P, NGA, USGS



Fauquier County GIS
Bloomfield Township MI, Esri., Inc. | VITA, Esri, HERE, Garmin, INCREMENT P, NGA, USGS |

# Future Land Use Map



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0 0.01 0.01 0.03 mi

0 0.01 0.02 0.04 km

Road Centerlines_without labels_1K
- MAJOR
- MINOR; RAMP
- COUNTY
- LOCAL
- PRIVATE
- TaxParcel_1K
- Encumbrances_1K
- Railroad_1K

Current
- Municipal
- School Location_1K

Warrenton Service District
- EXISTING RESIDENTIAL
- GREENWAY RESIDENTIAL
- GATEWAY RESIDENTIAL
- GREENWAY/GATEWAY RESIDENTIAL
- OPEN SPACE/PARK
- COMMERCIAL RECREATION
- COMMERCIAL HIGHWAY
- COMMUNITY BUSINESS
- WATER REMEDIATION
- FLEX INDUSTRIAL
- CAMPUS OFFICE/EMPLOYMENT
- SCHOOL
- PARK/RIDE
- GATEWAY

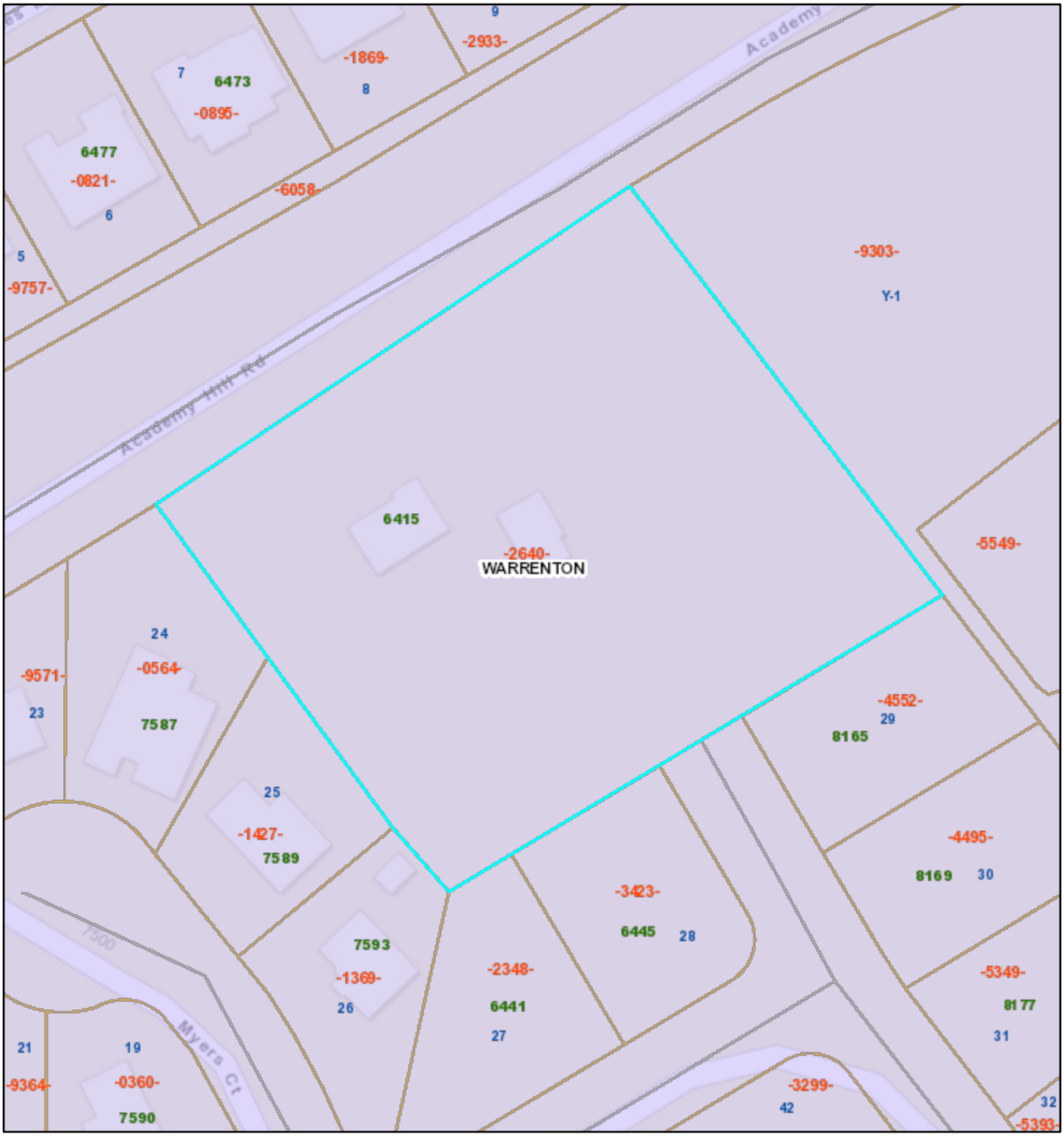
Bloomfield Township MI, Esri., Inc., VITA, Esri, HERE, Garmin, INCREMENT P, NGA, USGS



Fauquier County GIS
Bloomfield Township MI, Esri., Inc. | VITA, Esri, HERE, Garmin, INCREMENT P, NGA, USGS |

# Service District Map

Item C.




11/16/2023, 12:25:54 PM

1:1,128

0 0.01 0.01 0.03 mi

0 0.01 0.02 0.04 km

Road Centerlines_without labels_1K
- MAJOR
- MINOR; RAMP
- COUNTY
- LOCAL
- PRIVATE

TaxParcel_1K

Encumbrances_1K

Railroad_1K
- Current
- Municipal

School Location_1K

Service District Boundary
- BEALETON
- CALVERTON
- CATLETT
- MARSHALL
- MIDLAND
- NEW BALTIMORE
- OPAL
- REMINGTON
- WARRENTON

Bloomfield Township MI, Esri., Inc., VITA, Esri, HERE, Garmin, INCREMENT P, NGA, USGS



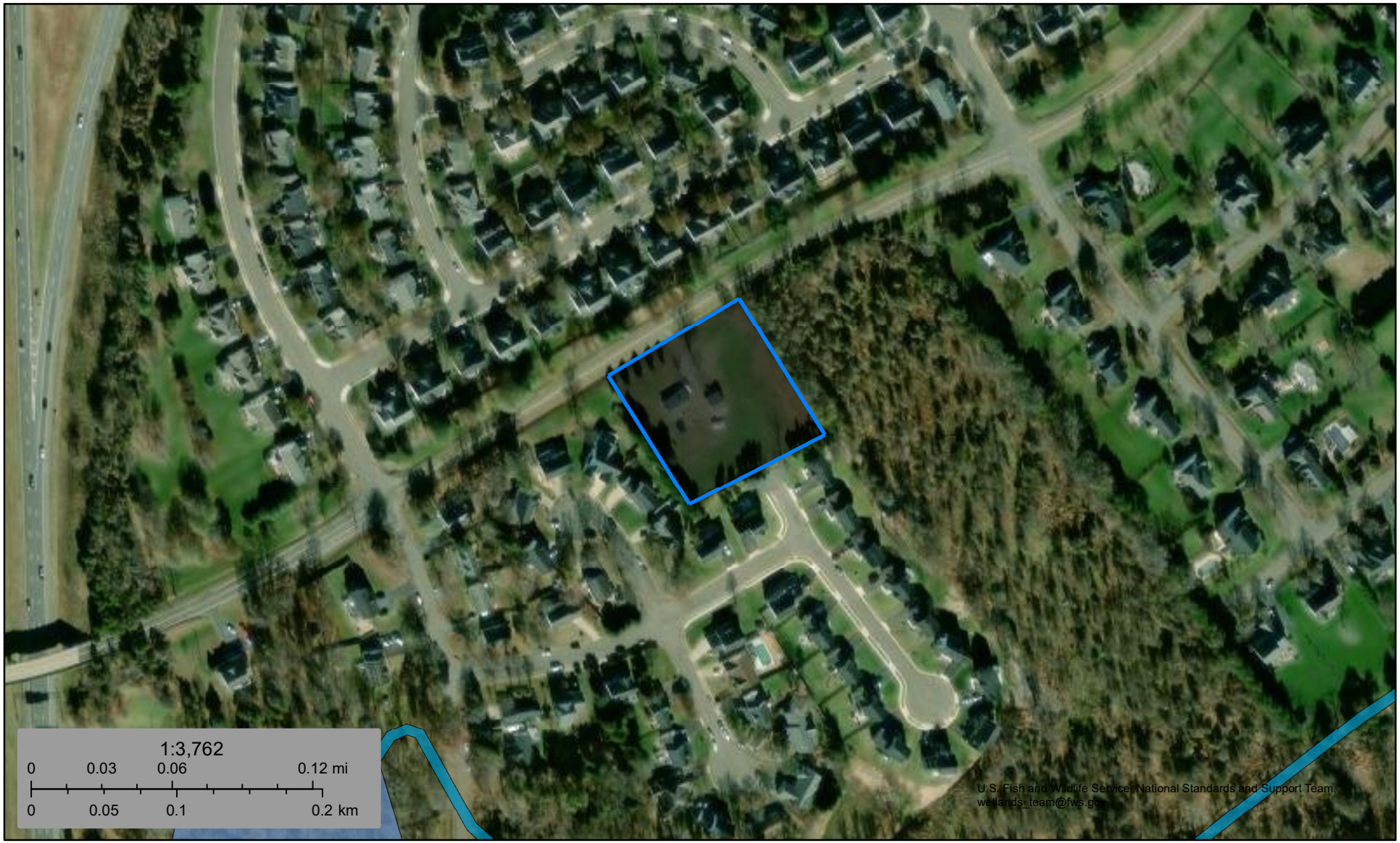
Fauquier County GIS

Bloomfield Township MI, Esri., Inc. | VITA, Esri, HERE, Garmin, INCREMENT P, NGA, USGS |

U.S. Fish and Wildlife Service
National Wetlands Inventory

# 6415 Academy Hill Road

Item C.




November 16, 2023

**Wetlands**

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.



National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Soil Map—Fauquier County, Virginia
(PIN 6984-95-2640)




Map Scale: 1:945 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 10 20 40 60

Feet
0 45 90 180 270

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

## MAP LEGEND

**Area of Interest (AOI)**

- Area of Interest (AOI)

**Soils**

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

**Special Point Features**

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

**Water Features**

- Streams and Canals

**Transportation**

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

**Background**

- Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Fauquier County, Virginia
Survey Area Data: Version 19, Aug 25, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

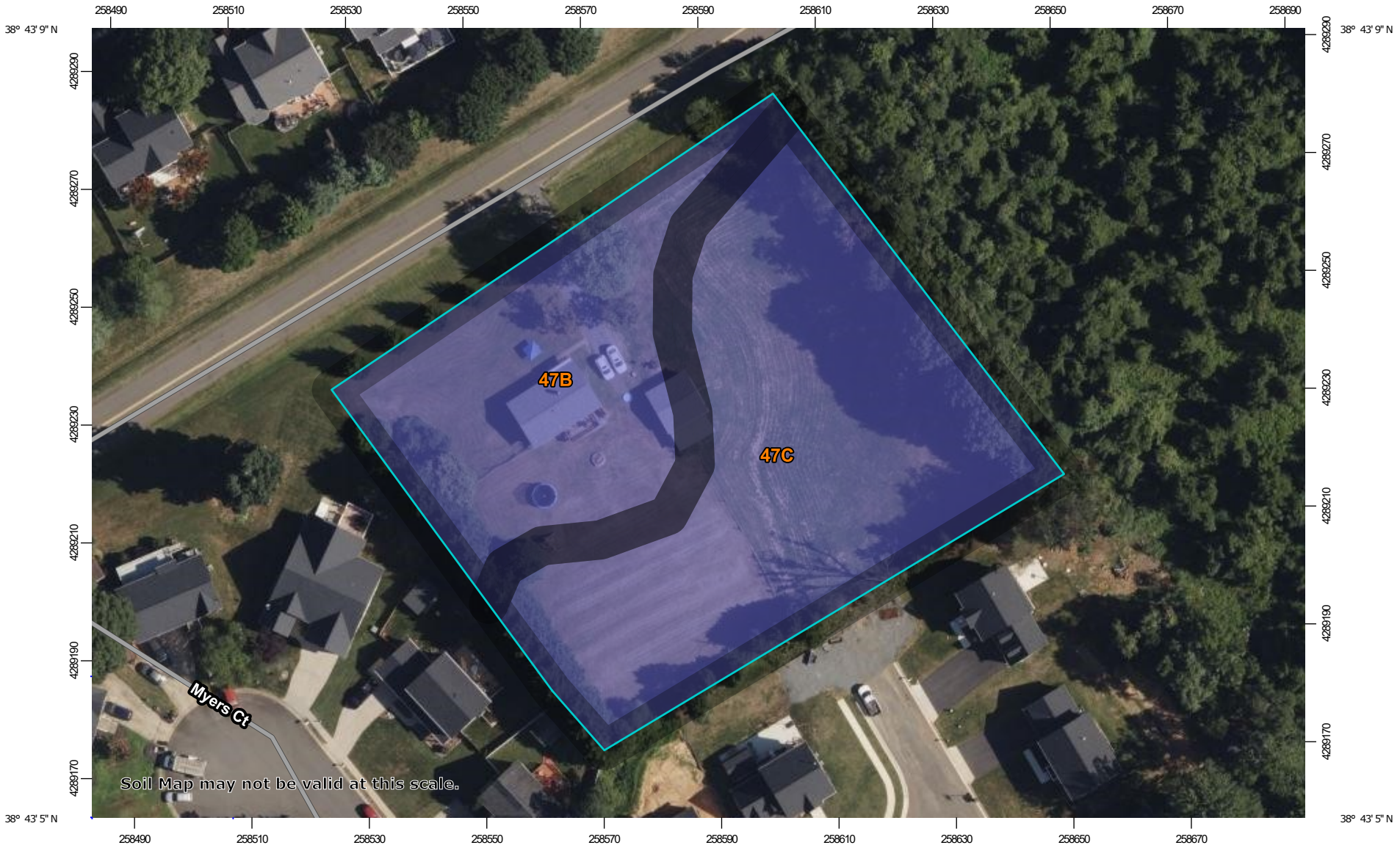
Date(s) aerial images were photographed: Jul 13, 2022—Oct 6, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

# Map Unit Legend

| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|---|---|---|---|
| 47B | Elioak-Fauquier complex, 2 to 7 percent slopes | 0.7 | 37.4% |
| 47C | Elioak-Fauquier complex, 7 to 15 percent slopes | 1.1 | 62.6% |
| **Totals for Area of Interest** | | **1.8** | **100.0%** |

Hydrologic Soil Group—Fauquier County, Virginia
(PIN 6984-95-2640)




Map Scale: 1:945 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 10 20 40 60

Feet
0 45 90 180 270

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

## MAP LEGEND

**Area of Interest (AOI)**
- Area of Interest (AOI)

**Soils**

**Soil Rating Polygons**
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

**Soil Rating Lines**
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

**Soil Rating Points**
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

**Water Features**
- Streams and Canals

**Transportation**
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

**Background**
- Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Fauquier County, Virginia
Survey Area Data: Version 19, Aug 25, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 13, 2022—Oct 6, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

# Hydrologic Soil Group

| Map unit symbol | Map unit name | Rating | Acres in AOI | Percent of AOI |
|---|---|---|---|---|
| 47B | Elioak-Fauquier complex, 2 to 7 percent slopes | B | 0.7 | 37.4% |
| 47C | Elioak-Fauquier complex, 7 to 15 percent slopes | B | 1.1 | 62.6% |
| **Totals for Area of Interest** | | | **1.8** | **100.0%** |

## Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

## Rating Options

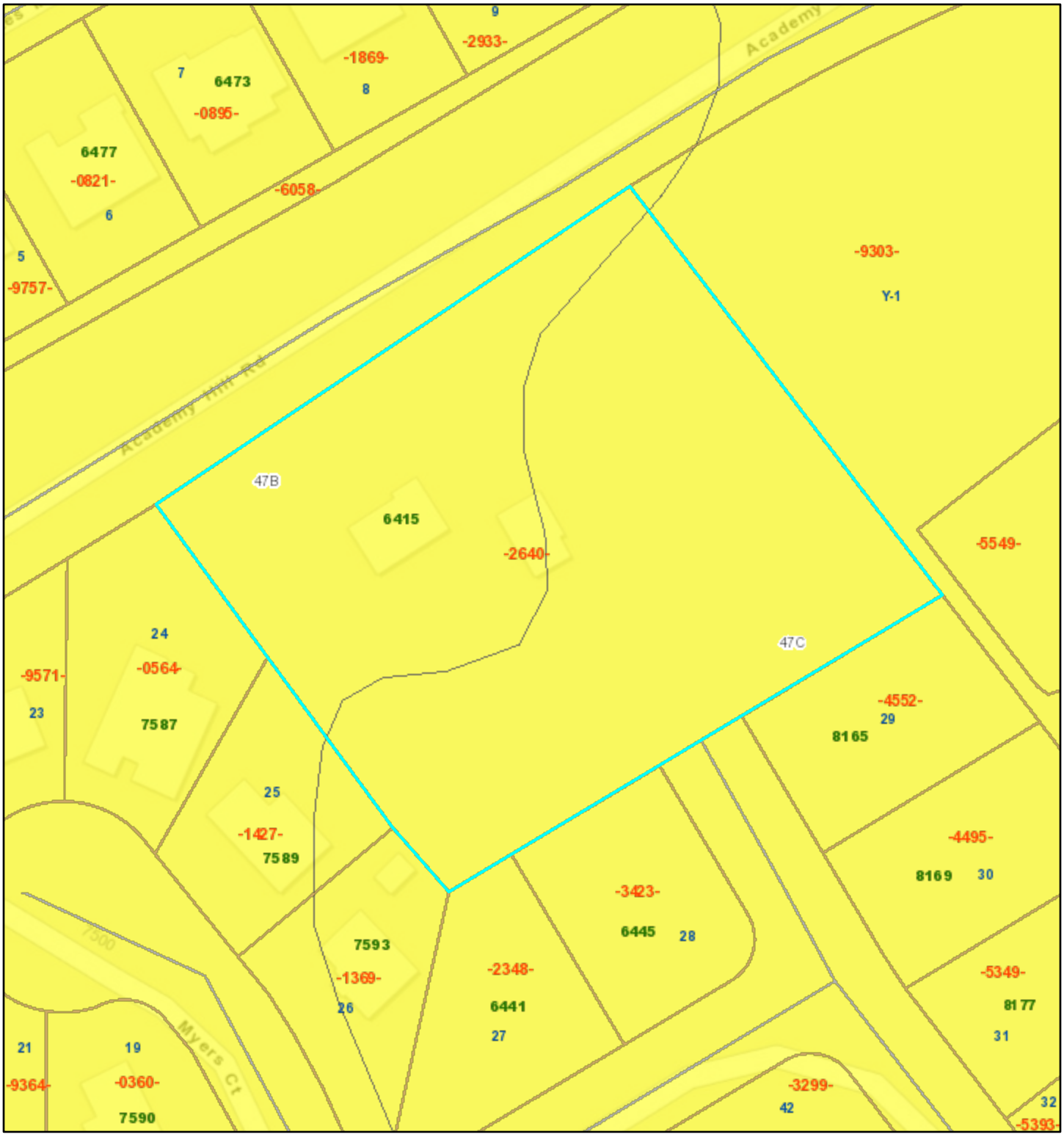
*Aggregation Method:* Dominant Condition

*Component Percent Cutoff: None Specified*

*Tie-break Rule:* Higher

# Shrink-Swell Soil Potential Map

Item C.




11/16/2023, 12:31:34 PM

1:1,128

0 0.01 0.01 0.03 mi

0 0.01 0.02 0.04 km

Road Centerlines_without labels_1K
- MAJOR
- MINOR; RAMP
- COUNTY
- LOCAL
- PRIVATE
- TaxParcel_1K

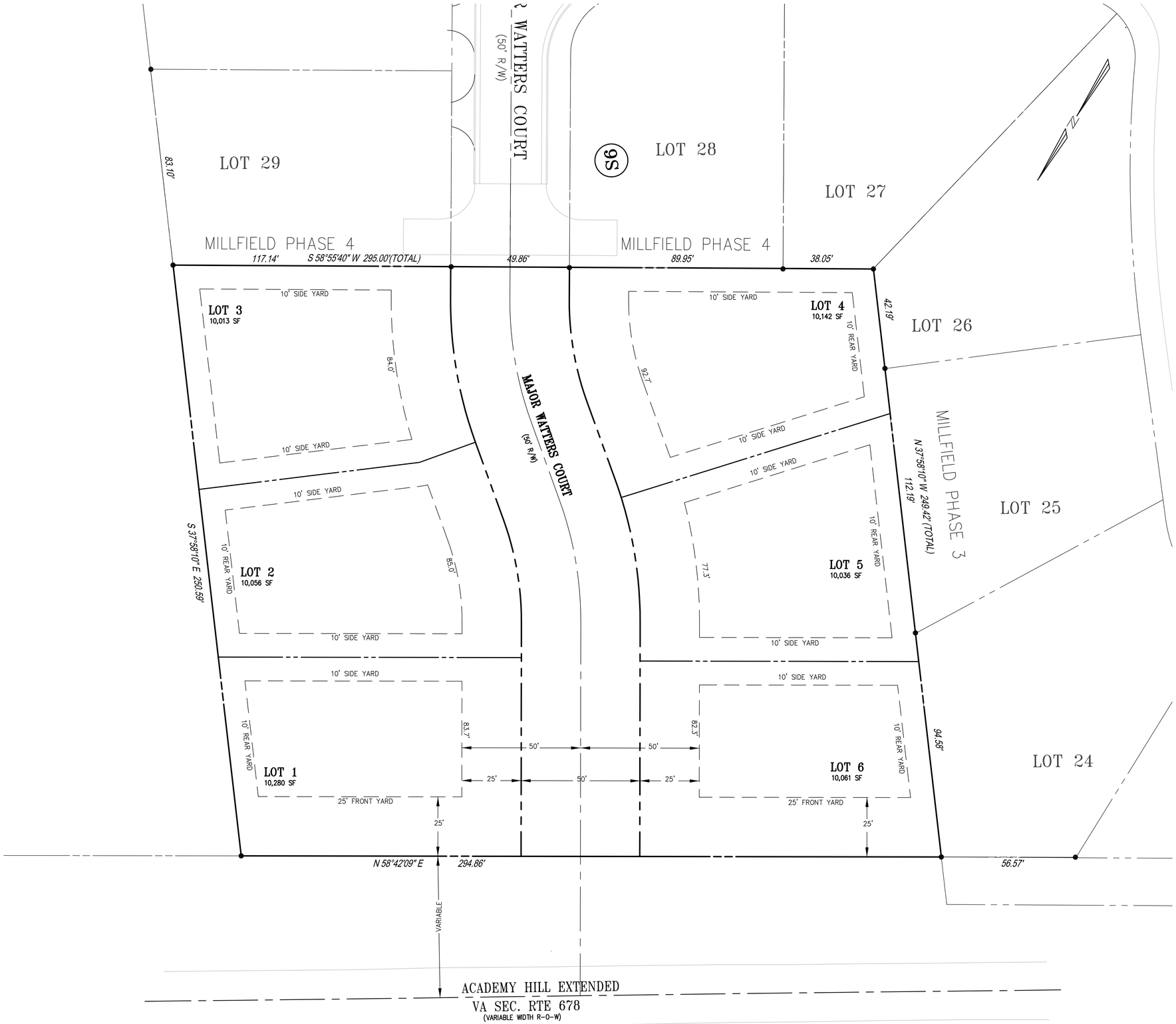
- Encumbrances_1K
- Railroad_1K
- Current
- Municipal
- School Location_1K

Soils - Shrink Swell Potential
- Low Shrink-Swell Potential
- Moderate Shrink-Swell Potential
- High Shrink-Swell Potential
- Very High Shrink-Swell Potential
- Water
- Not Rated - Variable
- Not Compiled

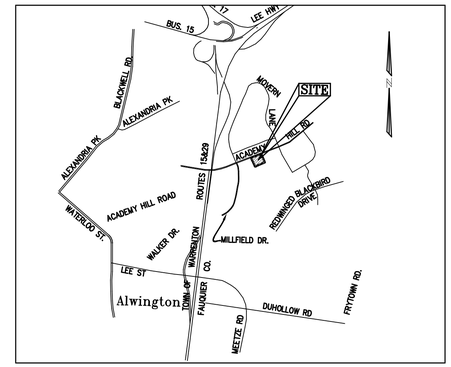
Bloomfield Township MI, Esri., Inc., VITA, Esri, HERE, Garmin, INCREMENT P, NGA, USGS



Fauquier County GIS
Bloomfield Township MI, Esri., Inc. | VITA, Esri, HERE, Garmin, INCREMENT P, NGA, USGS |




**CONCEPTUAL SUBDIVISON LAYOUT**
SCALE: 1" = 20'




**VICINITY MAP**
SCALE: 1" = 2,000'

CONCEPTUAL DEVELOPMENT PLAN FOR

# WARGO SUBDIVISION

PIN 6984-95-2640
REZN-23-021163

## PLAN NOTES

1. PARCEL IDENTIFICATION: PIN 6984-95-2640-000 (1.6808 ACRES)
2. OWNER/APPLICANT: WARGO PROPERTIES LLC
   BOB WARGO
   6415 ACADEMY HILL ROAD
   WARRENTON, VA 20187
3. PROPOSED USE/DEVELOPMENT: SIX (6) SINGLE-FAMILY RESIDENTIAL LOTS (MIN 10,000 SF)
4. BOUNDARY AND TOPOGRAPHIC INFORMATION TAKEN FROM A PLAT ENTITLED "PLAT SHOWING TOPOGRAPHIC & BOUNDARY SURVEY ON THE PROPERTY OF WARGO PROPERTIES, LLC DATED 03/23/2023 BY CARDINAL CIVIL RESOURCES.
5. CURRENT ZONING: R-1 (RESIDENTIAL DISTRICT, 1 DWELLING UNIT/AC)
   PROPOSED ZONING: R-4 (RESIDENTIAL DISTRICT, 4 DWELLING UNITS/AC)

*R-4 ZONING DISTRICT USE LIMITATIONS*

| | |
|---|---|
| MINIMUM LOT WIDTH: | 70' (CONVENTIONAL) |
| MINIMUM FRONT YARD: | 50' FROM CENTERLINE (LOCAL ROAD) |
| MINIMUM SIDE AND REAR YARD: | 10' |
| MAXIMUM BUILDING HEIGHT: | 35' |
| MINIMUM OPEN SPACE: | NOT REQUIRED PER Z.O. SEC. 2-406.1(2) |

## SHEET INDEX


1. COVER SHEET
2. TOPOGRAPHIC & BOUNDARY SURVEY
3. CONCEPTUAL SUBDIVISON PLAN
4. CONCEPTUAL GRADING PLAN
5. CONCEPTUAL LANDSCAPING PLAN
6. CONCEPTUAL STORMWATER MANAGEMENT PLAN


20 10 0 20 40
GRAPHIC SCALE
SCALE: 1" = 20'

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HINCHEY & BAINES, PLC
ENGINEERING AND LAND PLANNING
125 EAST DAVIS STREET
SUITE 201
CULPEPER, VIRGINIA 22701
PHONE (540) 829-2220
FAX (540) 829-2239


COMMONWEALTH OF VIRGINIA
RICHARD L. BAINES
LIC. NO. 040234
03/10/2024
PROFESSIONAL ENGINEER

COVER SHEET
**WARGO SUBDIVISION**
PIN 6984-95-2640-000
CEDAR RUN MAGISTERIAL DISTRICT - FAUQUIER COUNTY, VIRGINIA

SCALE: 1"=20'
DATE: 11/17/2023
REVISIONS:
3/10/24 COUNTY COMMENTS

SHEET 1 OF 6
FILE NO. 1659

Item C.
917

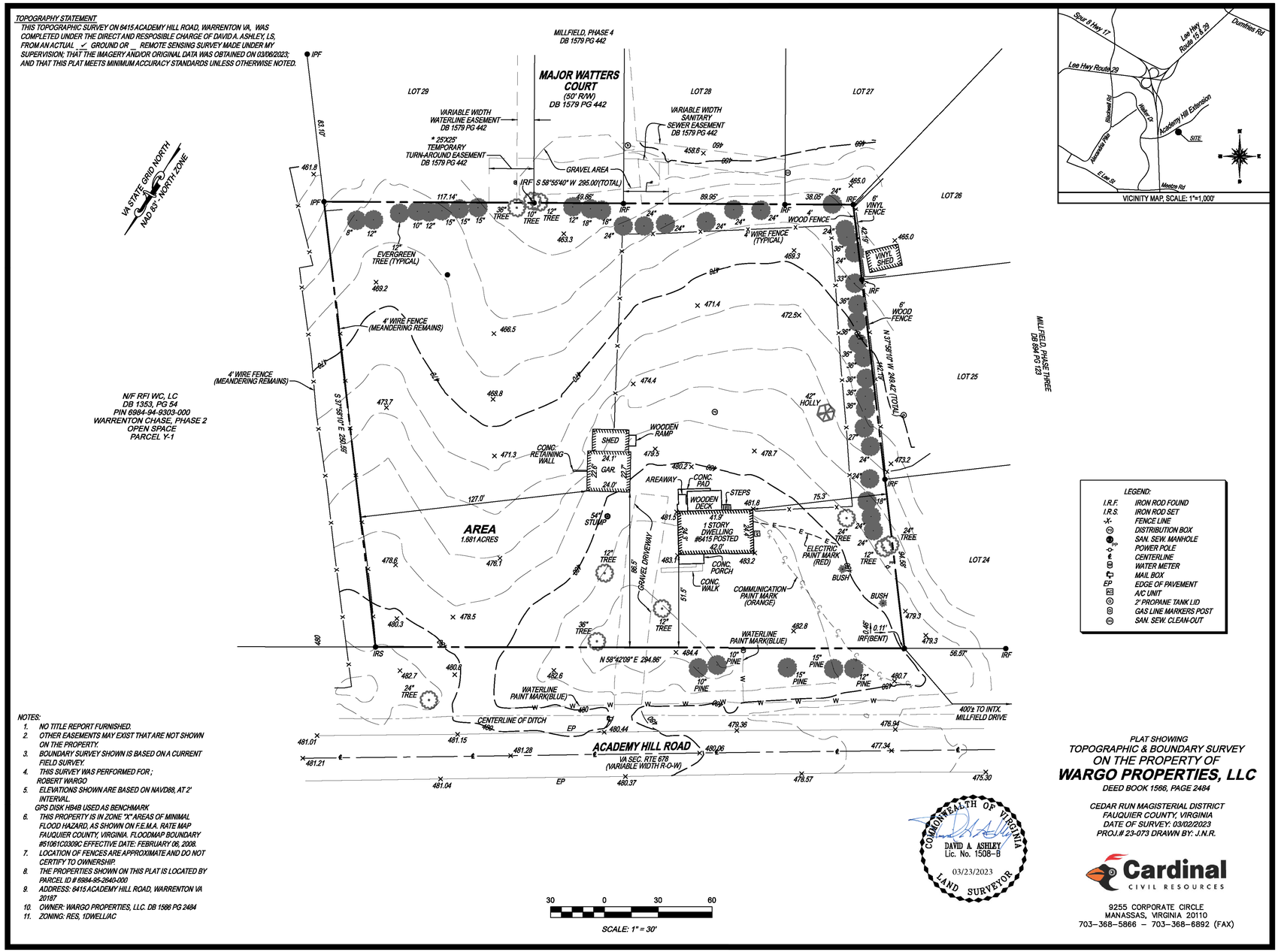
HINCHEY & BAINES, PLC
ENGINEERING AND LAND PLANNING
125 EAST DAVIS STREET
SUITE 201
CULPEPPER, VIRGINIA 22701
PHONE (540) 829-2220
FAX (540) 829-2239

TOPOGRAPHIC & BOUNDARY SURVEY

**WARGO SUBDIVISION**

PIN 6984-95-2640-000

CEDAR RUN MAGISTERIAL DISTRICT – FAUQUIER COUNTY, VIRGINIA




NOTES:

1. NO TITLE REPORT FURNISHED.
2. OTHER EASEMENTS MAY EXIST THAT ARE NOT SHOWN ON THE PROPERTY.
3. BOUNDARY SURVEY SHOWN IS BASED ON A CURRENT FIELD SURVEY.
4. THIS SURVEY WAS PERFORMED FOR ; ROBERT WARGO
5. ELEVATIONS SHOWN ARE BASED ON NAVD88, AT 2' INTERVAL. GPS DISK HB4B USED AS BENCHMARK
6. THIS PROPERTY IS IN ZONE "X" AREAS OF MINIMAL FLOOD HAZARD, AS SHOWN ON F.E.M.A. RATE MAP FAUQUIER COUNTY, VIRGINIA. FLOODMAP BOUNDARY #51061C0309C EFFECTIVE DATE: FEBRUARY 06, 2008.
7. LOCATION OF FENCES ARE APPROXIMATE AND DO NOT CERTIFY TO OWNERSHIP.
8. THE PROPERTIES SHOWN ON THIS PLAT IS LOCATED BY PARCEL ID # 6984-95-2640-000
9. ADDRESS: 6415 ACADEMY HILL ROAD, WARRENTON VA 20187
10. OWNER: WARGO PROPERTIES, LLC. DB 1566 PG 2484
11. ZONING: RES, 1DWELL/AC

COMMONWEALTH OF VIRGINIA
DAVID A ASHLEY
Lic. No. 1508-B
03/23/2023
LAND SURVEYOR

PLAT SHOWING
TOPOGRAPHIC & BOUNDARY SURVEY
ON THE PROPERTY OF
**WARGO PROPERTIES, LLC**
DEED BOOK 1566, PAGE 2484

CEDAR RUN MAGISTERIAL DISTRICT
FAUQUIER COUNTY, VIRGINIA
DATE OF SURVEY: 03/02/2023
PROJ.# 23-073 DRAWN BY: J.N.R.

Cardinal CIVIL RESOURCES
9255 CORPORATE CIRCLE
MANASSAS, VIRGINIA 20110
703-368-5866 – 703-368-6892 (FAX)

SCALE: AS NOTED

DATE: 11/17/2023

REVISIONS:
3/10/24 COUNTY COMMENTS

SHEET 2 OF 6

FILE NO. 1659

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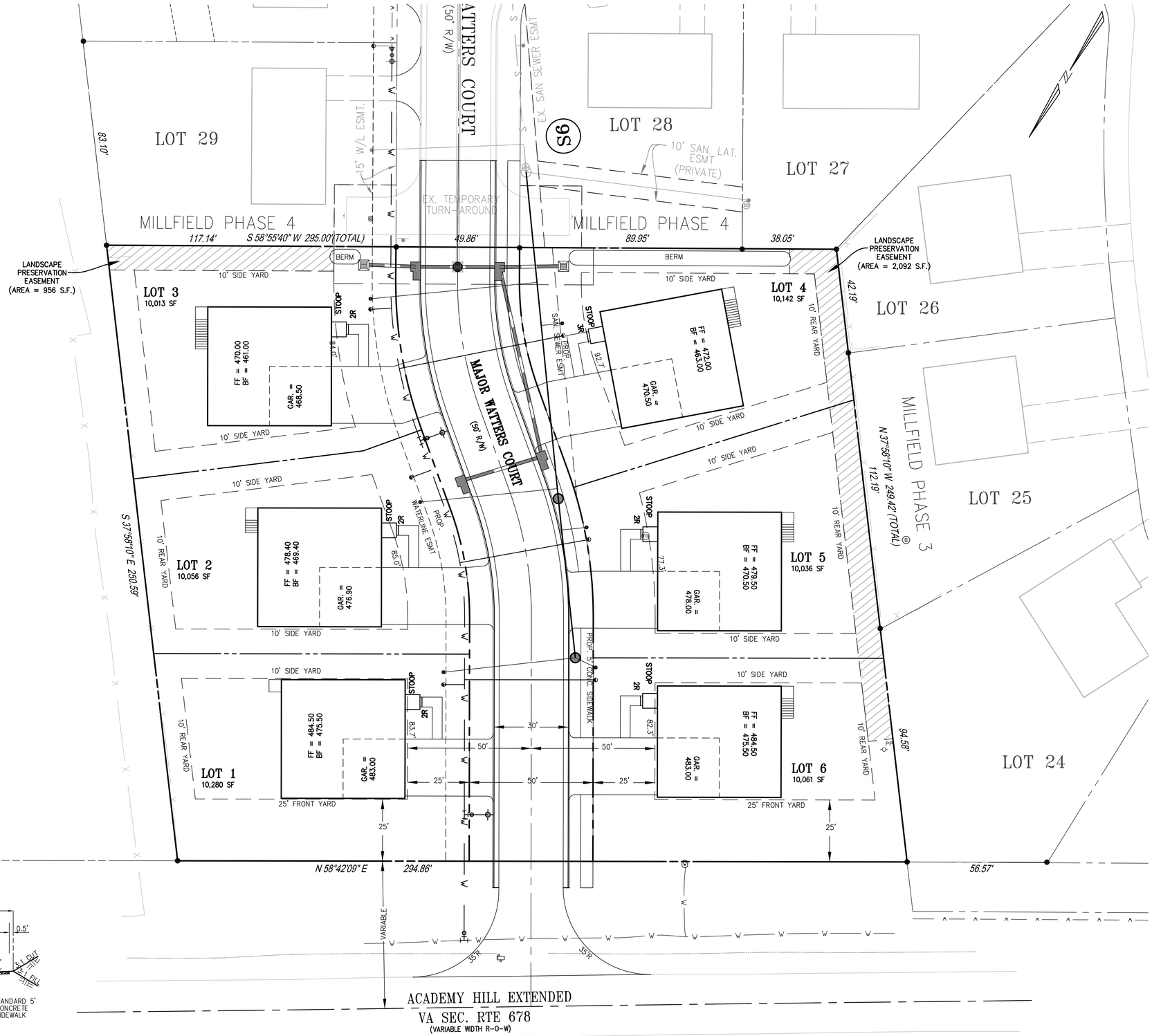
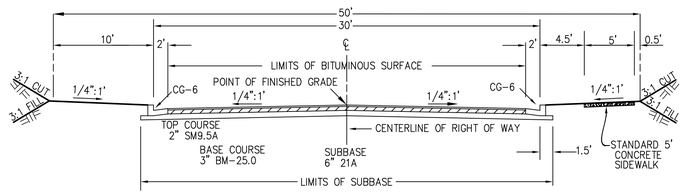



## TYPICAL STREET SECTION
## MAJOR WATTERS COURT




SUBBASE DEPTH FOR SUBGRADE BASED ON CBR VALUE OF 6, BASED ON AN ACTUAL DETERMINATION PER SOIL TEST (OR) AN ESTIMATE WHICH WILL BE REVISED ONCE THE SOIL TESTS OF THE SUBGRADE ARE PERFORMED.

SOIL TEST OF SUBGRADE MUST BE SUBMITTED FOR ACTUAL DETERMINATION OF REQUIRED SUBBASE THICKNESS PRIOR TO CONSTRUCTION.

ST'D UD-3 AND 4" MINIMUM AGGREGATE BENEATH ST'D SIDEWALK.

20 10 0 20 40
GRAPHIC SCALE
SCALE: 1" = 20'

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HINCHEY & BAINES, PLC
ENGINEERING AND LAND PLANNING
125 EAST DAVIS STREET
SUITE 201
CULPEPER, VIRGINIA 22701
PHONE (540) 829-2220
FAX (540) 829-2239

COMMONWEALTH OF VIRGINIA
RICHARD L. BAINES
LIC. NO. 040234
03/10/2024
PROFESSIONAL ENGINEER

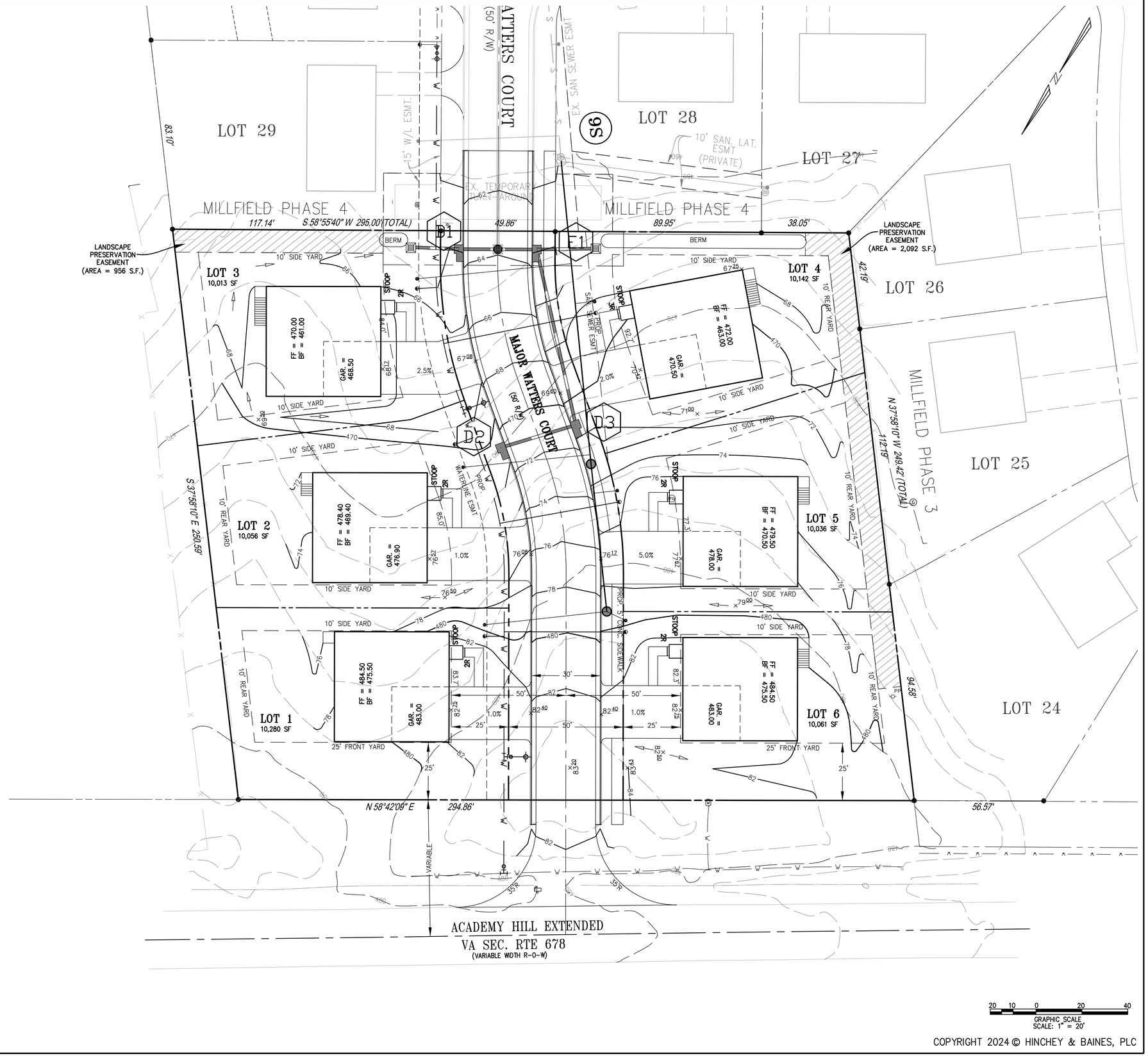
CONCEPTUAL DEVELOPMENT PLAN
**WARGO SUBDIVISION**
PIN 6984-95-2640-000
CEDAR RUN MAGISTERIAL DISTRICT - FAUQUIER COUNTY, VIRGINIA

SCALE: 1"=20'
DATE: 11/17/2023
REVISIONS:
3/10/24 COUNTY COMMENTS

SHEET 3 OF 6
FILE NO. 1659

Item C.

919




20 10 0 20 40
GRAPHIC SCALE
SCALE: 1" = 20'

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ENGINEERING AND LAND PLANNING
125 EAST DAVIS STREET
SUITE 201
CULPEPER, VIRGINIA 22701
PHONE (540) 829-2220
FAX (540) 829-2239

COMMONWEALTH OF VIRGINIA
RICHARD J. BAINES
040239
PROFESSIONAL ENGINEER
03/10/2024

# CONCEPTUAL GRADING PLAN
# WARGO SUBDIVISION
PIN 6984-95-2640-000
CEDAR RUN MAGISTERIAL DISTRICT – FAUQUIER COUNTY, VIRGINIA

SCALE: 1"=20'
DATE: 11/17/2023
REVISIONS:
3/10/24 COUNTY COMMENTS

SHEET 4 OF 6
FILE NO. 1659

## PLANT LIST

| KEY | QUANTITY | BOTANICAL NAME | COMMON NAME | CALIPER | HEIGHT | CANOPY/ SPREAD | REMARKS | TOTAL |
|---|---|---|---|---|---|---|---|---|
| TREES: | | | | | | | | |
| AR | 6 | ACER RUBRUM | RED MAPLE | 2-1/4" MIN. | 6' MIN. | 310 SF | B&B | 1,860 SF |
| AP | 6 | ACER PLATANOIDES 'CRIMSON KING' | NORWAY MAPLE | 2-1/4" MIN. | 6' MIN. | 310 SF | B&B | 1,860 SF |
| KP | 2 | KOELREUTERIA PANICULATA | GOLDENRAIN TREE | 2-1/4" MIN. | 6' MIN. | 175 SF | B&B | 350 SF |
| QC | 6 | QUERCUS COCCINEA | SCARLET OAK | 2-1/4" MIN. | 6' MIN. | 250 SF | B&B | 1,500 SF |
| | | | | TOTAL CANOPY AREA OF TREES TO BE PLANTED: | | | | 5,570 SF |

## PLANT LEGEND

**KP** — MEDIUM DECIDUOUS:
KOELREUTERIA PANICULATA/GOLDENRAIN TREE

**AR** — LARGE DECIDUOUS:
ACER RUBRUM/RED MAPLE

**AP** — LARGE DECIDUOUS:
ACER PLATANOIDES 'CRIMSON KING'/NORWAY MAPLE

**QC** — LARGE DECIDUOUS:
QUERCUS COCCINEA/SCARLET OAK

## STREET TREE PLANTING

REQUIRED: 1 CANOPY TREE PER 50 LINEAR FEET
ACADEMY HILL ROAD = 294.86' – 50' R.O.W. = 244.86'/50 = 4.90
5 TREES REQUIRED
MAJOR WATTERS COURT = 252.50' – 15' STORM SEWER EASEMENT = 237.5'/50 = 4.75
5 TREES REQUIRED (BOTH SIDES)

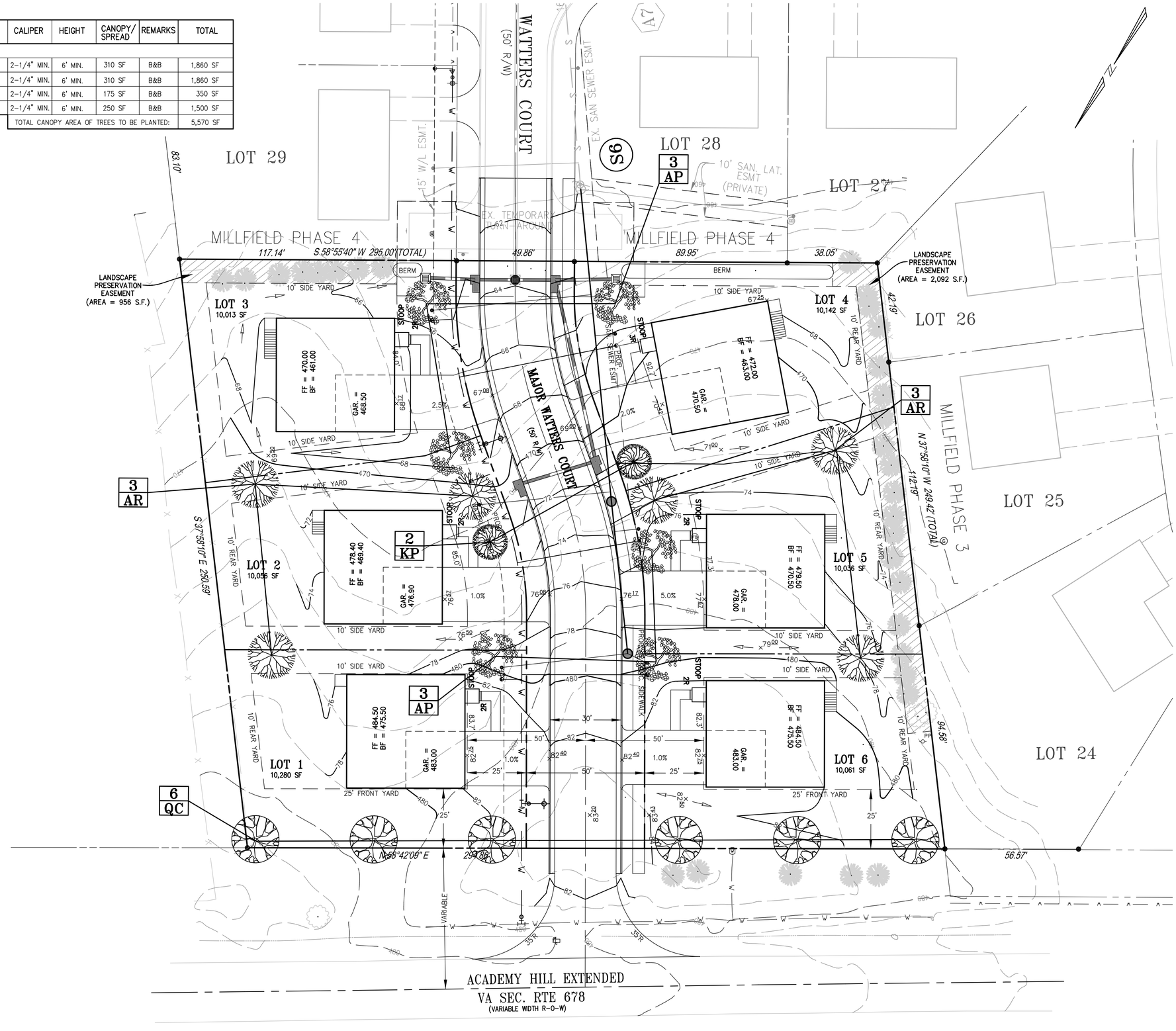
PROVIDED: ACADEMY ROAD = 6 TREES
MAJOR WATTERS COURT = 5 TREES (BOTH SIDES)

## TREE CANOPY COVER CALCULATIONS

GROSS SITE AREA: (1.6808 AC.) = 73,216 SF.
EXCLUSIONS:
R.O.W. = 12,628 S.F.
UTILITY EASEMENTS = 4,590 S.F.
TOTAL = 17,218 S.F.
NET AREA: 73,216 – 17,218 = 55,998 S.F.
MULTIPLIED BY PERCENTAGE OF TREE COVER REQ'D = (R1&R4=15%):
55,998 (0.15) = 8,399.7 SF
CANOPY AREA REQUIRED = 8,400 SF.

AREA OF EXISTING WOODLANDS TO BE PRESERVED WITHIN EASEMENTS: 3,048 S.F.
CANOPY AREA OF TREES TO BE PLANTED: 5,570 S.F.
TOTAL CANOPY AREA PROVIDED = 8,618 SF.

CANOPY AREA PROVIDED EXCEEDS REQUIRED




20 10 0 20 40
GRAPHIC SCALE
SCALE: 1" = 20'

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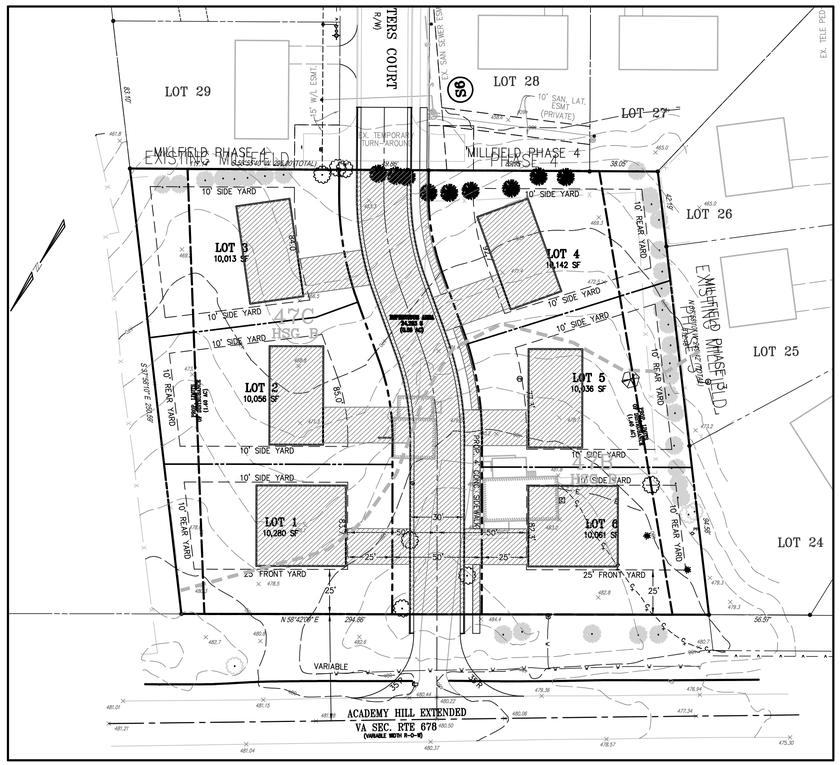
HINCHEY & BAINES, PLC
ENGINEERING AND LAND PLANNING
125 EAST DAVIS STREET
SUITE 201
CULPEPER, VIRGINIA 22701
PHONE (540) 829-2220
FAX (540) 829-2239

COMMONWEALTH OF VIRGINIA — CHRISTOPHER M. BAINES — 040234 — 03/10/2024 — PROFESSIONAL ENGINEER

CONCEPTUAL LANDSCAPE PLAN
**WARGO SUBDIVISION**
PIN 6984-95-2640-000
CEDAR RUN MAGISTERIAL DISTRICT – FAUQUIER COUNTY, VIRGINIA

SCALE: 1"=20'
DATE: 11/17/2023
REVISIONS:
3/10/24 COUNTY COMMENTS

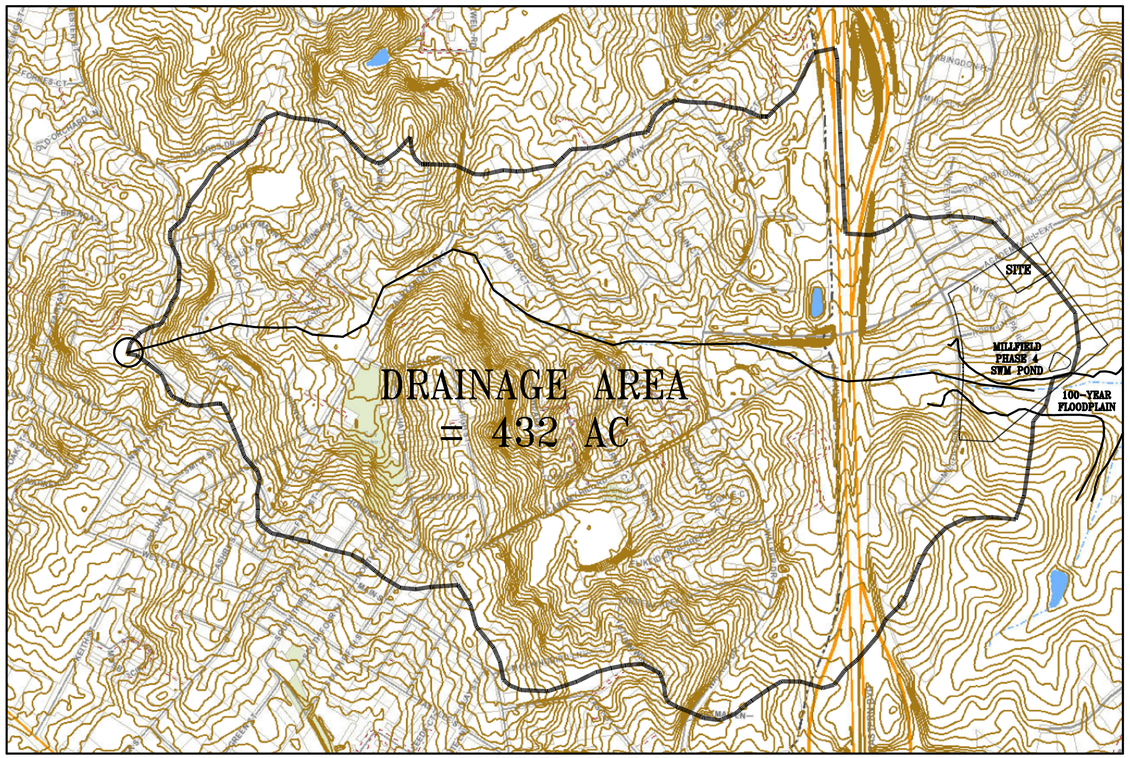
SHEET 5 OF 6
FILE NO. 1659




## POST-DEVELOPMENT QUALITY MAP

SCALE: 1" = 40'

GRAPHIC SCALE
40 20 0 40 80
SCALE: 1" = 40'




## OFFSITE DRAINAGE MAP

SCALE: 1" = 500'

GRAPHIC SCALE
500 250 0 500 1000
1" = 500'

Project Name: Wargo PIN 6984-95-2640-000
Date: 11/17/2023
Linear Development Project? No

CLEAR ALL (Ctrl+Shift+N)

data input cells
constant values
calculation cells
final results

### Site Information

### Post-Development Project (Treatment Volume and Loads)

Enter Total Disturbed Area *(acres)* → 1.40

Check:
BMP Design Specifications List: 2013 Draft Stds & Specs
Linear project? No
Land cover areas entered correctly? ✓
Total disturbed area entered? ✓

| | |
|---|---|
| Maximum reduction required | 20% |
| The site's net increase in impervious cover (acres) is | 0.42 |
| Post Development TP Load Reduction for Site (lb/yr) | 0.94 |

**Pre-ReDevelopment Land Cover (acres)**

| | A Soils | B Soils | C Soils | D Soils | Totals |
|---|---|---|---|---|---|
| Forest/Open Space (acres) – undisturbed, forest/open space | | | | | 0.00 |
| Managed Turf (acres) – disturbed, graded for yards or other turf to be | | 1.31 | | | 1.31 |
| Impervious Cover (acres) | | 0.09 | | | 0.09 |
| | | | | | 1.40 |

**Post-Development Land Cover (acres)**

| | A Soils | B Soils | C Soils | D Soils | Totals |
|---|---|---|---|---|---|
| Forest/Open Space (acres) – undisturbed, protected forest/open space or reforested | | | | | 0.00 |
| Managed Turf (acres) – disturbed, graded for yards or other turf to be | | 0.84 | | | 0.84 |
| Impervious Cover (acres) | | 0.56 | | | 0.56 |
| Area Check | OK. | OK. | OK. | OK. | 1.40 |

**Constants**

| | |
|---|---|
| Annual Rainfall (inches) | 43 |
| Target Rainfall Event (inches) | 1.00 |
| Total Phosphorus (TP) ENAC (mg/L) | 0.26 |
| Total Nitrogen (TN) ENAC (mg/L) | 1.86 |
| Target TP Load (lbs/acre/yr) | 0.41 |
| Pv (unitless correction factor) | 0.90 |

**Runoff Coefficients (Rv)**

| | A Soils | B Soils | C Soils | D Soils |
|---|---|---|---|---|
| Forest/Open Space | 0.02 | 0.03 | 0.04 | 0.05 |
| Managed Turf | 0.15 | 0.20 | 0.22 | 0.25 |
| Impervious Cover | 0.95 | 0.95 | 0.95 | 0.95 |

**LAND COVER SUMMARY – PRE-REDEVELOPMENT**

| *Land Cover Summary-Pre* | | |
|---|---|---|
| **Pre-ReDevelopment** | **Listed** | **Adjusted*** |
| Forest/Open Space Cover (acres) | 0.00 | 0.00 |
| Weighted Rv(forest) | 0.00 | 0.00 |
| % Forest | 0% | 0% |
| Managed Turf Cover (acres) | 1.31 | 0.84 |
| Weighted Rv(turf) | 0.20 | 0.20 |
| % Managed Turf | 94% | 60% |
| Impervious Cover (acres) | 0.09 | 0.09 |
| Rv(impervious) | 0.95 | 0.95 |
| % Impervious | 6% | 10% |
| **Total Site Area (acres)** | **1.40** | **0.93** |
| **Site Rv** | **0.25** | **0.27** |

**Treatment Volume and Nutrient Load**

| | | |
|---|---|---|
| **Pre-ReDevelopment Treatment Volume (acre-ft)** | 0.0290 | 0.0211 |
| **Pre-ReDevelopment Treatment Volume (cubic feet)** | 1,261 | 920 |
| **Pre-ReDevelopment TP Load (lb/yr)** | **0.79** | **0.58** |
| Pre-ReDevelopment TP Load per acre (lb/acre/yr) | 0.57 | 0.62 |
| Baseline TP Load (lb/yr) (0.41 lb/acre/yr applied to pre-redevelopment area excluding previous land proposed for new impervious cover) | | 0.38 |

**LAND COVER SUMMARY – POST DEVELOPMENT**

| *Land Cover Summary-Post (Final)* | | *Land Cover Summary-Post* | | *Land Cover Summary-Post* | |
|---|---|---|---|---|---|
| **Post ReDev. & New Impervious** | | **Post-ReDevelopment** | | **Post-Development New Impervious** | |
| Forest/Open Space Cover (acres) | 0.00 | Forest/Open Space Cover (acres) | 0.00 | | |
| Weighted Rv(forest) | 0.00 | Weighted Rv(forest) | 0.00 | | |
| % Forest | 0% | % Forest | 0% | | |
| Managed Turf Cover (acres) | 0.84 | Managed Turf Cover (acres) | 0.84 | | |
| Weighted Rv (turf) | 0.20 | Weighted Rv (turf) | 0.20 | | |
| % Managed Turf | 60% | % Managed Turf | 60% | | |
| ReDev. Impervious Cover (acres) | 0.09 | ReDev. Impervious Cover (acres) | 0.09 | New Impervious Cover (acres) | 0.47 |
| Rv(impervious) | 0.95 | Rv(impervious) | 0.95 | Rv(impervious) | 0.95 |
| % Impervious | 10% | % Impervious | 10% | | |
| **Total ReDev. Site Area (acres)** | **0.93** | | | | |
| **ReDev Site Rv** | **0.27** | | | | |

**Treatment Volume and Nutrient Load**

| | | | | | |
|---|---|---|---|---|---|
| **Final Post-Development Treatment Volume (acre-ft)** | 0.0583 | **Post-ReDevelopment Treatment Volume (acre-ft)** | 0.0211 | **Post-Development Treatment Volume (acre-ft)** | 0.0372 |
| **Final Post-Development Treatment Volume (cubic feet)** | 2,541 | **Post-ReDevelopment Treatment Volume (cubic feet)** | 920 | **Post-Development Treatment Volume (cubic feet)** | 1,621 |
| **Final Post-Development TP Load (lb/yr)** | **1.60** | **Post-ReDevelopment TP Load (lb/yr)** | **0.58** | **Post-Development TP Load (lb/yr)** | **1.02** |
| Final Post-Development TP load per acre (lb/acre/yr) | 1.14 | Post-ReDevelopment TP load per acre (lb/acre/yr) | 0.62 | | |
| | | **Max. Reduction Required (Below Pre-ReDevelopment Load)** | 20% | | |
| | | **TP Load Reduction Required for New Redeveloped Area (lb/yr)** | **0.12** | **TP Load Reduction Required for New Impervious Area (lb/yr)** | **0.83** |

* *Adjusted Land Cover Summary:*
*Pre-ReDevelopment land cover minus pervious land cover (forest/open space or managed turf) acreage proposed for new impervious cover.*

*Adjusted total acreage is consistent with Post-ReDevelopment acreage (minus acreage of new impervious cover).*

*Column I shows load reduction requirement for new impervious cover (based on new development load limit, 0.41 lbs/acre/year).*

**Post-Development Requirement for Site Area**

| | |
|---|---|
| **TP Load Reduction Required (lb/yr)** | **0.94** |

**Nitrogen Loads (Informational Purposes Only)**

| | | | |
|---|---|---|---|
| Pre-ReDevelopment TN Load (lb/yr) | 5.67 | Final Post-Development TN Load (Post-ReDevelopment & New Impervious) (lb/yr) | 11.42 |

## CONCEPTUAL STORMWATER MANAGEMENT NARRATIVE

The proposed development is located along the southern side of Academy Hill Road to the north of the terminus of Major Watters Court. The existing site is approximately 1.68 acres and consists of one existing residential dwelling, and existing driveway, and open lawn areas. The project consists of the development of six single family detached lots along with associated improvements. Stormwater runoff generally discharges to the southern boundary line. Stormwater runoff will be collected in a closed conduit storm sewer system that will outfall into the existing, manmade storm sewer system located along Major Watters Court.

### WATER QUANTITY

Channel Protection:
Stormwater runoff from this development will discharge into an existing, manmade storm sewer system along Major Watters Court. Flow from the 2-year storm is non-erosive within the existing storm sewer system. In accordance with 9VAC25-870-66.B.4, the existing storm sewer system shall be analyzed from the point of discharge to the limits of analysis. The existing storm sewer system discharges into an existing SWM pond within Millfield Phase 4. The overall drainage area at the existing pond outfall is approximately 432 acres. The proposed site's contributing drainage area is less than 1% of the total drainage area at the existing pond outfall. Therefore, 9VAC25-870-66.B.1.A has been met since post-developed flow from the 2-year storm does not cause erosion to the existing manmade stormwater conveyance system from the point of discharge to the limits of analysis. Based on preliminary analysis of the existing SWM pond, the increase in runoff from this proposed development will not exceed the allowable release rate of the 2-year storm at the pond outfall as originally designed with the Millfield Phase 4 construction plan.

Flood Protection:
The existing storm sewer system along Major Watters Court does not currently experience localized flooding. Per 9VAC25-870-66.C.3, the existing storm sewer system shall be analyzed from the point of discharge to the limits of analysis. The existing storm sewer system discharges into an existing SWM pond within Millfield Phase 4. The overall drainage area at the existing pond outfall is approximately 432 acres. The proposed site's contributing drainage area is less than 1% of the total drainage area at the existing pond outfall. Therefore, 9VAC25-870-66.C.1. has been met since post-developed flow from the 10-year storm is contained within the existing stormwater conveyance system from the point of discharge to the limits of analysis. Based on preliminary analysis of the existing SWM pond, the increase in runoff from this proposed development will not exceed the allowable release rate of the 10-year storm at the pond outfall as originally designed with the Millfield Phase 4 construction plan.
.

### WATER QUALITY

Water Quality compliance has been analyzed using the Redevelopment Spreadsheet. The Site Area for this project is estimated to be 1.40 acres and is entirely B soils type (HSG). Pre-development Site Area consists of approximately 1.31 acres of managed turf and 0.09 acres of impervious surface. Total Phosphorous Load Reduction required is estimated to be 0.94 lbs/year. Stormwater quality compliance for this development will be provided by purchasing the required nutrient credits.

### NATURAL RESOURCES INVENTORY

Natural resources inventory is based on publicly available information and mapping. No field investigations or studies have been performed.

### SOIL CONDITIONS

According to the USDA Web Soil Survey, soils onsite consist of:
47B Elioak-Fauquier Complex (2-7% slopes) HSG: B
47C Elioak-Fauquier Complex (7-15% slopes)HSG: B
Soils boundaries and types have been shown on the plan.
Fauquier County GIS identifies all soils onsite to have moderate shrink-swell potential.

### WETLANDS POTENTIAL

According to the National Wetlands inventory, there are no potential wetland areas onsite or adjacent to the site.

### FOREST COVER and VEGETATION

The subject parcel is mostly open with managed turf yard. Trees line the property perimeter.

### TOPOGRAPHY

The subject parcel generally drains from north to south. Existing topography is consistant and ranges from 4 - 15%.

### ENVIRONMENTALLY SENSITIVE AREAS

Open space for Woods of Warrenton lies adjacent to the east of the subject property.

| Hyd. No. | Hydrograph type (origin) | Peak flow (cfs) | Time interval (min) | Time to Peak (min) | Hyd. volume (cuft) | Inflow hyd(s) | Maximum elevation (ft) | Total strge used (cuft) | Hydrograph Description |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Rational | 20.83 | 1 | 15 | 25,033 | ------ | ------ | ------ | PRE |
| 2 | Rational | 21.09 | 1 | 12 | 20,275 | ------ | ------ | ------ | POST to pond |
| 3 | Rational | 10.83 | 1 | 15 | 9,747 | ------ | ------ | ------ | BYPASS |
| 4 | Reservoir | 11.07 | 1 | 22 | 11,803 | 2 | 430.03 | 25,314 | ROUTE THRU 48 |
| 5 | Combine | 17.26 | 1 | 19 | 20,529 | 3, 4 | ------ | ------ | <no description> |
| PER PLAN SWM with WARGO.gpw | | | | | Return Period: 2 Year | | | Friday, 03 / 8 / 2024 | |

| Hyd. No. | Hydrograph type (origin) | Peak flow (cfs) | Time interval (min) | Time to Peak (min) | Hyd. volume (cuft) | Inflow hyd(s) | Maximum elevation (ft) | Total strge used (cuft) | Hydrograph Description |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Rational | 27.80 | 1 | 15 | 33,403 | ------ | ------ | ------ | PRE |
| 2 | Rational | 27.93 | 1 | 12 | 26,851 | ------ | ------ | ------ | POST to pond |
| 3 | Rational | 14.45 | 1 | 15 | 13,006 | ------ | ------ | ------ | BYPASS |
| 4 | Reservoir | 16.68 | 1 | 20 | 18,371 | 2 | 430.17 | 27,161 | ROUTE THRU 48 |
| 5 | Combine | 26.44 | 1 | 17 | 30,025 | 3, 4 | ------ | ------ | <no description> |
| PER PLAN SWM with WARGO.gpw | | | | | Return Period: 10 Year | | | Friday, 03 / 8 / 2024 | |

| Hyd. No. | Hydrograph type (origin) | Peak flow (cfs) | Time interval (min) | Time to Peak (min) | Hyd. volume (cuft) | Inflow hyd(s) | Maximum elevation (ft) | Total strge used (cuft) | Hydrograph Description |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Rational | 37.61 | 1 | 15 | 45,190 | ------ | ------ | ------ | PRE |
| 2 | Rational | 37.60 | 1 | 12 | 36,137 | ------ | ------ | ------ | POST to pond |
| 3 | Rational | 19.55 | 1 | 15 | 17,595 | ------ | ------ | ------ | BYPASS |
| 4 | Reservoir | 22.99 | 1 | 20 | 27,645 | 2 | 430.38 | 30,112 | ROUTE THRU 48 |
| 5 | Combine | 38.36 | 1 | 15 | 43,421 | 3, 4 | ------ | ------ | <no description> |
| PER PLAN SWM with WARGO.gpw | | | | | Return Period: 100 Year | | | Friday, 03 / 8 / 2024 | |

HINCHEY & BAINES, PLC
ENGINEERING AND LAND PLANNING
125 EAST DAVIS STREET
SUITE 201
CULPEPER, VIRGINIA 22701
PHONE (540) 829-2220
FAX (540) 829-2239

COMMONWEALTH OF VIRGINIA
RICHARD A. BAINES
LIC. NO. 040239
ENGINEER
PROFESSIONAL
03/10/2024

CONCEPTUAL STORMWATER MANAGEMENT PLAN
**WARGO SUBDIVISION**
PIN 6984-95-2640-000
FAUQUIER COUNTY, VIRGINIA

SCALE: AS NOTED
DATE: 11/17/2023
REVISIONS:
3/10/24 COUNTY COMMENTS

SHEET 6 OF 6
FILE NO. 1659

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| | |
|---|---|
| **From:** | Bob Wargo |
| **To:** | Steven Friend |
| **Subject:** | Fw: Tri-party Agreement Modification request |
| **Attachments:** | WARGO_Concept Development Plan_03-10-2024.pdf;Wargo_REZN-23-021163_Tri-Party Agreement Modification Request Letter.pdf;Statement of Justification_Wargo_03-10-2024.pdf; |
| **Sent:** | 6/7/2024 8:43:46 AM |

**[EXTERNAL EMAIL]** DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

You don't often get email from bobwargo@hotmail.com. Learn why this is important

fyi

---

**From:** Bob Wargo <bobwargo@hotmail.com>
**Sent:** Thursday, June 6, 2024 4:43 PM
**To:** fcassidy@warrentonva.gov <fcassidy@warrentonva.gov>; rwalton@warrentonva.gov <rwalton@warrentonva.gov>; hsutphin@warrentonva.gov <hsutphin@warrentonva.gov>
**Subject:** FW: Tri-party Agreement Modification request

Frank,

Attached is the request for an amendment to my tri party agreement. We are scheduled for the Fauquier County Planning Commission later this month and need to get on the agenda for next week's Town meeting. I have worked very hard on this project with Bo Tucker and many others and hope not to be delayed with this amendment.

Please call me with any questions.

Bob Wargo
Wargo Properties Llc
540 905 1379

Sent from my Verizon, Samsung Galaxy smartphone

-------- Original message --------
From: lee@hincheybaines.com
Date: 6/6/24 4:24 PM (GMT-05:00)
To: 'Bob Wargo' <bobwargo@hotmail.com>
Subject: Tri-party Agreement Modification request

Bob,
Attached is a memorandum requesting the Tri-Party Agreement modification, Statement of Justification and Concept Plan.

Let me know if you need additional information.
Lee

**R. Lee Baines, P.E.**
Hinchey & Baines, PLC
125 E. Davis Street
Suite 201
Culpeper, VA 22701

540.829.2220 office
540.229.7054 mobile
540.829.2239 fax

www.hincheybaines.com

**From:** Bob Wargo
**To:** Frank Cassidy
**Cc:** Rob Walton; Stephen Clough; Steven Friend;
**Subject:** RE: Tri-party Agreement Modification request
**Sent:** 6/24/2024 11:51:46 AM

**[EXTERNAL EMAIL]** DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

Frank,

Yes! I would like to be on the agenda for July. I am happy to meet or discuss with staff later this week or early July if needed. Thank you for your efforts regarding my situation.

Sincerely,

Bob Wargo
Wargo Properties Llc
540 905 1379

Sent from my Verizon, Samsung Galaxy smartphone

-------- Original message --------
From: Frank Cassidy <fcassidy@warrentonva.gov>
Date: 6/24/24 10:40 AM (GMT-05:00)
To: Bob Wargo <bobwargo@hotmail.com>
Cc: Rob Walton <rwalton@warrentonva.gov>, Stephen Clough <sclough@warrentonva.gov>, Steven Friend <sfriend@warrentonva.gov>
Subject: RE: Tri-party Agreement Modification request

Good morning.

Are you still requesting this item be discussed at our July 9 Council Work Session- please confirm.

Thank you,

Frank

**From:** Bob Wargo <bobwargo@hotmail.com>
**Sent:** Thursday, June 6, 2024 4:43 PM
**To:** Frank Cassidy <fcassidy@warrentonva.gov>; Rob Walton <rwalton@warrentonva.gov>; Heather Sutphin <hsutphin@warrentonva.gov>
**Subject:** FW: Tri-party Agreement Modification request

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540.829.2239 fax

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| | |
|---|---|
| **From:** | Rob Walton |
| **To:** | Stephen Clough |
| **Cc:** | Frank Cassidy; Steven Friend; |
| **Subject:** | FW: Tri-party Agreement Modification request |
| **Attachments:** | WARGO_Concept Development Plan_03-10-2024.pdf;Wargo_REZN-23-021163_Tri-Party Agreement Modification Request Letter.pdf;Statement of Justification_Wargo_03-10-2024.pdf; |
| **Sent:** | 6/7/2024 9:01:25 AM |

Stephen,

Good morning. Mayor Nevill has asked that this be placed on the work session agenda.

Thank you,
Rob

**From:** Bob Wargo <bobwargo@hotmail.com>
**Sent:** Thursday, June 6, 2024 4:43 PM
**To:** Frank Cassidy <fcassidy@warrentonva.gov>; Rob Walton <rwalton@warrentonva.gov>; Heather Sutphin <hsutphin@warrentonva.gov>
**Subject:** FW: Tri-party Agreement Modification request

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Some people who received this message don't often get email from bobwargo@hotmail.com. Learn why this is important

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Bob Wargo
Wargo Properties Llc
540 905 1379

Sent from my Verizon, Samsung Galaxy smartphone

-------- Original message --------
From: lee@hincheybaines.com
Date: 6/6/24 4:24 PM (GMT-05:00)
To: 'Bob Wargo' <bobwargo@hotmail.com>
Subject: Tri-party Agreement Modification request

Bob,
Attached is a memorandum requesting the Tri-Party Agreement modification, Statement of Justification and Concept Plan.
Let me know if you need additional information.
Lee

**R. Lee Baines, P.E.**
Hinchey & Baines, PLC
125 E. Davis Street
Suite 201
Culpeper, VA 22701

540.829.2220 office
540.229.7054 mobile
540.829.2239 fax

www.hincheybaines.com

| | |
|---|---|
| **From:** | Steven Friend |
| **To:** | bobwargo@hotmail.com |
| **Subject:** | July Council Meeting |
| **Sent:** | 6/25/2024 9:13:00 AM |

Good morning Mr. Wargo, please review the attached documents that you have provided and ensure they are correct. I am gathering information for your proposal to submit to council's agenda today. If you have additional information that you would like submitted, please provide. I will reach out to you by end of day with additional information, time, date and location regarding the upcoming council meeting. If you have any questions, please feel free to let me know and I would be more than happy to assist.

Thank you,

Steven Friend
Director - Public Utilities

21 Main Street
Warrenton, VA 20186
Office: (540)-347-1103
Cell: (540)-351-4908
warrentonva.gov

| | |
|---|---|
| **From:** | Rob Walton |
| **To:** | Shellenberger, Adam |
| **Cc:** | Frank Cassidy; Steven Friend; |
| **Subject:** | Wargo Rezoning REZN-23-021163 |
| **Sent:** | 6/5/2024 10:58:38 AM |

Adam,

Please see the attached comments on the Wargo application. Steven Friend and I are happy to answer any questions.

Thanks,
Rob

**Rob Walton**
Director of Community Development
Town of Warrenton
21 Main Street
Warrenton, VA 20186

**Office Phone:** (540) 347-1101
**Email:** rwalton@warrentonva.gov
**Website:** www.warrentonva.gov

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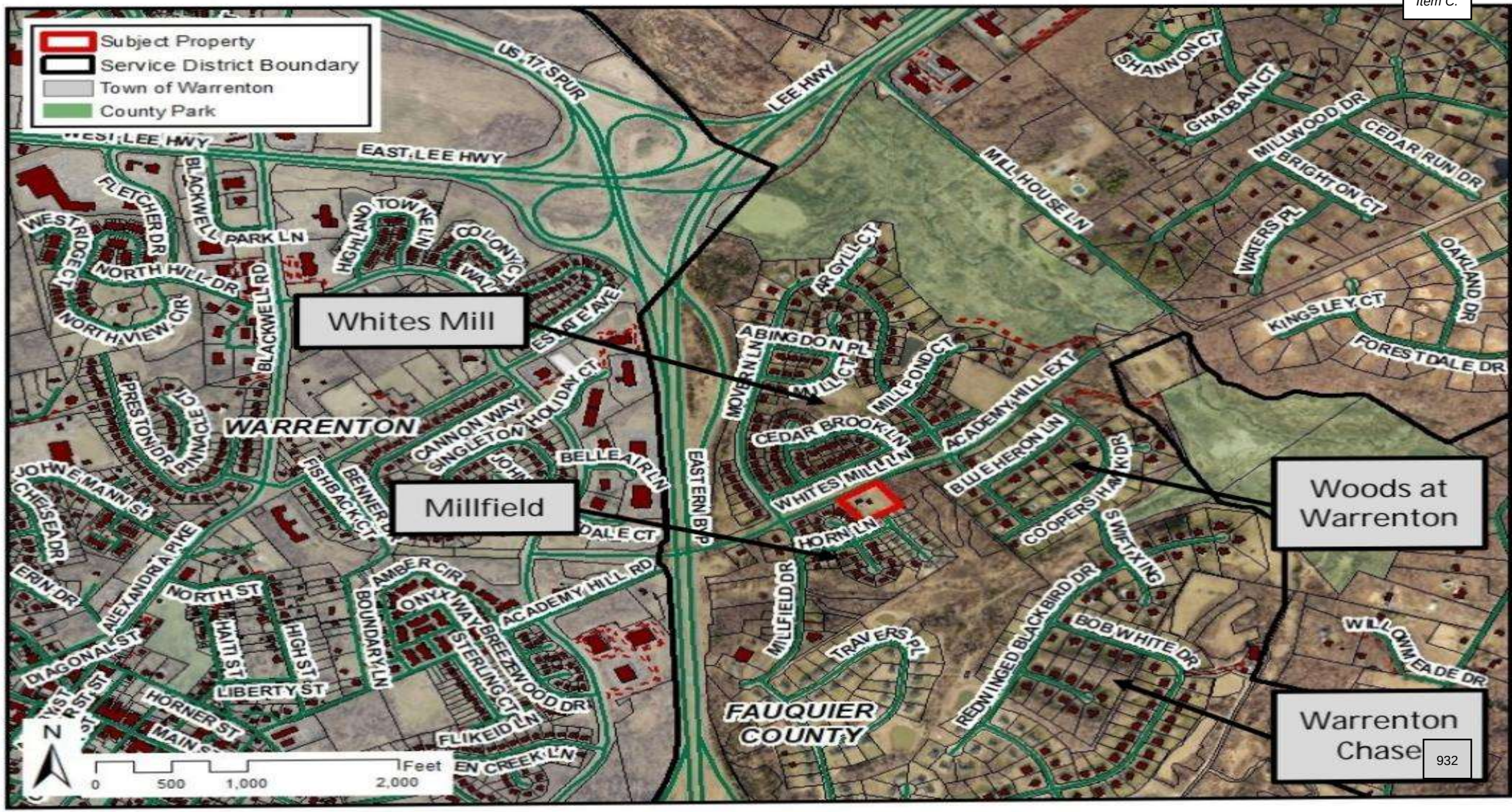
# Wargo Tri-Party Amendment

6415 Academy Hill Rd

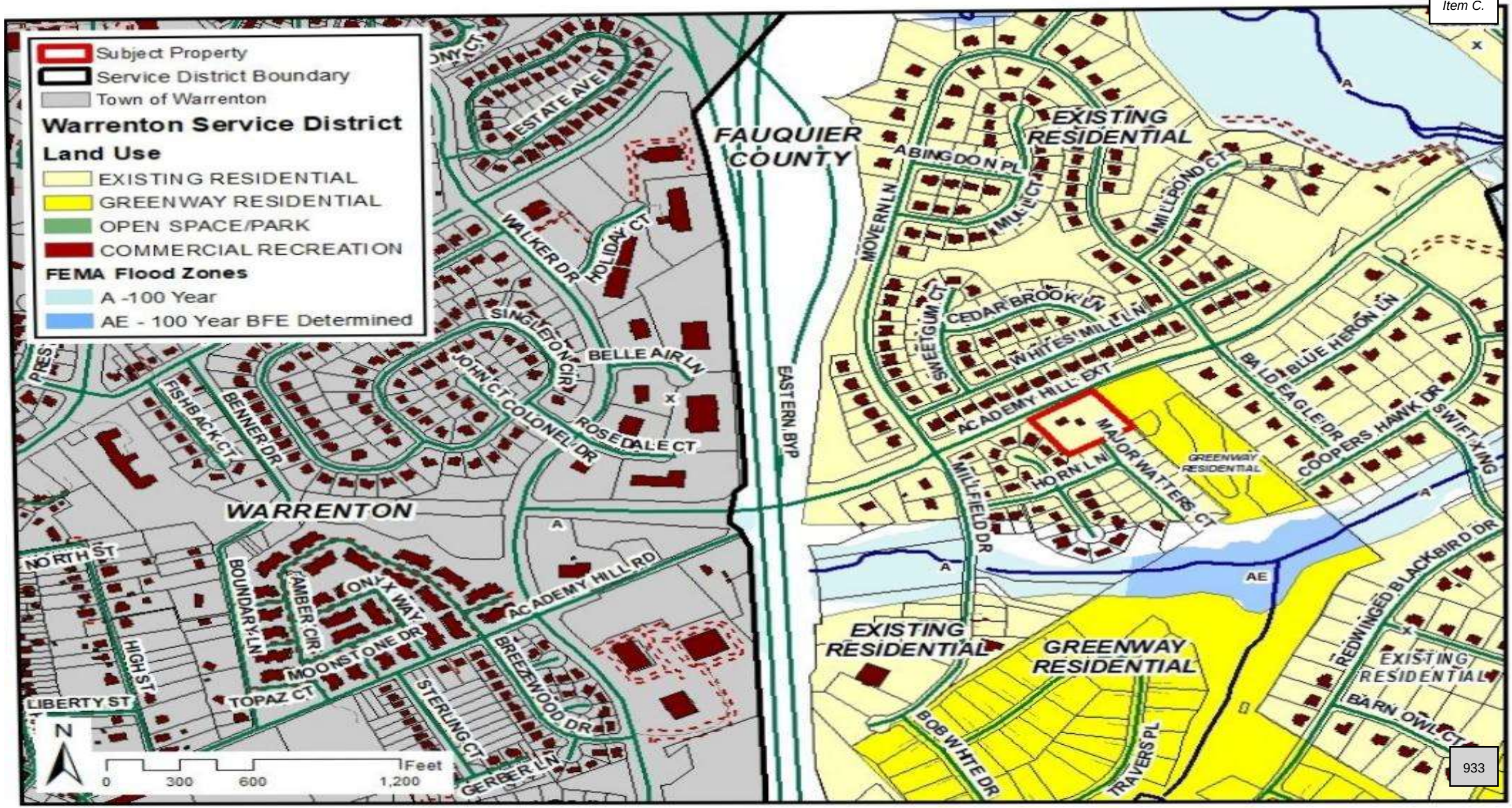
Warrenton, VA  20187

# Regional Aerial Map



# Land Use Map




Subject Property
Service District Boundary
Town of Warrenton
Warrenton Service District
Land Use
EXISTING RESIDENTIAL
GREENWAY RESIDENTIAL
OPEN SPACE/PARK
COMMERCIAL RECREATION
FEMA Flood Zones
A -100 Year
AE - 100 Year BFE Determined
FAUQUIER COUNTY
WARRENTON
EASTERN BYP
EXISTING RESIDENTIAL
GREENWAY RESIDENTIAL
ABINGDON PL
MILL POND CT
MOVERN LN
SWEETGUM CT
CEDAR BROOK LN
WHITES MILL LN
ACADEMY HILL EXT
BLUE HERON LN
BALD EAGLE DR
COOPERS HAWK DR
SWIFT XING
MAJOR WATTERS CT
HORN LN
MILLFIELD DR
REDWINGED BLACKBIRD DR
BARN OWL CT
BOB WHITE DR
TRAVERS PL
ESTATE AVE
WALKER DR
HOLIDAY CT
SINGLETON CIR
BELLE AIR LN
JOHN CT
COLONEL DR
ROSEDALE CT
FISHBACK CT
BENNER DR
NORTH ST
HIGH ST
LIBERTY ST
BOUNDARY LN
AMBER CIR
ONAX WAY
MOONSTONE DR
TOPAZ CT
STERLING CT
BREEZEWOOD DR
GERBER LN
ACADEMY HILL RD
N
0
300
600
1,200
Feet

# Existing Zoning Map





# Property Summary

## Property Information:

- 6415 Academy Hill Extended, Warrenton
- Area: 1.68 acres
- Zoning: R-1
- Land Use: Warrenton Service District – Existing Residential

## Request:

- Rezone 1.68 acres of R-1 to R-4 w/ Proffers
  - 6 Single-family Detached Homes




Regional Aerial

# Site Aerial Map





# Proposal

**Proposed Development:**

- Rezone 1.68 acres of R-1 to R-4 w/ Proffers
- 6 Single-family Detached Homes
  - Area: 10,000 sf min
  - Width: 70’ min
  - Density: 3.57 du/ac
- Extend Major Watters Court
  - 50’ ROW and 30’ Pavement
  - 4.5’ Grass Strip and 5’ Sidewalk – 1 side
  - Street Trees outside ROW – both sides
- Public Water & Sewer – Town of Warrenton
- SWMF – Millfield facilities




Conceptual Development Plan

# 1. Executive Summary

Whitman, Requardt & Associates (WRA) has updated the April 2015 Water and Sewer Capacity Evaluation to include new data and to determine the impact of potential new housing and commercial development in the Town and in the Town's water and wastewater service area. Data on potential development was provided by the Warrenton Community Development Department. WRA estimated water demand and wastewater loadings from new developments including impacts to water and wastewater system capacity from overall development over time through year 2040.

The current water system capacity is 2.68 MGD from 2 reservoirs and 3 groundwater production wells. The Town's Water Filtration Plant has a capacity of 3 MGD. Water from the reservoirs is treated at the Filtration Plant and well water is treated at the well head. Average water production from 2015 through 2021 is 1.16 MGD. The current wastewater system treatment capacity at the Town's Wastewater Treatment Plant is 2.5 MGD. The average daily wastewater loading from 2015 through 2021 is 1.86 MGD. The Town is planning on expanding the capacity of the Wastewater Treatment Plant to 3 MGD over the next 10 years.

The estimated water system demand from the combination of the developments analyzed by WRA is 1.31 MGD. The estimated buildout water demand plus the 2021 water demand of 1.11 MGD provides an estimate of 2.42 MGD of future water demand. The estimated wastewater loading demand from the combination of the developments is 1.18 MGD. The estimated buildout wastewater loading plus the 2021 wastewater loading of 1.72 MGD provides an estimate of 2.9 MGD of future wastewater loading.

Per this analysis the Town of Warrenton has adequate water supply capacity and wastewater treatment capacity to accommodate the new housing and commercial developments identified by the Community Development Department. Several assumptions and assertions are included in this conclusion:

Office of the Town Manager
Frank Cassidy

# STAFF REPORT

**Warrenton Town Council**
Carter Nevill, Mayor
Heather Sutphin, Ward 1
William Semple, Ward 2
Brett Hamby, Ward 3
James Hartman, Ward 4 Vice Mayor
Eric Gagnon, Ward 5
Paul Mooney, At Large
David McGuire, At Large

| | |
|---|---|
| **Council Meeting Date:** | July 9, 2024 |
| **Agenda Title:** | Request from the Board of Zoning Appeals for Funding to Retain Independent Legal Counsel |
| **Requested Action:** | Hold a Work Session to Consider the Request |
| **Department / Agency Lead:** | Community Development |
| **Staff Lead:** | Heather Jenkins, Zoning Administrator |

## EXECUTIVE SUMMARY

The Board of Zoning Appeals is requesting that the Town Council provide funding to retain independent legal counsel to advise the Board regarding legal matters and court filings currently before the Board. A copy of the motion passed by the Board on July 2, 2024 to request funding for legal counsel is included with this staff report as Attachment A; a copy of the email detailing the specifics of the request from the Board Chair is included as Attachment B.

## BACKGROUND

The Board of Zoning Appeals is a quasi-judicial body that is appointed by the Fauquier County Circuit Court. The purpose of the Board is to hear and decide appeals from any order, requirement, decision or determination made by an administrative officer of the Town in the administration or enforcement of the Zoning Ordinance. The duties and powers of the Board of Zoning Appeals are regulated by the Code of Virginia, §15.2-2308 and subsequent sections, as well as the Town Zoning Ordinance, Article 11, Section 11-2 *Board of Zoning Appeals*. A copy of the relevant Code of Virginia sections is included with this staff report as Attachment C; a copy of Zoning Ordinance Section 11-2 is included as Attachment D.

On July 2, 2024 the Board of Zoning Appeals held a work session to discuss recent applications to the Board and court filings listing the Board at the request of the Chair. After lengthy discussion the Board members passed a motion to request that the Town Council provide funds so that the Board may retain legal counsel that is separate and independent from the Town and the Town Attorney on a short-term, as-needed basis.

## STAFF RECOMMENDATION

Staff recommends that per Code of Virginia §15.2-2308, Subsection D, that the Town Council should hold a work session to consider the Board of Zoning Appeal's request for appropriation of funds to retain legal counsel.

## Service Level/Collaborative Impact

The purpose of the Board of Zoning Appeals is to hear and decide appeals from any order, requirement, decision or determination made by an administrative officer of the Town in the administration or enforcement of the Zoning Ordinance. In the matter of an appeal, the Town Attorney represents the Town, and cannot provide legal advice to the Board of Zoning Appeals.

## Fiscal Impact

The Board of Zoning Appeals relies on the Town to provide any funding necessary to perform the duties of the Board. The Board does not have a budget line item for legal counsel. Therefore, should the Board desire legal counsel, the Board must request funds from the Town Council.

## Legal Impact

The Code of Virginia, §15.2-2308, Subsection D, states that upon request of the Board of Zoning Appeals, the governing body shall consider appropriation of funds so that the Board may employ or contract for services to include legal counsel.

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## ATTACHMENTS

A. July 2, 2024 Motion
B. July 5, 2024 Email from Chairman Kovalik
C. Code of Virginia, §15.2-2308
D. Zoning Ordinance Section 11-2

TOWN COUNCIL
H.E. Carter Nevill, Mayor
Paul W. Mooney
David A. McGuire
Heather D. Sutphin
William T. Semple II
Brett A. Hamby
James N. Hartman III, Vice Mayor
Eric F. Gagnon

## Motion of Board of Zoning Appeals Request to Town Council

*Ms. Melea Maybach motioned to ask the Town Council to appropriate some funds for independent legal counsel for the Board of Zoning Appeals. Seconded by Mr. A. Van Baggett.*

*The motion was clarified during discussion to state that the request was for the Town Council to provide funding on a short term as needed basis to discuss the items before the Board of Zoning Appeals currently.*

## Heather Jenkins

**From:** Larry Kovalik
**Sent:** Thursday, July 4, 2024 8:18 PM
**To:** Heather Jenkins
**Cc:** Frank Cassidy; Amber Heflin; Rob Walton; Matthew Cute; Griggs, Ruth T.; Stephen Clough
**Subject:** Re: BZA Funding Request

Good Day Heather,

The funds will be used to understand the Board's legal rights and obligations in light of the competing Writs and associated Exhibits and Statements that have been filed in the Circuit Court by the Town Attorney and concerned citizens.

I have estimated 30-40 hours of work on this assignment based on Rob Walton's observations of similar matters which he conveyed to me during the brief discussion you referenced in your email. This is to cover review of the Writs (Mandamus and Prohibition), Appellants Exhibits 1-11, Plaintiffs-Petitioners Exhibits A-F, Plaintiffs-Petitioners Exhibits 1-3, Plaintiffs Statement of Justification and any additional document(s) deemed pertinent to this matter.

I believe we can accommodate this review within a budget of $15,000. The Board will take all measures to utilize the legal resources and appropriated funding in the most cost efficient and cost effective manner as possible.

Hourly Rates are as follows;

Senior Attorney is $650/hour.

Senior Associate is $375/hour.

Paralegal is $200/hour.

Thank You

Larry Kovalik
Chairman, Town of Warrenton Board of Zoning Appeals

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**From:** Heather Jenkins <hjenkins@warrentonva.gov>
**Sent:** Wednesday, July 3, 2024 9:31 AM
**To:** Larry Kovalik <lkovalik@warrentonva.gov>
**Cc:** Frank Cassidy <fcassidy@warrentonva.gov>; Amber Heflin <aheflin@warrentonva.gov>; Rob Walton <rwalton@warrentonva.gov>; Matthew Cute <mcute@warrentonva.gov>; Griggs, Ruth T. <RGriggs@sandsanderson.com>; Stephen Clough <sclough@warrentonva.gov>
**Subject:** BZA Funding Request

Good morning, Larry.
As we briefly discussed this morning, please provide the following for the funding request:

- A detailed explanation of what the funds will be used for, to include approximate duration.
- A cost estimate of an hourly rate and total time, as well as a lump sum estimate.

This will be provided to Town Council along with a copy of the Board's resolution from Tuesday evening. Council will need to decide on the funding request, and then administrative staff will need to adjust other departmental budgets to provide the funding.

Please have this information sent to me before noon this Friday (the 5th) so that this can be placed on the July Council agenda.
Thank you,
Heather

**Heather E. Jenkins, PLA, CZA**
Zoning Administrator
Community Development Department

21 Main Street
Warrenton, VA 20186
(540) 347-1101 x144
warrentonva.gov

Code of Virginia
Title 15.2. Counties, Cities and Towns
Subtitle II. Powers of Local Government
Chapter 22. Planning, Subdivision of Land and Zoning
Article 7. Zoning

# § 15.2-2308. Boards of zoning appeals to be created; membership, organization, etc

A. Every locality that has enacted or enacts a zoning ordinance pursuant to this chapter or prior enabling laws shall establish a board of zoning appeals that shall consist of either five or seven residents of the locality, or in a town with a population of 3,500 or less, either three, five, or seven residents of the locality, appointed by the circuit court for the locality. Boards of zoning appeals for a locality within the fifteenth or nineteenth judicial circuit may be appointed by the chief judge or his designated judge or judges in their respective circuit, upon concurrence of such locality. Their terms of office shall be for five years each, except that original appointments shall be made for such terms that the term of one member shall expire each year. The secretary of the board shall notify the court at least 30 days in advance of the expiration of any term of office and shall also notify the court promptly if any vacancy occurs. Appointments to fill vacancies shall be only for the unexpired portion of the term. Members may be reappointed to succeed themselves. Members of the board shall hold no other public office in the locality, except that one may be a member of the local planning commission, any member may be appointed to serve as an officer of election as defined in § 24.2-101, and any elected official of an incorporated town may serve on the board of the county in which the member also resides. A member whose term expires shall continue to serve until his successor is appointed and qualifies. The circuit court for the City of Chesapeake and the Circuit Court for the City of Hampton shall appoint at least one but not more than three alternates to the board of zoning appeals. At the request of the local governing body, the circuit court for any other locality may appoint not more than three alternates to the board of zoning appeals. The qualifications, terms and compensation of alternate members shall be the same as those of regular members. A regular member when he knows he will be absent from or will have to abstain from any application at a meeting shall notify the chairman 24 hours prior to the meeting of such fact. The chairman shall select an alternate to serve in the absent or abstaining member's place and the records of the board shall so note. Such alternate member may vote on any application in which a regular member abstains.

B. Localities may, by ordinances enacted in each jurisdiction, create a joint board of zoning appeals that shall consist of two members appointed from among the residents of each participating jurisdiction by the circuit court for each county or city, plus one member from the area at large to be appointed by the circuit court or jointly by such courts if more than one, having jurisdiction in the area. The term of office of each member shall be five years, except that of the two members first appointed from each jurisdiction, the term of one shall be for two years and of the other, four years. Vacancies shall be filled for the unexpired terms. In other respects, joint boards of zoning appeals shall be governed by all other provisions of this article.

C. With the exception of its secretary and the alternates, the board shall elect from its own membership its officers who shall serve annual terms as such and may succeed themselves. The board may elect as its secretary either one of its members or a qualified individual who is not a member of the board, excluding the alternate members. A secretary who is not a member of the

board shall not be entitled to vote on matters before the board. Notwithstanding any other provision of law, general or special, for the conduct of any hearing, a quorum shall be not less than a majority of all the members of the board and the board shall offer an equal amount of time in a hearing on the case to the applicant, appellant or other person aggrieved under § 15.2-2314, and the staff of the local governing body. Except for matters governed by § 15.2-2312, no action of the board shall be valid unless authorized by a majority vote of those present and voting. The board may make, alter and rescind rules and forms for its procedures, consistent with ordinances of the locality and general laws of the Commonwealth. The board shall keep a full public record of its proceedings and shall submit a report of its activities to the governing body or bodies at least once each year.

D. Upon request of the board of zoning appeals, the governing body shall consider appropriation of funds so that the board may employ or contract for secretaries, clerks, legal counsel, consultants, and other technical and clerical services. If a board has needs that surpass the budgeted amount, the governing body shall review the board's request. Members of the board may receive such compensation as may be authorized by the respective governing bodies. Any board member or alternate may be removed for malfeasance, misfeasance or nonfeasance in office, or for other just cause, by the court that appointed him, after a hearing held after at least 15 days' notice.

E. Notwithstanding any contrary provisions of this section, in the Cities of Portsmouth and Virginia Beach, members of the board shall be appointed by the governing body. The governing body shall also appoint at least one but not more than three alternates to the board.

Code 1950, §§ 15-825, 15-850, 15-968.8; 1950, pp. 176, 489; 1952, c. 688; 1962, c. 407, § 15.1-494; 1975, c. 641; 1976, c. 642; 1977, c. 172; 1982, c. 3; 1989, c. 27; 1992, c. 47; 1997, cc. 570, 587; 1998, cc. 346, 520, 528;1999, c. 838;2002, cc. 205, 545;2007, c. 813;2009, c. 734;2010, c. 705; 2015, cc. 406, 407, 597;2019, c. 703;2020, cc. 11, 1006;2021, Sp. Sess. I, c. 355;2022, c. 249.

The chapters of the acts of assembly referenced in the historical citation at the end of this section(s) may not constitute a comprehensive list of such chapters and may exclude chapters whose provisions have expired.

Code of Virginia
Title 15.2. Counties, Cities and Towns
Subtitle II. Powers of Local Government
Chapter 22. Planning, Subdivision of Land and Zoning
Article 7. Zoning

# § 15.2-2308.1. Boards of zoning appeals, ex parte communications, proceedings

A. The non-legal staff of the governing body may have ex parte communications with a member of the board prior to the hearing but may not discuss the facts or law relative to a particular case. The applicant, landowner or his agent or attorney may have ex parte communications with a member of the board prior to the hearing but may not discuss the facts or law relative to a particular case. If any ex parte discussion of facts or law in fact occurs, the party engaging in such communication shall inform the other party as soon as practicable and advise the other party of the substance of such communication. For purposes of this section, regardless of whether all parties participate, ex parte communications shall not include (i) discussions as part of a public meeting or (ii) discussions prior to a public meeting to which staff of the governing body, the applicant, landowner or his agent or attorney are all invited.

B. Any materials relating to a particular case, including a staff recommendation or report furnished to a member of the board, shall be made available without cost to such applicant, appellant or other person aggrieved under § 15.2-2314, as soon as practicable thereafter, but in no event more than three business days of providing such materials to a member of the board. If the applicant, appellant or other person aggrieved under § 15.2-2314 requests additional documents or materials be provided by the locality other than those materials provided to the board, such request shall be made pursuant to § 2.2-3704. Any such materials furnished to a member of the board shall also be made available for public inspection pursuant to subsection G of § 2.2-3707.

C. For the purposes of this section, "non-legal staff of the governing body" means any staff who is not in the office of the attorney for the locality, or for the board, or who is appointed by special law or pursuant to § 15.2-1542. Nothing in this section shall preclude the board from having ex parte communications with any attorney or staff of any attorney where such communication is protected by the attorney-client privilege or other similar privilege or protection of confidentiality.

D. This section shall not apply to cases where an application for a special exception has been filed pursuant to subdivision 6 of § 15.2-2309.

2015, c. 597;2023, c. 536.

The chapters of the acts of assembly referenced in the historical citation at the end of this section(s) may not constitute a comprehensive list of such chapters and may exclude chapters whose provisions have expired.

Code of Virginia
Title 15.2. Counties, Cities and Towns
Subtitle II. Powers of Local Government
Chapter 22. Planning, Subdivision of Land and Zoning
Article 7. Zoning

# § 15.2-2309. Powers and duties of boards of zoning appeals

Boards of zoning appeals shall have the following powers and duties:

1. To hear and decide appeals from any order, requirement, decision, or determination made by an administrative officer in the administration or enforcement of this article or of any ordinance adopted pursuant thereto. The decision on such appeal shall be based on the board's judgment of whether the administrative officer was correct. The determination of the administrative officer shall be presumed to be correct. At a hearing on an appeal, the administrative officer shall explain the basis for his determination after which the appellant has the burden of proof to rebut such presumption of correctness by a preponderance of the evidence. The board shall consider any applicable ordinances, laws, and regulations in making its decision. For purposes of this section, determination means any order, requirement, decision or determination made by an administrative officer. Any appeal of a determination to the board shall be in compliance with this section, notwithstanding any other provision of law, general or special.

2. Notwithstanding any other provision of law, general or special, to grant upon appeal or original application in specific cases a variance as defined in § 15.2-2201, provided that the burden of proof shall be on the applicant for a variance to prove by a preponderance of the evidence that his application meets the standard for a variance as defined in § 15.2-2201 and the criteria set out in this section.

Notwithstanding any other provision of law, general or special, a variance shall be granted if the evidence shows that the strict application of the terms of the ordinance would unreasonably restrict the utilization of the property or that the granting of the variance would alleviate a hardship due to a physical condition relating to the property or improvements thereon at the time of the effective date of the ordinance, or alleviate a hardship by granting a reasonable modification to a property or improvements thereon requested by, or on behalf of, a person with a disability, and (i) the property interest for which the variance is being requested was acquired in good faith and any hardship was not created by the applicant for the variance; (ii) the granting of the variance will not be of substantial detriment to adjacent property and nearby properties in the proximity of that geographical area; (iii) the condition or situation of the property concerned is not of so general or recurring a nature as to make reasonably practicable the formulation of a general regulation to be adopted as an amendment to the ordinance; (iv) the granting of the variance does not result in a use that is not otherwise permitted on such property or a change in the zoning classification of the property; and (v) the relief or remedy sought by the variance application is not available through a special exception process that is authorized in the ordinance pursuant to subdivision 6 of § 15.2-2309 or the process for modification of a zoning ordinance pursuant to subdivision A 4 of § 15.2-2286 at the time of the filing of the variance application. Any variance granted to provide a reasonable modification to a property or improvements thereon requested by, or on behalf of, a person with a disability may expire when the person benefited by it is no longer in need of the modification to such property or improvements provided by the variance, subject to the provisions of state and federal fair

housing laws, or the Americans with Disabilities Act of 1990 (42 U.S.C. § 12131 et seq.), as applicable. If a request for a reasonable modification is made to a locality and is appropriate under the provisions of state and federal fair housing laws, or the Americans with Disabilities Act of 1990 (42 U.S.C. § 12131 et seq.), as applicable, such request shall be granted by the locality unless a variance from the board of zoning appeals under this section is required in order for such request to be granted.

No variance shall be considered except after notice and hearing as required by § 15.2-2204. However, when giving any required notice to the owners, their agents or the occupants of abutting property and property immediately across the street or road from the property affected, the board may give such notice by first-class mail rather than by registered or certified mail.

In granting a variance, the board may impose such conditions regarding the location, character, and other features of the proposed structure or use as it may deem necessary in the public interest and may require a guarantee or bond to ensure that the conditions imposed are being and will continue to be complied with. Notwithstanding any other provision of law, general or special, the property upon which a property owner has been granted a variance shall be treated as conforming for all purposes under state law and local ordinance; however, the structure permitted by the variance may not be expanded unless the expansion is within an area of the site or part of the structure for which no variance is required under the ordinance. Where the expansion is proposed within an area of the site or part of the structure for which a variance is required, the approval of an additional variance shall be required.

3. To hear and decide appeals from the decision of the zoning administrator after notice and hearing as provided by § 15.2-2204. However, when giving any required notice to the owners, their agents or the occupants of abutting property and property immediately across the street or road from the property affected, the board may give such notice by first-class mail rather than by registered or certified mail.

4. To hear and decide applications for interpretation of the district map where there is any uncertainty as to the location of a district boundary. After notice to the owners of the property affected by the question, and after public hearing with notice as required by § 15.2-2204, the board may interpret the map in such way as to carry out the intent and purpose of the ordinance for the particular section or district in question. However, when giving any required notice to the owners, their agents or the occupants of abutting property and property immediately across the street or road from the property affected, the board may give such notice by first-class mail rather than by registered or certified mail. The board shall not have the power to change substantially the locations of district boundaries as established by ordinance.

5. No provision of this section shall be construed as granting any board the power to rezone property or to base board decisions on the merits of the purpose and intent of local ordinances duly adopted by the governing body.

6. To hear and decide applications for special exceptions as may be authorized in the ordinance. The board may impose such conditions relating to the use for which a permit is granted as it may deem necessary in the public interest, including limiting the duration of a permit, and may require a guarantee or bond to ensure that the conditions imposed are being and will continue to be complied with.

No special exception may be granted except after notice and hearing as provided by § 15.2-2204.

However, when giving any required notice to the owners, their agents or the occupants of abutting property and property immediately across the street or road from the property affected, the board may give such notice by first-class mail rather than by registered or certified mail.

7. To revoke a special exception previously granted by the board of zoning appeals if the board determines that there has not been compliance with the terms or conditions of the permit. No special exception may be revoked except after notice and hearing as provided by § 15.2-2204. However, when giving any required notice to the owners, their agents or the occupants of abutting property and property immediately across the street or road from the property affected, the board may give such notice by first-class mail rather than by registered or certified mail. If a governing body reserves unto itself the right to issue special exceptions pursuant to § 15.2-2286, and, if the governing body determines that there has not been compliance with the terms and conditions of the permit, then it may also revoke special exceptions in the manner provided by this subdivision.

8. The board by resolution may fix a schedule of regular meetings, and may also fix the day or days to which any meeting shall be continued if the chairman, or vice-chairman if the chairman is unable to act, finds and declares that weather or other conditions are such that it is hazardous for members to attend the meeting. Such finding shall be communicated to the members and the press as promptly as possible. All hearings and other matters previously advertised for such meeting in accordance with § 15.2-2312 shall be conducted at the continued meeting and no further advertisement is required.

Code 1950, §§ 15-831, 15-850, 15-968.9; 1950, p. 176; 1962, c. 407, § 15.1-495; 1964, c. 535; 1972, c. 695; 1975, cc. 521, 641; 1987, c. 8; 1991, c. 513; 1996, c. 555;1997, c. 587;2000, c. 1050; 2002, c. 546;2003, c. 403;2006, c. 264;2008, c. 318;2009, c. 206;2015, c. 597;2018, c. 757.

The chapters of the acts of assembly referenced in the historical citation at the end of this section(s) may not constitute a comprehensive list of such chapters and may exclude chapters whose provisions have expired.

Code of Virginia
Title 15.2. Counties, Cities and Towns
Subtitle II. Powers of Local Government
Chapter 22. Planning, Subdivision of Land and Zoning
Article 7. Zoning

# § 15.2-2310. Applications for special exceptions and variances

Applications for special exceptions and variances may be made by any property owner, tenant, government official, department, board or bureau. Applications shall be made to the zoning administrator in accordance with rules adopted by the board. The application and accompanying maps, plans or other information shall be transmitted promptly to the secretary of the board who shall place the matter on the docket to be acted upon by the board. No special exceptions or variances shall be authorized except after notice and hearing as required by § 15.2-2204. The zoning administrator shall also transmit a copy of the application to the local planning commission which may send a recommendation to the board or appear as a party at the hearing. Any locality may provide by ordinance that substantially the same application will not be considered by the board within a specified period, not exceeding one year.

Code 1950, §§ 15-828 through 15-830, 15-832, 15-833, 15-850, 15-968.10; 1950, p. 176; 1962, c. 407, § 15.1-496; 1966, c. 256; 1975, cc. 521, 641; 1989, c. 407; 1997, c. 587.

The chapters of the acts of assembly referenced in the historical citation at the end of this section(s) may not constitute a comprehensive list of such chapters and may exclude chapters whose provisions have expired.

Code of Virginia
Title 15.2. Counties, Cities and Towns
Subtitle II. Powers of Local Government
Chapter 22. Planning, Subdivision of Land and Zoning
Article 7. Zoning

# § 15.2-2311. Appeals to board

A. An appeal to the board may be taken by any person aggrieved or by any officer, department, board or bureau of the locality affected by any decision of the zoning administrator or from any order, requirement, decision or determination made by any other administrative officer in the administration or enforcement of this article, any ordinance adopted pursuant to this article, or any modification of zoning requirements pursuant to § 15.2-2286. Notwithstanding any charter provision to the contrary, any written notice of a zoning violation or a written order of the zoning administrator dated on or after July 1, 1993, shall include a statement informing the recipient that he may have a right to appeal the notice of a zoning violation or a written order within 30 days in accordance with this section, and that the decision shall be final and unappealable if not appealed within 30 days. The zoning violation or written order shall include the applicable appeal fee and a reference to where additional information may be obtained regarding the filing of an appeal. The appeal period shall not commence until the statement is given and the zoning administrator's written order is sent by registered or certified mail to, or posted at, the last known address or usual place of abode of the property owner or its registered agent, if any. There shall be a rebuttable presumption that the property owner's last known address is that shown on the current real estate tax assessment records, or the address of a registered agent that is shown in the records of the Clerk of the State Corporation Commission. The appeal shall be taken within 30 days after the decision appealed from by filing with the zoning administrator, and with the board, a notice of appeal specifying the grounds thereof. The zoning administrator shall forthwith transmit to the board all the papers constituting the record upon which the action appealed from was taken. The fee for filing an appeal shall not exceed the costs of advertising the appeal for public hearing and reasonable costs. A decision by the board on an appeal taken pursuant to this section shall be binding upon the owner of the property which is the subject of such appeal only if the owner of such property has been provided notice of the zoning violation or written order of the zoning administrator in accordance with this section. The owner's actual notice of such notice of zoning violation or written order or active participation in the appeal hearing shall waive the owner's right to challenge the validity of the board's decision due to failure of the owner to receive the notice of zoning violation or written order. For jurisdictions that impose civil penalties for violations of the zoning ordinance, any such civil penalty shall not be assessed by a court having jurisdiction during the pendency of the 30-day appeal period.

B. An appeal shall stay all proceedings in furtherance of the action appealed from unless the zoning administrator certifies to the board that by reason of facts stated in the certificate a stay would in his opinion cause imminent peril to life or property, in which case proceedings shall not be stayed otherwise than by a restraining order granted by the board or by a court of record, on application and on notice to the zoning administrator and for good cause shown.

C. In no event shall a written order, requirement, decision or determination made by the zoning administrator or other administrative officer be subject to change, modification or reversal by any zoning administrator or other administrative officer after 60 days have elapsed from the date

of the written order, requirement, decision or determination where the person aggrieved has materially changed his position in good faith reliance on the action of the zoning administrator or other administrative officer unless it is proven that such written order, requirement, decision or determination was obtained through malfeasance of the zoning administrator or other administrative officer or through fraud. The 60-day limitation period shall not apply in any case where, with the concurrence of the attorney for the governing body, modification is required to correct clerical errors.

D. In any appeal taken pursuant to this section, if the board's attempt to reach a decision results in a tie vote, the matter may be carried over until the next scheduled meeting at the request of the person filing the appeal.

1975, c. 521, § 15.1-496.1; 1983, c. 12; 1993, c. 780; 1995, c. 424;1997, c. 587;2005, cc. 625, 677; 2008, c. 378;2010, c. 241;2011, c. 457;2012, cc. 400, 550, 606;2017, c. 665;2019, c. 387.

The chapters of the acts of assembly referenced in the historical citation at the end of this section(s) may not constitute a comprehensive list of such chapters and may exclude chapters whose provisions have expired.

Code of Virginia
Title 15.2. Counties, Cities and Towns
Subtitle II. Powers of Local Government
Chapter 22. Planning, Subdivision of Land and Zoning
Article 7. Zoning

# § 15.2-2312. Procedure on appeal

The board shall fix a reasonable time for the hearing of an application or appeal, give public notice thereof as well as due notice to the parties in interest and make its decision within ninety days of the filing of the application or appeal. In exercising its powers the board may reverse or affirm, wholly or partly, or may modify, an order, requirement, decision or determination appealed from. The concurring vote of a majority of the membership of the board shall be necessary to reverse any order, requirement, decision or determination of an administrative officer or to decide in favor of the applicant on any matter upon which it is required to pass under the ordinance or to effect any variance from the ordinance. The board shall keep minutes of its proceedings and other official actions which shall be filed in the office of the board and shall be public records. The chairman of the board, or in his absence the acting chairman, may administer oaths and compel the attendance of witnesses.

1975, c. 521, § 15.1-496.2; 1983, c. 444; 1986, c. 483; 1997, c. 587.

The chapters of the acts of assembly referenced in the historical citation at the end of this section(s) may not constitute a comprehensive list of such chapters and may exclude chapters whose provisions have expired.

Code of Virginia
Title 15.2. Counties, Cities and Towns
Subtitle II. Powers of Local Government
Chapter 22. Planning, Subdivision of Land and Zoning
Article 7. Zoning

# § 15.2-2313. Proceedings to prevent construction of building in violation of zoning ordinance

Where a building permit has been issued and the construction of the building for which the permit was issued is subsequently sought to be prevented, restrained, corrected or abated as a violation of the zoning ordinance, by suit filed within fifteen days after the start of construction by a person who had no actual notice of the issuance of the permit, the court may hear and determine the issues raised in the litigation even though no appeal was taken from the decision of the administrative officer to the board of zoning appeals.

1975, c. 521, § 15.1-496.3; 1997, c. 587.

The chapters of the acts of assembly referenced in the historical citation at the end of this section(s) may not constitute a comprehensive list of such chapters and may exclude chapters whose provisions have expired.

Code of Virginia
Title 15.2. Counties, Cities and Towns
Subtitle II. Powers of Local Government
Chapter 22. Planning, Subdivision of Land and Zoning
Article 7. Zoning

# § 15.2-2314. Certiorari to review decision of board

Any person or persons jointly or severally aggrieved by any decision of the board of zoning appeals, or any aggrieved taxpayer or any officer, department, board or bureau of the locality, may file with the clerk of the circuit court for the county or city a petition that shall be styled "In Re: date Decision of the Board of Zoning Appeals of [locality name]" specifying the grounds on which aggrieved within 30 days after the final decision of the board.

Upon the presentation of such petition, the court shall allow a writ of certiorari to review the decision of the board of zoning appeals and shall prescribe therein the time within which a return thereto must be made and served upon the secretary of the board of zoning appeals or, if no secretary exists, the chair of the board of zoning appeals, which shall not be less than 10 days and may be extended by the court. Once the writ of certiorari is served, the board of zoning appeals shall have 21 days or as ordered by the court to respond. The allowance of the writ shall not stay proceedings upon the decision appealed from, but the court may, on application, on notice to the board and on due cause shown, grant a restraining order.

Any review of a decision of the board shall not be considered an action against the board and the board shall not be a party to the proceedings; however, the board shall participate in the proceedings to the extent required by this section. The governing body, the landowner, and the applicant before the board of zoning appeals shall be necessary parties to the proceedings in the circuit court. The court may permit intervention by any other person or persons jointly or severally aggrieved by any decision of the board of zoning appeals.

The board of zoning appeals shall not be required to return the original papers acted upon by it but it shall be sufficient to return certified or sworn copies thereof or of the portions thereof as may be called for by the writ. The return shall concisely set forth such other facts as may be pertinent and material to show the grounds of the decision appealed from and shall be verified.

The court may reverse or affirm, wholly or partly, or may modify the decision brought up for review.

In the case of an appeal from the board of zoning appeals to the circuit court of an order, requirement, decision or determination of a zoning administrator or other administrative officer in the administration or enforcement of any ordinance or provision of state law, or any modification of zoning requirements pursuant to § 15.2-2286, the findings and conclusions of the board of zoning appeals on questions of fact shall be presumed to be correct. The appealing party may rebut that presumption by proving by a preponderance of the evidence, including the record before the board of zoning appeals, that the board of zoning appeals erred in its decision. Any party may introduce evidence in the proceedings in the court. The court shall hear any arguments on questions of law de novo.

In the case of an appeal by a person of any decision of the board of zoning appeals that denied or granted an application for a variance, the decision of the board of zoning appeals shall be

presumed to be correct. The petitioner may rebut that presumption by proving by a preponderance of the evidence, including the record before the board of zoning appeals, that the board of zoning appeals erred in its decision.

In the case of an appeal by a person of any decision of the board of zoning appeals that denied or granted application for a special exception, the decision of the board of zoning appeals shall be presumed to be correct. The petitioner may rebut that presumption by showing to the satisfaction of the court that the board of zoning appeals applied erroneous principles of law, or where the discretion of the board of zoning appeals is involved, the decision of the board of zoning appeals was plainly wrong, was in violation of the purpose and intent of the zoning ordinance, and is not fairly debatable.

In the case of an appeal from the board of zoning appeals to the circuit court of a decision of the board, any party may introduce evidence in the proceedings in the court in accordance with the Rules of Evidence of the Supreme Court of Virginia.

Costs shall not be allowed against the locality or the governing body, unless it shall appear to the court that the locality or the governing body acted in bad faith or with malice. In the event the decision of the board is affirmed and the court finds that the appeal was frivolous, the court may order the person or persons who requested the issuance of the writ of certiorari to pay the costs incurred in making the return of the record pursuant to the writ of certiorari. If the petition is withdrawn subsequent to the filing of the return, the locality or the governing body may request that the court hear the matter on the question of whether the appeal was frivolous.

Code 1950, §§ 15-834 through 15-839, 15-850, 15-958.11; 1950, p. 176; 1962, c. 407, § 15.1-497; 1975, c. 641; 1988, c. 856; 1994, c. 705;1996, c. 450;1997, c. 587;2001, c. 422;2003, c. 568;2005, cc. 625, 677;2006, c. 446;2010, c. 241;2015, c. 597;2017, c. 661;2020, c. 86.

The chapters of the acts of assembly referenced in the historical citation at the end of this section(s) may not constitute a comprehensive list of such chapters and may exclude chapters whose provisions have expired.

# Article 11 Administration, Procedures and Enforcement

**Amended by Town Council: February 12, 2013**
**December 11, 2018**
**December 10, 2019**
**March 10, 2020**
**April 12, 2022**

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# Article 11 Administration, Procedures and Enforcement

## 11-1 Administration

### 11-1.1 Zoning Administrator.

The provisions of this Ordinance shall be enforced by the designated agent of the Town of Warrenton, who shall be known as the Zoning Administrator. The Zoning Administrator shall have all necessary authority on behalf of the Town Council to administer and enforce the Zoning Ordinance. His authority shall include:

1. ordering in writing the remedying of any condition found in violation of this Ordinance;
2. insuring compliance with the ordinance, bringing legal action, including injunction, abatement, or other appropriate action or proceeding subject to appeal pursuant to § 15.2-2311 of the Code of Virginia and Article 11 of this Ordinance; and
3. in specific cases, making findings of fact and, with concurrence of the Town attorney, conclusions of law regarding determinations of rights accruing under § 15.2-2307 of the Code of Virginia.
4. granting a variance from any building setback requirement contained in the Zoning Ordinance in accord with Article 11 of this Ordinance and § 15.2-2286 of the Code of Virginia.
5. The Zoning Administrator shall respond within ninety (90) days of a request for a decision or determination on zoning matters within the scope of his authority unless the requester has agreed to a longer period.
6. In addition to the regulations and requirements herein contained concerning the administration of this Ordinance, the Zoning Administrator may establish reasonable additional administrative forms and procedures deemed necessary for the proper administration of this Ordinance.
7. Such other powers as may be granted in the Code of Virginia.

### 11-1.2 Certified Copy.

A certified copy of the Zoning Ordinance, as adopted and including any amendments, shall be filed in the office of the Zoning Administrator of Warrenton and in the office of the Clerk of the Circuit Court of Fauquier County, Virginia.

### 11-1.3 Processing Fees.

It is the intent of the Town that at least part of the cost of administering this Ordinance be borne by those responsible for development; therefore, a fee schedule, as prescribed by the Town Council and modified from time to time, shall apply to all permits, reviews, and

processing as required by this Ordinance.

11-1.4 Payment of Delinquent Taxes Prior to Filing a Land Use Application. Prior to the filing of an application for a special use permit, special exception, variance, rezoning, site plan, subdivision plat, land disturbance permit, or other land use permit, the applicant shall produce evidence that any delinquent Town real estate taxes properly assessed against the subject property have been paid in full, in accord with § 15.2-2286 (E) of the Code of Virginia, as amended.

## 11-2 Board of Zoning Appeals

11-2.1 General Provisions (Purpose, Authority and Membership)

11-2.1.1 The Board of Zoning Appeals shall hear and decide appeals from any order, requirement, decision or determination made by an administrative officer in the administration or enforcement of the Zoning Ordinance.

11-2.1.2 The Board of Zoning Appeals shall adopt such rules and regulations as it may consider necessary to carry out its authorized business.

11-2.1.3 The Board shall consist of five (5) members and shall be appointed by the Circuit Court of Fauquier County. Members shall be residents of the Town of Warrenton. The Board shall receive compensation for traveling expenses and may receive other such compensation as may be authorized by the Town Council. Appointments to fill vacancies occurring otherwise than by expiration of term shall in all cases be for the unexpired term.

11-2.1.4 The term of office shall be for five (5) years. One of the five (5) appointed members may be an active member of the Planning Commission.

11-2.1.5 Any member of the Board may be removed, for malfeasance, misfeasance or nonfeasance in office, or for other just cause, by the Circuit Court, after a hearing held after at least fifteen (15) days written notice.

11-2.1.6 Any member of the Board shall be disqualified to act upon a matter before the Board with respect to property in which the member has an interest.

11-2.1.7 The Board shall choose annually its own chairman and vice-chairman who shall act in the absence of the chairman.

11-2.1.8 The Town Manager shall appoint a staff member to serve as secretary to the Board of Zoning Appeals, without vote and shall prepare minutes of meetings, keep all records and conduct official correspondence of the Board. In the

absence of the secretary at any meeting, the Board shall appoint some other person, who may or may not be a member of the Board, to prepare the minutes thereof.

11-2.2 Rules and Regulations

11-2.2.1 The meeting of the Board shall be held at the call of its chairman or, in his absence, the acting chairman, or at such times as a quorum of the Board may determine.

11-2.2.2 The chairman, or, in his absence, the acting chairman, may administer oaths and compel the attendance of witnesses.

11-2.2.3 The Board shall keep minutes of its proceedings, showing the vote of each member upon each question, or if absent or failing to vote, indicating such fact. It shall keep records of its examinations and other official actions, all of which shall be immediately filed in the office of the Board and shall be a public record.

11-2.2.4 All meetings of the Board shall be open to the public. A favorable vote of three (3) members of the Board shall be necessary to reverse any order, requirement, decision, or determination of any administrative official or to decide in favor of the applicant on any matter upon which the Board is required to pass.

11-2.2.5 For the conduct of any hearing and the taking of any action or transaction of official business, a quorum shall be required of not less than three (3) members of the Board.

11-2.2.6 In exercising its powers the Board may reverse or affirm, wholly or partly, or may modify the order, requirement, decision, or determination appealed from. The concurring vote of three (3) members shall be necessary to reverse any order, requirement, decision or determination of an administrative officer or to decide in favor of the applicant on any matter upon which it is required to pass under the Ordinance or to effect any proceedings and other official actions, which shall be filed in the office of the Board and shall be public records.

11-2.3 Powers and Duties

The Board of Zoning Appeals shall have the following powers and duties:

11-2.3.1. To hear and decide appeals from any order, requirement, decision or determination made by an administrative officer in the administration or enforcement of this Ordinance or of any ordinance adopted pursuant thereto, in

accord with Section 11-3.13 of this Ordinance, including decisions of the Zoning Administrator. The decision on such appeals shall be based on the Board's judgment of whether the administrative officer was correct. The Board shall consider the purpose and intent of any applicable ordinances, laws and regulations in making its decision. In the case of interpreting the zoning map, the board shall interpret the map in such way as to carry out the intent and purpose of the ordinance for the particular section or district in question. The Board shall not have the power to change the locations of district boundaries as established by Ordinance.

11-2.3.2. To authorize upon appeal or original application in specific cases a variance as defined in § 15.2-2201of the Code of Virginia, from the terms of this Ordinance as will not be contrary to the public interest, when, owing to special conditions a literal enforcement of the provisions will result in unnecessary hardship; provided that the spirit of this ordinance shall be observed and substantial justice done and the requirements in Section 11-3.12.

11-2.3.3. No provision of this section shall be construed as granting any Board the power to rezone property or to base Board decisions on the merits of the purpose and intent of any ordinances duly adopted by the Town Council.

11-2.3.4. When giving any required notice to owners, their agents or the occupants of abutting property and property immediately across the street or road from the property affected, the Board may give such notice by first-class mail rather than by registered or certified mail.

11-2.3.5. Records

The Board shall keep minutes of its proceedings, showing the vote of each member upon each question, or if absent or failing to vote, indicating such fact. It shall keep full records of its examinations and other official actions, all of which shall be immediately filed in the office of the Zoning Administrator and shall be a public record.

11-2.3.6. Periodic Reports

The Board shall submit a report of its activities to the Town Council at least once each year.

11-2.3.7. Limitation

All provisions of this Ordinance relating to the Board shall be strictly construed. The Board, as a body of limited jurisdiction, shall act in full

conformity with all provisions and definitions in this Ordinance and in strict compliance with all limitations contained therein.

11-2.3.8. Decisions Subject to Judicial Review

In accord with § 15.2-2314 of the Code of Virginia, as amended, all decisions and findings of the Board shall be final decisions, and shall be subject to judicial review in the following manner:

1. Any person or persons jointly or severally aggrieved by any decision of the Board of Zoning Appeals, or any taxpayer or any officer, department, board or bureau of the Town, may present to the Circuit Court of Fauquier County a petition specifying the grounds on which aggrieved within thirty (30) days after the filing of the decision in the office of the Board of Zoning Appeals.
2. Upon the presentation of such petition, the court shall allow a Writ of Certiorari to review the decision of the Board of Zoning Appeals and shall prescribe therein the time within which a return thereto must be made and served upon the petitioner's attorney, which shall not be less than ten (10) days and may be extended by the court. The allowance of the writ shall not stay proceedings upon the decision appealed from, but the court may, on application, on notice to the Board of Zoning Appeals and on due cause shown, grant a restraining order.
3. The Board of Zoning Appeals shall not be required to return the original papers acted upon by it but it shall be sufficient to return certified or sworn copies thereof or of such portions thereof as may be called for by such writ. The return shall concisely set forth such other facts as may be pertinent and material to show the grounds of the decision appealed from and shall be verified.
4. If, upon the hearing, it shall appear to the court that testimony is necessary for the proper disposition of the matter, it may take evidence or appoint a commissioner to take such evidence as it may direct and report the same to the court with the commissioner's findings of fact and conclusions of law, which shall constitute a part of the proceedings upon which a determination of the court shall be made. The court may reverse or affirm, wholly or partly, or may modify the decision brought up for review.
5. Costs shall not be allowed against the Board of Zoning Appeals, unless it shall appear to the court that the Board acted in bad faith or with malice in making the decision appealed from. In the event the decision of the Board is affirmed and the court finds that the appeal was frivolous, the court may order the person or persons who requested the issuance of the writ of certiorari to pay the costs incurred in making a return of the record pursuant to the Writ of Certiorari.

## 11-3 Procedures for Application Review and Approval

### 11-3.1 Types of Permit Applications

This Ordinance provides for the following types of permit applications for land use and development:

1. *Land Disturbance Permit* - subject to review and approval by the Planning Director.
2. *Zoning Permit* - subject to review and approval by the Zoning Administrator.
3. *Building Permit* - subject to review and approval by the Building Official.
4. *Occupancy Permit* - subject to review and approval by the Zoning Administrator.
5. *Site Development Plan* - in accordance with the Zoning Ordinance of the Town of Warrenton and subject to review and approval by the Planning Director.
6. *Subdivision Plat* - in accordance with the Subdivision Ordinance of the Town of Warrenton and subject to review and approval by the Planning Director.
7. *Commission Permit ("2232 Review")* - subject to public review and approval by the Planning Commission.
8. *Zoning Amendment (including Conditional Zoning Procedures)* - subject to review and approval by the Town Council.
9. *Special Use Permit* - subject to review and approval by the Town Council.
10. *Variances* - subject to review and approval by the Board of Zoning Appeals and, for certain cases as provided for herein, subject to review and approval by the Zoning Administrator.
11. *Appeals* - subject to review and approval by the Board of Zoning Appeals.
12. *Additional Governmental Approval.* All departments, officials and public employees of the Town vested with the duty or authority to issue permits or licenses shall conform to the provisions of this chapter. They shall issue permits or licenses for uses, buildings or purposes only when they are in conformance with the provisions of this Ordinance. Any such permit or license, if issued in conflict with the provisions of this Ordinance, shall be null and void.

### 11-3.2 Public Hearing Procedures

#### 11-3.2.1 Advertisement and Notice is Required.

Prior to each public hearing involving planning and zoning matters before the Planning Commission, the Town Council or the Board of Zoning Appeals, the Town shall provide advertisement and written notice as may be required by §§ 15.2-2204 and 15.2-2285 of the Code of Virginia, as amended.

#### 11-3.2.2 Notice by Town.

Notwithstanding any other provisions of this section, whenever the notices required under this Section are sent on behalf of an agency, department or division of the Town, such notice shall be sent by the Zoning Administrator and may be sent by first class mail; however, the Zoning Administrator shall make affidavit that such mailings have been made and file such affidavit with the papers in the pertinent application or case.

11-3.2.3 Notice and Certification by Applicant.

For any application for amendment or development approval for which a public hearing is required before the Planning Commission and the Council and which is initiated by an applicant, the applicant shall be responsible for providing notice in accord with § 15.2-2204 of the Code of Virginia. A certification of notice and a listing of the persons to whom notice has been sent shall be filed with the Zoning Administrator by the applicant at least five days prior to the first public hearing of the Commission. A counterpart of such affidavit shall be presented to the Planning Commission or the Council at the beginning of its public hearing. The applicant may rely upon records of the local real estate assessor's office or the applicable website, if available, to ascertain the names of persons entitled to notice.

11-3.2.4 Condominium Ownership.

In the case of a condominium, written notice may be sent to the unit owner's association instead of to each individual unit owner.

11-3.2.5 Additional Notice Required for Deferrals

If an item is not heard at a public hearing for which it was noticed, but is deferred to a specific date, no additional notice at a public hearing is required by this Section.

11-3.2.6 Additional Notice Required for Recessed Public Hearings.

If a public hearing is begun but the agenda not completed, thereby requiring the meeting to be recessed, no additional notice is required as long as the dates for completion of the public hearing agenda is announced at the hearing which has been recessed.

11-3.2.7 Speakers at Public Hearings.

All witnesses and speakers presenting facts, evidence or opinion at any public hearing shall provide their name, address and affiliation, if any, for the record.

Witnesses or speakers may be required to give oath or affirmation regarding the truth of their statements. At the discretion of the person presiding over the hearing, speakers may be limited as to the time they are allowed to speak.

11-3.3 Land Disturbance Permit

11-3.3.1 Permit Required

No person shall engage in any kind of land disturbing activity, as defined in Article 11, within the Town of Warrenton until they have acquired a Land Disturbance Permit.

Whenever a land disturbing activity is proposed to be conducted by a contractor performing construction work pursuant to a construction contract, the preparation, submission, and approval of the required erosion and sediment control plan and receipt of a land disturbance permit shall be the responsibility of the owner of the land.

11-3.3.2 Plan Submission

If filed separately from a site development plan, three (3) copies of the erosion and sediment control plan shall be submitted to the Administrator. Is submitted with the site development plan, the erosion and sediment control plan shall accompany each copy of the site plan submission.

11-3.3.3 Approved Plan.

An approved plan is required before the issuing of any other building or development permits.

11-3.3.4 Plan, Action.

Any erosion and sedimentation plan submitted under the provisions of this Article and the Town's Erosion and Sediment Control Ordinance will be acted on within forty-five (45) days from receipt by either approving or disapproving in writing and, if disapproved, giving specific reasons for such disapproval. If no formal action has been taken by the plan approving authority within forty-five (45) days after receipt of a plan, the plan shall be deemed approved.

11-3.3.5 Plan Amendments.

An approved plan may be changed by the plan approving authority in the following cases:

1. where inspection has revealed that the plan is inadequate to satisfy applicable regulations; or
2. where the person responsible for carrying out the approved plan finds that because of changed circumstances, or for other reasons, the approved plan cannot be effectively carried out, and proposed amendments to the plan, consistent with the requirements of this Article, are agreed to by the plan approving authority and the person responsible for carrying out the plan.

11-3.3.6 Bonding.

Prior to the issuance of any permit, the Administrator shall also require an applicant to submit a reasonable performance bond with surety, cash escrow, letter of credit, any combination thereof, or such other legal arrangement acceptable to the Town Attorney for the Town of Warrenton, to ensure that measures could be taken by the Town, at the applicant's expense, should they fail, after proper notice, within the time specified to initiate or maintain appropriate conservation action which may be required of them by the approved plan as a result of their land disturbing activity. This cash escrow, letter of credit, or other acceptable legal arrangement will provide for a right-of-entry by representatives of the Town, for purposes of inspection, reinstallation, maintenance, or any conservation practices as may be necessary.

1. If the Town takes such conservation action upon such failure by the permittee, the agency may collect from the permittee for the difference should the amount of the reasonable cost of such action exceed the amount of the security held.
2. Within sixty (60) days of the achievement of adequate stabilization of the land disturbing activity, the bond, cash escrow, letter of credit, or other legal arrangement, or the unexpended or unobligated portion thereof, shall be refunded to the applicant or terminated.
3. These requirements are in addition to all other provisions of this Article relating to the issuance of such permits and are not intended to otherwise affect the requirements for such permits.

11-3.3.7 Inspections and Enforcement, Generally.

Inspections shall be performed by the Town's Construction Inspector or Building Official and enforcement shall be performed by the Zoning Administrator.

11-3.3.8 Monitoring, Reports, and Inspections.

The Construction Inspector or Building Official, through the Administrator shall: (i) provide for periodic inspections of the land disturbing activity, and (ii) may require monitoring and reports from the person responsible for carrying out the plan, to ensure compliance with the approved plan and to determine whether the measures required in the plan are effective in controlling erosion and sediment. The owner, permittee or person responsible for carrying out the plan, or operator shall be given notice of the inspection. If the plan approving authority through the Administrator determines that there is a failure to comply with the plan, notice shall be served upon the permittee or person responsible for carrying out the plan by registered or certified mail to the address specified in the permit application or in the mail to the plan certification, or by delivery at the site of the land disturbing activity to the agent or employee supervising such activities. The notice shall specify the measures needed to comply with the plan and shall specify the time within which such measures shall be completed. Upon failure to comply within the time specified, the permit may be revoked and the permittee or person responsible for carrying out the plan shall be deemed in violation of this Article and upon conviction shall be subject to the penalties provided in Section 11-5 herein.

With respect to approved plans for erosion and sediment control in connection with all regulated land disturbing activities which require a permit, the Administrator may require of the person responsible for carrying out the plan such monitoring and reports, and may make such on-site inspections, after notice to that person, as are deemed necessary to determine whether the soil erosion and sediment control is performed, and whether such measures are effective in controlling soil erosion and sediment resulting from the land disturbing activity. Such person shall have the opportunity to accompany the inspector on any on-site inspection.

After land clearing operations have begun, no area shall be denuded for more than thirty (3) days unless authorized by the Administrator. All trenches for storm, sewer, water, and gas lines are to be backfilled, compacted, seeded, and mulched within seven (7) days of backfill.

11-3.3.9 Acceptance of Performance.

Upon completion of an approved erosion and sedimentation control plan, the permittee shall notify the Administrator of such completion. The Town Construction Inspector or Building Official shall then inspect the work and plantings, and upon their determination that they are in compliance with the approved plan, they shall notify the Administrator, who shall issue a letter of

preliminary acceptance. A condition of any such preliminary acceptance shall be that the applicant or permittee guarantee all erosion and sedimentation control work for a period of one (1) year from the date of its preliminary acceptance, or for a period of one (1) year from repair or replanting ordered by the Administrator, until such time that all control structures and a minimum of ninety (90) percent of all plantings shall have survived for a year without need of further replanting or repair. The Administrator may order in writing such replanting or repair work as shall be deemed necessary to enforce compliance with the approved plan and guarantee at any time during the one (1) year period. Such an order shall serve to revoke the preliminary acceptance and shall cause the applicant to renew the guarantee for an additional one (1) year from the date of replanting or repair. Final acceptance shall occur when preliminary acceptance has remained unrevoked for a period of one (1) year, or when all control structures and a minimum of ninety (90) percent of all plants have survived for a period of one (1) year without need of further replanting or repair. For the purposes of this Article, normal cleaning of silt basins alone shall not be construed to be repair work.

11-3.3.10 Appeals.

Final decisions of the Administrator under this Article shall be subject to review by the Board of Zoning Appeals, provided, that an appeal is filed within thirty days from the date of any written decision by the Administrator.

Final decisions of the Administrator or Board of Zoning Appeals under the Article shall be subject to review by the Fauquier County circuit court, provided, that an appeal is filed within thirty (30) days from the date of the final written decision of the Board.

11-3.3.11 Violations; Remedies; Civil Penalties; Notice.

1. Stop Work Order.

Upon receipt of a sworn complaint of a violation of this Article from the representative of the program authority or the Board responsible for ensuring program compliance, the chief administrative officer of the program authority or the Board may, in conjunction with or subsequent to a notice to comply as specified in subsection A above, issue an order requiring that all or part of a land-disturbing activities permitted on the site be stopped until the specified corrective measures have been taken or, if land-disturbing activities have commenced without an approved plan requiring that all of the land-disturbing activities be stopped until an approved plan or any required permits are obtained. Where the alleged

noncompliance is causing or is in imminent danger of causing harmful erosion of lands or sediment deposition in waters within the watersheds of the Commonwealth, or where the land-disturbing activities have commenced without an approved plan or any required permits, such an order may be issued whether or not the alleged violator has been issued a notice to comply a specified in subsection A above. Otherwise, such an order may be issued only after the alleged violator has failed to comply with a notice to comply.

The order shall be served in the same manner as a notice to comply, and shall remain in effect for seven days from the date of service pending application by the enforcing authority or alleged violator for appropriate relief to the circuit court of the jurisdiction wherein the violation was alleged to have occurred. If the alleged violator has not obtained an approved plan or any required permits within seven days from the date of service of the order, the chief administrative officer or his designee may issue an order to the owner requiring that all construction and other work on the site other than corrective measures be stopped until an approved plan or any required permit have been obtained.

Such an order shall be served upon the owner by registered or certified mail to the address specified in the permit application or the land records of the locality in which the site is located. The owner may appeal the issuance of an order to the circuit court of the jurisdiction wherein the violation was alleged to have occurred. Any person violating or failing, neglecting, or refusing to obey an order issued by the chief administrative officer or his designee may be compelled in a proceeding instituted in the circuit court of the jurisdiction wherein the violation was alleged to have occurred to obey same and to comply therewith by injunction, mandamus or other appropriate remedy. Upon completion and approval of corrective action or obtaining an approved plan or any required permits, the order shall immediately be lifted.

2. Civil Penalties, generally.

Except as set out immediately herein below, any person who violates this Article may be liable to the Town in a civil action for civil penalties of One Hundred Dollars ($100.00) for any one violation. Each day during which the violation is found to have existed shall constitute a separate offense. The total civil penalties for a series of specified violations arising from the same operative set of facts shall not exceed Three Thousand Dollars ($3,000.00). Notwithstanding the foregoing, the civil penalty for commencement of land-disturbing activities without an

approved permit as provided in Section 4-5 of this ordinance shall be One Thousand Dollars ($1,000.00), except that civil penalties for a series of violations arising from the commencement of land-disturbing activities without an approved plan for any site shall not exceed a total of Ten Thousand Dollars ($10,000.00).

3. Injunctions and Other Relief.

   Notwithstanding any other relief or remedy available under this Article, the Administrator may apply to the Circuit Court of Fauquier County for injunctive or such other equitable relief as might be appropriate in the case of a violation or threatened violation of any of the provisions of the Article, without the necessity of showing that there does not exist an adequate remedy at law.

4. Notice of Violation.

   In no case shall the Administrator begin legal action to enforce the provisions of this Article unless and until they have first given, or made diligent effort to give, specific notice to the applicant or permittee, as the case may be, of any violation of this Article for which such legal or equitable relief is to be sought. Such notice shall give the applicant or permittee a reasonable opportunity under the particular circumstances to correct the situation before the enforcement action is brought.

5. Civil Penalties.

   Any person violating or failing, neglecting, or refusing to obey any injunction, mandamus, or other remedy obtained pursuant to this Article shall be subject, in the discretion of the court, to a civil penalty not to exceed $2,000 for each violation.

6. Cumulative Remedies.

   The remedies provided for in this Article shall be cumulative in the sense that the imposition of, or attempt to impose, one (1) remedy shall not act as a restriction of any right to impose or attempt to impose, any other remedy authorized by this Article.

7. Administrative Fines.

   With the consent of any person who has violated or failed, neglected or refused to obey any regulation or order of the Administrator, or any

condition of a permit or any provision of this Article, the Town Council, or the Administrator may provide, in an order issued by the Town Council or the Administrator against such person, for payment of civil charges for violations in specific sums, not to exceed Two Thousand Dollars ($2,000) for each violation. Such civil charges shall be instead of any appropriate civil penalties which could be imposed as outlined in Section 11-5.

11-3.3.12 Criminal Penalties - Misdemeanor.

Violators of this Article shall be guilty of a Class One misdemeanor and subject to a fine not exceeding $2,500, or twelve months imprisonment in jail, or both, for each violation.

11-3.4 Zoning Permits

11-3.4.1 Zoning Permit Required

No permitted principal or accessory building, structure or use, or building, structure or use permissible by special exception, shall be constructed, reconstructed, moved, added to or structurally altered or otherwise allowed without a zoning permit issued by the Zoning Administrator. A zoning permit is required in all cases where a building permit is required.

Failure to obtain a zoning permit shall be a violation of this chapter and punishable under Section 11-5.

The Zoning Administrator shall maintain a record of all zoning permits and a copy shall be furnished, upon request, to any person.

11-3.4.2 Application for Zoning Permit

An application for a Zoning Permit shall be made to the Zoning Administrator, who shall require and be furnished by the applicant with all plans and documents as may be determined to be necessary to evaluate whether the proposed structure and facilities will be in compliance with the provisions of this Ordinance.

In order for an application for a zoning permit to be deemed complete, each such application shall be accompanied by the following items, unless waived by the Zoning Administrator as not pertinent. The Zoning Administrator may also require additional information necessary in order to determine if the application conforms with the provisions of this Ordinance.

1. A statement from the Town Director of Public Works that all applicable regulations and requirements for water and wastewater facilities have been complied with.
2. A complete description of the intended use or uses.
3. If a dwelling, the number of housekeeping units within the structure.
4. A plot plan signed by the applicant drawn to scale showing dimensions of the structure with respect to property lines and public highways; provided, no part of which is to be located less than the required setback distance from any property line or right-of-way of any public highway.
5. Number, size, location and lighting of signs, if any.
6. Off-street parking and other facilities.
7. Proposed utilities and their locations.
8. Drainage design and proposal.
9. Topographic map, if determined to be necessary by the zoning administrator.
10. Fee in accord with the fee schedule adopted by the Town Council.

11-3.4.3 Standards for Issuance

Zoning permits issued on the basis of plans and applications approved by the zoning administrator authorize only the use, arrangement and construction set forth in the approved plans and applications, and no other use, arrangement or construction. Use, arrangement and construction at variance with that authorized shall be deemed a violation of this chapter and punishable as provided under Section 11-5.

No zoning permit shall be issued where it appears that the structure to be constructed or the use contemplated would be in violation of the provisions of this Ordinance or any other applicable law, ordinance or regulation. The issuance of a zoning permit shall not afford protection to any owner who is found to be in violation of this Ordinance or any other applicable law, ordinance or regulation.

If it appears that the proposed structure and use of land or structure is in conformity with the provisions of this chapter, a zoning permit shall be issued to the applicant by the zoning administrator. If an intended use is found to be in compliance with this Ordinance, before proceeding, the applicant is still required to ensure compliance with the Virginia Uniform Statewide Building Code, and all other applicable laws, ordinances and regulations.

Approval or denial of a zoning permit shall be made within ten (10) working days of the time at which the Zoning Administrator has deemed that the zoning

permit application is complete.

11-3.4.4 Duration of Valid Zoning Permit

Any zoning permit issued shall be valid for one year. If an applicant has not completed construction of the building after one year of receiving the permit, the applicant may re-apply.

11-3.5 Building Permits

11-3.5.1 Building Permit Required

No principal or accessory building, structure or use shall be constructed, reconstructed, moved, added to or structurally altered or otherwise allowed without a building permit issued by the Building Official.

Failure to obtain a building permit shall be a violation of this chapter and punishable under Section 11-5 of this Ordinance.

The Building Official shall maintain a record of all building permits and a copy shall be furnished, upon request, to any person.

11-3.5.2 Application for Building Permit

An application for a Building Permit shall be made to the Building Official, who shall require and be furnished with all such plans and documents as may be required to determine whether the proposed structure and facilities will be in compliance with the provisions of this ordinance and with the Virginia Statewide Uniform Building Code.

In order for an application for a Building Permit to be deemed complete, each such application shall be accompanied by the following items, unless an item is deemed not pertinent by the Building Official, and such additional information as the Building Official may require as being necessary in order to determine if the application conforms with the provisions of this Ordinance and the Building Code:

1. The size and shape of the parcel of land on which the proposed building is to be constructed
2. Scale drawings which accurately show the design, construction, dimensions and materials of all proposed buildings and structures
3. The location of such buildings and structures with respect to the property lines of said parcel of land, and the right-of-way of any street or highway

adjoining said parcel of land.
4. Proposed utilities and their location.
5. Drainage scheme.
6. Fee in accord with the fee schedule adopted by the Town Council.

11-3.5.3 Standards for Issuance

Building permits issued on the basis of plans and applications approved by the Building Official authorize only the use, arrangement and construction set forth in such approved plans and applications, and no other use, arrangement or construction. Use, arrangement and construction at variance with that authorized shall be deemed a violation of this chapter and punishable as provided under Section 11-5 of this chapter.

No building permit shall be issued before receipt of a zoning permit for the proposed use and structure. Building and zoning permits for the same use and structure may be submitted, reviewed and approved concurrently.

No building permit shall be issued where it appears that the structure to be constructed or the use contemplated would be in violation of the provisions of this Ordinance or any other applicable law, ordinance or regulation. The issuance of a building permit, however, shall not afford protection to any owner who is found to be in violation of this Ordinance or any other applicable law, ordinance or regulation.

If the proposed structure is in conformity with the provisions of this Ordinance and the Virginia Uniform Statewide Building Code, a building permit shall be issued to the applicant by the Building Official.

Approval or denial of a building permit shall be made within ten (10) working days of the time at which the Building Official has deemed that the application for permit is complete.

11-3.5.4 Duration of Valid Building Permit

Building permits issued shall be valid for one year.

11-3.6 Occupancy Permit

11-3.6.1 Occupancy Permit Required.

Land may be used, and buildings occupied, structurally altered, erected, or changed in use for any purpose as permitted in the District in which such land

or building is located, only after an occupancy permit has been issued by the Zoning Administrator. Such a permit shall state that the building or the proposed use, or the use of the land, complies with the provisions of this Ordinance. A similar permit shall be issued for the purpose of maintaining, renewing, or changing a nonconforming use. An occupancy permit either for the whole or a part of a building or the use of the land shall be applied for simultaneously with the application for a building permit.

11-3.6.2 Standards for Issuance.

The Occupancy Permit shall be issued within ten (10) days after final approval by the Building Official of the erection or structural alteration of such building or part which has conformed with the provisions of this Ordinance and all previously issued permits and approvals for the site, including building permits, zoning permits and site plans.

No Occupancy Permit shall be granted until all improvements shown on any approved site plan have been completed in accordance therewith.

11-3.7 Site Development Plan

11-3.7.1 Site Development Plan Required

No person shall commence any use or erect any structure, including additions to existing structures, parking areas or other required site plan features, without first obtaining the approval of a site development plan by the Planning Director as set forth in this article. No use shall be carried on, no structure erected or enlarged, and no other improvement or construction undertaken, except as shown upon an approved site development plan.

A site development plan shall be required for the following uses in the enumerated districts:

- Multi-family dwellings, town houses and all other dwellings except single family detached, two-family and accessory dwellings.
- All uses in the RO, PSP, CBD, LI and C Districts
- For all special use permits

11-3.7.2 Exemptions from Site Development Plan Requirement

The following are exempt from having to file a site plan: the lawful construction, alteration and occupancy of a single or two-family dwelling or

accessory unit, with or without a garage. Exemption from the site plan requirements does not authorize violation of any other provision of this Ordinance.

11-3.7.3. Site Development Plan Requirements

Every site plan shall be submitted to the Planning Director in accordance with the applicable standards and regulations for Site Development Plans as provided in the Town of Warrenton Subdivision and Development Ordinance.

11-3.7.4. Review and Approval

Upon receipt of any Site Development Plan, the Zoning Administrator shall review it in accordance with the applicable procedures, standards and regulations for Site Development Plans as provided in this Ordinance.

11-3.7.5. Revisions To, Or Deviation From, Approved Plan.

After a Site Development Plan has been approved by the Zoning Administrator, minor adjustments of the plan, which are in substantial compliance with this article and the other provisions of this Ordinance and which serve the overall purposes of this section, may be approved by the Zoning Administrator. Deviation from an approved site plan without the written approval of the zoning administrator shall void the plan and the Zoning Administrator shall require the applicant to resubmit a new plan for consideration. Any major revision of an approved Site Development Plan shall be made in the same manner as the originally approved plan.

11-3.8 Commission Permit ("2232 Review")

11-3.8.1 Permit Required

In accord with the Code of Virginia, §15.2-2232, no street, park or other public area or public structure, public utility, public building or public service corporation facility other than railroads, whether publicly or privately owned, shall be constructed, established or authorized unless and until the general location or approximate location, character and extent thereof has been submitted to and approved by the Planning Commission as being substantially in accord with the adopted comprehensive plan or part thereof.

Widening, narrowing, extension, enlargement, vacation or change of use of streets or public areas shall likewise be submitted for approval, but paving, repair, reconstruction, improvement, drainage or similar work and normal

service extensions of public utilities or public service corporations shall not require approval, unless involving a change in location or extent of a street or public area.

11-3.8.2 Application

An application for a commission permit shall be filed with the Zoning Administrator and shall meet the minimum submission requirements as prescribed for a zoning permit in Section 11-3.4.2. and in addition shall include a written statement of justification from the applicant as to why the proposed improvement should be deemed to be in accord with the Comprehensive Plan.

An application is not necessary for features already specifically shown on the Comprehensive Plan, as determined by the Planning Director.

11-3.8.3 Planning Commission Action

In connection with any such determination, the Planning Commission may, and at the direction of the Town Council shall, hold a public hearing, after notice as required by §15.2-2204 of the Code of Virginia.

The Planning Commission shall communicate its findings pursuant to this section to the Town Council, indicating its approval or disapproval, along with written reasons therefore. Failure of the commission to act within sixty (60) days of submission of an application, unless such time is extended by the Council, shall be deemed approval.

11-3.8.4 Issuance of Permit; Town Council Review

The Zoning Administrator, on behalf of the Planning Commission, shall issue a Commission Permit following approval by the Planning Commission pursuant to this section. The Council may overrule the action of the Commission by a vote of a majority of its membership.

11-3.8.5 Appeal of Denial of Permit

The owners or their agents may appeal the decision of the Planning Commission to the Council within ten (10) days after the decision of the Commission. The appeal shall be by written petition to the Council setting forth the complete reasons for the appeal. The appeal shall be heard by the Council within sixty (60) days of its submission. A majority vote of the Council shall overrule the Commission.

## 11-3.9 Zoning Amendments

### 11-3.9.1 Authority for Change.

Whenever the public necessity, convenience, general welfare, or good zoning practice require, the Town Council may, by ordinance, amend, supplement, or change the regulations, district boundaries, or classifications of property. Any such amendment may be initiated by resolution of the Town Council, or by motion of the Planning Commission, or by petition of any property owner, addressed to the Town Council, in accord with the procedures and requirements of this Ordinance.

The regulations, restrictions and boundaries established in this Ordinance may, from time to time, be amended, supplemented, changed, modified or repealed, by ordinance, by a majority vote of the Town Council after recommendation by the Planning Commission, provided that a public hearing shall be held in relation thereto at which parties in interest and citizens shall have an opportunity to be heard; and that notice shall be given of the time and place of such hearing as provided for in §§ 15.2-2204 and 15.2-2285 of the Code of Virginia, as amended.

### 11-3.9.2 Initiation of Amendment

Either a zoning map or text amendment may be proposed by resolution of the Town Council, by motion of the Planning Commission, or by application by the owner, contract purchaser with the owner's written consent, or the owner's agent therefore, of the property which is the subject of the proposed amendment.

### 11-3.9.3 Submission of Application for Amendment.

Every application for amendment of the Zoning Ordinance shall contain the following items, as applicable. Applicability shall be determined by the Planning Director who may waive or modify any of the designated submission items if appropriate given the nature of the application and so as to facilitate review by the Town and the public. Five (5) copies of the complete application shall be submitted.

1. The applicant's name, address, phone number and email address, and signature.
2. The applicant's authorized representative’s name, address, phone number and email address.

3. The property owner's name, address, phone number and email address and signature.
4. A summary of existing data and conditions of the property, including:

    - Existing zoning classification
    - Tax Map and parcel numbers
    - Address of the property
    - Total acreage

5. A plan of the property, at a scale of 1"=200', showing the extent of the area to be rezoned, streets bounding and intersecting the area, the land use and zone classification of abutting districts, and photographs of the area to be rezoned and abutting areas.
6. A plan to a scale of 1" = 200', unless an alternative scale is requested and approved by the Planning Director, indicating the locations of existing and proposed topography, vegetation, floodplain, wetlands, structures, uses, streets, and areas for off-street parking and loading.
7. A boundary survey of the property to be rezoned
8. Information at the time of submission, on all parcels contiguous to the subject property and any property within 100 feet of the boundary, including:

    - Existing zoning
    - Existing land use
    - Proposed land use
    - Historic buildings or structures

9. A statement of justification that explains the circumstances in the proposed district and the abutting districts and any other factors on which the applicant relied as reasons for supporting the proposed zoning amendment, including the degree of compliance of the proposed request and subsequent development plans with the provisions of the Comprehensive Plan.
10 The approximate time schedule for the beginning and completion of development in the area and any proposed phasing of the development.
11. A Concept Development Plan for the property, showing the proposed uses and their general relationships within the site and external to the site, including proposed structures, uses, streets, parking areas, open space areas, vegetation, sidewalks and trails and means of access to the existing road system
12. A Traffic Study that shows the projections for trip generation, traffic volume and levels of service on site and on the adjacent road system,

including provisions for safely accommodating both vehicular and pedestrian traffic.

13. Information about the market area to be served by the proposed development if a commercial use, including population, effective demand for proposed business facilities, and any other information describing the relationship of the proposed development to the needs of the market area.
14. A statement of Impact Mitigation describing and analyzing the various impacts of the proposed rezoning, including fiscal, environmental conditions, and public facilities and utilities impacts, and the proposed methods for mitigating any anticipated impacts.
15. Any development conditions or proffers
16. Disclosure of Real Parties in Interest
17. Certificate of Payment of Taxes, verifying that real estate taxes have been paid for all property included in the application.
18. Record of Pre-Application Conference
19. Fees, in accord with the fee schedule adopted by the Town Council
20. A statement describing in detail the existing character of the area.

11-3.9.4 Staff Review of Application

1. Pre-Application Conference.

   Prior to filing an application, an applicant shall meet with the Planning Director and discuss the proposed application and land uses and questions regarding the procedures or substantive requirements of this Ordinance. In connection with all such conferences, the Zoning Administrator shall be consulted as appropriate. A request for a pre-application conference shall be made to the Planning Director and shall be accompanied by a sketch map of the site, a description of the proposed project or use, and a list of the issues to be discussed at the conference. The Planning Director shall respond to each written request for a pre-application conference within fifteen (15) calendar days of receipt.

2. Review of Application for Completeness.

   No application shall be accepted and reviewed unless determined by the Planning Director to be complete. A complete application is one which meets the minimum submission requirements established herein. Each application shall be reviewed to determine if it includes the minimum submission requirements. The Planning Director shall maintain a current log of all pending complete applications.

3. Acceptance of Complete Application.

Within fifteen (15) calendar days of submission of the application, the Planning Director shall either officially accept the application as complete and forward to the applicant a notice of acceptance, or reject the application if it is incomplete and forward to the applicant a notice of incompleteness specifying those areas of additional information necessary for acceptance and review.

If a notice of incompleteness is issued, the applicant may resubmit the application with the additional data required. Upon resubmission, the Planning Director will review the resubmitted application in the manner provided in this section for the original application.

If the application is not resubmitted within sixty (60) days of being determined incomplete, the Planning Director shall notify the applicant that the original application has been rejected as incomplete.

4. Referrals. Upon official acceptance of the application for zoning amendment, the Planning Director shall forward a copy of the application to all town departments and county or state agencies whose comments are necessary or desirable for full and appropriate review of the merits of the application.

5. Referral responsibilities. Each reviewing agency shall prepare a staff report of referral comments which sets out in writing its comments and recommendations regarding the application and shall forward such staff report to the Director of Planning.

6. Review of Referrals. All referral comments shall be provided to and reviewed by the Director of Planning within thirty (30) calendar days after an application has been officially accepted. The Planning Director shall forward to the applicant a written review of the issues raised by the application.

7. Applicant Response. Upon receipt of the written report from the Planning Director, an applicant may submit a written request for a meeting with the Planning Director to discuss the matters contained in the report and the application. Such request shall include a response to the matters raised in the Director's written report.

8. Required Action by Other Entities. In the event that this Ordinance requires that an application not be granted until acted upon by some government board or agency other than the Town Planning Commission

and Council, the Planning Director shall forward the application for amendment to such board or agency for appropriate action prior to notification to an applicant that an application is ready to be presented to the Planning Commission or Town Council. The Planning Commission may make its recommendations on an application contingent on required action by the other boards or agencies.

9. Report and Notice to Applicant. The Planning Director shall compile the referrals and other information pertinent to the application, prepare a written staff report with proposed findings and recommendations as to the application, and notify the applicant that the report is complete and the application is ready to be presented to the Planning Commission and Town Council for public hearing.

10. Submission to Planning Commission. Within sixty (60) days of formal acceptance of the application, the Planning Director shall forward the application and staff report to the Planning Commission for its review.

11-3.9.5 Amendment to Application

An application may be amended by the submission of additional information or proposed changes to the application after it has been officially accepted. If the additional information or proposed changes submitted are to conform with recommendations made by Town staff, commissions or boards, then it shall not be deemed an amendment and the application shall continue to be processed on its original time line.

However, if the additional information or proposed changes submitted by the applicant are at the applicant's request, then the Planning Director shall review the information within fifteen (15) calendar days of receipt and render a finding as to whether the submitted information necessitates repeating any portion of the review process including public hearings. If any portion must be repeated, the Director shall notify the applicant in writing within the fifteen (15) calendar day period that the additional information or proposed changes must be withdrawn, submitted as a new application, or will require the applicant to approve an extension of the time limits prescribed in this Section and such notice shall specify the required extension. The applicant will then have fifteen (15) calendar days to provide the Director with a written response either granting the necessary extension or withdrawing the additional information or proposed changes. If the applicant chooses to withdraw the information, then the application will proceed based on its original timeline.

11-3.9.6 Withdrawal of Application

An application for rezoning may be withdrawn at any time upon written request by the applicant and with the consent of either the Planning Commission or the Town Council, whichever body has advertised the hearing; There shall be no refund of rezoning fees in the case of withdrawal either before or after advertising. In the event of and upon such withdrawal, processing of the motion, resolution or petition shall cease without further action.

11-3.9.7 Planning Commission Review.

Within sixty (60) calendar days after a zoning amendment application has been submitted to the Planning Commission from the Planning Director, and generally within one hundred twenty (120) days after official acceptance of the application by the Town, the Planning Commission shall hold a public hearing on the application after notice as required by § 15.2-2204 of the Code of Virginia.

11-3.9.8 Report by Planning Commission

The Planning Commission shall report to the Town Council its recommendation with respect to the proposed amendment. Failure of the Planning Commission to report to the Town Council within one hundred (100) days after the first meeting of the commission after the proposed amendment or reenactment has been referred to the commission, shall be deemed a recommendation for approval, unless the proposed amendment or reenactment has been withdrawn by the applicant prior to the expiration of the time period

If the proposed amendment consists of a change in the text of this Ordinance, the Commission may recommend revisions to the proposal. If the proposed amendment consists of a change in zoning district boundaries, it may recommend that the land be rezoned to a different zoning district classification than that requested if the Commission is of the opinion that such revision is in accord with sound zoning practice and the adopted Comprehensive Plan, is in furtherance of the purposes of this Ordinance and is not more intensive than the advertised/noticed proposed use. Before recommending a larger extent of land or a rezoning to a more intensive classification than was set forth in the application, the Commission shall hold an additional duly noticed public hearing on the matter.

In recommending the approval or denial of any proposed amendment to this Ordinance, the Planning Commission should state its reasons for such

recommendation.

Tabling or deferring an application for rezoning on the grounds of inadequate data may be requested by the applicant for a period of no longer than ninety (90) days, after which the application shall be considered to be automatically withdrawn. All costs involved in re-applying and re-advertising shall be paid by the applicant.

11-3.9.9 Town Council Review and Action.

After receiving the report of the Planning Commission, or after the lapse of one hundred (100) days past the initial meeting of the Planning Commission on the application without Commission recommendation, the Town Council shall hold its own public hearing after notice and advertising required by § 15.2-2204 of the Code of Virginia. The Council may approve the zoning amendment as requested by the applicant, it may deny the amendment, or it may approve a zoning classification of less intensity than that requested, if available in the Ordinance, without holding a new hearing. No land may be zoned to a more intensive use classification than was contained in the public notice without an additional public hearing. The Town Council must act on the proposed zoning amendment within one year of official acceptance of the application.

11-3.9.10 Evidentiary Matters Before the Town Council

All information, testimony or other evidence presented by an applicant for a zoning amendment shall be presented to the Planning Commission in conjunction with its review and hearing on the application. If the Town Council determines that an applicant is presenting evidence which is substantially or materially different from that presented to the Commission, the Council may refer the application back to the Commission for such additional consideration and action as the Council may deem appropriate. All costs in re-advertising shall be paid by the applicant.

11-3. 9.11 Contesting a Decision of the Town Council

Every action contesting a decision of the Town Council for granting or failing to adopt a proposed zoning ordinance or amendment thereto or granting or failing to grant a special exception or special use permit, shall be filed within thirty (30) days of such decision with the Fauquier County Circuit Court.

11-3.9.12 Criteria for Consideration of Zoning Map Amendments.

In considering requests for zoning map amendments, the Planning Commission and Town Council should consider, among other issues, the following factors:

1. whether the rezoning request, if granted, would further the public interest, and whether it conforms with the goals, objectives, and policies of the Comprehensive Plan;
2. whether the rezoning is consistent with the town's Future Land Use Plan, as identified in the Comprehensive Plan, and established character of the area and land use patterns;
3. whether the rezoning is justified by changed or changing conditions;
4. whether the rezoning, if granted, would create an isolated district unrelated to adjacent districts;
5. whether utility, sewer and water, transportation, school, recreation, stormwater management and other facilities exist or can be provided to serve the uses that would be permitted on the property if it were rezoned;
6. whether the rezoning will be compatible with properties and uses in the vicinity and not have an adverse impact on these properties or their values;
7. whether there are adequate sites available elsewhere in the Town for the proposed use, or uses, in districts where such uses are already allowed;
8. whether the impact that the uses that would be permitted if the property were rezoned will have upon the volume of vehicular and pedestrian traffic and traffic safety in the vicinity and whether the proposed rezoning provides sufficient measures to mitigate such impacts;
9. whether a reasonable and viable economic use of the subject property exists under the current zoning;
10. whether the effect of the proposed rezoning on environmentally sensitive land or natural features, wildlife habitat, vegetation, water quality and air quality is compatible with the Town’s Comprehensive Plan;
11. whether the proposed rezoning encourages economic development activities in areas designated by the Comprehensive Plan and provides desirable employment and enlarges the tax base;
12. whether the proposed rezoning considers the current and future requirements of the community as to land for various purposes, including housing and business, as determined by population and economic studies;
13. the effect of the proposed rezoning to provide moderate housing by enhancing opportunities for all qualified residents of the Town; and
14. the effect of the rezoning on natural, scenic, archaeological, or historic features of significant importance.

11-3.9.13 Criteria for Consideration of Text Amendments.

If the request is for an amendment of the text of this Ordinance, the Planning Commission and Town Council shall consider the following matters, in addition to any relevant matters included in Section 11-3.9.12:

1. Whether the proposed text amendment is consistent with the Comprehensive Plan.
2. Whether the proposed text amendment is consistent with the intent and purpose of this Ordinance.

11-3. 9.14 Joint Public Hearing.

The Town Council and the Planning Commission may hold a joint public hearing following proper public notice under § 15.2-2204 of the Code of Virginia, as amended.

11-3.9.15 Majority Requirement for Change in Ordinance.

An affirmative vote of at least a majority of the members of the Town Council shall be required to adopt, amend, or reenact a zoning ordinance.

11-3.9.16 Timing of Application Consideration and Reconsideration

Proposed amendments shall be considered as soon as feasible, based on the regular schedule of the Planning Commission and the Town Council meetings and the schedule of newspaper publication relative to public notice.

Upon the denial of any application filed to change a zoning district designation, no further application concerning any or all of the same property shall be filed for rezoning to the same use in less than twelve (12) months from the time of denial by the Town Council, unless this requirement is specifically waived by the Town Council.

11-3.9.17 Conditional Zoning

1. Purpose and Authority

As part of a petition to rezone property and amend the official zoning map, the property owner may voluntarily proffer in writing certain conditions and restrictions on the use and development of his property, such conditions being in addition to, or modification of, the regulations provided for a particular zone or zoning district by this Ordinance. The

Zoning Administrator shall be vested with all necessary authority to administer, interpret and enforce such conditions and restrictions, all in accordance with the terms of §15.2-2296 et seq. of the Code of Virginia, as amended..

While the conditions may vary from property to property by reason of the nature of the use and different circumstances at a particular location, it is not the intention of this section to authorize conditions limited to a particular individual or group, owner, or operator, and the provisions of this section shall not be used for the purpose of discrimination in housing.

2. Proffered Conditions.

As a part of an application for rezoning or amendment to the zoning district map, the owner or owners of the property involved may, prior to a public hearing before the Town Council, voluntarily proffer in writing such reasonable conditions, in addition to the regulations provided for the zoning district or districts as herein set forth, as he deems appropriate for the particular case to address impacts of the proposed use.

For the purpose of this Ordinance, proffered conditions may include written statements, development plans, profiles, elevations, and/or other demonstrative materials. Materials of whatever nature and intended as proffers shall be annotated with the following statement signed by the owner or owners of the subject property: "I (we) hereby voluntarily proffer that the development of the subject property of this application shall be in strict accordance with the conditions set forth in this submission unless an amendment thereto is mutually agreed upon by the Town Council, and the undersigned."

3. When Proffers Are Made.

Proffered conditions should be submitted for Staff review as part of the initial application for rezoning..

Proffered conditions made at the Planning Commission meeting shall be forwarded to the Town Council prior to the Council’s public hearing.

To be considered by the Planning Commission, proffers must be submitted with the application prior to advertising for public hearing.

4. Contents of Proffer.

   Proffered conditions shall be signed by all persons having an ownership interest in the property and shall be notarized. Proffered conditions shall contain a statement that the owners voluntarily enter into the proffers contained therein.

5. Review and Revision of Proffered Conditions.

   Additional conditions may be proffered by the applicant during or subsequent to the public hearing before the Planning Commission, provided however that after proffered conditions are signed and made available for public review and the public hearing before the Town Council has been advertised (whether or not jointly held with the Planning Commission) no change or modification to any proffered condition shall be approved without a second advertised public hearing thereon.

6. Modifications to Proffers.

   After the Town Council's public hearing has been advertised, should additional or modified conditions be proffered by the applicant, which conditions were specifically discussed at the public hearing before the Planning Commission, then a second public hearing need be held only before the Town Council before the application and the modified conditions can be reviewed and acted on by the Council.

7. Additional Conditions.

   Should additional conditions be proffered by the applicant at the time of the public hearing before the Town Council, which conditions were not addressed at the public hearing before the Planning Commission, or if the proffered conditions are modified beyond the scope of any conditions considered at the public hearing before the Planning Commission, the application shall be the subject of a second public hearing before both the Planning Commission and the Town Council, which hearing may be held either separately or jointly.

8. Annotation of Zoning District Map.

   The zoning district map shall show by an appropriate symbol on the map the existence of conditions attaching to the zoning on the map. The Zoning Administrator shall keep in his office and make available for

public inspection a Conditional Zoning Index. The Index shall provide ready access to the ordinance creating conditions in addition to the regulations provided for in a particular zoning district. Such conditions shall become a part of the zoning regulations applicable to the property in question, regardless of changes in ownership or operation, unless subsequently changed by an amendment to the zoning district map, and such conditions shall be in addition to the specific regulations set forth in this Ordinance for the zoning district in question.

9. Enforcement of Conditions.

   The Zoning Administrator shall be vested with all necessary authority on behalf of the Town Council to administer, interpret and enforce conditions attached to a rezoning or amendment to the zoning district map, including: (a) the ordering in writing of the remedy of any noncompliance with such conditions; (b) the bringing of legal action to insure compliance with such conditions, including injunction, abatement, or other appropriate action or proceeding; and (c) requiring a guarantee, satisfactory to the Town Council, in an amount sufficient for and conditioned upon the construction of any physical improvements required by the conditions, or a contract for the construction of such improvements and the contractor's guarantee, in like amount and so conditioned, which guarantee shall be reduced or released by the Town Council, or agent thereof, upon the submission of satisfactory evidence that construction of such improvements has been completed in whole or in part. Provided, further, that failure to meet all conditions shall constitute cause to deny the issuance of any of the required use, occupancy, or building permits, as may be appropriate.

   Upon approval by the Town Council, proffered conditions shall become a part of the zoning regulations applicable to the property, and are enforceable under the same provisions for enforcement as all other provisions in the Ordinance.

10. Substantial Conformance Required.

    Upon approval, any site plan, subdivision plat or development plan thereafter submitted for the development of the property in question shall be in substantial conformity with the approved zoning and all proffered statements, plans, profiles, elevations, or other demonstrative materials, and no development shall be approved by any Town official in the absence of said substantial conformity.

11. Substantial Conformance Defined.

    For the purpose of this Section, substantial conformity mean that conformity which leaves a reasonable margin for adjustment due to final engineering data but conforms with the general nature of the development, the specific uses, and the general layout depicted by the plans, profiles, elevations, and other demonstrative materials presented or proffered by the applicant. Determinations of substantial conformance shall be made by the Zoning Administrator.

12. Guarantee for Construction of Improvements.

    A guarantee, satisfactory to the Town Council, may be required in an amount sufficient for and conditioned upon the construction of any public improvements required by a rezoning request and the proffered conditions. This guarantee may be reduced or released by the Council or agent thereof, upon the submission of satisfactory evidence that the construction of such improvements has been completed in whole or in part. The guarantee shall be required no later than final site plan or subdivision approval, whichever may occur earlier in time.

13. No Permits Shall Be Issued That Do Not Comply With Proffers.

    Failure to meet or comply with any proffered conditions shall be sufficient cause to deny the issuance of any site plan or subdivision approvals, grading permits, zoning permits, building permits, or certificates of occupancy as may be determined appropriate by the Zoning Administrator. In addition to the other penalties appropriate for violations of this Ordinance, failure to meet or comply with any proffered condition shall be sufficient cause to deny the issuance of any development approvals or permits relating to the land area which was the subject of the conditional zoning. To this end, each application for a development approval or permit shall include an affidavit by the applicant that all applicable proffers have or will be complied with as agreed upon at the time of rezoning. The burden shall be on the applicant to verify that proposed development complies with all proffered conditions.

14. Appeal of Proffer Decision.

    Any person aggrieved by a decision of the Zoning Administrator regarding any proffered condition may appeal such decision to the Town Council. Such appeal shall be filed within thirty (30) calendar days from

the date of the decision being appealed by filing a notice of appeal with the Zoning Administrator. Such notice shall be a written statement specifying the grounds on which aggrieved and the complete basis for the appeal. Upon receipt of the appeal notice, the Council shall take such testimony as it deems appropriate and should render its decision within sixty (60) calendar days after receipt of the appeal notice. The Town Council may reverse or affirm wholly or partly or may modify the decision of the Zoning Administrator.

15. Change of Approved Conditions.

Once proffered conditions have been approved, and there is cause for an amendment which would not be in substantial conformity with them, then an application shall be filed for an amendment of the proffered conditions. Applications can be filed by any landowner subject to conditions proffered pursuant to § 15.2-2297, 15.2-2298, 15.2-2303 or 15.2-2303.1 and Section 1 of this Article. Written notice of such application shall be provided as prescribed in Section H of § 15.2-2204 to any landowner subject to such existing proffered conditions. The approval of such amendment or variation by the Town Council shall not in itself cause the use of any other property to be determined a non-conforming use per Section 11-4.3 of this Ordinance.

If the amendment concerns an approved site development plan, such application shall include the submission requirements for a site development plan set forth in Section 11-3.7 of this Ordinance, except that the Planning Director may waive any submission requirement if such requirement is not necessary for an adequate review of the amendment application. Such amendment shall be the subject of public hearing in accordance with the requirements for a new application. No such amendment or variation of any conditions proffered pursuant to § 15.2-2297, 15.2-2298, 15.2-2303 or 15.2-2303.1 and Section 1 of this Article until after public hearings before the Planning Commission and Town Council are advertised pursuant to Article 11-3.2 of this Ordinance. Where a landowner subject to the conditions noted above requests an amendment to such proffered conditions and where such amendment does not affect conditions of use or density, the Town may waive requirements for public hearings.

## 11-3.10 Special Use Permits and Waivers

### 11-3.10.1 Authorization.

Uses listed in the district regulations as "permissible uses upon approval by the Town Council" shall be reviewed and acted upon by the Planning Commission and Town Council as provided in Section 11-3.2 of this Ordinance.

Uses listed in the district regulations as "permissible uses upon approval by the Town Council" shall be reviewed and acted upon by the Town Council as provided in Section 11-3.10.10 of this Ordinance.

Special use permits may be granted to establish or construct uses or structures which have the potential for a harmful impact upon the health, safety, and welfare of the public upon finding that the use, with conditions, will not have a deleterious impact, and will reflect the spirit and intent of the Comprehensive Plan as well as this Ordinance.

In acting on a request for a special use permit, the Town Council shall consider the impact of the requested special use.

Only those special use permits that are expressly authorized in a particular zoning district, or elsewhere in this Ordinance may be approved, including waivers where authorized. The Council may approve special use permits or waivers subject to conditions on such permits that shall apply to the property or use, regardless of any change in ownership.

### 11-3.10.2 Application.

Application for a special use permit shall be filed on the appropriate form therefore as provided by the Zoning Administrator and in accordance with the instructions which accompany the form. Special use permit applications shall contain the same information as required for zoning amendment applications set forth in Section 11-3.9. In addition, unless waived in part by the Zoning Administrator, the applicant shall provide all of the information, data, and studies needed to allow the Planning Commission and Town Council, to reach conclusive evaluations, which shall include, but not be limited to, the following:

1 A Statement of Justification explaining the compatibility of the proposed use with the existing and proposed land uses adjacent to and in the vicinity of the site and any potential impacts on the environment

and on the neighborhood due to the proposed use intensity, number of participants, acreage, hours of operation, traffic, lighting, and access, as well as the matters set forth in section 11.3-11.3.

2 A vicinity map depicting the adjacent and nearby (within 1,000 feet) land uses, streets and other data customarily incidental to a vicinity map.

3 A proposed site development plan indicating the location of the anticipated structures, setback lines, street pattern, parking provisions, a screening plan, and common open space if applicable. Such plans shall be contained on sheets measuring a minimum of 18" X 24" and a maximum of 36" X 24".

4 An analysis of the impact on the Town's transportation network and the ability of adjacent streets and intersections to efficiently and safely move the volume of traffic generated by the development, along with estimates of cost and means of providing improvements required to service the proposed special use.

5 An analysis of the impact on the Town's community facilities including estimates of costs and means of providing the additional community facilities which will be needed to serve the proposed special use. Community facilities include, but shall not be limited to, sewage disposal facilities and systems, solid waste disposal facilities and systems, water supply facilities and systems, storm drainage facilities and systems, and electrical utility facilities and systems.

6 An analysis of the ability of the Town to provide police and fire protection to the proposed special use.

7 The proposed configuration and intensity of lighting facilities to be arranged in such a manner to protect the streets and neighboring properties from direct glare or hazardous interference.

8 Noise impact and abatement studies to determine potential impact on adjoining properties and neighborhoods.

9 The delineation of any necessary screening for any uses or structural features deemed to be incompatible with the objectives of this Article, the remainder of this Zoning Ordinance, or the Comprehensive Plan including walls, fences, plantings, and/or other enclosures. Other landscaping to enhance the effectiveness of the screening and to insure the compatibility of use may also be required.

10 The delineation of screening and buffering of all parking areas will be required in accordance with a landscaping plan. Parking areas forward of the established building setback line will be prohibited.

11 The delineation of major trees on the site. Except to protect the public safety, avoid property loss, or provide for required parking, all major trees forward of the building setback line may be required for

preservation if their removal would diminish the character of the neighborhood.

11-3.10.3. Evaluation Criteria; Issues for Consideration

In considering a Special Use Permit application, the following factors should be considered. The applicant also shall address these factors in its statement of justification:

1. Whether the proposed Special Use Permit is consistent with the Comprehensive Plan.
2. Whether the proposed Special Use Permit will adequately provide for safety from fire hazards and have effective measures of fire control.
3. The level and impact of any noise emanating from the site, including that generated by the proposed use, in relation to the uses in the immediate area.
4. The glare or light that may be generated by the proposed use in relation to uses in the immediate area.
5. The proposed location, lighting and type of signs in relation to the proposed use, uses in the area, and the sign requirements of this Ordinance.
6. The compatibility of the proposed use with other existing or proposed uses in the neighborhood, and adjacent parcels.
7. The location and area footprint with dimensions (all drawn to scale), nature and height of existing or proposed buildings, structures, walls, and fences on the site and in the neighborhood.
8. The nature and extent of existing or proposed landscaping, screening and buffering on the site and in the neighborhood.
9. The timing and phasing of the proposed development and the duration of the proposed use.
10. Whether the proposed Special Use Permit will result in the preservation or destruction, loss or damage of any significant topographic or physical, natural, scenic, archaeological or historic feature.
11. Whether the proposed Special Use Permit at the specified location will contribute to or promote the welfare or convenience of the public.
12. The traffic expected to be generated by the proposed use, the adequacy of access roads and the vehicular and pedestrian circulation elements (on and off-site) of the proposed use, all in relation to the public's interest in pedestrian and vehicular safety, efficient traffic movement and access in case of fire or catastrophe.
13. Whether the proposed use will facilitate orderly and safe road development and transportation.

14. Whether, in the case of existing structures proposed to be converted to uses requiring a Special Use Permit, the structures meet all code requirements of the Town of Warrenton.
15. Whether the proposed Special Use Permit will be served adequately by essential public facilities, services and utilities.
16. The effect of the proposed Special Use Permit on environmentally sensitive land or natural features, wildlife habitat and vegetation, water quality and air quality.
17. Whether the proposed Special Use Permit use will provide desirable employment and enlarge the tax base by encouraging economic development activities consistent with the Comprehensive Plan.
18. The effect of the proposed Special Use Permit use in enhancing affordable shelter opportunities for residents of the Town, if applicable.
19. The location, character, and size of any outdoor storage.
20. The proposed use of open space.
21. The location of any major floodplain and steep slopes.
22. The location and use of any existing non-conforming uses and structures.
23. The location and type of any fuel and fuel storage.
24. The location and use of any anticipated accessory uses and structures.
25. The area of each proposed use.
26. The proposed days/hours of operation.
27. The location and screening of parking and loading spaces and/or areas.
28. The location and nature of any proposed security features and provisions.
29. The number of employees.
30. The location of any existing and/or proposed adequate on and off-site infrastructure.
31. Any anticipated odors which may be generated by the uses on site.
32. Refuse and service areas.

11-3.10.4. Conditions and Restrictions

In approving a Special Use Permit, the Town Council may impose such conditions, safeguards and restrictions as may be necessary to avoid, minimize or mitigate any potentially adverse or injurious effect of such special uses upon other properties in the neighborhood, and to carry out the general purpose and intent of this Ordinance. Conditions and restrictions may include, but are not limited to, those related to fencing, planting or other landscaping, additional set backs from property lines, location and arrangement of lighting, setting of reasonable time limitations and other reasonable requirements deemed necessary to mitigate the impacts of the use and safeguard the interests of the public. The Council may require a

guarantee or bond to ensure that conditions imposed will be complied with. All required conditions shall be set out in the documentation approving the Special Use Permit.

11-3.10.5. Period of Validity

As a condition of approval, a special use permit may be granted for a specific period of time with expiration of the approval to occur at the termination of a stated period. In such case, an extension may be granted prior to expiration by the original approving body, upon written application, without notice or hearing. After expiration, no extension may be granted without complying with the requirements for an initial application for a special use permit unless a qualified application for renewal is actively under consideration by the approving body.

11-3.10.6. Staff Review

Wherever a use or structure is listed either as a permissible use subject to approval of a special use permit, application shall be made to the Planning Director who shall prepare a report and refer such application to the Planning Commission for those uses that are listed as permissible upon approval by the Town Council, and to the Board of Zoning Appeals for those uses listed as permissible upon approval by the Board. Application for a special use permit shall be filed, containing such material and be processed in the same manner as for zoning amendments as provided for in Section 11-3.10. A Special Use Permit may be submitted in conjunction with a zoning map amendment application.

11-3.10.7. For Uses to be Acted Upon by the Town Council, as listed in Article 3

Upon review of the application and supporting data, the Planning Commission shall make its recommendation to the Town Council as to whether the application complies with the special use provisions in the particular district and the Comprehensive Plan, including verification that the use is specifically authorized within the district, and whether it should be approved or denied.

Before submitting its recommendation to Town Council, the Planning Commission shall hold a public hearing which may be a joint public hearing with the Town Council, after notice as required by § 15.2-2204 of the Code of Virginia, as amended. Following the public hearing, the Commission shall forward its recommendation to the Town Council.

11-3.10.8 Town Council Review and Hearing.

For those uses that are listed as permissible upon approval by the Town Council, the Town Council shall consider the recommendations of the Town Planning Commission before granting or denying approval of a special use permit. Before rendering a decision on a particular special use permit, the Town Council shall hold a public hearing, which may be a joint public hearing with the Planning Commission, after notice as required by § 15.2-2204 of the Code of Virginia, as amended.

11-3.10.9 Modifications to the Application or Conditions.

For those uses that are listed as permissible upon approval by the Town Council, after the Planning Commission has made its recommendation to the Town Council, should the application be modified, or additional conditions be agreed to or offered by the applicant that results in a more intense use or higher density or alters conditions that were intended to mitigate the impact of the development as determined by the Zoning Administrator, then a second public hearing shall be held by the Planning Commission before the modified application can be heard by the Town Council. The applicant shall be responsible for paying any additional advertising fees required for a subsequent public hearings before the Planning Commission and the Town Council. The Town Council may still impose reasonable conditions on the applicant, in accord with § 15.2-2286 of the Code of Virginia, as amended.

However, should additional information or modified conditions be submitted by the applicant after the Planning Commission has made its recommendation to the Town Council, which modifications or conditions were discussed at the public hearing before the Planning Commission, then a second public hearing before the Planning Commission shall not be required.

11-3.10.10 For Uses to be Acted Upon by the Town Council

Upon review of the application and supporting data, and before rendering a decision on a particular special use permit, the town Council shall hold a public hearing after notice as required by § 15.2-2204 of the Code of Virginia, as amended, and subsequently shall determine whether the application complies with the special use provisions in the particular district and the Comprehensive Plan, including verification that the use is specifically authorized within the district, and whether it should be approved or denied.

11-3.10.11 Construction Already Commenced.

Nothing contained herein shall require any change in the plans or construction of any building or structure subject to a vested right prior to the effective date of this Ordinance.

11-3.11 Variances

11-3.11.1. Variances Determined by the Board of Zoning Appeals

1. Variances Authorized

a) The Board of Zoning Appeals shall grant a variance if the applicant proves, by a preponderance of the evidence, that the strict application of the terms of the Ordinance would unreasonably restrict the utilization of the property or that the granting of the variance would alleviate a hardship due to the physical condition relating to the property or improvements thereon at the time of the effective date of the Ordinance. For properties located within the Floodplain District, the additional factors and limitations contained in Section 3-5.1.8 of this Ordinance shall also apply.

b) No variance shall be considered except after notice and hearing as required by §15.2-2204 of the Code of Virginia as amended.

c) The concurring vote of the majority of the BZA shall be required to authorize a variance.

2. Standards for Variances

In granting a variance, the BZA may impose such conditions regarding the location, character, and other features of the proposed structure or use as it may deem necessary in the public interest and may require a guarantee or bond to ensure that the conditions imposed are being, and will continue to be, complied with. Notwithstanding any other provision of law, general or special, the property upon which a property owner has been granted a variance shall be treated as conforming for all purposes under state law and local Ordinance; however, the structure permitted by the variance may not be expanded unless the expansion is within an area of the site or part of the structure for which no variance is required under the Ordinance. Where the expansion is proposed within an area of the site or part of the structure

for which a variance is required, the approval of an additional variance shall be required. No variance in the strict application of any provision of this Ordinance shall be authorized by the BZA except upon the following findings:

a) The property interest for which the variance is being requested was acquired in good faith and any hardship was not created by the applicant for the variance;
b) The granting of the variance will not be of substantial detriment to the adjacent property and nearby properties in the proximity of that geographical area;
c) The condition or situation of the property concerned is not of so general or recurring a nature as to make reasonably practicable the formulation of a general regulation to be adopted as an amendment to the Ordinance;
d) The granting of the variance does not result in a use that is not otherwise permitted on such property or a change in the zoning classification of the property; and
e) The relief or remedy sought by the variance application is not available through a special use permit process that is authorized in the Ordinance or the process for modification to the Zoning Ordinance at the time of the filing of the variance application.

11-3.11.2. Unauthorized Variances

1. No variance shall be authorized that would permit the establishment of any use not otherwise permitted in the zoning district under the specific provisions of this Ordinance.
2. No variance shall be authorized that would result in an increase in density from that permitted by the applicable zoning district regulations.
3. No variance shall be authorized that would relate to nonconforming uses.
4. No variance shall be authorized that would reduce the amount of off-street parking space required by Article 7.
5. No variance shall be authorized that would relate to signs.
6. No variance shall be authorized in cases where the applicant, subsequent to the effective date of this Ordinance, has purchased a portion of a larger parcel, which portion has an area or width less than required by the provisions of this Ordinance at the time of such purchase or which portion has unusual physical characteristics, that are

set forth as the basis for the application for a variance, which would not exist if such portion had not been detached by such purchase from the larger parcel of which it was a part.

7. No variance shall be authorized that would permit the establishment of any use not otherwise permitted in a floodplain.
8. No variance shall be authorized merely for the purpose of convenience or economic hardship.

11-3.11.3. Procedures for Variances

1. Application for Variance

Pursuant to provisions of this article and §15.2-2309 of the Code of Virginia, as amended, any person seeking a variance from the application of regulations of this chapter, shall first submit his proposal to the Zoning Administrator on a form to be provided by the Zoning Administrator, including therewith satisfactory evidence that any delinquent real estate taxes owed to the county which have been properly assessed against the subject property have been paid, and all plans and information relating to the application required by the board of zoning appeals pursuant to §15.2-2310 of the Code of Virginia. The application shall be transmitted promptly to the secretary of the Board of Zoning Appeals, who shall place the matter on the docket to be acted upon by the board.

The Zoning Administrator shall also transmit a copy of the application to the local Planning Commission which may send a recommendation to the Board or appear as a party at the hearing.

2. Decision on Variance Application

Upon receipt of an application or appeal, the Board of Zoning Appeals shall fix a reasonable time for a hearing of such application or appeal in conformance with §15.2-2204 of the Code of Virginia.

The proposal shall then be advertised pursuant to provisions of §15.2-2204 of the Code of Virginia prior to public hearing by the Board of Zoning Appeals. The Zoning Administrator shall also transmit a copy of the application to the Planning Commission, which may send a recommendation to the Board or appear as a party at the hearing.

The Board of Zoning Appeals shall render a decision on any application submitted to it within sixty (60) days after the date of the

hearing thereon.

3. Burden of Applicant

   The applicant for a variance shall bear the burden of producing evidence to support the required findings and to establish that the requested variance satisfies all standards for a Variance.

4. Withdrawal of Application

   An application or appeal to the Board of Zoning Appeals may be withdrawn by the applicant or appellant at any time prior to the deadline for cancellation of the newspaper advertisement for the first public hearing. After such deadline, an application or appeal may be withdrawn only with the permission of the Board of Zoning Appeals. An application or appeal which is not withdrawn pursuant to this subsection shall be either granted or denied on its merits.

5. Re-Application

   If any application is denied by the Board of Zoning Appeals on its merits, no application requesting the same relief with respect to all or part of the same property shall be considered by the Board within twelve (12) months after the date of such denial.

11-3.12 Appeal to the Board of Zoning Appeals

11-3.12.1 When Appeals May be Taken

1. An appeal to the Board of Zoning Appeals may be taken by any person aggrieved or by any officer, department, board, or bureau of the municipality affected by any decision of the Zoning Administrator or from any order, requirement, decision or determination made by any other administrative officer in the administration or enforcement of this article or any ordinance adopted pursuant thereto.
2. Such appeal shall be made within thirty (30) days after the decision appealed from by filing with the Zoning Administrator, and with the Board, a notice of appeal specifying the grounds thereof. The Zoning Administrator shall forthwith transmit to the Board all the papers constituting the record upon which the action appealed was taken. An appeal shall stay all proceedings in furtherance of the action appealed from unless the Zoning Administrator certified to the Board that by reason of facts stated in the certificate a stay would in his opinion

cause imminent peril to life or property, in which case proceedings shall not be stayed otherwise, than by a restraining order granted by the Board or by a court of record, on application and on notice to the Zoning Administrator and for good cause shown.

11-3.12.2 Appeal Procedure

1. Appeals shall be filed with the Board of Zoning Appeals in care of the Zoning Administrator, who shall provide a copy of the appeal to the secretary of the Board, and a third copy provided to the individual, official, department, or agency concerned, if any.
2. Appeals requiring an advertised public hearing shall be accompanied by cash payments to the Town in accordance with the Fee Schedule as set by Town Council by resolution.
3. Upon receipt of an application or appeal, the Board shall fix a reasonable time for the hearing, give public notice thereof in accord with § 15.2-2204 of the Code of Virginia, as well as due notice to the parties in interest.
4. The Board shall make its decision within ninety days of the filing of the application or appeal.
5. In exercising its powers the Board may reverse or affirm, wholly or partly, or may modify, an order, requirement, decision or determination appealed from. The concurring vote of a majority of the membership of the Board shall be necessary to reverse any order, requirement, decision or determination of an administrative officer or to decide in favor of the applicant on any matter upon which it is required to pass under the Ordinance or to effect any variance from the Ordinance.
6. The Board shall keep minutes of its proceedings and other official actions which shall be filed in the office of the board and shall be public records. The chairman of the board, or in his absence the acting chairman, may administer oaths and compel the attendance of witnesses.

11-3.12.3 Withdraw of Appeal

An application or appeal to the Board of Zoning Appeals may be withdrawn by the applicant/appellant at any time prior to the deadline for cancellation of the newspaper advertisement provided for in this article. After such deadline, an application or appeal may be withdrawn only with the permission of the Board. An application or appeal which is not withdrawn pursuant to this subsection shall be either granted or denied on the merits by the Board, either in whole or in part.

11-3.12.4 Court Petition

1. Any person or persons jointly or severally aggrieved by any decision of the Board of Zoning Appeals, or any taxpayer or any officer, department, board, or bureau of the Town may present to the circuit court of the county a petition specifying the grounds on which aggrieved within thirty (30) days after the filing of the decision in the office of the Board.
2. Upon the presentation of such petition, the court shall allow a writ of certiorari to review the decision of the Board of Zoning Appeals and shall prescribe therein the time within which a return thereto must be made and served upon the realtor's attorney, which shall not be less than ten (10) days and may be extended by the court. The allowances of the writ shall not stay proceedings upon the decision appealed from, but the court may, on application, on notice to the Board, and on due cause shown, grant a restraining order.
3. The Board of Zoning Appeals shall not be required to return the original papers acted upon by it, but it shall be sufficient to return certified or sworn copies thereof or of such portions thereof as may be called for by such writ. The return shall concisely set forth such other facts as may be pertinent and material to show the grounds of the decision appealed from and shall be verified.
4. If, upon the hearing, it shall appear to the court that testimony is necessary for the proper disposition of the matter, it may take evidence or appoint a commissioner to take such evidence as it may direct and report the same to the court with his findings of fact and conclusions of law, which shall constitute a part of the proceedings upon which the determination of the court shall be made. The court may reverse or affirm, wholly or partly, or may modify the decision brought up for review.
5. Costs shall not be allowed against the Board, unless it shall appear to the court that it acted in bad faith or with malice in making the decision appealed from.

11-3.13 Sign Permit

Signs permits shall be required in accordance with Article 6. The timing and application type used for the permitting of signs shall be as specified in Article 6-4.

## 11-4 Non-Conforming Uses and Structures

### 11-4.1 Purpose

The purpose of this section is to regulate and limit the development and continued existence of uses, structures, and lots legally established prior to the effective date of this Ordinance which do not conform to the requirements of this Ordinance. Many nonconformities may continue, but the provisions of this subsection are designed to curtail substantial investment in nonconformities and to bring about their eventual improvement to a conforming status or elimination in order to preserve the integrity of this Ordinance and the desired character of the Town and to protect the public health and safety.

Any nonconforming use, structure, or lot which lawfully existed as of the effective date of this Ordinance and which remains nonconforming, and any use, structure, or lot which has become nonconforming as a result of the adoption of this Ordinance or any subsequent reclassification of zoning districts or other amendment to this Ordinance, may be continued or maintained only in accordance with the terms of this section. The limitations of this section shall not apply to structures or lots whose nonconforming features are the subject of a variance that has been granted by the Board of Zoning Appeals or by the Zoning Administrator, or a modification or condition that was approved by the Town Council.

It is the intent of this chapter to abide by the letter and spirit of the provisions of § 15.2-2307 of the Code of Virginia. It is further the intent of this chapter that nonconformities shall not be enlarged, expanded or extended, nor be used as grounds for adding other structures or uses prohibited elsewhere in the same district.

Nonconforming uses are declared by this chapter to be incompatible with permitted uses in the districts involved.

### 11-4.2 Continuation

11-4.2.1 If at any time after the enactment of this Ordinance a lawful use of land and/or structures exists which would not be permitted by this chapter, the use may be continued so long as it remains otherwise lawful. A use of land or use of structure established in violation of contemporary zoning regulations is illegal, not nonconforming**.**

11-4.2.2 If any change in title of possession or renewal of a lease of any such lot or structure occurs, the use existing may be continued.

11-4.2.3 If any nonconforming use (structure or activity) is discontinued for a period exceeding two (2) years, after the enactment of this Ordinance, it shall be

deemed abandoned and any subsequent use shall conform to the requirements of this Ordinance.

11-4.2.4 Whenever a nonconforming structure, lot, or activity has been changed to a more restricted nonconforming use, such existing use may only be changed to a use of the same or less restricted category or to a less non-conforming activity as identified in the zoning district within which it is located.

11-4.3 Non-Conforming Uses

11-4.3.1 Expansion

No nonconforming use shall be enlarged, increased or extended to occupy a greater area of land than was occupied on the effective date of this provision to the Ordinance, unless such enlargement does not result in an increase in nonconformity or results in a change to a use permitted in the district.

11-4.3.2 Discontinuance

If any nonconforming use of land and/or structure ceases for any reason for a period of more than two (2) years, any subsequent use of such land and/or structure shall conform to the regulations specified by this chapter for the district in which such land is located.

11-4.3.3 Superseded

When any nonconforming use, or nonconforming structure and use in combination, is superseded by a permitted use and/or structure, the use shall thereafter conform to the regulations for the district, and no nonconforming use and/or structure shall thereafter be resumed.

11-4.3.4 Moving

No such nonconforming use and/or structure shall be moved in whole or in part to any portion of the land or parcel other than that occupied by such use and/or structure at the effective date or amendment of this ordinance, unless such move results in decreasing the degree of nonconformity or results in conformity with the requirements for the district.

11-4.3.5 Additional Uses

No additional uses which would be prohibited in the district involved shall be allowed.

11-4.3.6 Special Use Permits

Any lawful existing use which is permissible as a special permit use in a district under the terms of this Ordinance shall not be deemed a nonconforming use in such district, but shall, with written notification and proof to the Zoning Administrator, be considered a lawful conforming use in that district.

11-4.4 Non-Conforming Structures and Buildings

11-4.4.1 Repairs and Maintenance

On any building or structure devoted in whole or in part to any nonconforming use, work may be done in any period of twelve (12) consecutive months on ordinary repairs or on repair or replacement of nonbearing walls, fixtures, wiring, or plumbing, to an extent-not exceeding twenty (20) percent of the current replacement value of the structure provided that the cubic content of the structure as it existed at the time of passage or amendment of this Ordinance shall not be increased. Nothing in this Ordinance shall be deemed to prevent the strengthening or restoring to a safe condition of any structure or part thereof declared to be unsafe by any official charged with protecting the public safety, upon order of such official.

11-4.4.2 Expansion or Enlargement

A nonconforming structure to be extended or enlarged shall conform with the provisions of this Ordinance, except as provided for herein. No nonconforming use and/or structure shall be enlarged, increased or extended to occupy a greater area of land than twenty-five percent (25%) more than was occupied on the date of adoption or amendment of this ordinance unless such enlargement does not result in an increase in nonconformity or results in a change to a use permitted in the district.

11-4.4.2 Restoration or Replacement

1. If a nonconforming use or structure is destroyed or damaged in any manner to the extent that the cost of restoration to its condition before the occurrence shall exceed seventy-five (75) percent of the cost of reconstructing the entire structure, it shall be restored only if it complies with the requirements of this Ordinance.
2. Where a conforming structure devoted to a nonconforming activity, or where a nonconforming structure is damaged less than seventy-five (75) percent of the cost of reconstructing the entire structure, either may be repaired or restored, provided any such repair or restoration is started

within twelve (12) months and completed within eighteen (18) months from the date of partial destruction.

3. Historic structures designated as contributing structures to an Historic District adopted by the Town Council shall be exempt from the limitations of Sections 11-4.4.2.1 and 11-4.4.2.2.
4. The cost of land or any factors other than the cost of the structure are excluded in the determination of cost of restoration for any structure or activity devoted to a nonconforming use.
5. If a nonconforming structure or portion thereof containing a nonconforming use becomes physically unsafe or unlawful due to lack of repairs and maintenance, and is declared by any duly authorized official to be unsafe or unlawful by reason of physical condition, it shall not thereafter be restored, repaired, rebuilt or used, except in conformity with the regulations of the district in which it is located.

11-4.4.3 Pre-existing Setback

Any structure which existed on the date of adoption of this Ordinance which is nonconforming solely due to a setback or yard requirement imposed by this Ordinance may be enlarged, increased, extended, repaired or replaced so long as any such improvements do not result in an increase in the degree of nonconformity.

11-4.4.4 Illegal Structures

No structure that fails to conform with the requirements of this chapter shall be erected.

11-4.5 Non-Conforming Lots

11-4.5.1 Use

Any lot of record at the time of the adoption of this Ordinance which is less in area or width than the minimum required by this Ordinance may be used when the requirements regarding setbacks, side, and rear yards are met.

11-4.5.2 Changes in District Boundaries

Whenever the boundaries of a district are changed by amendment of this Ordinance, any uses of land, legal structures or buildings which become nonconforming as a result of such change shall become subject to the most current provisions of this Ordinance. Such affected use, lot or structure shall be accorded nonconforming use, lot and/or structure status as may be appropriate

under the terms of this Ordinance.

11-4.5.3 Division, Boundary Line Adjustment

No lot or parcel or portion thereof shall be used or sold in a manner reducing compliance with lot width or other requirements established by this chapter, nor shall any division be made which creates a lot with width or area below the requirements stated in this chapter.

Notwithstanding the provisions of the paragraph above, boundary line adjustments may be permitted between nonconforming lots, or between a conforming and a nonconforming lot, provided that the Zoning Administrator determines that the degree of nonconformity for any lot resulting from such boundary line adjustment is not increased due to such adjustment.

11-4.5.4 Condemnation

Any lawfully created lot which, by reason of condemnation for alignment, realignment of a federal or state road, has been reduced in size to any area less than that required by this Ordinance shall be considered a lawful nonconforming lot of record subject to the provisions set forth in this section.

11-4.5.5 Violations Are Not Nonconformities

Uses or structures established in violation of zoning regulations are lawful non-conformities. The burden of proof shall be upon the owner of the property to establish the lawful nonconforming status of a claimed non-conforming use.

11-4.5.6 Accessory Uses/Buildings, Signs

A lawful nonconforming use of a structure, a lawful nonconforming use of land or a lawful nonconforming use of a structure and land in combination shall not be continued, extended or enlarged by use or establishment of either an accessory use or building or by attachment on a building or premises of additional signs intended to be seen from off the premises. Non-conforming signs are regulated in Article 6-16 unless otherwise noted.

## 11-5 Enforcement and Penalties

11-5.1 Conformance to Provision. All departments, officials, and public employees of the Town of Warrenton which are vested with the duty or authority to issue permits or licenses shall conform to the provisions of this Ordinance. They shall issue permits for uses, buildings, or purposes only when they are in harmony with the provisions of this Ordinance. Any

such permit, if issued in conflict with the provisions of this Ordinance, shall be null and void.

11-5.2. Zoning Administrator

Whenever a violation of this chapter occurs, or is alleged to have occurred, any person may file a written violation complaint. The Zoning Administrator shall properly record such complaint, investigate it and take appropriate action thereon if warranted.

Upon his becoming aware of any violation of any provision of this chapter, the Zoning Administrator shall serve notice of such violation on the person committing or permitting such violation. If such violation has not ceased within thirty (30) days or such other reasonable time set by the Zoning Administrator and specified in the notice, he shall institute such legal action as may be necessary to remedy and terminate the violation.

The Zoning Administrator shall order the discontinuance of illegal use of land, buildings or structures, removal of illegal building or structures or of illegal additions, alterations or structural changes and discontinuance of any illegal work being done, or shall take any other action authorized by this chapter to ensure compliance with, or to prevent violation of, its provisions.

Notice of a zoning violation or a written order of the Zoning Administrator shall include a statement informing the recipient that he may have a right to appeal the notice of a zoning violation or a written order within thirty (30) days, and that the decision shall be final and unappealable if not appealed within thirty (30) days.

11-5.3 Violation of Provisions.

Any person, firm, or corporation, whether as principal, owner, lessee, agent, employee or otherwise, who violates, causes, or permits the violation of any of the provisions of this Ordinance shall be guilty of a Class 2 misdemeanor. Such person, firm, or corporation shall be deemed to be guilty of a separate offense for each and every day during which any portion of any violation of this Ordinance is committed, continued, or permitted by such person, firm, or corporation, and shall be punishable as herein provided.

11-5.4 Recourse for Unlawful Use.

The Zoning Administrator of the Town of Warrenton may institute any appropriate action of proceedings to prevent the unlawful erection, construction, reconstruction, alteration, repair, or conversion of any building or structure, or the unlawful use of land; to restrain, correct, or abate such violation; to prevent the occupancy of said building, structure, or land; or to prevent any illegal act, conduct, business, or use in or about such premises. The remedies provided for in this section are cumulative and not exclusive and shall be in

addition to any other remedies provided by law.

Office of the Town Manager
Frank Cassidy

# STAFF REPORT

**Warrenton Town Council**
Carter Nevill, Mayor
Heather Sutphin, Ward 1
William Semple, Ward 2
Brett Hamby, Ward 3
James Hartman, Ward 4 Vice Mayor
Jay Heroux, Ward 5
Paul Mooney, At Large
David McGuire, At Large

| | |
|---|---|
| **Council Meeting Date:** | July 9th, 2024 |
| **Agenda Title:** | Drought Conditions Currently Affecting the Town and the Impact on Water Resources |
| **Requested Action:** | Review and consider approval of the Resolution Authorizing the Town Manager to Declare a Water Emergency |
| **Department / Agency Lead:** | Town Manager |
| **Staff Lead:** | Frank Cassidy |

## EXECUTIVE SUMMARY

The purpose of this agenda item is to prepare the Council for potentially imminent actions that need to be taken to preserve the resources of the Town for its basic functions. Staff recommends granting the authority to the Town Manager the authority to Declare a Water Emergency.

As of Thursday, June 20, 2024, the Virginia Drought Monitoring Task Force (DMTF) convened to discuss drought indicators that have surfaced across the Commonwealth. Precipitation deficits in combination with the extreme temperatures of the previously warned heat dome have intensified drought conditions. The 8-14 day outlook forecasts continued above-average temperatures with below-normal precipitation levels that will continue to further intensify these drought conditions.

One of the predominant concerns is the onset of a flash drought between June 27th and July 3rd. A flash drought is the rapid onset or intensification of drought. It is attributable to lower-than-normal rates of precipitation coupled with abnormally high temperatures, wind, and radiation. These sustained higher temperatures increase evapotranspiration and further lowers soil moisture.
Based on its geographic location, Warrenton is on the cusp of a D1 moderate drought. The Warrenton Meteorological Station has recorded 0.24 inches of rain over the last 30-day period. On review of our current conditions, ground water levels remain steady. Surface water levels are as follows:

- **Current**
  - Airlie – 488.7
  - Warrenton – 444.0
- **Overflow**
  - Airlie – 488.8
  - Warrenton – 445.

The Comprehensive Drought management and emergence preparedness plan for Warrenton, Remington, the Plains, Fauquier County, Fauquier County Water and Sanitation Authority is attached.

## BACKGROUND

**Sec. 17-146. - Authority to declare water emergencies**. During the continued existence of climatic, hydrological and other extraordinary conditions the protection of the health, safety and welfare of the residents of the Town of Warrenton may require that certain uses of water, not essential to public health, safety and welfare, be reduced, restricted or curtailed. As the shortage of potable water becomes increasingly more critical, conservation measures to reduce consumption or curtail essential water use may be necessary.

The town manager, with the approval of the town council, is authorized to declare water emergencies affecting the use of water by persons and properties served by town water, inside and outside of the town boundaries, and to control and restrict the use of water during an emergency caused by a water shortage or other cause.

**Sec. 17-147. - Publication of declaration.**

Upon the declaration of a water emergency pursuant to section 17-146, the Town Manager shall immediately post a written notice of the emergency at the front door of town hall, in a newspaper of general circulation in the area, announce on television and radio and use any other appropriate means of communication.

**Sec. 17-148. - Use of water restricted.**
Upon the declaration of a water emergency pursuant to section 17-146, the town manager is authorized and directed to implement conservation measures by ordering the restricted use or absolute curtailment of the use of water for certain nonessential purposes for the duration of the water shortage in the manner hereinafter set out. In exercising this discretionary authority, and making the determinations set forth in section 17-150 thereof, the town manager shall give due consideration to water levels, available/usable storage on hand, draw down rates and the projected supply capability in source reservoirs in the Town of Warrenton, supply capacity, daily water consumption and consumption projections of the system's customers; prevailing and forecast weather conditions; fire service requirements; pipeline conditions including breakages, stoppages and leaks; estimates of minimum essential supplies to pre-serve public health and safety and such other data pertinent to the past, current and projected water demands.

All data collected and considered by the town manager shall be reduced to writing and maintained by the town manager.

**Sec. 17-149. - Limitation of restrictions.**
The provisions of this division, or regulations promulgated hereunder by the town manager, which are hereby authorized, shall not apply to any governmental activity, institution, business or industry which shall be declared by the town manager, upon a proper showing, to be necessary for the public health, safety and welfare or the prevention of severe economic hardship or the substantial loss of employment. Any activity, institution, business or industry aggrieved by the finding of the town manager may appeal that decision to a water conservation appeals board appointed by the town council consisting of three members selected as follows: a single representative from the department of public utilities, and two citizens from the public at large.

**Sec. 17-150. - Water conservation measures.**

Upon a determination by the town manager of the existence of the following conditions, the town manager shall take the following actions; which shall apply to any person whose water supply is furnished from the town water system:

(a)**Condition 1.** When moderate but limited supplies of water are available, the town manager shall, through appropriate means, call upon the general population to employ prudent restraint in water usage, and to conserve water voluntarily by whatever methods available.

(b)**Condition 2**. When very limited supplies of water are available, the town manager shall order curtailment of less essential usages of water, including, but not limited to, one or more of the following:(1)The watering of shrubbery, trees, lawns, grass, plants, or any other vegetation, except indoor planting, greenhouse or nursery stocks and except limited watering for newly seeded lawns and watering by commercial nurseries of freshly planted plants upon planting and once a week for five (5) weeks following planting.(2)The washing of automobiles, trucks, trailers, boats, airplanes, or any other type of mobile equipment, except in facilities operating with a water recycling system approved by the director of public works; provided, however, that any facility operating with a water recycling system shall prominently display in public view a notice approved by the director of public works/utilities stating that such recycling system is in operation. In lieu of the provisions hereof, the town manager may curtail the hours of operation of commercial enterprises offering such services or which wash their equipment.(3)The washing of streets, driveways, parking lots, service station aprons, office buildings, exteriors of homes or apartments, or other outdoor surfaces.(4)The operation of any ornamental fountain or other structure making a similar use of water.(5)The filling of swimming and/or wading pools, or the refilling of swimming and/or wading pools which were drained after the effective date of the order.(6)The use of water from fire hydrants for any purpose other than fire suppression or other public emergency.(7)The serving of drinking water in restaurants, cafeterias or any other food establishment unless requested by the individual.

**(c)Condition 3.** When critically limited supplies of water are available, the town manager shall institute mandatory reductions on each customer as follows:(1)Industrial, institutional, commercial, governmental, wholesale and all other nonresidential customers shall be allotted a percentage reduction based on that customer's average monthly and/or quarterly previous calendar year's consumption.(2)Individual residential customers shall be limited to a specific volume or percentage reduction of water per quarter.

If the allotted monthly/or quarterly water usage is exceeded, the customer shall be charged ten dollars ($10.00) for every one thousand (1,000) gallons of water consumed above the allotted volume. Where prior consumption data is not available, the town manager shall estimate allocations based upon the data available from similar activities of equal intensity.

**(d)Condition 4.** When crucially limited supplies of water are available, the town manager shall restrict the use of water to purposes which are absolutely essential to life, health and safety.

The determination of conditions 2, 3 and 4 by the town manager shall be accompanied by a written report which shall set out the criteria utilized and data relied upon in making such determination including a narrative summary supporting the determination. Each report shall be available for public inspection in the town manager's office. The town manager shall forthwith transmit a copy of each report to the town council.

**Sec. 17-151. - Penalty.**

Any person who shall violate any of the provisions of this division, or of any of the conservation regulations promulgated by the town manager pursuant thereto, shall, Upon conviction thereof, in addition to additional charges set forth in subsection 17-150(c) be fined not less than one hundred dollars ($100.00), nor more than two thousand five hundred dollars ($2,500.00). Each act or each day's continuation of a

violation shall be considered a separate offense. In addition to the foregoing, the town manager may suspend water service to any person continuing to violate the provisions of this ordinance or the regulations promulgated thereunder. If such water service is terminated, the person shall pay a re-connection fee of and all outstanding charges before service is restored.

**Sec. 17-152. - Notification of end of water emergency.**
The town manager shall notify the town council when, in his opinion, the water emergency situation no longer exists. Upon concurrence of the council, the water emergency shall be declared to have ended.

## STAFF RECOMMENDATION

Consider a resolution that would grant the Town Manager the Authority to declare a Water Emergency if necessary. Staff recommends taking this action now to avoid having to call a special meeting if conditions deteriorate. A more in-depth update will be available at the next Town Council Meeting.

No water restriction condition is recommended at this time.

### Service Level / Policy Impact

Services may be impacted for the community due to water restrictions and the necessary enforcement.

### Fiscal Impact

Additional funds may be necessary for advertisement, enforcement, and other emergency response through this Water Emergency.

### Legal Impact

Potential Legal impact may be occurred due to enforcement measures.

## ATTACHMENTS

1) Drought Plan 2018
2) Resolution: Water Emergency
3) DMFT Report 06.20.24
4) Combined Communications of the Emergency / Risk Manager of conditions.
   VA Drought assessment response plan.

**July 9, 2024**
**Town Council**
**Regular Meeting**

**A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF WARRENTON, VIRGINIA AUTHORIZING THE TOWN MANAGER TO DECLARE A WATER EMERGENCY AFFECTING THE USE OF WATER BY PERSONS AND PROPERTIES SERVED BY TOWN WATER, INSIDE AND OUTSIDE OF THE TOWN BOUNDARIES, AND TO CONTROL AND RESTRICT THE USE OF WATER DURING AN EMERGENCY CAUSED BY A WATER SHORTAGE.**

**WHEREAS,** As of Thursday, June 20, 2024, the Virginia Drought Monitoring Task Force (DMTF) convened to discuss drought indicators that have surfaced across the Commonwealth; and

**WHEREAS,** according to the Virginia Drought Monitoring Task Force, surface and groundwater indicators such as precipitation, groundwater, stream flows have continued to decline throughout the past fourteen-day monitoring period; and

**WHEREAS,** one of the predominant concerns is the onset of a flash drought between June 27th and July 3rd, a flash drought is the rapid onset or intensification of drought, it is attributable to lower-than-normal rates of precipitation coupled with abnormally high temperatures, wind, and radiation, these sustained higher temperatures increase evapotranspiration and further lowers soil moisture, based on its geographic location, Warrenton is on the cusp of a D1 moderate drought.

**WHEREAS,** Section 17-146 of the Warrenton Town Code authorizes the Town Manager to declare water Emergencies with the approval of the Town Council; and

**NOW, THEREFORE, BE IT RESOLVED THAT,** the Town Council of the Town of Warrenton hereby authorizes the Town Manager to declare a water emergency affecting the use of water by persons and properties served by town water, inside and outside of the town boundaries, authorizes the publication of such emergency declaration pursuant to Section 17-147 of the Warrenton Town Code as needed and authorizes the Town Manager to take all necessary actions to implement conservation and other restrictions authorized under Sections 17-148 and 17-150 of the Warrenton Town Code to control and restrict the use of water during an emergency caused by a water shortage, including, but not limited to, imposition of penalties as provided under Section 17-151 of the Warrenton Town Code.

ATTACHMENT: Staff Report and Supporting Documents

**Votes:**
**Ayes:**
**Nays:**
**Absent from Meeting:**

**For Information:**
**Town Manager**

**Assistant Director Public Utilities**
**Emergency / Risk Manager**

**ATTEST:** _____
**Town Recorder**

# Comprehensive Drought Management and Emergency Preparedness Plan

## For the:

- Town of Warrenton
- Town of Remington
- Town of The Plains
- Fauquier County Water and Sanitation Authority
- Fauquier County
- Large Agricultural Users

**Adopted August 11, 2016**

**Amended December 13, 2018**

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## 1. INTRODUCTION

This is the integrated drought plan for the towns of Warrenton, The Plains and Remington, Fauquier County, and the Fauquier County Water and Sanitation Authority. Individual drought plans for these organizations and jurisdictions have been incorporated into this integrated "umbrella" document, so therefore, this integrated consolidated plan supersedes earlier drought plans produced by these partnering organizations.

While the concept of drought is easy to comprehend, its quantification, the assigning of the starting and ending points and the assessment of its severity becomes more problematic. However, most people would agree with the ability of drought to affect our society, safety, health and economy, as well as influence our day-to-day lives. The ability of a drought to negatively impact our lives is lessened when there is adequate pre-planning, preparation and coordination.

Drought managers often do not manage the drought, but instead monitor for its occurrence, plan and prepare for how people conduct their lives during droughts, and help communities cope in a manner that will get them through the drought with as little impact as possible. A drought management plan should also plan and prepare for the degree of inter-jurisdictional coordination, cooperation and communication that is necessary during a drought event. This cooperation will likely be required to smoothly transition through the phases of a drought, since droughts do not recognize political or jurisdictional boundaries. Another reason for the plan is that hydrologic and recharge boundaries usually do not follow jurisdictional boundaries. The scope of this plan is for all residents, organizations and industries within Fauquier County, including those in the towns of Warrenton, The Plains and Remington, served by public water sources or private wells, and all businesses, residents, and farmers engaged in agricultural operations and other activities within Fauquier County. The purpose of this integrated approach is to facilitate coordination and communication, and to reflect the realities of the wide-ranging impact often associated with drought.

While this consolidated plan supersedes all other drought plans by the various partnering jurisdictions, nothing in this document infringes upon the sovereignty or decision-making authority of any jurisdiction or implies any cross-jurisdictional sharing of resources or obligation. The intent is only to increase coordination and clarity. It is within this holistic integrated approach that this drought management and emergency preparedness plan is presented.

## 2. DEMOGRAPHICS

Fauquier County lies in northern Virginia, between the rural Blue Ridge Mountains to the West and the urban Washington, DC/MD/Northern Virginia Metropolitan Area to the East. While historically rural farm and horse country, significant suburban development has occurred that provides the homes for commuters employed in other northern Virginia communities.

Fauquier County contains three incorporated towns: Warrenton, The Plains and Remington. Outside of these towns, County land-use plans encourage residential and commercial development in the nine Service Districts, located throughout the County (Table 1).

| Year 2010 Population for Communities in Fauquier County | | |
|---|---|---|
| | 2010 Dwelling Estimate | 2010 Population |
| Bealeton Service District | 1,549 | 4,435 |
| Calverton Service District | 119 | 239 |
| Catlett Service District | 125 | 296 |
| Marshall Service District | 534 | 1,480 |
| Midland Service District | 94 | 218 |
| New Baltimore Service District | 2,772 | 8,119 |
| Opal Service District | 232 | 691 |
| Remington Service District* | 617 | 1,441 |
| Warrenton Service District* | 1,871 | 5,480 |
| Town of Remington | 256 | 598 |
| Town of The Plains | 105 | 217 |
| Town of Warrenton | 3,744 | 9,611 |
| Total | 12,018 | 32,825 |
| Sources: 1) U.S. Census Bureau, 2010 Census; 2) *Department of Community Development | | |

Table 1: Population within the Towns and Service Districts

The population of Fauquier County in 2010 was 65,203. This means that 32,378 Fauquier residents (50%) lived outside of Service Districts.

The Fauquier County Water and Sanitation Authority (WSA) estimated that an approximation of water demand may be obtained by multiplying the population by 100 gallons of water per day. Using this figure, the water demand for Fauquier County is approximately 6,600,000 gallons a day, or 2,409,000,000 (2.409 billion) gallons per year. It is also important to remember that this demand is not distributed evenly throughout the County. Instead, there is a heavy concentration within the Warrenton-New Baltimore region.

## 3. DEFINTIONS and BASIC DROUGHT PRINCIPLES

The key factor in droughts is the lack of availability of water that has the acceptable level of quality to serve the desired use. Whether a person's water supply is from groundwater wells or surface water reservoirs, the source of this water is invariably precipitation. As such, droughts are inherently linked to precipitation and the hydrologic cycle. Before the discussion of drought continues, it may be helpful to provide a brief summary of the hydrologic cycle.

Water is stored in a variety of locations, for example:

- surface water bodies such as oceans, streams, lakes, ponds and reservoirs;
- frozen water bodies such as ice caps and glaciers;
- groundwater, such as in soil particles and interstitial spaces and fractures in bedrock;
- tissues of living matter, such as plants, animals and humans;
- water vapor contained in the atmosphere; and
- human-constructed storage vaults.

The quantity of water stored within these six reservoirs is as follows: 96.5% within the oceans; 1.8% in ice; 1.7% in groundwater; and less than one percent for freshwater bodies, living matter and the atmosphere.

The water cycle describes the natural process of any given unit of water moving from one of these storage locations to another. A specific water unit in the natural water cycle is not consumed or "used up"; it simply is transferred from one storage location to another. For instance, a particular unit of water may come out of a groundwater spring to feed a surface water stream in Fauquier County; this same unit of water may then be pumped to a cattle trough which in turn is drunk by Fauquier cattle; these cattle expire, sweat and transpire the water as vapor into the atmosphere; this same unit of water then may be carried as water vapor off to the Arctic to eventually fall as snow on the icecap of Ellesmere Island; thousands of years later a large chunk of ice containing this same unit of water may fall into the ocean and drift as an iceberg in the Northern Atlantic until it melts and becomes a part of the Atlantic Ocean; this same unit of water may evaporate off the coast of Portugal and be transferred to the atmosphere where it may drift into the Mediterranean region; eventually this unit of water may fall as rain on karst terrain in Croatia and once again enter the groundwater, but this time in Europe.

Most of the water input to land surfaces takes place as precipitation (rain or snow). Meteorological events often create a condition that converts water vapor (a gas) in the atmosphere into liquid water. Atmospheric conditions may exist where the atmosphere may no longer be able to hold as much water vapor, so it condenses into a liquid and it falls as rain. Some of this rainfall runs directly into lakes and streams; and these lakes and streams flow into the ocean.

Other meteorological conditions evaporate liquid water in lakes, streams and the ocean into gaseous water vapor which moves the water stored in lakes, streams and the ocean back into the atmosphere.

Other rainfall that has fallen on land surfaces, seeps below the surface and is incorporated into groundwater storage. Groundwater in turn, often seeps out of springs and feeds the majority of lakes and streams.

Other rainfall that lands on the surface is absorbed by plants and animals and stored in living cells and tissues. All living matter transfer water vapor back into the atmosphere by either respiration (from animals) or transpiration (from plants). The large biomass of forests, shrubs and grasses that blankets the Earth's land surfaces ends up transpiring a significant quantity of water back into the atmosphere. The term used to describe the total quantity of water that cycles from living plants (transpiration) and that which evaporates from water and ground surfaces (evaporation), is called "evapotranspiration" or "ET" for short.

Humans also often pull water from lakes and reservoirs, and from groundwater. Humans only temporarily use this water for personal, industrial or economic purposes before it is eventually transferred back into streams (such as through a wastewater treatment plant's effluent discharge), into groundwater (such as septic systems), or into the atmosphere (such as through evaporation off human bodies or off watered lawns). Some of this water may be temporarily stored in cisterns, vaults or tanks, but eventually it too is returned to the natural water cycle.

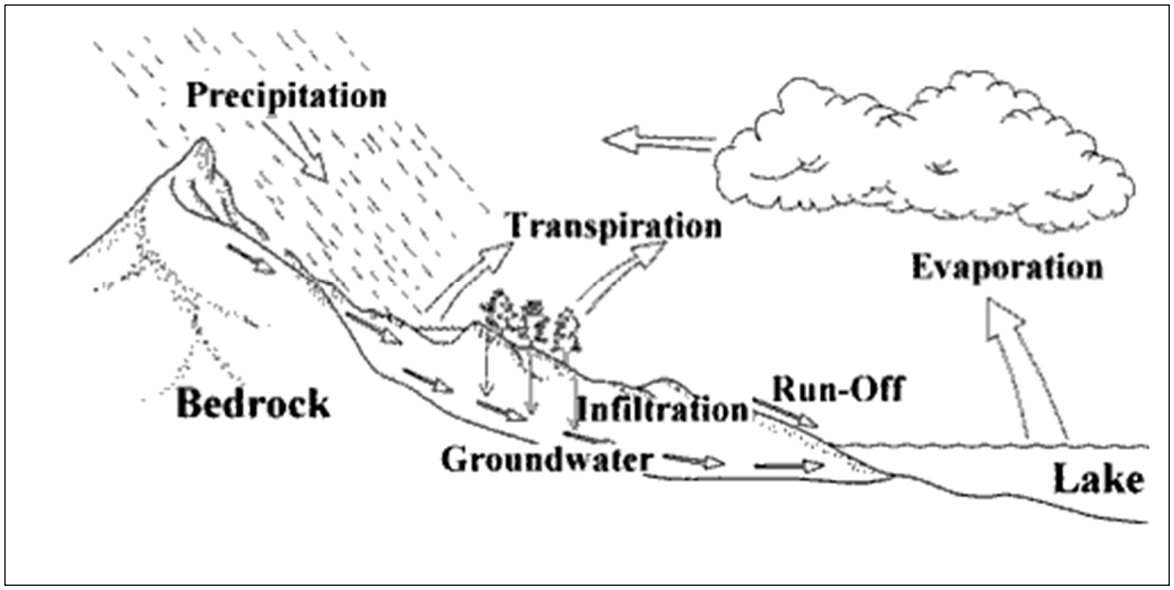



Figure 1: Generalized Hydrologic Cycle

Many hydrologists when calculating water usage on a watershed scale do not factor in human residential water usage, since any water removed and consumed within a particular watershed is likely to be returned to that same watershed through either their own septic system or else through local wastewater treatment plants. There is a concern if water supplies from one watershed are transferred to another. For instance, if water supply comes from surface water in the Cedar Run watershed (a part of the greater Potomac River watershed) and after being treated by a wastewater facility is returned to surface water in the Rappahannock River watershed, then this may create a water shortage in the Potomac River watershed. These inter-basin transfers may play a noticeable or significant role in water budget and water supply calculations.

Therefore a drought is not a lack of water, since the same quantity of water within the Earth's ecosystem is consistent, but instead, the water may be distributed on the Earth's surface in a manner that provides a localized shortage; or the water is held in a local storage unit (such as a higher quantity being stored in the atmosphere, or more in the oceans, and less in groundwater (and therefore the well may go dry, even though there's high humidity over the same area or floods in Ethiopia).

The hydrologic cycle becomes important in drought planning for two main reasons: to provide a basic understanding of the topic; and to find ways to conserve and manage water and the water cycle for the most beneficial use. One key aspect of a drought plan is to outline priorities for water usage. Another key aspect of a drought plan is to describe ways that water can be conserved by understanding and managing the water cycle. Some examples of this include the following:

- knowing that water bodies lose water to the atmosphere through evaporation, a person may discover ways that they may be able to limit their water loss (e.g. covering water storage vaults and tanks , by providing a shade structure to livestock troughs, or better yet, provide on-demand watering systems for livestock);

- knowing that water that runs off the surface into streams does not infiltrate into the ground and replenish groundwater sources that your well draws from, a person may choose to landscape differently, such as having less impervious surfaces, or by having more vegetation that captures run-off, or by designing a more effective stormwater management system for their lot (which directs surface water run-off to infiltrate into the localized groundwater reservoir rather than from running directly into streams that flow out of the area) ; or
- knowing that much water is lost through evaporation and transpiration, a person may choose to water their plants in cooler periods of the day or through drip irrigation systems that limit water loss to the atmosphere.

The general definition of a drought is a long period of abnormal low rainfall, especially one that adversely affects growing or living conditions. Even if we use this general definition of a drought, how do we go about quantifying it without the quantification of other terms and concepts, such as:

- How long of a period is "long" to count as a drought?
- How much precipitation is "normal" or "abnormal"?
- Is it not only a factor of "rainfall"? Droughts are highly dependent upon other factors such as water storage in snow pack, water storage in groundwater aquifers that may not be influenced by surface conditions, and meteorological parameters such as temperature, humidity, evaporation and wind.
- At what point does low-water availability begin adversely affecting growing or living conditions? In addition, how do you quantify this, especially when it is highly dependent upon the location or community in which you live (for instance, what would be considered a severe drought to a group of farmers may not even be noticeable to a community that is not as closely associated with or tied to field conditions)?

Due partly to these many ill-defined components or ways at looking at a drought, there has since become many categories of droughts, such as "meteorological drought," "agricultural drought" and "hydrological drought."

Meteorological drought:

> "A period of abnormally dry weather sufficiently prolonged for the lack of water to cause serious hydrologic imbalance in the affected area." (Huschke, R.E., ed., 1959, Glossary of meteorology: Boston, American Meteorological Society, 638 p.)

Agricultural drought:

> "A climatic excursion involving a shortage of precipitation sufficient to adversely affect crop production or range production." (Rosenberg, N.J., ed., 1979, Drought in the Great Plains--Research on impacts and strategies: Proceedings of the Workshop on Research in Great Plains Drought Management Strategies, University of Nebraska, Lincoln, March 26-28: Littleton, Colorado, Water Resources Publications, 225 p.)

Hydrologic drought:

"A period of below average water content in streams, reservoirs, Groundwater aquifers, lakes and soils." (Yevjevich Vujica, Hall, W.A., and Salas, J.D, eds., 1977, Drought research needs, in Proceedings of the Conference on Drought Research Needs, December 12-15, 1977: Colorado State University, Fort Collins, Colorado, 276 p.)

## 4. AUTHORITIES

The Virginia Administrative Code (9VAC25-780-120) states that all communities and water users that withdraw more than an average 300,000 gallons per month shall develop drought response and contingency plans. Several entities within Fauquier County fit within this description, so this requirement applies to residents of Fauquier County. The entire 9VAC25-25-780-120 is as follows:

*9VAC25-780-120. Drought response and contingency plans.*

*A program that includes community water systems and self-supplied users who withdraw more than an average of 300,000 gallons per month of surface water and ground water shall contain drought response and contingency plans in accordance with the following requirements:*

*1. Drought response and contingency plans shall be structured to address the unique characteristics of the water source that is being utilized and the nature of the beneficial use of water.*

*2. Drought response and contingency plans shall contain, at a minimum, the following three graduated stages of responses to the onset of drought conditions:*

*a. Drought watch stage responses are generally responses that are intended to increase awareness in the public and private sector to climatic conditions that are likely to precede the occurrence of a significant drought event. Public outreach activities shall be identified to inform the population served by a community water system of the potential for drought conditions to intensify and potential water conservation activities that may be utilized.*

*b. Drought warning stage responses are generally responses that are required when the onset of a significant drought event is imminent. Voluntary water conservation activities shall be identified with the goal of reducing water use by 5-10%.*

*c. Drought emergency stage responses are generally responses that are required during the height of a significant drought event. Mandatory water conservation activities shall be identified with the goal of reducing water use by 10-15%.*

*3. Drought response and contingency plans shall include references to local ordinances, if adopted, and procedures for the implementation and enforcement of drought response and contingency plans.*

*Statutory Authority*
*§§ 62.1-44.15 and 62.1-44.38:1 of the Code of Virginia; Historical Notes*
*Derived from Virginia Register Volume 22, Issue 2, eff. November 2, 2005.*

The combined Fauquier County, Remington and The Plains' Water Supply Plan was approved September 29, 2011. Section V(b) of this plan is an official drought response and management plan. Virginia Department of Environmental Quality (DEQ) approved the main Water Supply Plan part, but only provisionally approved the drought plan portion. Specifically, the drought part was found to be lacking in implementation and enforcement specifics, and needed the accompanying and supporting ordinances. The drought plan presented in the Water Supply Plan is superseded by this Drought Plan, which has more implementation and enforcement details, and more importantly, takes a more comprehensive approach by the inclusion of the WSA and the town of Warrenton.

Warrenton's Draft Water Supply Plan was released in February 2010, and their Water Conservation Ordinance (#1999-08) was adopted on August 10, 1999. This Ordinance is attached in the appendix of this document. Since this drought plan is an "umbrella plan" that incorporates other drought plans, such as Warrenton's; therefore, this drought plan supersedes any of their earlier drought plans.

WSA drafted its Water Preservation Program Plan in 2013, and it has been incorporated in this integrated drought plan.

## 5. HYDROLOGICAL AND ENVIRONMENTAL CONDITIONS

### 5.1 Precipitation

The single environmental factor controlling drought conditions is precipitation. Most of the National Oceanic and Atmospheric Administration (NOAA) weather stations located in Fauquier County, such as Marshall, Remington, The Plains, Delaplane and Warrenton, have been discontinued. Fortunately, two of these stations (The Plains and Warrenton) were only recently discontinued, so data from these stations were included in NOAA's recent 30-year Normal determinations. The lack of local data to support adjustments in precipitation Normal determinations in the future may be an issue.

"Normal" precipitation is a statistical mean of a moving 30-year interval. Therefore, mean Normal precipitation for the year 2011 would be 1982 through 2011, while the mean Normal precipitation for the year 2012 would be 1983 through 2012. However, these 30-year Normal values are updated only once every ten years, so the most recent of these "Normal" 30-year periods was from 1981 to 2010.

The 30-year Normal precipitation data determined that the Normal annual precipitation for Warrenton is 40.7 inches, and 42.24 inches for The Plains.

Since Fauquier County lacks approved NOAA weather stations, we must look elsewhere for relevant data. Data from the stations used to determine Normal precipitation may be used to assess which other nearby stations best represents precipitation totals within Fauquier County. To assess the current weather stations proximity and potential representative of Fauquier County's climate variables, the stations that passed the initial screening and analysis are as follows:

- Boston, VA
- Front Royal, VA
- Lincoln, VA
- Mount Weather VA
- Quantico Marine Corps Base
- Sperryville, VA
- Washington Dulles International Airport

The stations in Front Royal, Lincoln, Quantico MCB, and Sperryville were determined to be too far away and served little added value to the Boston, Mount Weather and The Dulles sites. The 30-year Normal data for each of these three sites was tabulated, graphed and assessed in comparison with the 30-year Normal precipitation data for The Plains and Warrenton. A summary of this data is depicted in Table 1 and Figure 2.

| Month | Warrenton [el. 500 ft.] | The Plains [el. 530 ft.] | The Dulles [el. 290 ft.] | Mt. Weather [el. 1,659 ft.] | Boston [el. 590 ft.] |
|---|---|---|---|---|---|
| | inches | inches | | | |
| January | 3.02 | 3.04 | 2.68 | 2.88 | 2.70 |
| February | 2.78 | 2.86 | 2.74 | 2.96 | 2.58 |
| March | 3.52 | 3.68 | 3.38 | 3.56 | 3.70 |
| April | 3.68 | 3.56 | 3.47 | 3.69 | 3.44 |
| May | 4.56 | 4.72 | 4.55 | 4.48 | 4.35 |
| June | 4.23 | 4.01 | 3.98 | 4.24 | 4.25 |
| July | 4.27 | 3.71 | 3.67 | 3.81 | 5.20 |
| August | 3.77 | 3.88 | 3.53 | 3.45 | 3.56 |
| September | 4.50 | 4.37 | 3.92 | 4.52 | 4.35 |
| October | 3.22 | 3.46 | 3.25 | 3.43 | 3.48 |
| November | 3.53 | 3.72 | 3.41 | 3.51 | 3.97 |
| December | 3.40 | 3.04 | 2.96 | 2.95 | 2.98 |
| Total | 44.48 | 44.05 | 41.54 | 43.48 | 44.56 |

Table 1

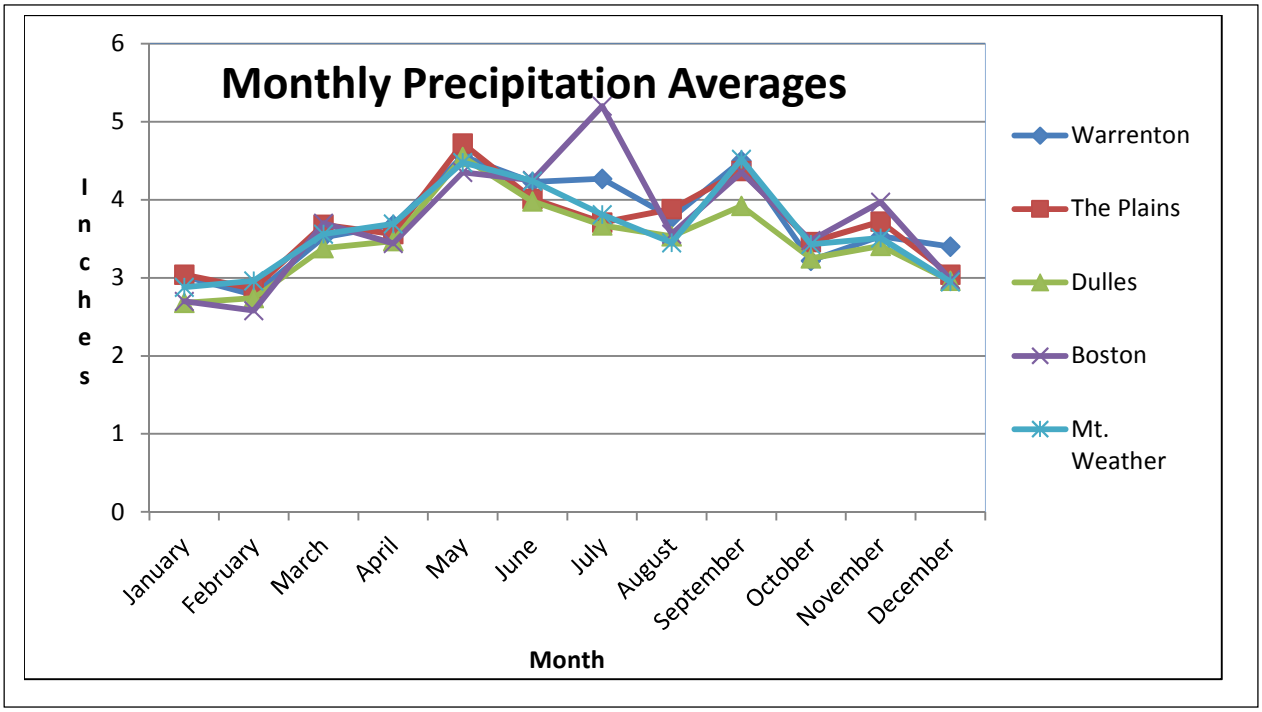



Figure 2

The closest station to the northern portions of the County is Mount Weather (the town of Marshall is located approximately 10 miles from the Mount Weather station). Marshall is located approximately 20 miles from the Dulles Airport station. The closest station to the central and southern portions of the county is the Boston station (Warrenton is located approximately 16 miles from the Boston station). The Dulles Airport station is located approximately 19 miles from Warrenton. Spatially, Fauquier County is located near the center of the triangle formed between the Mount Weather, The Dulles Airport and the Boston stations. Spatially, if two stations were picked to represent Fauquier County, then the Dulles Airport station to the northeast and the Boston station to the southwest would be logical. However, an evaluation of the precipitation Normals for these sites appears to indicate that spatial considerations are not significant factors, since there is no apparent correlation or trend. Elevation also does not appear to be a significant factor. The majority of the data is so similar to each other that significant differences, let alone correlations could not be found. Data from the Dulles Airport matches the annual trends of both Warrenton and The Plains, although precipitation at the Warrenton station is 7.1 percent more than the Dulles Airport station, and precipitation at The Plains is 6.0 percent more than the Dulles Airport station. Although the Normal July precipitation at the Boston station is noticeably higher than the other stations, taken as a whole, the Boston station represents the upper-end of the anticipated Fauquier County precipitations values, and the Dulles Airport station represents the lower-end; therefore, the mean of these two stations may be best predictor of precipitation within Fauquier County. The station at the Dulles Airport has also the advantage of being the most administratively stable of the weather stations, since it is one of NOAA's primary weather stations, while the others are

dependent on volunteer persistence. The other weather stations have a long history of being discontinued after a time, since NOAA relies upon volunteer cooperators.

The Warrenton-Fauquier Airport and the Culpeper Airport have automated weather stations in which data is accessible over the internet for a maximum of three days. In these stations, data going back more than three days is not retrievable, therefore, is of limited use for drought planning purposes.

Many volunteers in Fauquier County donate their weather data to the Weather Underground internet site. Weather Underground staff provide quality assurance and quality control over the temperature data, but not the precipitation data. As a consequence, reported precipitation data on the website vary considerably, with some nearby stations containing annual precipitation totals that differ by more than 1,100 inches (91 feet) of precipitation. Therefore, it remains of unknown reliability.

### 5.2 Stream Flow

Warrenton receives most of their potable water from surface water sources; however, the majority of other county residents obtain their potable water from groundwater sources. Some of Fauquier County's livestock and other components of the County's important agricultural industry rely upon surface water. In addition, surface water is a reliable means of assessing drought conditions, even for groundwater sources. For one, the majority of surface streams are derived from groundwater, so if the streams are running low, the groundwater is often low as well. However, there are other uses of and values to surface water beyond potable water supply, such as livestock, irrigation, treated waste disposal, fire protection, and environmental.

For instance, the County estimated that a drought in 2005 caused losses to Fauquier County ranchers and farmers in excess of 2.35 million dollars, and a drought in 2008 caused an estimated 7 million dollars loss. During these droughts, surface waters used for livestock were running dry and alternative water sources were developed to sustain livestock through the drought. Therefore, surface water conditions are important to evaluate and monitor within the context of this drought management and emergency response plan.

Fauquier County contains approximately 1,722 miles of streams, contained in two major watersheds, the Potomac River (950 miles of stream) and the Rappahannock River (772 miles of stream). A summary of the stream miles of the following watersheds is listed below:

| Potomac River | Area (Square Miles) |
|---|---|
| Upper Goose Creek | |
| Goose Creek-Crooked Run-Gap Run | 159.6 |
| Goose Creek- Mitchells Branch | 73.7 |
| Goose Creek-Wancopin Creek | 6.3 |
| Cromwells Run | 50.7 |
| Panther Skin Creek | 21.3 |
| | 311.6 |

| | | |
|---|---|---|
| Lower Goose Creek | | |
| Little River | 72.1 | |
| | 72.1 | |
| Broad Run | | |
| Broad Run-Trapp Branch | 83.0 | |
| Broad Run-Catletts Branch | 36.8 | |
| Kettle Run | 26.0 | |
| | 145.8 | |
| Bull Run | | |
| Little Bull Run | 2.3 | |
| | 2.3 | |
| Cedar Run | | |
| Cedar Run-Mill Run | 69.8 | |
| Cedar Run-Slate Run | 16.2 | |
| Cedar Run-Owl Run | 121.9 | |
| Cedar Run-Walnut Branch | 36.5 | |
| Town Run | 103.9 | |
| Licking Run | 60.8 | |
| | 409.1 | |
| Lower Potomac River | | |
| Potomac River-Potomac Creek | | |
| Upper Aquia Creek | 9.1 | |
| | 9.1 | |
| | Total = | 950.0 |
| Rappahannock River | | |
| Carter Run | 148.6 | |
| Rappahannock River-Glascock Run | 24.6 | |
| Rappahannock River-Great Run | 113.1 | |
| | 286.3 | |
| Marsh Run | 105.8 | |
| Rappahannock River-Deep Run | 46.5 | |
| Rappahannock River-Ruffans Run | 52.9 | |
| Rappahannock River-Rock Run | 84.7 | |
| | 289.9 | |
| Thumb Run | 93.9 | |
| Rappahannock River-Buck Run | 91.9 | |
| Rappahannock River-Lake Mosby | 9.8 | |
| | 195.6 | |
| | Total = | 771.8 |

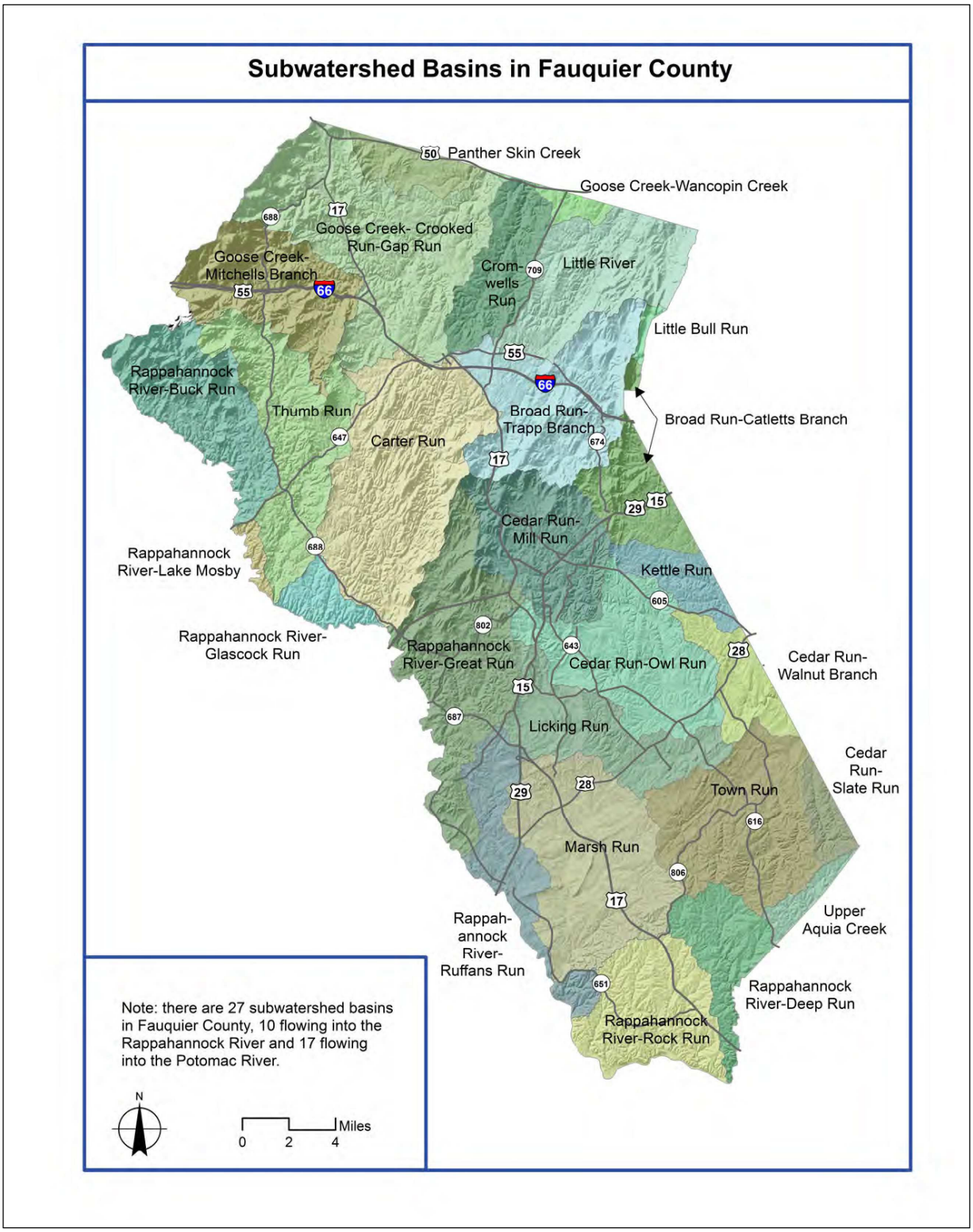



Figure 3: Subwatershed Basins of Fauquier County

| SubWatershed | Area (square miles) | Stream Length (Miles) | Stream miles per Square | Estimated Precipitation Input (cf/yr.) | Estimated ET (cf per year) | Estimated Runoff (cf per year) | Estimated Infiltration (cf per year) | Estimated Annual Stream Discharge (cf) |
|---|---|---|---|---|---|---|---|---|
| Goose Creek-Crooked Run-Gap Run | 59.57 | 159.56 | 2.67853 | 6,089,846,628 | 3,943,784,676 | 246,042,019 | 1,383,376,668 | 1,629,418,687 |
| Goose Creek-Mitchells Branch | 29.92 | 73.7 | 2.46324 | 3,058,724,377 | 1,980,829,906 | 123,578,600 | 694,823,399 | 818,401,999 |
| Goose Creek- Wancopin Creek | 3.11 | 6.26 | 2.01286 | 317,935,589 | 205,895,087 | 12,845,235 | 72,222,619 | 85,067,855 |
| Little River | 30.61 | 72.1 | 2.35544 | 3,129,263,141 | 2,026,510,810 | 126,428,507 | 710,847,067 | 837,275,575 |
| Cromwells Run | 18.45 | 50.74 | 2.75014 | 1,886,145,212 | 1,221,467,639 | 76,204,050 | 428,458,948 | 504,662,998 |
| Panther Skin Creek | 8.57 | 21.32 | 2.48775 | 876,111,895 | 567,370,063 | 35,396,678 | 199,018,601 | 234,415,279 |
| Broad Run- Trapp Branch | 37.78 | 82.98 | 2.19640 | 3,862,252,906 | 2,501,194,982 | 156,042,764 | 877,353,878 | 1,033,396,642 |
| Broad Run- Catletts Branch | 15.94 | 36.84 | 2.31117 | 1,629,547,679 | 1,055,295,077 | 65,836,995 | 370,169,953 | 436,006,948 |
| Kettle Run | 9.43 | 26.02 | 2.75928 | 964,029,775 | 624,305,682 | 38,948,737 | 218,990,129 | 257,938,865 |
| Little Bull | 1.18 | 2.28 | 1.93220 | 120,631,510 | 78,120,966 | 4,873,755 | 27,402,794 | 32,276,549 |
| Cedar Run- Mill Run | 28.82 | 69.85 | 2.42366 | 2,946,271,274 | 1,908,005,277 | 119,035,269 | 669,278,422 | 788,313,691 |
| Cedar Run- Slate Run | 5.45 | 16.2 | 2.97248 | 557,154,006 | 360,812,934 | 22,510,139 | 126,563,754 | 149,073,894 |
| Cedar Run- Owl Run | 36.94 | 121.93 | 3.30076 | 3,776,379,628 | 2,445,583,447 | 152,573,312 | 857,846,804 | 1,010,420,116 |
| Cedar Run- Walnut Branch | 12.29 | 36.49 | 2.96908 | 1,256,407,841 | 813,649,718 | 50,761,397 | 285,407,071 | 336,168,468 |
| Town Run | 39.92 | 103.93 | 2.60346 | 4,081,025,305 | 2,642,871,987 | 164,881,608 | 927,050,471 | 1,091,932,079 |
| Licking Run | 25.5 | 60.81 | 2.38471 | 2,606,867,366 | 1,688,207,306 | 105,322,670 | 592,179,034 | 697,501,704 |
| Upper Aquia Creek | 4.15 | 9.07 | 2.18554 | 424,254,885 | 274,747,464 | 17,140,748 | 96,374,235 | 113,514,983 |
| Carter Run | 55.4 | 148.6 | 2.68231 | 5,663,547,141 | 3,667,713,129 | 228,818,664 | 1,286,537,979 | 1,515,356,643 |
| Rappahannock River- Glascock Run | 6.81 | 24.55 | 3.60499 | 696,186,932 | 450,850,657 | 28,127,348 | 158,146,636 | 186,273,984 |
| Rappahannock River- Great Run | 43.68 | 113.1 | 2.58929 | 4,465,410,454 | 2,891,799,810 | 180,411,539 | 1,014,367,850 | 1,194,779,389 |
| Marsh Run | 46.56 | 105.76 | 2.27148 | 4,759,833,121 | 3,082,467,929 | 192,306,805 | 1,081,249,247 | 1,273,556,052 |
| Rappahannock River- Deep Run | 15.85 | 46.52 | 2.93502 | 1,620,346,971 | 1,049,336,698 | 65,465,268 | 368,079,909 | 433,545,177 |
| Rappahannock River- Ruffans Run | 20.02 | 52.93 | 2.64386 | 2,046,646,458 | 1,325,408,246 | 82,688,622 | 464,918,598 | 547,607,220 |
| Rappahannock River- Rock Run | 27.85 | 84.69 | 3.04093 | 2,847,108,084 | 1,843,787,196 | 115,028,877 | 646,752,396 | 761,781,273 |
| Thumb Run | 36.15 | 93.93 | 2.59834 | 3,695,617,855 | 2,393,282,123 | 149,310,374 | 839,500,865 | 988,811,239 |
| Rappahannock River- Buck Run | 29.09 | 91.86 | 3.15779 | 2,973,873,400 | 1,925,880,414 | 120,150,450 | 675,548,552 | 795,699,003 |
| Rappahannock River- Lake Mosby | 2.15 | 9.75 | 4.53488 | 219,794,700 | 142,339,047 | 8,880,147 | 49,928,820 | 58,808,967 |
| | 651 | 1,722 | 73 | 66,571,214,130 | 43,111,518,271 | 2,689,610,578 | 15,122,394,702 | 17,812,005,280 |

The preceding table summarizes various hydrological and meteorological values in an effort to estimate water-balance parameters within the subwatersheds of Fauquier County. USGS Stream discharge values for the years 2008 through 2012 were obtained from three stream gages: Goose Creek near Middleburg; Cedar Run near Catlett; and the Rappahannock River near Remington. Using this 15-minute interval data, the mean total volume of water discharged per year was calculated. This data displayed a strong correlation to watershed surface area; which turned out to be 27,360,991 cubic feet of stream volume per square mile of watershed.

The recharge zones for the streams of Fauquier County lie along the watershed and subwatershed boundaries depicted in Figure 3.

Streamflow is a watershed outflow. To determine the water inputs, Normal precipitation data (derived from 1981 to 2010 data) from NOAA's weather stations in The Plains and Warrenton was used to obtain the mean precipitation value for Fauquier County (44.265 inches per year).

An estimated evapotranspiration value (64.76 percent of annual precipitation) was derived from a mean of localized northern Virginia data obtained from Sanford and Selnick's (2012) "*Estimation of Evapotranspiration Across the Conterminous United States Using a Regression with Climate and Land-cover Data.*"

Similarly, an infiltration of ten inches of water per year was used based upon a mean of northern Virginia data.

Since streamflow is a sum of groundwater outflow and surface water run-off, and in most cases the groundwater outflow is in balance with the groundwater inflow (infiltration), then the estimated annual surface run-off was derived by subtracting infiltration from streamflow.

To verify the streamflow, evapotranspiration, infiltration and surface-water run-off estimates, a simple water-balance calculation was performed. Total annual precipitation should equal the sum of annual surface water run-off, annual groundwater infiltration and annual evapotranspiration. Estimates within ten percent of actual values should be considered good. Upon the calculation of these inputs, 8.5 percent of the total precipitation was unaccounted for, meaning that there should be an additional 8.5 percent outflow that is unaccounted for. This should be expected using this methodology, since the input values used was "Normal" precipitation, but the streamflow outputs used were actual. Taking in account that the previous year's precipitation was less than Normal, when the actual values were normalized, the water balance calculation came out almost precisely balanced. This implies that the values and assumptions made in these calculations appear to be valid.

**5.3 Lakes and Reservoirs**

There are many small private livestock and stormwater retention ponds within the county, but there are only four public reservoirs that will be discussed in this drought management and response plan: Germantown Lake; Warrenton Reservoir; Airlie Reservoir; and Lake Brittle. The 109-acre Germantown Lake is managed by the Fauquier County Parks and Recreation Department. It was created for flood control and as a potential future water supply. Both the 46-acre Warrenton Reservoir (260 million gallon volume) and the 55-acre Airlie Reservoir (124 million gallon volume) were created for water supply purposes. They are currently being used and managed for that purpose by the Town of Warrenton. The 77-acre Lake Brittle was created to enhance recreational fishing. It is managed by the Virginia Department of Game and Inland Fisheries.

Warrenton currently monitors the surface levels of Warrenton and Airlie Reservoirs. C.M. Crockett Park is currently monitoring the surface level of Germantown Lake and they are managing and monitoring the discharge of the dam's only outflow, which serves as the only source of the continuation of Licking Run. This may be a potential drought monitoring location; however, currently the electronic instrumentation on site records produces only on paper print-outs, and no digital version of this data exists. The Parks and Recreation Department retains a complete copy of these current and past paper reports. If there is an interest in having this information available to a wider audience or for use in drought management, an electronic transmitter would need to be installed to allow remote data retrieval.

**5.4 Groundwater**

Most rural county residents rely upon groundwater to meet their water supply needs. The majority of County residents living within one of the nine identified Service Districts obtain their water from public wells managed and maintained by Fauquier County Water and Sanitation Authority (WSA) or from surface water obtained from Warrenton's public utilities district. There are privately managed and maintained community water supplies that also utilize groundwater for their water supply needs. Most rural County residents have their own private water supply well located on their respective properties. A summary of Fauquier County's water supply and water availability is contained in the Fauquier County Regional Water Supply Plan (approved September 29, 2011). The 2011 Water Supply Plan does not include those portions of Fauquier County within the Town of Warrenton's jurisdiction. No attempts to restate the information in the Water Supply Plan will be made in this Drought Management and Response Plan. However, some key points contained in that plan that have special relevance for drought planning consist of the following:

- Demand for water was approaching the current capacity of some existing wells, and anticipated future demand appears to exceed current supply availability in most Service Districts;
- Finding suitable new groundwater sources takes time, due not only to funding issues, but also due to the nature of our aquifers, planning and permitting considerations, geophysical study constraints, public acquisition of real estate and easements, and water quality and water treatment concerns. Therefore, until new wells go on line, the County has very little flexibility to meet supply restraints brought on by drought or other related water supply complication;
- Clearly those Service Districts that are at or near the capacity of the existing wells would potentially suffer disproportionally during drought conditions than those communities and Service Districts with greater reserve capacities. Due to these and other reasons, a drought would likely not affect all County residents equally, and even a relative minor drought may cause significant hardship to some residents, especially for communities that have a high population and that are at or near their water supply capability. Therefore, the residents of New Baltimore may experience more hardships during a drought than a resident of Paris. Drought management within Fauquier County should be closely linked to the planning of future water supplies and water supply infrastructure, since they are integral to each other.

The recharge zone for an individual well may extend beyond the watershed divide of the surface in which the well is located. On the other end of the spectrum, many surface watersheds may contain a multitude of smaller groundwater aquifers. In addition, groundwater aquifer boundaries are not static; they may significantly change over different seasons and under different hydrologic

conditions. Few groundwater aquifers have been delineated within Fauquier County. Lacking more precise delineations, for the purpose of this plan, it will be assumed that the aquifer's boundary lies along the same watershed boundary in which the surface well is located.

It is important to recognize that the County's public water supplies are not located evenly across the land. There is a disproportionally high reliance upon water within the Cedar Run watershed, as depicted on Figure 4.

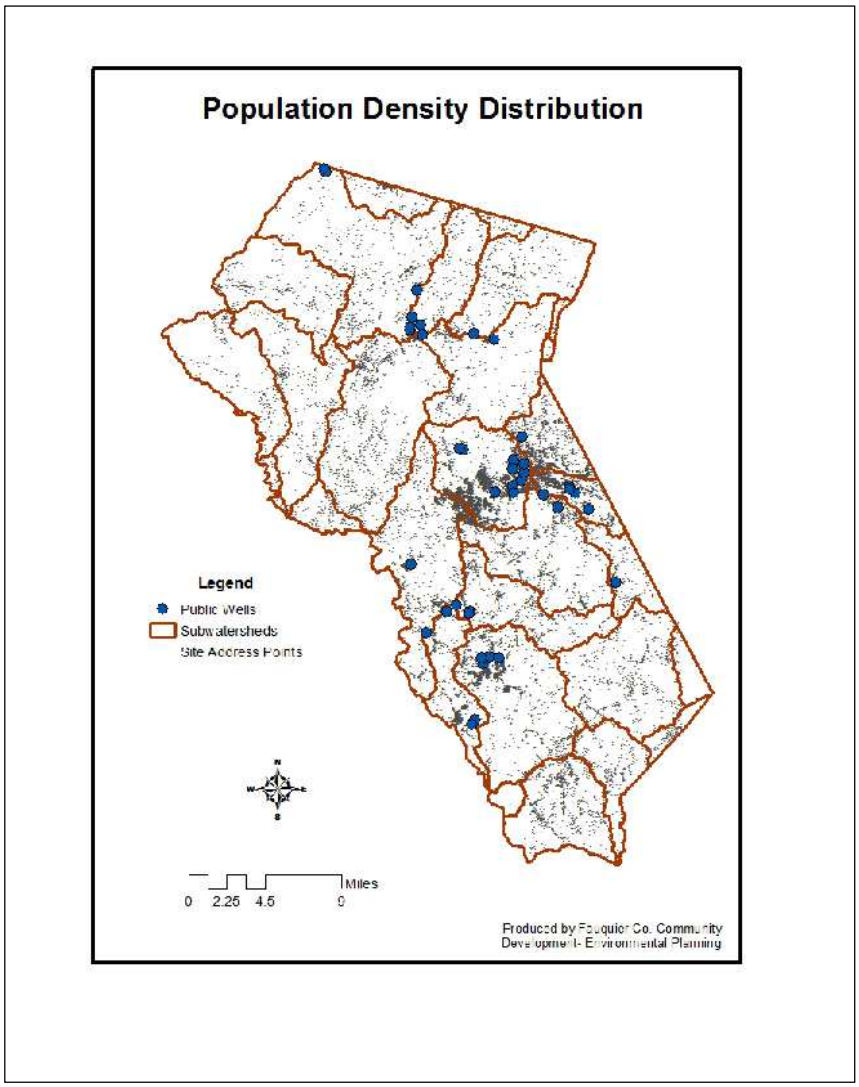



Figure 4: Population Density Distribution in Fauquier County

## 6. WATER DEMAND/AVAILABILITY

There are many social, economic, health, safety and operational impacts caused by droughts. For instance, the County estimated that a drought in 2005 caused losses to Fauquier County ranchers and farmers in excess of 2.35 million dollars, and one in 2008 caused an estimated 7 million dollars loss. During these droughts, surface waters used for livestock were running dry and farmers and other residents needed to develop alternative water sources to get them through the drought.

### 6.1 Water Availability for Human Consumption

A rough estimate of water demand in Fauquier County used to be 100 gallons of water per day, but in the last few years, Fauquier County Water and Sanitation Authority (WSA) has seen a noticeable increase in the per-household use of water. A one hundred (100) gallons of water per person per day equates to a Fauquier County water demand of 228,210,500 gallons per year. If the average precipitation is 43.48 inches, this would equate to 491,868,404,087 gallons falling on Fauquier County per year. However, most precipitation either evaporates, is absorbed by plants, or runs off into surface streams and eventually to the ocean. A rough estimate of the total available water for recharging both groundwater aquifers is ten percent of the area's total precipitation input. At that amount, the current county-wide demand for water is only 0.4 percent of the potential recharge supply. This would imply that there is likely never to be a water shortage in Fauquier County. However, these calculations and estimates are based upon an assumption that there is an even distribution of water demand. As Figure 4 indicated, the population within Fauquier County is not evenly distributed.

#### 6.1.1 Public Water Systems within Fauquier County

The Environmental Protection Agency (EPA) defines *public water systems* as an entity that provides "water for human consumption through pipes or other constructed conveyances to at least 15 service connections or serves an average of at least 25 people for at least 60 days a year." EPA has defined three types of public water systems:

- Community Water System (CWS): A public water system that supplies water to the same population year-round.
- Non-Transient Non-Community Water System (NTNCWS): A public water system that regularly supplies water to at least 25 of the same people at least six months per year, but not year-round. Some examples are schools, factories, office buildings, and hospitals which have their own water systems.
- Transient Non-Community Water System (TNCWS): A public water system that provides water in a place such as a gas station or campground where people do not remain for long periods of time.

The Water Supply Plan identifies 23 Community Water Systems in 2009. This same plan identifies a number of NTNCWS and TNCWS systems as well (listed merely as "water users," but no specific quantification of them by water system category is provided). For the purposes of this drought plan, an updated list of Public Water Supplies in Fauquier County was obtained from the Health Department on October 29, 2013. This list contains the same 23 CWS entities, but lists 23 NTNCWS and 15 TNCWS; thereby bringing the total of Public Water Systems up to 61, with an estimated 11,802 people served. This seems low, considering that this would represent only 18.1 percent of Fauquier County residents being served by a Public Water System (and by default, 81.9 percent of Fauquier County residents having their water needs met by non-Public Water Supplies).

These 23 Community Water Systems are composed of ~~13~~ 14 owned and managed by WSA; they are as follows:

- Marshall Waterworks [Marshall vicinity]
- New Baltimore Regional [New Baltimore vicinity]
- WSA-Remington (The Meadows) [Remington vicinity]

- Bealeton Regional [Bealeton vicinity]
- Green Meadows [Opal vicinity]
- Catlett Subdivision [Catlett vicinity]
- Auburn Crossing [New Baltimore vicinity]
- Whitewood Forest [New Baltimore vicinity]
- Opal Regional [Opal vicinity]
- Bethel Academy [Warrenton vicinity]
- ~~Botha Subdivision [in the vicinity west of Opal]~~
- Paris Water System [Paris vicinity]
- Turnbull [Central West Fauquier County vicinity]
- The Plains [the town of The Plains]
- Waterloo Estates [Warrenton vicinity]

There are two public water systems which are owned by other entities, but managed by WSA. These are as follows:

- ~~The Plains [the town of The Plains]~~ Botha Subdivision [in the vicinity west of Opal]
- Buckland Water and Sanitation Assets Corporation (Vint Hill)

The preceding ~~15~~ 16 public water systems, since they are managed by WSA, will follow the WSA-specific provisions of this plan.

The Warrenton Water System is owned and managed by the Town of Warrenton. As such, the residents of Warrenton will follow the Warrenton-specific provisions of this plan.

The Remington Water System (separate from the "WSA-Remington" system mentioned earlier) is owned and managed by the Town of Remington, as such; the residents of Remington will follow the Remington-specific provisions of this plan.

There are another ~~six~~ five water systems that are owned and operated by private entities; these are as follows:

- Lakeway Subdivision Water System [currently a Community Water System, but transitioning into separate wells]
- ~~Waterloo Estates [currently a PWS, but in process of being taken over by WSA]~~
- The Drysdale Water System
- Baldwin Ridge Water System
- Marsh Run Mobile Home Park
- Fauquier Springs-Sulfur Springs Investment Corporation

These preceding ~~six~~ five Community Water Systems will follow the Fauquier County provisions of this plan.

According to the Public Health Department, the 23 Public Water Systems classified as Non-Transient Non-Community Water System are as follows:

- Airlie Foundation
- Southern Fauquier Child Development
- Chemetrics, Inc.

- Walnut Grove Child Care III
- Fresta Valley Christian School
- Maplewood Child Care Center
- Marshall/Coleman schools [Fauquier County School System]
- Claude Thompson Elementary School [Fauquier County School System]
- Mary Walter Elementary School [Fauquier County School System]
- H.M. Pearson Elementary School [Fauquier County School System]
- Southeastern Alternative Education Center [Fauquier County School System]
- Mountainside Montessori School
- Midland Christian Academy
- Midland Church of the Brethren
- McDonalds- Opal
- Piedmont Child Care
- Quarles Truck Stop
- Ross Industries
- Sheetz Station #221
- Smith-Midland Corporation
- TP Development Parcel, Inc. (formerly known as "Trinity Plastics")
- Virginia Power
- Walnut Grove Child Care

These 23 Public Water Systems will follow the Fauquier County portions of this drought plan. According to the Public Health Department, the 15 Public Water Systems classified as Transient Non-Community Water System are as follows:

- Phoebe Hall Knipling Outdoor Lab
- El Agave Restaurant (formerly known as Frog and Friends Restaurant)
- Camp Moss Hollow
- C.M. Crockett Park [Fauquier County Parks Department]
- Northern Fauquier Community Park [Fauquier County Parks Department]
- Hunter's Head Tavern
- Marriott Ranch
- Middleburg Tennis Club
- M&P Pizza
- Poplar Springs Inn
- Blackthorne Inn and Restaurant (formerly known as 1763 Inn)
- Spitony's Restaurant
- Northside 29 Restaurant (formerly known as Town and Country)
- Sky Meadows State Park [Virginia Parks Department]
- St. Stephen's Episcopal Church

These 15 Public Water Systems will follow the Fauquier County portions of this plan.

### 6.1.2 Other Non-Public Water Systems intended Primarily for Human Consumption

There are two known water users that were formerly classified as Public Water Systems, but now are not. The status of these water users is currently unknown:

- Pete's Park 'n Eat [Opal] (The Pete's Park 'n East restaurant has closed but the status of their public water system is unknown)
- Johnsons Motel (Warrenton, VA)

Lastly, many Fauquier County residents' water needs are serviced by individual private ground-water wells. There is not an accurate inventory of the number of these individual wells, but based upon the best estimate, the County's 2009 Water Supply Plan estimated that there were approximately 14, 425 separate individual private wells in Fauquier County that services an approximate 39,670 residents.

### 6.2 Non-agricultural Industrial Water Users

There are a few businesses that have their own groundwater systems that use the majority of their water for industrial purposes. Some of these dominant industrial water users include the following:

- Vulcan Sanders Quarry
- Kastle Green Golf Course (currently out of business, but maintaining turf by using surface water)
- Dominion Generation
- Marsh Run Old Dominion Electric Cooperative
- Fauquier Livestock Exchange (was formerly a Public Water System)

### 6.3 Agricultural Water Users

In spite of the dominance of agriculture within Fauquier County, agriculture has not been a dominant water user within the region. This is largely due to most agricultural operations not having traditionally irrigated crops. Crops relying upon direct precipitation are not included in this assessment of water demand, since this assessment focuses upon surface water and groundwater users. However, crops and other agricultural activities that solely rely upon precipitation are especially susceptible to drought-induced impacts. The following table summarizes the estimated water needs of various agricultural products within Fauquier County:

| Agricultural Product | Water Requirement | Quantity of Product in County | Estimated Water Needs per Year (gallons) | Source of Water |
|---|---|---|---|---|
| Dairies | 11,619 gallons per day per diary | 26 dairies | 110,259,930 | Mostly Ground-Water (GW) |
| Beef Cattle | 300 gallons per day per head | 33,840 cattle | 3,705,480 | Surface Water (SW) & GW |
| Sheep | 1.5 gallons per day per head | 2,400 sheep | 1,314,000 | SW & GW |
| Horses | 10 gallons per day per horse | 14,800 | 54,020,000 | SW & GW |
| Corn | 25.9 in. per acre per year | 10,700 acres | 7,525,181,600 | Rain |

| | | | | |
|---|---|---|---|---|
| Soybeans | 24 in. per acre per year | 4,800 acres | 3,128,140,800 | Rain |
| Barley | 17 in. per acre per year | 1,100 acres | 507,779,800 | Rain |
| Alfalfa Hay | 5 in. per ton | 2,600 acres | 1,341,407,600 | Rain |
| Grass Hay | 28 in. per acre per year | 36,100 acres | 27,447,263,200 | Rain |
| Pasture | 28 in. per acre per year | 110,000 acres | 83,634,320,000 | Rain |
| Vineyards | 360 gallons per vine per year | 272 acres | 70,992,000 | Rain and Irrigation |
| **Subtotal** | | | **123.8 billion gallons of water per year** | |

Traditionally, the majority of cattle within the County received their water directly from surface water sources. At an estimated 300 gallons per cow per day, this is a lot of water used within the County. The cattle simply waded into streams and drank directly from the surface water. While this practice is legal, there are a number of complications and problems associated with this practice. Some of the problems include:

- Cattle drinking from the same water that they are wading in, lying in (to stay cool), and defecating in, creates higher incidents of cattle diseases and health problems that are expensive to treat and reduces the economic potential of beef production;
- To access the streams, cattle often need to climb down stream embankments, which in turn causes soil erosion, bank failures, and stream sedimentation problems;
- Cattle walking and wading through sensitive wetlands causes soil compaction, destruction of wetlands, and turns the wetlands into mud holes; and
- Cattle accessing streams also impact fragile riparian buffers, which not only serve as wildlife habitat, but these buffers also protect and filter excess nutrients, sediment and other water contaminants from entering streams.

More farmers, especially the larger operations, are moving toward the trend of fencing streams off from cattle and providing dedicated wells for their livestock that are free from fragile and vulnerable resources, and provides their herd with high quality water, thus reducing medical expenses.

As a consequence to this trend, more surface waters are being restored and less surface water is being used, while at the same time more groundwater is extracted.

There are many agricultural users of both surface water and groundwater; some of the most dominant ones include the following:

- Marriott Ranch
- Virginia Beef
- Kettle Wind
- Woodland Turf Farm (uses exclusively surface water for irrigation)

In addition to these four, it is estimated that there are approximately 1,344 Fauquier County farms that utilize a mixture of groundwater and surface water.

In November 2013 Fauquier County staff updated the water needs information provided in the most recent Water Supply Plan. This new analysis indicates that the combined Fauquier County, WSA, Warrenton, Remington, and The Plains water needs from surface water and groundwater sources is approximately 3,000,000,000 gallons per year (this does not include precipitation needs of agricultural crops).

### 6.4 Biological and Ecological Water Needs

The focus of this drought management plan is ensuring an adequate supply of water for human use and consumption. However, although it is beyond the scope of this document, it should be recognized that there are also many other sometimes competing demands for water. Examples of some of these other uses include for fish and other aquatic organisms; ecological processes; recreational; transport via stormwater systems, our pollutants; and the disposal and dilution of treated effluent.

### 6.5 Water Demand/Availability Summary

Therefore, for the purposes of this plan, there are five categories of water users:

1) those served by Warrenton and therefore covered by the Warrenton sections of this plan;
2) those served by the Remington-owned and operated water system that covers part of the Town of Remington and are therefore covered by the Remington sections of this plan;
3) those served by WSA (both WSA owned/WSA managed and owned by others/managed by WSA- including The Plains); and therefore covered by the WSA sections of this plan;
4) those that obtain their potable, non-agricultural use water from other sources; and therefore covered by the County's non-agricultural portions of this plan; and
5) those agricultural uses not serviced by WSA, Remington or Warrenton (surface and ground-water); and therefore covered by the County's agricultural portions of this plan.

## 7. DROUGHT MANAGEMENT BACKGROUND

### 7.1 Indicators

<u>Total Precipitation</u>

One way of quantifying a drought is to measure total precipitation. However, a severe limitation with this parameter is the lack of a relationship to normal conditions and a relationship to other regional measurements. For instance, a one inch rainfall event in Fauquier County is a fairly routine occurrence; however, this same one inch rainfall event in Death Valley California would cause historic erosion and flooding, since their annual precipitation is only 2.91 inches.

Percent of Normal

The Percent of Normal is simply the statistics derived by dividing the actual accumulative precipitation over a given period (i.e. a month or a year) by the unit of time that you are interested in. For instance, if you wanted to know the normal precipitation for January, then you add the accumulative precipitation for all the Januarys in the last- say ten years, and divide that total by the number of "Januaries" involved in the total (in this case ten) to obtain the average or Mean January precipitation. The Percent of Normal can then be calculated for any accumulative January precipitation by subtracting the Mean Normal value from any actual January, and then converting this value into a Percent. [Note: the Commonwealth of Virginia uses a 30-year period to indicate their "Normal" values]. This indicator of drought is often reported in various media outlets, but since precipitation over this given period of time rarely follows a normal distribution, interpretations of the data may be confusing and hard to assimilate analytically and even harder to assess the rarity or the probability of the drought.

Standardized Precipitation Index

The Standardized Precipitation Index was developed to solve the statistical problems identified for the Percent of Normal data. The Standardized Precipitation Index (SPI) may be used statistically, and it may be used to assign the start and ending point of the drought, and it may be used to assess the rarity of the drought.

Crop Moisture Index

The Crop Moisture Index uses relatively short-term precipitation and temperature data to assign a drought indicator value designed to assess drought effects to agricultural products. Because it uses short-term (week-to-week) data, this indicator is highly influenced by short-term single events. As such, it is not as useful a long-term drought indicator.

Cumulative Severity Index/Keetch-Byrum Drought Index

The Cumulative Severity Index uses not only long-term precipitation data, but it also emphasizes short-term events in a manner that is designed to assess the dryness of the soil. This is a widely used drought indicator for assigning wildland fire hazard conditions, and may not be that useful as an indicator for general water supply purposes.

Palmer Drought Severity Index

The Palmer Drought Severity Index is calculated and administered by the National Oceanic and Atmospheric Administration (NOAA). The Palmer Drought Severity Index uses both precipitation and temperature values to determine long-term drought conditions. This Index is standardized to the local climatic conditions, but it is best used when looking at periods of several months. The Index assigns a value of "0" for normal conditions, and negative numbers equate to droughts. The following table describes the various terms used in the Palmer Drought Severity Index:

| | |
|---|---|
| Extremely Moist | +4.00 and higher |
| Very Moist | +3.00 to +3.99 |
| Moderate Moist | +2.00 to +2.99 |
| Slightly Moist | +1.00 to 1.99 |
| Normal | -0.99 to +0.99 |

| | |
|---|---|
| Mild Drought | -1.99 to +1.99 |
| Moderate Drought | -2.00 to -2.99 |
| Severe Drought | -3.00 to -3.99 |
| Extreme Drought | -4.00 and lower |

There are more than one Palmer Drought Severity Indexes. The standard "Palmer Drought Index" depicts long-term meteorological drought conditions, while the "Palmer Hydrological Drought Index" depicts long-term hydrological conditions. Perhaps the latter index is more useful for Fauquier County, since it is concerned with groundwater conditions and other water supply conditions.

Non-precipitation-Based Drought Indicators

No matter how refined a national or regional drought index becomes, it may not effectively represent the water supply conditions at a local scale. This is especially true of water supply systems that rely upon small or localized water sources, such as that within Fauquier County. For instance, small watersheds often do not have the natural water storage capabilities as large watersheds. Therefore, the small watershed may experience wider extremes and may suffer disproportionally during even relatively mild drought conditions. Therefore, regional drought models and indexes are essential components of an effective local drought plan, but they should not be the sole trigger for local drought response.

There are drought indicators that do not utilize precipitation, such as reservoir or lake level, depth to groundwater in a well, and stream gage height; however, without having a reliable and accurate reference "Normal" value to compare it with, such data may be meaningless. Taken by itself, such data is often difficult to relate to other nearby data points in an effort to place the data in a regional context. These other indicators can be quite useful and powerful if there are reliable reference data, and when used as a companion with other drought indicators. An ideal drought management program for Fauquier County would incorporate statewide monitoring points; regional and local indexes, such as the Palmer Hydrological, coupled with locally monitored stream, well and surface water sites that are linked with reliable reference "normals" for each of these sites. Obtaining drought indicators from multiple sources and methodologies gives powerful collaborative strength to rely upon when implementing what could be disruptive water restrictions. In addition, having it scaled spatially provides a much more detailed and nuanced means of evaluating the drought conditions within Fauquier County.

Because of the narrow focus of some of these indexes, the localized nature of many of our water supplies, and the social hardships that would be created when there is an inadequate drought preparation or when water restrictions are imposed prematurely, or when not needed, it is wise to not rely only upon one indicator. Similar and consistent warnings from multiple indexes usually offer compelling indication of trends and potential concerns that should be professionally acted upon to lessen hardships for Fauquier County residents.

## 7.2 Indicators Used

### 7.2.1 Virginia

Virginia's drought management is directed and guided by the Virginia Drought Assessment and Response Plan dated March 28, 2003. A copy of Virginia's plan is included in the Appendix of this document. Virginia's plan designates drought management responsibilities for the Commonwealth of Virginia to lie with the multi-jurisdictional Virginia Drought Monitoring Task Force (DMTF) and the Virginia Department of Environmental Quality (DEQ). The DEQ monitors various environmental conditions throughout the state and produces monthly status reports. Based upon the crossing of designated drought triggers, the DMTF will activate drought procedures upon the first occurrence of moderate drought conditions. They will monitor the drought conditions using the following five indicators: Standardized Precipitation Index; Palmer Drought Severity Index; Crop Moisture Index; Keetch-Byrum Drought Index; and NOAA monthly and seasonal precipitation outlooks, as well as specific stream, groundwater and surface water monitoring locations.

Precipitation throughout the state is monitored and compared with the individual's Normal values. Besides using NOAA's 30-year Normal values, the DMTF determined that precipitation greater than 85% of this mean and less than 115% will be considered normal. Instead of a calendar year, precipitation is monitored by "water year," which is defined as October 1 to September 30 of each year.

For management purposes, the Commonwealth's Drought Assessment and Response Plan divided the state into thirteen different drought evaluation regions. Fauquier County lies in their "northern Virginia" region, along with Loudoun, Prince William, Arlington and Fairfax Counties.

The DMTF uses the Accotink Creek near Annandale as their reference stream to determine stream flow drought conditions for the Northern Virginia Region. Since this stream is a long way from Fauquier County, it is unknown how representative it is for stream flow within our county. The DMTF monitors ground water levels in two wells for their reference groundwater drought conditions for Northern Virginia Region: one near Harper's Ferry, WV and one near Arlington Cemetery. Due to the highly individualistic nature of many of the aquifers in the fractured groundwater aquifers that occur in Fauquier County, it is suspected that these wells do not adequately represent Fauquier County, although this has not been confirmed.

The DMTF monitors water levels in two reservoirs for their reference reservoir drought conditions for Northern Virginia Region: the Occoquan Water Supply Reservoir and Lake Manassas Water Supply Reservoir. While the Warrenton Reservoir is closer, the locations of these two monitored reservoirs are close enough to Fauquier County that they are assumed to be fairly representative of our needs.

Because the significance of a precipitation deficit changes as the water year progresses, drought response stages will trigger at different percentages of normal depending upon the date of evaluation, as depicted in the following table:

| Months Analyzed | Normal (% of Normal Precipitation) | Watch (% of Normal Precipitation) | Warning (% of Normal Precipitation) | Emergency (% of Normal Precipitation) |
|---|---|---|---|---|
| October – December | >75.0 | <75.0 | <65.0 | <55.0 |
| October – January | >80.0 | <80.0 | <70.0 | <60.0 |
| October – February | >80.0 | <80.0 | <70.0 | <60.0 |
| October – March | >80.0 | <80.0 | <70.0 | <60.0 |
| October – April | >81.5 | <81.5 | <71.5 | <61.5 |
| October – May | >82.5 | <82.5 | <72.5 | <62.5 |
| October – June | >83.5 | <83.5 | <73.5 | <63.5 |
| October – July | >85.0 | <85.0 | <75.0 | <65.0 |
| October – August | >85.0 | <85.0 | <75.0 | <65.0 |
| October – September (and previous 12 months) | >85.0 | <85.0 | <75.0 | <65.0 |

### 7.2.2 Fauquier County

The Fauquier County Regional Water Supply Plan (2011) established the three drought response stages that the state had established: Drought Watch; Drought Warning; and Drought Emergency. This plan does not cover Warrenton or agricultural water users. Besides the monitoring and triggers specific to WSA and Remington, this plan established that the following drought indicators will be monitored:

- Statewide Virginia drought indicators;
- USGS flow duration curves (Rappahannock River, Cedar Run and Goose Creek);
- NOAA drought monitor;
- NOAA Palmer Index;
- Surface water levels in Warrenton's reservoirs;
- Precipitation deficits;
- Local recommendations which would allow jurisdictions to act independently on a localized area of impact. Examples of local triggers might be slow recovery of WSA wells, the level of the Warrenton Reservoir and the Department of Forestry danger levels. If the County opts to undertake a groundwater program, the results of all groundwater monitoring will also be used by the Task Force in order to assess water quantity.

This current Drought Plan updates and supersedes the drought management portion of the 2011 Water Supply Plan. Some of the biggest deficiencies of the 2011 effort includes the lack of specific enforcement standards and protocols, and the adoption of ordinances that support such process, and the lack of comprehensiveness (it did not include the Town of Warrenton, WSA, or agricultural operations). It is for some of these reasons, that enforcement specific standards and

protocols will be included in this plan, and the development of ordinances will be prepared concurrent with or in conjunction with this plan.

Since the County does not directly manage any potable or public water, its ability to enforce or incentivize drought restrictions is limited. Therefore, the best approach is one of coordination, facilitation and support.

### 7.2.3 Fauquier County Water and Sanitation Authority

The Fauquier County Water and Sanitation Authority (FCWSA) currently use the following techniques to plan for water production shortages:

- Monitor and review well drawdown data, watch for any trends that suggest diminished production;
- If reduced water supplies are observed:
  - a reduced flushing schedule is implemented;
  - water use restrictions are implemented
- In extreme cases, water may be trucked between WSA systems as needed.

~~The WSA took over operation of the Marshall Water System from the now defunct Marshall Water Works in 2005. Because of the degraded infrastructure in the Marshall area as well as low supply, the WSA imposed water use restrictions on the Marshall Service area beginning in 2007. These restrictions include limitations on outdoor water use such as filling swimming pools, watering laws, and on commercial car washing.~~

### 7.2.4 Warrenton

The Town of Warrenton's drought monitoring is directly tied to water levels in their reservoirs. These triggers are discussed in greater depth in later sections of this plan.

### 7.2.5 Remington

The Town of Remington drought monitoring procedures are discussed in greater depth in later sections of this plan.

### 7.2.6 The Plains

The Town of The Plains currently has no known drought management guideline or plan. Since they receive water from the WSA, their drought provisions will follow those of WSA.

### 7.2.7 Private Individual Wells and Agricultural Water Users

Individual private wells were not covered in the drought provisions in the 2011 Fauquier County Regional Water Supply Plan. The Commonwealth of Virginia does not grant counties a lot of latitude in managing and regulating private groundwater wells. In spite of this limited authority over private wells, they are included in this current plan for the interest of being holistic. Clearly, people on private wells utilize water and place demands upon water, and it is believed that to be most effective in managing limited water during a drought, managers must be aware of the totality of water demands, and place all the demands into proper context. Even if the County has limited authority to regulate these water users, it appears irresponsible to simply ignore a significant

segment of water users and to factor them out of the equation in understanding drought and mitigating the negative effects of drought. It is for these reasons that private water wells and water users are included in this plan.

## 8. DROUGHT MANAGEMENT SPECIFICS

### 8.1 Operations

The central aspect of this drought plan is the coordinated and unified approach of the County; the WSA; the Towns of Warrenton, Remington, and The Plains; private self-supplied users; and the agricultural industry. The premise is that the effects of droughts will be less if all relevant organizations are prepared, coordinated and facilitate each other's goals.

~~Along this line, two specific functional duties are outlined here: a drought coordinator and drought monitors.~~ A **~~d~~Drought ~~t~~Team** will be selected and assigned the responsibility of managing droughts within the combined area of Fauquier County and the towns of Warrenton, The Plains and Remington, including the WSA and agricultural sectors. This ~~t~~Team, ~~should~~ shall consist of ~~representatives of~~ the following ~~organizations~~:

- Warrenton Town Manager, or his/her designee
- Remington Town Manager, or his/her designee
- The Plains Town Manager, or his/her designee
- WSA Executive Director, or his/her designee
- District Manager of the John Marshall Soil and Water Conservation District, or his/her designee
- ~~Fauquier County Agricultural Extension~~
- ~~Farm Bureau~~
- Fauquier County Fire Chief, or his/her designee ~~Department of Fire Rescue & Emergency Management~~
- ~~VA Department of Forestry~~
- Fauquier County Administrator, or his/her designee ~~Administration~~
- Fauquier County Office District Director of Commonwealth of Virginia Health Department, or his/her designee
- ~~Fauquier County Community Development~~
- ~~Fauquier County Parks and Recreation~~
- ~~Fauquier County Sheriff's Office~~
- ~~Fauquier County General Services~~
- ~~Fauquier County Environmental Health~~
- ~~Natural Resource Conservation Service~~
- ~~Fauquier County Public Schools~~
- ~~A private non-agricultural industrial water user that manages their own groundwater supply system~~

~~A representative of the Department of Fire Rescue & Emergency Management~~ The Director of the Fauquier County Department of Community Development, or his/her designee, shall be the **~~d~~Drought ~~c~~Coordinator**, and serve as the staff lead ~~on~~ for this team. The primary responsibilities of this team are drought management, public communication, and drought

education and public awareness. This team only convenes upon the initiation of a drought. The Drought Coordinator shall coordinate with representatives from the WSA, various towns located within the County, agricultural entities (either directly or through the County Agricultural Development Director), and private non-agricultural water users. If the Drought Coordinator receives a request from any of these representatives or information that any of the conditions that would trigger any level of drought pursuant to this plan has occurred, the Drought Coordinator shall call an emergency meeting of the Drought Team.

~~A drought monitor shall be selected from each of the following organizations: Community Development (monitors regional and state drought situations); Agricultural Extension (monitors farm drought conditions); Town of Warrenton (monitors their reservoirs and their drought triggers); Town of Remington (monitors their water supply); a private non-agricultural water user (that manages their own water supply system); and WSA (monitors their water supply). Representatives of these organizations will monitor the agreed upon environmental conditions and when these conditions cross the threshold for one or more of the action items outlined in the "trigger" section of this plan, then any or all of the monitors will call the entire Fauquier Drought Management Committee (FDMC) into action.~~

Once the entire Team is convened, the Team is responsible for implementing the action items identified in the plan and to coordinate and facilitate communication with other affected organizations, publics, and interested parties.

Once one of the drought triggers have been activated, the following process will be initiated:

1) Make sure the entire Drought ~~Management~~ Team is alerted~~. If any individual member is unavailable, then a suitable temporary replacement is needed. The Team reconvenes- the Department of Fire Rescue and Emergency Services is the lead. The Fauquier County Cooperative Extension Office shall be the sub-lead for agricultural factors~~;
2) Obtain detailed monitoring and status conditions from the monitoring subset of the group;
3) Generate a specific recommendation, compatible with the established procedures (see appendix);
4) Obtain needed authorizations from affected organizations;
5) Update, as needed, any website and other related public document;
6) Communicate with affected entities in a manner consistent with Drought Management public notifications procedures (see appendix);
7) Continue monitoring environmental conditions in a manner sufficient to determine at which point the drought has ended, or the work accomplished so far has reached its conclusion;
8) Obtain needed permission to end drought action; and
~~9)~~ Notify any entities needed to ensure the latest status has been communicated~~; and~~
~~10) Disband the full committee.~~
11) ~~Continue monitoring~~.

~~The FDMC will be responsible for monitoring the drought conditions within Fauquier County by a combination of the use of Virginia's monitoring program, combined with local sites more specific to, and applicable for, Fauquier County.~~

Fauquier County will employ four drought management levels: 1) Normal Conditions~~Non-drought~~; 2) Drought Watch; 3) Drought Warning; and 4) Drought Emergency.

**8.2 Monitoring Sites:**

Besides tracking the state's drought status, the ~~FDMC~~ representatives of Drought Team members will also monitor the following local sites and specific indexes:

1) Palmer Hydrologic Drought Indicator
2) Crop Index
3) Precipitation Index
4) Germantown Lake
5) Precipitation at Boston
6) Precipitation at Washington, DC Dulles International Airport
7) USGS stream gage on the Rappahannock River near Remington
8) USGS stream gage on the Cedar Run near Catlett
9) USGS stream gage on Goose Creek near Middleburg

**8.3 Triggers (Summary):**

| **County/WSA** | **Drought Watch** | **~~n/a~~** | **Drought Warning** | **Drought Emergency** |
|---|---|---|---|---|
| **Warrenton Condition** | **1** | **2 *(Warrenton only)*** | **3** | **4** |
| Warrenton | •Warrenton Reservoir at or below elevation 440.0; and<br>•Airlie Reservoir down 2.5 feet below Normal Pool Elevation. | •Warrenton Reservoir at or below elevation 440.0; and<br>•Airlie Reservoir down 5.0 feet below Normal Pool Elevation. | •Warrenton Reservoir at or below elevation 440.0; and<br>•Airlie Reservoir down 8.0 feet below Normal Pool Elevation. | • Any situation that requires immediate and drastic action to preserve life, safety and health<br>• Airlie Reservoir down 14.3 feet below Normal Pool Elevation. |
| Remington | •Well recharge times take longer than in Normal conditions, well pumping level below normal stable levels;<br>•NOAA drought index DI (Drought Moderate);<br>•Current demand requires the use of any Town water supplies above the safe | ~~n/a~~ | •Wells are not recharging to normal levels during their off times;<br>•Pump levels within 150 feet of well pump location;<br>•Tank is out of service for maintenance;<br>•NOAA Drought Index of D2 (Severe Drought);<br>•Current demand between 85 to 95 | •One or more wells not functioning properly or with extreme drawdown, within 100 feet of the well pump;<br>•Storage drawn below 65 percent of total capacity;<br>•NOAA Drought Index of D3 (Extreme Drought);<br>•Major waterline break; |

| | | | | |
|---|---|---|---|---|
| | yield capacity for more than two consecutive days. | | percent of system safe yield on average for a week;<br>•Current demand required the use of any Town water supplies above the safe yield capacity for more than two consecutive days. | •Current demand at or above 95 percent of system safe field on average for a week. |
| WSA | - Water demand is between 75% and 85% of permitted capacity;<br>- All WSA facilities operating within normal parameters;<br>- No major well, storage or treatment facility is out of service for maintenance. | ~~– n/a~~ | • Water demand is between 85% and 95% of permitted capacity;<br>• A major well, storage or treatment facility is out of service for maintenance. | • Water demand exceeds 95% of permitted capacity;<br>• A major WSA waterline break;<br>• A major well, storage or treatment facility is out of service for maintenance or an emergency condition to include related or manmade disaster. |
| County | <u>At least two of the following indictors occurred:</u><br>• <u>Precipitation levels are at or below the percent of normal precipitation for the time period in precipitation table;</u><br>• <u>Streamflows fall between the 10th and 25th percentile;</u> | | <u>At least two of the following indictors occurred:</u><br>• <u>Precipitation levels are at or below the percent of normal precipitation for the time period in precipitation table;</u><br>• <u>Streamflows fall between the 5th and 10th percentile;</u> | <u>At least two of the following indictors occurred:</u><br>• <u>Precipitation levels are at or below the percent of normal precipitation for the time period in precipitation table;</u><br>• <u>Streamflows are at or below the 5th percentile;</u><br>• <u>Measured ground water levels are at or below the 5th percentile for</u> |

| | | | | |
|---|---|---|---|---|
| | • Ground water levels fall between the 10th and 25th percentile for all historic levels;<br>• Water Supply Reservoirs contain between 90 and 120 days of useable storage or appropriate criteria for non-water supply reservoirs.<br>• ~~Stream discharge of stream A, B or C between the 10th and 25th percentile of Normal Flow.~~<br>• ~~Precipitation at A Station between 65 and 75 percent of Normal Precipitation.~~<br>• ~~The State, Warrenton or WSA calls a Drought Watch.~~ | | • Measured ground water levels fall between the 5th and 10th percentile for all historic levels;<br>• Water supply reservoirs contain between 60 and 90 days of usable storage or appropriate criteria for non-water supply reservoirs.<br>• ~~Stream A, B or C between the 5th and 10th percentile of Normal Flow.~~<br>• ~~Precipitation at A Station between 55 and 65 percent of Normal Precipitation.~~<br>• ~~The State, Warrenton or WSA calls a Drought Warning.~~ | all historic levels<br>• Reservoirs contain 60 days or less of useable storage or appropriate criteria for non-water supply reservoirs.<br>• ~~Stream A, B or C less than the 5th percentile of Normal Flow.~~<br>• ~~Precipitation at A Station less than 55 percent of Normal.~~<br>• ~~The State calls a state-wide Emergency.~~<br>• ~~The State, Warrenton or WSA calls a Drought Emergency.~~ |
| Agricultural | Varied, see the appendix for further information | ~~Varied, see the appendix for further information~~ | Varied, see the appendix for further information | Varied, see the appendix for further information |

**8.4 Guiding Principles in the Determination of Water Restrictions**

- Ensure health and safety are not compromised;

- As much as possible, action items will be targeted to the most applicable scale to ensure blanket restrictions are not imposed on areas that are not needed;
- Implement and maintain an organized process to increase efficiency, promote communication and instill confidence;
- Demonstrate effective and efficient interorganizational communication and coordination;
- Avoid or minimize economic impacts where possible;
- Any measures taken are scaled to ensure least impactful actions are taken first and implemented progressively;
- Focus on cooperative work with large water users so as to reduce the hardships to the majority of the small users; and
- Encourage education and public awareness of water demands, usage and conservation measures.

## 8.5 Drought Management in Specific Locations

### 8.5.1 Fauquier County Water and Sanitation Authority

Normal Conditions (~~Observe~~ Voluntary Wise Water Use):

Management Actions

~~- These are voluntary actions, so no penalty will be assessed.~~

- Education and outreach about wise use of water.

~~Triggers~~ Normal conditions occur when all of the following three criteria are met:

- Water supply is adequate to meet all demands (demand <75% of permitted capacity);
- All facilities are operating within normal parameters;
- No major well, storage or treatment facility is out of service;

and no more than one of the following Commonwealth of Virginia drought indicators are outside of the normal range:

- Precipitation exceeds the percent of normal precipitation for the time period in precipitation table
- Streamflows are above the 25$^{th}$ percentile
- Ground water levels are above the 25$^{th}$ percentile for all historic levels
- Water Supply Reservoirs exceed 120 days of useable storage or appropriate criteria for non-water supply reservoirs

~~Water~~ Drought Watch (Voluntary Water Conservation):

Management Actions

- Education and outreach about voluntary water conservation measures which include encouraging:
  - § Limited watering of lawns ~~Watering of lawns is limited~~ to no more than three (3) days per week only during the night between 8 p.m. and 8 a.m. on any day.
  - § The avoidance of washing vehicles or wash no more than ~~Homeowners may wash cars~~ once a week.
  - § Limited replenishment of swimming pools only to levels necessary to maintain health and safety.

- § The avoidance of ~~No~~ washing of streets, roads, sidewalks, driveways, buildings, garages, parking areas or patios.
- § All restaurant related uses are permitted.
- § All agricultural irrigation or water for farm animals is permitted.
- § The limited ~~U~~use of fire hydrants for training purposes ~~is limited~~ to once a week upon coordination with WSA.

~~Triggers~~ Drought watch is triggered when, all WSA facilities are operating within normal parameters and no major well, storage or treatment facility is out of service for maintenance, and either:

- Water demand is between 75% and 85% of permitted capacity;

OR at least two of the following Commonwealth of Virginia drought indicators meet the following conditions:

- Precipitation levels are at or below the percent of normal precipitation for the time period in precipitation table
- Streamflows fall between the 10th and 25th percentile
- Ground water levels fall between the 10th and 25th percentile for all historic levels
- Water Supply Reservoirs contain between 90 and 120 days of useable storage or appropriate criteria for non-water supply reservoirs.

~~Water~~ Drought Warning (Voluntary and/or Mandatory Water Conservation):

Management Actions

- ~~For all these actions, the first offense is a written warning. Fines are imposed for subsequent offenses.~~
- Watering of lawns is limited to one day per week only during the night between 8 p.m. and 8 a.m. on any day.
- Homeowners may not wash cars. Commercial car washing is allowed only in facilities where at least 80 percent of water is recycled.
- ~~Replenish s~~Swimming pools may only be replenished to levels necessary to maintain health and safety.
- No washing of streets, roads, sidewalks, driveways, buildings, garages, parking areas or patios.
- Restaurants may serve water to customers only upon request.
- All agricultural irrigation or water for farm animals is permitted.
- Use of fire hydrants for training purposes is prohibited.

Drought warning is triggered when either:

- Water demand is between 85% and 95% of permitted capacity;
- A major well, storage or treatment facility is out of service for maintenance;

OR at least two of the following Commonwealth of Virginia drought indicators meet the following conditions:

- Precipitation levels are at or below the percent of normal precipitation for the time period in precipitation table
- Streamflows fall between the 5th and 10th percentile

- Measured ground water levels fall between the 5th and 10th percentile for all historic levels
- Water Supply Reservoirs contain between 60 and 90 days of useable storage or appropriate criteria for non-water supply reservoirs.

~~Water~~ Drought Emergency (Mandatory Water Conservation):

Management Actions ~~(for all these actions, the first offense is a written warning. Fines are imposed for subsequent offenses.~~

- Lawns may not be watered with the use of automatic sprinkler systems, whether installed in the ground or attached to a hose. Gardens may only be sprinkled with watering cans or a handheld hose.
- Homeowners may not wash cars. Commercial car washing is allowed only in facilities where at least 80 percent of water is recycled.
- Private pools may not be filled or topped off. Public pools serving health care facilities and residential pools serving more than 25 units may be filled or topped off. Newly constructed pools are exempted and may be filled.
- No washing of streets, roads, sidewalks, driveways, buildings, garages, parking areas or patios.
- Restaurants may serve water to customers only upon request.
- All agricultural irrigation or water from farm animals is permitted
- Use of fire hydrants for training purposes is prohibited.

Drought emergency is triggered when either:

- Water demand exceeds 95% of permitted capacity;
- A major well, storage or treatment facility is out of service for maintenance or an emergency condition to include related or manmade disaster;
- A major WSA waterline break;

OR at least two of the following Commonwealth of Virginia drought indicators meet the following conditions:

- Precipitation levels are at or below the percent of normal precipitation for the time period in precipitation table
- Streamflows are at or below the 5th percentile
- Measured ground water levels are at or below the 5th percentile for all historic levels
- Reservoirs contain 60 days or less of useable storage or appropriate criteria for non-water supply reservoirs.

**8.5.2 Remington**

Because the water system for the Town of Remington is operated independently of WSA, it currently uses the following procedure to monitor for drought conditions:

Normal Water Conditions

Management Actions:

- Observe wise water use.

Triggers:

- Wells are recharging to normal levels with stable pumping levels.

- Water Supply is adequate to meet demands (demand < 75 percent of capacity).
- NOAA drought index neutral to DO (abnormally dry)
- All Town facilities are operating within normal parameters.

Drought Watch

Management Actions:

- Voluntary water conservation.
- The Town announces voluntary water conservation recommendations.

Triggers:

- Well recharge times take longer than in Normal conditions, well pump below normal/stable levels.
- NOAA drought index level Moderate.
- Current demand requires the use of any Town water supplies above the safe yield capacity for more than two consecutive days.

Drought Warning:

Management Actions:

Voluntary water conservation plus some mandatory restrictions.

Triggers:

- Wells are not recharging to normal levels during their off times.
- Pumping levels within 150 feet of well pump locations.
- Tank is out of service for maintenance.
- NOAA Drought Index listed as Severe Drought.
- Current demand between 85 to 95 percent of safe yield on average for a week.
- Current demand requires the use of any Town water supplies above the safe yield capacity for more than two consecutive days.

Drought Emergency:

Management Actions:

- Mandatory water restrictions.

Triggers:

- One or more wells not functioning properly or with extreme drawdown, within 100 feet of the well pump.
- Storage drawn below 65 percent of total capacity.
- Major waterline break.
- Current demand at or above 95 percent of system safe yield on average for a week.
- NOAA Drought Index listed as Extreme Drought or higher.

### 8.5.3 Warrenton

The Town of Warrenton has a draft Water Supply (2010) that includes various water conservation practices that residents are encouraged to adopt. Their Drought Ordinance (January 20, 1999) is highly tiered to the pool-levels of Warrenton and Airlie Reservoirs. It has four management levels for drought, listed as "Conditions." They are as follows:

Condition 1 (Voluntary Conservation):

Management Actions:

- The public is requested to restrict water use. Conservation tips will be provided by the Town.

Triggers:

- 150 days storage remaining (this is defined as the Warrenton Reservoir is ½ full (elevation 440.0) and the Airlie Reservoir is 2.5 feet below normal pool elevation.

Condition 2 (Restricted Use):

Management Actions:

- The Town may restrict water use for outdoor use (car washing, lawn watering, filling swimming pools) or other uses. Mandatory restrictions with violations subject to fines.

Triggers:

- 120 days storage remaining (this is defined as the Warrenton Reservoir is ½ full (elevation 440.0) and the Airlie Reservoir is 5.0 feet below normal pool elevation

Condition 3 (Mandatory Reduction of Consumption):

Management Actions:

- In addition to restrictions in Condition 2, each customer will be limited to a specific volume or percentage reduction based upon prior billing history. A surcharge of $10 per 1,000 gallons above the allocation will be charged to the monthly bill.

Triggers:

- 90 days storage remaining (this is defined as the Warrenton Reservoir is ½ full (elevation 440.0) and the Airlie Reservoir is 8 feet below normal pool elevation.

Condition 4 (Emergency- any situation that requires immediate action to preserve health and safety):

Management Actions:

- The Town manager will restrict water use to only that absolutely essential to life, health and safety.

Triggers:

- This would be in response to catastrophic loss of one of the dams, treatment plant failure or multiple main breaks.

### 8.5.4 Fauquier County

Normal Conditions – the County will continue to educate about the wise use of water. This condition is found when no more than one of the following indicators is outside of the normal range:

- Precipitation exceeds the percent of normal precipitation for the time period in precipitation table
- Streamflows are above the 25th percentile
- Ground water levels are above the 25th percentile for all historic levels
- Water Supply Reservoirs exceed 120 days of useable storage or appropriate criteria for non-water supply reservoirs.

Drought Watch - the County will implement voluntary water restrictions to reach a goal of 10 percent reduction in water usage. Including:

- Public education ~~started~~ focused on how to reduce water usage.
- Notification of drought conditions posted on County website and ~~Fauquier County's Emergency Management Facebook page~~ press releases (Fauquier County's notification procedures are listed in the Appendix).

This level is triggered when at least two of the following indicators meet the following conditions:

- Precipitation levels are at or below the percent of normal precipitation for the time period in precipitation table
- Streamflows fall between the 10th and 25th percentile
- Ground water levels fall between the 10th and 25th percentile for all historic levels
- Water Supply Reservoirs contain between 90 and 120 days of useable storage or appropriate criteria for non-water supply reservoirs.

Drought Warning - the County will implement voluntary water restrictions to reach a goal of 20 percent reduction in water usage. In addition to the actions identified under the "Watch" level:

- Alert larger water users that have established water management action plans, so that they may activate the plans as appropriate.
- Establish voluntary water restrictions on watering lawns and washing cars (levels of restrictions to be determined by the drought team, depending on current conditions and drought indicators in each area).

This level is triggered when at least two of the following indicators meet the following conditions:

- Precipitation levels are at or below the percent of normal precipitation for the time period in precipitation table
- Streamflows fall between the 5th and 10th percentile
- Measured ground water levels fall between the 5th and 10th percentile for all historic levels
- Water Supply Reservoirs contain between 60 and 90 days of useable storage or appropriate criteria for non-water supply reservoirs.

Drought Emergency - the County will ~~adopt and~~ enforce ~~any~~ water use restrictions contained in the Drought Ordinance of the Fauquier County Code.~~that may have been issued by any drought emergency declaration issued by the Commonwealth of Virginia. Special circumstances may dictate that special restrictions may be needed to support water emergency restrictions issued by any or all of the governmental partners to this plan. Such individual case-specific exemptions shall only be initiated upon the prior approval of the Chair on the Fauquier County Board of Supervisors.~~ In addition to the actions taken under the "Drought Warning" level, there shall be:

- ~~Daily alerts~~ Alerts sent out on the Fauquier County's Emergency Notification System to include drought emergency updates.
- Mandatory water restrictions placed on activities as delineated in the Drought Ordinance of the Fauquier County Code, including but not limited to watering lawns and washing cars ~~(levels of restrictions to be determined by the drought team, depending on current conditions and drought indicators in each area)~~.
- ~~Warnings~~ Summonses and potential prosecutions and fines issued for violators of water restrictions (see the Appendix for enforcement guidelines).

This level is triggered when at least two of the following indicators meet the following conditions:

- Precipitation levels are at or below the percent of normal precipitation for the time period in precipitation table
- Streamflows are at or below the 5$^{th}$ percentile
- Measured ground water levels are at or below the 5$^{th}$ percentile for all historic levels
- Reservoirs contain 60 days or less of useable storage or appropriate criteria for non-water supply reservoirs.

Within Virginia, there is a separate but related process for the establishment of agricultural disaster designations. These processes are located in the Appendix.

### 8.5.5 Other Public Water Systems and Water Users

None of these water users have any known drought triggers; however, some of the businesses and agricultural operations may have established action plans in the event of droughts. These entities may include:

Parks and Recreation Sites
- Northern Fauquier Community Park
- C.M. Crocket Park
- Sky Meadows State Park
- Middleburg Tennis Club
- Camp Moss Hollow
- Phoebe Hall Knipling Outdoor

Schools
- Marshall/Coleman Schools
- H.M. Pearson Elementary School
- Southeastern Alternative High School

Midland Christian Academy
Fresta Valley Christian School
Claude Thompson Elementary School
Mary Walter Elementary School
Mountainside Montessori School

Restaurants

El Agave Mexican Restaurant (Frogs & Friends)
Northside 29 Restaurant (Town and Country)
Spitonys Restaurant
Blackthorne Inn & Restaurant (1763 Inn)
Hunters Head Tavern
Pete's Park 'n Eat (the restaurant is closed, but their well may still be active)
M & P Pizza
McDonald's Opal

Child Care

Maplewood Child Care Center
Piedmont Child Care
Walnut Grove Child Center
Walnut Grove Child Care III
Southern Fauquier Child Development

Churches

Midland Church of the Brethren
St. Stephens Episcopal Church

Businesses with Separate Water Systems

Fauquier Livestock Exchange
Chemetrics, Inc.
Ross Industries
Sheetz Station #221
Quarles Truck Stop
Johnsons Motel
Airlie Foundation
Dominion Generation
Marsh Run Old Dominion Electric Cooperative
TP Development Parcel (former Trinity Plastics)
Poplar Springs Inn
Fauquier Springs-Sulfur Springs Investment Corp.
Smith-Midland Corp.
Virginia Power

Agricultural

Marriott Ranch
Woodward Turf Farm
Virginia Beef Corp.
Kettle Wind Farm LLC

## 8.6 Common Actions that May be Taken during All Drought Situations

**Normal Conditions:**

No special actions are required other than to continue with the monitoring as prescribed by this plan; however, the best time for drought planning and preparation is during non-drought times. The County will continue to try to educate the public about the wise use of water.

**Drought Watch:**

- The Drought Coordinator will notify of the Drought Watch and advertise the drought conditions by posting on County website and press releases (Fauquier County's notification procedures are listed in the Appendix). Advertisements are primarily a public education campaign focused on how to reduce water usage in an effort to implement voluntary water restrictions to reach a goal of 10 percent reduction in water usage. These voluntary efforts can include, but not be limited to:
    - Suggesting that providers and users ~~P~~perform inspections of integrity of water lines and other potential sources of water loss~~. Fix~~ and repair any leaking pipes, fixtures or faucets.
  - The Drought Coordinator will prepare all notices and press releases required herein.
  - ~~Make monthly reports on drought condition to Drought Coordinator.~~
    - ~~Drought Coordinator will declare a county-wide Drought Watch and will issue a press release indicating the reasons for the declaration.~~
    - ~~The Fauquier County Drought Coordinator will notify the following entities: County Administrator; Warrenton; The Plains; Remington; WSA; Police; Fire; Schools; Agriculture; Forestry; and Health. Plus the [MEDIA]. Plus other water entities.~~
  - The Drought Coordinator will ~~E~~encourage water providers to review existing water conservation plans.
  - Agencies and departments represented on the Drought Team ~~Committee~~ should post Drought Watch notifications on their respective websites and through their other typical public outreach efforts.
    - ~~Leak detection and other water conservation measures.~~
  - Any private organization, entity or business that uses on average more than 1,000 gallons per day shall develop their own water reduction plan tiered to the drought notification levels contained in this plan, and that entity must, during periods of ~~drought~~Drought Watch, provide monthly reports to the ~~Committee~~ Drought Coordinator that summarizes their water conservation efforts taken and water reduction levels achieved. The Drought Coordinator, or designee, will notify these organizations of this requirement and will provide an annual reminder.

## 8.7 Potential Means of Water Conservation

No matter what drought level Fauquier County is in, residents, businesses, communities and government agencies can, and should, critically evaluate and explore more efficient water conservation practices. Upon the initiation of drought watches, warnings, emergencies or crisis, some of these practices may transition from voluntary to requirements. The emphasis of this Drought and Emergency Response Plan is to facilitate coordination and to set certain water

conservation goals, rather than being 100 percent prescriptive in how each person finds ways to conserve precious Fauquier County water resources. The important concern is the responsible conservation of water, not necessarily how one achieves this goal. However, for consistency purposes, for time management during emergency situations, and for other purposes, there will still be a need for specific bans or restrictions, if the situation warrants such an approach. Therefore, the following list of water conservation practices is not intended to be a complete or exhaustive list, but rather to provide some examples of what can be done to conserve water, and that may show up as requirements or restrictions during the higher levels of drought emergencies:

- Use dishwaters only when they are full.
- Wash only full loads of laundry (adjust water level if possible).
- Turn off faucets while brushing teeth, shaving, etc. (saves about five gallons per day).
- Reduce water used per toilet flush by installing toilet tank displacement inserts. A plastic jug may be used as an alternative. [Note: do not use bricks. They disintegrate when soaked and the resulting grit hinders closing of the flap value, causing leakage and subsequent water loss].
- Keep a bottle of water in the refrigerator, so as to limit the running of tap water to get cold water.
- If you have a water meter, monitor it to evaluate how much water you use and the timing of this use, so as to better inform you of how you may create additional water savings.
- Take shorter showers and baths (saves about 25 gallons per shower/bath).
- Do not use a garbage disposal.
- Do not use water to wash off driveways or sidewalks.
- Water before 10:00 a.m. to reduce evaporation during the hottest part of the day. Watering in the morning is better than the evening, because the dampness and coolness of the evening may promote fungal growth.
- When watering plants, use drip irrigation that directs water to the root system. If you do not have drip irrigation capabilities, then closely monitor your watering to ensure that the water is turned off when sufficient water has been delivered. Avoid run-off.
- When watering plants, water infrequently but thoroughly, because water penetrating deeper in the soil will be retained longer and it will encourage plants to grow deeper roots. Conversely, water from frequent light waterings often is lost due to evaporation, and it encourages plants to grow in the shallow soil zones that dry out quickly causing greater plant stress and the need for additional waterings.
- Water lawns only when necessary [note: grass that springs back when stepped on does not need water].
- Install automatic shut-off nozzles on outdoor water hoses.
- Aerate lawns by punching small holes approximately six inches apart. This will encourage water to soak into the soil rather than run off the surface.
- Position manually-placed sprinklers so that they do not water pavement, gravel, buildings or other non-plant surfaces.
- Know how to turn off an automatic irrigation system in case of rain.
- Weed gardens so that more desirable plants do not have to compete for limited moisture.
- Mulch garden beds to reduce evaporative water loss and weed growth, and cool the soil, which in turn creates less water-stress to plants.
- During dry periods postpone new plantings, since new plantings often require a higher quantity of irrigation.
- Use trash cans to dispose of used tissues rather than flushing them down the toilet.

- Avoid mowing grass at a very short height, since more water evaporates from short grass than taller grass.
- Do not allow children to play water games.
- Reduce or eliminate car washing.
- Encourage the use of rainbarrels and other means to capture and re-use water.
- Turn off ornamental water fountains.
- Avoid irrigation of athletic fields.
- Discourage the ~~F~~filling or topping off outdoor swimming pools ~~discouraged~~.
- Avoid washing car, boats, and other personal or recreational equipment.
- ~~Restaurant will serve~~ Serve water to restaurant patrons only upon request.

**8.8 Alternate and Emergency Water Supplies/Sources**

There are many situations within droughts that managers may want to find alternative water supplies to mitigate their shortages through their normal sources. In these situations, it is suggested that managers identify these sources before drought situations, and as much as possible, to obtain any permits, permission, contracts and other logistical obstacles before drought emergency situations kick in. It is recommended that the various agencies and organizations decide upon priorities, in order to reduce the potential of conflicts during droughts, since an emergency situation is not the best time for multiple organizations to be arguing over limited resources. For instance, it would be undesirable if a hospital was counting on the use of an emergency tank of water to supply critical life-support functions during a drought finds that someone had already tapped into this emergency supply in order to water a golf course. To avoid these problems, pre-planning and prioritization is important. The first step is to inventory potential emerge sources of water. Some potential sources may include the following:

Germantown Lake

One of the purposes of creating Germantown Lake is as an alternative water supply. Therefore, using it for drought emergencies is consistent with this purpose. There are no dry hydrants present to tap into Germantown Lake. To withdraw water from the lake would require hoses, pumps and other assorted equipment (such as filters), and to either drive up to the boat ramp or use the dam access road (both in C.M. Crockett Park).

Dry Hydrant Inventory

Fauquier County's Department of Emergency Services had started an inventory of the County's dry hydrants. It is recommended that this inventory be completed, incorporated into a Geographic Information System (GIS), shared with other organizations in the County, and to develop an approval and prioritization process.

Rappahannock River

Some withdrawals from the Rappahannock River may be a viable option; however, permits and coordination with the Virginia Department of Environmental Quality is required.

Other tanks, reservoirs, storage facilities

Some private businesses, such as the Sander's Vulcan Quarry, maintain large water tanks on site. Coordination, approval and agreements with these businesses would be required prior to their emergency usage for purposes beyond that designed by the landowner/owner.

Other localities

Purchasing or trading for water from other localities that are not experiencing as much of a drought as Fauquier County is always a possibility; however, prior permission and contractual arrangements would be required. In addition, sizeable transportation expenses may also be involved.

## 9.0 Updating the Plan

This plan will require periodic updating and/or revising. Since this is a multi-jurisdictional plan, the updating of this plan will not take the standard approach. If the standard approach is utilized, a small change in how one entity, such as the Town of Warrenton wanting to make a change on one of their triggers, would necessitate approved and re-signing by all the boards and signature authorities in all the other jurisdictions under the umbrella of this multi-jurisdictional plan. Such a scenario would be problematic and unworkable. Therefore, the approach taken on this plan is that if ANY of the jurisdictions covered by this plan (Warrenton, The Plains, Remington, Fauquier County (agricultural and non-agricultural) and Fauquier County Water and Sanitation Authority) wanted to change portions of this plan that dominantly pertain to that respective organization, such as management actions or response triggers, then they may do so with only that organization's approval authority. After such change is made, that organization would simply notify the Drought ~~Committee Chair~~ Coordinator of what changes to the master copy of the Drought Plan are to be made. The ~~Chair~~ Coordinator would then update the master copy accordingly and distribute the updated version to appropriate entities, including Virginia DEQ. However, in the interest of cross-jurisdictional cooperation and coordination, it is hoped that the other parties of the Drought Committee are solicited for input and comment upon any proposed plan amendments or updates prior to revision.

*Summary: any signature organization to this plan does NOT need any other organization's permission or review in order to make policy and procedural changes that are primarily directed to the needs of that particular organization.*

# Appendix

## Appendix A

## Fauquier County's Drought Management Public Notification Procedure

- Notifications Procedures – During times of drought ~~warnings~~, drought levels (Drought Watch, Drought Warning or Drought Emergency) will be placed on the Fauquier County website and press releases issued ~~the Fauquier County Emergency Management (EM) Facebook page~~. ~~During times of Warnings, drought levels will be placed on the Fauquier County website and the Fauquier County EM Facebook page.~~ For Drought Warnings or Drought Emergencies, ~~N~~notifications may be sent via the Fauquier County Emergency notification system on worsening drought conditions and on possible water restrictions. During times of Drought Emergencies notifications will be sent to all affected ~~residence~~ residents via the Fauquier County Emergency notification system on these water restrictions. These notifications will be sent prior to restrictions being implemented and when changes occur to these restrictions to include the elimination of any restrictions.

- During times of Drought Emergencies notifications will also be sent to local TV and radio stations for additional public notification. Included in these notifications will be the restrictions placed, reasons why, where additional information on the emergency can be found, and measures households should take to reduce their water usage. Upon the reduction or elimination of any restrictions additional information will be sent to these TV and radios stations.

**Appendix B**

**Fauquier County's Drought Management Enforcement Guidelines**

~~o The following is a list of possible water restrictions to be placed on citizens during a drought. Any violation of these restrictions in accordance with Code of Virginia, Title 62.1-44.38.1 are subject to penalty of confinement of up to 12 months in jail and/or a fine no less than $2,500.00 and no more than $32,500.~~

~~1. Reduction or elimination of watering of lawns.~~
~~2. Reduction or elimination of washing of cars.~~
~~3. Reduction or elimination of the use of water of any kind outside the home with the exception of agricultural uses.~~
~~4. The reduction and implementation of water Emergency Plans by commercial water users.~~
~~5. The reduction or elimination for use of Fire Hydrants for the purposes of Training or Testing.~~

Subsequent to the adoption of this Plan, the County will adopt an ordinance that provides for a process for declarations of drought stages, establishes water use regulations based on drought stage and enforcement mechanisms for violations of mandatory water use restrictions. The ordinance shall set out specific water use restrictions based on drought stage and initial violations shall be deemed a Class 4 misdemeanor and subsequent violations a Class 3 misdemeanor punishable pursuant to *Code of Virginia* § 18.2-11.

**Appendix C**

**Example Disaster Request Cover Letter**

Fauquier County Office
24 Pelham Street, Suite 20
Warrenton, VA 20186-3234
(540) 341-7950, ext. 12, FAX (540) 349-1792

Chairman, Fauquier County Board of Supervisors
40 Culpeper Street
Warrenton, VA 20186

Dear Mr:

I am writing to you at this time to request that the Fauquier County Board of Supervisors resolve to file with the Governor of Virginia a request that Fauquier County be designated as drought disaster area. The Fauquier County Food and Agriculture Committee, consisting of, Natural Resources Conservation Service, Farm Service Agency, and myself have met and have determined that Fauquier County meets the criteria of a drought disaster area, as per Federal guidelines.

If Fauquier County is granted drought disaster status by the Governor's office, farmers in Fauquier County will be eligible for guaranteed low-interest loans from the Farm Service Agency, as well as any other disaster relief programs that are appropriated by Congress.

Enclosed you will find a suggested resolution for the Board to use in making this request of the Governor. If you have any questions or comments, please do not hesitate to call on me.

Regards,

**Appendix D**

**Example Consent Agenda Request for Drought Emergency**

**CONSENT AGENDA REQUEST**

| **Sponsor:** | **Board of Supervisors Meeting Date:** |
|---|---|
| Raymond E. Graham, Chairman<br>Cedar Run District Supervisor | July 14, 2005 |
| **Staff Lead:** | **Department:** |
| Catherine M. Heritage, Assistant County Administrator | County Administration |

**Topic:**

A Resolution Authorizing the County Administrator to File with the Governor of Virginia a Request To Designate Fauquier County as a Drought Area.

**Topic Description:**

The ongoing drought has reached critical proportions for the Fauquier County farming community. The Fauquier Food and Agricultural Council reports that approximately 100,000 acres of farmland have been adversely affected within Fauquier County and estimates crop and hay losses of $250,000.

**Request Action of the Board of Supervisors:**

Consider adoption of the attached resolution.

**Financial Impacts Analysis:**

None

**Identify any Departments, Organizations or Individuals that would be affected by this request:**

Cooperative Extension Service
Farm Services Agency
National Conservation and Recreation Services
Fauquier County Farm Bureau

**Appendix E**

**Example Resolution for Agricultural Drought Emergency**

RESOLUTION

A RESOLUTION AUTHORIZING THE COUNTY ADMINISTRATOR TO FILE WITH THE GOVERNOR OF VIRGINIA A REQUEST THAT FAUQUIER COUNTY BE DESIGNATED A DROUGHT DISASTER AREA

WHEREAS, the drought conditions in Fauquier County have severely affected farmers; and

WHEREAS, during the growing season of this year, Fauquier County received considerably less rain than normal; and

WHEREAS, the Fauquier County Food and Agriculture Council, made of up the Farm Services Agency, the National Resource Conservation Service, and the Virginia Cooperative Extension, reports that approximately 100,000 acres of pasture land and 45,000 acres of hay land have been adversely affected within Fauquier County, at an estimated loss of $3.6 million; and

WHEREAS, it is incumbent upon the Fauquier County Board of Supervisors to authorize the County Administrator to file with the Governor of Virginia a request that Fauquier County be designated as a drought disaster area; now, therefore, be it

RESOLVED by the Fauquier County Board of Supervisors this 18th day of June, 2007. That the County Administrator be, and is hereby, authorized to file a request with the Governor of Virginia to declare Fauquier County a drought disaster area.

**Appendix F**

**AGRICULTURE - RELATED DISASTER DESIGNATIONS PROCESSES**

I. Types of Designations

A. PRESIDENTIAL - Based on a request from the Governor of the State the President can declare a state or portions of a state a major disaster area. Usually this is due to a major widespread national disaster such as a hurricane or tornado.

B. SECRETARIAL - At the request of the State Governor the Secretary of Agriculture can declare a County, series of counties or an entire State a disaster area.

C. FARM SERVICE AGENCY ADMINISTRATOR - The Administrator, based on a request from the FSA State Executive Director, can designate a County or Counties eligible for Emergency Loan Assistance, however, this declaration is limited to physical loss only.

II. Designation Process

A. PRESIDENTIAL - The Presidential Declaration is made in response to a request of the Governor of the State. No local Food and Agriculture Council action is necessary, except for reporting purposes and estimation of dollar losses and is usually reported by a local government as a part of its initial damage assessment report to the Virginia Department of Emergency Services.

B. SECRETARIAL - When a natural disaster creates significant agricultural crop losses, the producers and growers in those localities affected by the disaster will need help in coping with their losses. Through the Farm Agency of the U.S. Department of Agriculture, farmers may apply to the Federal Government for emergency low interest loans provided their localities have been designated natural disaster areas by the Secretary of Agriculture.

Local government is responsible for initiating the disaster designation process when there is sufficient evidence that significant agricultural crop losses have been sustained or, in the case of frost/freeze damage, there is a potential for major losses to crops which will require time to fully assess. The following provides an outline of the procedure for obtaining a Secretarial disaster designation.

In responding to disasters caused by frost or freeze, local government should keep in mind that a Governor's written request for disaster designation must be received by the Secretary of Agriculture within three months of the last day of the disaster.

Procedure

1. Local government submits request to Governor:

   When a natural disaster occurs or develops, the County Board of Supervisors (or City Council in the case of cities that have agricultural production) submits a formal resolution and request to the Governor stating that the county is experiencing or has experienced significant losses to agricultural crop (specifying those crops if possible) due to a natural disaster and asking the Governor's help in obtaining federal disaster designation for that locality.

2. Governor's Office responds to request:

   a) Governor's Office writes representative of the County Board of Supervisors advising that request has been referred to appropriate state agencies for review and processing.

   b) Governor's Office refers the request for designation to Commissioner of the Virginia Department of Agriculture and Consumer Services through the Secretary of Commerce and Trade and copies the State Coordinator of Emergency Services (Director of the Virginia Department of Emergency Services) and the Secretary of Public Safety.

3. Farm Service Agency Damage Assessment Report is prepared:

   a) The Commissioner's Office requests the State Executive Director, Farm Service Agency (FSA), USDA, to prepare an FSA Damage Assessment Report (DAR), on the County.

   b) The Chairperson of the State Food and Agriculture Committee requests the FAC at the County level to prepare and submit a Disaster Assessment Report, on the disaster reported by the County Board of Supervisors. The FSA, DAR is different for the state initial Damage Assessment Report.

   c) Upon receiving the Damage Assessment Report, from the local Food and Agriculture Committee, the State Executive Director of FSA calls together the State FAC to review the DAR. A copy of the approved report is forwarded to the Commissioner of the Virginia Department of Agriculture and Consumer Services.

   d) When the necessary baseline data is available, the Virginia Department of Agriculture and Consumer Services places an estimated dollar value on the crops affected by the nature disaster.

4. Governor's request for USDA designation prepared:

   a) Given that the extent of losses are significant, the Commissioner's Office drafts the Governor's letter of transmittal to the Secretary of Agriculture requesting disaster designation for the County because of significant agricultural crop losses. This letter would be accompanied by the County damage assessment report.

   b) The Commissioner's Office notifies the Virginia Department of Emergency Services that the damage assessment report is completed and provides VDES with the report and additional data concerning crop losses for review and return through the Secretary of Public Safety.

   c) The draft letter and the damage assessment report are submitted to the Governor's Office by the Commissioner's Office through the Secretary of Commerce and Trade.

5. Governor's request is submitted to USDA Secretary. The Governor's letter is sent to the Secretary of Agriculture and copies are sent to the Secretary of Commerce and Trade. The Commissioner of Agriculture and Consumer Services, the Secretary of Public Safety, the Director of the Virginia Department of Emergency Services, the State Executive Director of FSA, the State Director of Rural Development and the County Board of Supervisors representatives.

6. Secretary of Agriculture responds to Governor's request:

   When the Secretary of Agriculture advises the Governor concerning approval or disapproval of the request for disaster designation, the Governor's Office notifies the County Board of Supervisors and sends copies of this response to those state and federal officials mentioned under # 5.

# VIRGINIA DROUGHT MONITORING TASK FORCE
## Drought Status Report
## June 20, 2024

## Summary

On Thursday June 20, 2024, the Virginia Drought Monitoring Task Force (DMTF) met to discuss the drought indicators identified by the Virginia Drought Assessment and Response Plan. Precipitation deficits in combination with increased temperatures have resulted in rapid intensification of drought throughout the majority of the Commonwealth. Significant declines in surface and groundwater indicators throughout the past fourteen-day period have occurred, with much below normal observations within the Northern Virginia and Shenandoah drought evaluation regions. Soil moisture within the 0-100cm range show exceptional dryness occurring throughout the majority of the state west of I-81 and in the Shenandoah Valley. The 8-14 day outlook forecasts much above average temperatures and below normal precipitation, further intensifying drought conditions.

Due to below normal precipitation and continued declines of surface and groundwater indicators the Task Force recommends Drought Watch for the following regions:

- Big Sandy
- Middle James
- New River
- Northern Piedmont
- Roanoke River
- Upper James
- Chowan
- Eastern Shore
- Northern Coastal Plain
- Southeast Virginia
- York-James

Due to rapid declines in surface and groundwater indicators, reported impacts to agriculture, and increased temperatures forecasted the Task Force recommends a Drought Warning declaration for the following regions:

- Shenandoah
- Northern Virginia

The DMTF reviewed the status of drought monitoring and hydrologic conditions in the Commonwealth of Virginia. Precipitation over the past 30-60 day period show localized rainfall events within the far southwest corner of the state. Precipitation percent of normal over the 30-60 day period shows exceptional dryness within the Shenandoah Valley and Piedmont regions, with the majority of Virginia much below normal. Area-average rainfall since the beginning of the current water year (October 1, 2023) has remained below long-term normal values for the Big Sandy drought evaluation region (see DEQ website for more info on drought indicators). The Task Force will continue closely monitoring drought indicator and is scheduled to meet on July 1, 2024.

Streamflow over the past 14-day period has shown widespread declines throughout the Commonwealth. Flows are currently below the 25$^{th}$ percentile for 10 of the 13 drought evaluation regions, with the Roanoke within the 25$^{th}$ percentile and declining. Three regions are currently bel ow the 10$^{th}$ percentile including the Shenandoah, Chowan, and Big Sandy.

Groundwater levels for monitoring wells in the Climate Response Network have shown continued declines within many northern, central, and eastern portions of the state. Five regions are currently below the 25th percentile including the Big Sandy, Upper James, Northern Piedmont, Northern Coastal Plain, and Southeast. Levels are currently below the 5th percentile for five of 13 drought evaluation regions including Shenandoah, Roanoke, New River, York James, and Northern Virginia. Additionally, two of 13 drought evaluation regions are below the 25th percentile including the Eastern Shore and Big Sandy.

Storage at major water supply reservoirs throughout Virginia remain within normal ranges at this time.

The most recent weekly U.S. Drought Monitor (USDM) web page map for Virginia (Appendix A, released June 18, 2024) showed abnormally dry (D0) conditions mapped across approximately 95% of the Commonwealth, and moderate drought (D1) conditions mapped across approximately 24% of the Commonwealth. Appendix B includes presentations from the United States Geological Survey and National Weather Service

## Reports

The U.S. Army Corps of Engineers (USACE) reported that Lake Moomaw (Philpott Lake) and J. H. Kerr Reservoir have received below normal inflows over the past month. J. H. Kerr Reservoir is currently approximately 1ft below guide curve elevation.

## Virginia Department of Agriculture and Consumer Services

Producers in the Shenandoah Valley, Northern, and Eastern Shore regions of the Commonwealth report negative impacts from dry conditions. In these areas, pastures are in poor condition, with hay feeding occurring as a supplement. Additionally, corn and soybean crops throughout these regions are beginning to show signs of stress

As widespread impacts to producers throughout the Commonwealth have been experienced information regards assistance programs was provided by VDACS.

Information regarding the U.S. Department of Agriculture's Disaster Assistance Programs is available here: https://www.fsa.usda.gov/programs-and-services/disaster-assistance-program/index.

Information regarding the federal disaster declaration process is available here: https://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdafiles/FactSheets/emergency_disaster_designation_declaration_process-factsheet.pdf
Contact information for each locality's USDA Farm Service Agency office can be found by clicking-through the map available here: https://offices.sc.egov.usda.gov/locator/ap

## Virginia Department of Environmental Quality

The DEQ report presents a map of current conditions of DEQ Drought Indicators, and summary of current conditions at the four large multi-purpose reservoirs listed as key reservoir storage indicators in the Virginia Drought Assessment and Response Plan.

**Smith Mountain Lake** on the Staunton River in the Roanoke drought evaluation region was observed at an adjusted elevation of 794.47 feet, which is 1.47 feet above Watch level (793 ft). The adjusted elevation is the level the lake would be if the water currently held in the lower Leesville Lake for reuse were pumped back into Smith Mountain Lake. Recent 7, 14, and 28-day inflows were below normal for this time of year.

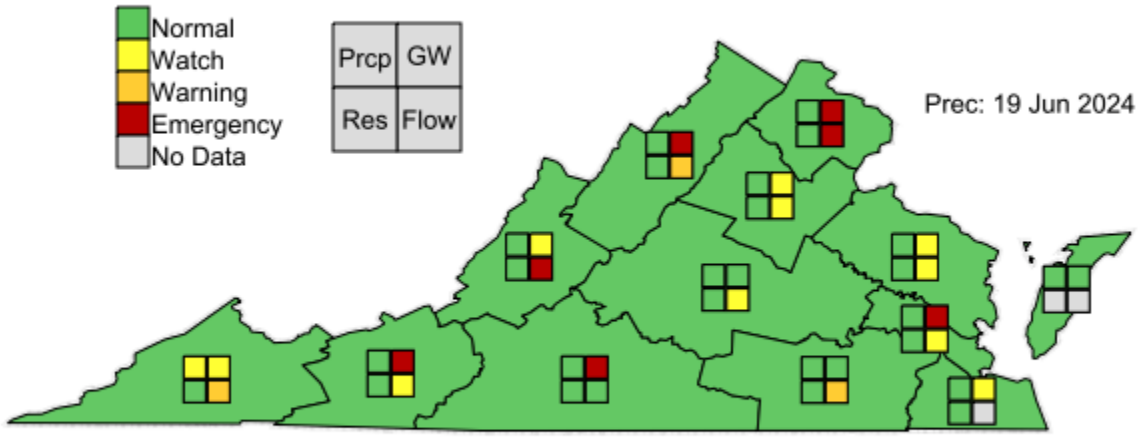
**Lake Moomaw** at Gathright Dam on the Jackson River in the Upper James drought evaluation region was observed at an elevation of 1579.51 feet, which is 14 feet above Watch level (1565 ft). Recent 7, 14, and 28-day average inflows were much below normal for this time of year.

**Lake Anna** on the North Anna River in the Northern Piedmont drought evaluation region was observed at an elevation of 249.7 feet, which is 1.7 feet above Watch level (248 ft). Recent 7, 14, and 28-day inflows were below normal for this time of year.

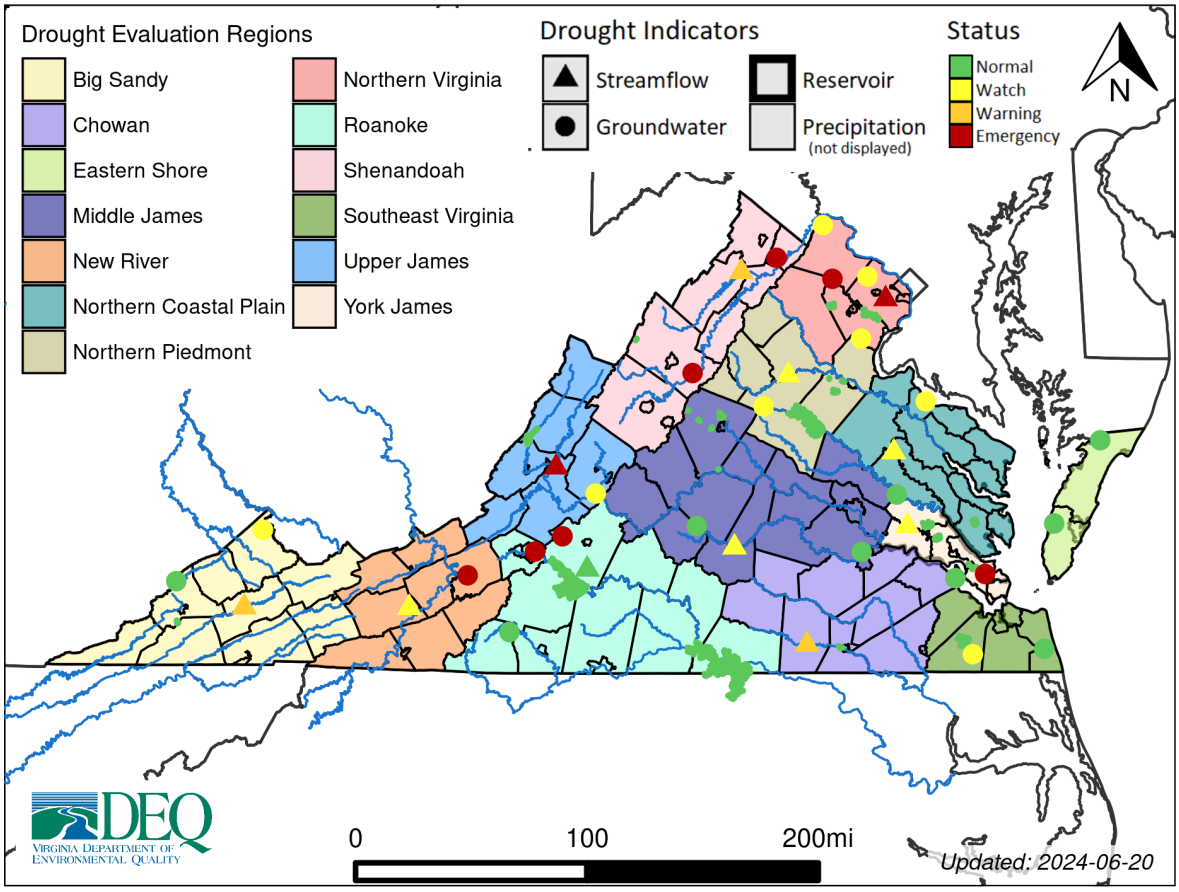
**J. H. Kerr Reservoir** on the Staunton River in the Roanoke drought evaluation region was observed at an elevation of 299.94ft, which was 1.86ft below the guide curve elevation for this time period (301.8 feet) and 1.14ft above the Watch level (Watch level is 3 to 6 ft below guide curve). Recent 7, 14, and 28-day inflows were below normal for this time of year.

# DEQ Daily Drought Status Summary: 06/20/2024

## *Drought Summary Map:*




## *Drought Indicator Map:*



***Regional Drought Response:***

| # | Region | Reduction Type | Target Reduction % |
|---|---|---|---|
| 1 | Eastern Shore | none | none |
| 2 | Big Sandy | none | none |
| 3 | Upper James | none | none |
| 4 | Roanoke | none | none |
| 5 | Southeast Virginia | none | none |
| 6 | Northern Coastal Plain | none | none |
| 7 | New River | none | none |
| 8 | Middle James | none | none |
| 9 | Chowan | none | none |
| 10 | York James | none | none |
| 11 | Northern Virginia | none | none |
| 12 | Northern Piedmont | none | none |
| 13 | Shenandoah | none | none |

***Precipitation Indicators:***

| # | Region | Start Date | End Date | Water Year % of Normal | Status |
|---|---|---|---|---|---|
| 1 | Big Sandy | 10/1/2023 | 6/19/2024 | 82.98 | Watch |
| 2 | Eastern Shore | 10/1/2023 | 6/19/2024 | 84.26 | Normal |
| 3 | New River | 10/1/2023 | 6/19/2024 | 90.11 | Normal |
| 4 | Roanoke | 10/1/2023 | 6/19/2024 | 90.47 | Normal |
| 5 | Upper James | 10/1/2023 | 6/19/2024 | 92.05 | Normal |
| 6 | Northern Piedmont | 10/1/2023 | 6/19/2024 | 95.69 | Normal |
| 7 | Middle James | 10/1/2023 | 6/19/2024 | 97.08 | Normal |
| 8 | Shenandoah | 10/1/2023 | 6/19/2024 | 99.1 | Normal |
| 9 | Northern Virginia | 10/1/2023 | 6/19/2024 | 104.63 | Normal |
| 10 | Southeast Virginia | 10/1/2023 | 6/19/2024 | 106.12 | Normal |
| 11 | Northern Coastal Plain | 10/1/2023 | 6/19/2024 | 106.92 | Normal |
| 12 | York James | 10/1/2023 | 6/19/2024 | 116.38 | Normal |
| 13 | Chowan | 10/1/2023 | 6/19/2024 | 118.9 | Normal |

***Surface Water Indicators:***

| # | Region | Gage Name | Start Date | End Date | Percentile | Status |
|---|---|---|---|---|---|---|
| 1 | Upper James | COWPASTURE RIVER NEAR CLIFTON FORGE, VA | 6/13/2024 | 6/19/2024 | 4.5 | Emergency |
| 2 | Northern Virginia | ACCOTINK CREEK NEAR ANNANDALE, VA | 6/13/2024 | 6/19/2024 | 4.97 | Emergency |
| 3 | Shenandoah | N F SHENANDOAH RIVER NEAR STRASBURG, VA | 6/13/2024 | 6/19/2024 | 8.68 | Warning |
| 4 | Chowan | MEHERRIN RIVER NEAR LAWRENCEVILLE, VA | 6/13/2024 | 6/19/2024 | 9.49 | Warning |
| 5 | Big Sandy | CLINCH RIVER AT CLEVELAND, VA | 6/13/2024 | 6/19/2024 | 9.6 | Warning |
| 6 | York James | CHICKAHOMINY RIVER NEAR PROVIDENCE FORGE, VA | 6/13/2024 | 6/19/2024 | 12.58 | Watch |
| 7 | Northern Coastal Plain | MATTAPONI RIVER NEAR BEULAHVILLE, VA | 6/13/2024 | 6/19/2024 | 13.5 | Watch |
| 8 | Middle James | APPOMATTOX RIVER AT FARMVILLE, VA | 6/13/2024 | 6/19/2024 | 15.57 | Watch |
| 9 | Northern Piedmont | RAPIDAN RIVER NEAR CULPEPER, VA | 6/13/2024 | 6/19/2024 | 17.28 | Watch |
| 10 | New River | REED CREEK AT GRAHAMS FORGE, VA | 6/13/2024 | 6/19/2024 | 18.65 | Watch |
| 11 | Roanoke | GOOSE CREEK NEAR HUDDLESTON, VA | 6/13/2024 | 6/19/2024 | 25.43 | Normal |

***Groundwater Indicators:***

| # | Region | Well Name | Start Date | End Date | Percentile | Status |
|---|---|---|---|---|---|---|
| 1 | New River | Christiansburg DEQ Observation Well (27F 2 SOW 019) | 6/13/2024 | 6/19/2024 | 0.0 | Emergency |
| 2 | Northern Virginia | Prince William County USGS Observation Well (49V 1) | 6/13/2024 | 6/19/2024 | 0.0 | Emergency |
| 3 | Roanoke | Bedford County USGS Observation Well (33G 1 SOW 224) | 6/13/2024 | 6/19/2024 | 3.33 | Emergency |
| 4 | Roanoke | Roanoke-Nelson DEQ Observation Well (31G 1 SOW 008) | 6/13/2024 | 6/19/2024 | 0.5 | Emergency |
| 5 | Shenandoah | Blandy Farm USGS Observation Well (46W 175) | 6/13/2024 | 6/19/2024 | 3.78 | Emergency |
| 6 | Shenandoah | McGaheysville USGS Observation Well (41Q 1) | 6/13/2024 | 6/19/2024 | 4.97 | Emergency |
| 7 | York James | York County DEQ Observation Well (59F74 SOW 184C) | 6/13/2024 | 6/19/2024 | 0.0 | Emergency |
| 8 | Big Sandy | Buchanan County USGS Observation Well (15G 19 SOW 222) | 6/13/2024 | 6/19/2024 | 14.35 | Watch |
| 9 | Northern Coastal Plain | George Washington Birthplace USGS Observation Well (55P 9) | 6/13/2024 | 6/19/2024 | 16.1 | Watch |
| 10 | Northern Piedmont | Gordonsville DEQ Observation Well (45P 1 SOW 030) | 6/13/2024 | 6/19/2024 | 21.95 | Watch |
| 11 | Northern Virginia | Fairfax County USGS Observation Well (52V 2D) | 6/13/2024 | 6/19/2024 | 16.29 | Watch |
| 12 | Northern Virginia | Prince William County USGS Observation Well (51S 7) | 6/13/2024 | 6/19/2024 | 12.2 | Watch |
| 13 | Northern Virginia | Harper's Ferry DEQ Observation Well (49Y 1 SOW 022) | 6/13/2024 | 6/19/2024 | 12.55 | Watch |
| 14 | Southeast Virginia | Brinkley USGS Observation Well (58B 13) | 6/13/2024 | 6/19/2024 | 22.05 | Watch |
| 15 | Upper James | Glasgow DEQ Observation Well (35K 1 SOW 063) | 6/13/2024 | 6/19/2024 | 19.67 | Watch |
| 16 | Big Sandy | U.S. Forest Service - SOW 223 Cane Patch Well | 6/13/2024 | 6/19/2024 | 100.0 | Normal |
| 17 | Chowan | Slade Farm DEQ Observation Well (57E 31 SOW 094C) | 6/13/2024 | 6/19/2024 | 61.11 | Normal |
| 18 | Eastern Shore | Withams DEQ Observation Well (66M 19 SOW 110S) | 6/13/2024 | 6/19/2024 | 31.48 | Normal |
| 19 | Eastern Shore | P. C. Kellam DEQ Observation Well (63H 6 SOW 103A) | 6/13/2024 | 6/19/2024 | 62.5 | Normal |
| 20 | Middle James | Buckingham USGS Observation Well (41H 3) | 6/13/2024 | 6/19/2024 | 47.82 | Normal |
| 21 | Middle James | Colonial Heights USGS Observation Well (51G 1) | 6/13/2024 | 6/19/2024 | 77.0 | Normal |
| 22 | Roanoke | Fairystone State Park USGS Observation Well (30C 1 SOW 010) | 6/13/2024 | 6/19/2024 | 27.91 | Normal |
| 23 | Southeast Virginia | Pungo DEQ Observation Well (62B 1 SOW 098A) | 6/13/2024 | 6/19/2024 | 47.86 | Normal |
| 24 | York James | Hanover County DEQ Observation Well (53K 19 SOW 080) | 6/13/2024 | 6/19/2024 | 80.66 | Normal |

### *Reservoir Indicators:*

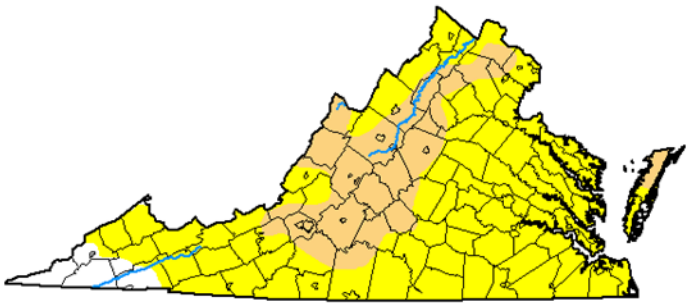
***Note, these reservoir statuses require manual review as they are NOT automated at this time***

| # | Region | Reservoir | Date | Status |
|---|---|---|---|---|
| 1 | Big Sandy | Big Cherry Reservoir | 06/20/2024 | Normal |
| 2 | Chowan | Emporia Reservoir | 06/20/2024 | Normal |
| 3 | Middle James | Beaver Creek Reservoir | 06/20/2024 | Normal |
| 4 | Middle James | Totier Creek Reservoir | 06/20/2024 | Normal |
| 5 | Middle James | Ragged Mountain | 06/20/2024 | Normal |
| 6 | Middle James | Sugar Hollow | 06/20/2024 | Normal |
| 7 | Middle James | Lake Moomaw | 06/20/2024 | Normal |
| 8 | Middle James | South Fork Rivanna River Reservoir | 06/20/2024 | Normal |
| 9 | Northern Coastal Plain | Beverdam Reservoir | 06/20/2024 | Normal |
| 10 | Northern Piedmont | Hunting Run Reservoir | 06/20/2024 | Normal |
| 11 | Northern Piedmont | Motts Run Reservoir | 06/20/2024 | Normal |
| 12 | Northern Piedmont | Lake Anna | 06/20/2024 | Normal |
| 13 | Northern Piedmont | Ni River Reservoir | 06/20/2024 | Normal |
| 14 | Northern Virginia | Lake Manassas | 06/20/2024 | Normal |
| 15 | Northern Virginia | Occoquan Reservoir | 06/20/2024 | Normal |
| 16 | Roanoke | Smith Mountain Lake | 06/20/2024 | Normal |
| 17 | Roanoke | Kerr Reservoir | 06/20/2024 | Normal |
| 18 | Shenandoah | Skidmore Fork Lake (Switzer Lake) | 06/20/2024 | Normal |
| 19 | Southeast Virginia | Lake Cohoon | 06/20/2024 | Normal |
| 20 | Southeast Virginia | Lake Kilby | 06/20/2024 | Normal |
| 21 | Southeast Virginia | Speights Run Reservoir | 06/20/2024 | Normal |
| 22 | Southeast Virginia | Lake Meade | 06/20/2024 | Normal |
| 23 | Southeast Virginia | Kerr Reservoir | 06/20/2024 | Normal |
| 24 | Upper James | Lake Moomaw | 06/20/2024 | Normal |
| 25 | York James | Diascund Creek Reservoir | 06/20/2024 | Normal |
| 26 | York James | Lee Hall - City Reservoir | 06/20/2024 | Normal |
| 27 | York James | Harwoods Mill Reservoir | 06/20/2024 | Normal |
| 28 | York James | Little Creek Reservoir | 06/20/2024 | Normal |
| 29 | York James | Skiffes Creek Reservoir | 06/20/2024 | Normal |

# Appendix A

**U.S. Drought Monitor**

## Virginia



**June 18, 2024**

***(Released Thursday, Jun. 20, 2024)***

**Valid 8 a.m. EDT**

*Drought Conditions (Percent Area)*

| | None | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4 |
|---|---|---|---|---|---|---|
| **Current** | 4.46 | 95.54 | 24.57 | 0.00 | 0.00 | 0.00 |
| **Last Week** 06-11-2024 | 62.95 | 37.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| **3 Months Ago** 03-19-2024 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Start of Calendar Year** 01-02-2024 | 31.65 | 68.35 | 34.77 | 4.07 | 0.00 | 0.00 |
| **Start of Water Year** 09-26-2023 | 51.40 | 48.60 | 24.99 | 6.12 | 0.00 | 0.00 |
| **One Year Ago** 06-20-2023 | 35.92 | 64.08 | 26.19 | 0.42 | 0.00 | 0.00 |

*Intensity:*

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx*

*Author:*

Richard Tinker

CPC/NOAA/NWS/NCEP

**droughtmonitor.unl.edu**

# Appendix B

# VA Drought Monitoring Task Force

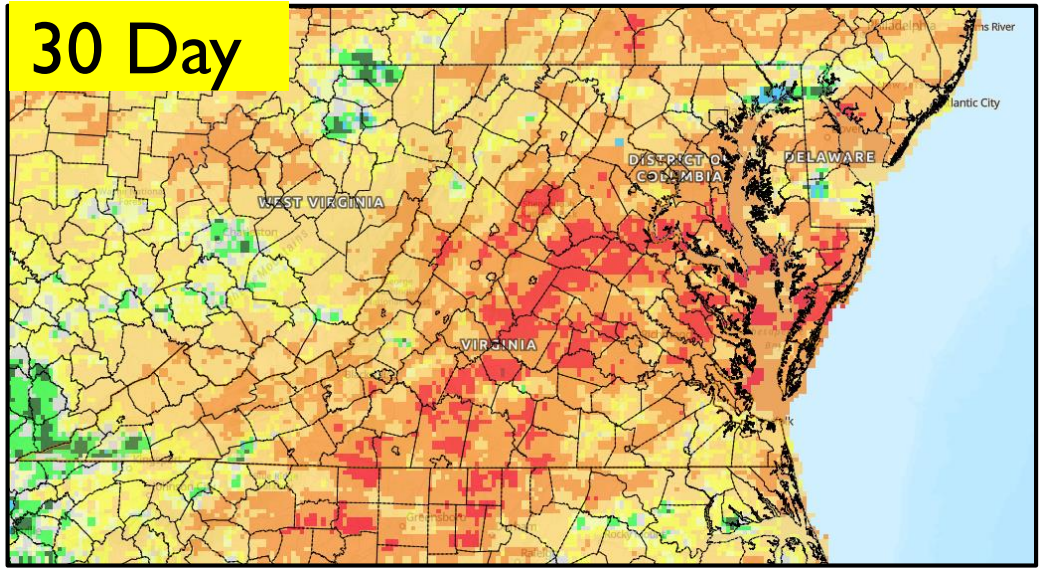
Jonathan McGee
National Weather Service – Wakefield, VA
June 20, 2024

# Percent of Normal Precipitation

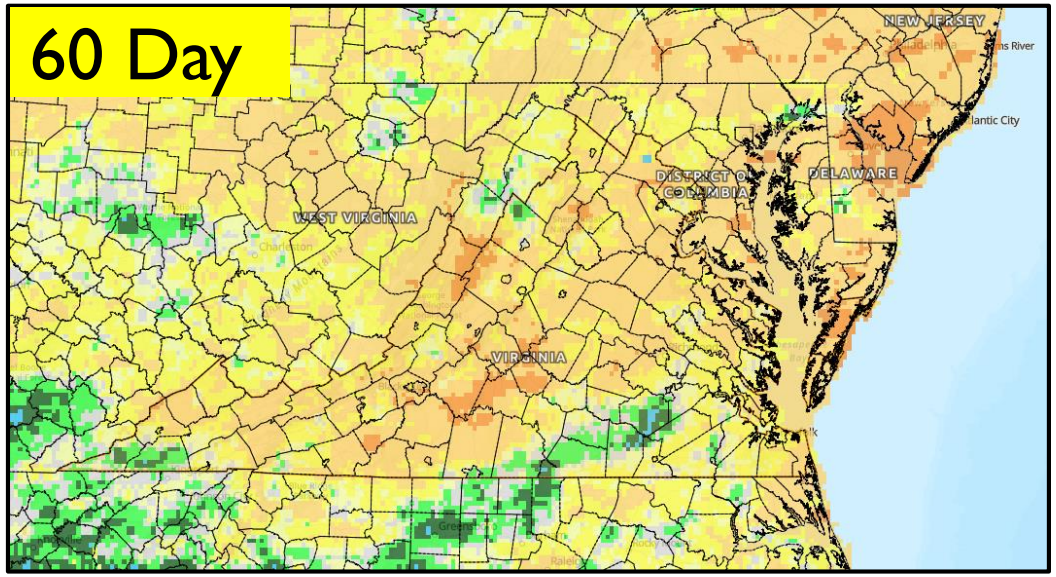
Wakefield, VA
WEATHER FORECAST OFFICE

Item a.

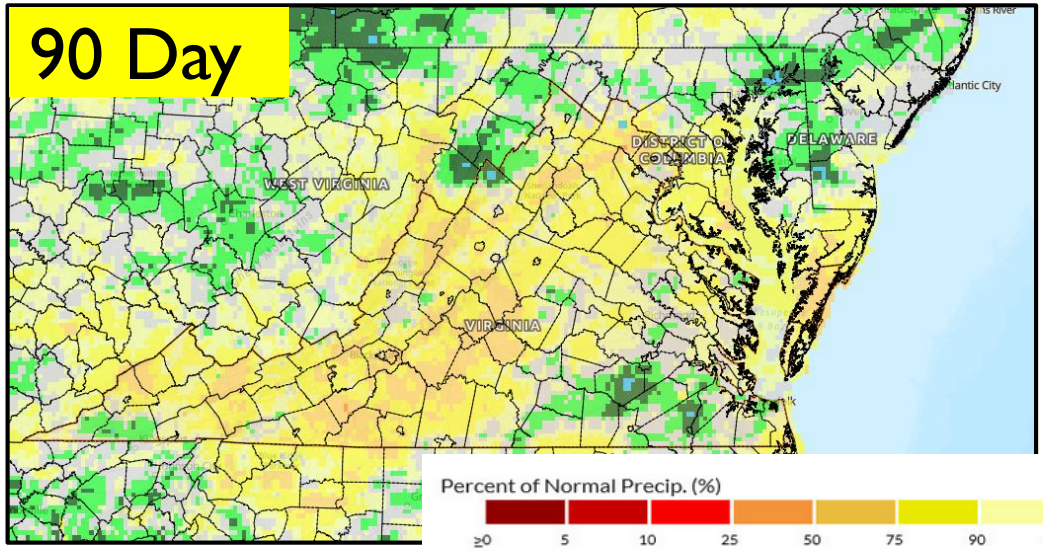
## 30 Day



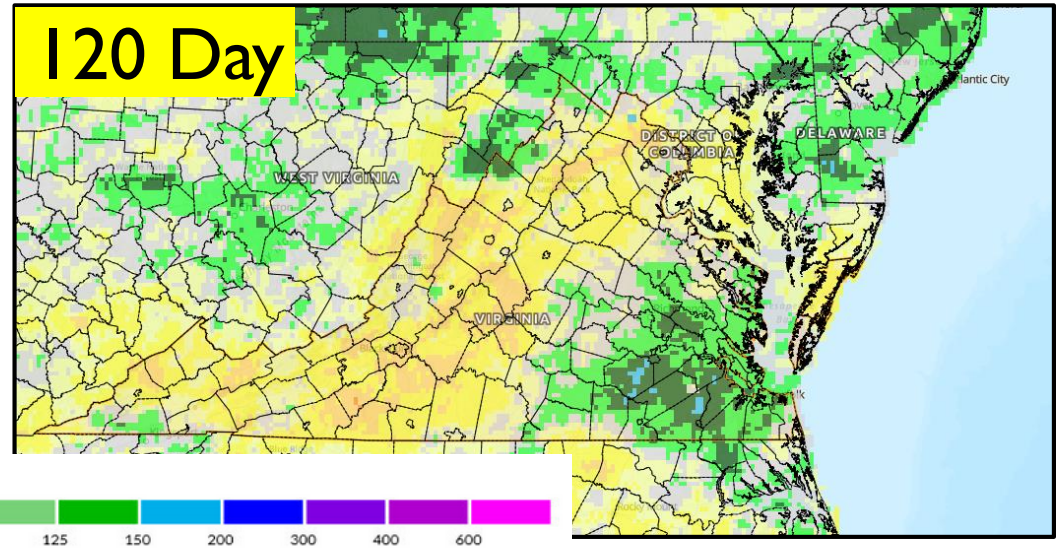

## 60 Day

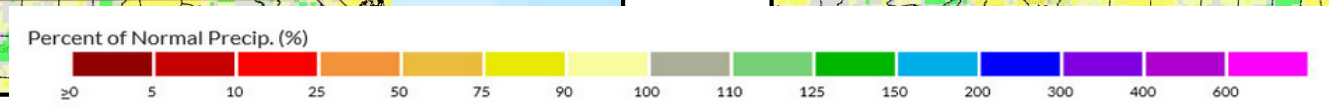



## 90 Day




## 120 Day



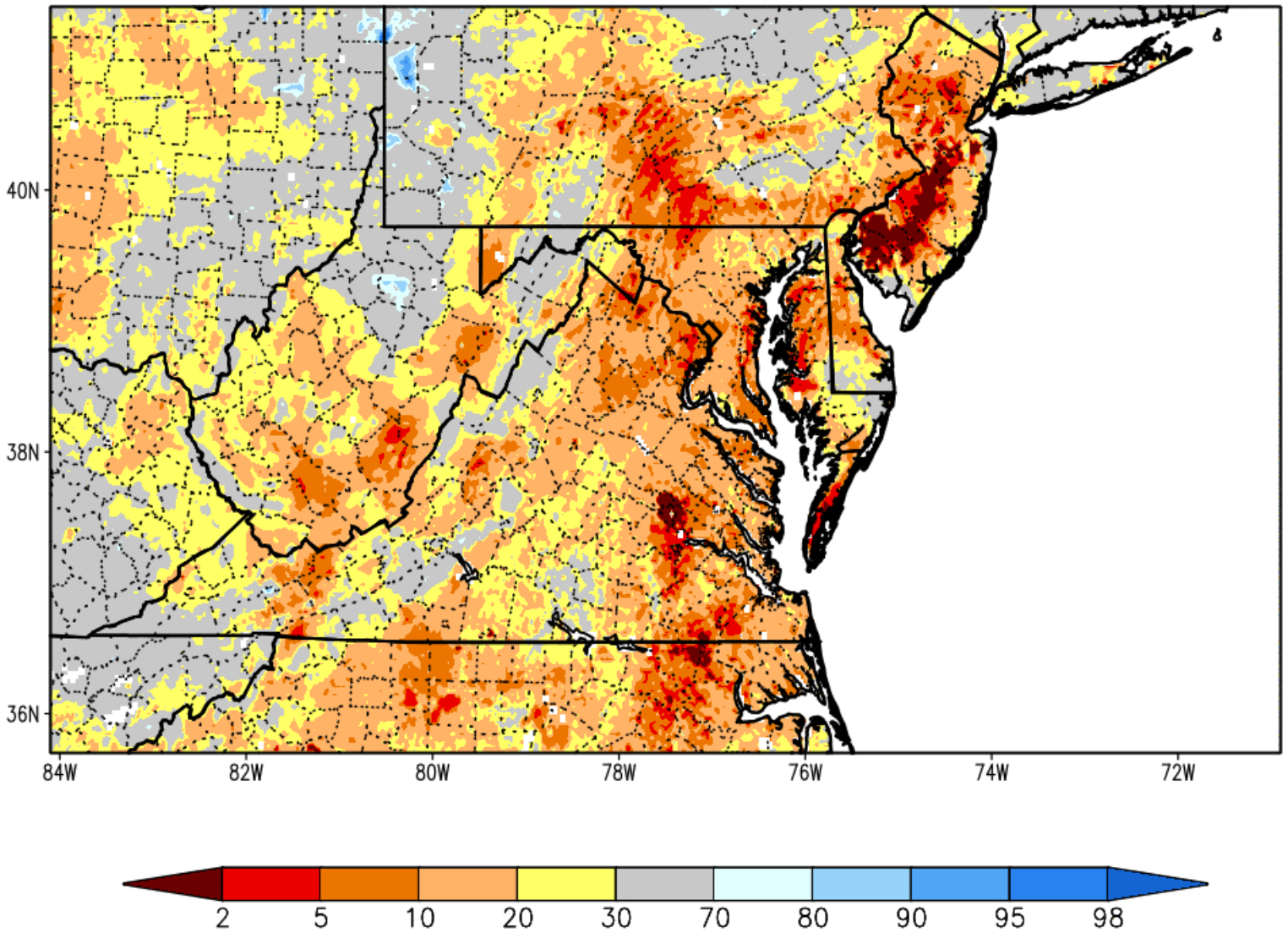




1084

# Soil Moisture Percentile (0-1 meter)

Wakefield, VA
WEATHER FORECAST OFFICE

Item a.




1085

# Drought Monitor (As of June 20th )

For more info, visit: droughtmonitor.unl.edu

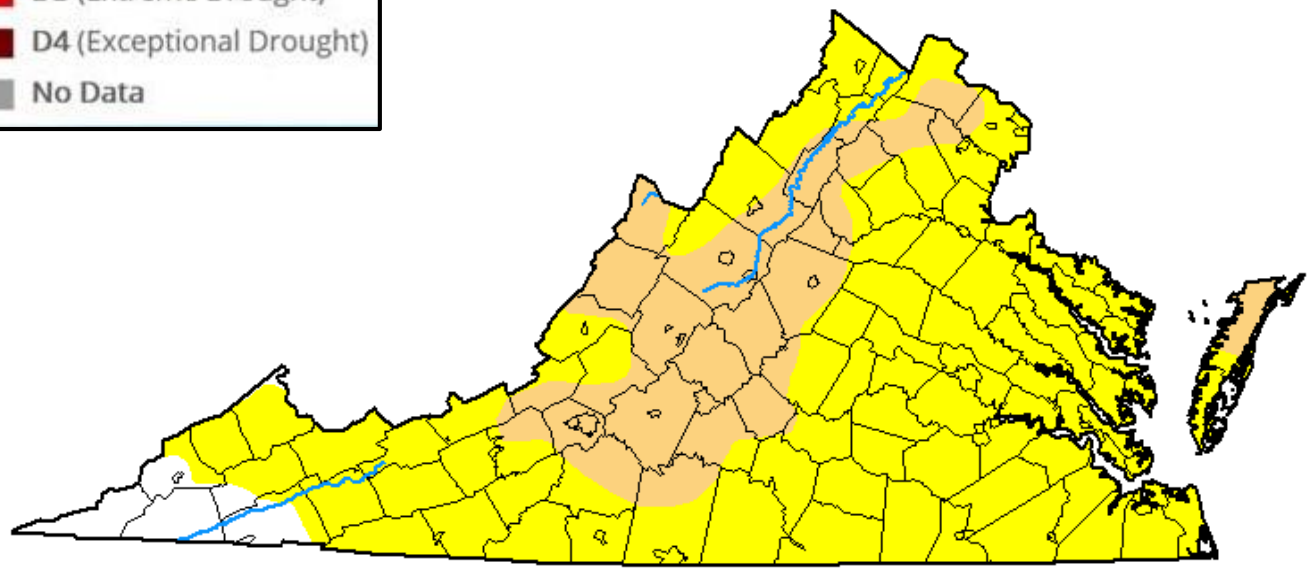
Wakefield, VA

WEATHER FORECAST OFFICE

Item a.

**Intensity:**

- None
- D0 (Abnormally Dry)
- D1 (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)
- No Data



## Potential Impacts

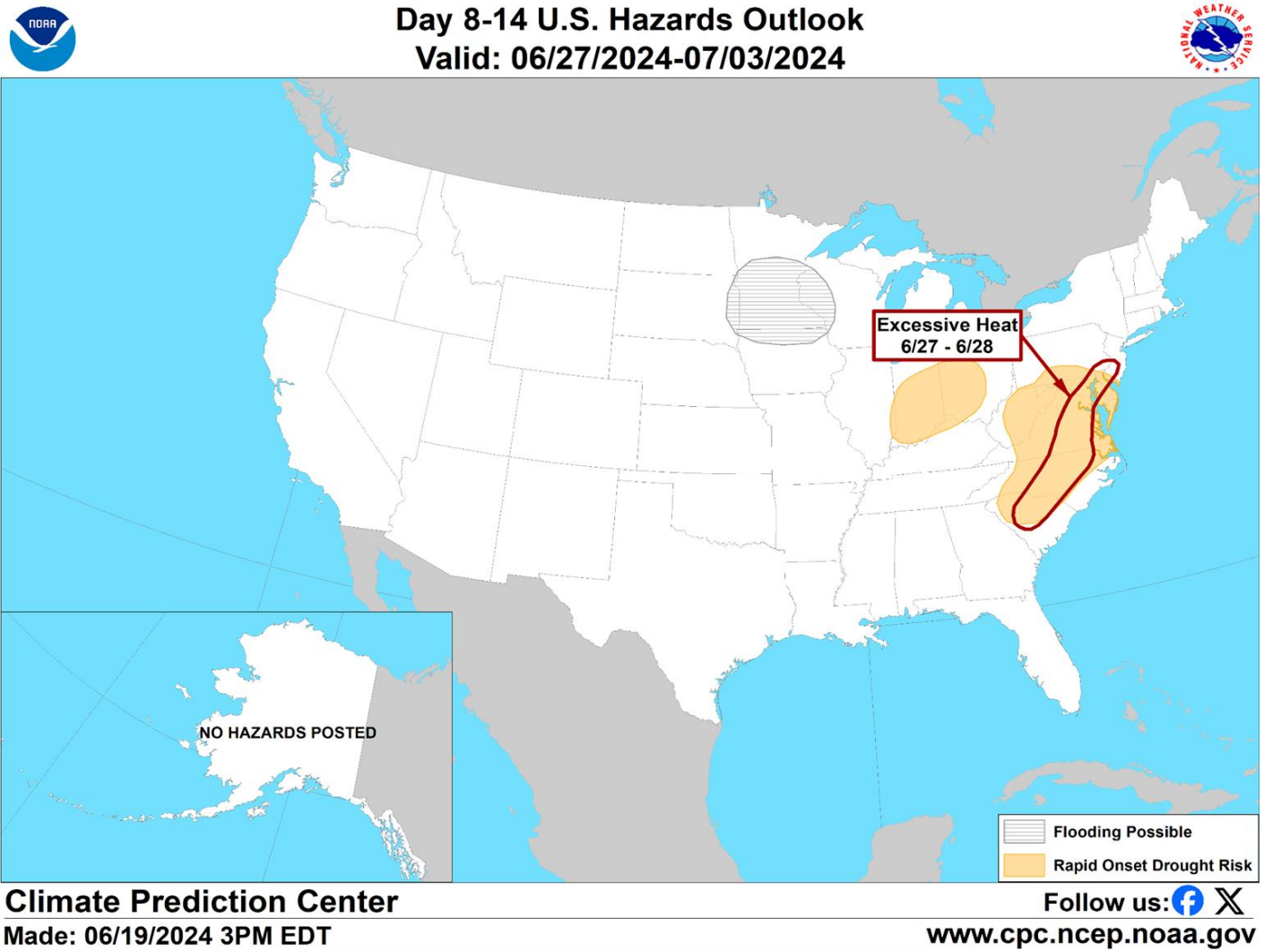
| Category | Impact |
|---|---|
| D0 | Crop growth is stunted; planting is delayed |
| | Fire danger is elevated; spring fire season starts early |
| | Lawns brown early; gardens begin to wilt |
| | Surface water levels decline |
| D1 | Irrigation use increases; hay and grain yields are lower than normal |
| | Honey production declines |
| | Wildfires and ground fires increase |
| | Trees and landscaping are stressed; fish are stressed |
| | Voluntary water conservation is requested; reservoir and lake levels are below normal capacity |
| D2 | Specially crops are impacted in both yield and fruit size |
| | Producers begin feeding cattle; hay prices are high |
| | Warnings are issued on outdoor burns; air quality is poor |
| | Golf courses conserve water |
| | Trees are brittle and susceptible to insects |
| | Fish kills occur; wildlife move to farms for food |
| | Water quality is poor; groundwater is declining; irrigation ponds are dry; outdoor water restrictions are implemented |
| D3 | Crop loss is widespread; Christmas tree farms are stressed; dairy farmers are struggling financially |
| | Well drillers and bulk water haulers see increased business |
| | Water recreation and hunting are modified; wildlife disease outbreak is observed |
| | Extremely reduced flow to ceased flow of water is observed; river temperatures are warm; wells are running dry; people are digging more and deeper wells |

1086

# Flash Drought Developing



For more info, visit: drought.gov or cpc.ncep.noaa.gov

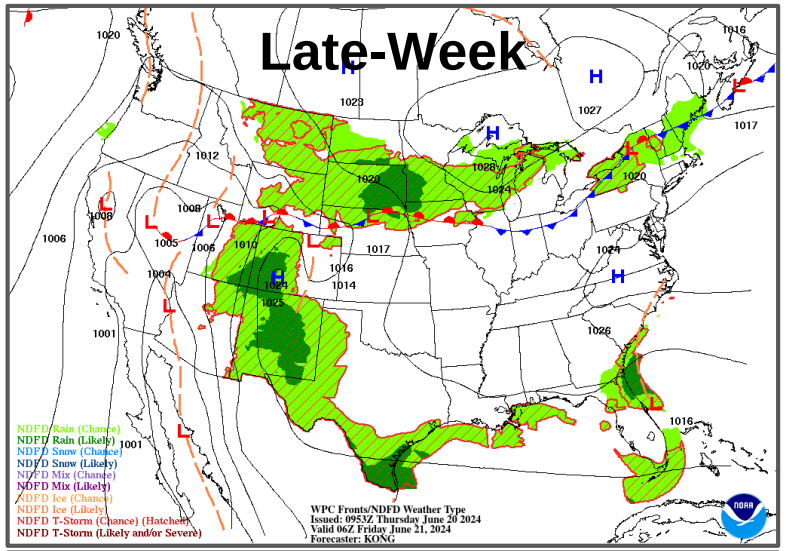


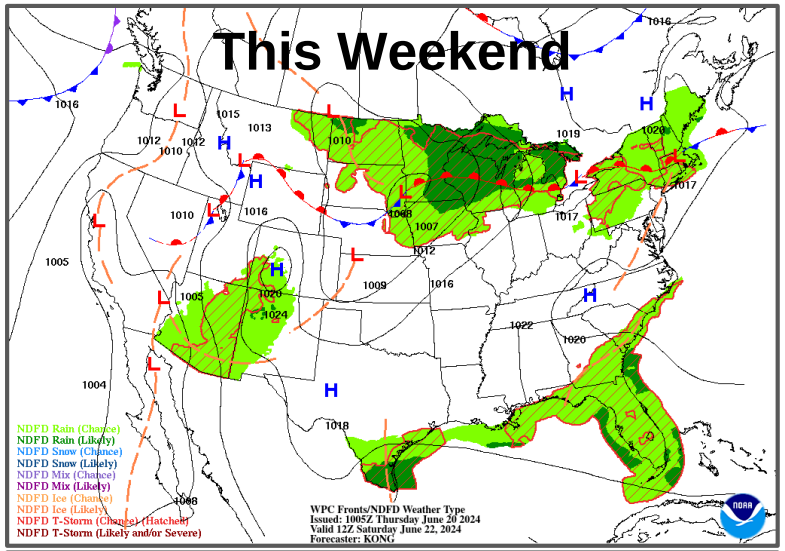

## What is Flash Drought?

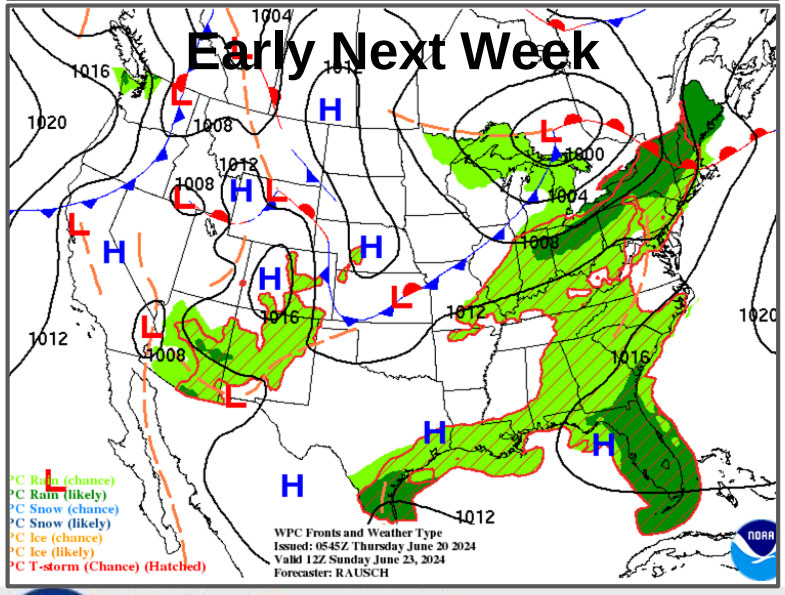
- Flash drought is the rapid onset or intensification of drought. It is set in motion by lower-than-normal rates of precipitation, accompanied by abnormally high temperatures, winds, and radiation.
- Higher temperature increases evapotranspiration and further lowers soil moisture, which decreases rapidly as drought conditions continue.
- Changes in soil moisture that accompany flash drought can cause extensive damage to agriculture, economies, and ecosystem goods and services.

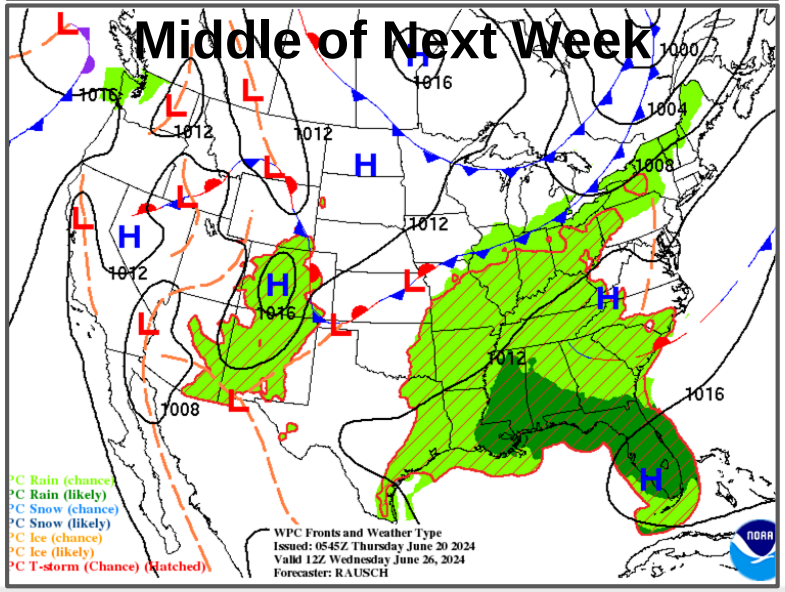
# This Week's Weather Pattern






## Key Points:

- Dry weather with increasing heat and humidity is expected through the weekend.
- A cold front will bring the chance for scattered showers and thunderstorms late Sunday or Sunday night into Monday.
- Another opportunity for rain comes during the middle of next week.

# Precipitation Forecasts

Courtesy of the Weather Prediction Center (www.wpc.ncep.noaa.gov)

Wakefield, VA

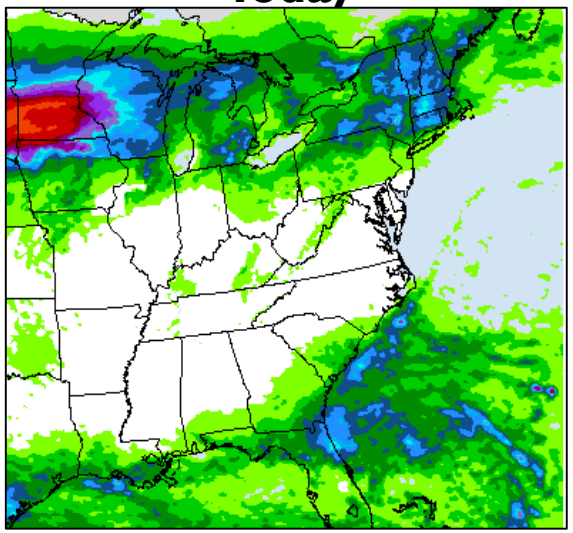
WEATHER FORECAST OFFICE

Item a.

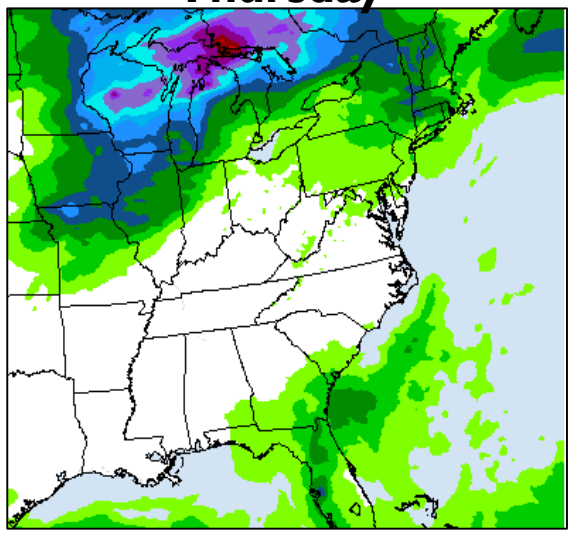
**Forecast Daily Rainfall Through Wednesday (June 27th)**

- **Generally 0.5" of rain or less through the period.**

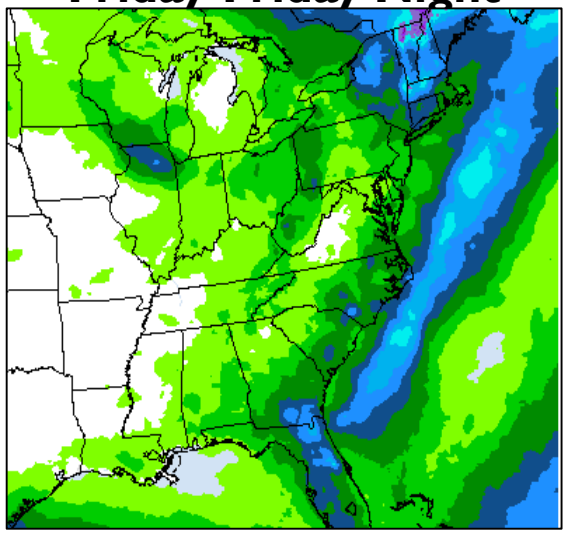
**Today**



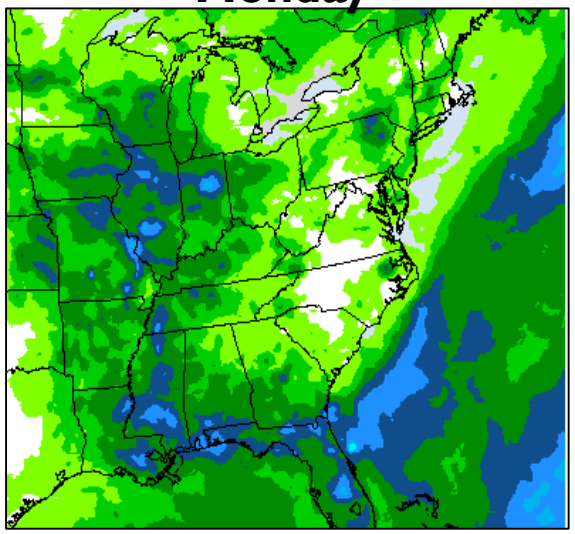
**Thursday**



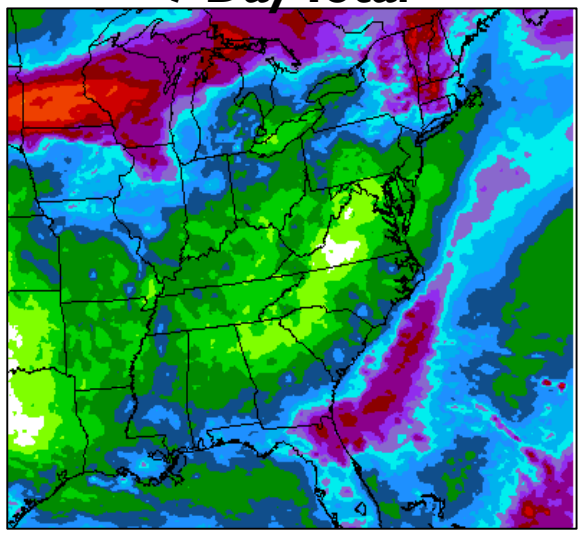
**Friday-Friday Night**

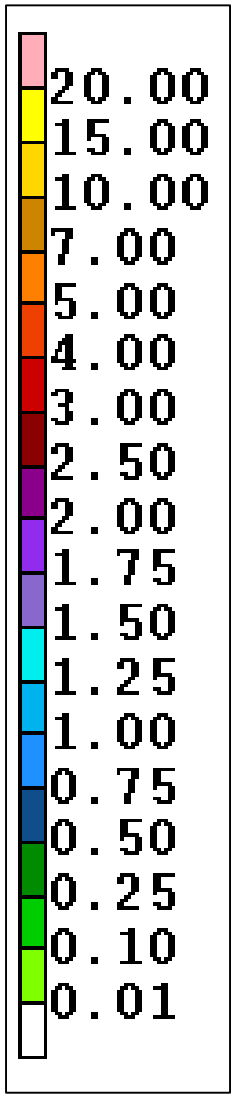


**Monday**



**7 Day Total**

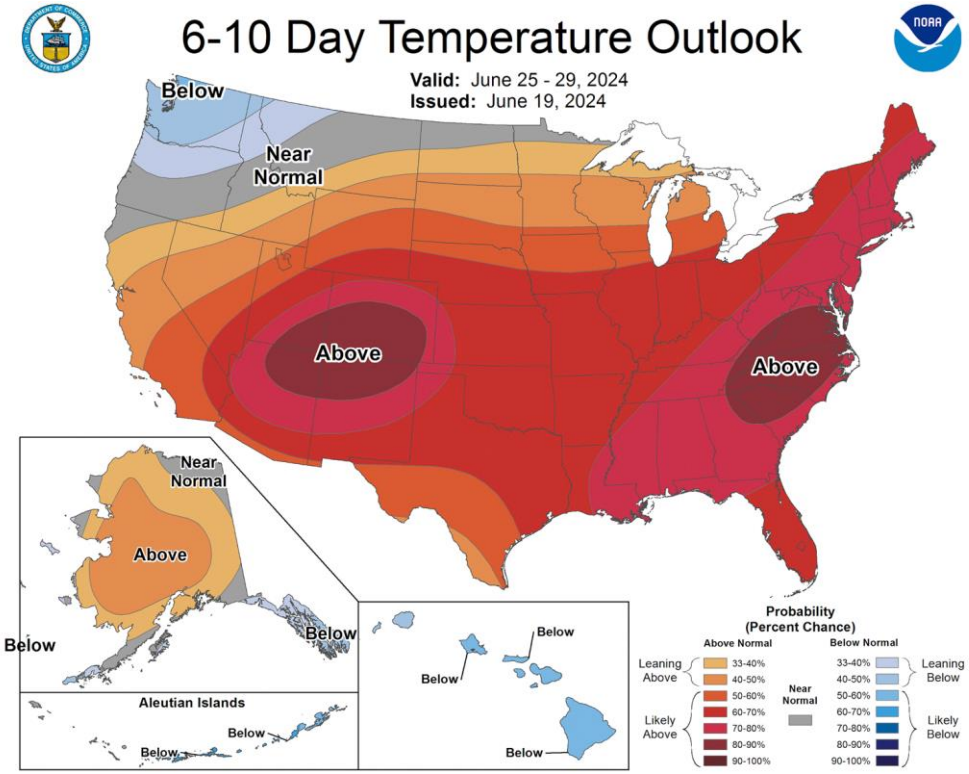


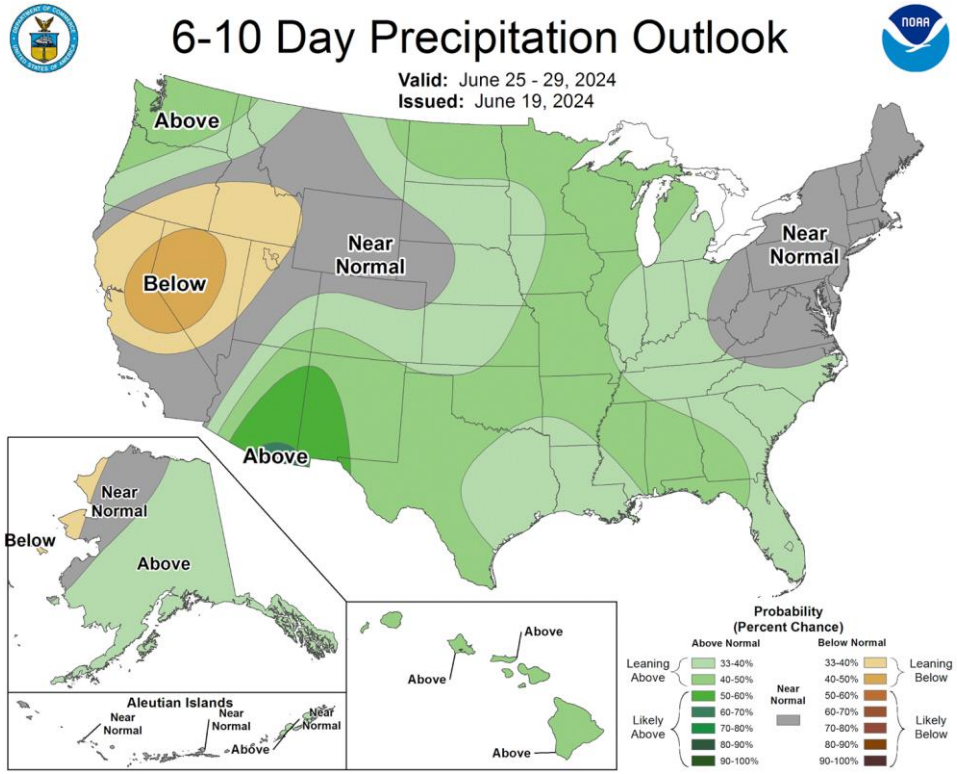



1089

# Looking Ahead to Next Week






- Above normal temperatures favored next week.
- Near normal precipitation chances favored next week.

USGS
science for a changing world

# USGS Drought Status Summary

## Streamflow and Groundwater Levels in Virginia

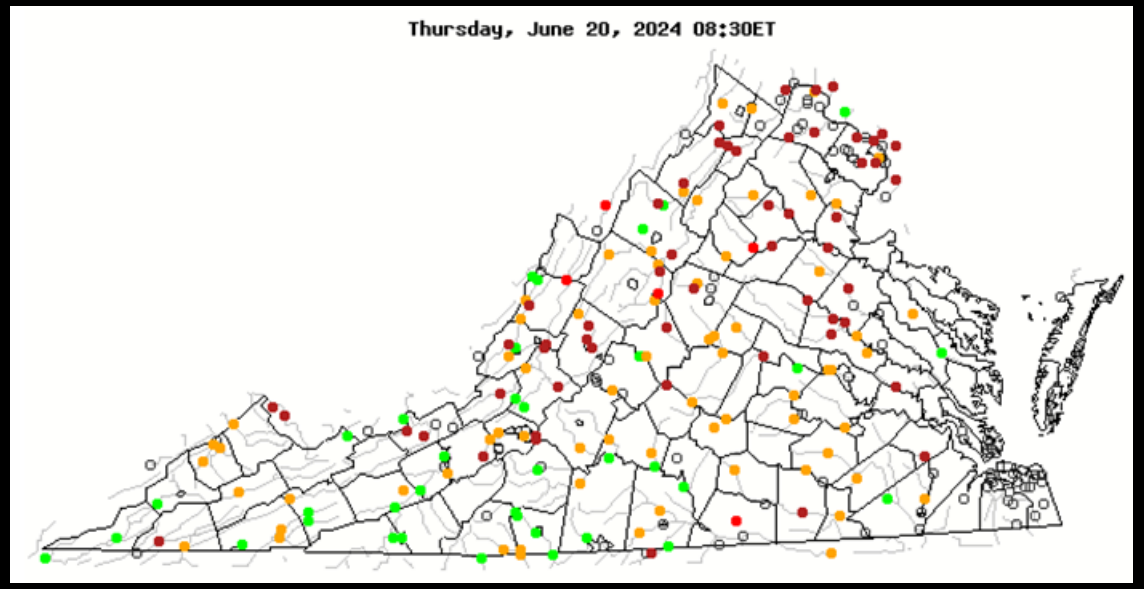
**Virginia Drought Monitoring Task Force**

June 20, 2024

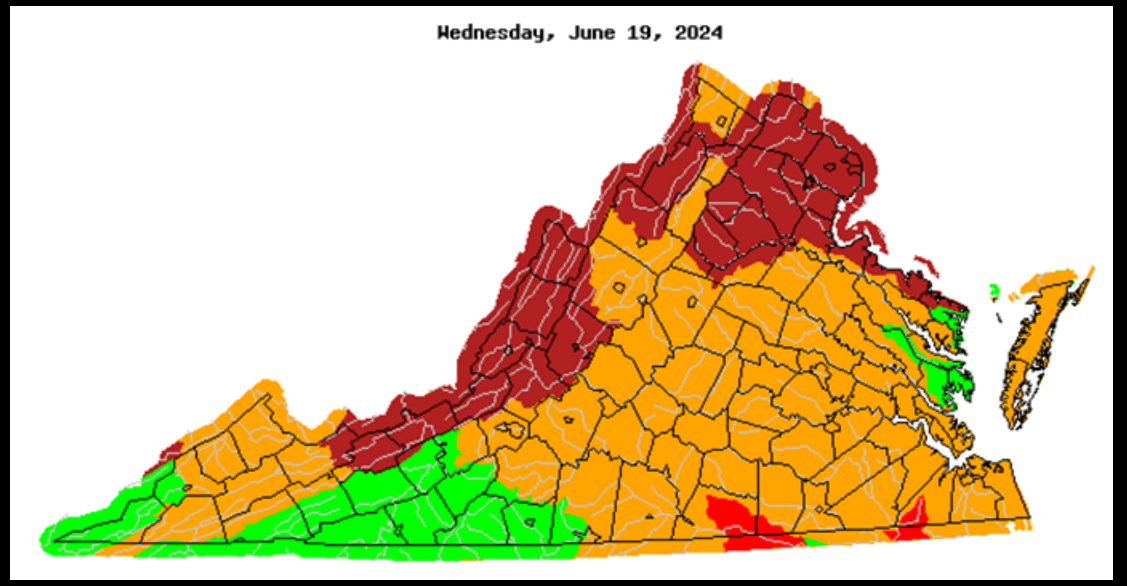
**U.S. Department of the Interior**
**U.S. Geological Survey**

# Current Streamflow Conditions



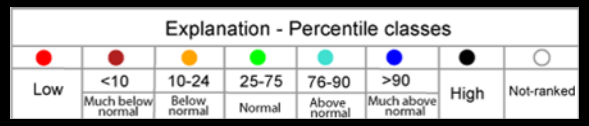


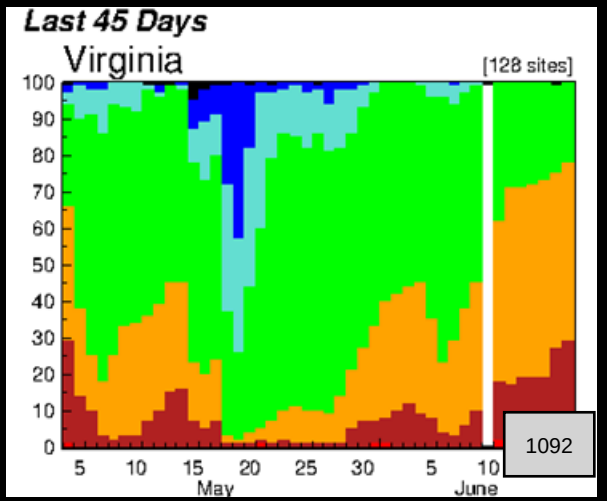

**Realtime USGS Streamgages**




**Daily Flow HUC 8s**

- Data from 06/19/2024
- Below normal flows in north and western mountains



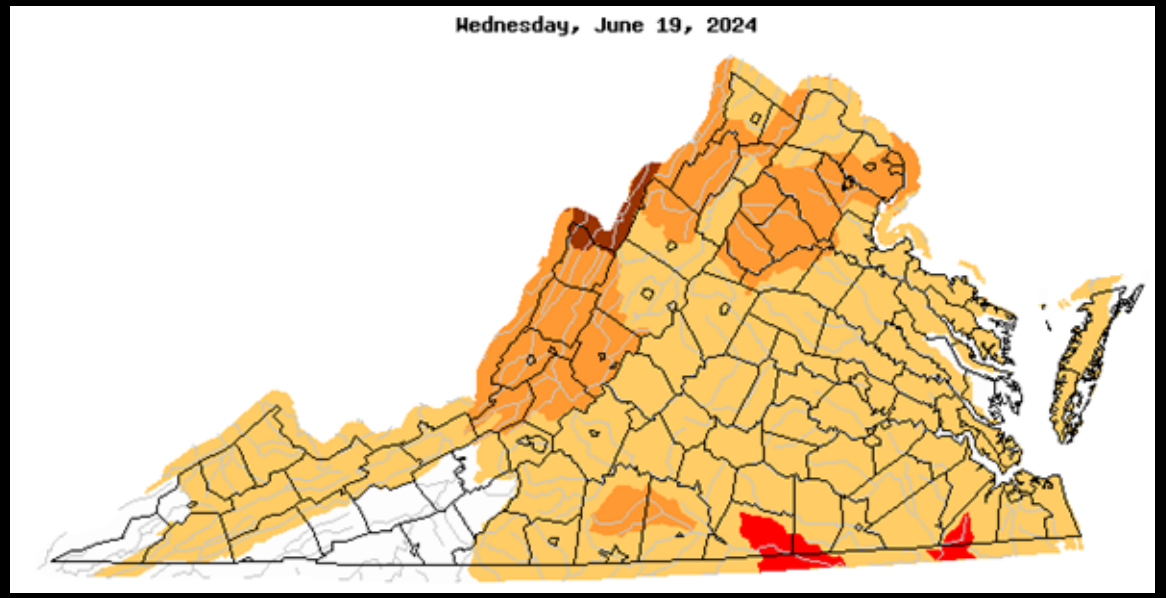




USGS

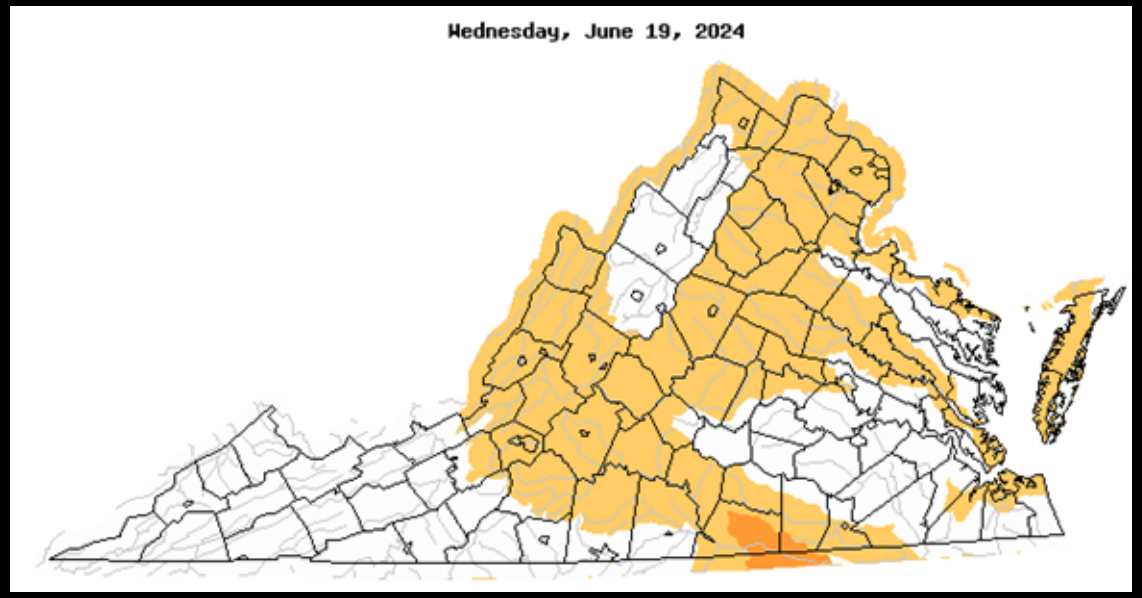
*https://waterwatch.usgs.gov/index.php?m=real&r=va&w=map*

# Below-Normal Streamflow Conditions



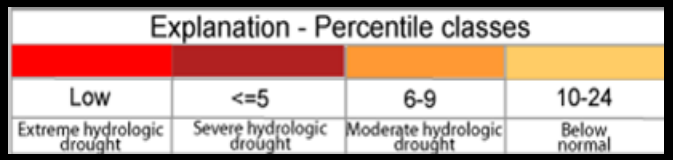



**7-Day**




**28-Day**

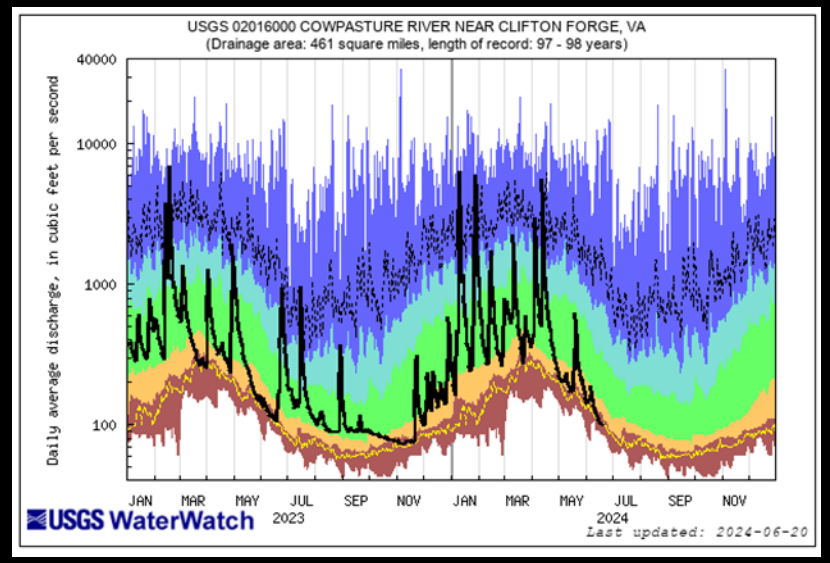
- Quick intensification of drought signal in north and western mountains

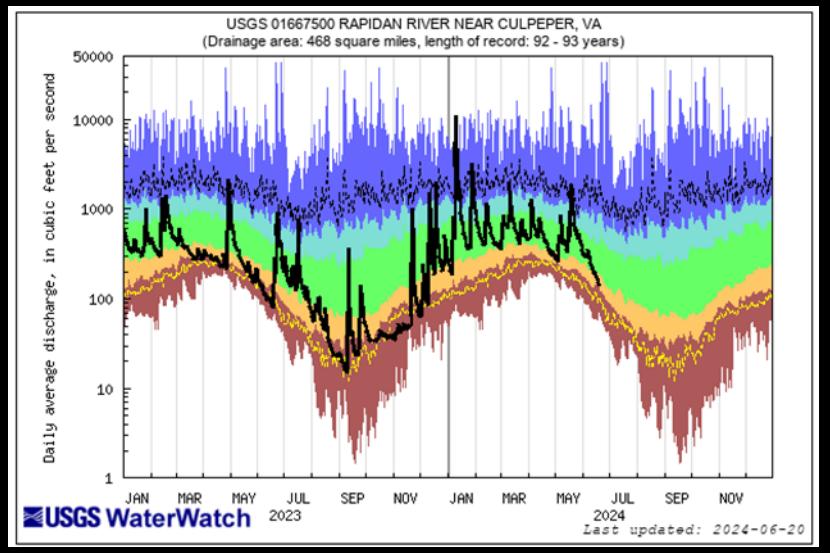


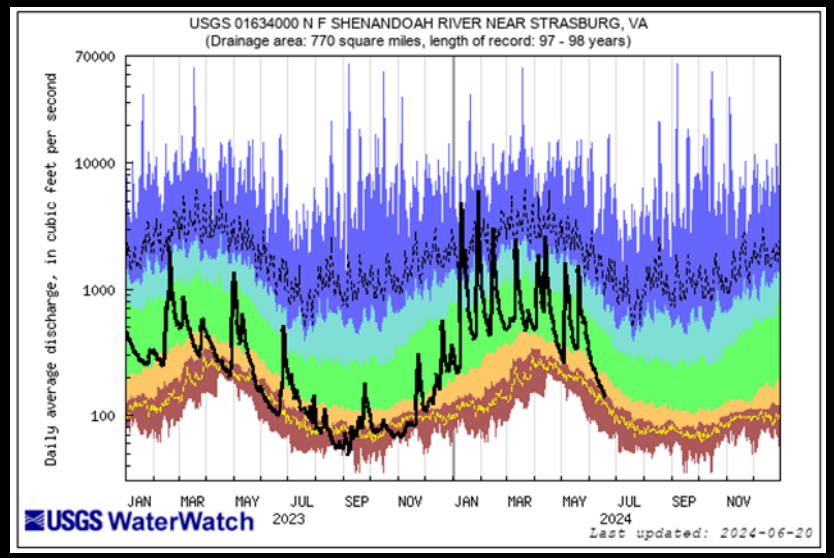

*https://waterwatch.usgs.gov/index.php?m=pa07d_dry&r=va&w=map*

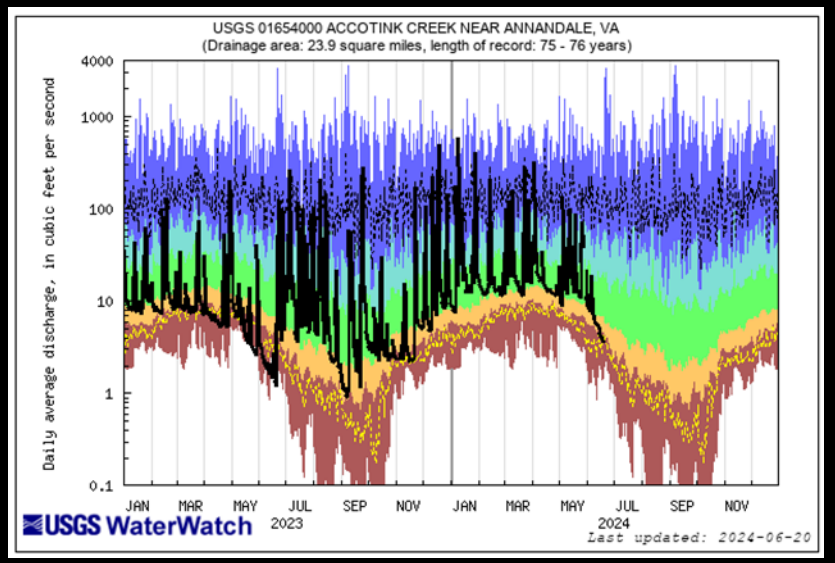
# Site Duration Hydrographs

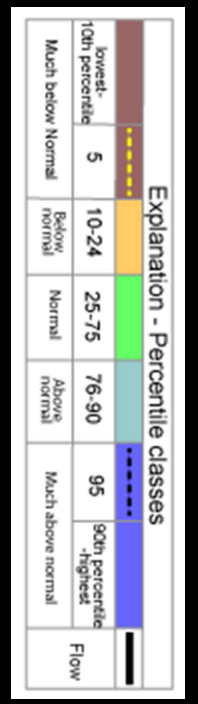




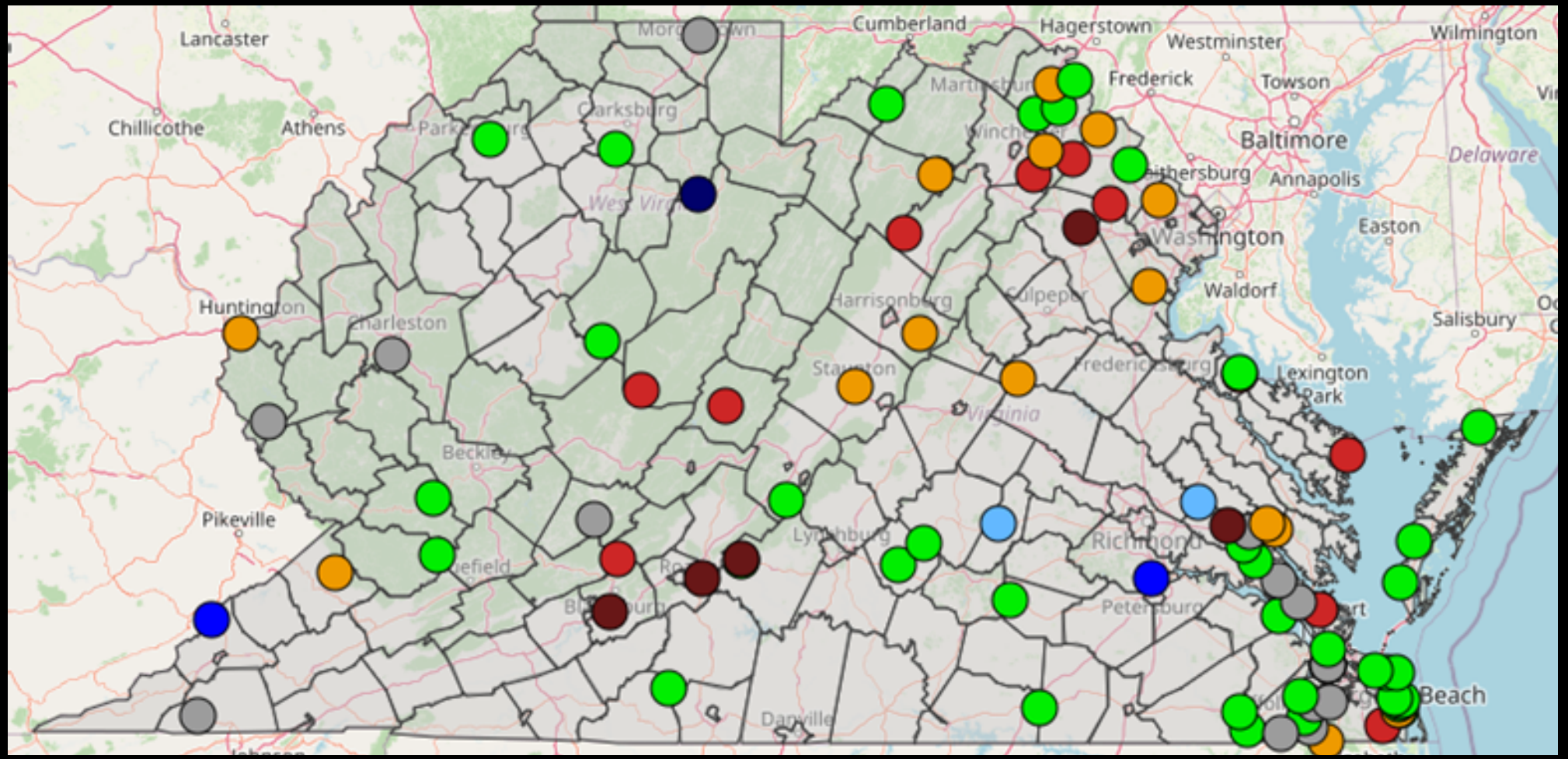




*https://waterwatch.usgs.gov*

# Groundwater Levels – USGS Wells

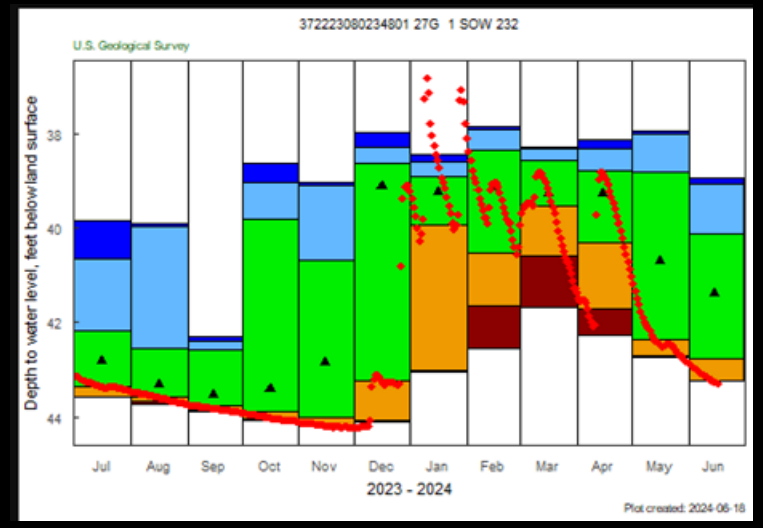


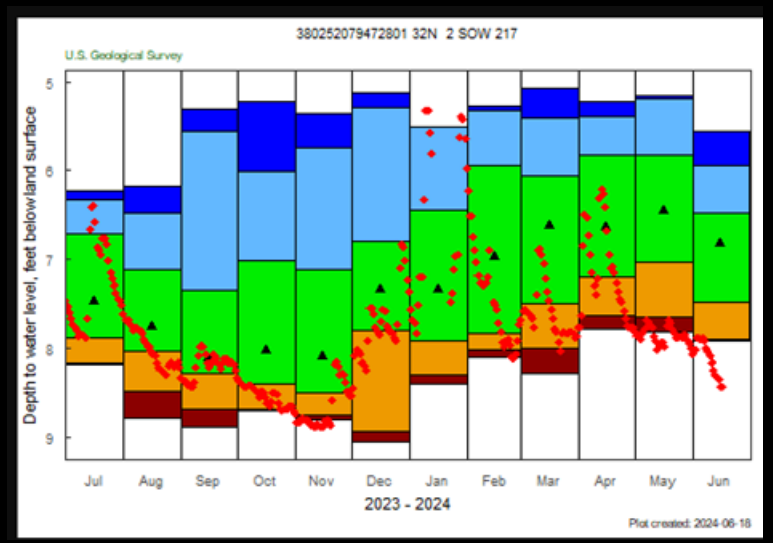



- Mountains and northern wells far below normal

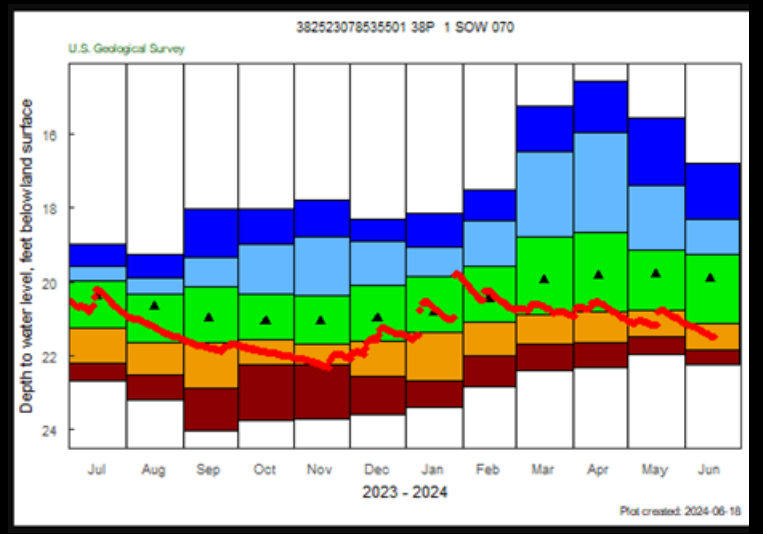
*VA-WV WSC Developed Page: https://rconnect.usgs.gov/vawv- groundwater/*

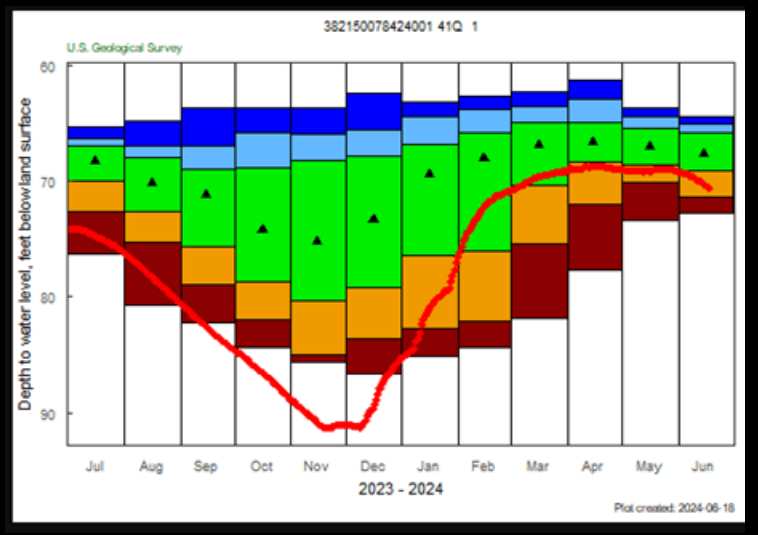
## Mountains



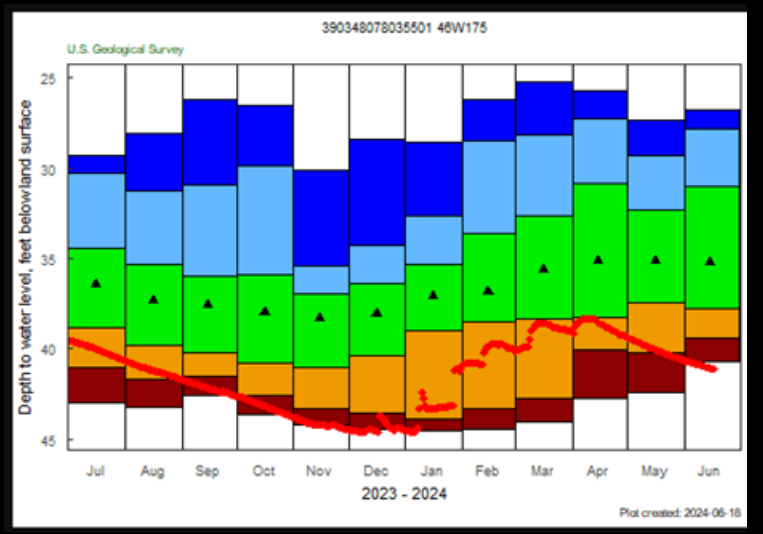



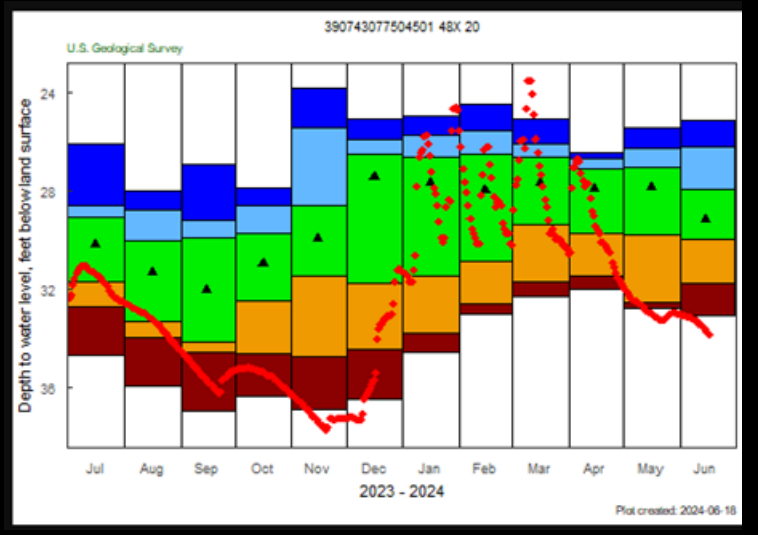

## Central VA



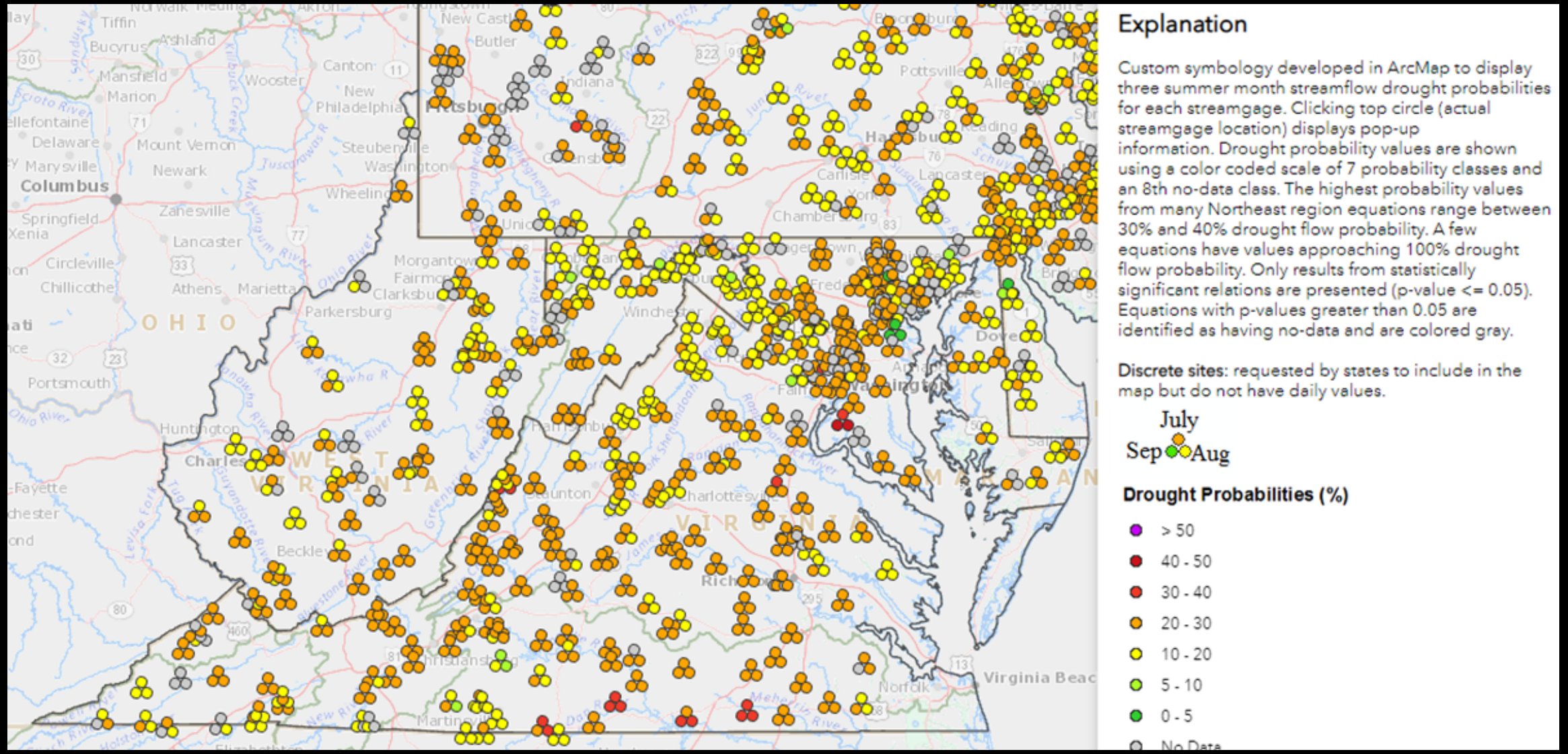

## Lower Shen/Northern VA



# USGS NE Drought Streamflow Probabilities






https://vawv-gis.usgs.gov/webapps/drought-ne/

# Virginia Drought Assessment and Response Plan

**Submitted by the Drought Response Technical Advisory Committee**

**March 28, 2003**

## Introduction

During the summer of 2002 Virginia experienced significant drought impacts due to precipitation deficits that dated to 1999 in most areas of the Commonwealth. While this drought did not reach the level of severity of the drought of record (1930-1932), increases in water demands when compared to the 1930's resulted in significant impacts to all sectors of Virginia's economy and society.

The intensity of these drought impacts peaked in late August 2002. Wildfire indices were at levels previously unrecorded in Virginia, the vast majority of Virginia agricultural counties had applied for Federal drought disaster designation, streamflows reached period of record lows, and thousands of individual private wells failed. During the third week of August several public water supply systems across the Commonwealth were on the brink of failure. Several large municipal systems, such as Charlottesville and Portsmouth, had less than sixty days of water supply capacity remaining in reservoirs. Several smaller rural systems that rely primarily on withdrawals from free-flowing streams, such as the towns of Farmville and Orange, had at most a few days of water supply available and were forced to severely curtail usage.

On August 30, 2002 Governor Warner took the unprecedented action of declaring a drought emergency in the majority of the Commonwealth by issuance of Executive Order #33. This executive order required the elimination of some non-essential water uses in large areas of the Commonwealth. In addition, this executive order named the Deputy Secretary of Natural Resources as the Commonwealth Drought Coordinator and charged him with the implementation of the water use restrictions. While these emergency actions were necessary in light of the drought impacts within the Commonwealth, they resulted in significant confusion and consternation among water users who were impacted.

On December 13, 2002 Governor Warner issued Executive Order #39, the Virginia Water Supply Initiative. This executive order requires the Commonwealth's Drought Coordinator to develop a formal drought assessment and response plan. In January 2003, the Deputy Secretary of Natural Resources invited a broad coalition of stakeholders to participate in a Drought Response Technical Advisory Committee chaired by the Virginia Department of Environmental Quality. This technical advisory committee was supported by the existing Virginia Drought Monitoring Task Force. Groups and agencies invited to participate or represented on the Drought Monitoring Task Force are listed below.

Mid-Atlantic Car Wash Association
National Spa and Pool Institute
Virginia Rural Water Association
Virginia Agribusiness Council
Virginia Green Industry Council
Virginia Golf Course Superintendent's Association
Virginia Association of Counties
Virginia Section of the American Water Works Association
Virginia Municipal League
Virginia Sports Turf Manager's Association
Virginia Hospitality and Travel Association
Virginia Water Well Association
Virginia Manufacturer's Association
Virginia Farm Bureau

Southern Environmental Law Center
Roanoke River Landowner's Association
Virginia Irrigation Association
City of Portsmouth
Henrico County
Town of Orange
U.S. Navy
U.S. Army Corp of Engineers
Virginia Department of Environmental Quality
Virginia Department of Emergency Management
Virginia Department of Health
Virginia Cooperative Extension Service
Virginia Department of Game and Inland Fisheries
Virginia Department of Agriculture and Consumer Services
Virginia State Climatology Office
Virginia Department of Forestry
U.S. Geological Survey
U.S. Department of Agriculture, Farm Services Agency
National Oceanic and Atmospheric Administration, National Weather Service

The Drought Response Technical Advisory Group met three times in February and March and developed the following drought assessment and response plan for the consideration of the Commonwealth Drought Coordinator. There are several key concepts that must be kept in mind as this proposal is reviewed.

The development of droughts and the development of associated impacts is very complex. The coverage of monitoring points for most drought indicators (precipitation deficits, streamflows, ground water levels, and reservoir storage) is sparse. These two facts work together to preclude the development of a truly automated, objective drought monitoring system. This proposal includes a monitoring framework that relies heavily on the professional judgment of the Virginia Drought Monitoring Task Force in the determination of drought stages in the Commonwealth.

Due to the complexity of drought impacts on differing segments of society, the responses that are proposed at each drought stage are actions that should be considered. The Commonwealth Drought Coordinator will need to evaluate reported drought conditions and the impacts associated with those conditions and decide what actions are necessary. As an example, there will likely be circumstances in the future when actions currently proposed at the drought warning stage should be initiated somewhat earlier.

From a water supply standpoint, the impacts on a particular water supply may be as dependent on the reliability of that supply as it is on the severity of drought conditions at any point in time. As an example, water supply systems that rely on small order free-flowing streams and do not have storage may experience large impacts from relatively small drought events. This variability in reliability exists in all categories of water supplies; public waterworks, large self-supplied industrial and commercial supplies, and individual residential water supplies. Nothing that is proposed in this plan should be viewed as limiting local government or public waterworks from taking more stringent action at any time to respond to local conditions.

## Drought Monitoring

The responsibility for monitoring drought conditions in the Commonwealth rests with the Virginia Drought Monitoring Task Force (DMTF), an interagency group of technical representatives from state and federal agencies responsible for monitoring natural resource conditions and the effects of drought on various segments of society. During periods of normal moisture conditions, the Virginia Department of Environmental Quality will monitor the NOAA U.S. Drought Monitor, and will produce information from this report specific to Virginia on a monthly basis. The Virginia drought map will be produced concurrent with the release of NOAA monthly and seasonal outlooks, which usually are released on the Thursday closest to the middle of the month. The DMTF will be activated with the first occurrence of *moderate drought* conditions (D1) in the Commonwealth or the occurrence of smaller scale moisture deficits that may fall beneath the level of resolution of the U.S. Drought Monitor. The DMTF will monitor the advance of drought conditions in the Commonwealth using the drought indicators listed on page 4 as other indicators such as the Standardized Precipitation Index, Palmer Drought Severity Index, Crop Moisture Index, Keetch-Byrum Drought Index, and NOAA monthly and seasonal precipitation outlooks. In addition, the DMTF will monitor the effect of advancing drought conditions on various sectors of society including agriculture, forestry, and recreation.

The DMTF will produce a monthly report of current drought conditions and their effects, and will generally remain active until the NOAA U.S. Drought Monitor indicates that all drought impacts in the Commonwealth have subsided to an *unusually dry* level (D0). The DMTF may remain active after all drought impacts have subsided to an *unusually dry* level when small areas beneath the resolution of the U.S. Drought Monitor continue to experience drought impacts. The primary purpose of the drought monitoring system described below is to provide a framework for the DMTF to operate within when preparing recommendations for the declaration of various drought stages. Due to the complex nature of drought development, professional expertise must be applied to the wide range of drought monitoring data in order to develop defensible recommendations.

## Drought Evaluation Regions

For the purpose of implementation of this drought response plan the Commonwealth has been divided into thirteen drought evaluation regions. The regions were established based on a consideration of river basins, climatic divisions, physiographic provinces, major geomorphologic features, and service areas of major water supplies. Regional boundaries were chosen to correspond with local government boundaries to simplify the implementation of this plan. While the regional boundaries are somewhat arbitrary, they generally correspond to regions of the Commonwealth that possess similar climatic, ground water, streamflow and water supply conditions. Drought evaluation regions for the Commonwealth are listed below and displayed in Appendix A. Towns and independent cities are only listed when they are on the boundary of a drought evaluation region. Drought evaluation regions included all towns and independent cities located within the region.

**Big Sandy Drought Evaluation Region**: Lee, Wise, Buchanan, Dickenson, Scott, Russell, Tazewell, Washington and Smyth Counties.

**New River Drought Evaluation Region**: Grayson, Wythe, Bland, Carroll, Floyd, Pulaski, Giles, and Montgomery Counties.

**Roanoke River Drought Evaluation Region**: Patrick, Franklin, Roanoke, Henry, Bedford, Pittsylvania, Campbell, Halifax, Charlotte, and Mecklenburg Counties.

**Upper James Drought Evaluation Region**: Craig, Alleghany, Bath, Highland, Botetourt, and Rockbridge Counties.

**Middle James Drought Evaluation Region**: Amherst, Lynchburg, Nelson, Albemarle, Appomattox, Buckingham, Fluvanna, Prince Edward, Cumberland, Goochland, Amelia, Powhatan, Chesterfield, Petersburg, Hopewell, Colonial Heights, Henrico, and Hanover Counties.

**Shenandoah Drought Evaluation Region**: Augusta, Rockingham, Shenandoah, Frederick, Page, Warren, and Clarke Counties.

**Northern Virginia Drought Evaluation Region**: Fauquier, Loudoun, Prince William, Arlington, and Fairfax Counties.

**Northern Piedmont Drought Evaluation Region**: Greene, Madison, Rappahannock, Orange, Culpeper, Louisa, Spotsylvania, and Stafford Counties.

**Chowan Drought Evaluation Region**: Lunenburg, Nottoway, Brunswick, Dinwiddie, Greensville, Sussex, Prince George, Southampton and Surry Counties.

**Northern Coastal Plain Drought Evaluation Region**: Caroline, King George, King William, King and Queen, Essex, Richmond, Westmoreland, Gloucester, Mathews, Middlesex, Lancaster, and Northumberland Counties.

**York-James Drought Evaluation Region**: Hampton, Newport News, James City, York, Charles City, and New Kent Counties.

**Southeast Virginia Drought Evaluation Region**: Suffolk, Isle of Wight, Chesapeake, Virginia Beach, Portsmouth, and Norfolk.

**Eastern Shore Drought Evaluation Region**: Northampton and Accomack Counties.

## Drought Indicators

In order to monitor potential drought conditions in a uniform manner across the Commonwealth, Virginia will use four indicators to evaluate drought severity. The indicators are based on the amount of precipitation and the effect of the precipitation (or lack of precipitation) on the hydrologic system. These indicators include:

- Precipitation Deficits
- Streamflows
- Ground water levels
- Reservoir storage

Indicators will be evaluated by comparing current conditions to long term average conditions. This evaluation will be used to determine if current conditions are within a range of conditions commonly experienced or if significant drought conditions exist.

### Precipitation Deficits

Precipitation deficits will be monitored by comparing current precipitation amounts with historical precipitation values as a percent of normal long-term average values. Comparisons will be made for each drought evaluation region using data compiled by the Office of the State Climatologist. Normal long-term average precipitation is defined as the mean precipitation for a thirty-year period of record for the area and time period being evaluated.

Precipitation amounts will be evaluated based on the water year (beginning October 1). Water years are a natural dividing point for water supply drought, as precipitation that falls in the first six months of a water year is analogous to putting money in the bank. Precipitation that occurs during this six month period has the potential to recharge ground water, which will sustain stream flows and support withdrawals from wells during the following six month period when moisture deficits naturally develop as evaporation and plant transpiration generally exceed precipitation. If a precipitation deficit outside of the normal range exists at the end of a water year, the precipitation records will carry forward until a normal condition is reached (i.e. if a precipitation deficit exists on October 1, precipitation records for the previous twelve months will be evaluated until the twelve month deficit is eliminated).

Because the significance of a precipitation deficit changes as the water year progresses, drought response stages will trigger at different percentages of normal depending upon the date of evaluation.

| Months Analyzed | Normal (% of Normal Precipitation) | Watch (% of Normal Precipitation) | Warning (% of Normal Precipitation) | Emergency (% of Normal Precipitation) |
|---|---|---|---|---|
| October- December | >75.0 | <75.0 | <65.0 | <55.0 |
| October-January | >80.0 | <80.0 | <70.0 | <60.0 |
| October-February | >80.0 | <80.0 | <70.0 | <60.0 |
| October-March | >80.0 | <80.0 | <70.0 | <60.0 |
| October-April | >81.5 | <81.5 | <71.5 | <61.5 |
| October-May | >82.5 | <82.5 | <72.5 | <62.5 |
| October-June | >83.5 | <83.5 | <73.5 | <63.5 |
| October-July | >85.0 | <85.0 | <75.0 | <65.0 |
| October-August | >85.0 | <85.0 | <75.0 | <65.0 |
| October – September (and previous 12 months) | >85.0 | <85.0 | <75.0 | <65.0 |

### Streamflow

Streamflow gages representing drought evaluation regions will be used to monitor streamflow responses to drought conditions. Representative daily flow values will be compared with historic flow statistics for the period of record. Representative daily streamflows above the 25th percentile for return flow frequency will be defined as normal conditions. Representative daily streamflows between the 10th and 25th percentile for return flow frequencies will be defined as drought watch conditions. Representative daily streamflows between the 5th and 10th percentile for return flow frequencies will be defined as drought warning conditions. Representative daily streamflows below the 5th percentile for return flow frequencies will be defined as drought emergency conditions. (A streamflow that represents the 25th percentile of return flow frequencies indicates that, for the period of record, 75% of streamflows have exceeded the current flow.) Gages were selected on the basis of the availability of real-time data, period of record, and relative location within the drought evaluation region. Typically, gages were selected

that monitor moderately large drainage areas on streams without significant regulation. In drought evaluation areas where no appropriate stream gages exist, this indicator will not be utilized. Gages selected to monitor drought severity in each evaluation region are listed below and displayed in Appendix B.

**Big Sandy Drought Evaluation Region**: Clinch River at Cleveland, USGS Station 03524000

**New River Drought Evaluation Region**: Reed Creek at Graham Forge, USGS Station 03167000

**Roanoke River Drought Evaluation Region**: Goose Creek near Huddleston, USGS Station 02059500

**Upper James Drought Evaluation Region**: Cowpasture River near Clifton Forge, USGS Station 02016000

**Middle James Drought Evaluation Region**: Appomattox River at Farmville, USGS Station 02039500

**Shenandoah Drought Evaluation Region**: North Fork Shenandoah near Strasburg, USGS Station 01634000

**Northern Virginia Drought Evaluation Region**: Accotink Creek near Annandale, USGS Station 01654000

**Northern Piedmont Drought Evaluation Region**: Rapidan River near Culpeper, USGS Station 01667500

**Chowan Drought Evaluation Region**: Meherrin River near Lawrenceville, USGS Station 02051500

**Northern Coastal Plain Drought Evaluation Region**: Mattaponi River near Beulahville, USGS Station 01674500

**York-James Drought Evaluation Region**: Chickahominy River near Providence Forge, USGS Station 02042500

**Southeast Virginia Drought Evaluation Region**: No stream gages available to monitor.

**Eastern Shore Drought Evaluation Region**: No stream gages available to monitor.

### Ground Water Levels

Water table ground water monitoring wells representing drought evaluation regions will be used to monitor shallow ground water responses to drought conditions. In areas west of Route 95 it was assumed that wells completed in shallow fractured rock formations are indicative of water table conditions. Measured ground water levels will be compared with historic level statistics for the period of record. Measured ground water levels above the 25th percentile for all historic levels will be defined as normal conditions. Measured ground water levels between the10th and 25th percentiles for all historic levels will be defined as drought watch conditions. Measured ground water levels between the 5th and 10th percentile for all historic levels will be defined as drought warning conditions. Measured ground water levels below the 5th percentile for all historic levels will be defined as drought emergency conditions. Monitoring wells were selected on the basis of period of record and relative location within the drought evaluation region. Monitoring wells selected to monitor drought

severity in each evaluation region are listed below and displayed in Appendix C. In drought evaluation regions where no appropriate monitoring wells exist, the ground water indicator will not be used.

**Big Sandy Drought Evaluation Region**: No water table monitoring wells available to monitor.

**New River Drought Evaluation Region**: Christiansburg Observation Well, USGS Local Number 27F 2 SOW 019

**Roanoke River Drought Evaluation Region**: Roanoke-Nelson Observation Well, USGS Local Number 31G 1 SOW 008

**Upper James Drought Evaluation Region**: Glasgow Observation Well, USGS local Number 35K 1 SOW 063

**Middle James Drought Evaluation Region**: Buckingham Observation Well, USGS Local Number 41H 3; Virginia Maples Observation Well, USGS Local Number 53K 19 SOW 080

**Shenandoah Drought Evaluation Region**: McGaheysville Observation Well, USGS Local Number 41Q 1; Blandy Farm Observation Well, USGS Local Number 46W 175 :

**Northern Virginia Drought Evaluation Region**: Harper's Ferry Observation Well, USGS Local Number 49Y 1 SOW 022; Arlington Cemetery Observation Well, USGS Local Number 54V 3

**Northern Piedmont Drought Evaluation Region**: Gordonsville Observation Well, USGS Local Number 45P 1 SOW 030

**Chowan Drought Evaluation Region**: Slade Farm Observation Well, USGS Local Number 57E 13 SOW 094C

**Northern Coastal Plain Drought Evaluation Region**: George Washington Birthplace Observation Well, USGS Local Number 55P 9

**York-James Drought Evaluation Region**: Toano Observation Well, USGS Local Number 56H 31 SOW 135B

**Southeast Virginia Drought Evaluation Region**: Brinkley Observation Well, USGS Local Number 58B 13; Pungo Observation Well, USGS Local Number 62B 1 SOW 098A

**Eastern Shore Drought Evaluation Region**: P. C. Kellam Observation Well, USGS Local Number 63H 6 SOW 103A; Withams Observation Well, USGS Local Number 66M 19 SOW 110S

### Reservoir Storage

Storage in major reservoirs will be used as a fourth drought indicator. Major reservoirs in Virginia support a wide variety of uses that include water supply storage, electric power generation, and flow augmentation to protect water quality. Water supply reservoirs will be evaluated based on the estimated days of available usable storage. Storage of greater than 120 days will represent normal conditions, storage of 90 to 120 days will represent watch conditions, storage of 60 to 90 days will represent warning conditions, and storage of less than 60 days will represent emergency conditions. Useable storage will be calculated as that storage above the level where advanced water treatment will be required.

Several large multi-purpose reservoirs will be evaluated as drought indicators. The criteria for consideration of drought stages are listed below for these reservoirs. Pool elevations of these reservoirs will be compared to benchmark elevations in relation to mean sea level (msl) or U.S. Army Corp of Engineers operating guide curves as indicated in the following table.

| LOCATION | NORMAL | DROUGHT WATCH | DROUGHT WARNING | DROUGHT EMERGENCY |
|---|---|---|---|---|
| Smith Mountain Lake | >793 feet msl | 793 to 791.5 feet msl | 791.5 to 790 feet msl | < 790 feet msl |
| Lake Moomaw | >1565 feet msl | 1565 to 1562.5 feet msl | 1562.5 to 1560 feet msl | < 1560 feet msl |
| Lake Anna | > 248 feet msl | 248 to 246 feet msl | 246 to 244 feet msl | < 244 feet msl |
| Kerr Reservoir | < 3 feet below the guide curve | 3 to 6 feet below the guide curve | > 6 feet below the guide curve | < 288 feet msl |

Reservoirs that will be used to monitor drought conditions are listed below. In drought evaluation regions where no appropriate reservoirs exist, this indicator will not be used.

**Big Sandy Drought Evaluation Region**: Big Cherry Water Supply Reservoir

**New River Drought Evaluation Region**: No reservoirs will be monitored.

**Roanoke River Drought Evaluation Region**: Smith Mountain Lake, Kerr Reservoir

**Upper James Drought Evaluation Region**: Lake Moomaw

**Middle James Drought Evaluation Region**: Lake Moomaw, Charlottesville Water Supply Reservoir System

**Shenandoah Drought Evaluation Region**: Switzer Water Supply Reservoir

**Northern Virginia Drought Evaluation Region**: Occoquan Water Supply Reservoir, Lake Manassas Water Supply Reservoir

**Northern Piedmont Drought Evaluation Region**: Lake Anna, Spotsylvania Water Supply Reservoir System

**Chowan Drought Evaluation Region**: Emporia Water Supply Reservoir

**Northern Coastal Plain Drought Evaluation Region**: Gloucester Water Supply Reservoir

**York-James Drought Evaluation Region**: Newport News Water Supply Reservoir System

**Southeastern Virginia Drought Evaluation Region**: Kerr Reservoir, Portsmouth Water Supply Reservoir System

**Eastern Shore Drought Evaluation Region**: No reservoirs will be monitored.

### Other Indicators

The DMTF will evaluate all other available drought information during deliberations related to the development of drought stage recommendations. Other drought indicators that will be

considered include the Standardized Precipitation Index, Palmer Drought Severity Index, Crop Moisture Index, and NOAA monthly and seasonal precipitation outlooks.

When streamflows or ground water levels at the selected monitoring sites previously listed indicate drought conditions, the DMTF will monitor other stream gages and ground water monitoring wells that are available.

The DMTF will evaluate the Cumulative Severity Index developed by the Virginia Department of Forestry (VDOF) and the Keech-Byrum Drought Index to determine the potential impact of drought on forests and the potential for wildfire starts. In addition, the DMTF will consider the number of wildfire starts and the number of acres of forest burned as supplied by the VDOF as indicators of drought impacts on forestry. The DMTF will evaluate information compiled by the Virginia Agricultural Statistics Service to assess the impacts of drought on agricultural interests in the state. The DMTF will also rely on the input of local agricultural extension agents through the Virginia Cooperative Extension Service to document actual drought impacts through the Commonwealth. In addition, the DMTF will evaluate the number of requests for federal drought disaster designation as reported by the Virginia Department of Agriculture and Consumer Services.

The DMTF will consider operating conditions at public waterworks in the determination of drought recommendations. The Virginia Department of Health (VDH) monitors the conditions of many public waterworks in the Commonwealth on a monthly basis. At a minimum, individual public waterworks typically contact the VDH when they experience water supply problems that are due to drought. VDH will continue to provide support to these waterworks and will continue monthly reporting of water supply problems. These monthly reports will be used as an additional indicator of drought severity in the Commonwealth. In addition, the DMTF will consider the number of private well replacement permits issued by the VDH as an indication of drought impacts to persons served by this type of system.

## Declaration of Drought Stages

The DMTF will use the four drought indicators; precipitation deficits, streamflows, ground water levels, and reservoir levels; as the initial indicators to be considered when making a recommendation concerning the declaration of a particular drought stage. When two indicators exceed the threshold for stage determination, the DMTF will evaluate all other drought information and provide a recommendation to the Virginia Drought Coordinator. This recommendation may be to declare a specific drought stage or the recommendation may include an explanation of why the particular drought stage should not be declared at that time. Conversely, the DMTF may recommend the declaration of a particular drought stage prior to the exceedance of threshold levels for two of the four indicators. Recommendations for declaration of specific drought stages will generally be based on the drought evaluation regions previously described. It is likely that conditions may exist where the DMTF may recommend the declaration of a specific drought stage for a portion of a drought evaluation region. Recommendations for declaration of a portion of a drought evaluation region may be based on differing climatic conditions within the area or differences in the ability of specific waterworks to reliably provide water during drought conditions.

As an example, when two of the four drought indicators indicate drought warning conditions, the DMTF will evaluate all other drought information available and, if the majority of

information warrants declaration, recommend the declaration of a drought warning in the drought evaluation region where these conditions exist. In all cases, the final decision regarding the declaration of a particular drought stage will be at the discretion of the Virginia Drought Coordinator. Any local government may declare local drought emergencies, adopt emergency ordinances to address those local emergencies and implement those ordinances prior to the declaration of a Drought Emergency by the Governor of Virginia.

The DMTF will use the following general descriptions of four drought stages when making recommendations to the Virginia Drought Coordinator concerning drought declarations in the Commonwealth. These descriptions should not be viewed as absolute requirements for drought designation, but as a mechanism to be used by the DMTF to reach consensus on the appropriate drought recommendations.

## Normal Conditions

No more than one indicator outside of the normal range:

- Precipitation exceeds the percent of normal precipitation for the time period in precipitation table
- Streamflows are above the 25th percentile
- Ground water levels are above the 25th percentile for all historic levels
- Water Supply Reservoirs exceed 120 days of useable storage or appropriate criteria for non-water supply reservoirs

## Drought Watch

At least 2 indicators meet the following conditions:

- Precipitation levels are at or below the percent of normal precipitation for the time period in precipitation table
- Streamflows fall between the 10th and 25th percentile
- Ground water levels fall between the 10th and 25th percentile for all historic levels
- Water Supply Reservoirs contain between 90 and 120 days of useable storage or appropriate criteria for non-water supply reservoirs.

## Drought Warning

At least 2 indicators meet the following conditions:

- Precipitation levels are at or below the percent of normal precipitation for the time period in precipitation table
- Streamflows fall between the 5th and 10th percentile
- Measured ground water levels fall between the 5th and 10th percentile for all historic levels
- Reservoirs contain between 60 and 90 days of useable storage or appropriate criteria for non-water supply reservoirs.

## Drought Emergency

At least 2 indicators meet the following conditions:

- Precipitation levels are at or below the percent of normal precipitation for the time period in precipitation table
- Streamflows are at or below the 5th percentile
- Measured ground water levels fall are at or below the 5th percentile for all historic levels

- Reservoirs contain 60 days or less of useable storage or appropriate criteria for non-water supply reservoirs.

## Responses to Drought in Virginia

The impacts of drought on society are broad reaching and complex. In addition, the nature of a particular drought event is dependent on the time of year, the long-term duration of precipitation deficits, the immediate impacts of short-term precipitation deficits within a period of general precipitation deficits, and many other interrelated factors. In short, every significant drought has a particular signature and the impacts of no two droughts will be identical. Due to the complex nature of droughts, responses to individual drought events must be tailored to the impacts that are being propagated. The specific response activities that are delineated below for the three drought stages shouldbe viewed as activities that will generally be initiated and not as required activities that are “written in stone”.

Drought watch responses are generally responses that are intended to increase awareness, in the public and private sector, to climatic conditions that are likely to precede the occurrence of a significant drought event. During this drought stage the primary activities that are suggested are to prepare for the onset of a drought event. It is unlikely that significant water use reductions will occur at this stage although it is possible that the increased public awareness of water conservation activities may reduce water use up to 5%.

Drought warning responses are generally responses that are required when the onset of a significant drought event is imminent. Water conservation and contingency plans that have been prepared during a drought watch stage would begin to be implemented. From the perspective of the Commonwealth, water conservation activities at this stage would generally be voluntary. Voluntary water conservation activities generally result in reductions in water use of 5-10%.

Drought emergency responses are generally responses that are required during the height of a significant drought event. During these times, it is likely that some water supplies will not supply the amount of water needed by all users and non-essential uses of water should be eliminated. Mandatory water conservation requirements contained in water conservation and contingency plans should be initiated at this stage. Mandatory water conservation activities generally result in water use reductions of 10-15%.

While actions on the State level are important for the purpose of alerting localities and citizens of the advance of drought impacts, actions by local governments, individual water suppliers, and individual citizens are much more important and effective in actually addressing the impacts of drought. Water sources used by public waterworks and self-supplied water users vary considerably across the Commonwealth. Water conservation requirements for water users whose only source of water supply is a free-flowing stream with no significant storage will likely be different than requirements for a water user who relies entirely on a reservoir system for water supply. The development of a drought water conservation and contingency plan that takes into account the nature of a particular water source and the nature of the end use of water withdrawn is necessary to assure that proper water conservation activities are instituted at the proper times. In general, water supplies that rely on sources with significant storage (reservoir and ground water based systems) will realize greater benefits of water conservation activities initiated early in a drought cycle when compared to supplies that rely solely on free-flowing streams. It is likely that individual private well users, especially those who rely on shallow water

table wells, will receive the largest benefit from their early individual initiation of water conservation activities.

The following responses will generally be made upon declaration of individual drought stages.

## Drought Watch

- The Virginia Drought Coordinator will declare a statewide or regional Drought Watch and will issue a press release indicating the reasons for the declaration.
- The Virginia Drought Coordinator will notify all local governments within the drought watch area of drought watch status. The Virginia Drought Coordinator will report the drought watch declaration to the Governor's Cabinet and request the assistance of all state agencies in the implementation of the drought response plan.
- The VDH will inform all public waterworks within the drought watch area of drought watch status.
- The Virginia Cooperative Extension Service will cooperate with all state agencies owning or controlling impoundments and/or river access to identify sources that may be used by livestock producers for emergency livestock watering during declared drought emergencies. VCE will inform livestock producers of these opportunities and will provide contact information necessary to access these sources.
- The DMTF will continue to monitor statewide moisture conditions and provide monthly reports of drought conditions to the Virginia Drought Coordinator who will update the Governor's Cabinet.
- The DMTF will make monthly reports of drought conditions available to media outlets within the drought watch area.
- The Virginia Drought Coordinator will encourage all public waterworks and self-supplied water users who withdraw more than 10,000 gallons per day to develop or review existing drought water conservation and contingency plans.
- All DMTF agencies will include water conservation information on their websites and will distribute water conservation information as broadly as possible.
- All executive branch agencies and institutions will review existing drought water conservation and contingency plans or develop new plans with the goal of reducing water usage by 15% during declared drought emergencies.
- VDH will continue monitoring problems incurred by public waterworks on a monthly basis.
- VDH will encourage all public waterworks to aggressively pursue leak detection and repair programs.
- Local governments and public waterworks may impose water use restrictions consistent with local water supply conditions at any time.

## Drought Warning

- The Virginia Drought Coordinator will declare a statewide or regional Drought Warning and will issue a press release indicating the reasons for the declaration.

- The Virginia Drought Coordinator will notify all local governments within the drought warning area of drought warning status.
- The Virginia Drought Coordinator will advise the Governor and his Cabinet regarding the necessity of authorizing the Departments of State Police, Transportation and Motor Vehicles to grant temporary overweight/overwidth/registration/license exemptions to carriers transporting essential emergency relief supplies into and through the Commonwealth in order to support disaster response and recovery.
- The VDH will inform all public waterworks within the drought warning area of drought warning status.
- The Virginia Department of Agriculture and Consumer Services will cooperate with the Virginia Association of Counties, the Virginia Municipal League, Virginia Cooperative Extension, the Virginia Farm Bureau Federation and the Virginia Agribusiness Council in notifying agricultural communities, agricultureinterest groups and local governments within the drought warning area of the potential for federal agricultural drought disaster designation. VDACS will also work with VACO, VML, VCE, VFBF and VAC in communicating the appropriate procedure for local governments to use in applying to the Governor for federal disaster designation.
- The DMTF will continue to monitor statewide moisture conditions and provide monthly reports of drought conditions to the Virginia Drought Coordinator. Significant changes in drought conditions will be reported biweekly.
- The Virginia Drought Coordinator will update the Governor's Cabinet concerning drought conditions on a biweekly basis.
- The Governor's Press Office will encourage media outlets within the drought warning area to publicize updates of drought conditions by developing biweekly press releases.
- All local governments will be encouraged to review existing local ordinances requiring mandatory non-essential water use restrictions or adopt such ordinances consistent with the mandatory non-essential water use restrictions listed below.
- All public waterworks and self-supplied water users who withdraw more than 10,000 gallons per day will initiate voluntary water conservation requirements contained in drought water conservation and contingency plans.
- All public waterworks and self-supplied water users who withdraw more than 10,000 gallons per day that have not developed drought water conservation and contingency plans will be encouraged to voluntarily reduce or eliminate non-essential uses of water including the elimination of non-essential flushing of water lines.
- All persons who utilize any source of water for outdoor irrigation will assure that the minimum amount of water is utilized in the most efficient manner practical.
- All self-supplied users who withdraw less than 10,000 gallons per day, including private well users, will be encouraged to voluntarily reduce or eliminate non-essential uses of water.
- All executive branch agencies and institutions will initiate the reduction or elimination of non-essential uses of water with the goal of reducing total water usage by 5-10%.
- VDH will continue monitoring problems incurred by public waterworks on a monthly basis.
- Local governments and public waterworks may impose water use restrictions consistent with local water supply conditions at any time.

## Drought Emergency

- The Governor will declare a statewide or regional Drought Emergency by executive order and will issue a press release indicating the reasons for the declaration.
- The Virginia Drought Coordinator will notify all local governments within the drought emergency area of drought emergency status.
- The VDH will inform all public waterworks within the drought emergency area of drought emergency status.
- The DMTF will continue to monitor statewide moisture conditions and provide monthly reports of drought conditions to the Virginia Drought Coordinator. Significant changes in drought conditions will be reported weekly. The Virginia Drought Coordinator will update the Governor's Cabinet concerning drought conditions on a weekly basis.
- The Governor's Press Office will encourage media outlets within the drought emergency area to publicize updates of drought conditions by developing weekly press releases.
- All public waterworks and self-supplied water users who withdraw more than 10,000 gallons per day will initiate mandatory water conservation requirements contained in drought water conservation and contingency plans that include the mandatory non-essential water use restrictions listed on page 16.
- All public waterworks and self-supplied water users who withdraw more than 10,000 gallons per day that have not developed drought water conservation and contingency plans initiate the mandatory non-essential water use restrictions listed below including the elimination of non-essential flushing of water lines.
- All self-supplied users, who withdraw less than 10,000 gallons per day, including private well users, will initiate the mandatory non-essential water use restrictions listed below.
- All executive branch agencies and institutions will implement drought water conservation and contingency plans with the goal of reducing water usage by 15% that include the mandatory non-essential water use restrictions listed on page 16.
- Local governments and public waterworks may impose water use restrictions more stringent than the mandatory non-essential water use restrictions listed below consistent with local water supply conditions at any time.
- For the duration of the declared drought emergency the Director of the Department of Environmental Quality shall be authorized to allocate ground water and surface water resources and to restrict any withdrawals based upon the adequacy of the resource to meet the necessary beneficial uses as set forth in §62.1-44.36 of the Code of Virginia. Such allocations may apply to any withdrawer and shall over-ride any existing authorizations to use or withdraw surface water or ground water.
- For the duration of the declared drought emergency the State Forester shall be authorized to declare open burning bans in wild fire susceptible areas of the Commonwealth.
- For the duration of the declared drought emergency the Departments of State Police, Transportation and Motor Vehicles shall be authorized to grant temporary overweight/overwidth/reg istration/license exemptions to carriers

transporting essential emergency relief supplies into and through the Commonwealth in order to support the disaster response and recovery.

- Volume I, Virginia Emergency Operations Plan (COVEOP) Basic Plan, July 1997 as amended shall be implemented by agencies of the state and local government along with other appropriate state agency plans.
- The Virginia Emergency Operations Center (VEOC) and State Emergency Response Team (SERT) will be activated to coordinate state operations in support of affected localities and the Commonwealth, to include issuing mission assignments to agencies designated in the COVEOP and others that may be identified by the State Coordinator of Emergency Management, in consultation with the Secretary of Public Safety, which are needed to provide for the preservation of life, protection of property and implementation of recovery activitiesLocal governments of the Commonwealth will be authorized to adopt local ordinances to enforce the mandatory non-essential water use restrictions listed below and to establish, collect, and retain fines for violations of these restrictions. Nothing contained in this drought response plan should be construed to limit the powers of local government to adopt and enforce local emergency ordinances as necessary to protect the public welfare, safety and health.

## Mandatory Non-essential Water Use Restrictions

The following non-essential water uses will be prohibited during periods of declared drought emergencies. Please note the exceptions that follow each prohibited use. These prohibitions and exceptions will apply to uses from all sources of water and will only be effective when the Governor of Virginia declares a Drought Emergency through the issuance of an executive order. Water use restrictions shall not apply to the agricultural production of food or fiber, the maintenance of livestock including poultry, nor the commercial production of plant materials so long as best management practices are applied to assure the minimum amount of water is utilized.

### Unrestricted irrigation of lawns is prohibited.

- Newly sodded and seeded areas may be irrigated to establish cover on bare ground at the minimum rate necessary for no more than a period of 60 days. . Irrigation rates may not exceed one inch of applied water in any 7 day period.
- Gardens, bedding plants, trees, shrubs and other landscape materials may be watered with hand held containers, hand held hoses equipped with an automatic shutoff device, sprinklers or other automated watering devices at the minimum rate necessary but in no case more frequently than twice per week. Irrigation should not occur during the heat of the day.
- All allowed lawn irrigation must be applied in a manner to assure that no runoff, puddling or excessive watering occurs.
- Irrigation systems may be tested after installation, routine maintenance or repair for no more than ten minutes per zone.

### Unrestricted irrigation of golf courses is prohibited.

- Tees and greens may be irrigated between the hours of 9:00 p.m. and 10:00 a.m. at the minimum rate necessary.

- Localized dry areas may be irrigated with a hand held container or hand held hose equipped with an automatic shutoff device at the minimum rate necessary.
- Greens may be cooled by syringing or by the application of water with a hand held hose equipped with an automatic shutoff device at the minimum rate necessary.
- Fairways may be irrigated between the hours of 9:00 p.m. and 10:00 a.m. at the minimum rate necessary not to exceed one inch of applied water in any ten-day period.
- Fairways, tees and greens may be irrigated during necessary overseeding or resodding operations in September and October at the minimum rate necessary. Irrigation rates during this restoration period may not exceed one inch of applied water in any seven-day periodNewly constructed fairways, tees and greens and areas that are re-established by sprigging or sodding may be irrigated at the minimum rate necessary not to exceed one inch of applied water in any seven-day period for a total period that does not exceed 60 days.
- Fairways, tees and greens may be irrigated without regard to the restrictions listed above so long as:
  - The only water sources utilized are water features whose primary purpose is stormwater management,
  - Any water features utilized do not impound permanent streams,
  - During declared Drought Emergencies these water features receive no recharge from other water sources such as ground water wells, surface water intakes, or sources of public water supply, and,
  - All irrigation occurs between 9:00 p.m. and 10:00 a.m.
- All allowed golf course irrigation must be applied in a manner to assure that no runoff, puddling or excessive watering occurs.
- Rough areas may not be irrigated.

**Unrestricted irrigation of athletic fields is prohibited.**

- Athletic fields may be irrigated between the hours of 9:00 p.m. and 10:00 a.m. at a rate not to exceed one inch per application or more than a total of one inch in multiple applications during any ten-day period. All irrigation water must fall on playing surfaces with no outlying areas receiving irrigation water directly from irrigation heads.
- Localized dry areas that show signs of drought stress and wilt (curled leaves, foot-printing, purpling) may be syringed by the application of water for a cumulative time not to exceed fifteen minutes during any twenty four hour period. Syringing may be accomplished with an automated irrigation system or with a hand held hose equipped with an automatic shutoff device at the minimum rate necessary.
- Athletic fields may be irrigated between the hours of 9:00 p.m. and 10:00 a.m. during necessary overseeding, sprigging or resodding operations at the minimum rate necessary for a period that does not exceed 60 days. Irrigation rates during this restoration period may not exceed one inch of applied water in any seven-day period. Syringing is permitted during signs of drought stress and wilt (curled leaves, foot-printing, purpling).
- All allowed athletic field irrigation must be applied in a manner to assure that no runoff, puddling or excessive watering occurs.

- Irrigation is prohibited on athletic fields that are not scheduled for use within the next 120-day period.
- Water may be used for the daily maintenance of pitching mounds, home plate areas and base areas with the use of hand held containers or hand held hoses equipped with an automatic shutoff device at the minimum rate necessary.
- Skinned infield areas may utilize water to control dust and improve playing surface conditions utilizing hand held containers or hand held hoses equipped with an automatic shutoff device at the minimum rate necessary no earlier than two hours prior to official game time.

**Washing paved surfaces such as streets, roads, sidewalks, driveways, garages, parking areas, tennis courts, and patios is prohibited.**

- Driveways and roadways may be pre-washed in preparation for recoating and sealing.
- Tennis courts composed of clay or similar materials may be wetted by means of a hand-held hose equipped with an automatic shutoff device at the minimum rate necessary for maintenance. Automatic wetting systems may be used between the hours of 9:00 p.m. and 10:00 a.m. at the minimum rate necessary.
- Public eating and drinking areas may be washed using the minimum amount of water required to assure sanitation and public health.
- Water may be used at the minimum rate necessary to maintain effective dust control during the construction of highways and roads.

**Use of water for washing or cleaning of mobile equipment including automobiles, trucks, trailers and boats is prohibited.**

- Mobile equipment may be washed using hand held containers or hand held hoses equipped with automatic shutoff devices provided that no mobile equipment is washed more than once per calendar month and the minimum amount of water is utilized.
- Construction, emergency or public transportation vehicles may be washed as necessary to preserve the proper functioning and safe operation of the vehicle.
- Mobile equipment may be washed at car washes that utilize reclaimed water as part of the wash process or reduce water consumption by at least 10% when compared to a similar period when water use restrictions were not in effect.
- Automobile dealers may wash cars that are in inventory no more than once per week utilizing hand held containers and hoses equipped with automatic shutoff devices, automated equipment that utilizes reclaimed water as part of the wash process, or automated equipment where water consumption is reduced by at least 10% when compared to a similar period when water use restrictions were not in effect.
- Automobile rental agencies may wash cars no more than once per week utilizing hand held containers and hoses equipped with automatic shutoff devices, automated equipment that utilizes reclaimed water as part of the wash process, or automated equipment where water consumption is reduced by at least 10% when compared to a similar period when water use restrictions were not in effect.
- Marine engines may be flushed with water for a period that does not exceed 5 minutes after each use.

### Use of water for the operation of ornamental fountains, artificial waterfalls, misting machines, and reflecting pools is prohibited.

- Fountains and other means of aeration necessary to support aquatic life are permitted.

### Use of water to fill and top off outdoor swimming pools is prohibited.

- Newly built or repaired pools may be filled to protect their structural integrity.
- Outdoor pools operated by commercial ventures, community associations, recreation associations, and similar institutions open to the public may be refilled as long as:
  - Levels are maintained at mid-skimmer depth or lower,
  - Any visible leaks are immediately repaired,
  - Backwashing occurs only when necessary to assure proper filter operation,
  - Deck areas are washed no more than once per calendar month (except where chemical spills or other health hazards occur),
  - All water features (other than slides) that increase losses due to evaporation are eliminated, and
  - Slides are turned off when the pool is not in operation.
- Swimming pools operated by health care facilities used in relation to patient care and rehabilitation may be filled or topped off.
- Indoor pools may be filled or topped off.
- Residential swimming pools may be filled only to protect structural integrity, public welfare, safety and health and may not be filled to allow the continued operation of such pools.

### Water may be served in restaurants, clubs, or eating-places only at the request of customers.

- All residential, business and industrial water users; whether supplied by public water supplies, self-supplied sources, or private water wells; who do not normally utilize water for any of the listed prohibited uses are requested to voluntarily reduce water consumption by at least 10%. This reduction may be the result of elimination of other non-essential water uses, application of water conservation practices, or reduction in essential water uses.

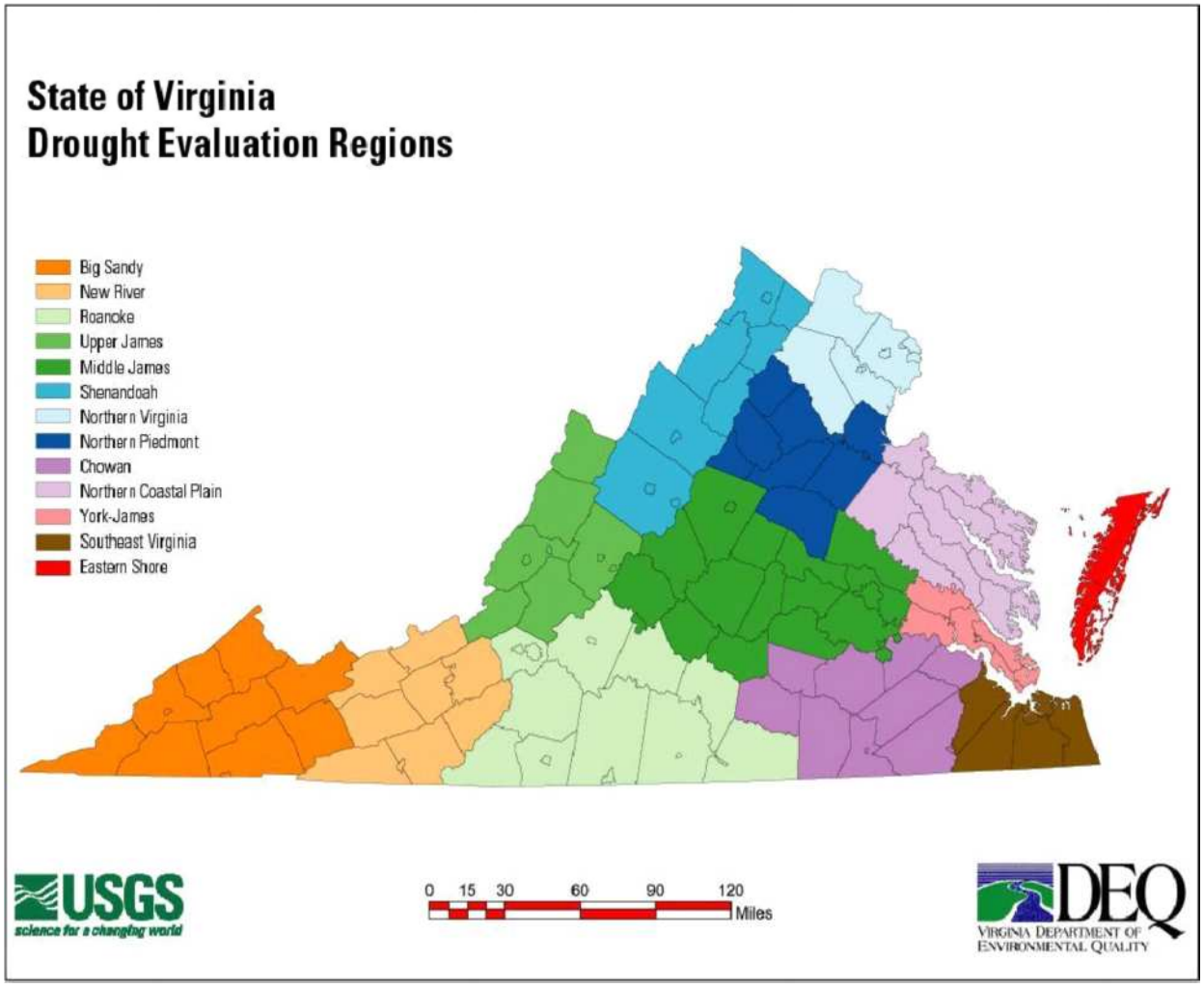
## Water Rationing

In some cases, the mandatory non-essential water use restrictions may not be sufficient to protect the supplies of an individual public waterworks. When an individual waterworks' sources are so depleted as to threaten public health and safety, it may become necessary to ration water within that system in order to assure that water is available to support essential uses. Rationing water is a more severe measure than merely banning nonessential uses of water. Under rationing, each customer is allotted a given amount of water, based on a method of allotment developed by the waterworks or local government. Generally it will be based on a percentage of previous usage or on a specific daily quantity per household. Rationing is more likely to have some effect on welfare than mandatory non-essential use restrictions, because industrial and commercial water uses may be curtailed or eliminated to assure an adequate supply is available for human consumptive uses.

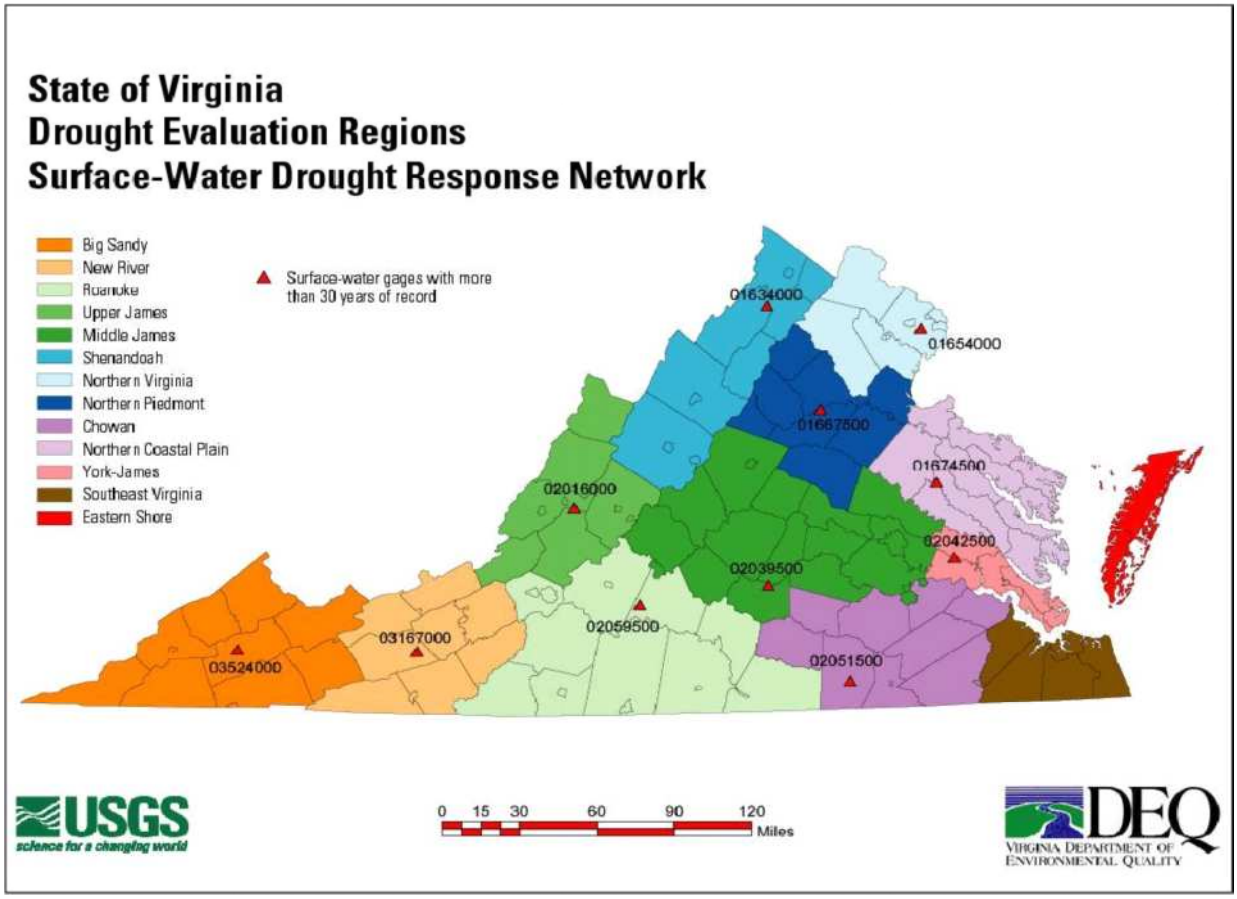
The decision to ration water will typically be made by the local government or waterworks operator. The Virginia Drought Coordinator will work closely with any entity where water rationing is required to assure that all available State resources are effectively used to support these highly stressed water supply systems. The Virginia Department of Emergency

Management (VDEM) is the first point of contact for waterworks or local governments who decide to ration water. VDEM will coordinate the Commonwealth's response and assistance to such entities.

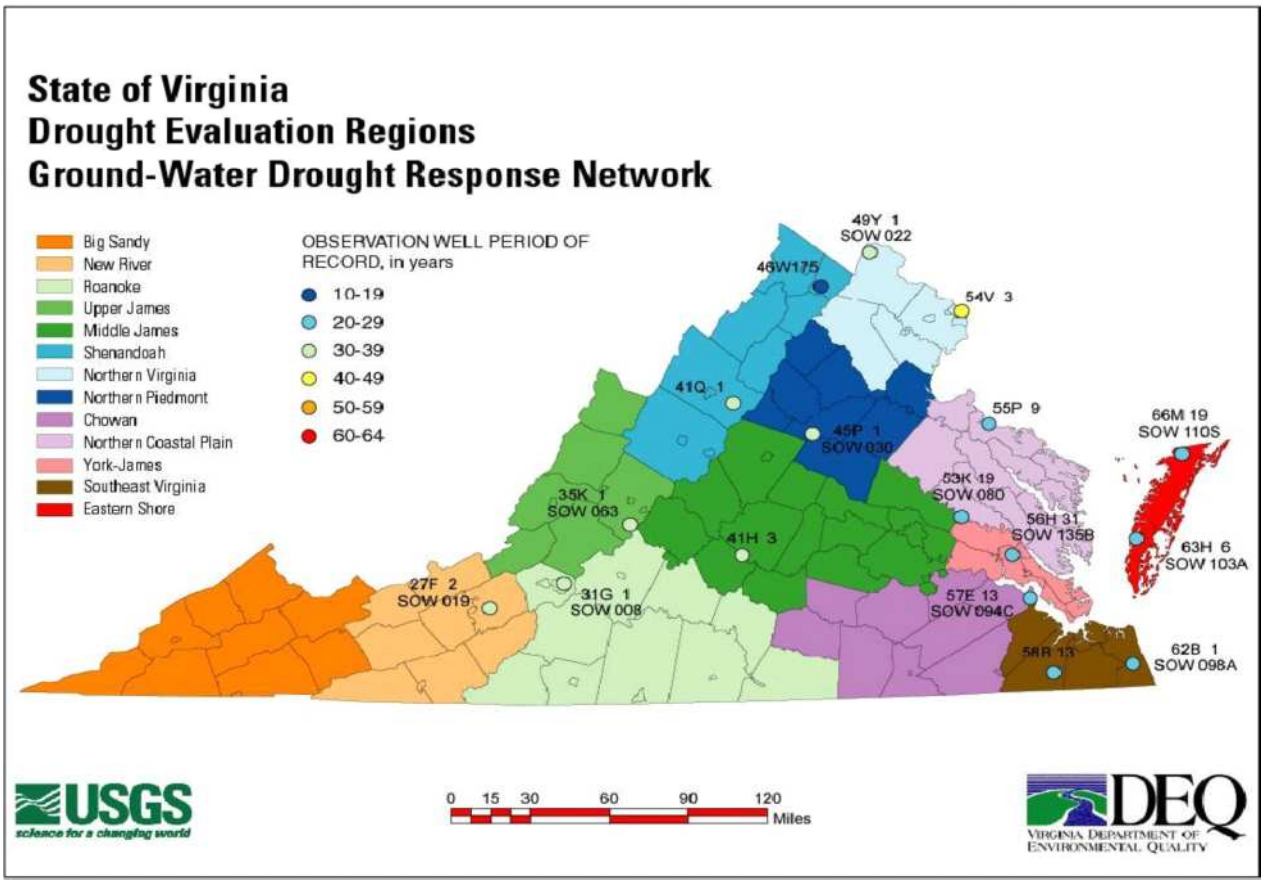
# Appendix A


State of Virginia
Drought Evaluation Regions
Big Sandy
New River
Roanoke
Upper James
Middle James
Shenandoah
Northern Virginia
Northern Piedmont
Chowan
Northern Coastal Plain
York-James
Southeast Virginia
Eastern Shore
USGS
science for a changing world
0 15 30 60 90 120
Miles
DEQ
Virginia Department of Environmental Quality

# Appendix B


State of Virginia
Drought Evaluation Regions
Surface-Water Drought Response Network
Big Sandy
New River
Roanoke
Upper James
Middle James
Shenandoah
Northern Virginia
Northern Piedmont
Chowan
Northern Coastal Plain
York-James
Southeast Virginia
Eastern Shore
Surface-water gages with more than 30 years of record
01634000
01654000
01687500
01674500
02016000
02042500
02039500
02059500
03167000
03524000
02051500
USGS
science for a changing world
0 15 30 60 90 120
Miles
DEQ
Virginia Department of Environmental Quality

# Appendix C


State of Virginia
Drought Evaluation Regions
Ground-Water Drought Response Network
Big Sandy
New River
Roanoke
Upper James
Middle James
Shenandoah
Northern Virginia
Northern Piedmont
Chowan
Northern Coastal Plain
York-James
Southeast Virginia
Eastern Shore
OBSERVATION WELL PERIOD OF RECORD, in years
10-19
20-29
30-39
40-49
50-59
60-64
49Y 1 SOW 022
46W175
54V 3
41Q 1
45P 1 SOW 030
55P 9
66M 19 SOW 110S
53K 19 SOW 080
56H 31 SOW 135B
63H 6 SOW 103A
35K 1 SOW 063
41H 3
27F 2 SOW 019
31G 1 SOW 008
57E 13 SOW 094C
58R 13
62B 1 SOW 098A
USGS
science for a changing world
0 15 30 60 90 120
Miles
DEQ
Virginia Department of Environmental Quality

**From:** "Christopher Melmer" <cmelmer@warrentonva.gov>
**Sent:** Fri, 31 May 2024 20:57:44 +0000
**To:** "John Ward" <jward@warrentonva.gov>; "Johnny Switzer" <jswitzer@warrentonva.gov>; "Jonathan Stewart" <JStewart@warrentonva.gov>; "Kelly Koernig" <kkoernig@warrentonva.gov>; "Lyndie Paul" <lpaul@warrentonva.gov>; "Rob Walton" <rwalton@warrentonva.gov>; "Stephanie Miller" <smiller@warrentonva.gov>; "Stephen Clough" <sclough@warrentonva.gov>; "Steven Friend" <sfriend@warrentonva.gov>; "Timothy Carter" <tcarter@warrentonva.gov>
**Cc:** "Frank Cassidy" <fcassidy@warrentonva.gov>; "Kasey Braun" <kbraun@warrentonva.gov>
**Subject:** FYSA - 2024 Hurricane Season

Good afternoon everyone,

With the onset of the 2024 Hurricane Season upon us, I wanted to provide you with the current predictions for your situational awareness. The purpose of this email is wholly informational, there are no active hazardous weather threats at this time.

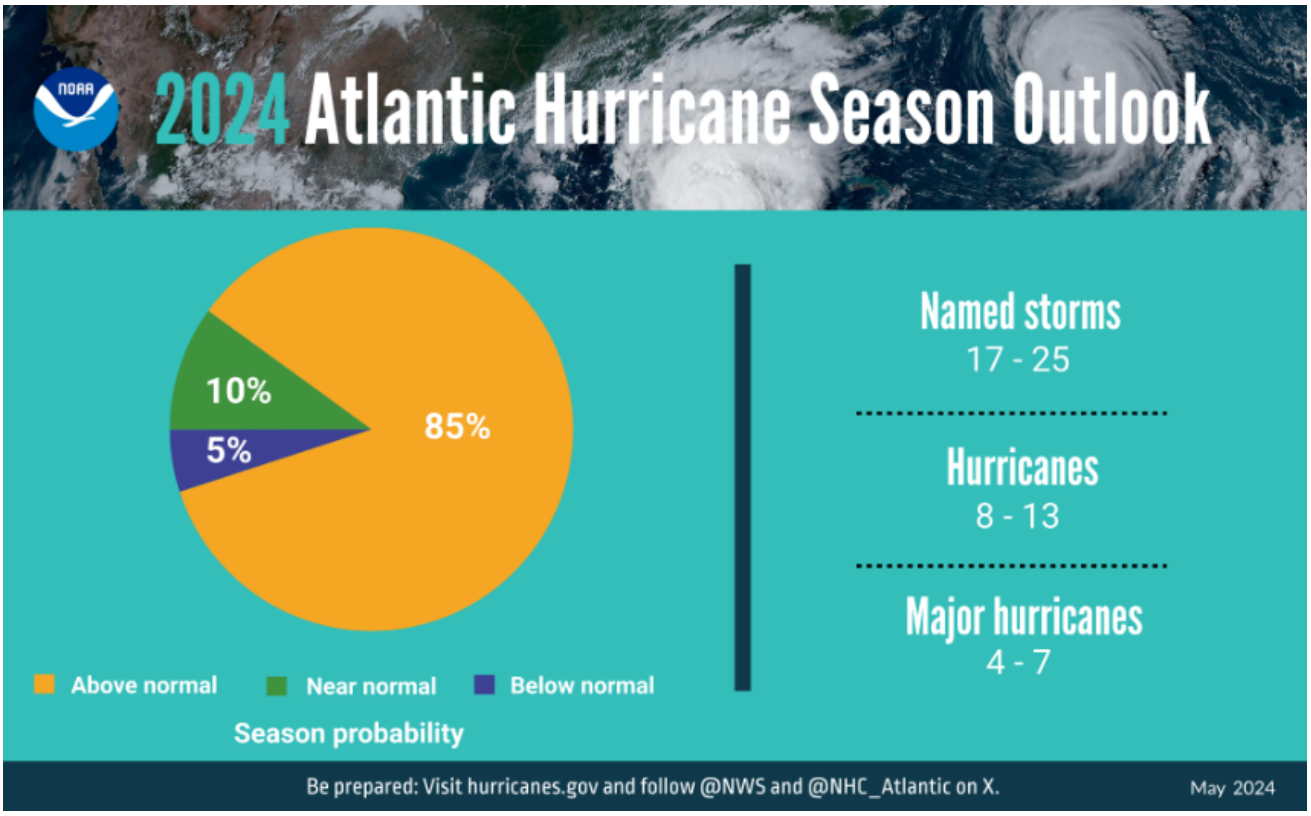
NOAA forecasters at the Climate Prediction Center predict above-normal hurricane activity in the Atlantic basin for the 2024 hurricane season, which spans from June 1 to November 30. NOAA is predicting an 85% chance of an above-normal season, with a 10% chance of a near-normal season, and a 5% chance of a below-normal season.

The above-normal prediction is due to a confluence of factors including near-record warm ocean temperatures, development of La Nina conditions in the Pacific, reduced Atlantic trade winds, and less wind shear. Or simply put, conditions that tend to favor tropical storm formation. NOAA, with 70% confidence, is forecasting a range of:

- 17 to 25 total named storms capable of producing 39+mph winds
    - Of which, 8 to 13 are forecast to become hurricanes capable of producing 74+mph winds
        - Including 4 to 7 major hurricanes (category 3, 4, or 5) capable of producing 111+mph winds

Historical events in Virginia have shown that inland communities are not inherently preserved from the threats or dangers presented by tropical storms. If a tropical storm develops and the path approaches or passes through Warrenton, we are most likely to see instances of heavy rainfall, flooding, and straight-line wind events. However, flash flooding and tornado formations are possible and cannot be ruled out.

Please keep this information in mind as we continue to assess response capabilities and plan proactive mitigation measures for safeguarding lives and property from natural disasters.



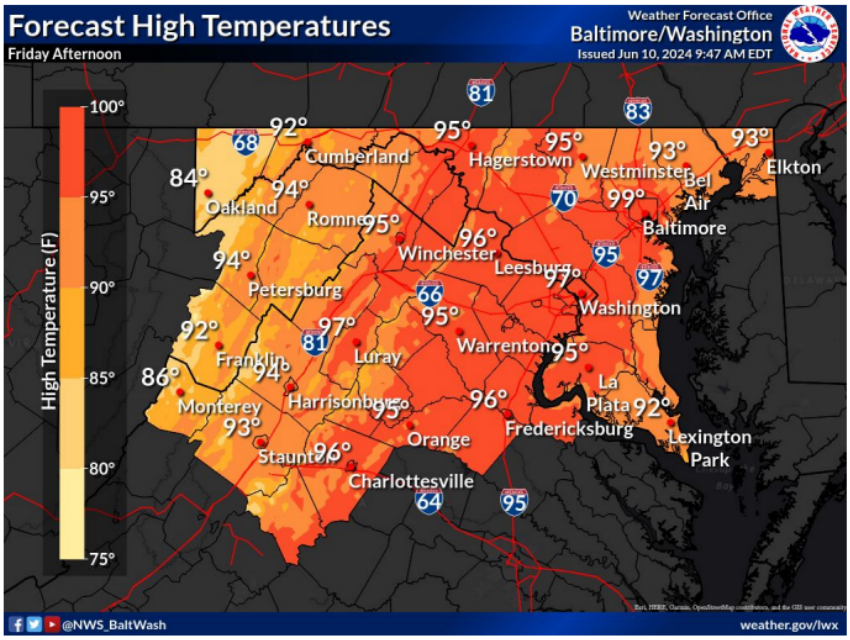

**Christopher Melmer**
*Emergency Services and Risk Manager*

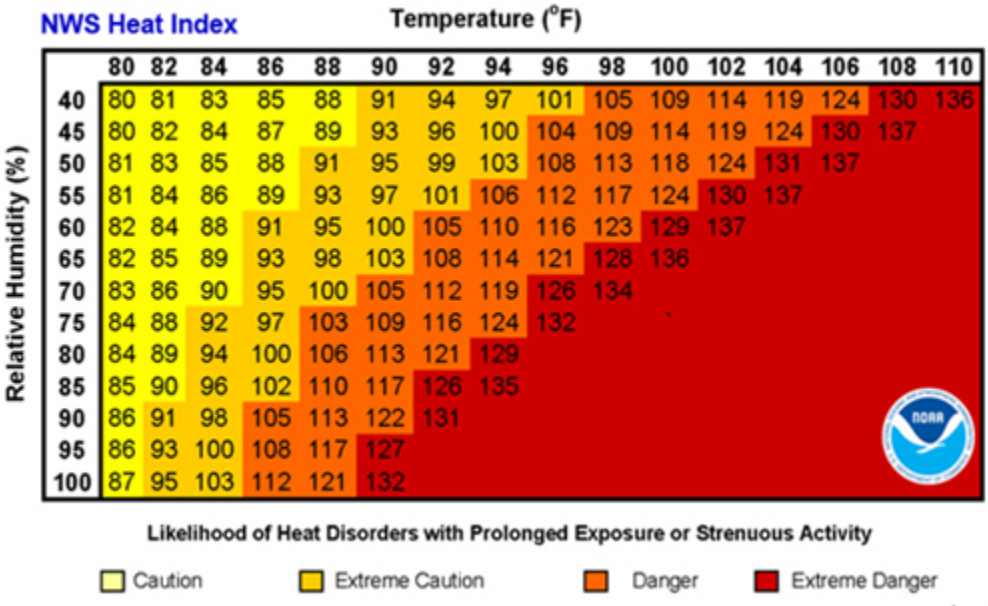
21 Main Street | Warrenton, VA 20186
(O): 540.347.1101  Ext. 225
(C): 540.341.9668

**From:** "Christopher Melmer" <cmelmer@warrentonva.gov>
**Sent:** Thu, 13 Jun 2024 20:52:05 +0000
**To:** "John Ward" <jward@warrentonva.gov>; "Johnny Switzer" <jswitzer@warrentonva.gov>; "Jonathan Stewart" <JStewart@warrentonva.gov>; "Kelly Koernig" <kkoernig@warrentonva.gov>; "Lyndie Paul" <lpaul@warrentonva.gov>; "Rob Walton" <rwalton@warrentonva.gov>; "Stephanie Miller" <smiller@warrentonva.gov>; "Stephen Clough" <sclough@warrentonva.gov>; "Steven Friend" <sfriend@warrentonva.gov>; "Timothy Carter" <tcarter@warrentonva.gov>
**Cc:** "Frank Cassidy" <fcassidy@warrentonva.gov>; "Kasey Braun" <kbraun@warrentonva.gov>
**Subject:** 6/14/2024 Hazardous Weather Advisory

Good afternoon everyone,

Please be advised that there is an active Heat Advisory for tomorrow, Friday June 14th. The combination of heat and humidity may create heat indices between 100° and 110° tomorrow. The air quality index is forecasted to be moderate. While moderate air quality is acceptable, there may be a risk for some people, particularly those who are unusually sensitive to air pollution.




If you have employees who execute their duties outdoors, please advise your supervisors and employees to be mindful of the signs and symptoms of heat-related illnesses:

# Heat Exhaustion

# Heat Stroke

**ACT FAST**

- Move to a cooler area
- Loosen clothing
- Sip cool water
- **Seek medical help if symptoms don't improve**

*Dizziness*

*Thirst*

*Heavy Sweating*

*Nausea*

*Weakness*



*Confusion*

*Dizziness*

*Becomes Unconscious*

**ACT**

**CALL**

- Move perso
  a cooler ar
- Loosen clo
  remove ext
- Cool with w

***Heat exhaustion** can lead to heat stroke.*

***Heat stroke** can cause death*
*disability if emergency treatme*

Stay Cool, Stay Hydrated, Stay Informed!




Please let me know if you have any questions,

**Christopher Melmer**
*Emergency Services and Risk Manager*

21 Main Street | Warrenton, VA 20186
(O): 540.347.1101  Ext. 225
(C): 540.341.9668

**From:** "Christopher Melmer" <cmelmer@warrentonva.gov>
**Sent:** Mon, 17 Jun 2024 18:27:23 +0000
**To:** "John Ward" <jward@warrentonva.gov>; "Johnny Switzer" <jswitzer@warrentonva.gov>; "Jonathan Stewart" <JStewart@warrentonva.gov>; "Kelly Koernig" <kkoernig@warrentonva.gov>; "Lyndie Paul" <lpaul@warrentonva.gov>; "Rob Walton" <rwalton@warrentonva.gov>; "Stephanie Miller" <smiller@warrentonva.gov>; "Stephen Clough" <sclough@warrentonva.gov>; "Steven Friend" <sfriend@warrentonva.gov>; "Timothy Carter" <tcarter@warrentonva.gov>; "Andrew Arnold" <aarnold@warrentonva.gov>
**Cc:** "Frank Cassidy" <fcassidy@warrentonva.gov>; "Kasey Braun" <kbraun@warrentonva.gov>
**Subject:** UPDATE - Welcome Summer - Heat Advisory
**Attachments:** Monday_EM_Briefing 06-17-24.pdf

Good afternoon everyone,

In reference to this week's weather forecast, I may send periodic updates if there are significant change(s) that could impact our employees, services, or events. Following this morning's weather update with the National Weather Service, there is 80% confidence of above normal temperatures.

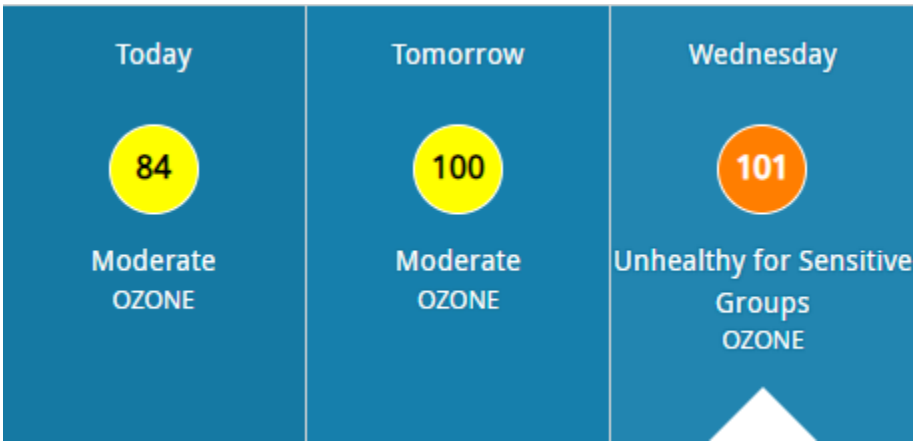
| | Monday 06/17 | Tuesday 06/18 | Wednesday 06/19 | Thursday 06/20 | Friday 06/21 | Saturday 06/22 | Sunday 06/23 |
|---|---|---|---|---|---|---|---|
| Forecast High | 93° | 94° | 92° | 95° | 96° | 95° | 96° |
| Possible High | 98° | 101° | 99° | 98° | 98° | 100° | 100° |
| Heat Index | 100° - 105° | 100° - 105° | 100° - 105° | 100° - 105° | 100° - 105° | 100° - 106° | 100° - 105° |

Additional special considerations:

- The UV Index will register very high throughout the week. Protection against sun damage will be needed – sunscreen, hats, sunglasses in addition to the treatment actions listed below.
- Very little rainfall is predicted throughout the week. A lack of precipitation may impact current drought conditions.
- The Air Quality Index for today and tomorrow is moderate for ground-level ozone. While the air quality is acceptable, there may be risk for some people, particularly those are unusually sensitive to air pollution.
- The Air Quality Index for Wednesday, 06/19 will be unhealthy for sensitive groups for ground-level ozone. Members of sensitive groups may experience adverse health effects; however, the general public is less likely to be affected.
    - Ozone Sensitive Groups include:
        - People with lung disease

- Children
- Older adults
- People who are active outdoors

- Particle Sensitive Groups include:
  - People with heart or lung disease
  - Children
  - Older adults




Please let me know if you have any questions,

**Christopher Melmer**
*Emergency Services and Risk Manager*
21 Main Street | Warrenton, VA 20186
(O): 540.347.1101  Ext. 225
(C): 540.341.9668

---

**From:** Christopher Melmer
**Sent:** Saturday, June 15, 2024 10:07 AM
**To:** John Ward <jward@warrentonva.gov>; Johnny Switzer <jswitzer@warrentonva.gov>; Jonathan Stewart <JStewart@warrentonva.gov>; Kelly Koernig <kkoernig@warrentonva.gov>; Lyndie Paul <lpaul@warrentonva.gov>; Rob Walton <rwalton@warrentonva.gov>; Stephanie Miller <smiller@warrentonva.gov>; Stephen Clough <sclough@warrentonva.gov>; Steven Friend <sfriend@warrentonva.gov>; Timothy Carter <tcarter@warrentonva.gov>
**Cc:** Frank Cassidy <fcassidy@warrentonva.gov>; Kasey Braun <kbraun@warrentonva.gov>
**Subject:** Welcome Summer - Heat Advisory

Good morning everyone,

In anticipation of the first day of Summer 2024, much of the eastern seaboard is expecting a heat dome to take effect as of Monday, June 17th.  A heat dome is a

weather phenomenon consisting of extreme heat that is caused when the atmosphere traps hot ocean air. Simply, a prolonged period of hot temperatures and increasing humidity are expected. Heat indices well into the 90s are expected with lower to mid-100's possible.

As of the now, the forecast for next week predicts:

| | Monday 06/17 | Tuesday 06/18 | Wednesday 06/19 | Thursday 06/20 | Friday 06/21 | Saturday 06/22 | Sunday 06/23 |
|---|---|---|---|---|---|---|---|
| Forecast High | 93° | 94° | 92° | 95° | 96° | 95° | 96° |
| Possible High | 98° | 101° | 99° | 98° | Too soon to reasonably predict | | |
| Heat Index | 100° - 105° | 100° - 105° | 100° - 105° | 100° - 105° | | | |

Please remind your supervisors and employees to be aware of the symptoms of heat-related illnesses:

| | **Heat Cramps** | **Heat Exhaustion** | **Heat Stroke** |
|---|---|---|---|
| *Symptoms* | • Muscle cramps<br>• Muscle spasms<br>• Fatigue, weakness | • Heavy sweating<br>• Pale, cool skin<br>• Fast, weak pulse<br>• Nausea, vomiting<br>• Dizziness, fainting | • High body temp (103°F+)<br>• Confusion<br>• Slurred speech<br>• Seizures<br>• Loss of consciousness |
| *Causes* | • Dehydration<br>• Electrolyte imbalance<br>• Excessive heat exposure | • Dehydration<br>• Electrolyte imbalance<br>• Excessive heat exposure | • Severe dehydration<br>• Electrolyte imbalance<br>• Prolonged heat exposure |
| *Treatment* | • Rest<br>• Hydration<br>• Electrolyte replacement | • Move to a cool place<br>• Remove excess clothing<br>• Apply cool compresses<br>• Provide fluids, electrolytes | • Call 9-1-1<br>• Cool with cool water<br>• Provide fluids, electrolytes |

**Heat-Related Illness Prevention:**

- Stay hydrated by drinking plenty of water and other electrolyte-based fluids
- Take regular breaks in shaded or air-conditioned areas

- Wear lightweight, loose-fitting clothing
- Monitor body temperatures and seek medical attention if it exceeds 103°F

Please let me know if you have any questions,

**Christopher Melmer**
*Emergency Services and Risk Manager*

21 Main Street | Warrenton, VA 20186
(O): 540.347.1101  Ext. 225
(C): 540.341.9668

**From:** "Christopher Melmer" <cmelmer@warrentonva.gov>
**Sent:** Fri, 21 Jun 2024 20:13:50 +0000
**To:** "John Ward" <jward@warrentonva.gov>; "Johnny Switzer" <jswitzer@warrentonva.gov>; "Jonathan Stewart" <JStewart@warrentonva.gov>; "Kelly Koernig" <kkoernig@warrentonva.gov>; "Lyndie Paul" <lpaul@warrentonva.gov>; "Rob Walton" <rwalton@warrentonva.gov>; "Stephanie Miller" <smiller@warrentonva.gov>; "Stephen Clough" <sclough@warrentonva.gov>; "Steven Friend" <sfriend@warrentonva.gov>; "Timothy Carter" <tcarter@warrentonva.gov>; "Andrew Arnold" <aarnold@warrentonva.gov>
**Cc:** "Frank Cassidy" <fcassidy@warrentonva.gov>; "Kasey Braun" <kbraun@warrentonva.gov>
**Subject:** Excessive Heat Advisory

Good afternoon everyone,

With the most recent update from the National Weather Service, an Excessive Heat Watch has been issued for our region for Saturday, June 22nd and Sunday, June 23rd. Oppressive heat and humidity will overspread the region. The temperature will peak throughout each afternoon and into the evening hours with heat indices ranging between 100° and 110°. Additionally, little relief from the heat is expected during the overnight hours on Saturday. The air quality index will be moderate for ground-level ozone pollutants. While this air quality is acceptable, there may be some risk for people who are unusually sensitive to air pollution.

In collaboration with Fauquier County Emergency Management, if the need exists to find a cool place to relax, we suggest the following:

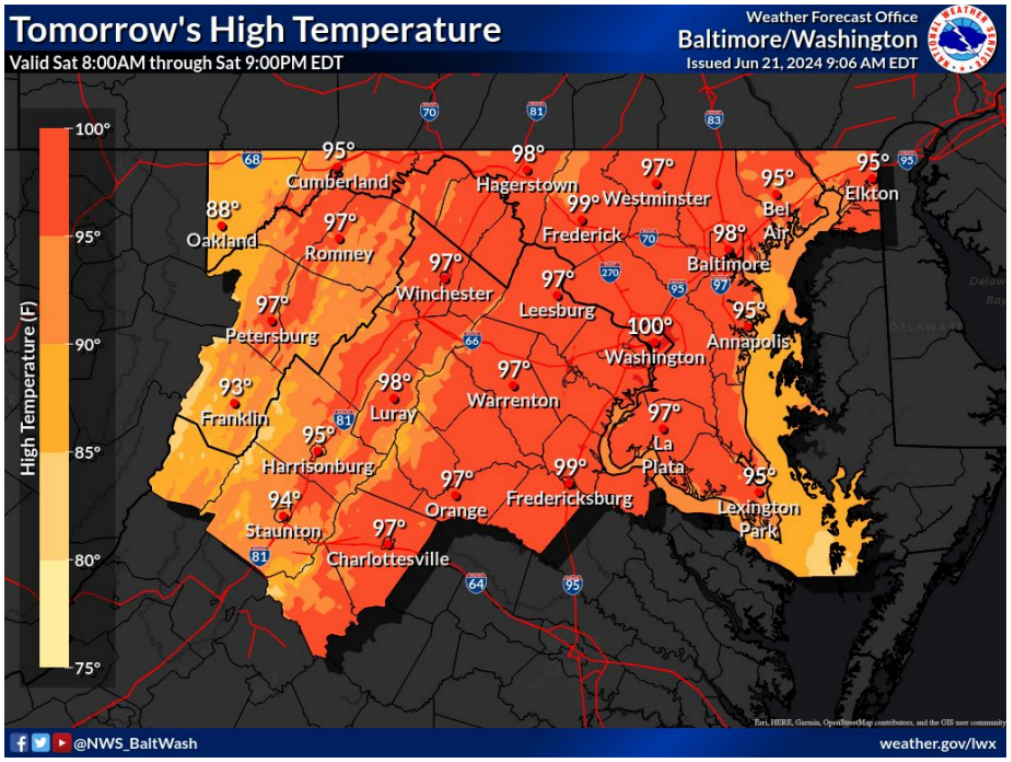
- Visit Town and County recreation facilities
- Swimming pools or other water-related venues
- Libraries
- Movie theaters
- Restaurants
- Shopping centers

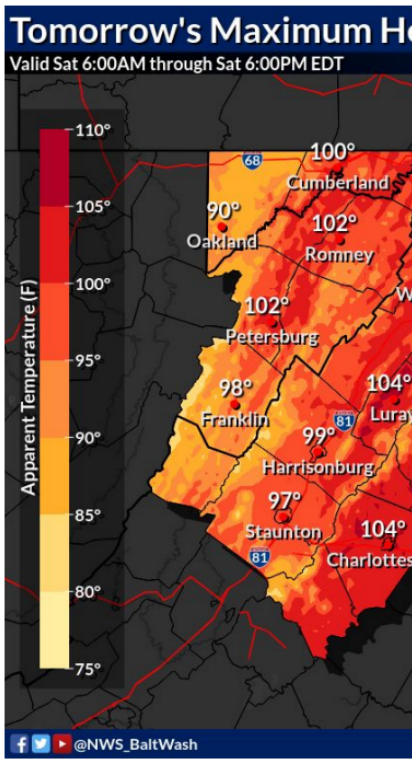
**Ways to Protect Yourself:**

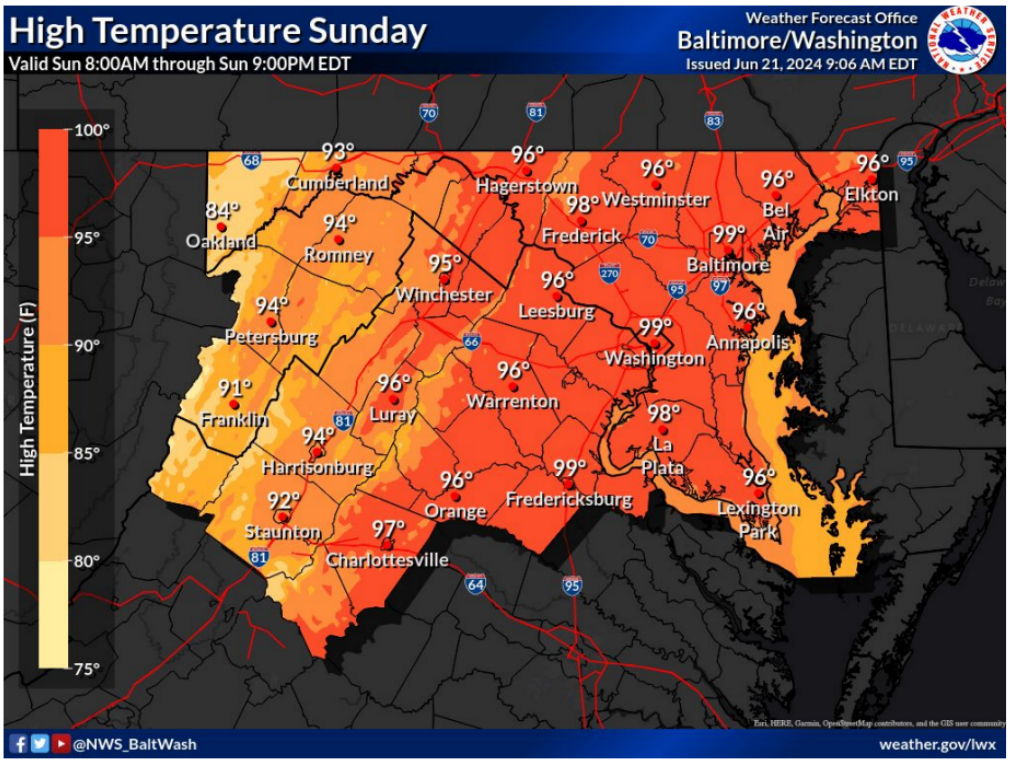
- Drink cold water even if not thirsty – at least 1 cup every 20 minutes
- Take rest breaks to recover from the heat given the temperature, humidity, and conditions
- Find shade or a cool area to take breaks in
- Dress for the heat by wearing a hat, loose-fitting and breathable clothing
- Watch out for each other

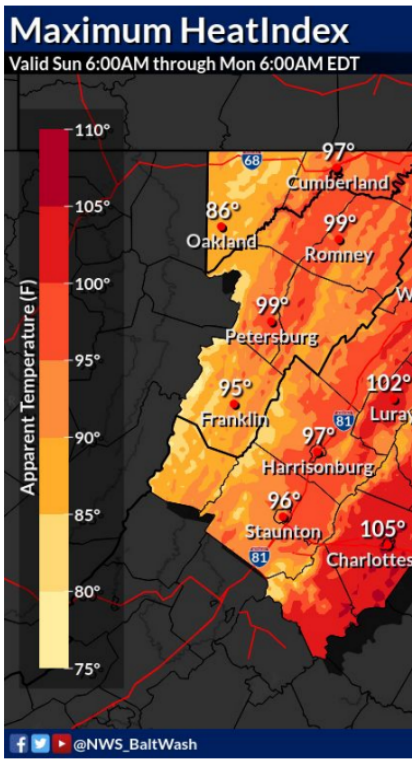
For those that must work outdoors in the forecasted conditions, please be cognizant of the signs and symptoms of heat-related illnesses for yourself, your coworkers, and the public:

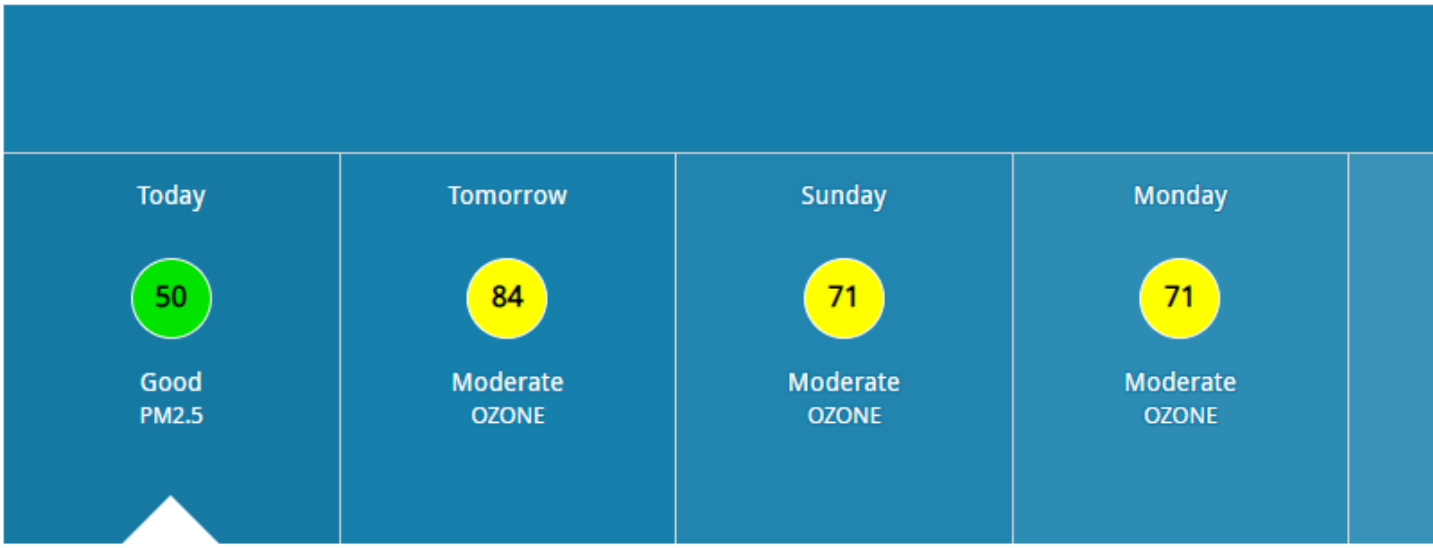
| | Heat Cramps | Heat Exhaustion | Heat Stroke |
|---|---|---|---|
| *Symptoms* | • Muscle cramps<br>• Muscle spasms<br>• Fatigue, weakness | • Heavy sweating<br>• Pale, cool skin<br>• Fast, weak pulse<br>• Nausea, vomiting<br>• Dizziness, fainting | • High body temp (103°F+)<br>• Confusion<br>• Slurred speech<br>• Seizures<br>• Loss of consciousness |
| *Causes* | • Dehydration<br>• Electrolyte imbalance<br>• Excessive heat exposure | • Dehydration<br>• Electrolyte imbalance<br>• Excessive heat exposure | • Severe dehydration<br>• Electrolyte imbalance<br>• Prolonged heat exposure |
| *Treatment* | • Rest<br>• Hydration<br>• Electrolyte replacement | • Move to a cool place<br>• Remove excess clothing<br>• Apply cool compresses<br>• Provide fluids, electrolytes | • Call 9-1-1<br>• Cool with cool water<br>• Provide fluids, electrolytes |


Tomorrow's High Temperature
Valid Sat 8:00AM through Sat 9:00PM EDT
Weather Forecast Office
Baltimore/Washington
Issued Jun 21, 2024 9:06 AM EDT
High Temperature (F)
100°
95°
90°
85°
80°
75°
95° Cumberland
98° Hagerstown
97° Westminster
95° Bel Air
95° Elkton
88° Oakland
97° Romney
99° Frederick
98° Baltimore
97° Winchester
97° Leesburg
97° Petersburg
100° Washington
95° Annapolis
93° Franklin
98° Luray
97° Warrenton
97° La Plata
95° Harrisonburg
99° Fredericksburg
95° Lexington Park
94° Staunton
97° Orange
97° Charlottesville
@NWS_BaltWash
weather.gov/lwx


Tomorrow's Maximum H
Valid Sat 6:00AM through Sat 6:00PM EDT
Apparent Temperature (F)
110°
105°
100°
95°
90°
85°
80°
75°
100° Cumberland
90° Oakland
102° Romney
102° Petersburg
98° Franklin
104° Luray
99° Harrisonburg
97° Staunton
104° Charlottes
@NWS_BaltWash


High Temperature Sunday
Valid Sun 8:00AM through Sun 9:00PM EDT
Weather Forecast Office
Baltimore/Washington
Issued Jun 21, 2024 9:06 AM EDT
High Temperature (F)
100°
95°
90°
85°
80°
75°
93° Cumberland
96° Hagerstown
96° Westminster
96° Bel Air
96° Elkton
84° Oakland
94° Romney
98° Frederick
99° Baltimore
95° Winchester
96° Leesburg
94° Petersburg
99° Washington
96° Annapolis
91° Franklin
96° Luray
96° Warrenton
98° La Plata
94° Harrisonburg
99° Fredericksburg
96° Lexington Park
92° Staunton
96° Orange
97° Charlottesville
@NWS_BaltWash
weather.gov/lwx


Maximum HeatIndex
Valid Sun 6:00AM through Mon 6:00AM EDT
Apparent Temperature (F)
110°
105°
100°
95°
90°
85°
80°
75°
97° Cumberland
86° Oakland
99° Romney
99° Petersburg
95° Franklin
102° Luray
97° Harrisonburg
96° Staunton
105° Charlottes
@NWS_BaltWash




**Should an emergency, workplace accident, or injury arise** – please contact me immediately so we can initiate the necessary actions to ensure everyone's safety. If you have any questions, please let me know,


## Christopher Melmer

*Emergency Services and Risk Manager*

21 Main Street | Warrenton, VA 20186
(O): 540.347.1101  Ext. 225
(C): 540.341.9668

**From:** "Christopher Melmer" <cmelmer@warrentonva.gov>
**Sent:** Tue, 25 Jun 2024 17:24:12 +0000
**To:** "John Ward" <jward@warrentonva.gov>; "Johnny Switzer" <jswitzer@warrentonva.gov>; "Jonathan Stewart" <JStewart@warrentonva.gov>; "Kelly Koernig" <kkoernig@warrentonva.gov>; "Lyndie Paul" <lpaul@warrentonva.gov>; "Rob Walton" <rwalton@warrentonva.gov>; "Stephanie Miller" <smiller@warrentonva.gov>; "Stephen Clough" <sclough@warrentonva.gov>; "Timothy Carter" <tcarter@warrentonva.gov>
**Cc:** "Frank Cassidy" <fcassidy@warrentonva.gov>; "Steven Friend" <sfriend@warrentonva.gov>; "Kasey Braun" <kbraun@warrentonva.gov>
**Subject:** 2024 Drought Warning Declaration
**Attachments:** VA Drought Assessment Response Plan.pdf, DMTF Report 6.20.24.pdf

Good afternoon,

As of Thursday, June 20, 2024, the Virginia Drought Monitoring Task Force (DMTF) convened to discuss drought indicators that have surfaced across the Commonwealth. Precipitation deficits in combination with the extreme temperatures of the previously warned heat dome have intensified drought conditions. The 8-14 day outlook forecasts continued above-average temperatures with below-normal precipitation levels that will continue to further intensify these drought conditions.

One of the predominant concerns is the onset of a flash drought between June 27th and July 3rd. A flash drought is the rapid onset or intensification of drought. It is attributable to lower-than-normal rates of precipitation coupled with abnormally high temperatures, wind, and radiation. These sustained higher temperatures increase evapotranspiration and further lowers soil moisture.

Based on its geographic location, Warrenton is on the cusp of a D1 moderate drought. The Warrenton Meteorological Station has recorded 0.24 inches of rain over the last 30-day period. On review of our current conditions, ground water levels remain steady. Surface water levels are as follows:

- **Current**
  - Airlie – 488.7
  - Warrenton – 444.0
- **Overflow**
  - Airlie – 488.8
  - Warrenton – 445.3

I have attached the most recent *DMTF Report* and the *Virginia Drought Assessment and Response Plan* for review as needed. The DMTF is set to re-evaluate statewide conditions on July 01, 2024. All updates will be communicated accordingly.

## Warrenton Meteorological Station

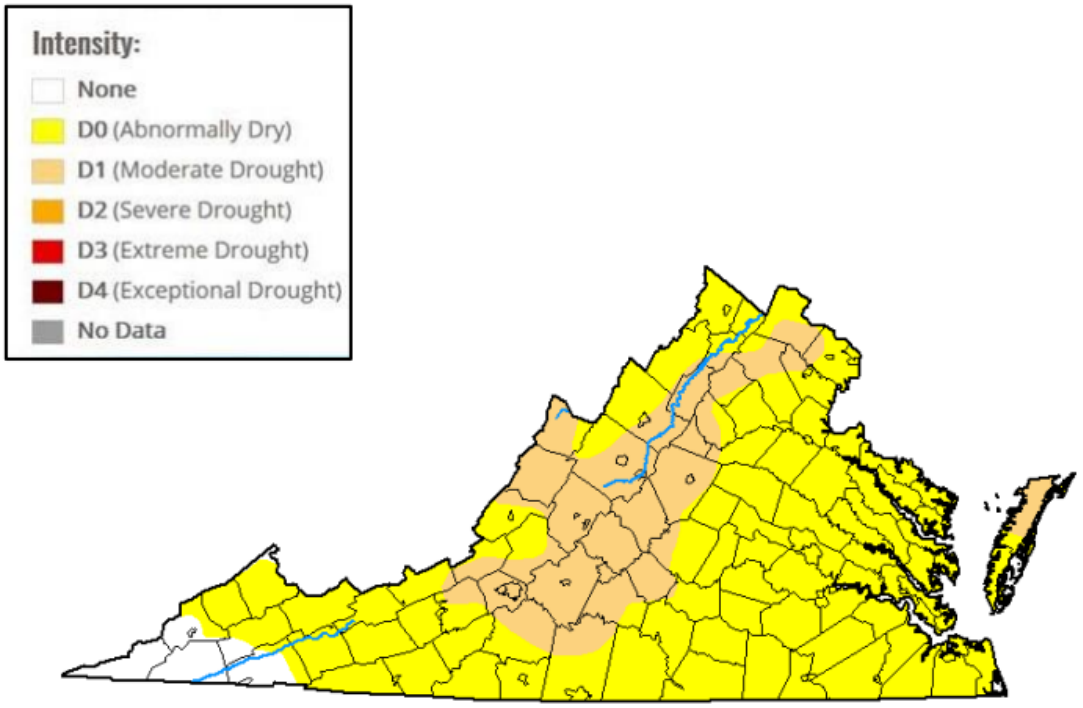
Fauquier

Online 6/25/2024, 11:00:00

| Type | 24hr Accum. | Intensity | Wind Speed | Wind Dir. | Air Temp. |
|---|---|---|---|---|---|
| None | None | None | Calm | WSW | Hot |
| | 0 in | 0 in/hr | 6.24 mph | | 81.48 °F |

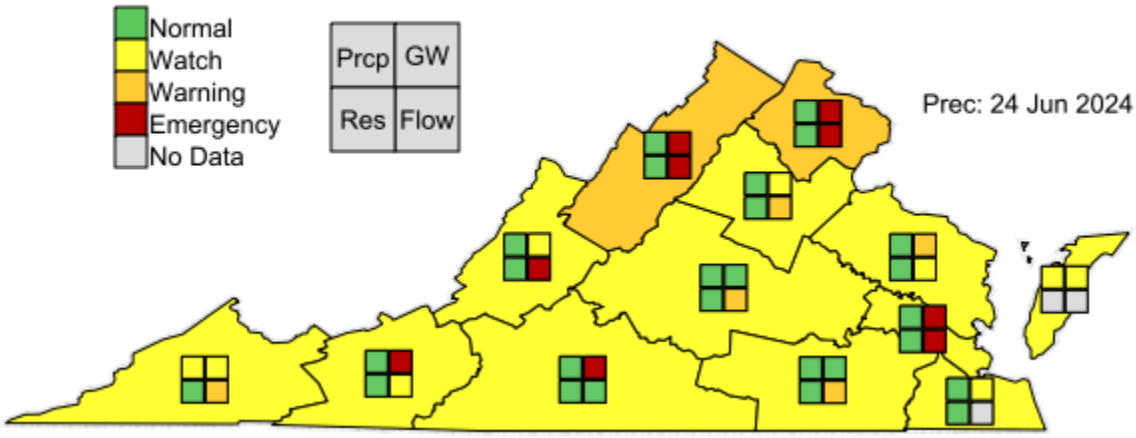
**Precipitation Accumulation** (in)

| 1hr | 3hr | 6hr | 12hr | 24hr | 3d |
|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |




### Potential Impacts

| Category | |
|---|---|
| D0 | Crop growth is stunted; planting |
| | Fire danger is elevated; spring fi |
| | Lawns brown early; gardens beg |
| | Surface water levels decline |
| D1 | Irrigation use increases; hay and |
| | Honey production declines |
| | Wildfires and ground fires incre |
| | Trees and landscaping are stres |
| | Voluntary water conservation is |
| D2 | Specially crops are impacted in |
| | Producers begin feeding cattle; |
| | Warnings are issued on outdoo |
| | Golf courses conserve water |
| | Trees are brittle and susceptible |
| | Fish kills occur; wildlife move to |
| | Water quality is poor; groundwa implemented |
| D3 | Crop loss is widespread; Christn |
| | Well drillers and bulk water hau |
| | Water recreation and hunting a |
| | Extremely reduced flow to cease running dry; people are digging |




**Christopher Melmer**
*Emergency Services and Risk Manager*

21 Main Street | Warrenton, VA 20186
(O): 540.347.1101  Ext. 225
(C): 540.341.9668

# VIRGINIA DROUGHT MONITORING TASK FORCE
## Drought Status Report
## July 01, 2024

## Summary

On Monday July 1, 2024, the Virginia Drought Monitoring Task Force (DMTF) met to discuss the drought indicators identified by the Virginia Drought Assessment and Response Plan. Precipitation deficits in combination with increased temperatures have resulted in rapid intensification of drought throughout the majority of the Commonwealth. Significant declines in surface and groundwater indicators throughout the past thirty-day period have occurred, with much below normal observations within the Northern Virginia and Shenandoah drought evaluation regions. Soil moisture within the 0-100cm range show exceptional dryness occurring throughout the Shenandoah Valley and Northern Virginia regions. The 8-14 day outlook forecasts much above average temperatures and chances of normal to above average precipitation.

Due to below normal precipitation and continued declines of surface and groundwater indicators the Task Force recommends maintaining the Drought Watch for the following regions:

- Big Sandy
- Middle James
- New River
- Northern Piedmont
- Roanoke River
- Upper James
- Chowan
- Eastern Shore
- Northern Coastal Plain
- Southeast Virginia
- York-James

Due to rapid declines in surface and groundwater indicators, reported impacts to agriculture, and above average temperatures forecasted the Task Force recommends maintaining the Drought Warning for the following regions:

- Shenandoah
- Northern Virginia

The DMTF reviewed the status of drought monitoring and hydrologic conditions in the Commonwealth of Virginia. Precipitation over the past 7-14 day period show localized rainfall occurring throughout the state from scattered thunderstorms. Precipitation percent of normal over the 30-60 day period shows exceptional dryness within the Shenandoah Valley and Piedmont regions, with nearly all of Virginia much below normal. Area-average rainfall since the beginning of the current water year (October 1, 2023) has remained below long-term normal values for the Big Sandy and Eastern Shore drought evaluation regions (see DEQ website for more info on drought indicators). The Task Force will continue closely monitoring drought indicator and is scheduled to meet on July 16, 2024.

Streamflow over the past 14-day period has shown widespread declines throughout the Commonwealth. Flows are currently below the 25$^{th}$ percentile for 11 of the 13 drought evaluation regions (no surface water flow indicators are present due to tidal influence within the Eastern Shore and Southeast Virginia regions). Ten regions are currently below the 10$^{th}$ percentile including the Big

Sandy, Chowan, Middle James, New River, Northern Coastal Plain, Northern Piedmont, Roanoke, Shenandoah, Upper James, and York-James. Eight regions are currently below the 5th percentile including the Big Sandy, Chowan, Middle James, Northern Piedmont, Roanoke, Shenandoah, Upper James, and York-James.

Groundwater levels for monitoring wells in the Climate Response Network have shown continued declines within all portions of the state. All regions are currently below the 25th percentile excluding the Chowan and Middle James regions. Seven regions are currently below the 5th percentile including the Big Sandy, New River, Northern Coastal Plain, Northern Virginia, Roanoke, Shenandoah, and York-James. Continued lack of precipitation and above average temperatures continue to contribute to observed declines.

Storage at major water supply reservoirs throughout Virginia remain within normal ranges at this time.

The most recent weekly U.S. Drought Monitor (USDM) web page map for Virginia (Appendix A, released June 27, 2024) showed abnormally dry (D0) conditions mapped across approximately 98% of the Commonwealth, moderate drought (D1) conditions mapped across approximately 90% of the Commonwealth, and (D2) severe drought mapped across 2%. Appendix B includes a presentation from the National Weather Service.

## Virginia Department of Agriculture and Consumer Services

Producers throughout all regions of the Commonwealth report that dry conditions have negatively impacted most crops. Producers expect reduced corn, soybean, and cotton yields. Producers who have the ability to do so are supplementing with irrigating. Additionally, many livestock producers are feeding hay due to dry pastures. Producers in the Northern, Southside, and Southwestern regions report decreasing water levels in streams, rivers, and ponds.

Some farmers' markets throughout the Commonwealth have fewer produce vendors participating each week due to low production because of the dry conditions. Farm supply firms throughout the Commonwealth report low fertilizer sales because producers are not applying fertilizer due to the lack of rain.

As widespread impacts to producers throughout the Commonwealth have been experienced information regards assistance programs was provided by VDACS.

Information regarding the U.S. Department of Agriculture's Disaster Assistance Programs is available here: https://www.fsa.usda.gov/programs-and-services/disaster-assistance-program/index.

Information regarding the federal disaster declaration process is available here: https://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdafiles/FactSheets/emergency_disaster_designation_declaration_process-factsheet.pdf

Contact information for each locality's USDA Farm Service Agency office can be found by clicking-through the map available here: https://offices.sc.egov.usda.gov/locator/ap

## Virginia Department of Environmental Quality

The DEQ report presents a map of current conditions of DEQ Drought Indicators, and summary of current conditions at the four large multi-purpose reservoirs listed as key reservoir storage indicators in the Virginia Drought Assessment and Response Plan. The U.S. Army Corps of Engineers (USACE) reported that Lake Moomaw, Philpott Lake, and J. H. Kerr Reservoir have received much below normal inflows over the past month. J. H. Kerr Reservoir and Philpott are currently below guide curve elevation.

**Smith Mountain Lake** on the Staunton River in the Roanoke drought evaluation region was observed at an adjusted elevation of 794.40 feet, which is 1.4 feet above Watch level (793 ft). The adjusted elevation is the level the lake would be if the water currently held in the lower Leesville Lake for reuse were pumped back into Smith Mountain Lake. Recent 7, 14, and 28-day inflows were much below normal for this time of year.

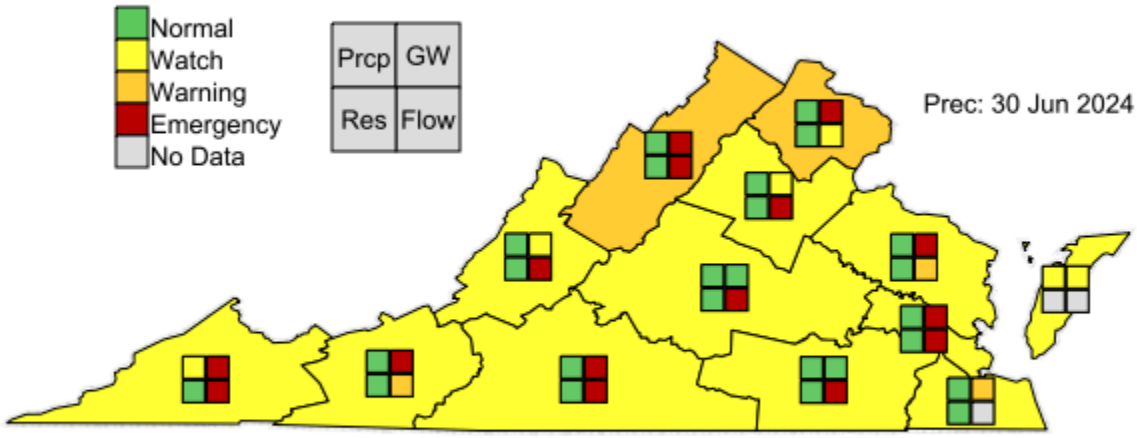
**Lake Moomaw** at Gathright Dam on the Jackson River in the Upper James drought evaluation region was observed at an elevation of 1577.59 feet, which is 14 feet above Watch level (1565 ft). Recent 7, 14, and 28-day average inflows were much below normal for this time of year.

**Lake Anna** on the North Anna River in the Northern Piedmont drought evaluation region was observed at an elevation of 249.5 feet, which is 1.5 feet above Watch level (248 ft). Recent 7, 14, and 28-day inflows were much below normal for this time of year.

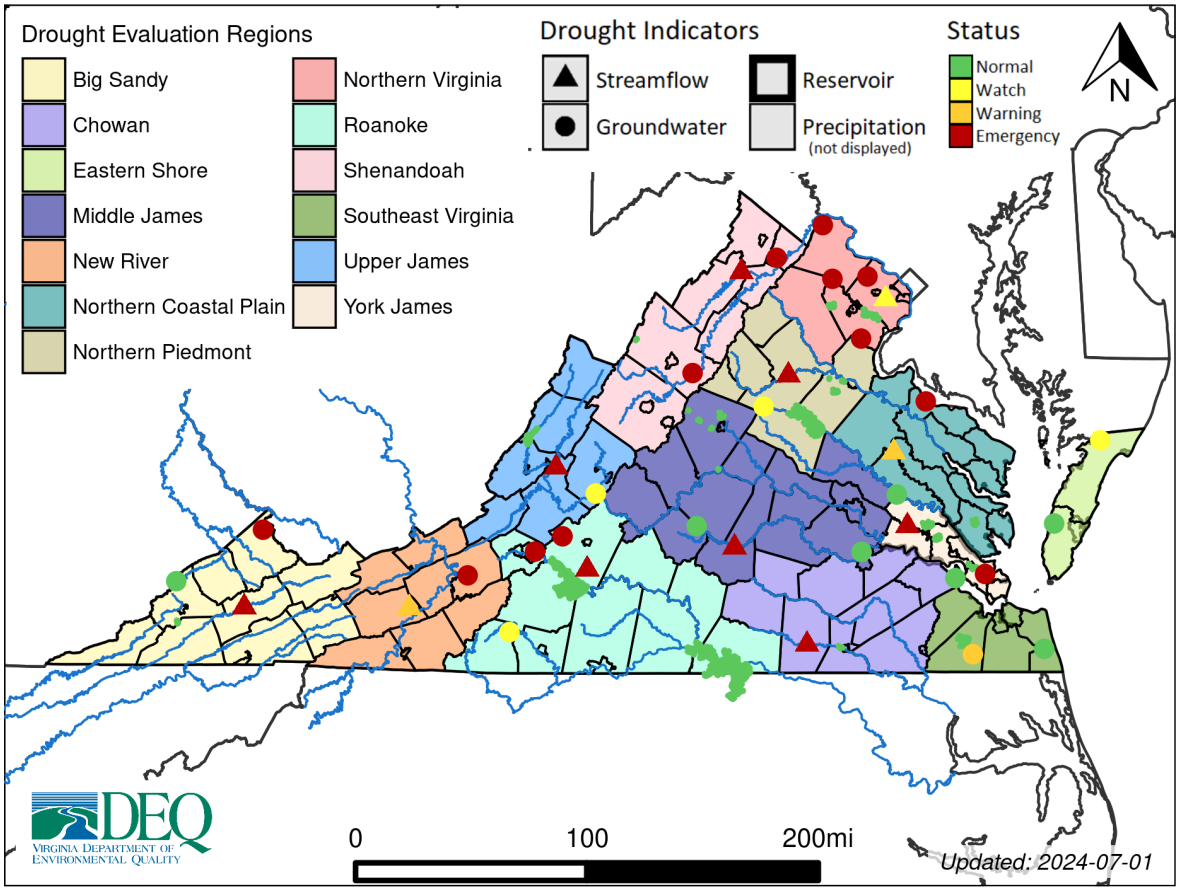
**J. H. Kerr Reservoir** on the Staunton River in the Roanoke drought evaluation region was observed at an elevation of 299.44ft, which is 2.0ft below the guide curve elevation for this time period (301.4 feet) and 1.0ft above the watch level (Watch level is 3 to 6 ft below guide curve). Recent 7, 14, and 28-day inflows were much below normal for this time of year.

# DEQ Daily Drought Status Summary: 07/01/2024

## *Drought Summary Map:*




## *Drought Indicator Map:*



***Regional Drought Response:***

| # | Region | Reduction Type | Target Reduction % |
|---|---|---|---|
| 1 | Eastern Shore | voluntary | none |
| 2 | Big Sandy | voluntary | none |
| 3 | Upper James | voluntary | none |
| 4 | Roanoke | voluntary | none |
| 5 | Southeast Virginia | voluntary | none |
| 6 | Northern Coastal Plain | voluntary | none |
| 7 | New River | voluntary | none |
| 8 | Middle James | voluntary | none |
| 9 | Chowan | voluntary | none |
| 10 | York James | voluntary | none |
| 11 | Northern Virginia | voluntary | none |
| 12 | Northern Piedmont | voluntary | none |
| 13 | Shenandoah | voluntary | none |

***Precipitation Indicators:***

| # | Region | Start Date | End Date | Water Year % of Normal | Status |
|---|---|---|---|---|---|
| 1 | Big Sandy | 10/1/2023 | 6/30/2024 | 80.26 | Watch |
| 2 | Eastern Shore | 10/1/2023 | 6/30/2024 | 83.47 | Watch |
| 3 | Roanoke | 10/1/2023 | 6/30/2024 | 86.96 | Normal |
| 4 | New River | 10/1/2023 | 6/30/2024 | 87.48 | Normal |
| 5 | Upper James | 10/1/2023 | 6/30/2024 | 89.98 | Normal |
| 6 | Middle James | 10/1/2023 | 6/30/2024 | 93.83 | Normal |
| 7 | Northern Piedmont | 10/1/2023 | 6/30/2024 | 94.08 | Normal |
| 8 | Shenandoah | 10/1/2023 | 6/30/2024 | 96.63 | Normal |
| 9 | Northern Virginia | 10/1/2023 | 6/30/2024 | 101.3 | Normal |
| 10 | Northern Coastal Plain | 10/1/2023 | 6/30/2024 | 104.77 | Normal |
| 11 | Southeast Virginia | 10/1/2023 | 6/30/2024 | 104.81 | Normal |
| 12 | York James | 10/1/2023 | 6/30/2024 | 112.78 | Normal |
| 13 | Chowan | 10/1/2023 | 6/30/2024 | 115.07 | Normal |

***Surface Water Indicators:***

| # | Region | Gage Name | Start Date | End Date | Percentile | Status |
|---|---|---|---|---|---|---|
| 1 | Upper James | COWPASTURE RIVER NEAR CLIFTON FORGE, VA | 6/24/2024 | 6/30/2024 | 2.24 | Emergency |
| 2 | York James | CHICKAHOMINY RIVER NEAR PROVIDENCE FORGE, VA | 6/24/2024 | 6/30/2024 | 3.15 | Emergency |
| 3 | Shenandoah | N F SHENANDOAH RIVER NEAR STRASBURG, VA | 6/24/2024 | 6/30/2024 | 3.2 | Emergency |
| 4 | Big Sandy | CLINCH RIVER AT CLEVELAND, VA | 6/24/2024 | 6/30/2024 | 3.31 | Emergency |
| 5 | Northern Piedmont | RAPIDAN RIVER NEAR CULPEPER, VA | 6/24/2024 | 6/30/2024 | 4.02 | Emergency |
| 6 | Roanoke | GOOSE CREEK NEAR HUDDLESTON, VA | 6/24/2024 | 6/30/2024 | 4.44 | Emergency |
| 7 | Chowan | MEHERRIN RIVER NEAR LAWRENCEVILLE, VA | 6/24/2024 | 6/30/2024 | 4.86 | Emergency |
| 8 | Middle James | APPOMATTOX RIVER AT FARMVILLE, VA | 6/24/2024 | 6/30/2024 | 4.97 | Emergency |
| 9 | Northern Coastal Plain | MATTAPONI RIVER NEAR BEULAHVILLE, VA | 6/24/2024 | 6/30/2024 | 5.18 | Warning |
| 10 | New River | REED CREEK AT GRAHAMS FORGE, VA | 6/24/2024 | 6/30/2024 | 9.73 | Warning |
| 11 | Northern Virginia | ACCOTINK CREEK NEAR ANNANDALE, VA | 6/24/2024 | 6/30/2024 | 17.83 | Watch |

***Groundwater Indicators:***

| # | Region | Well Name | Start Date | End Date | Percentile | Status |
|---|---|---|---|---|---|---|
| 1 | Big Sandy | Buchanan County USGS Observation Well (15G 19 SOW 222) | 6/24/2024 | 6/30/2024 | 0.0 | Emergency |
| 2 | New River | Christiansburg DEQ Observation Well (27F 2 SOW 019) | 6/24/2024 | 6/30/2024 | 0.0 | Emergency |
| 3 | Northern Virginia | Prince William County USGS Observation Well (51S 7) | 6/24/2024 | 6/30/2024 | 0.0 | Emergency |
| 4 | Northern Virginia | Prince William County USGS Observation Well (49V 1) | 6/24/2024 | 6/30/2024 | 0.0 | Emergency |
| 5 | Roanoke | Roanoke-Nelson DEQ Observation Well (31G 1 SOW 008) | 6/24/2024 | 6/30/2024 | 0.0 | Emergency |
| 6 | York James | York County DEQ Observation Well (59F74 SOW 184C) | 6/24/2024 | 6/30/2024 | 0.0 | Emergency |
| 7 | Roanoke | Bedford County USGS Observation Well (33G 1 SOW 224) | 6/24/2024 | 6/30/2024 | 1.56 | Emergency |
| 8 | Northern Virginia | Fairfax County USGS Observation Well (52V 2D) | 6/24/2024 | 6/30/2024 | 1.98 | Emergency |
| 9 | Northern Coastal Plain | George Washington Birthplace USGS Observation Well (55P 9) | 6/24/2024 | 6/30/2024 | 2.2 | Emergency |
| 10 | Shenandoah | McGaheysville USGS Observation Well (41Q 1) | 6/24/2024 | 6/30/2024 | 2.87 | Emergency |
| 11 | Northern Virginia | Harper's Ferry DEQ Observation Well (49Y 1 SOW 022) | 6/24/2024 | 6/30/2024 | 3.13 | Emergency |
| 12 | Shenandoah | Blandy Farm USGS Observation Well (46W 175) | 6/24/2024 | 6/30/2024 | 3.21 | Emergency |
| 13 | Southeast Virginia | Brinkley USGS Observation Well (58B 13) | 6/24/2024 | 6/30/2024 | 9.88 | Warning |
| 14 | Upper James | Glasgow DEQ Observation Well (35K 1 SOW 063) | 6/24/2024 | 6/30/2024 | 10.67 | Watch |
| 15 | Eastern Shore | Withams DEQ Observation Well (66M 19 SOW 110S) | 6/24/2024 | 6/30/2024 | 12.73 | Watch |
| 16 | Roanoke | Fairystone State Park USGS Observation Well (30C 1 SOW 010) | 6/24/2024 | 6/30/2024 | 18.36 | Watch |
| 17 | Northern Piedmont | Gordonsville DEQ Observation Well (45P 1 SOW 030) | 6/24/2024 | 6/30/2024 | 18.4 | Watch |
| 18 | Southeast Virginia | Pungo DEQ Observation Well (62B 1 SOW 098A) | 6/24/2024 | 6/30/2024 | 41.9 | Normal |
| 19 | Middle James | Buckingham USGS Observation Well (41H 3) | 6/24/2024 | 6/30/2024 | 44.26 | Normal |
| 20 | Chowan | Slade Farm DEQ Observation Well (57E 31 SOW 094C) | 6/24/2024 | 6/30/2024 | 45.83 | Normal |
| 21 | Eastern Shore | P. C. Kellam DEQ Observation Well (63H 6 SOW 103A) | 6/24/2024 | 6/30/2024 | 53.85 | Normal |
| 22 | York James | Hanover County DEQ Observation Well (53K 19 SOW 080) | 6/24/2024 | 6/30/2024 | 56.25 | Normal |
| 23 | Middle James | Colonial Heights USGS Observation Well (51G 1) | 6/24/2024 | 6/30/2024 | 58.5 | Normal |
| 24 | Big Sandy | U.S. Forest Service - SOW 223 Cane Patch Well | 6/24/2024 | 6/30/2024 | 95.71 | Normal |

### *Reservoir Indicators:*

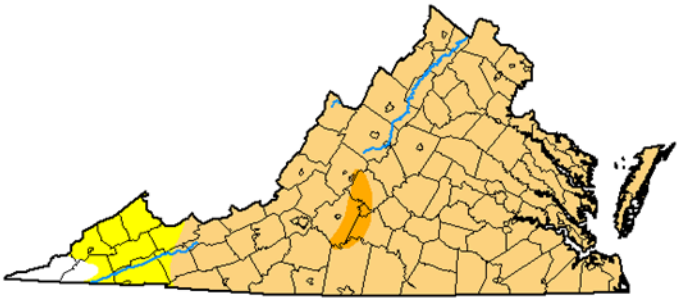
***Note, these reservoir statuses require manual review as they are NOT automated at this time***

| # | Region | Reservoir | Date | Status |
|---|---|---|---|---|
| 1 | Big Sandy | Big Cherry Reservoir | 07/01/2024 | Normal |
| 2 | Chowan | Emporia Reservoir | 07/01/2024 | Normal |
| 3 | Middle James | Beaver Creek Reservoir | 07/01/2024 | Normal |
| 4 | Middle James | Totier Creek Reservoir | 07/01/2024 | Normal |
| 5 | Middle James | Ragged Mountain | 07/01/2024 | Normal |
| 6 | Middle James | Sugar Hollow | 07/01/2024 | Normal |
| 7 | Middle James | Lake Moomaw | 07/01/2024 | Normal |
| 8 | Middle James | South Fork Rivanna River Reservoir | 07/01/2024 | Normal |
| 9 | Northern Coastal Plain | Beverdam Reservoir | 07/01/2024 | Normal |
| 10 | Northern Piedmont | Hunting Run Reservoir | 07/01/2024 | Normal |
| 11 | Northern Piedmont | Motts Run Reservoir | 07/01/2024 | Normal |
| 12 | Northern Piedmont | Lake Anna | 07/01/2024 | Normal |
| 13 | Northern Piedmont | Ni River Reservoir | 07/01/2024 | Normal |
| 14 | Northern Virginia | Lake Manassas | 07/01/2024 | Normal |
| 15 | Northern Virginia | Occoquan Reservoir | 07/01/2024 | Normal |
| 16 | Roanoke | Smith Mountain Lake | 07/01/2024 | Normal |
| 17 | Roanoke | Kerr Reservoir | 07/01/2024 | Normal |
| 18 | Shenandoah | Skidmore Fork Lake (Switzer Lake) | 07/01/2024 | Normal |
| 19 | Southeast Virginia | Lake Cohoon | 07/01/2024 | Normal |
| 20 | Southeast Virginia | Lake Kilby | 07/01/2024 | Normal |
| 21 | Southeast Virginia | Speights Run Reservoir | 07/01/2024 | Normal |
| 22 | Southeast Virginia | Lake Meade | 07/01/2024 | Normal |
| 23 | Southeast Virginia | Kerr Reservoir | 07/01/2024 | Normal |
| 24 | Upper James | Lake Moomaw | 07/01/2024 | Normal |
| 25 | York James | Diascund Creek Reservoir | 07/01/2024 | Normal |
| 26 | York James | Lee Hall - City Reservoir | 07/01/2024 | Normal |
| 27 | York James | Harwoods Mill Reservoir | 07/01/2024 | Normal |
| 28 | York James | Little Creek Reservoir | 07/01/2024 | Normal |
| 29 | York James | Skiffes Creek Reservoir | 07/01/2024 | Normal |

# Appendix A

**U.S. Drought Monitor**

## Virginia



**June 25, 2024**

***(Released Thursday, Jun. 27, 2024)***

**Valid 8 a.m. EDT**

*Drought Conditions (Percent Area)*

| | None | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4 |
|---|---|---|---|---|---|---|
| **Current** | 1.73 | 98.27 | 90.60 | 2.25 | 0.00 | 0.00 |
| **Last Week** 06-18-2024 | 4.46 | 95.54 | 24.57 | 0.00 | 0.00 | 0.00 |
| **3 Months Ago** 03-26-2024 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Start of Calendar Year** 01-02-2024 | 31.65 | 68.35 | 34.77 | 4.07 | 0.00 | 0.00 |
| **Start of Water Year** 09-26-2023 | 51.40 | 48.60 | 24.99 | 6.12 | 0.00 | 0.00 |
| **One Year Ago** 06-27-2023 | 61.37 | 38.63 | 7.17 | 0.41 | 0.00 | 0.00 |

*Intensity:*

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx*

*Author:*

Adam Hartman
NOAA/NWS/NCEP/CPC

**droughtmonitor.unl.edu**

# Appendix B

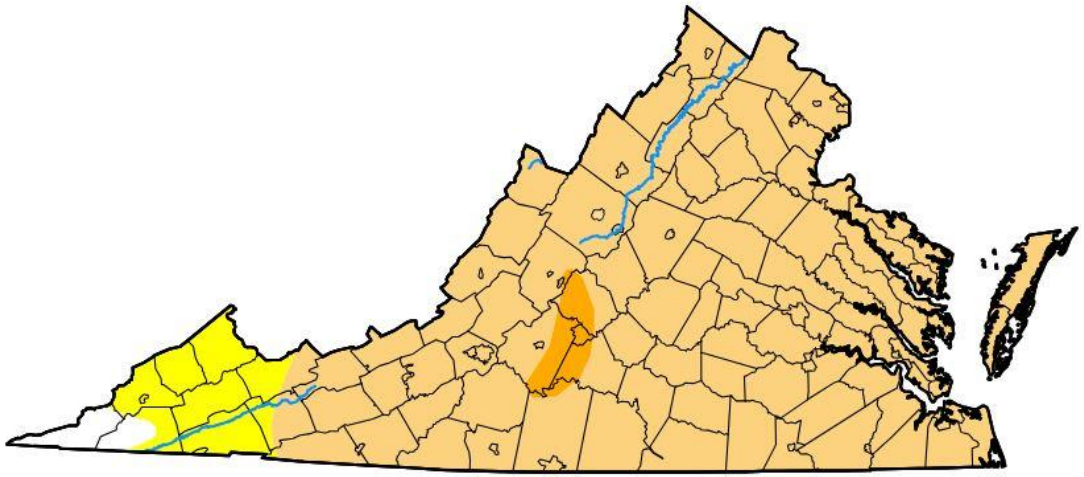
# VA Drought Monitoring Task Force

Erik Taylor, Jon McGee, & Nick Fillo

National Weather Service – Baltimore/Washington DC/Blacksburg,VA, Wakefield, VA

July 1, 2024

# U.S. Drought Monitor



## Intensity

- None
- D0 (Abnormally Dry)
- D1 (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)
- No Data

## Authors

United States and Puerto Rico Author(s):

Adam Hartman, NOAA/NWS/NCEP/CPC

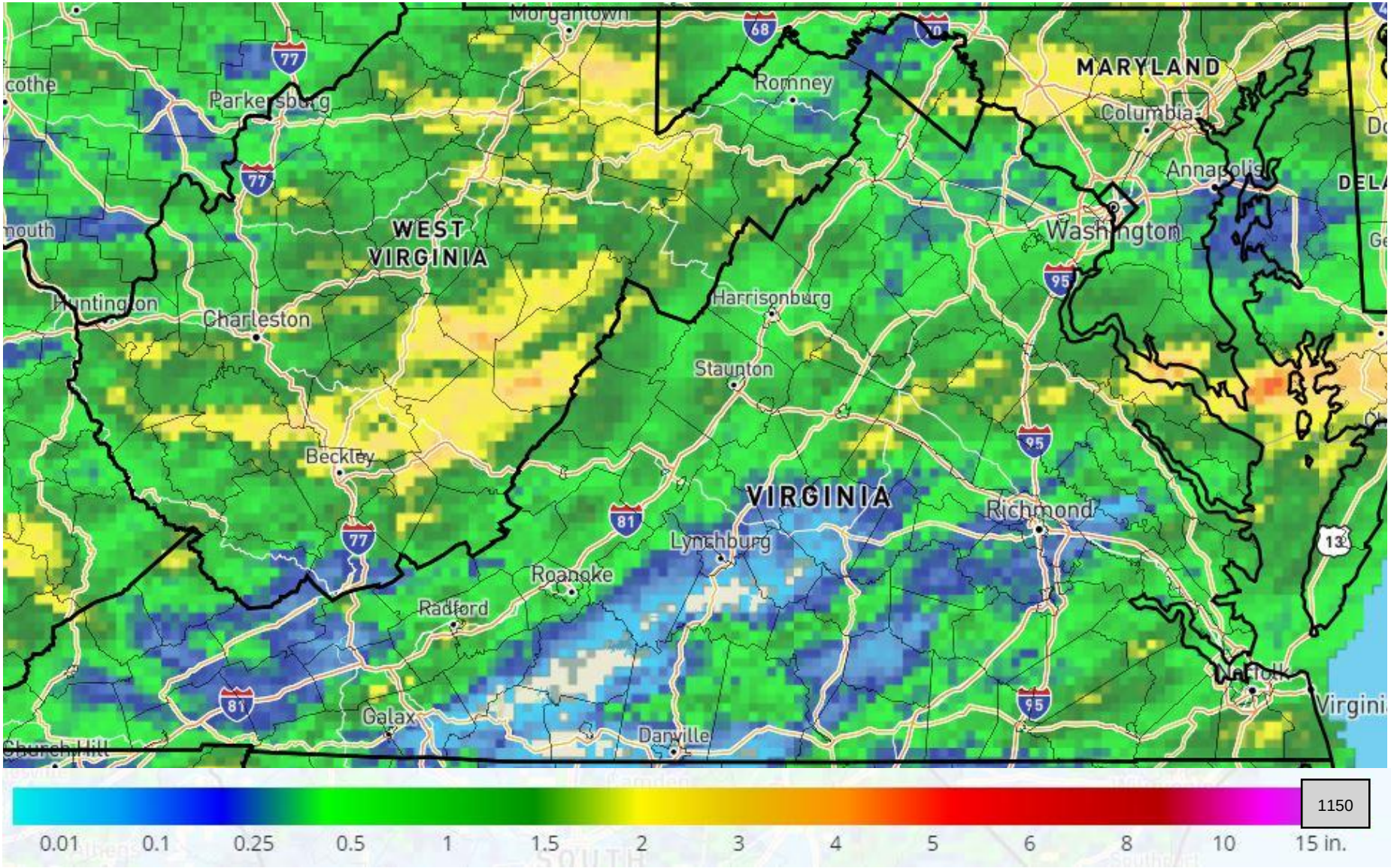
Pacific Islands and Virgin Islands Author(s):

Rocky Bilotta, NOAA/NCEI

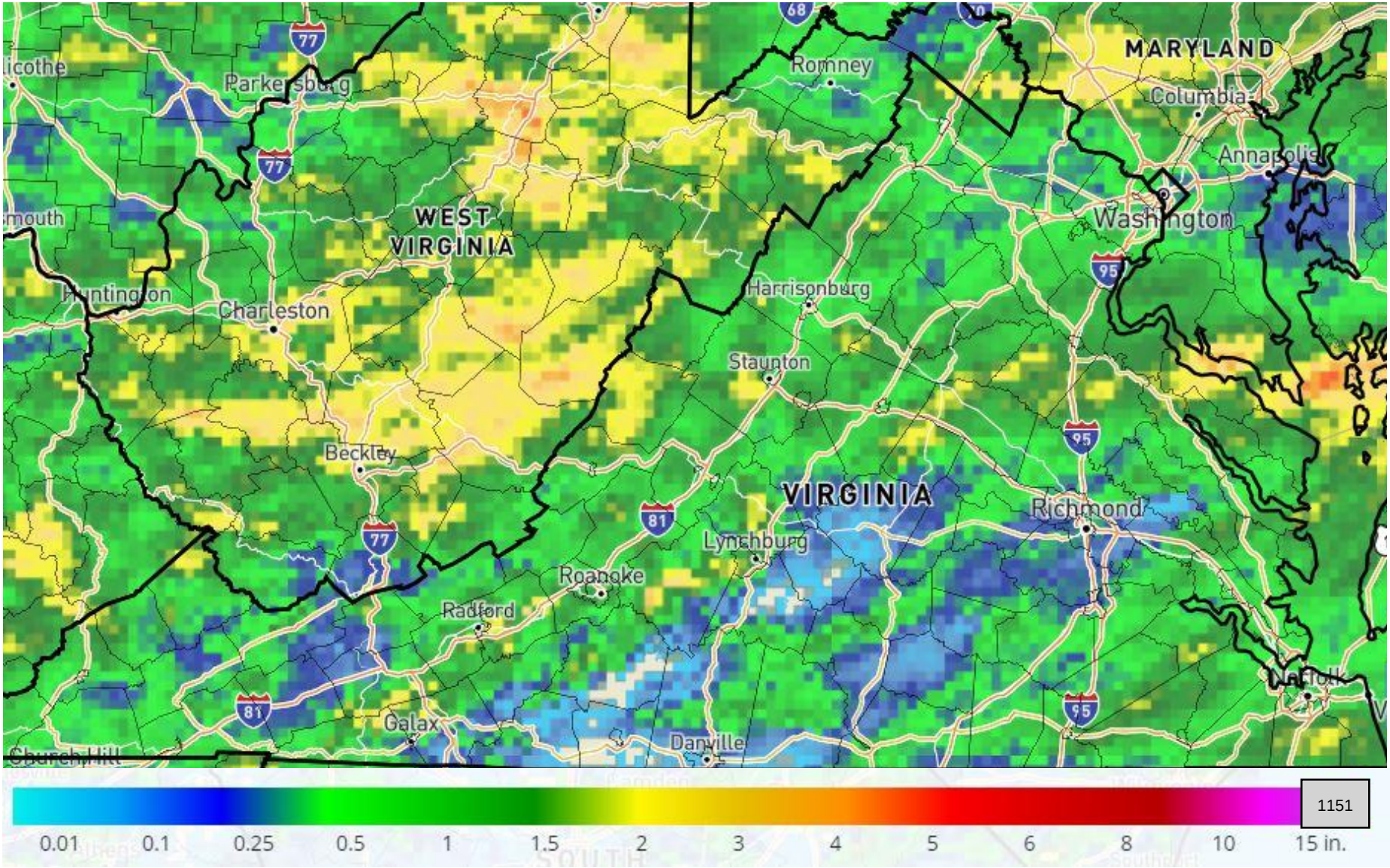
**Map released: Thurs. June 27, 2024**

**Data valid: June 25, 2024 at 8 a.m. EDT**

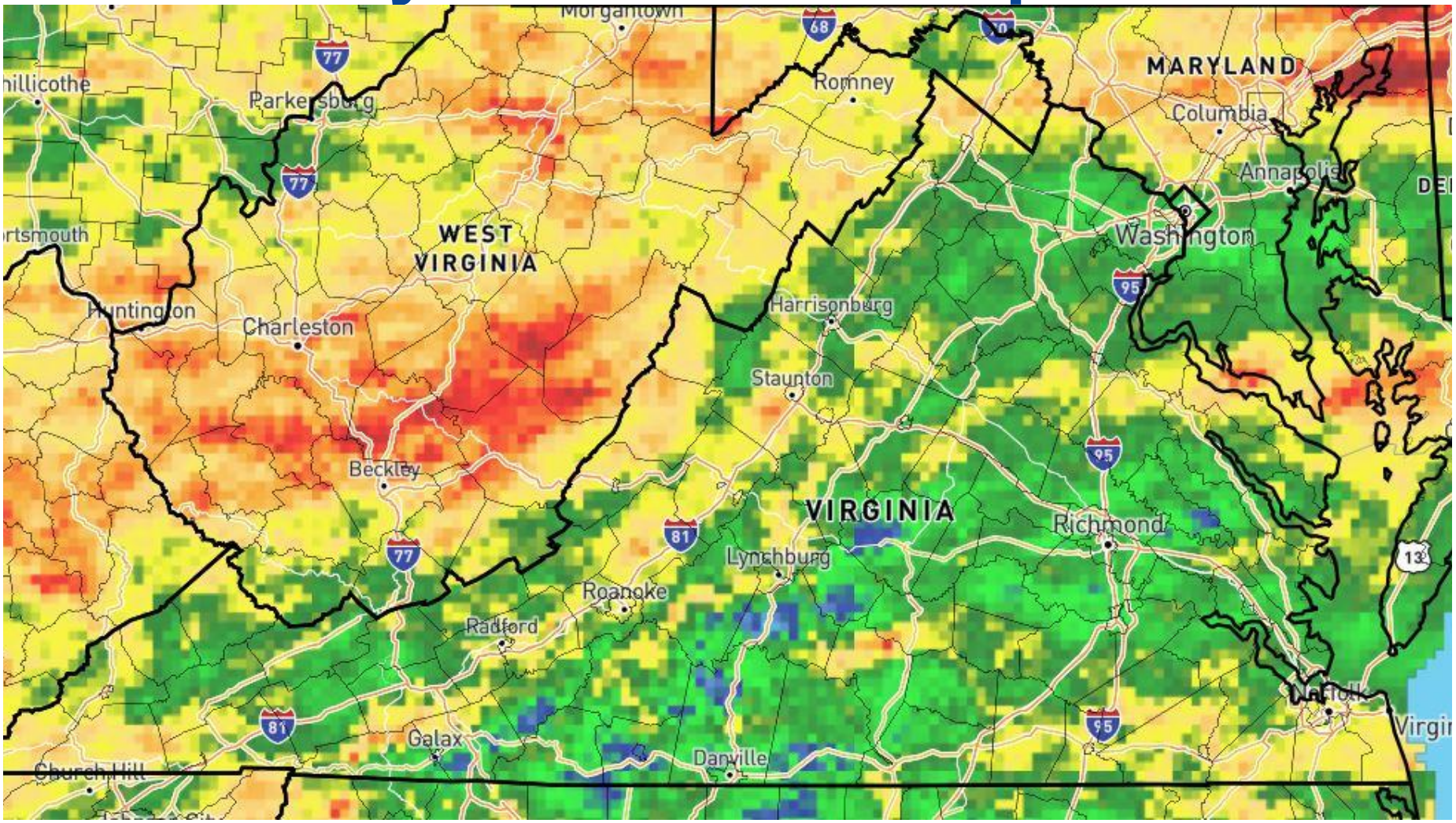
# 7-Day Observed Precipitation



# 14-Day Observed Precipitation

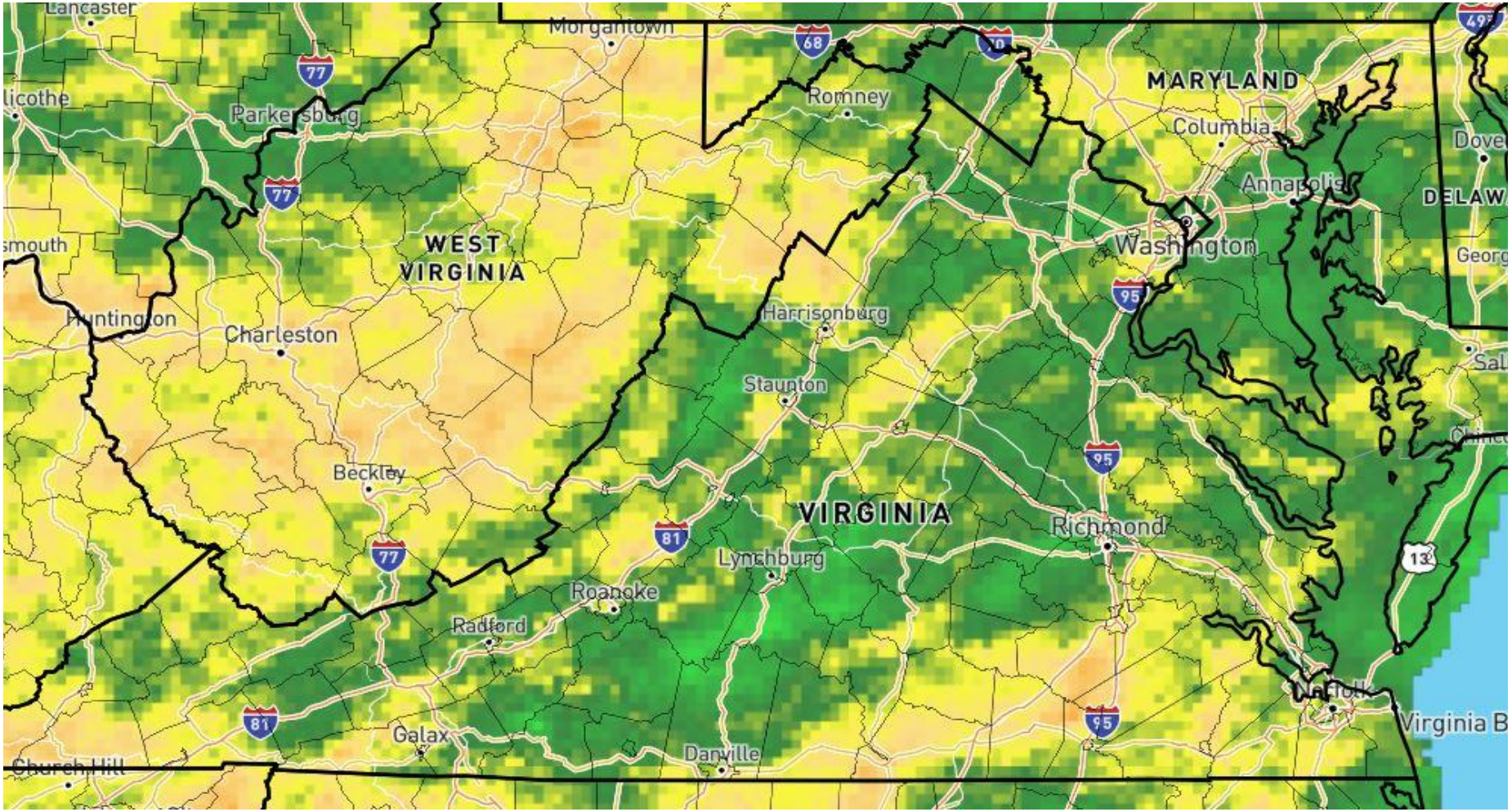


# 30-Day Observed Precipitation

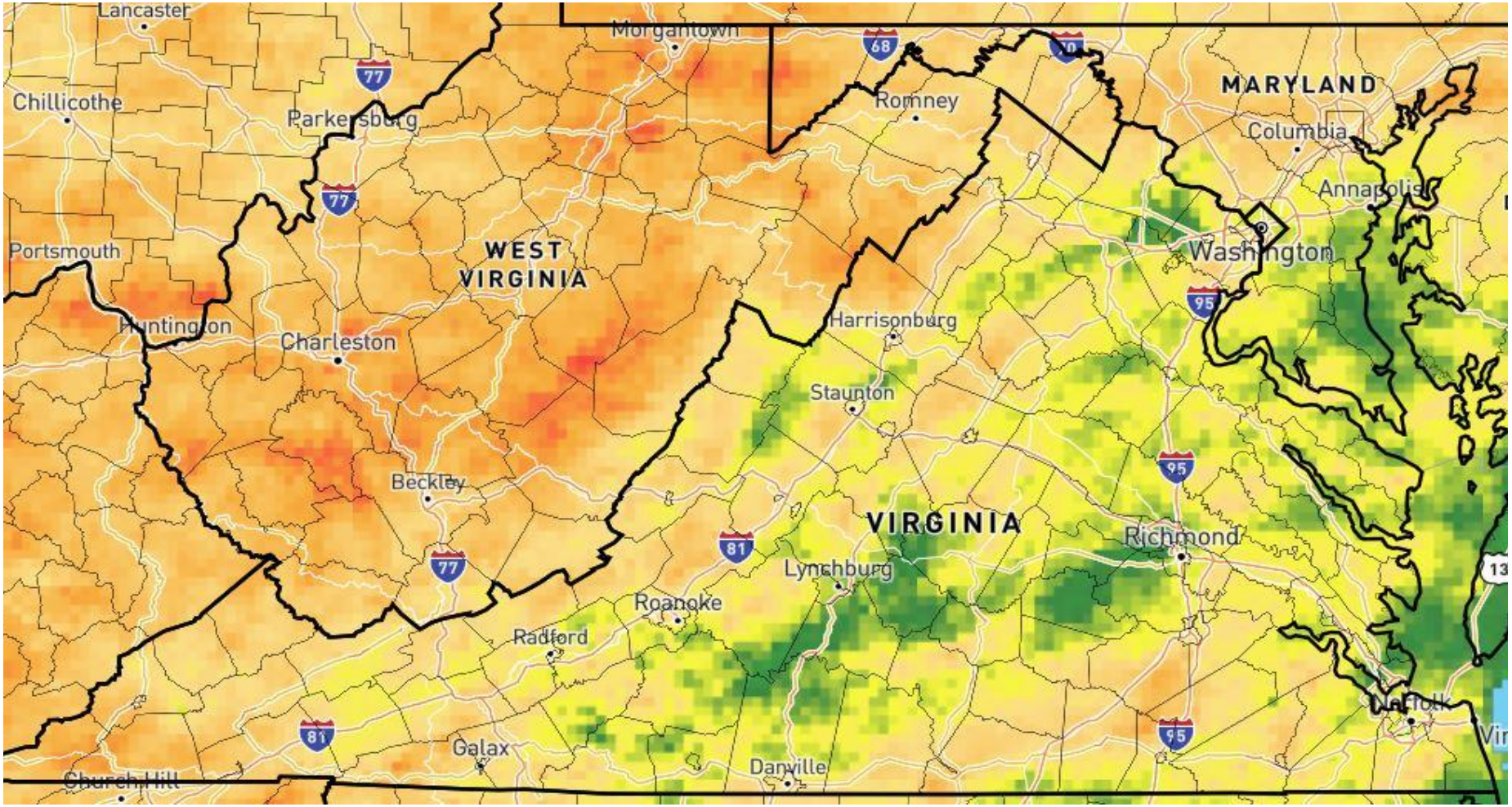



1152

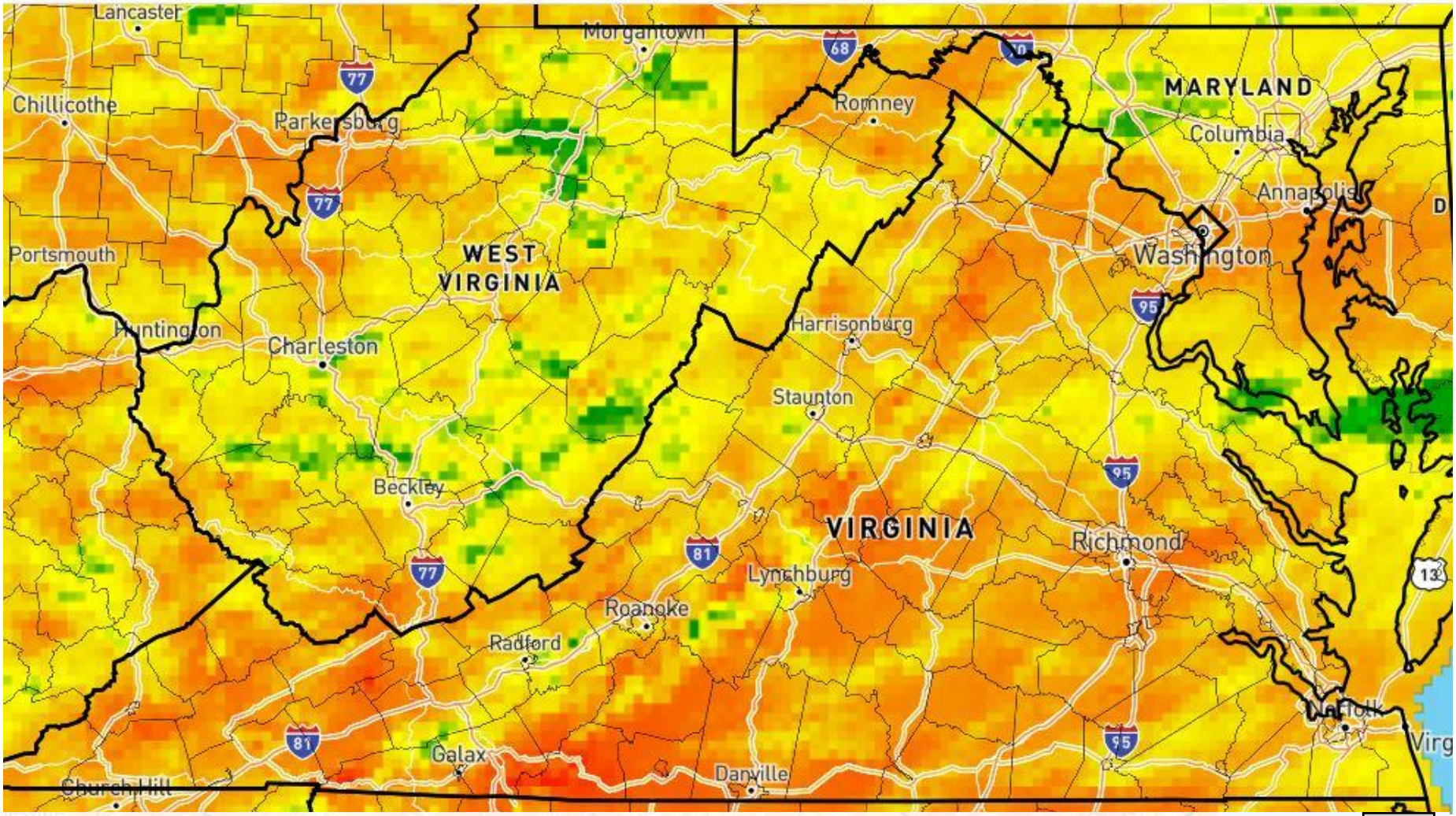
# 60-Day Observed Precipitation



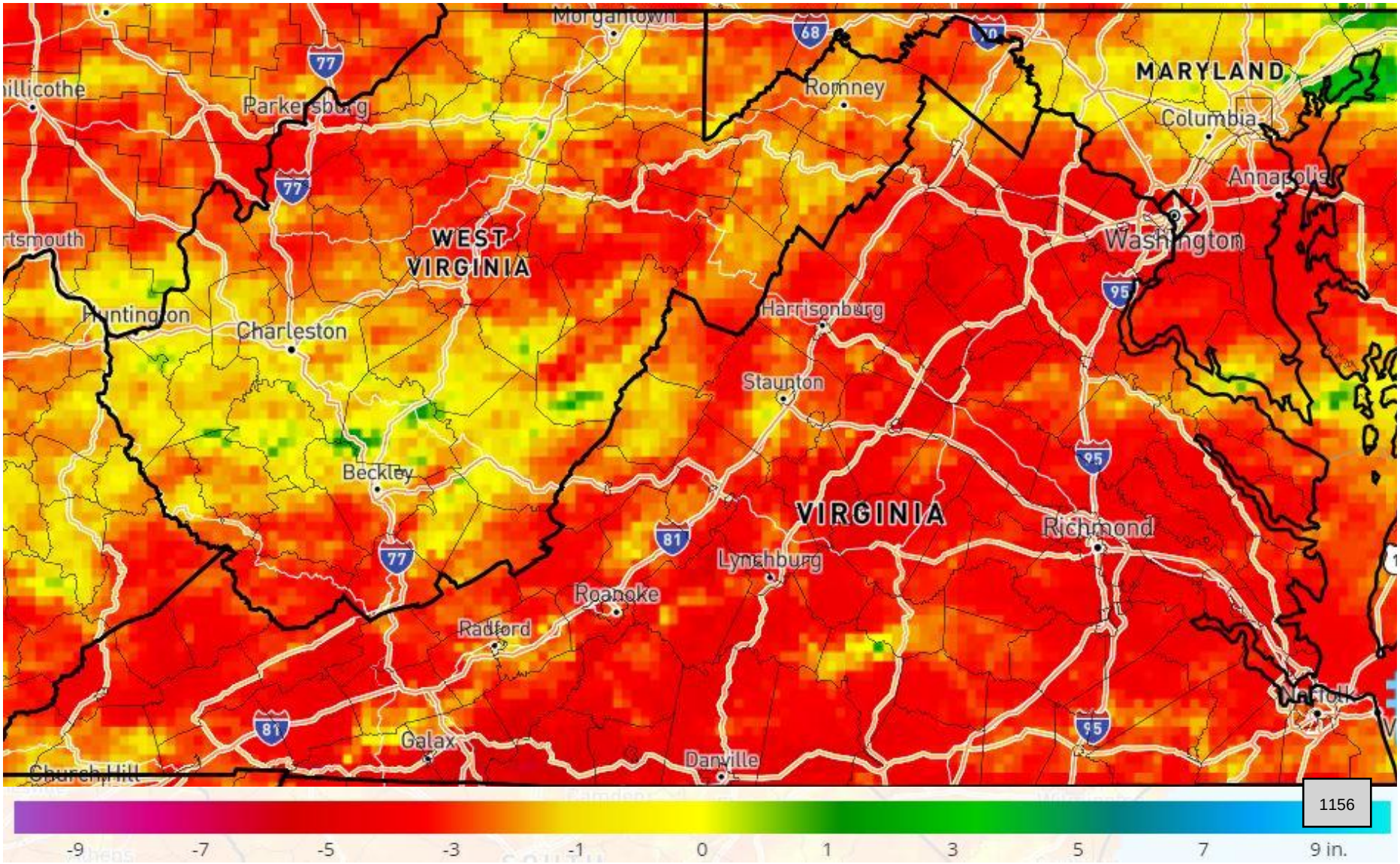
# 90-Day Observed Precipitation



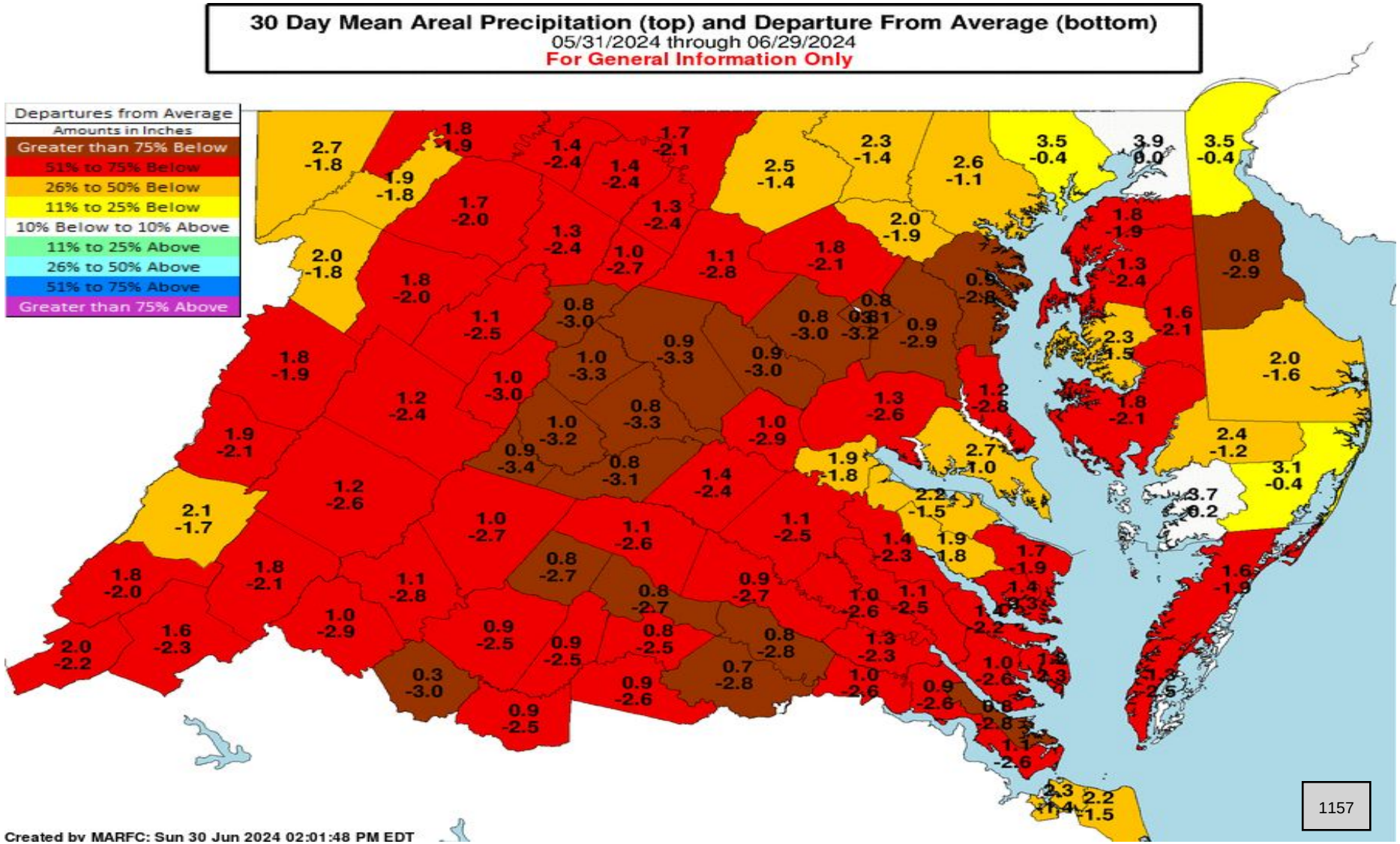
# 14-Day Percent of Normal Precipitation



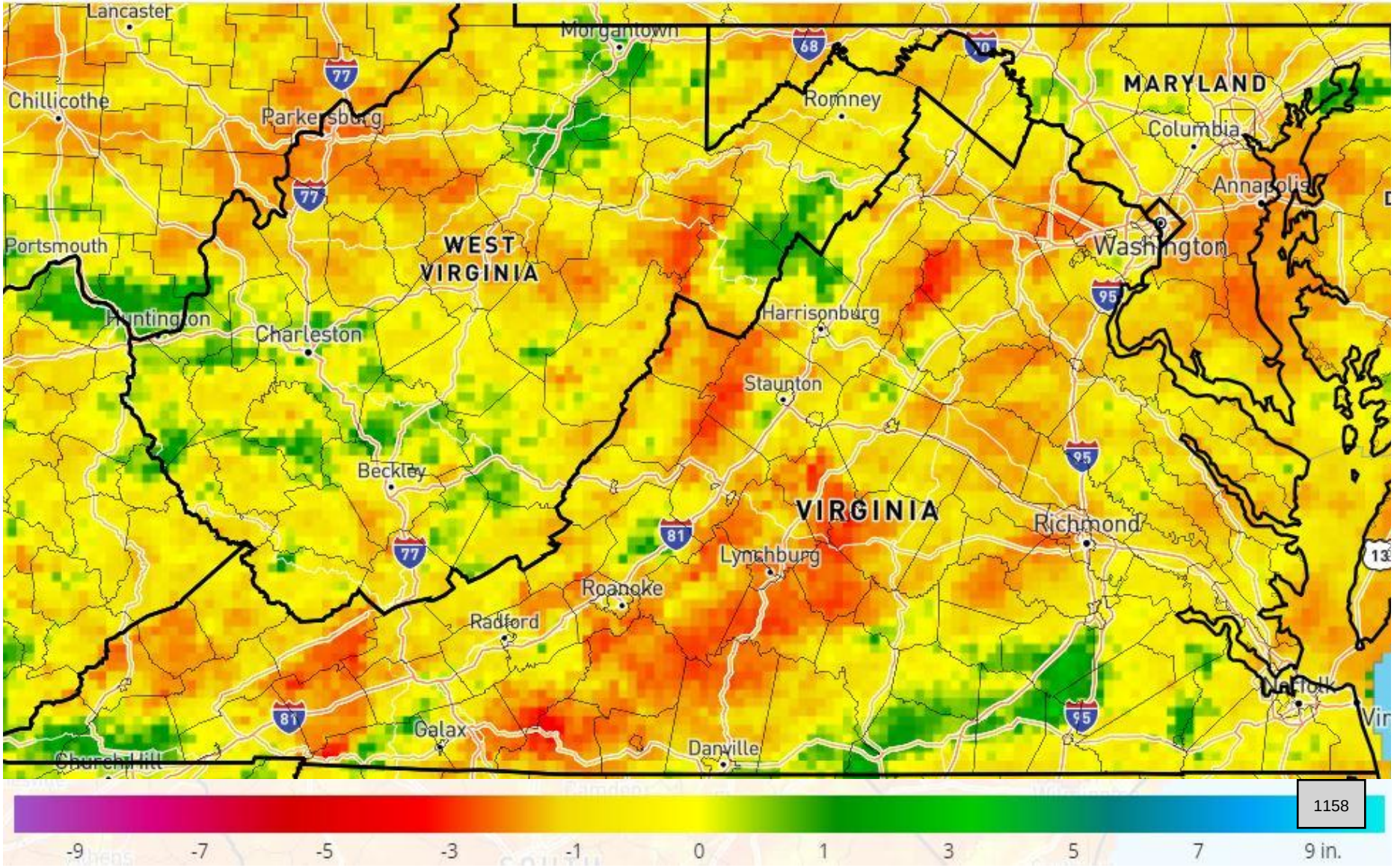
# 30-Day Percent of Normal Precipitation



# 30-Day Departure Of Precipitation

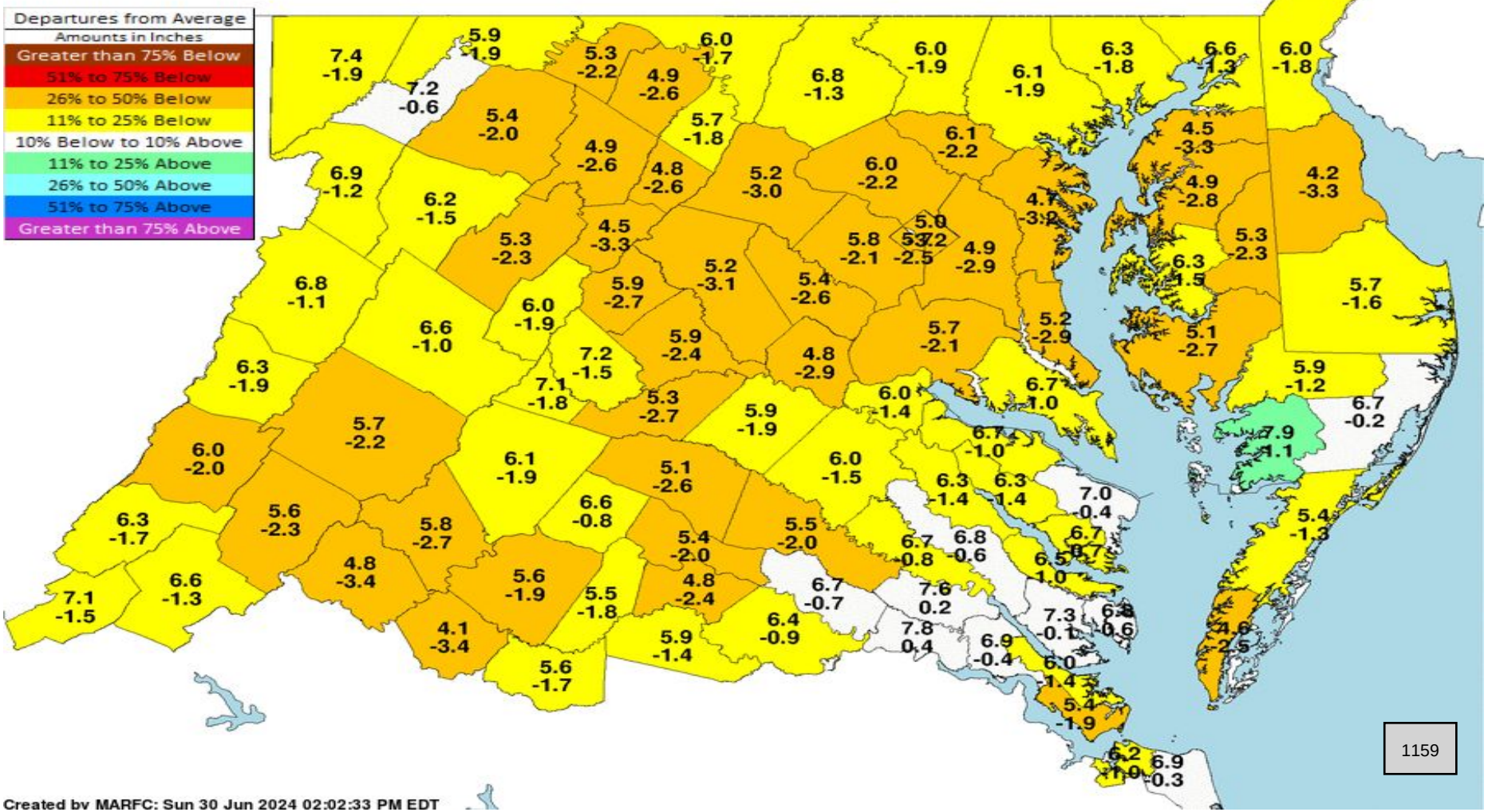


# 60-Day Percent of Normal Precipitation



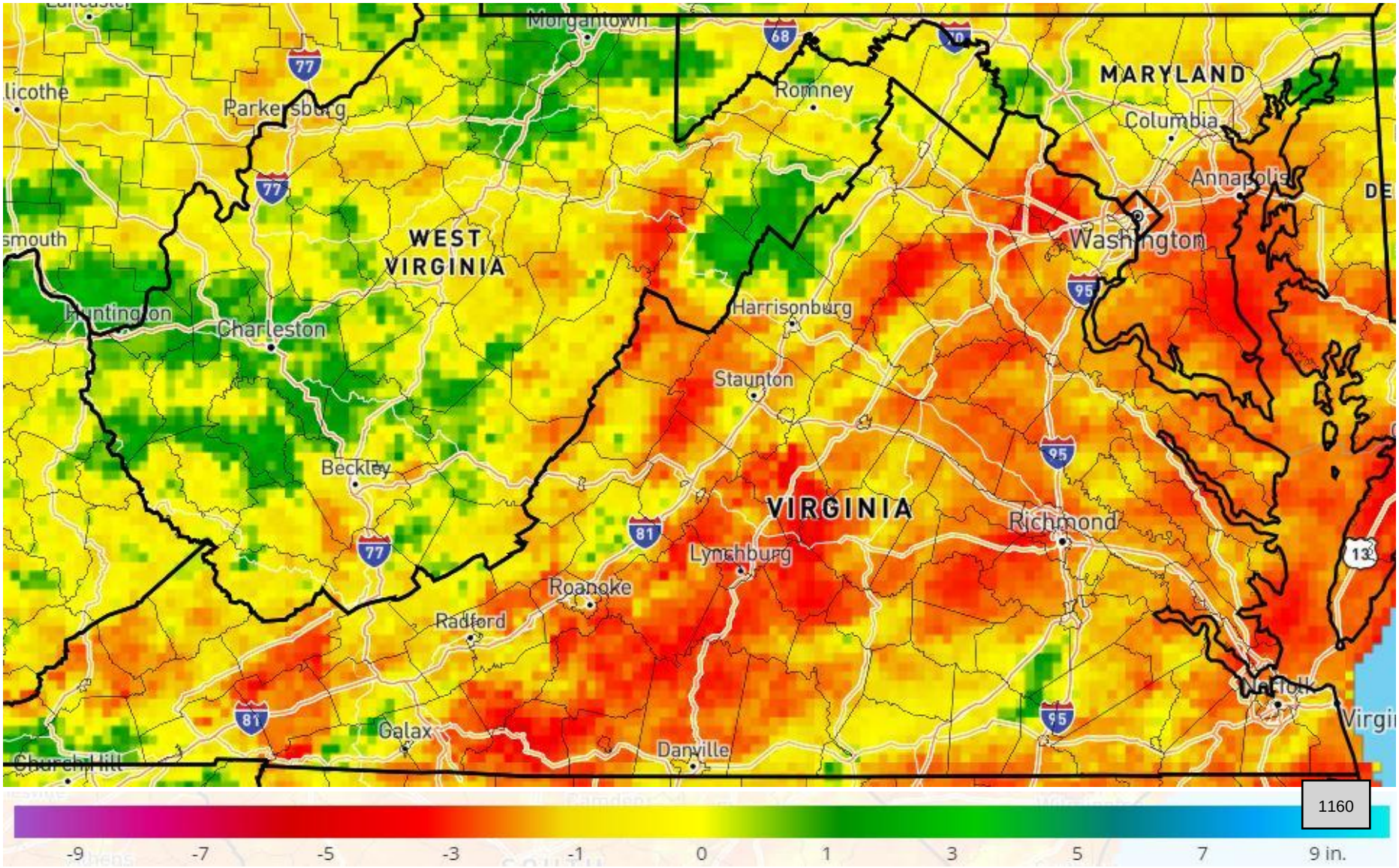
# 60-Day Departure Of Precipitation

**60 Day Mean Areal Precipitation (top) and Departure From Average (bottom)**
05/01/2024 through 06/29/2024
For General Information Only

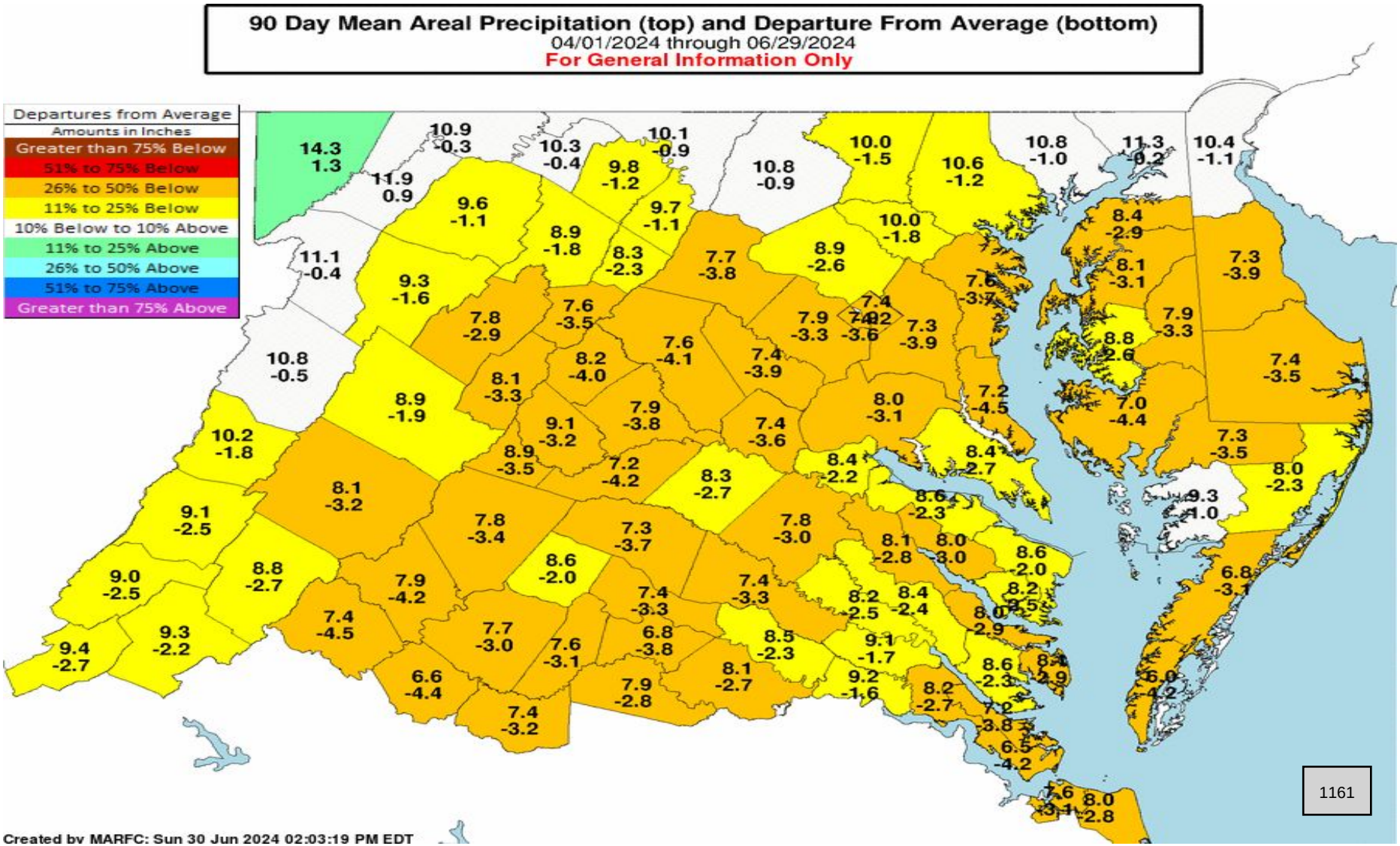



1159

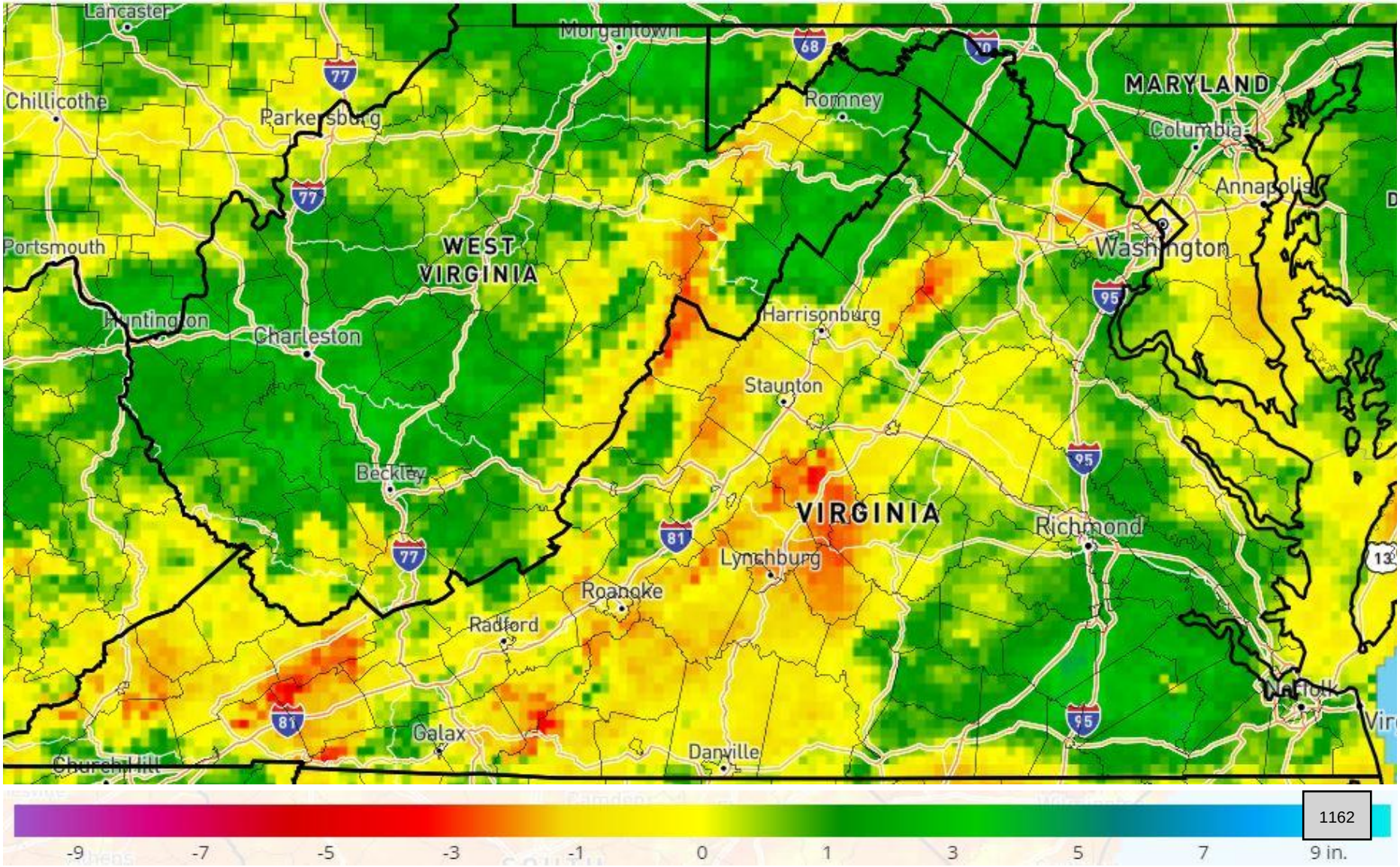
# 90-Day Percent of Normal Precipitation



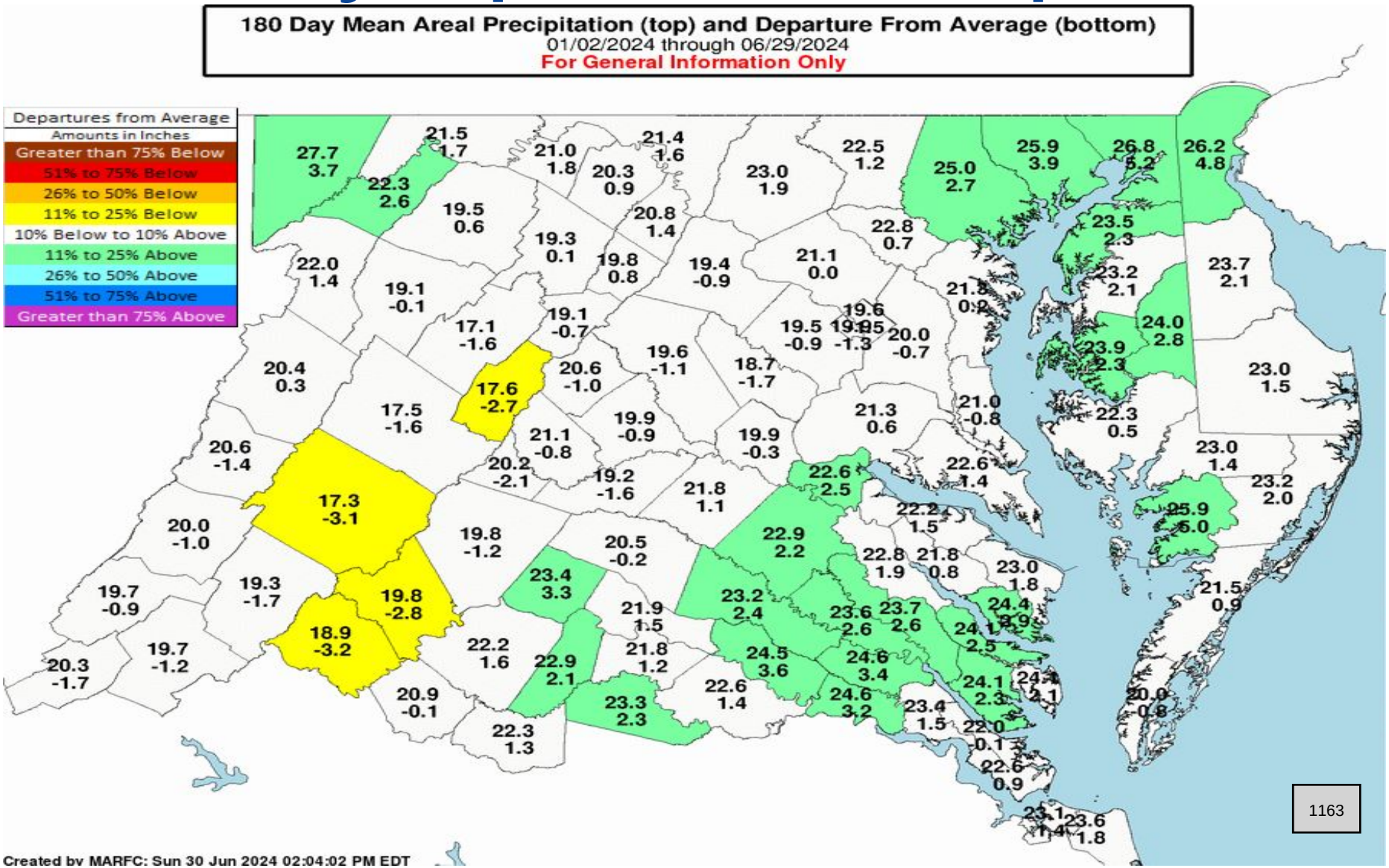
# 90-Day Departure Of Precipitation



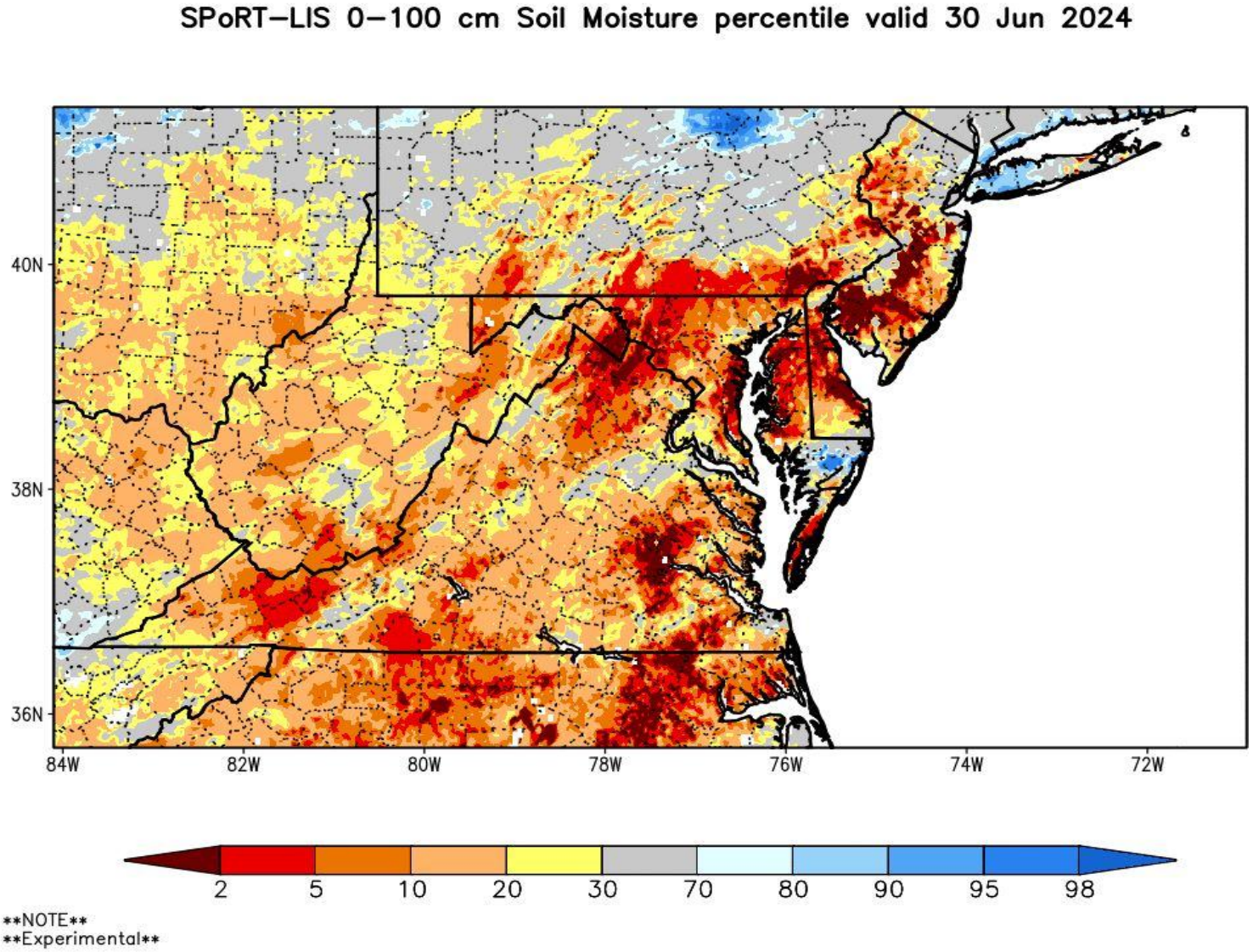
# 180-Day Percent of Normal Precipitation



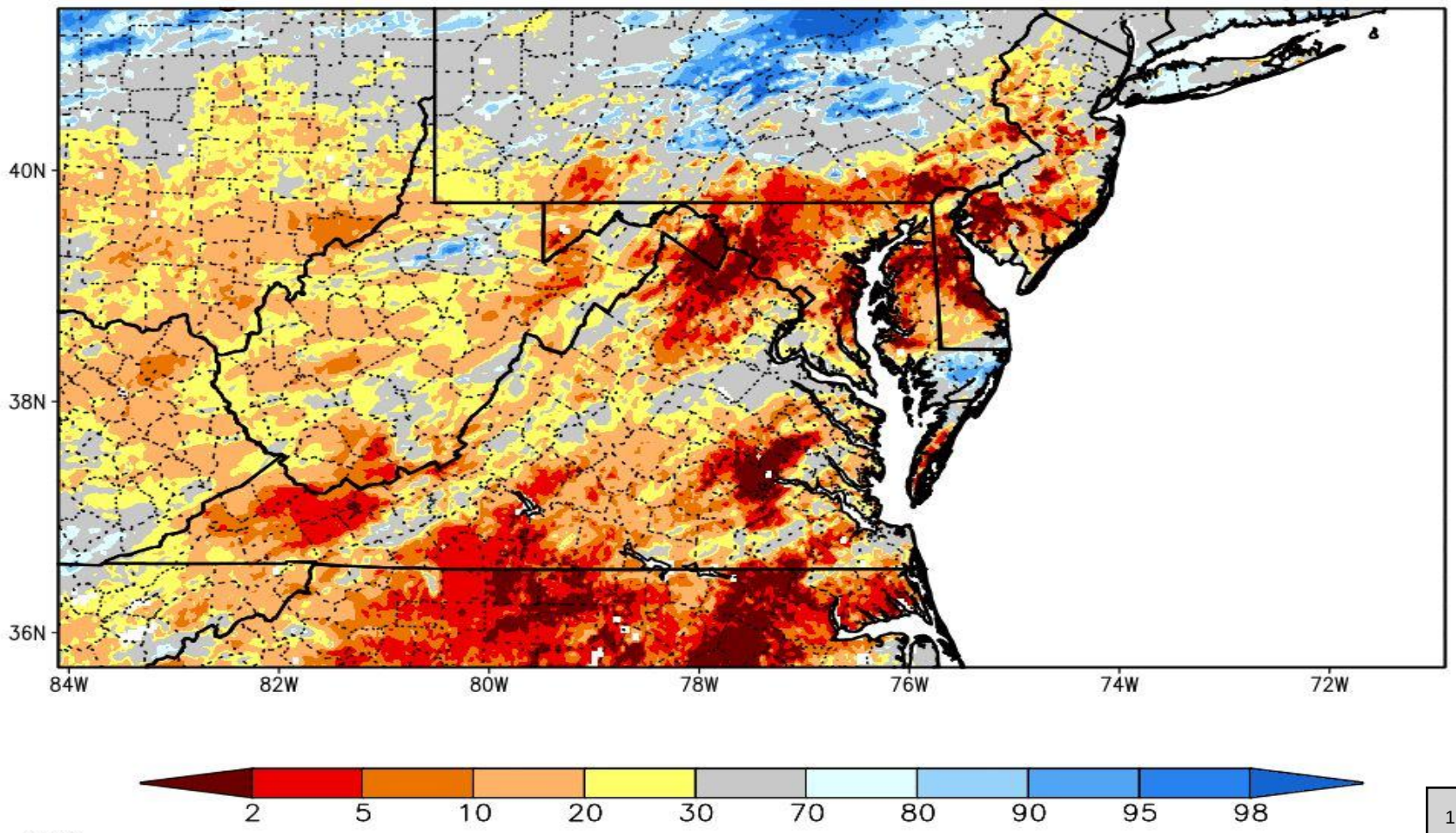
# 180-Day Departure Of Precipitation



# NASA SPoRT LIS Soil Moisture

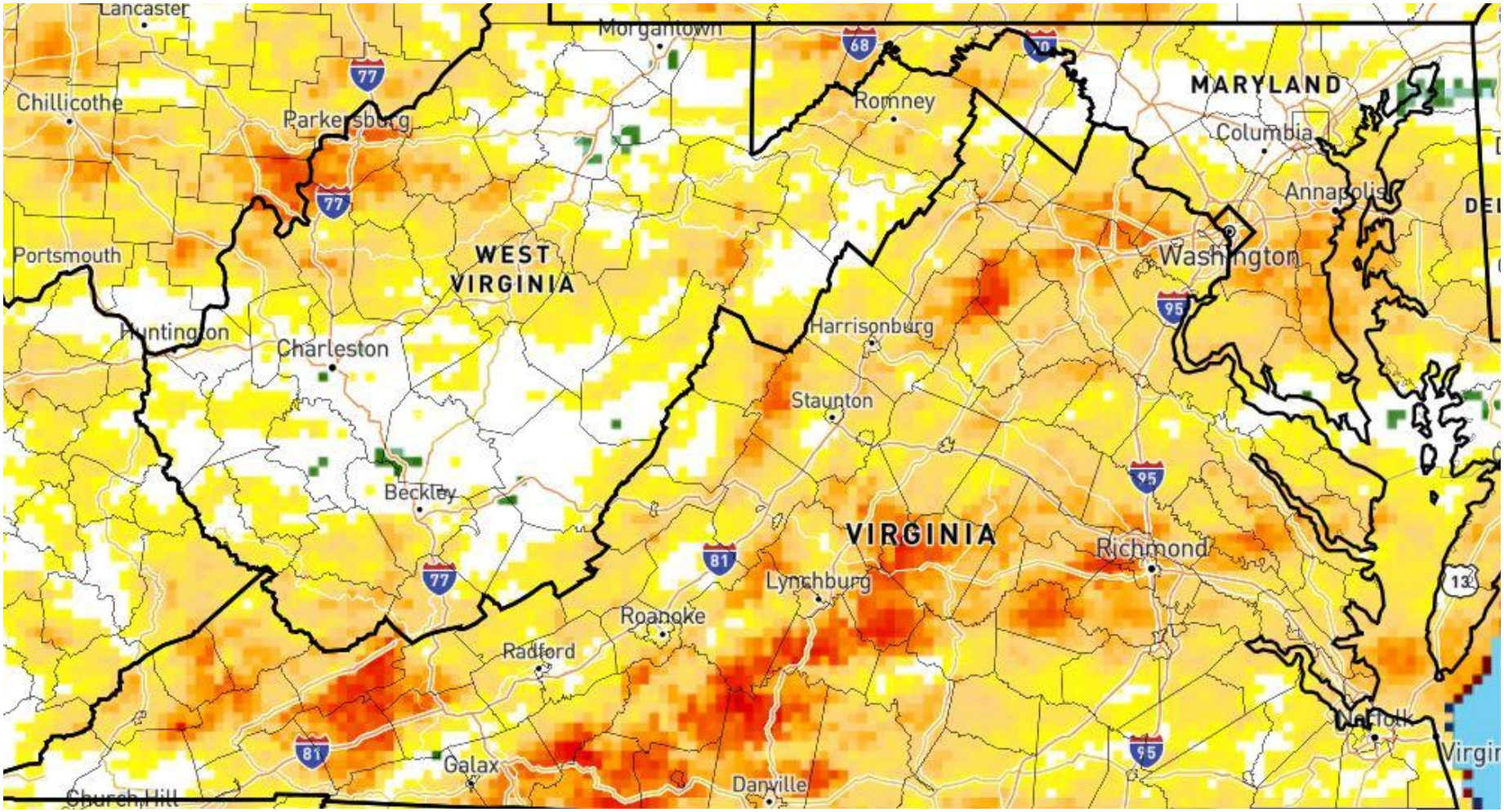


# NASA SPoRT LIS Soil Moisture




**NOTE**
**Experimental**

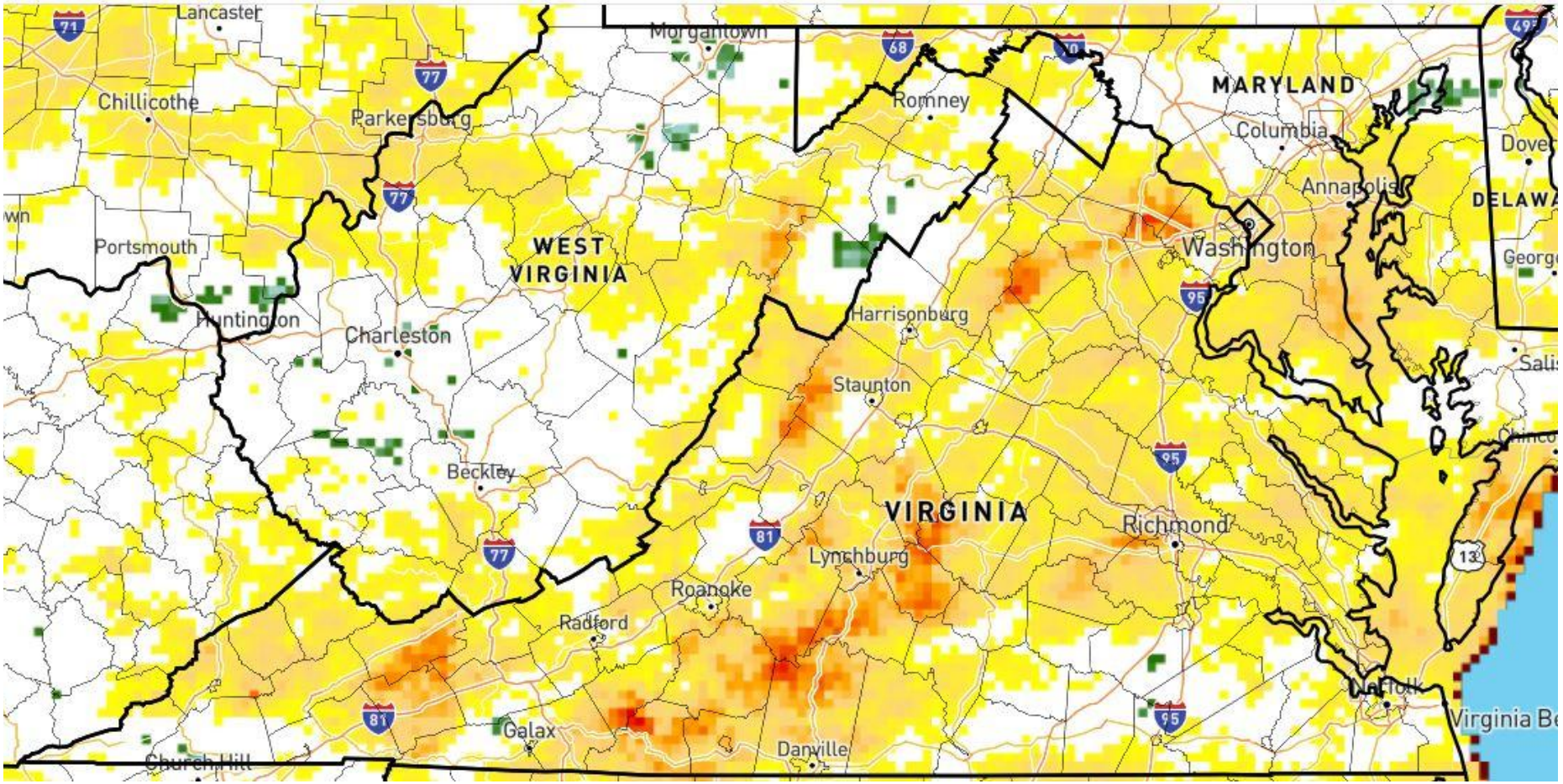
# 30-Day SPI


Lancaster
Morgantown
Chillicothe
Parkersburg
Romney
MARYLAND
Columbia
Annapolis
Portsmouth
WEST VIRGINIA
Washington
Huntington
Charleston
Harrisonburg
Staunton
Beckley
VIRGINIA
Richmond
Lynchburg
Roanoke
Radford
Galax
Danville
Church Hill
30-day SPI
Exceptional Dryness
Extreme Dryness
Severe Dryness
Moderate Dryness
Abnormal Dryness
Normal
Abnormal Wetness
Moderate Wetness
Severe Wetness
Extreme Wetness
Exceptional Wetness
-2
-1.6
-1.3
-0.8
-0.5
0.5
0.8
1.3
1.6
2

# National Weather Service

Item a.

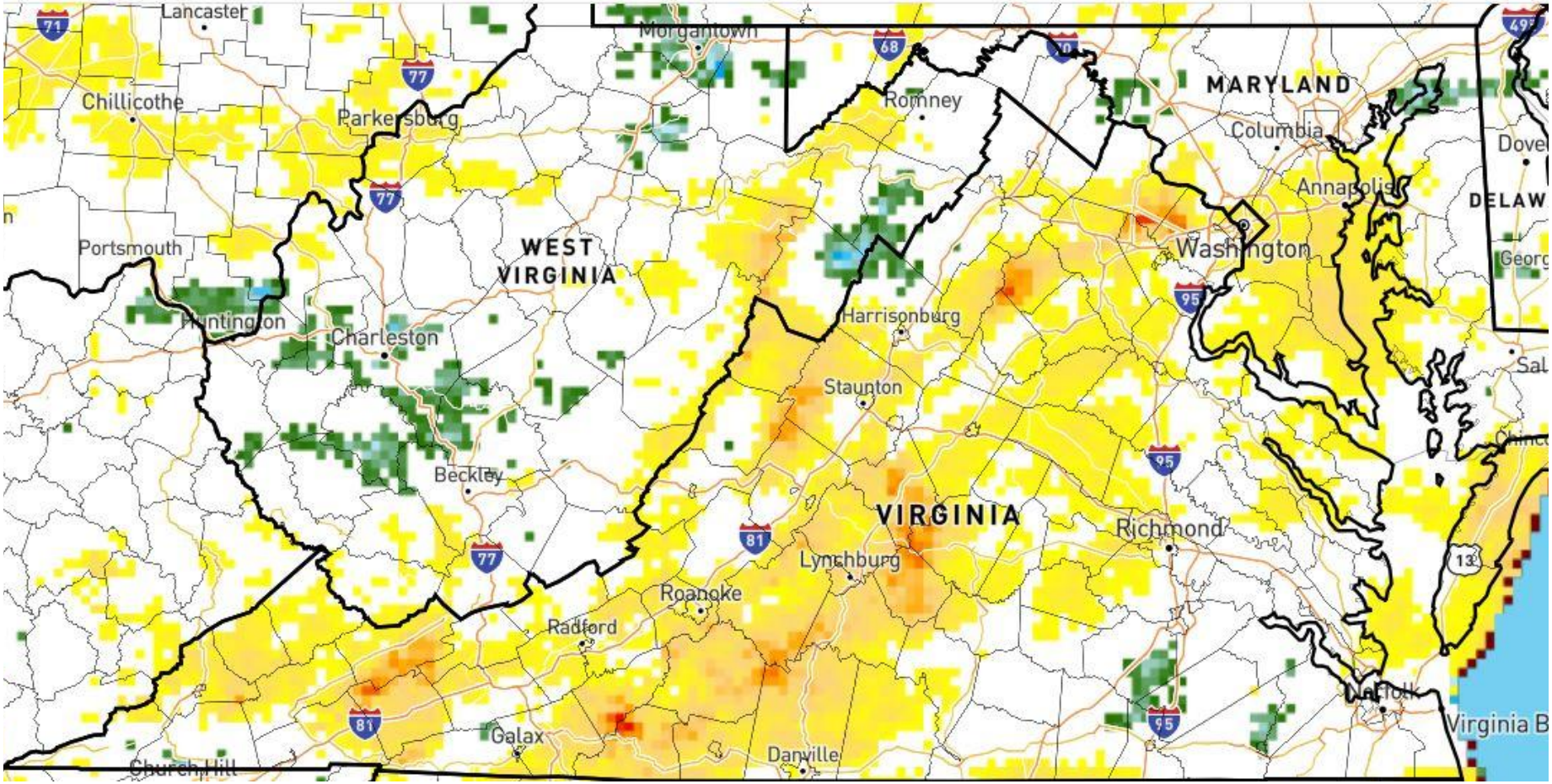
# 60-Day SPI



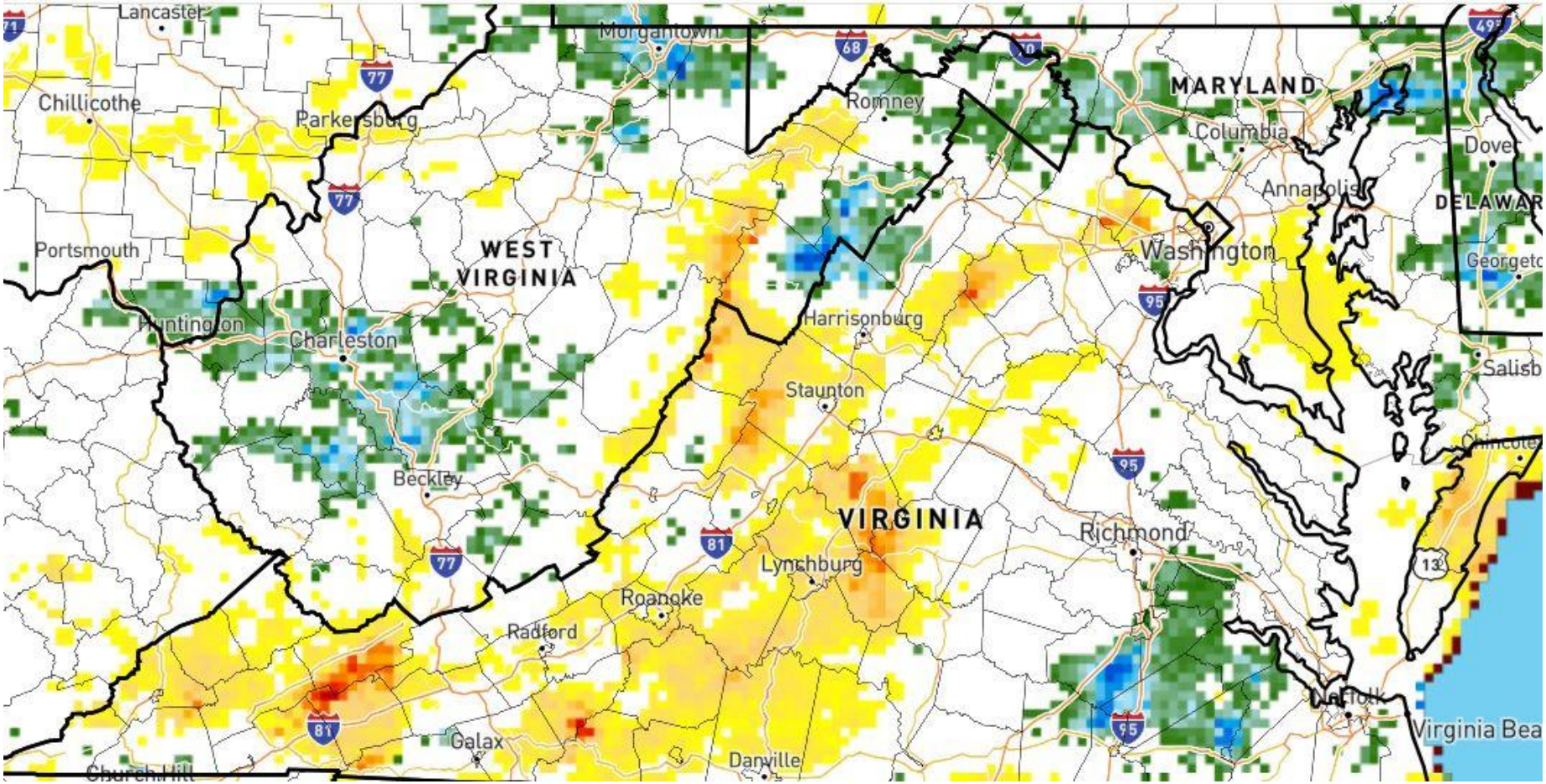

60-day SPI

| Exceptional Dryness | Extreme Dryness | Severe Dryness | Moderate Dryness | Abnormal Dryness | Normal | Abnormal Wetness | Moderate Wetness | Severe Wetness | Extreme Wetness | Exceptional Wetness |
|---|---|---|---|---|---|---|---|---|---|---|
| -2 | -1.6 | -1.3 | -0.8 | -0.5 | | 0.5 | 0.8 | 1.3 | 1.6 | 2 |

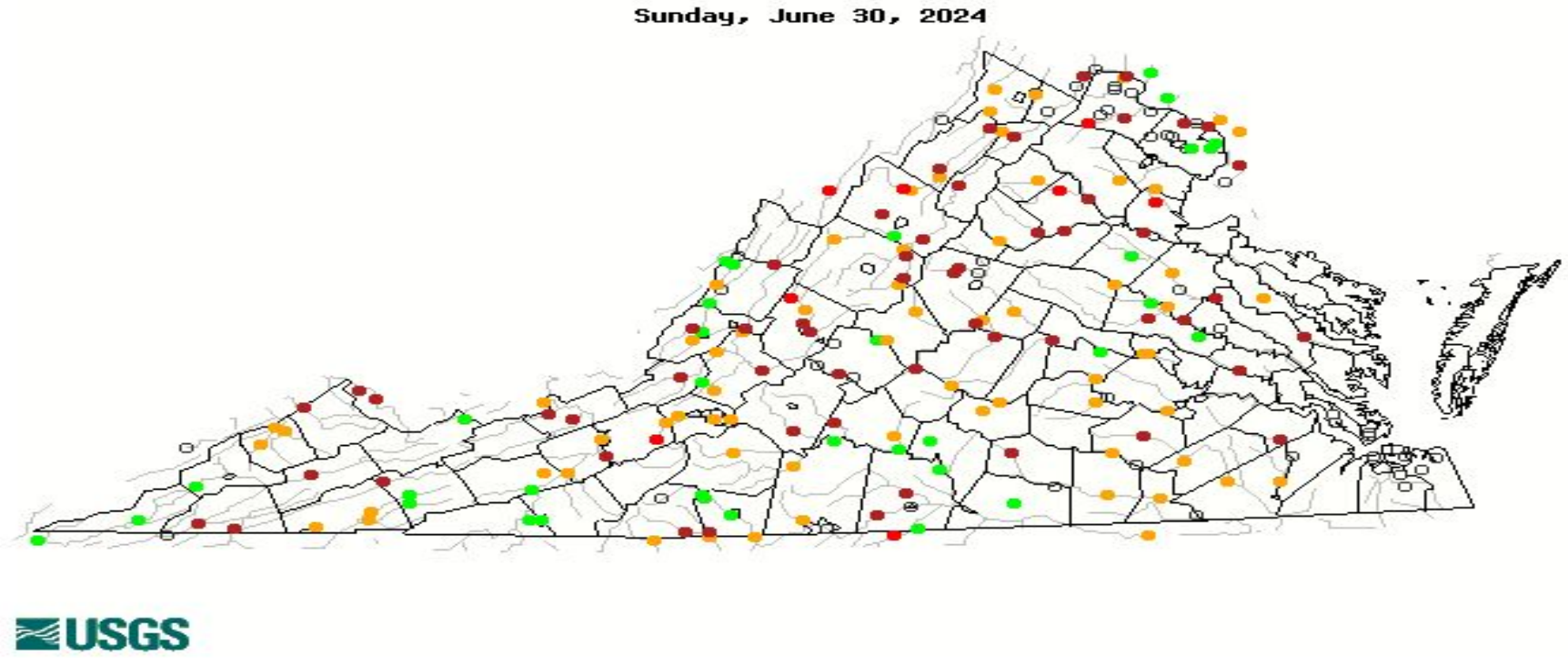
# 90-Day SPI


Lancaster
Morgantown
Chillicothe
Parkersburg
Romney
MARYLAND
Columbia
Annapolis
Washington
Portsmouth
WEST VIRGINIA
Huntington
Charleston
Harrisonburg
Staunton
Beckley
VIRGINIA
Richmond
Lynchburg
Roanoke
Radford
Galax
Danville
Church Hill
71
77
68
70
95
81
64
13
90-day SPI
Exceptional Dryness
Extreme Dryness
Severe Dryness
Moderate Dryness
Abnormal Dryness
Normal
Abnormal Wetness
Moderate Wetness
Severe Wetness
Extreme Wetness
Exceptional Wetness
-2
-1.6
-1.3
-0.8
-0.5
0.5
0.8
1.3
1.6
2
1168

# 120-Day SPI

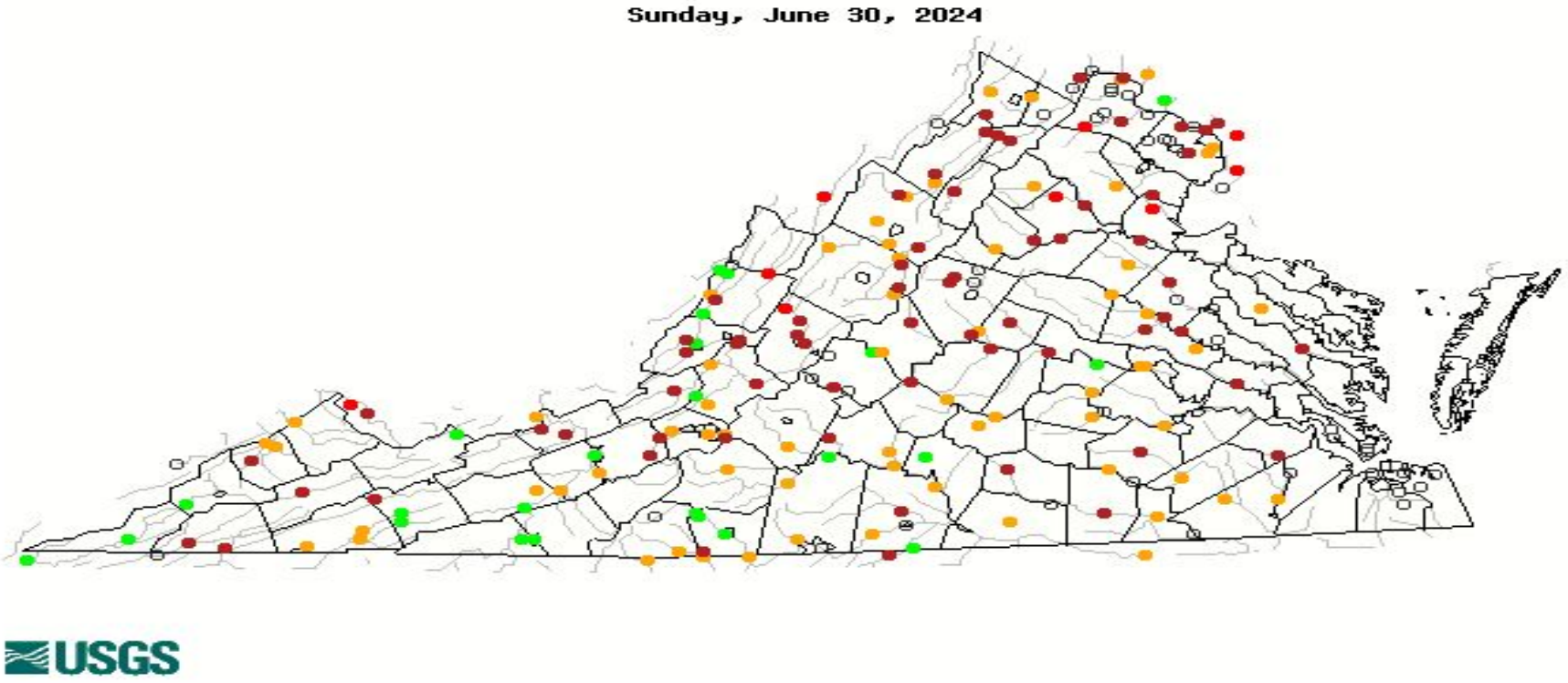

Lancaster
Morgantown
Chillicothe
Parkersburg
Romney
MARYLAND
Columbia
Dover
Annapolis
DELAWAR
Portsmouth
WEST VIRGINIA
Washington
Georgeto
Huntington
Charleston
Harrisonburg
Salisb
Staunton
Beckley
VIRGINIA
Richmond
Lynchburg
Roanoke
Radford
Norfolk
Virginia Bea
Galax
Danville
Churchill
68
70
77
95
81
64
13
120-day SPI
Exceptional Dryness
Extreme Dryness
Severe Dryness
Moderate Dryness
Abnormal Dryness
Normal
Abnormal Wetness
Moderate Wetness
Severe Wetness
Extreme Wetness
Exceptional Wetness
-2
-1.6
-1.3
-0.8
-0.5
0.5
0.8
1.3
1.6
2

# 7 Day Streamflows



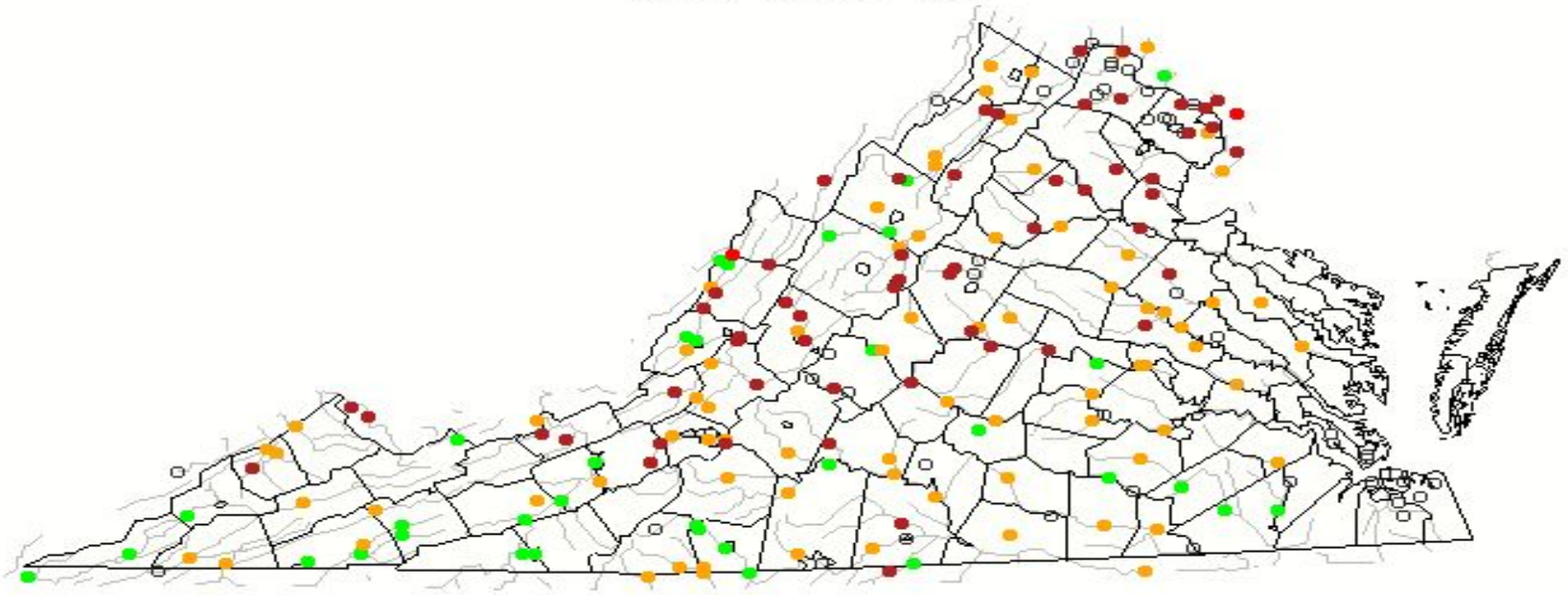

| Explanation - Percentile classes | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| Low | <10 | 10-24 | 25-75 | 76-90 | >90 | High | Not-ranked |
| | Much below normal | Below normal | Normal | Above normal | Much above normal | | |

# 14 Day Streamflows



# 28 Day Streamflows

Sunday, June 30, 2024



USGS

Search USGS streamgage

**Choose a data retrieval option and select a location on the map**

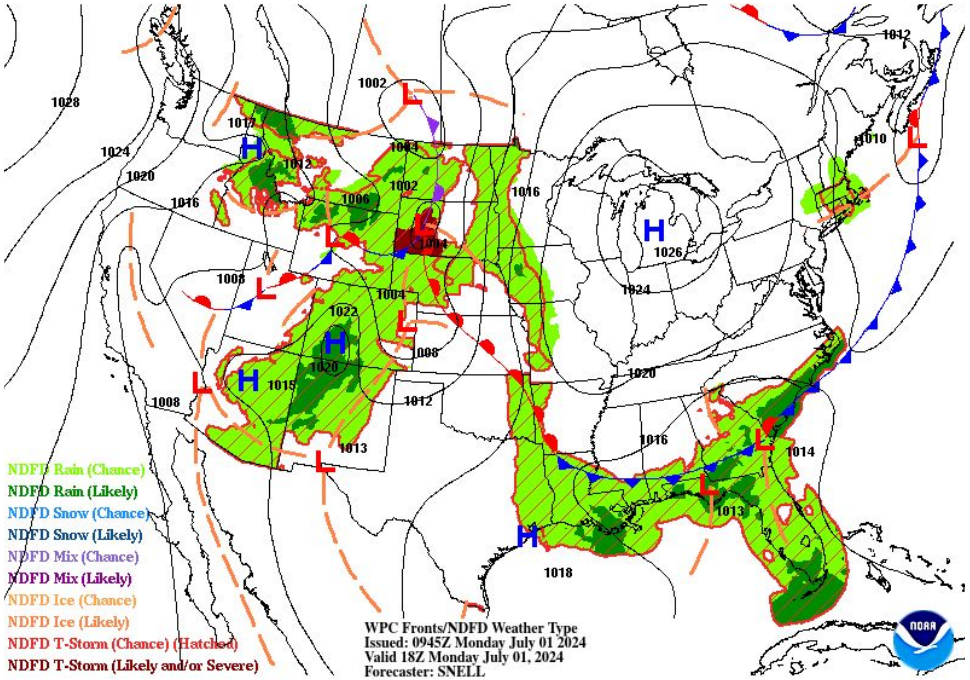
○ List of all stations ◉ Single station ○ Nearest stations

| Explanation - Percentile classes | | | | | | | |
|---|---|---|---|---|---|---|---|
| ● | ● | ● | ● | ● | ● | ● | ○ |
| Low | <10<br>Much below normal | 10-24<br>Below normal | 25-75<br>Normal | 76-90<br>Above normal | >90<br>Much above normal | High | Not-ranked |

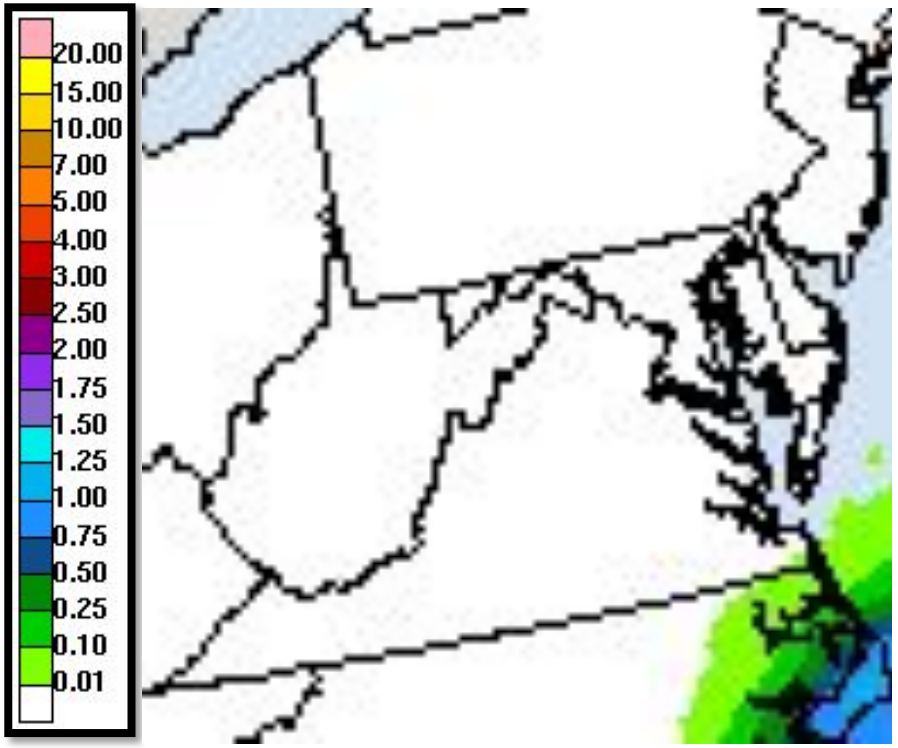
# Upcoming Weather Pattern

## Today

### Fronts and Weather




### Accumulated Precipitation Forecasts

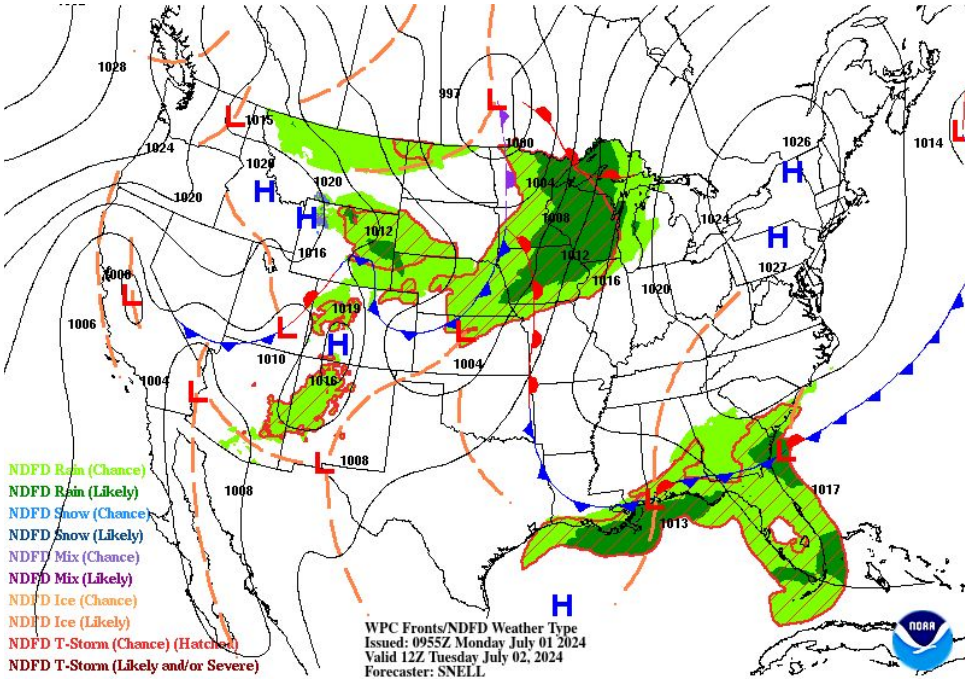



Courtesy of the Weather Prediction Center (www.wpc.ncep.noaa.gov)

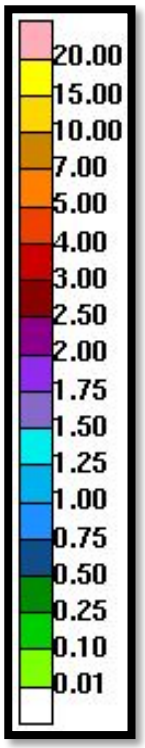
# Upcoming Weather Pattern

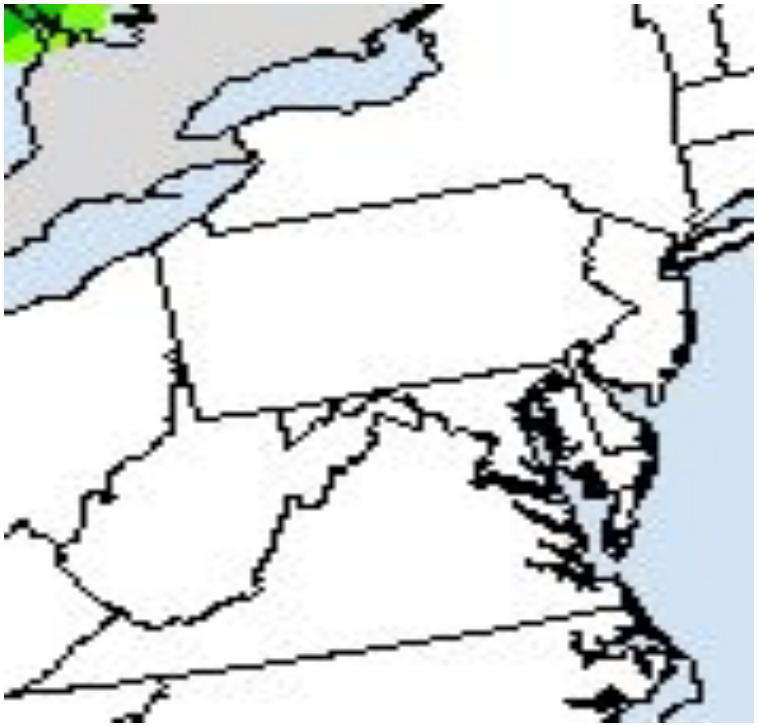
## Tuesday

### Fronts and Weather




### Accumulated Precipitation Forecasts

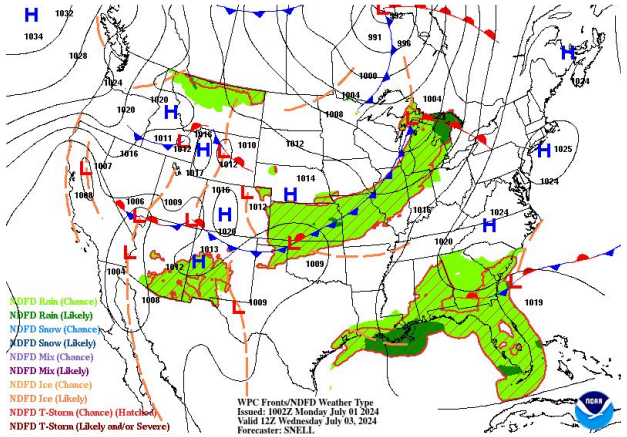


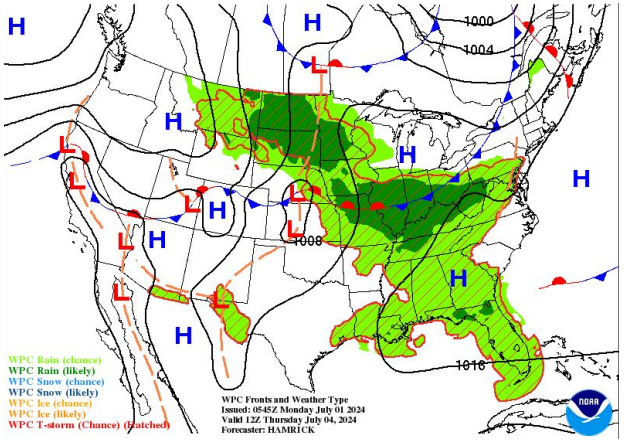
Courtesy of the Weather Prediction Center (www.wpc.ncep.noaa.gov)

# Upcoming Weather Pattern

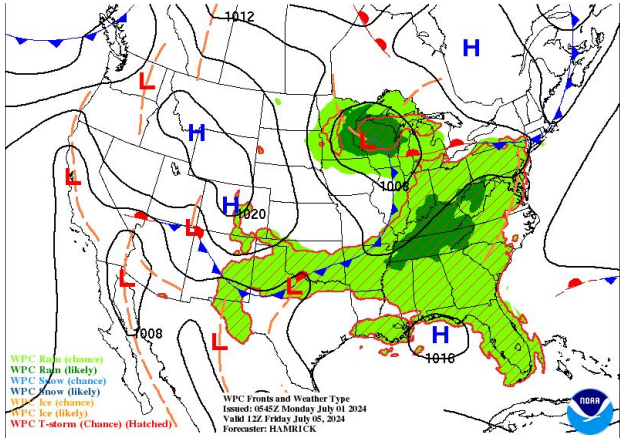
## Wednesday



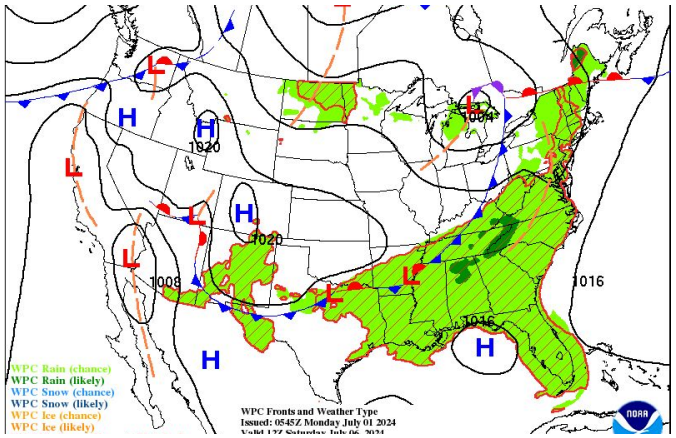

## Thursday



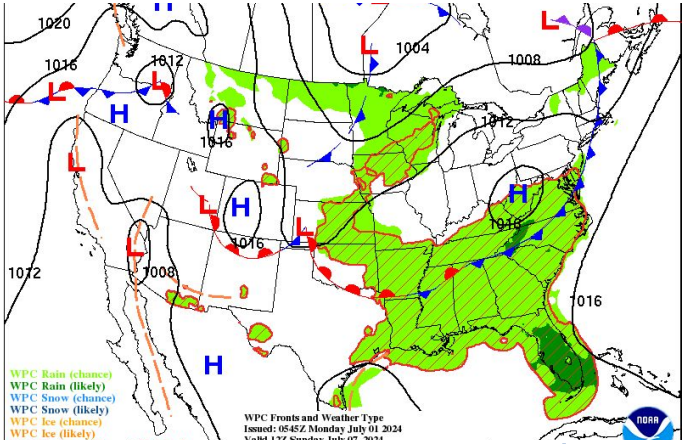

## Friday




## Saturday



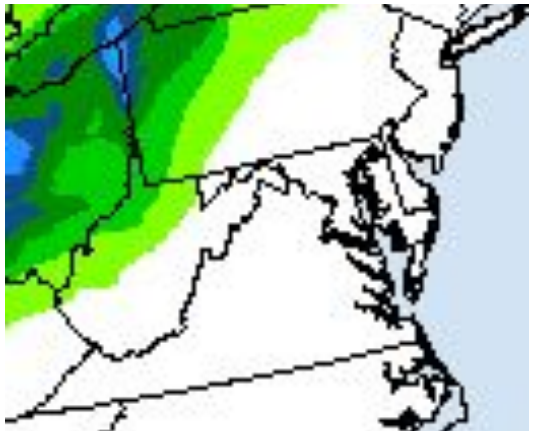

## Sunday



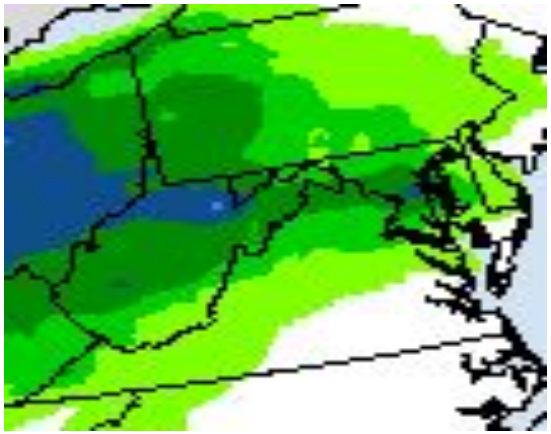

Courtesy of the Weather Prediction Center (www.wpc.ncep.noaa.gov)

# Precipitation Forecasts

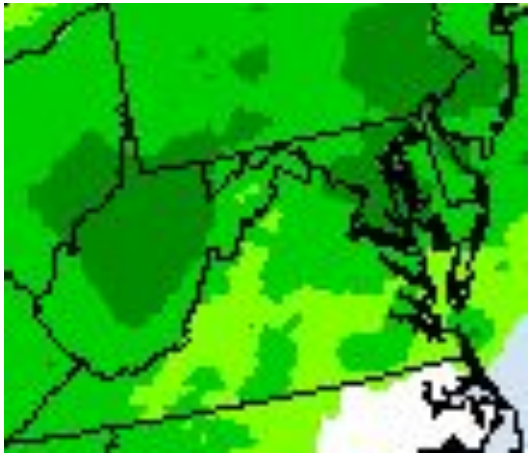
## Wednesday

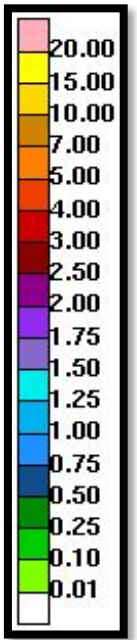


## Thursday

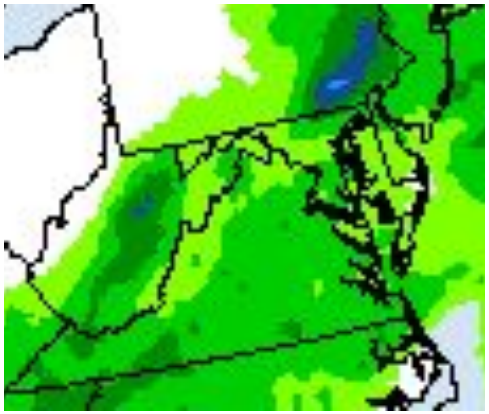


## Friday

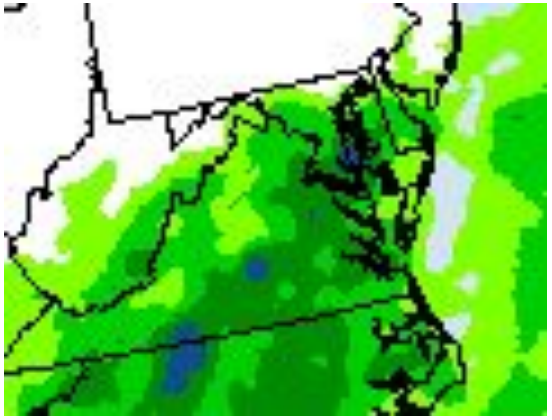





## Saturday

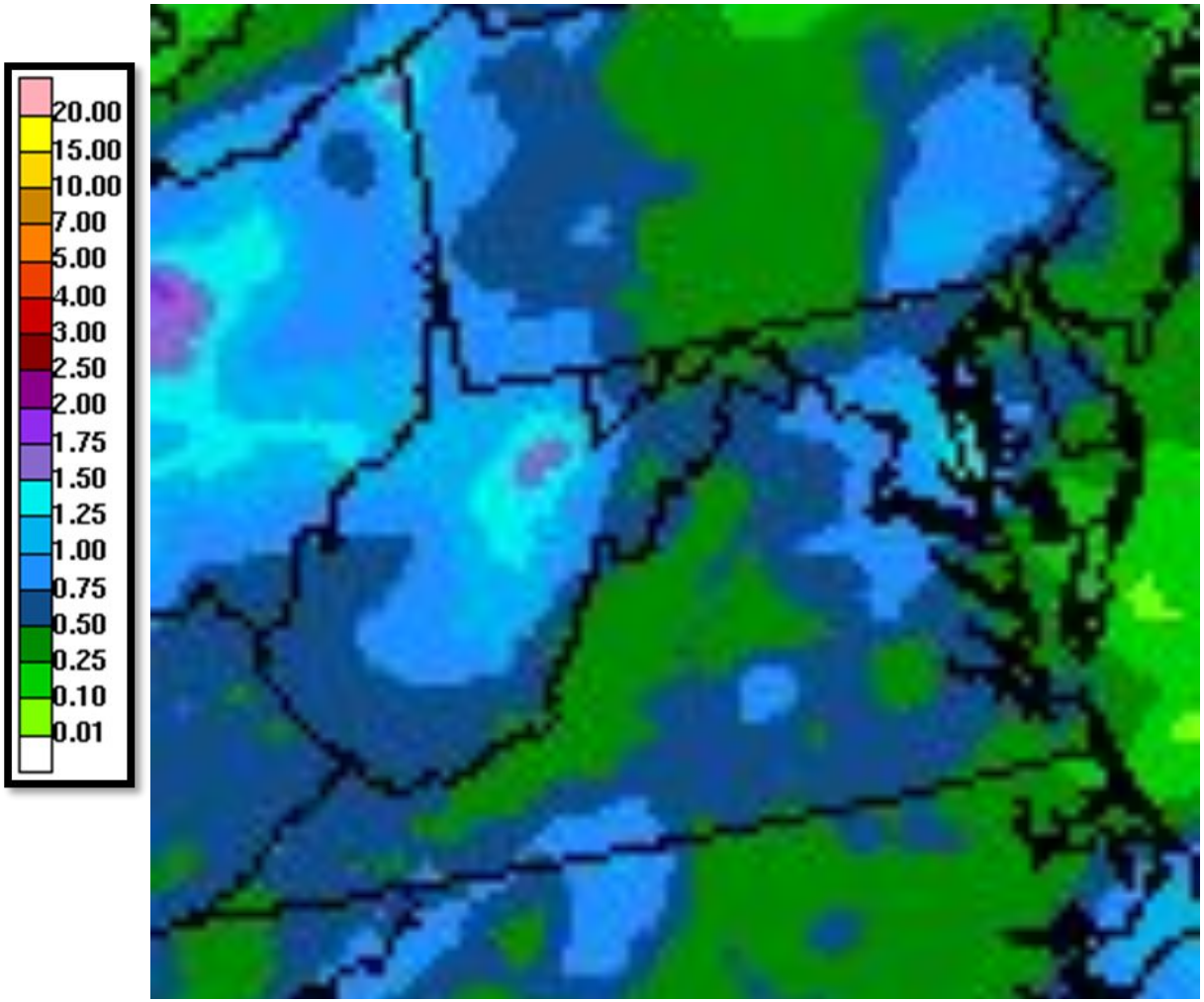


## Sunday



Courtesy of the Weather Prediction Center (www.wpc.ncep.noaa.gov)

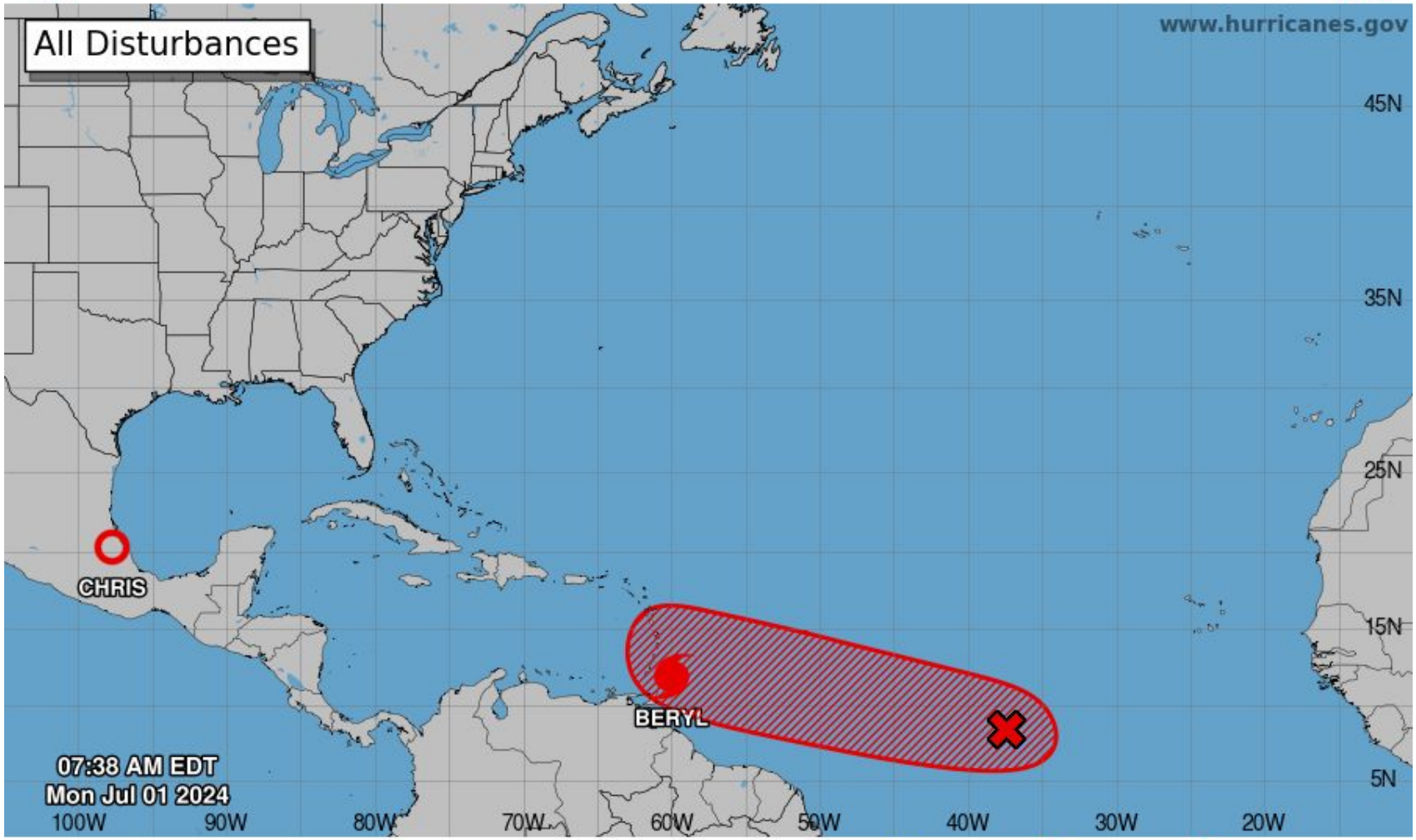
# Seven-Day Total Precipitation Forecast




Courtesy of the Weather Prediction Center (www.wpc.ncep.noaa.gov)

# Tropical Outlook

National Hurricane Center Miami, Florida

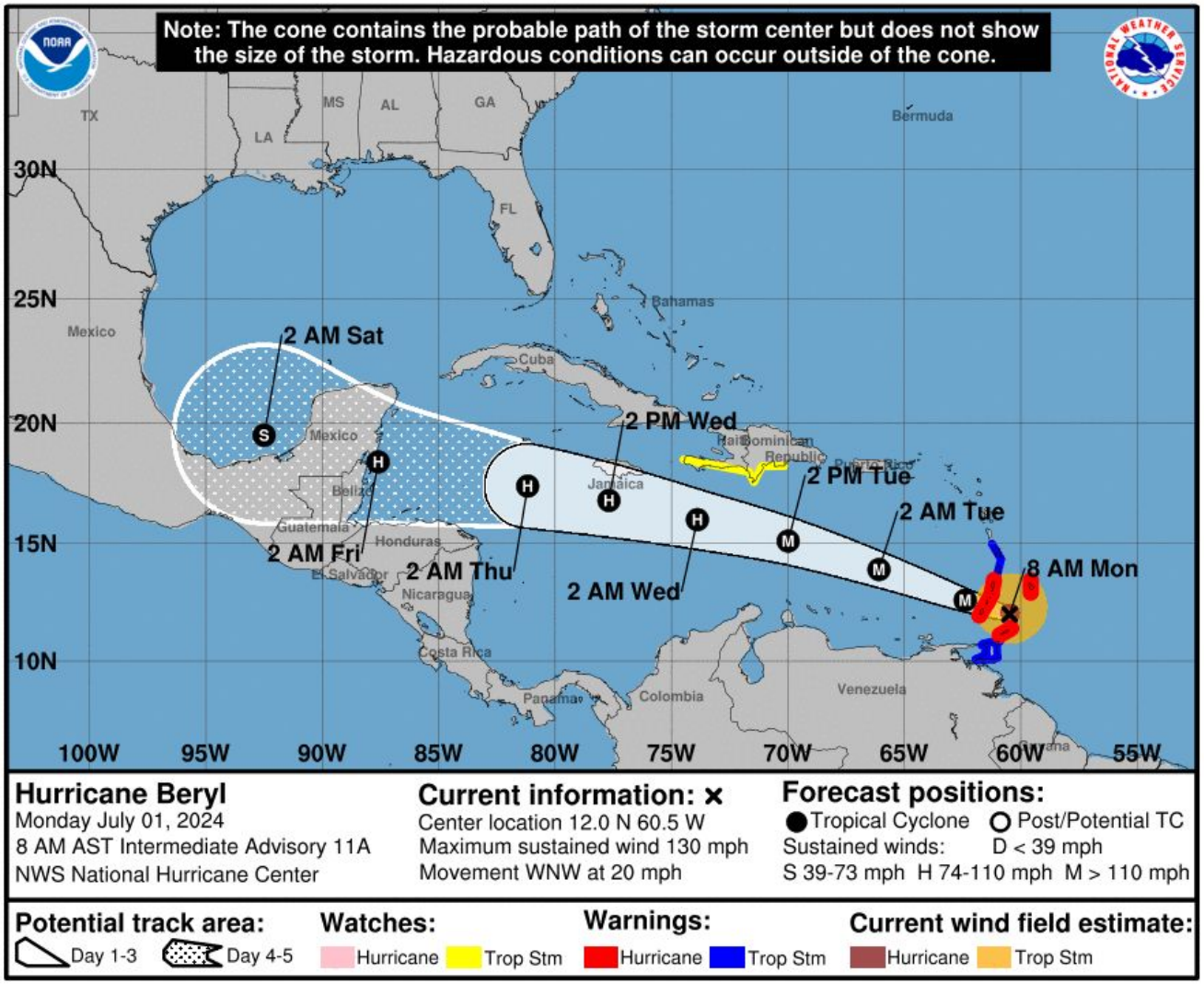



1178



Courtesy of the National Hurricane Center (www.nhc.noaa.gov)

# Hurricane Beryl



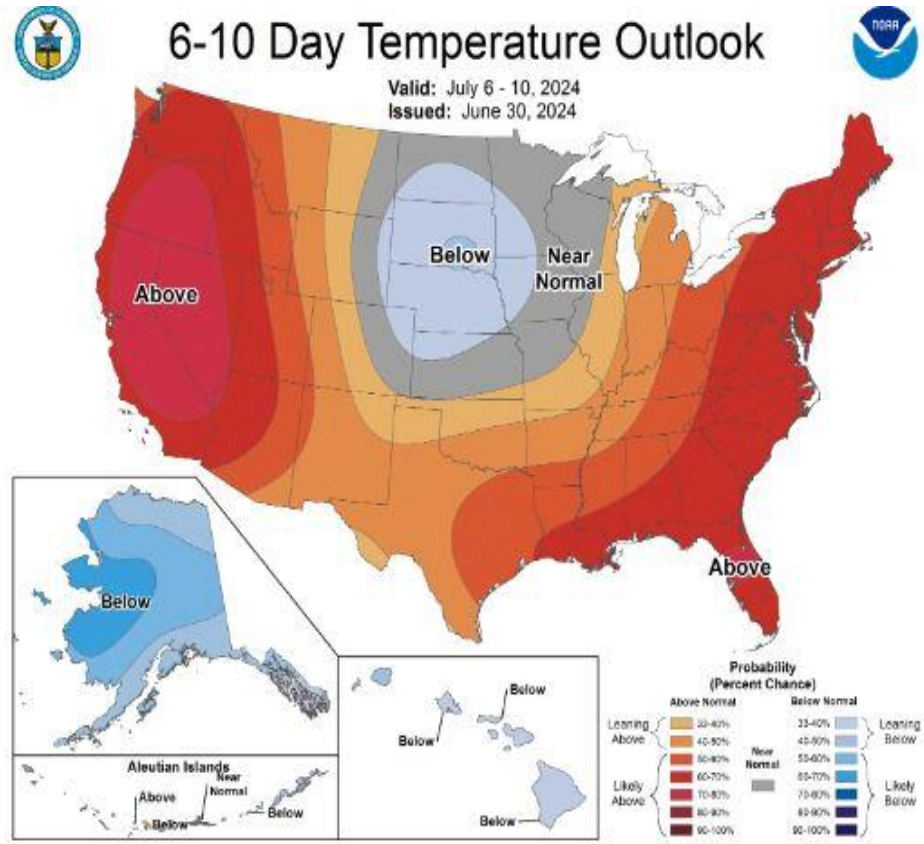

1179



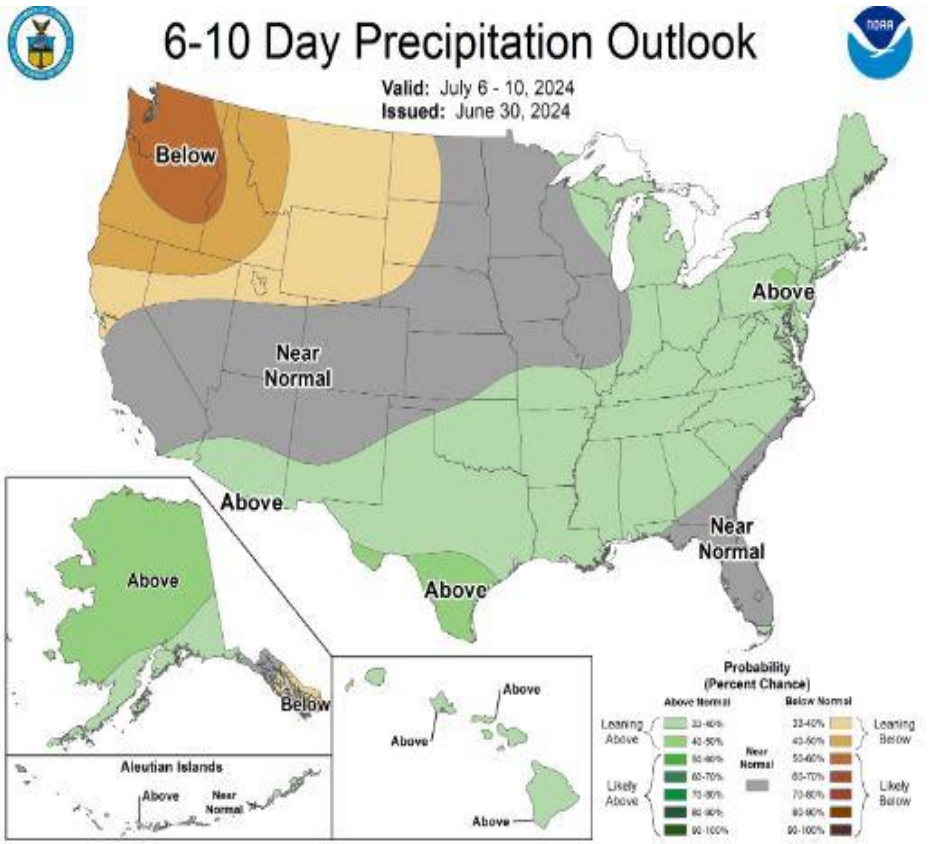
Courtesy of the National Hurricane Center (www.nhc.noaa.gov)

# 6-10 Day Outlook

## Temperature




## Precipitation

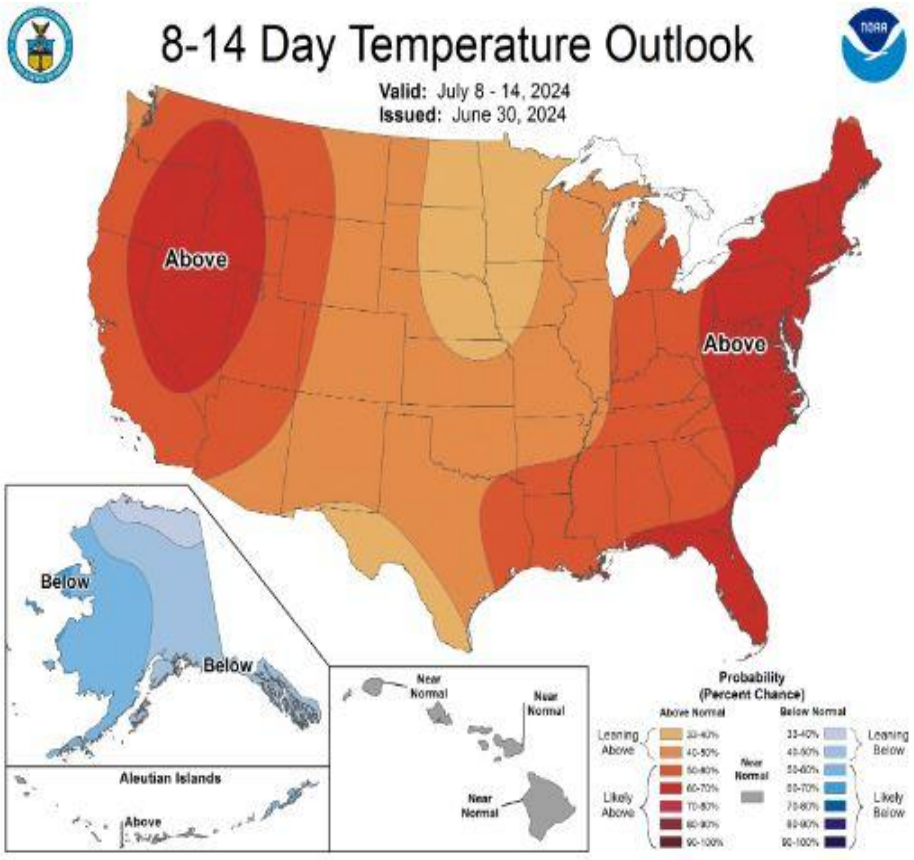




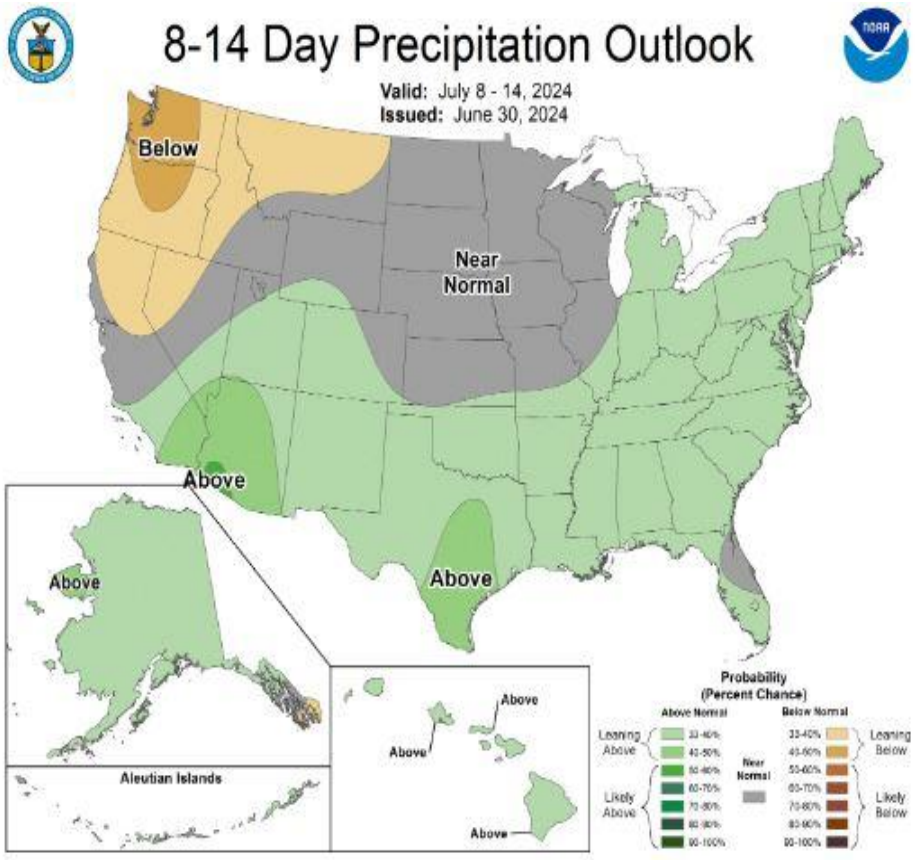

Courtesy of the Climate Prediction Center (www.cpc.ncep.noaa.gov)

# 8-14 Day Outlook

## Temperature




## Precipitation

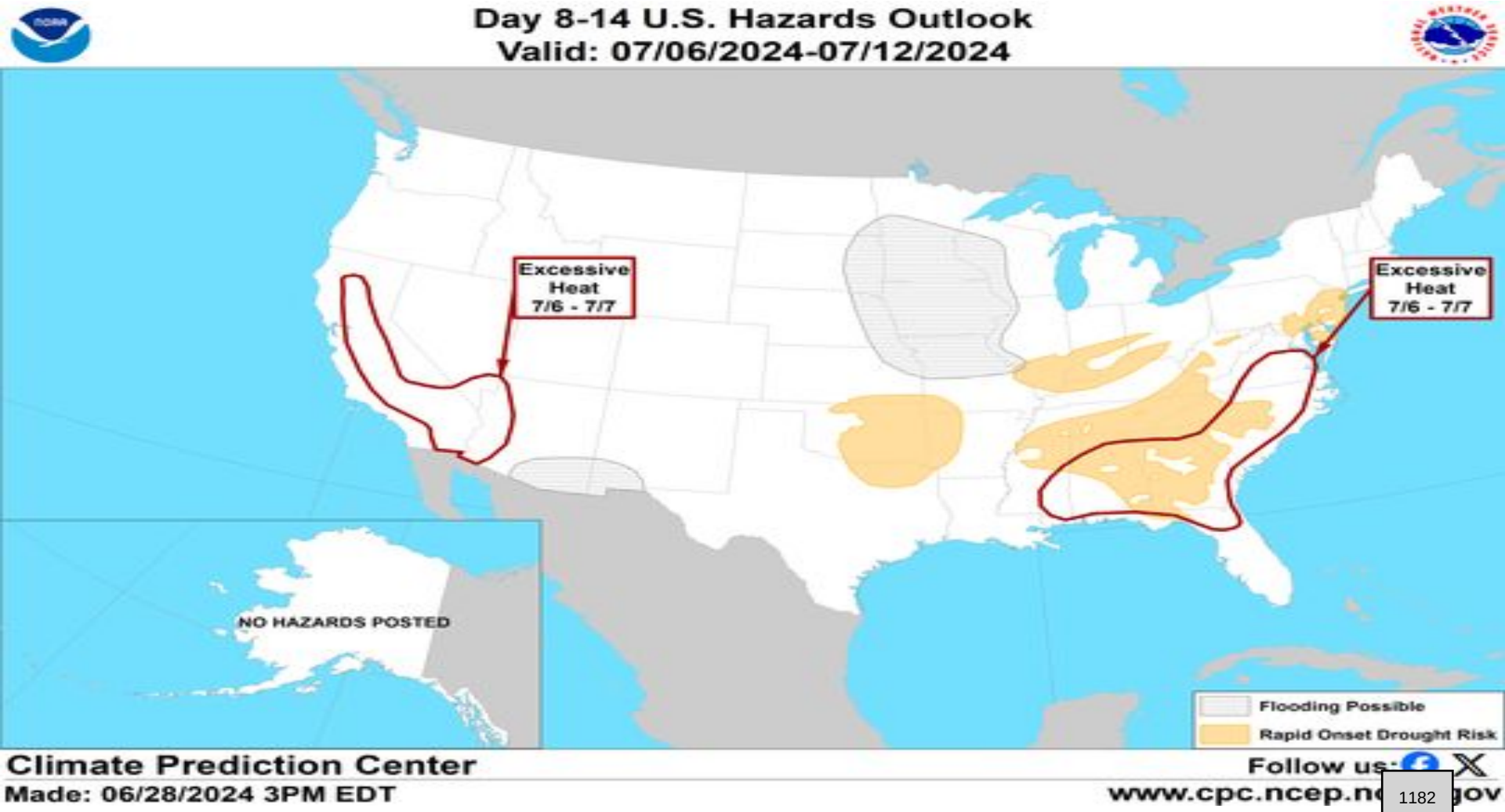



1181



Courtesy of the Climate Prediction Center (www.cpc.ncep.noaa.gov)

# 8-14 Day Hazards: July 8-14, 2024

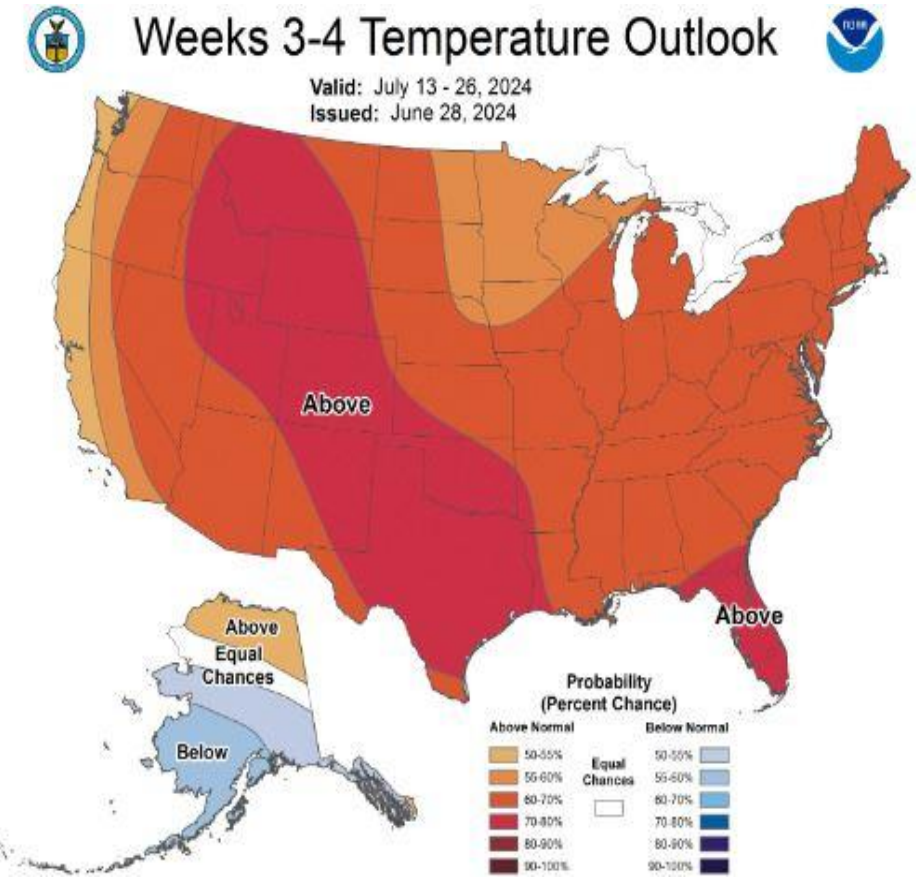




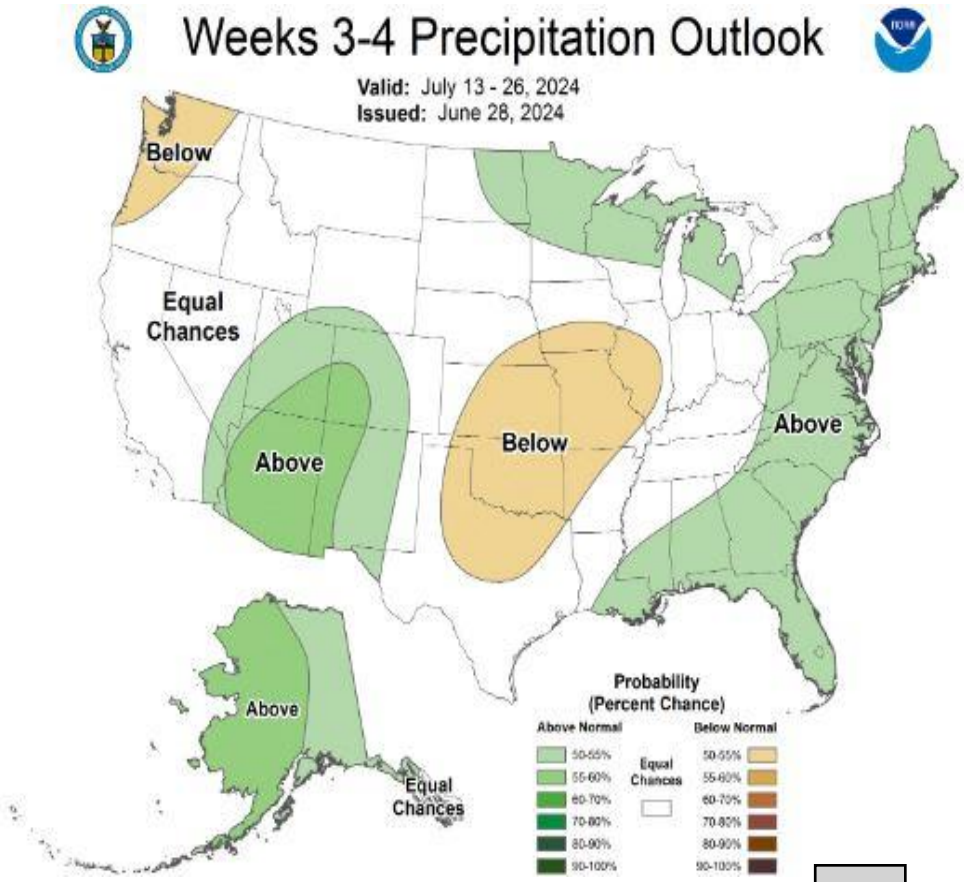

Courtesy of the Climate Prediction Center (www.cpc.ncep.noaa.gov)

# 3-4 Week Outlook

## Temperature




## Precipitation

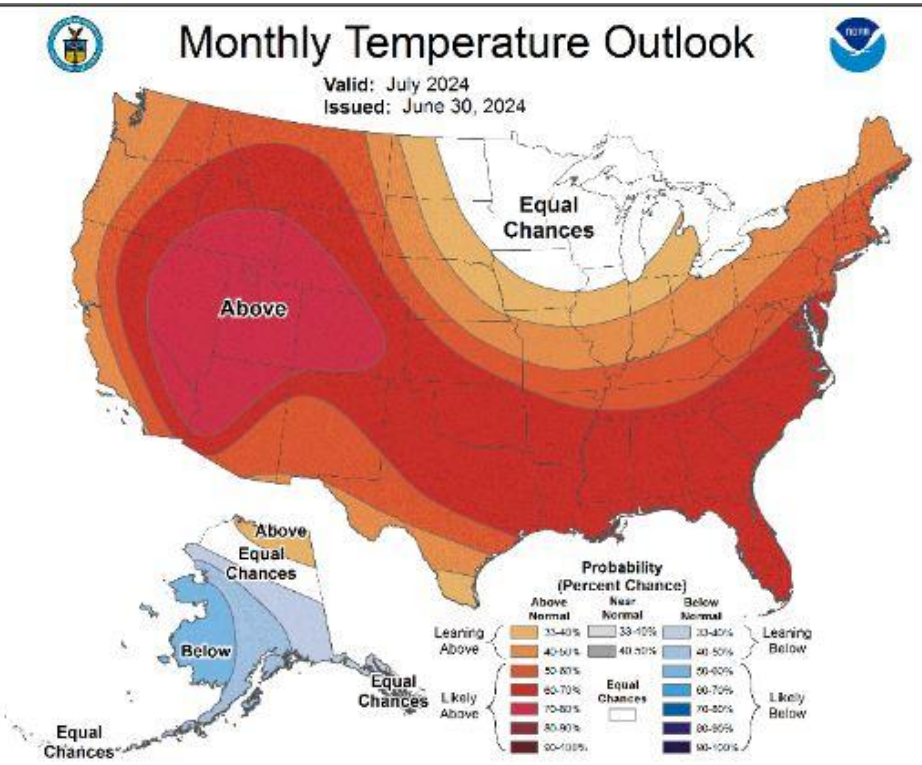



1183

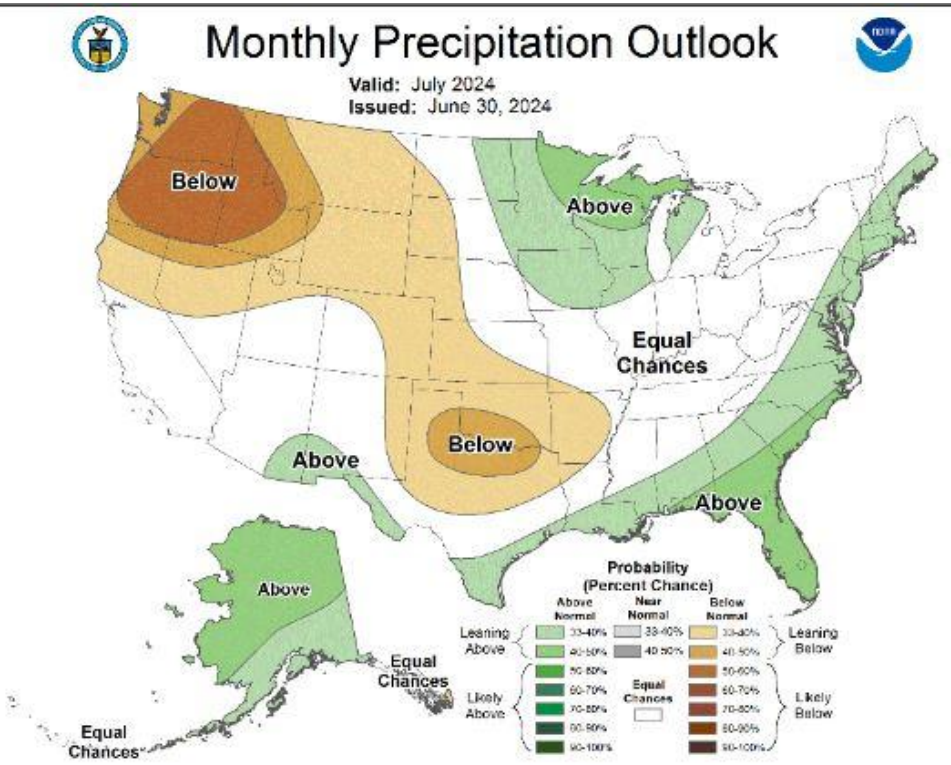
Courtesy of the Climate Prediction Center (www.cpc.ncep.noaa.gov)

# One-Month Outlook: July 2024

## Temperature




## Precipitation

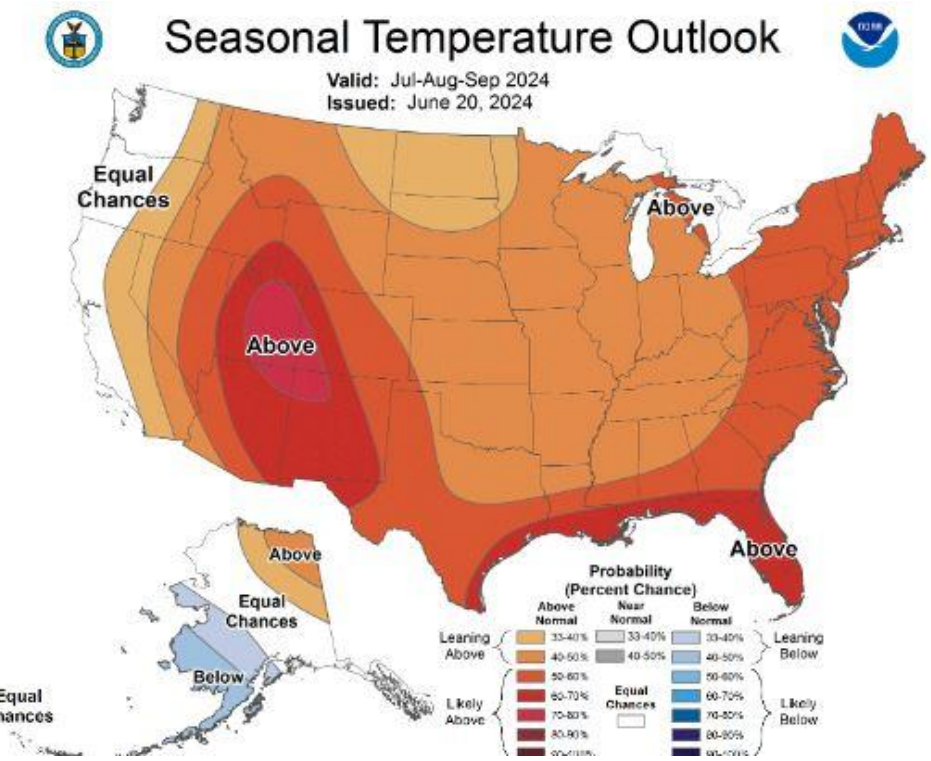



1184

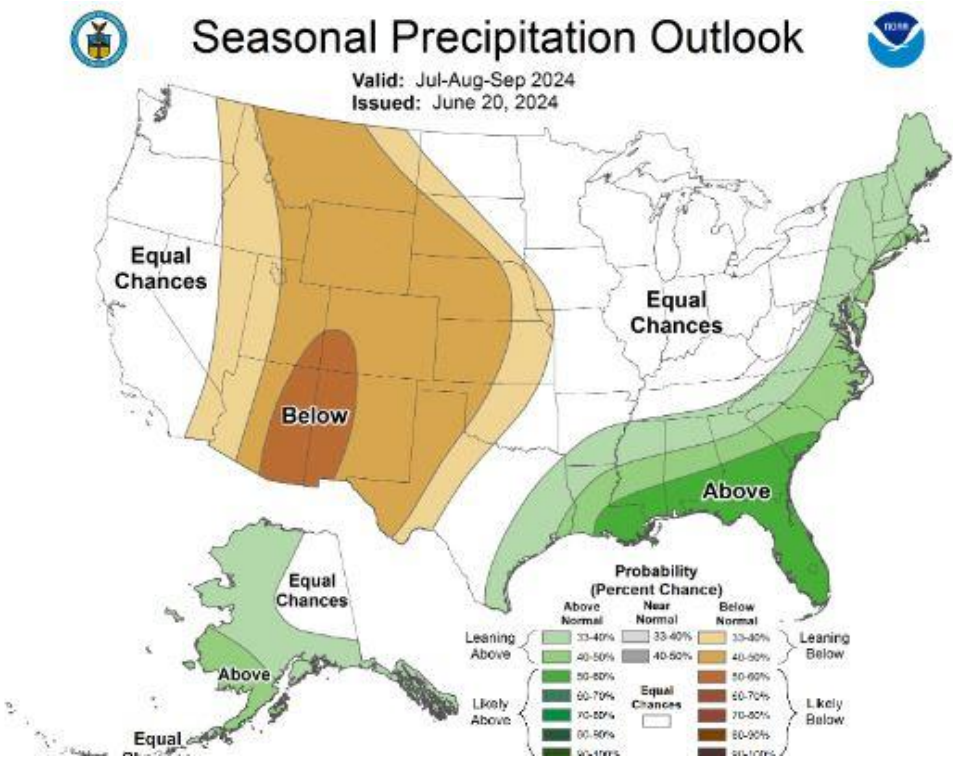
Courtesy of the Climate Prediction Center (www.cpc.ncep.noaa.gov)

# Three-Month Outlook: Jul-Aug-Sep 2024

## Temperature

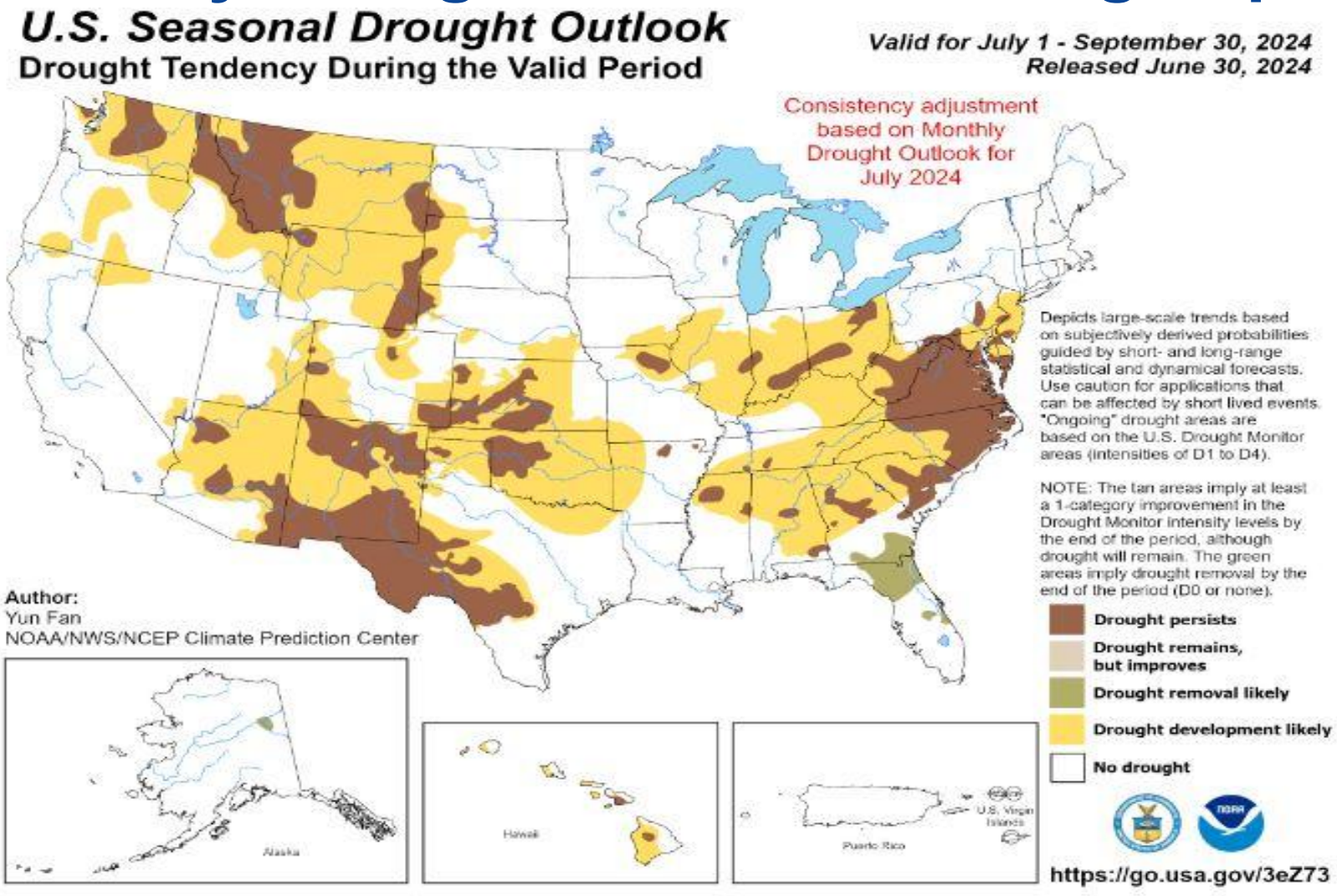



## Precipitation




Courtesy of the Climate Prediction Center (www.cpc.ncep.noaa.gov)

# Monthly Drought Outlook: Jul/Aug/Sep 2024




Courtesy of the Climate Prediction Center (www.cpc.ncep.noaa.gov)

Office of the Town Manager
Frank Cassidy

# STAFF REPORT

**Warrenton Town Council**
Carter Nevill, Mayor
Heather Sutphin, Ward 1
William Semple, Ward 2
Brett Hamby, Ward 3
James Hartman, Ward 4 Vice Mayor
Eric Gagnon, Ward 5
Paul Mooney, At Large
David McGuire, At Large

| | |
|---|---|
| **Council Meeting Date:** | July 9, 2024 |
| **Agenda Title:** | Bond Release for Strickland Brothers Oil Change (SDP-2021-474) |
| **Requested Action:** | Approval to release the Public Improvements Bond |
| **Department / Agency Lead:** | Community Development |
| **Staff Lead:** | Amber Heflin |

## EXECUTIVE SUMMARY

- The developer for the project, N3 Real Estate, has officially requested the full release of the Public Improvements Bond #NVA 2371 for site improvements to construct an oil change facility as depicted within SDP 2021-474 in the amount of $196,833.24.
- All site work has been completed and the as-built plans were approved June 26, 2024. A final site inspection has confirmed that all improvements have been completed.

## BACKGROUND

- The Public Improvements Bond was placed on September 9, 2021, in the amount of $196,833.24.
- The bond was associated with the site development plan SDP 2021-474 as surety for the construction of all improvements and facilities shown on the approved plans.
- The bond has not been previously reduced.
- The Town of Warrenton Community Development Director and the Director of Public Works and Utilities recommend approval of the bond release.

## STAFF RECOMMENDATION

Approval to release the Public Improvements Bond.

### Service Level / Policy Impact

The release of the bond has no direct impact on the Town of Warrenton.

### Fiscal Impact

The release of the bond has no direct impact on the Town of Warrenton.

### Legal Impact

The release of the bond has no direct impact on the Town of Warrenton.

**ATTACHMENTS**

1. Application and Letter officially requesting release of the bond.
2. Bond Spreadsheet
3. Resolution

TOWN OF WARRENTON
Department of Community Development

PO BOX 341
WARRENTON, VIRGINIA 20188
http://www.warrentonva.gov
Permittech@warrentonva.gov
(540) 347-2405

# Land Development Application

Permit # BLDG-22-1154

**Type of Development [select type(s) below]**

| *Planning* | *Zoning* | | |
|---|---|---|---|
| ☐ Commission Permit (§2232) | ☐ Administrative Appeal | ☐ Concept Plan Review | ☐ Record / Vacate Plat |
| ☐ Comprehensive Plan Amendment | ☐ As-Built | ☐ Easement Plat | ☐ Site Development Plan |
| ☐ Special Use Permit | ☑ Bond Release/ Reduction | ☐ Final Plat | ☐ Variance |
| ☐ Rezoning | ☐ Bond Extension | ☐ Preliminary Plat | ☐ Waiver, Administrative |
| | ☐ Boundary Adjustment | ☐ Re-approval of Plat | ☐ Waiver/Exception, Legislative |

☐ Amendment to Existing Approved Application? If Yes, List Application

**Project Description**

Project Name: Strickland Brothers Oil Change

Property Address (if no address, give closest cross street): 86 Broadview Ave, Warrenton, VA 20186

Purpose of Request: ~~Full Bond Release~~

Zoning District: C - Commercial District  Total Acres: .69 Acre  Acres for Proposed Use: .551 Acre

Parcel Identification Number(s): 6984-05-5839-000 & 6984-05-5957-000

**Contact Information (Attach separate page if necessary)**

**All Current Owners**

Name & Company: DCTN3 553 WARRENTON VA, LLC

Address: 1240 N Kimball Ave, Southlake, TX 76092

Phone: (817) 348-8748  Email: jdavidson@n3realestate.com

**All Current Applicants (if different then owner):**

Name &Company:

Address:

Phone:  Email:

**Representative (if different then owner/applicant):**

Name & Company:

Address:

Phone:  Email:

OWNER(S) AFFIDAVIT *(Original Signatures Required)*

I have read this application, understand its intent and freely consent to its filing. Furthermore, I have the power to authorize and hereby grant permission for Town of Warrenton officials and other authorized government agents on official business to enter the property to process this application.

APPLICANT(S) AFFIDAVIT *(Original Signatures Required)*

The information provided is accurate to the best of my knowledge. I acknowledge that all tests, studies, and other requirements of the Town of Warrenton Zoning Ordinance and Subdivision Ordinance and other requirements of review/approval agencies will be carried out at my expense. I understand that the Town may deny, approve or conditionally approve that for which I am applying.

Owner's Signature & Date: Jan Davidson  Applicant's Signature & Date:

Print Owner's Name: Jan Davidson 06.06.24  Print Applicant's Name:

REAL ESTATE®

1240 N. Kimball Avenue
Southlake, Texas 76092
P: 817.348.8748
F: 817.348.8468
www.n3realestate.com

June 6, 2024

Town of Warrenton VA
Permit Tech
21 Main Street
Warrenton, VA 20186

RE: **RELEASE OF PERFORMANCE BOND**
DCTN3 533 Warrenton VA, LLC
86 Broadview Avenue
Warrenton, VA 20186
Release Bond Amount: **$196,833.24**

To Whom It May Concern:

Please accept this letter requesting the release of the performance bond for the above referenced location. Enclosed please find the bond release application fee in the amount of $300.00. Should you have additional questions or concerns, please contact me at the number listed below.

Sincerely,

Jan Davidson

Jan Davidson
VP of Asset Management & Construction
817.727.5121
jdavidson@n3realestate.com

Member of International Council of Shopping Centers

**UNIT LIST PRICE FOR PERFORMANCE BONDS**

**TOWN OF WARRENTON**

**DEPARTMENT OF PLANNING, ZONING, UTILITIES & PUBLIC WORKS**

**PROJECT NAME** Strickland Brothers Oil Change

**T.O.W. FILE #** SDP 2021-0474 **DATE PREPARED:** June 6, 2024

NOTE: **This form is to be used as a work sheet to estimate performance bond prices posted with Town of Warrenton. These prices do not include items that are to be bonded separately with other agencies. The first colum prices are to be used for all of the applicable quantities up to the established limits. The second and third columns prices are to be applied only to the quantities that exceed the limits established by the first and second column respectively.**

1 **STORM DRAINAGE**

A. **STRUCTURES**

| QUANTITY | | UP TO 10 | | | | OVER 10 | | | | COST |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | DI-1 | | @ | $1,800 | ea = | | @ | $1,440 | ea = $0 | 0.00 |
| 0 | DI-3 (L≤8') | | @ | $2,100 | ea = | | @ | $2,310 | ea = $0 | 0.00 |
| 0 | DI-3 (L>8') | | @ | $2,100 | ea = $0 | | @ | $1,920 | ea = $0 | 0.00 |
| 0 | DI-4 | | @ | $4,000 | ea = $0 | | @ | $3,200 | ea = $0 | 0.00 |
| 0 | DI-7 | | @ | $2,100 | ea = $0 | | @ | $1,680 | ea = $0 | 0.00 |
| 0 | MH-1 | | @ | $1,700 | ea = $0 | | @ | $1,360 | ea = $0 | 0.00 |
| 0 | MH-2 | | @ | $1,800 | ea = $0 | | @ | $1,440 | ea = $0 | 0.00 |
| 0 | J8-1 | | @ | $5,100 | ea = | | @ | $4,080 | ea = $0 | 0.00 |

**Page 1 Sub-Total =** 0.00



1191

Item b.

**UNIT LIST PRICE FOR PERFORMANCE BONDS - T.O.W**

**B. CONCRETE PIPE**

| | | | | | | COST |
|---|---|---|---|---|---|---|
| 0 | 15"0 | @ | $35 | lf = | $0 | 0.00 |
| 0 | 18"0 | @ | $38 | lf = | $0 | 0.00 |
| 0 | 21"0 | @ | $41 | lf = | $0 | 0.00 |
| 0 | 24"0 | @ | $48 | lf = | $0 | 0.00 |
| 0 | 27"0 | @ | $50 | lf = | $0 | 0.00 |
| 0 | 30"0 | @ | $55 | lf = | $0 | 0.00 |
| 0 | 33"0 | | $60 | | | 0.00 |
| 0 | 36"0 | @ | $97 | lf = | $0 | 0.00 |
| 0 | 42"0 | @ | $109 | lf = | $0 | 0.00 |
| 0 | 48"0 | @ | $126 | lf = | $0 | 0.00 |
| 0 | 54"0 | @ | $143 | lf = | $0 | 0.00 |
| 0 | 60"0 | @ | $160 | lf = | $0 | 0.00 |
| 0 | 66"0 | @ | $177 | lf = | $0 | 0.00 |
| 0 | 72"0 | @ | $206 | lf | | 0.00 |

**C. End Walls**

| | | UP TO 10' | | | | | OVER 10' | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 15"0 | @ | $650 | ea = | $0 | @ | $520 | ea = | $0 | @ | $390 | ea = $0 | 0.00 |
| 0 | 18"0 | @ | $780 | ea = | $0 | @ | $624 | ea = | $0 | @ | $468 | ea = $0 | 0.00 |
| 0 | 21"0 | @ | $960 | ea = | $0 | @ | $768 | ea = | $0 | @ | $576 | ea = $0 | 0.00 |
| 0 | 24"0 | @ | $1,000 | | | @ | $880 | ea = | | @ | $660 | | 0.00 |

**Page 2 Sub-Total =** 0.00

## UNIT LIST PRICE FOR PERFORMANCE BONDS - T.O.W

### C. END WALLS CONT

| | | | | | | | COST |
|---|---|---|---|---|---|---|---|
| 0 | 30"0 | | @ | $1,400 | ea = | $0 | 0.00 |
| 0 | 33"0 | | @ | $1,500 | ea = | $0 | 0.00 |
| 0 | 36"0 | | @ | $1,550 | ea = | $0 | 0.00 |
| 0 | 42"0 | | @ | $2,160 | ea = | $0 | 0.00 |
| 0 | 48"0 | | @ | $2,470 | ea = | $0 | 0.00 |
| 0 | 54"0 | | @ | $2,890 | ea = | $0 | 0.00 |
| 0 | 60"0 | | @ | $3,840 | ea = | $0 | 0.00 |
| 0 | 66"0 | | @ | $3,860 | ea = | $0 | 0.00 |
| 0 | 72"0 | | @ | $4,570 | ea = | $0 | 0.00 |

### D. END SECTIONS (ES-1)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0 | 15"0 | | @ | $340 | ea = | $0 | 0.00 |
| 0 | 18"0 | | @ | $480 | ea = | $0 | 0.00 |
| 0 | 21"0 | | @ | $580 | ea = | $0 | 0.00 |
| 0 | 24"0 | | @ | $660 | ea = | $0 | 0.00 |

**Page 3 Sub-Total =** 0.00

## UNIT LIST PRICE FOR PERFORMANCE BONDS - T.O.W

**E. END SECTIONS (ES-1 CONT'D)**

| | | | | | | | COST |
|---|---|---|---|---|---|---|---|
| 0 | 27"0 | | @ | $772 | ea = | $0 | 0.00 |
| 0 | 30"0 | | @ | $872 | ea = | $0 | 0.00 |
| 0 | 33"0 | | @ | $980 | ea = | $0 | 0.00 |
| 0 | 36"0 | | @ | $1,060 | ea = | $0 | 0.00 |
| 0 | 42"0 | | @ | $1,300 | ea = | $0 | 0.00 |
| 0 | 48"0 | | @ | $1,472 | ea = | $0 | 0.00 |

Sub-Total = 0.00

**F. DRIVEWAY CULVERTS (Bituminous Coated Corrugated Metal Pipe)**

| | | | | | | | COST |
|---|---|---|---|---|---|---|---|
| 0 | 15" | | @ | $25 | LF = | $0 | 0.00 |
| 0 | 18" | | @ | $30 | LF = | $0 | 0.00 |

Sub-Total = 0.00

Page 4 Sub-Total = 0.00

## UNIT LIST PRICE FOR PERFORMANCE BONDS - T.O.W

**C. END SECTIONS (ES-2)**

| | | | | | | | COST |
|---|---|---|---|---|---|---|---|
| 0 | 15"0 | | @ | $350 | ea | = $0 | $0.00 |
| 0 | 18"0 | | @ | $375 | ea | = $0 | $0.00 |

Sub-Total = $0

**H. HIGH DENSITY POLYETHYLENE (HDPE) SMOOTHWALL PIPE**

| | | | | | | | COST |
|---|---|---|---|---|---|---|---|
| 0 | 15"0 | | @ | $28 | lf | = | $0.00 |
| 0 | 18"0 | | @ | $30 | lf | = $0 | $0.00 |
| 0 | 24"0 | | @ | $35 | lf | = $0 | $0.00 |
| 0 | 30"0 | | @ | $43 | lf | = $0 | $0.00 |
| 0 | 36"0 | | @ | $57 | lf | = $0 | $0.00 |

Sub-Total =

**Page 5 Sub-Total =** $0.00

## UNIT LIST PRICE FOR PERFORMANCE BONDS - T.O.W

### I. STORMWATER MANAGEMENT/BMP FACILITIES (See Note #2, Last Page)

| QUANTITY | | | | | | | COST |
|---|---|---|---|---|---|---|---|
| 0 | Excavation | | @ | $7 | cy = | $0 | 0.00 |
| 0 | Embankment (Fill Material) | | @ | $10 | cy = | $0 | 0.00 |
| 0 | Spread & Compact Fill Material | | @ | $5 | cy = | $0 | 0.00 |
| 0 | OUTLET STRUCTURE | | @ | | ea = | $0 | 0.00 |
| 0 | OUTLET PIPE | | @ | | ea = | $0 | 0.00 |
| 0 | End Wall | | @ | | ea = | $0 | 0.00 |
| 0 | Anti-Seep Collars | | @ | $100 | sf = | $0 | 0.00 |
| | ($100 per 12"0 increments) | | | | | | 0.00 |
| 0 | Trash Rack | | @ | $300 | sf = | $0 | 0.00 |
| | **SPILLWAY LINING** | | | | | | |
| 0 | Seed, Fertilizer & Mulch | | @ | $2.00 | sy = | $0 | 0.00 |
| 0 | Sod | | @ | $8.00 | sy = | $0 | |
| 0 | Hydraulic Cem. Conc. - 4" Depth | | @ | $54.00 | sy = | $0 | 0.00 |
| 0 | Bituminous Concrete-1' Depth | | @ | $5.00 | sy = | $0 | 0.00 |
| 0 | Rip Rap | | @ | $65.00 | sy = | $0 | 0.00 |
| 0 | Grouted Rip-Rap | | @ | $72.00 | sy = | $0 | 0.00 |

**Page 6 Sub-Total =** 0.00

## UNIT LIST PRICE FOR PERFORMANCE BONDS - T.O.W

### J. STORMWATER MANAGEMENT/BMP FACILITIES (Continued)

| QUANTITY | | | | | | COST |
|---|---|---|---|---|---|---|
| 0 | Erosion Control Stone (EC-1) | | @ $90 | ton = | $0 | 0.00 |
| | # 57- Coarse Aggregate | | @ $25 | cy = | $3,925 | |
| 0 | Porous Pavement | | @ $10 | sy = | $0 | 0.00 |
| 0 | 4' High Chain Link Fence | | @ $7 | lf = | $0 | 0.00 |
| | ( #9 gauge or Better) | | | | | |
| 0 | 6' High Chain Link Fence | | @ $11 | lf = | $3,982 | |
| | ( #9 gauge or Better) | | | | | |
| 0 | 6' Board Fence | | @ $11 | lf = | $0 | 0.00 |
| | Other | | | | | |
| | | | @ $0 | = | $0 | 0.00 |
| | | | @ $0 | = | $0 | 0.00 |
| | | | @ $0 | = | $0 | 0.00 |

### K. MISCELLANEOUS DRAINAGE ITEMS

| | | | | | |
|---|---|---|---|---|---|
| 0 | Box Culvert | @ $400 | lf = | $0 | 0.00 |

**DITCHES**

| | | | | | |
|---|---|---|---|---|---|
| 0 | Paved Ditches | @ $7.00 | sf = | $0 | 0.00 |
| 0 | Filter Cloth Fabric & Gabion Stone | @ $7.00 | sf = | $0 | 0.00 |
| 0 | Sod Ditch | @ $8.00 | sy = | $0 | 0.00 |
| 0 | Seed, Fertilizer and Mulch | @ $5.00 | sy = | $0 | 0.00 |
| 0 | Rip-Rap | @ $7.72 | sf = | $0 | 0.00 |
| 0 | Grouted Rip-Rap | @ $8.00 | sf = | $0 | 0.00 |

**Page 7 Sub-Total =** 0.00

## UNIT LIST PRICE FOR PERFORMANCE BONDS - T.O.W

**2 CONSTRUCTION WITHIN THE RIGHT-OF-WAY AND /OR EASEMENTS**

**A. SITE WORKS**

| | | UP TO 5 AC. | OVER 5 AC. | COST |
|---|---|---|---|---|
| 0 | Clear & Grub | 0.7 @ $7,500 AC. = | 0 @ $4,400 AC. = $0 | 0.00 |

| | | UP TO 2000 CU. YDS. | 2001-100,000 CU. YDS. | OVER 100,000 CU. YDS. | COST |
|---|---|---|---|---|---|
| 0 | Excavation | 1000 @ $7 cy = | @ $5.00 cy = $0 | @ $2.50 cy = $0 | 0.00 |
| 0 | Embankment | @ $10 cy = $0 | @ $8 cy = $0 | | 0.00 |
| 0 | Spread & Compact ~~Fill~~ Material | | @ $5 cy = $0 | | ~~0.00~~ |
| 0 | Slope Stabilization-Hydroseeding (3:1 or Flatter) | | @ $1.00 SQ. YD. | ( $ 200 Min.) | ~~0.00~~ |
| 0 | Slope Stab - Sod, Jute Mesh, etc. (between 2:1 to 3:1) | | @ $6.00 SQ. YD. | ( $ 200 Min.) | 0.00 |
| 0 | Special Slope Stabilization | | @ Lump Sum | | 0.00 |

**B. SUBBASE & BASE COURSE**

| | | | | COST |
|---|---|---|---|---|
| 0 | Aggregate (21A) | @ $2.50 SQ. YD./Inch Depth | D= 6 in | 0.00 |
| 0 | Top Course/Intermediate Course Bituminous Concrete | @ $5.50 SQ. YD./Inch Depth | D= 2 in | ~~0.00~~ |
| 0 | Base Bituminous Concrete | @ $3.00 SQ. YD./Inch Depth | D= in | ~~0.00~~ |
| | Class A Prim & Double Seal | | | |
| 0 | Surface Treatment (Tar & Chip) | @ $2.00 SQ. YD | | 0.00 |
| 0 | Gravel Shoulders | @ $8.50 SQ. YD. (4" Depth) | | 0.00 |
| 0 | Sidewalk Underdrains | @ $5.25 LF | | ~~0.00~~ |
| 0 | Cement Stabilization | @ $20.00 SQ. YD. (6" Depth) | | ~~0.00~~ |
| 0 | Lime Stabilization | @ $15.00 SQ. YD. (6" Depth) | | 0.00 |
| 0 | | | | |

**Page 8 Sub-Total =** 0.00

## UNIT LIST PRICE FOR PERFORMANCE BONDS - T.O.W

| | | | | | | COST |
|---|---|---|---|---|---|---|
| **C.** | **ENTRANCES** | | | | | |
| 0 | R-5 Private Entrance | | @ $1,500 | ea | = $0 | 0.00 |
| 0 | R-6 Private Entrance | | @ $1,500 | ea | = ~~$0~~ | 0.00 |
| 0 | R-7 or equal (commercial Entrance) 30' Width | | @ $3,000 | ea | = ~~$0~~ | 0.00 |
| 0 | R-7 or equal ( Commercial Entrance) 40' Width | | @ $1,000 | ea | = $0 | 0.00 |
| 0 | R-8 or equal ( Commercial Entrance) 30' Width | | @ $2,500 | ea | = $0 | 0.00 |
| 0 | R-8 or equal ( Commercial Entrance) 40' Width | | @ $3,500 | ea | = $0 | 0.00 |
| 0 | CG-11 Concrete Entrance | | @ $3,000 | ea | = $6,000 | 0.00 |
| 0 | Valley Gutter | | @ $10 | lf | = $0 | 0.00 |
| **D.** | **MISCELLANEOUS CONSTRUCTION ITEMS** | | | | | |
| | Sidewalk (4' and 5' Widths ) | | $60 | sy | = | 0.00 |
| 0 | Header Curb CG-2 | | @ $20 | lf | = $0 | 0.00 |
| 0 | CG-12, Handicapped Ramp | | @ $3,000 | ea | = | 0.00 |
| 0 | CG-6 | | @ $25 | lf | = | 0.00 |
| **E.** | **UP TO 500 LIN. FT.** | | | | | |
| 0 | Street Name Sign | | @ $300 | ea | = $0 | 0.00 |
| 8 | Traffic Control Sign | 8 | @ $390 | ea | = ~~$0~~ | 0.00 |
| 0 | Roadside Delineators ( ED-1/PTS-8) | | @ $64 | ea | = | 0.00 |
| 0 | Traffic Barricade | | @ $1,500 | ea | = | 0.00 |
| 0 | Street Lighting | | @ cost est | ea | = | 0.00 |

**Page 9 Sub-Total =** 0.00

## UNIT LIST PRICE FOR PERFORMANCE BONDS - T.O.W

| | QUANTITY | | UP TO 1000 LIN.FT. | | OVER 1000 LIN. FT. | | COST |
|---|---|---|---|---|---|---|---|
| 0 | Guardrail | 0 @ | $39 lf = | $0 | @ | $12 lf = | $0 | $0.00 |
| 0 | GR-7 End Section | @ | $2,500 ea = | $0 | | | | $0.00 |

**3** **SANITARY SEWER AND WATER LINE CONSTRUCTION**
**(Min. Sewer Class SDR 35 & Min. Water Line D. I. Class 52 & Plastic Line Class SDR 18)**

| | | UP TO 10 | | OVER 10 | | COST |
|---|---|---|---|---|---|---|
| 0 | Fire Hydrant Assembly | @ | $5,000 ea = | @ | $1,000 ea = $0 | 0.00 |
| 0 | Sanitary Sewer Manhole | @ | $8,000 ea = $0 | @ | $1,840 ea = $0 | 0.00 |
| 0 | 5/8 x 3/4 Water Meter Setup | @ | $1,200 ea = $0 | @ | $800 ea = $0 | 0.00 |
| 0 | 1" Water Meter Setup | @ | $1,500 ea = $0 | @ | $1,000 ea = $0 | 0.00 |
| 0 | 1 1/2" 2" Water Meter Setup | @ | $2,000 ea = $0 | @ | $1,750 ea = $0 | 0.00 |
| 0 | Water Meter Setup, 2" Or Larger | @ | ea = $0 | @ | ea = $0 | 0.00 |

**WATER MAIN (Exclusive of Fire Hydrants)**

| | | UP TO 1000 LIN. FT. | | OVER 1000 LIN. FT. | | |
|---|---|---|---|---|---|---|
| 0 | 6"0 | @ | $50 lf = | @ | $50 lf = $0 | 0.00 |
| 0 | 8"0 | @ | $60 lf = $0 | @ | $60 lf = $0 | 0.00 |
| 0 | 12"0 | @ | $90 lf = $0 | @ | $90 lf = $0 | 0.00 |
| 0 | 16"0 | @ | $120 lf = $0 | @ | $115 lf = $0 | 0.00 |

**Page10 Sub-Total =** 0.00

## UNIT LIST PRICE FOR PERFORMANCE BONDS - T.O.W

TAP OF WATER MAINS

| | | | | |
|---|---|---|---|---|
| | | | | COST |
| 0 | 6" | @ $890 | ea | $0.00 |
| 0 | 8" | @ $1,275 | ea | $0.00 |
| 0 | 10" | @ $2,030 | ea | $0.00 |
| 0 | 12" and Larger | @ $2,850 | ea | $0.00 |

**SEWER PIPE LINE (Exclusive of Manhole Structures)**

| | | UP TO 1000 LIN. FT. | | | | | OVER 1000 LIN. FT. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | COST |
| 0 | 4"0 | | @ | $40 | lf | = | | @ | $35 | lf | = | $0 | $0.00 |
| 0 | 6"0 | | @ | $45 | lf | = | $0 | @ | $40 | lf | = | $0 | $0.00 |
| 0 | 8"0 | | @ | $65 | lf | = | $0 | @ | $55 | lf | = | $0 | $0.00 |
| 0 | 10"0 | | @ | $85 | lf | = | $0 | @ | $00 | lf | = | $0 | $0.00 |
| 0 | 12"0 | | @ | $115 | lf | = | $0 | @ | $100 | lf | = | $0 | $0.00 |
| 0 | 15"0 | | @ | $150 | lf | = | $0 | @ | $140 | lf | = | $0 | $0.00 |

**MISCELLANEOUS**

| | | | | |
|---|---|---|---|---|
| 0 | Connection to Existing Sewer or Manhole | @ $750 | ea | $0.00 |
| 0 | Standard Drop Connection To Manhole | @ $390 | ea | $0.00 |

**Page 11 Sub-Total =** 0.00

## UNIT LIST PRICE FOR PERFORMANCE BONDS - T.O.W

4 **UNIT PRICE LIST OR SILTATION AND EROSION CONTROL - TOWN OF WARRENTON**

| QUANTITY | ITEM | UNIT COST | COST |
|---|---|---|---|
| | | @ $3.00 | |
| 0 | Diversion Dike | @ $5.00 lf | 0.00 |
| 0 | Silt Fence | @ $12.00 lf | 0.00 |
| 0 | Super Silt Fence | @ $6.00 lf | 0.00 |
| 0 | Sod | @ $2.00 sq.yd. | 0.00 |
| 0 | Seeding Operation | @ $75.00 sq.yd. | 0.00 |
| 0 | Coarse Aggregates (31 or #57) | @ $60.00 ton | 0.00 |
| 0 | Paved Flume | @ $60.00 sy | 0.00 |
| 0 | Inlet Protection | @ $1,400 ea | 0.00 |
| 0 | Temp. Const. Entrance | @ $3,000 ea | 0.00 |
| 0 | Temp. Const. Entrance w/wash rack | @ $27.00 LF | 0.00 |
| 0 | Temp. Sediment Trap | @ $500 - $3000 | 0.00 |
| 0 | Temporary Sediment Basin | @ $1,000 - $5,000 | 0.00 |
| 0 | Drainage area 3-25 acres | @ $5,000 - $10,000 | |
| | 26-50 acres | | |
| | 50+ acres by itemized cost | | |
| | OTHER | | |
| 0 | Check Dam | @ _____ ea | 0.00 |
| 0 | Jute Mesh | @ _____ sy | 0.00 |
| 0 | | @ | 0.00 |
| 0 | | @ | 0.00 |

**E & S Sub-Total =** 0.00

**MINIMUM ACCEPTABLE AMOUNT FOR EROSION AND SEDIMENT CONTROL IS $1,000.**

**Page 12 Sub-Total =** 0.00

## UNIT LIST PRICE FOR PERFORMANCE BONDS - T.O.W

5 **UNIT PRICE LIST FOR LANDSCAPING - TOWN OF WARRENTON**

| QUANTITY | ITEM | SIZE | UNIT COST | | COST |
|---|---|---|---|---|---|
| 0 | Seeding | | @ $2.00 | sy | 0.00 |
| 0 | Sodding | | @ $6.00 | sy | 0.00 |
| 0 | Planting Shrubs | 12" | @ $45 | ea | 0.00 |
| 0 | Planting Shrubs | 18" | @ $50 | ea | 0.00 |
| 0 | Planting Shrubs | 24" | @ $55 | ea | 0.00 |
| 0 | Planting Shrubs | Larger | @ $60 | ea | 0.00 |
| 0 | Trees | 4'-6' | @ $150 | ea | 0.00 |
| 0 | Trees | 6'-8' | @ $165 | ea | 0.00 |
| 0 | Trees | 8'-10' | @ $250 | ea | 0.00 |
| 0 | Trees | Larger | @ $450 | ea | 0.00 |
| | Tree Protection | 4'-6' | @ $12 | lf | |
| 0 | Tree Wall, Stone ( D= 10', H=3) | N/A' | @ $5,236 | ea | 0.00 |
| 0 | Other | | | | |
| 0 | | | | | |
| 0 | | | | | |

**Page 13 Sub-Total =** 0.00

## UNIT LIST PRICE FOR PERFORMANCE BONDS - T.O.W

**6** **AS-BUILT DRAWING**

| QUANTITY | | | | | | COST |
|---|---|---|---|---|---|---|
| 0 | FT. | Storm Sewer Lines | @ | $2.00 | lf | 0.00 |
| 0 | FT. | Sanitary Sewer Lines | @ | $2.00 | lf | 0.00 |
| 0 | FT. | Water Lines | @ | $2.00 | lf | 0.00 |
| 0 | FT. | Gas | @ | $2.00 | lf | 0.00 |
| 0 | FT. | Telephone Lines | @ | $2.00 | lf | 0.00 |
| 0 | FT. | Power Lines | @ | $2.00 | lf | 0.00 |
| 0 | FT. | Cable TV. Lines | @ | $2.00 | lf | 0.00 |
| 0 | FT. | Sidewalk C&G | @ | $2.00 | lf | 0.00 |
| 0 | FT. | Sidewalk Alignment ( Private or Public) | @ | $3.00 | lf | 0.00 |
| 0 | FT. | Other Items | @ | | lf | 0.00 |
| 0 | FT. | Other Items | @ | | lf | 0.00 |

**MINIMUM ACCEPTABLE AMOUNT FOR PERFORMANCE BOND FOR AS-BUILT DRAWING IS $ 2,500.00**

**Page 14 Sub-Total =**

**TOTAL CONSTRUCTION COST =** 0.00

## UNIT LIST PRICE FOR PERFORMANCE BONDS - T.O.W

**TOTAL CONSTRUCTION COST** = _____

( From Page 14 )

4 **MISCELLANEOUS - COSTS**

**Administrative Cost - 15% of the Total Construction Cost (Contingencies)** = _____

**Inflation Cost - Compounded Annually at 3.5% Per Year of the Total Construction Cost** = _____

**TOTAL PERFORMANCE AMOUNT** = _____

### Notes:

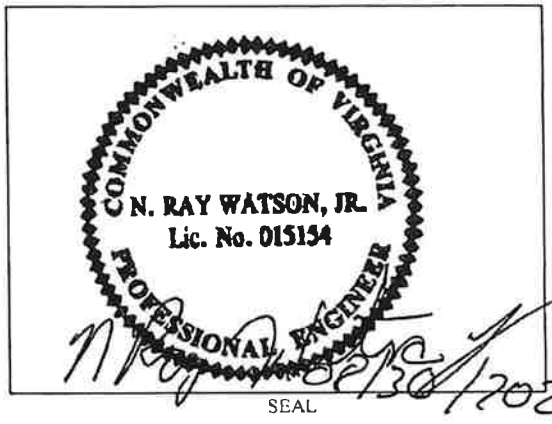
1 For items identified with ** the quantity for the embankment material is the net difference of total fill material needed and cut material available at the project site, if excavated or cut material is suitable for embankment.

2 For some of the items on page 6 of this form, the unit prices are not provided. Please refer to the appropriate section of this form to determine the applicable unit prices for those items, if necessary.

3 The Unit cost for each of the items in this Unit Price List is the Installation cost which includes factors such as excavation, bedding, backfilling, form work, etc.

4 Inflation has been calculated based on Northern Virginia Consumer Price Index of the Washington, D.C., as provided by the Bureau of Labor and Statistics.

5 Whomever Certifies the Site Development Plans must also certify this Total Performance Amount above and must bear the stamp and signature of the Professional Engineer, Land Surveyor and etc. on the Submit Performance Bond.



SEAL

**July 9, 2024**
**Town Council**
**Regular Meeting**

**RESOLUTION TO APPROVE BOND REDUCTION REQUEST BOND-24-1 FOR STRICKLAND BROTHERS OIL CHANGE INFRASTRUCTURE**

**WHEREAS,** Warrenton, VA (Hereinafter "the Town") is a municipal corporation located within the County of Fauquier; and

**WHEREAS**, a site development plan for the Strickland Brothers Oil Change Development, case number SDP 2021-474, was approved subject to the provision of a Public Improvements Bond placed on September 9, 2021, in the amount of $196,833.24; and

**WHEREAS**, an As-Built Plan was submitted and subsequently approved on June 26, 2024, to demonstrate conformity with the approved site development plan and the ordinances and regulations of the Town of Warrenton as required by Section 10-9 of the Ordinance; and

**WHEREAS**, the Developer submitted a request on June 11, 2024, to release the full Public Improvements Bond; and

**NOW THEREFORE BE IT RESOLVED,** by the Warrenton Town Council that the Public Improvements Bond in the amount of $196,833.24 is hereby released.

**Votes:**
**Ayes:**
**Nays:**
**Absent from Vote:**
**Absent from Meeting:**

**For Information:**
Community Development Director,
Town Attorney

**ATTEST:** _____
**Town Recorder**

Office of the Town Manager
Frank Cassidy

# STAFF REPORT

**Warrenton Town Council**
Carter Nevill, Mayor
Heather Sutphin, Ward 1
William Semple, Ward 2
Brett Hamby, Ward 3
James Hartman, Ward 4 Vice Mayor
Eric Gagnon, Ward 5
Paul Mooney, At Large
David McGuire, At Large

| | |
|---|---|
| **Council Meeting Date:** | July 12th, 2024. |
| **Agenda Title:** | Consent Agenda- Meeting Minutes |
| **Requested Action:** | Review and consider approval of the Town Council Meeting Minutes |
| **Department / Agency Lead:** | Town Clerk |
| **Staff Lead:** | Stephen Clough, CMC |

## EXECUTIVE SUMMARY

The following draft minutes have been submitted by the Town Clerk for consideration for approval by the Town Council:

Draft September 7th, 2023, Special Town Council meeting.

Draft September 12th, 2023, Regular Town Council meeting.

## BACKGROUND

The Town Council Meeting minutes are created by the Town Clerk for each meeting of the Town Council to summarize the meetings and act as an official record for the proceedings per Warrenton Town Code (Code 1981, § 2-31).

Per Virginia Code § 2.2-3707(i) the meeting minutes will contain the following:

(a) the date, time, and location of the meeting;
(b) the members of the public body recorded as present and absent; and
(c) a summary of the discussion on matters proposed, deliberated, or decided, and a record of any votes taken.

In addition, for electronic communication meetings conducted in accordance with § 2.2-3708.2 or 2.2-3708.3, minutes shall include (1) the identity of the members of the public body who participated in the meeting through electronic communication means, (2) the identity of the members of the public body who were physically assembled at one physical location, and (3) the identity of the members of the public body who were not present at the location identified in clause (2) but who monitored such meeting through electronic communication means.

## STAFF RECOMMENDATION

Review and consider approval of the Town Council Meeting Minutes.

## Service Level/Collaborative Impact

The minutes of the Town Council Meetings help facilitate transparency in Government with records management and availability.

**Policy Direction/Warrenton Plan 2040**

The minutes are an integral part of Plan Warrenton 2040 as they document the steps taken by the Staff and Town Council towards every goal laid out in the Comprehensive plan.

**Fiscal Impact**

No additional impact is expected. Minutes creation is an assigned duty of the Town Clerk and falls within the budget amount for that role.

**Legal Impact**

The Town Council Meeting minutes are the legal record of the proceedings and actions of the Town Council

**ATTACHMENTS**

1. Draft September 7th, 2023, Special Town Council meeting.
2. Draft September 12th, 2023, Regular Town Council meeting.

# TOWN COUNCIL REGULAR MEETING

21 Main Street

Tuesday, September 12th, 2023 at 9:00 AM

**MINUTES**

**AN OPEN MEETING OF THE TOWN COUNCIL OF THE TOWN OF WARRENTON, VIRGINIA, WAS HELD ON SEPTEMBER 12th, 2023, AT 9:00 AM**

| | |
|---|---|
| Work Session | |
| PRESENT | Mr. Carter Nevill, Mayor; Ms. Heather Sutphin; Mr. William Semple; Mr. Brett Hamby; Mr. James Hartman, Vice Mayor; Mr. Jay Heroux; Mr. David McGuire; Mr. Frank Cassidy, Interim Town Manager; Mr. Stephen Clough, Town Clerk; Mr. Martin Crim, Town Attorney. |
| ABSENT | Mr. Paul Mooney |
| Regular Meeting | |
| PRESENT | Mr. Carter Nevill, Mayor; Ms. Heather Sutphin; Mr. Brett Hamby; Mr. James Hartman, Vice Mayor; Mr. Jay Heroux; Mr. Paul Mooney; Mr. David McGuire; Mr. Frank Cassidy, Interim Town Manager; Mr. Stephen Clough, Town Clerk; Mr. Martin Crim, Town Attorney. |
| ABSENT | Mr. William Semple |

draft

## WORK SESSION - 9:00 AM

The Mayor called the meeting to order at 9:00 a.m. A quorum was present, and business could be conducted.

Mayor Nevill noted that Councilmember Mooney was absent and Councilmember Semple would be joining them electronically.

Councilmember Semple stated his location was his residence of 319 Belmont Street, and that his remote participation was due to a medical condition.

### A. VML Conference Discussion

Frank Cassidy, Interim Town Manager, introduced the topic. He provided a brief summary of the item to Council. Staff recommends identifying the impact of those attending the VML annual conference on the October 10th, 2023 Regular Town Council Meeting.

Mayor Nevill acknowledged that he would be in attendance at the conference and if three Councilmembers were in attendance, the according public notice would be given. He confirmed that the schedule could stay as advertised.

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**B. Affordable Housing**

Frank Cassidy, Interim Town Manager, introduced the topic. He provided a brief summary of the item to Council. Five proposals were received by staff for review.

Mayor Nevill thanked Councilmember Heroux for his work in advancing their constructive dialogue so they could move forward with this initiative.

Mr. Cassidy said that he would provide an update at the next Council meeting in order to keep the process moving forward.

Councilmember Semple asked if a more definitive timeline and budget could be provided as they continued to review these applications.

Mr. Cassidy confirmed that staff was working on doing just that.

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**C. PD9 Update**

Frank Cassidy, Interim Town Manager, introduced the topic. He provided an update from the Rappahannock Rapidan Regional Commission, (Planning District 9, PD9) meeting held on August 23rd, 2023.

Mayor Nevill acknowledged the importance of working with their regional partners through PD9 to holistically address issues such as affordable housing and transportation.

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**D. 18 Court Street Building Update**

Frank Cassidy, Interim Town Manager, introduced the topic. He provided a brief summary of the item to Council. Staff recommended Council consider the inquiries regarding public-private partnerships and direct staff accordingly.

Councilmember McGuire asked if VFW could explain the proposed use of the building.

Commander Tony Lunn stated that the VFW's purpose for this request was to provide a meeting space and an office space, as the Post had been existence for 75 years without a permanent home location. He clarified that there would be no food or drinks served in the space or any gaming machines; it would operate solely as a meeting, office, and storage space. The VFW was also interested in utilizing grant funding to improve the building itself.

draft

Councilmember McGuire asked if the VFW Post was also considering using the space as an Emergency Operations Center (EOC).

Commander Lunn confirmed that was correct, although that would be a Town decision.

Councilmember Heroux asked if the VFW would be using the entirety of the building.

Commander Lunn said that they would like to utilize the front office, the old safe, and the pantry.

Councilmember Heroux asked if other organizations would be able to use the building when VFW was not.

Mr. Cassidy confirmed that was correct. He clarified that as Councilmember McGuire noted, the building was being considered for use as an emergency operations center and a staff training facility.

Commander Lunn noted that the VFW meeting times could be changed if necessary in order to better accommodate other local agencies and events.

Councilmember Hamby noted that the EOC may face difficulties in that building unless generators and other emergency equipment were installed. He asked what the cost was for getting the building up and running.

Johnny Switzer, Facilities & Fleet Manager, said that they currently had $20,000 to put a new floor in, level it, and put in plaster where the daises were located. In addition, there was $3,000 for painting and fixing various leaks. They had run new Cat6 wiring downstairs in partnership with IT for under $1,000.

Councilmember Hamby asked what had been done to address the water moisture and mold issues.

Mr. Switzer said that everything had held from the previous remediation of the water leaks. The sump pump issues in the basement had been fixed. There remained high humidity, but there were no mold issues in the basement per their testing, and a dehumidifier would be installed to abate that for the long term.

Councilmember Hamby asked if they had rectified the issues with the units on the roof of the building.

Mr. Switzer said yes; over the past two years they put the building back on a maintenance schedule and had solved those issues during that time.

Councilmember Hamby expressed concern that the building required a high level of maintenance that may become a burden to the VFW and the Town if the issues were not adequately addressed.

Mr. Cassidy said that those details could be addressed after Council determined if the proposed use was deemed appropriate. He confirmed that some of the past issues had been fixed and remaining issues would be addressed at the most effective cost possible while working with

draft

partner organizations. Staff will return with a report detailing the agreement and the associated costs.

Councilmember Heroux asked if the Town would need to install wireless internet in the building.

Commander Lunn said that it would be helpful to have, but he acknowledged that their organization did not currently use the available internet at the community center.

Mr. Cassidy said that their plan would include the IT requirements to get the building to a working level. He clarified that the EOC use of the building would not be the central EOC. He noted that the County was also being conferred with and they would potentially assist with achieving those upgrades. He clarified that they would not be engaging in a lease agreement without providing Council the list of upgrades required prior to leasing it. No new staff was being proposed for this location either.

Councilmember McGuire asked when Council could expect this information to return.

Mr. Cassidy said that staff would be able to provide a report by November.

Mayor Nevill confirmed there was consensus from Council to proceed with this discussion and work out the details.

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**E. Human Capital Department Overview**

Kasey Braun, Human Capital Manager, introduced the topic. She provided a brief summary of the item to Council. This staff report provides an update on Human Capital department program initiatives that align with the Town Council's *Resiliency of the workforce* strategic initiative.

Councilmember Hamby asked how many vacancies were currently in the Town.

Ms. Braun said there were five full-time positions and six or seven part-time positions.

Councilmember Hamby asked what departments they were located in.

Ms. Braun said there was one police officer, an operator trainee in the wastewater plant, an Operator A in the wastewater treatment plant, a fitness supervisor which they were currently interviewing for, and a utility locator.

Councilmember Hamby asked if applicants had chosen not to take the positions due to low salaries.

Ms. Braun confirmed that some applicants had acknowledged the advertised salaries were lower than they were accustomed to and chose to take positions in different jurisdictions.

Councilmember Hamby asked if any of the vacancies were long-term, meaning over one fiscal year.

draft

Ms. Braun said no, they were open for less than one fiscal year.

Councilmember Semple asked if they were receiving more applications in the time after the pandemic.

Ms. Braun said that remote work remained the predominant option people were seeking, so on-site applications continued to be less than the remote positions, but there was a slow increase in applications for on-site positions. Flexible work schedules were also being prioritized by workers, and the Town had been receptive to working with all levels of staff in order to meet those priorities. As the benefits from the COVID-19 pandemic relief were ending, there was likely to be an increase in applications overall.

Councilmember Heroux requested that staff provide an update on the organizational staffing study during the fourth quarter of 2023. He noted that productivity through automation and utilization of available technologies was essential. He requested that staff clearly communicate the importance of adequate staffing levels and the services provided, especially in a historical perspective.

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**F. Police Department Overview**

Timothy M. Carter, Chief of Police, introduced the topic. He provided a brief summary of the item to Council. This staff report provides an overview of the Warrenton Police Department and its current and future initiatives and programs.

Councilmember McGuire asked how many traffic stops and speeding citations were issues during the month of July.

Chief Carter said that he did not have that specific data available at this time, but could state that their summonses were down during Calendar Year (CY) 2020, and traffic summonses had been slowly increasing every year since then. They are on pace in Calendar Year 2023 to be higher than any year in the past five years, and current summonses were double what they were at this time last year.

Councilmember McGuire requested that staff provide the progress of the new 15 miles per hour speed limits in Town.

Mr. Cassidy said that the statistics related to the increased enforcement of speed limits were available in the quarterly report, and there was a noted significant increase.

Councilmember Semple asked if there was an active class in the community police academy at this time.

Chief Carter replied no, they would be combining their next police class with the Fauquier County Sheriff's Office. Due to low enrollment, they planned to readvertise and draw more interest for the next class.

draft

Councilmember Semple asked what the current status was regarding traffic safety at Courthouse Square.

Mr. Cassidy said that there were currently traffic counters at the intersection, and they were focusing on two traffic designs to temporarily implement in order to test effectiveness. They would be analyzing the final counts of the traffic counters next week. He noted that they must confer with the School Board and ensure school bus routes were not affected, and after this was confirmed, they would implement the temporary traffic designs for a few weeks at a time. Staff will then return to Council with a report that would include recommendations for hardscaping and other potential design implementations.

Councilmember Heroux asked Chief Carter what the general response was for addressing the unhoused population and panhandlers in the Town.

Chief Carter stated that it was essential to differentiate between the unhoused community members, those who were housed and asking for money, and migrants who were passing through the Town and needed money to get to a destination. In order to assist the unhoused community members, the Police Department required assistance from community partners and agencies because the Police had a limited ability to provide assistance.

Councilmember Heroux asked if it was difficult to hire police officers for these positions.

Chief Carter said that while they had less difficulty due to the small size of their department and strong support of the community, yes, it remained difficult to recruit officers due to quality of applications and general interest in the positions.

Vice Mayor Hartman acknowledged the significant issue of vehicles speeding in the Town and the difficulty in enforcement. He said that he looked forward to addressing it further in the future.

Mayor Nevill asked if the new pay scale had allowed for better recruitment of officers.

Chief Carter confirmed that the department was more competitive now than they ever had been, but they continued to face issues regarding the signing bonuses offered by competing localities.

draft

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**G. Moving of Strategic Retreat Date**

Frank Cassidy, Interim Town Manager, introduced the topic. He provided a brief summary of the item to Council. Based on the recommendation from Ms. Jane Dittmar, staff recommends holding the strategic retreat in late January of 2024.

Mayor Nevill confirmed there was consensus from Council to cancel the September date for the retreat and would have work sessions to provide some budgetary direction for staff regarding the strategic retreat. They would set a date in January for the meeting and hold the budget retreat in February.

## H. Drought Conditions Update

Frank Cassidy, Interim Town Manager, introduced the topic. He provided a brief summary of the item to Council. Staff determined that it was not necessary to declare a water emergency at this time due to the maintenance of water level at the reservoir and the most recent drought map from the Department of Environmental Quality.

Councilmember Semple asked if it was known if the groundwater levels in Virginia had been in decline as they had in the western regions of the United States.

Mr. Cassidy said yes, that was the reason they were currently in a drought watch. While the groundwater levels remained a concern, it was not as extreme as last week.

## I. Agenda Review

Mr. Cassidy reviewed the agenda.

## J. Closed Session

1) **As permitted by Virginia Code § 2.2-3711 (A)(13, a matter involving: Discussion, consideration, or the acquisition of real property for a public purpose, specifically involving the Warrenton Horse Show Grounds, because discussion in an open meeting would adversely affect the Town's bargaining position or negotiating strategy**

Vice Mayor Hartman moved to convene a closed session as permitted by Virginia Code 2.2-3711 (A)(3).

Councilmember Hamby Seconded. There was no discussion on the motion.

| | |
|---|---|
| **Ayes:** | **Ms. Heather Sutphin; Mr. William Semple; Mr. Brett Hamby; Mr. James Hartman, Vice Mayor; Mr. Jay Heroux; Mr. David McGuire** |
| **Nays:** | |
| **Abstention:** | |
| **Absent:** | **Mr. Paul Mooney** |

Upon reconvening at 10:51 a.m. from the closed session, Vice Mayor Hartman moved to adopt the following Certification of Closed meeting:

**CERTIFICATION OF CLOSED MEETING**

**WHEREAS**, the Town Council of the Town of Warrenton has convened a closed meeting on this date pursuant to an affirmative recorded vote in accordance with the provisions of the Virginia Freedom of Information Act; and

draft

**WHEREAS**, Section 2.2-3172 E of the Code of Virginia requires a certification by the Town Council that such closed meeting was conducted in conformity with Virginia law;

**NOW, THEREFORE, BE IT RESOLVED** that the Town Council hereby certifies that, to the best of each members knowledge, (i) only public business matters lawfully exempted from open meeting requirements by Virginia law were discussed in the closed meeting to which this certification resolution applies, and (ii) only such public business matters as were identified in the motion convening the closed meeting were heard, discussed or considered by the Town Council.

Councilmember Hamby seconded. There was no discussion on the motion.

The vote for the motion was unanimous, as follows:

| | |
|---|---|
| **Ayes:** | **Ms. Heather Sutphin; Mr. William Semple; Mr. Brett Hamby; Mr. James Hartman, Vice Mayor; Mr. Jay Heroux; Mr. David McGuire; Mr. Paul Mooney.** |
| **Nays:** | |
| **Abstention:** | |
| **Absent:** | **Mr. Paul Mooney** |

The work session was adjourned at 10:52 a.m.

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**REGULAR MEETING - 6:30 PM**

The Mayor called the meeting to order at 6:00 p.m. A quorum was present, and business could be conducted.

**A. INVOCATION.**

Pastor John Kuvakas led the invocation.

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**B. PLEDGE OF ALLEGIANCE.**

Mayor Carter Nevill led the Pledge of Allegiance.

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**C. PROCLAMATIONS, RECOGNITIONS, AND PROMOTIONS.**

Town Manager Frank Cassidy said there were several staff members they would recognize this evening.

draft

Mr. Cassidy announced the Town's new hires: In the Human Capital Department, Human Capital Generalist Dennis Merz. In the Water Treatment Facility, Operator Trainee Anthony Umana. In the Parks and Recreation Department, Customer Service Specialist Melanie Salas, Manager on Duty Mitchell Clark, Lifeguards Rebekah Waltz, Jordan Buyna, Alek Moore, Jack Lake, and Roean Smith, and Fitness Instructor Evan Hamilton.

Mr. Cassidy announced the Town's staff promotions: In the Police Department, Maribeth Howser was promoted from Officer to Corporal, Christopher Smedley was promoted from Corporal to Sergeant, and Michael Gemmell was promoted from Detective Corporal to Detective Sergeant. In the Human Capital Department, Kasey Braun was promoted to Director of Human Capital. In the Parks and Recreation Department, Kelly Koernig was promoted to Director of Parks and Recreation and Percy Sampson was promoted to Aquatic Supervisor. In the Wastewater Treatment Facility, Nathan West was promoted from Operator Trainee to Operator Class B.

Mr. Cassidy announced the following accolades of staff: Town Clerk Stephen Clough received the FEMA ICS Emergency Response Course Certificate and Professional Development Series Certificate. In the Wastewater Treatment Facility Department, Superintendent of Wastewater Treatment Russell Smith obtained his Virginia Class II Wastewater Works Operator License. In the Public Works & Utilities Department Facilities & Fleet Management Division, Mechanic and Facilities Manager Johhny Powers received his Occupational Safety and Health Supervisor 40 Hour Certification, and Facilities & Fleet Manager Johhny Switzer received certifications in Biobased Certified Fleet Professional (BCFP) Program, National Traffic Incident Management 10 Hour Certificate, Roadway Incident Response Safety Leadership Certificate with Concentration in DOT & SSP, and NASPO 101 Foundations of Public Procurement 5 Hour Course. In the Finance and Procurement Department, Brooke Campbell was promoted to Budget Manager and graduated from the Government Finance Officers Association (GFOA) Budget Academy.

Mr. Cassidy announced that the Eva Walker Commemorative Garden won the Best New Renovation/Addition for Parks, Playgrounds, Blueways, Greenways or Trails Category for the Virginia Recreation and parks Society Annual Awards. The Public Works & Utilities Fleet & Facilities Division received the 2023 Green Fleet Rookie of the Year and Top 50 Green Fleet Awards from the National Association of Fleet Administrators (NAFA) Fleet Management Association.

Mayor Nevill congratulated staff on their recent achievements.

draft

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## D. CITIZEN'S TIME.

| Citizen's time Sign in Town Council Regular Meeting: September 12, 2023 | | |
|---|---|---|
| **Name** | **Address** | **Topic** |
| Mark Smith | 232 Northview Circle, Warrenton, VA 20186 | Amazon Data Center |

| | | |
|---|---|---|
| Richard Fisher | 120 Frasier Road, Warrenton, VA 20186 | three Town projects |
| Jonathan Macquilliam | 60 Frasier Road, Warrenton, VA 20186 | Heroes Bridge project |
| Chuck Cross | 606 Galena Way, Warrenton, VA 20186 | Amazon Data Center |
| Kenneth (Charlie) Mullins | Ward IV | Internship |
| Cindy Burbank | Barnell Court, Warrenton, VA 20186 | Amazon Data Center |
| Donald Bromley | 320 Church Street, Warrenton, VA | Heroes Bridge Project |
| Bill Chipman | 289 Winchester Street, Warrenton, VA 20186 | Amazon Data Center |
| Laurie Carney | 167 Brenda Court, Warrenton, VA 20186 | Amazon Data Center and Heroes Bridge Project |
| Gary Hawkins | 77 Moser Road, Warrenton, VA 20186 | Neighborhood development |
| Matthew Groves | 56 Frasier Road, Warrenton, VA 20186 | Heroes Bridge project |
| James Hanover | 85 Frasier Road, Warrenton, VA 20186 | Heroes Bridge project |
| Denise Sheffer | 68 Whippoorwill Drive, Warrenton, VA 20186 | Amazon Data Center |
| Chris Gaddy | 306 Church Street, Warrenton, VA 20186 | Heroes Bridge project |

draft

Mark Smith spoke regarding the Amazon Data Center development process.

Richard Fisher spoke regarding three projects in the Town.

Jonathan Macquilliam spoke regarding the Heroes Bridge project.

Chuck Cross spoke regarding the Amazon Data Center development process.

Charlie Mullins thanked Town Council and his coworkers for providing him an internship.

Cindy Burbank spoke regarding the Amazon Data Center development process.

Donald Bromley spoke regarding the Heroes Bridge project.

Bill Chipman spoke regarding the Amazon Data Center development process.

Laurie Carney spoke regarding the Amazon Data Center development process and the Heroes Bridge project.

Gary Hawkins spoke regarding the effects of development on his neighborhood.

Matthew Groves spoke regarding the Heroes Bridge project.

James Hanover spoke regarding the Heroes Bridge project.

Denise Sheffer spoke regarding the Amazon Data Center development process.

Chris Gaddy spoke regarding the Heroes Bridge project.

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## E. APPROVAL OF THE AGENDA.

Mayor Nevill sought a motion to approve the agenda.

Motion put forth by Councilmember Heroux was to approve the agenda.

Seconded by Vice Mayor Hartman.

Mayor Nevill noted that on the Consent Agenda was the SUP for the St. John the Evangelist Catholic Church, which the applicant had requested to be deferred for one month. The item would remain on the Consent Agenda; however, they would hold a public hearing for anyone who wished to address that item.

The vote was as follows:

***Ayes:*** ***Ms. Heather Sutphin; Mr. Brett Hamby; Mr. James Hartman, Vice Mayor; Mr. Jay Heroux; Mr. David McGuire; Mr. Paul Mooney.***

***Nays:***
***Abstention:***
***Absent:*** ***Mr. William Semple***

The motion passed unanimously (Mr. Semple absent); the agenda was approved.

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## F. PUBLIC HEARINGS.

### 1. Special Use Permit (CUP) 2023-01 St. John the Evangelist Catholic Church

Mayor Nevill opened the public hearing. This public remained open from the July meeting of Council and would be continued until brought forward by the applicant.

| **Public Hearing: Special Use Permit (CUP) 2023-01 St. John the Evangelist Catholic Church** | | |
|---|---|---|
| **Name** | **Address** | **Organization or Individual** |
| Bill Chipman | 289 Winchester Street, Warrenton, VA 20186 | individual |

draft

Bill Chipman requested the building be demolished upon constructed due to the water runoff issues it currently posed to his adjoining property and that parking for the new facility be limited in order to preserve green space.

Mayor Nevill said that Council would keep the public hearing open until the October meeting.

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**G. CONSENT AGENDA.**

a. **Deferral of Special Use Permit (SUP) 2023-01 St. John the Evangelist Catholic Church – DEFERRAL BY REQUEST OF THE APPLICANT.** The Applicant, St. John the Evangelist Catholic Church, and the Owner, the Catholic Diocese of Arlington, have requested deferral of the agenda item until the October Town Council Meeting.

b. **Rappahannock Rapidan Regional Commission 50th Anniversary Resolution**

c. **Authorize support for the application of Culpeper Street Milling and Paving, from Shirley Avenue to Main Street**

d. **33 N. Calhoun Street Cistern**

e. **Moving of Strategic Retreat Date**

f. **Approval of Council Minutes**

g. **November 9th, 2022 Regular Town Council Meeting**

h. **December 13th 2022 Regular Town Council Meeting**

i. **January 10th, 2023 Regular Town Council Meeting**

j. **February 14th, 2023 Regular Town Council Meeting**

k. **February 25th, 2023 Special Town Council Meeting**

l. **March 14th, 2023 Regular Town Council Meeting**

draft

Mayor Nevill sought a motion on the item.

Motion put forth by Councilmember Heroux was to approve the Consent Agenda as presented.

Seconded by Councilmember Hamby.

The vote was as follows:

***Ayes:*** ***Ms. Heather Sutphin; Mr. Brett Hamby; Mr. James Hartman, Vice Mayor; Mr. Jay Heroux; Mr. David McGuire; Mr. Paul Mooney.***

***Nays:***
***Abstention:***
***Absent:*** ***Mr. William Semple***

The motion passed unanimously (Mr. Semple absent); the Consent Agenda was approved.

## H. NEW BUSINESS.

There was none.

## I. UNFINISHED BUSINESS.

### 1. Share the Air Initiative

Kelly Koernig, Director of Parks and Recreation, introduced the topic. She provided a brief summary of the item to Council.

Ashley Coulson, David Coulson, and Sophia Sebeck of the Y Street Leadership Team gave a presentation to Council.

Staff recommended Council approve the Resolution at the September Council meeting.

Councilmember Heroux asked what the driving force was behind youth tobacco use.

Ms. Coulson said that in her opinion, tobacco use was often a coping mechanism for dealing with mental health issues.

Councilmember Heroux asked what the recommendations were for curbing nicotine addiction.

Rachel Johnson, Virginia Foundation for Healthy Youth, stated that they worked with the Virginia Department of Health to ensure that relevant information was distributed so individuals had the resources they needed.

Councilmember Heroux emphasized that tobacco was the source of many health, political, and financial issues in the country. He thanked the Y Street Leadership Team for their presentation.

Councilmember Sutphin said it was important that the values and viewpoints of the youth be wholly supported so that they can secure a healthy future.

Mayor Nevill sought a motion on the item.

draft

Motion put forth by Vice Mayor Hartman was to adopt the Resolution to implement voluntary tobacco-free and e-cigarette-free areas in Town parks in the Town of Warrenton.

Seconded by Councilmember Heroux.

The vote was as follows:

***Ayes:*** ***Ms. Heather Sutphin; Mr. Brett Hamby; Mr. James Hartman, Vice Mayor; Mr. Jay Heroux; Mr. David McGuire; Mr. Paul Mooney.***

***Nays:***
***Abstention:***
***Absent:*** ***Mr. William Semple***

The motion passed unanimously (Mr. Semple absent); the Resolution was approved.

## J. TOWN ATTORNEY'S REPORT.

There was none.

## K. TOWN MANAGER'S REPORT.

Mr. Cassidy reported that high-visibility blue signs had been installed for slow speed zones as a cooperative effort between Public Works and the Police Departments to further address speeding in the Town's neighborhoods. A map showing the placement of the signs was available. There had been many discussions about the activities at Courthouse Square, so he provided the two concept traffic flows for the Council to provide feedback on. They were finalizing the plans with the School Board before they would commence the experimental traffic patterns. The traffic counters would be removed next week for assessment. He congratulated the staff who had received awards. He noted that Mr. Tommy Cureton had left employment in the Town last Friday and would be sorely missed, but knew that Ms. Koernig would provide positive guidance and direction for the Parks and Recreation Department.

## L. COUNCILMEMBERS TIME.

**Mr. McGuire:** Reminded the public that FEMA would be performing a nationwide testing of the national alert system on October 4, 2023. Recalled that 9/11/2001 was 22 years ago as of yesterday, and when thinking of the sacrifices made on that day, he believed they should honor people's service in Police and Fire for their bravery and commitment. While he understood the concerns mentioned by public commentors in regards to Heroes Bridge, he felt it was necessary that they respect and honor all veterans and not assume that they would be a nuisance to the community. Organizations like Heroes Bridge provided necessary assistance to veterans who came from a multitude of backgrounds and citizens should not sow fear when downtrodden people needed their help. He would be glad to engage in dialogue with citizens about their concerns, but could not allow simple fear to drive their decisions and thought processes. He



draft

could not fathom that there could be a fear of veterans when they were their fellow citizens who had survived life-threatening situations.

**Mr. Mooney:** Apologized for his absence at the past few meetings of Council, including this morning, as he was away on military orders. He would support moving the meetings to Thursday nights rather than the morning of. Thanked Mr. Cassidy for the recognitions made for the Town's staff. Thanked the citizens for attending these meetings each month to voice their concerns and opinions. Acknowledged the importance of Citizens' Time so that citizens were directly included and able to facilitate ideas and conversations for the Town. Regarding the redacted pages from the Amazon Data Center application, he believed it was the Council's duty to revisit the conditions and ensure that they were being duly upheld.

**Ms. Sutphin:** Congratulated all staff for their promotions and to Mr. Cureton for his new position. Thanked everyone for their service to the community, whether it be through volunteering or military. Acknowledged that the mental illness that resulted from combat had very real impacts on veterans' ability to function after combat had ended. Promised that Council would do everything possible to ensure the safety of the community. Stated that she would be glad to speak with citizens to hear their specific concerns, although the street impacted by Heroes Bridge was not in her jurisdiction. Thanked the public for attending the meeting and acknowledged that everyone present was passionate about their Town.

**Mr. Hamby:** Acknowledged and honored Reverend Winter, whose funeral service was held over the weekend. The Reverend was a Marine during World War II, a coach for Fauquier High School football, Pastor of the Presbyterian Church for over a decade, and Chaplain of the Warrenton Fire Company for decades. Above all else, he was a family man and always made time for them along with anyone who needed help. Thanked the Fire Department, Warrenton Police, and Randy from Moser's, who did an excellent job of both the service and the funeral. He expressed what a deeply felt loss it was for the Town. Acknowledged the public comments regarding Frasier and Moser Streets as they related to Heroes Bridge. Clarified that Heroes Bridge had not submitted anything and were not on the Planning Commission schedule for hearings. Stated that he would be glad to discuss with citizens their specific concerns. Addressed the comments made about Warrenton Middle School, which was owned solely by the Fauquier County Public School Board and the Town had no jurisdiction over the matter. He clarified that the middle school and Heroes Bridge were not projects that originated from the Town, although they may appear before the Town for specific permissions. Asked where the public outrage was regarding the large portion of Vint Hill Farm Station that was sold for a data center on July 25. Noted that there had been substantial public concern voiced to Warrenton Town Council but he had not heard of any being given to the Fauquier County Board of Supervisors, even though the Vint Hill data center would be 1 million square feet, compared to the 225,000 square feet approved in Warrenton. Emphasized that the Vint Hill project was by right, so there would be no public hearing for community input on the matter and no vote of the Board of Supervisors. Expressed his astonishment that he had received no communications from citizens regarding the lack of public input and potential effects of the data center in Fauquier. He asked how 1 million square feet by right could be deemed acceptable when Warrenton had been told that 225,000 square feet by SUP was too much. Stated that he was uncertain who the entity was that redacted information from Amazon's plan because he had yet to see the site plan.

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**Mr. Hartman:** Reported that this morning Council received an update regarding the Human Capital Department issues, and part of the discussion was regarding the value placed on employees, succession, and training. Acknowledged that a public commentor spoke about being an intern and he thanked him for his appreciation of Town staff's commitments. Noted that there was a false narrative being spread around their Town that the local government had too many employees, and he would respond by stating that it was a false and ignorant narrative. Stated that the Town was lean and he applauded the accomplishments made by the staff that they employed. Stated that the budget was consistently scrutinized and positions were both denied and approved according to their in-depth analyses. Stated that their Town was fortunate to have the expertise and talent of their employees, and to get rid of these employees was irresponsible and showed a lack of knowledge about the operations of the Town government. Expressed his support and appreciation of their Town's employees. Regarding the Heroes Bridge project, tonight was the first time Council had been made aware of it and there was no plan to bring an application to the Planning Commission. Stated that he had seen something in the newspaper about the project but knew little about it. Clarified that the Council had not yet reviewed such a project. Acknowledged the concerns brought forward by constituents. Stated that he would like to work more with constituents regarding the issue. Regarding Warrenton Middle School, there was a meeting on September 7 for community input that he hoped those concerned had attended in order to share their thoughts about the future of the building. Reiterated Mr. Hamby's point that the property was owned by the School Board and not the Town, and the Council had not received any communication from the School Board about that plan. Proposed that the Town Council send a letter to the School Board to ask what their intentions are for the property. Agreed that the community and the Council should have a say in what happened to the property, and he thanked the public for bringing it to their attention. Stated that Fauquier High School had a rough start to the school year, as a security officer, Sal Torrelli, passed away unexpectedly, and their principal was in a very bad car accident last week and was still in the hospital recuperating from his severe injuries. Asked everyone to keep Kraig Kelican, Principal of Fauquier High School, in their thoughts and prayers. Thanked the Town Manager and staff for keeping everyone well-informed of the drought conditions as well as their response to the water main break and major residential structure fire.

**Mr. Heroux:** Announced that the American Legion Post 672 was holding the Flags In Ceremony at the Cemetery in November, where they would be placing flags on graves. Acknowledged Mr. McGuire's remarks about 9/11 and that each year it seemed like a distant memory that had been forgotten. Expressed his support to New York, the Pentagon, and to Pennsylvania. Stated that regarding Heroes Bridge, whenever that project arrived before Council, they must acknowledge that there would be differing opinions on the issue. He noted that they learned a small amount about Heroes Bridge during their RFP for affordable housing, and he thanked them for their informative response. Acknowledged the valid concerns regarding potential development of that property and the need to discuss it with the United Methodist Church as the property owner. Emphasized that Heroes Bridge was responding to a need for affordable housing specifically for veterans in the community, and if that specific parcel was not the right place, he would ask that the community identify potential solutions through constructive dialogue with Heroes Bridge and the United Methodist Church. Noted that the property in question was privately owned and the Town could not determine the future development of the property, so he would ask that the community work with the property owners to create the best solution. Stated that regarding

draft

veterans, he would ask that people consider that many veterans felt disconnected from their communities, especially as the environment of the military had changed during the 20th and 21st centuries. Emphasized that citizens had an obligation to look after the veterans who had volunteered to serve them. Stated that regarding data centers, he agreed with Mr. Hamby's earlier remarks and felt that the community response to the Fauquier County data center was muted compared to the volatile response that Warrenton had faced over a much smaller and more transparent proposal. Noted that there had been discussion of the many negative impacts that data centers may have on Warrenton, but the property sold for data center usage in Fauquier would face those exact impacts and there appeared to be no public discussion about those impacts. Stated that regarding the redacted information as it related to the Amazon Data Center application, he was unaware of it but would look into it and Council would find out the details. Stated that regarding democracy, he put his name forward to serve in this seat as a volunteer to the Town that he and his family cherished, and to approached the position in a methodical way. Stated that if the data center issue was of such importance to individuals, he wondered why those citizens did not submit their candidacy in a council, board, or district-level election so that the laws and policies around date centers could be changed. Asked if anyone had approached the Board of Supervisors to amend the zoning ordinance to address the concerns regarding data center impacts. Stated that democracy was not about getting what one wanted or otherwise claiming there was fraud or conspiracy. Stated that democracy relied on teamwork, coalitions, and voting in order to achieve the best results. Emphasized that whatever the future decisions may be, the process should involve well-formed arguments and active listening, and should leave out false accusations and innuendos. Expressed his frustration that there was hypocrisy as it related to decisions and that people only cared when a decision personally affected them. Expressed his hope that they could do better in the future.

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**M. ADJOURNMENT.**

**With no further business, this meeting was adjourned at 8:29 PM on Tuesday, September 12th, 2023.**

**I hereby certify that this is a true and exact record of actions taken by the Town Council of the Town of Warrenton on September 12th, 2023.**

Stephen M. Clough
Town Recorder

draft

Attachments:

1) Handouts to Council from Citizen's time. September 12th, 2023.
2) Citizen Comment Emails and form submissions.
3) Signed legislation.

draft

**The Town of Warrenton**
P.O. Box 341
Warrenton, VA 20188
P (540) 347-1101
F (540) 349-2414

# September 12th, 2023 Regular Town Council Meeting Minutes

## Attachment 1: Handouts to Council from Citizen's time. September 12th, 2023

draft

August 2023

Dear Fauquier County Supervisors and Warrenton Town Council,

As we all are aware, during the past few years there has been a significant amount of commercial real estate transfer to county or town ownership. It is our hope and desire that when studying future uses of these spaces that you will, where and when possible, make an effort to explore non administrative uses.

These assets can foster cultural development and provide spaces for arts, education, and community engagement. Repurposed buildings can become cultural centers, museums, galleries, or performance spaces enriching the quality of life for all our citizens, young and old, and to possibly include space for senior citizen activity. The public sector carries a dual mandate to govern and enhance cultural endeavors for the community that the private sector may not.

We all are blessed to live and work in such a beautiful and historically rich part of Virginia. It is our hope that both governments will work in harmony. An ad-hoc committee would not be difficult to put together to assist should you find that beneficial.

There probably are others, but possible properties would include the former Town Office Building, The Warren Green building, former Fauquier National Bank complex, the Old Court House, the John Barton Payne building, and potentially in the future at least some of the Warrenton Middle School complex.

draft

| NAME | SIGNATURE | BUSINESS | TITLE |
|---|---|---|---|
| David Gerrish | | Wells Fargo Advisors | Branch Manager |
| Alec Burnett | | Fauquier Chamber of Commerce | President/CEO |
| Laura Kelsey | | Fauquier Historical Society | Board President |
| Joelle Fryman | | Experience Old Town Warrenton | EOTW Director |
| Walter Story | | Old Town Building Owners Association | Chairman |
| Jane Boling Wilson | | Northern Piedmont Community Foundation | NPCF Director |
| Tray Allen | | Allen Real Estate | Owner |
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*Signatures are representative solely of the support of the individual signing and not of the associated business entity.*

draft

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# September 12th, 2023 Regular Town Council Meeting Minutes

## Attachment 2: Citizen Comment Emails and form submissions.

draft

**From:** "noreply@civicplus.com" on behalf of "noreply@civicplus.com" <noreply@civicplus.com>
**Sent:** 16 Aug 2023 07:05:25 -0500
**To:** """ <lpaul@warrentonva.gov>
**Subject:** Online Form Submittal: Public Comment

**[EXTERNAL EMAIL]** DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

## Public Comment

| | |
|---|---|
| Name | Joseph A Brown |
| Address | 141 English Chase Ln |
| City | Warrenton |
| State | VIRGINIA |
| Zip Code | 20186 |
| Email Address | [redacted] |
| Phone Number | [redacted] |
| Committee, Board, or Commission Type | Town Council |
| Agenda Item | *Field not completed.* |
| Comment | im completely exasperated about the horrific smell of rotting flesh that permeates my center district / in town neighborhood morning and night. see below previous emails over the last year that have gone unnoticed.<br><br>the terrible smell from the slaughterhouse is truly unbelievable - does anyone notice this when driving by frost firestone, 7/11, or the cancer center? it is there in the heat of the summer and the cold of the winter- terribly unpleasant when walking through town and now for all of the middle schoolers at warrenton/ taylor middle. cant sit outside or walk the dog without being bombarded by the stench. a data center would be much more pleasant than the current situation. is anyone aware of this |

draft

issue?
thx
jb

Mr Carter,
Pls see below my email to previous center district supervisor that was not responded to. I will endorse that the noxious smell emanating from the slaughterhouse has been terrible for the last few weeks and is quite unpleasant for patients going to the Fauquier Cancer Center at the bottom of hospital hill.
Wondering if you are aware of this problem?
Thanks
Joe Brown

Date: August 25, 2022 at 3:12:30 PM EDT

Dear Mr Granger,
I am writing to express my displeasure and concern regarding the horrible stench that myself and all the children at the warrenton middle school are currently being subjected to at the soccer and baseball game this afternoon.

For several years I've been aware of this terrible smell near my home in the Menlough subdivision while walking my dog and have recently been informed that it stems from a local slaughter house- which I initially had trouble believing- however it has been confirmed by many people.

What can be done about this disgusting issue?
Thanks
Joe Brown

draft

Email not displaying correctly? View it in your browser.

**From:** "Laura Billings" <[redacted]>
**Sent:** Wed, 16 Aug 2023 10:30:21 -0400
**To:** """ <citizencomment@warrentonva.gov>
**Subject:** Sidewalk/Crosswalk for CM Bradley

**[EXTERNAL EMAIL]** DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

Hello,
I am wondering what steps can be taken toward creating a crosswalk and sidewalk at C.M. Bradley elementary school. There are many families that live in the townhouses and condos within walking distance of the school, and at least 5 families walk to school already. The children at P.B. Smith are able to cross 605 and require a further walking distance, and by my guess, since there are only single-family homes, there are less families that can utilize the cross-walk they have. During Covid, families within 10 miles of the school were asked to not take the bus, and several families walked to CM Bradley. Is this a possibility?

Thank you,
Laura Washington

draft

**From:** "noreply@civicplus.com" on behalf of "noreply@civicplus.com" <noreply@civicplus.com>
**Sent:** 11 Sep 2023 08:42:41 -0500
**To:** """ <citizencomment@warrentonva.gov>
**Subject:** Online Form Submittal: Public Comment

**[EXTERNAL EMAIL]** DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

## Public Comment

| | |
|---|---|
| Name | James Hanover |
| Address | 85 Frazier Rd |
| City | Warrenton |
| State | VA |
| Zip Code | 20186 |
| Email Address | [redacted] |
| Phone Number | [redacted] |
| Committee, Board, or Commission Type | Planning Commission |
| Agenda Item | Hero's Bridge Proposal |
| Comment | I'm requesting a time slot to address the town council regarding the Hero's Bridge proposal to build 44 affordable housing rental units on less than 4 acres of land, which is inside an R-10 zoning district. The proposal would require rezoning this land to an R-PUD Residential Planned Unit Development, with special exceptions to the 25 acre minimum land area requirement for R-PUD, and other accommodations to expedite development. I applaud and support the mission of the Hero's Bridge organization in serving our disadvantaged veterans. This proposal, however, will not address the long term affordable housing needs of the veterans in our community, and will negatively impact the R-10 district. |

draft

Email not displaying correctly? View it in your browser.

draft

**From:** "noreply@civicplus.com" on behalf of "noreply@civicplus.com" <noreply@civicplus.com>
**Sent:** 12 Sep 2023 18:15:44 -0500
**To:** """ <citizencomment@warrentonva.gov>
**Subject:** Online Form Submittal: Public Comment

**[EXTERNAL EMAIL]** DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

## Public Comment

| | |
|---|---|
| Name | Erin Lynne McLaughlin |
| Address | 132 Moser Road |
| City | Warrenton |
| State | VA |
| Zip Code | 20186 |
| Email Address | [redacted] |
| Phone Number | [redacted] |
| Committee, Board, or Commission Type | Town Council |
| Agenda Item | Hero's Bridge/Warrenton United Methodist |
| Comment | I don't know if this is the right committee or if this is even on the agenda yet, but I am a town resident who is against the plan of Hero's Bridge and Warrenton UMC to build what is essentially a campground on the church's land. Our neighborhood has beautiful homes and the idea that these organizations are presenting will cheapen and devalue our area. I am not against helping our most vulnerable populations, but I feel that it can be done in a way that is more in line with the neighborhood aesthetic. A few large homes in line with what is already built around the neighborhood where several veterans can live together, supporting each other and where they can more easily receive care (medically, mentally, etc...). This would keep the current vibe of the neighborhood and still help those |

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in need. Please don't let them build this campground shack city in this beautiful part of town.

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Email not displaying correctly? View it in your browser.

draft

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# September 12th, 2023 Regular Town Council Meeting Minutes

## Attachment 3: Signed legislation

draft

**September 12, 2023**
**Town Council**
**Regular Meeting**

**RESOLUTION TO APPROVE THE REMOVAL OF THE CISTERN LOCATED AT 33 N. CALHOUN STREET**

**WHEREAS,** Warrenton, VA (Hereinafter "the Town") is a municipal corporation located within the County of Fauquier; and

**WHEREAS,** the Town of Warrenton owns 33 N. Calhoun and all structures on the property; and

**WHEREAS,** on May 3, 2022 the Town of Warrenton entered into a twenty (20) year lease agreement with Fauquier County for 33 N. Calhoun Street to allow the County to use the property for medical and mental health clinic purposes with related services; and

**WHEREAS,** the subject property, known as the previous Visitors Center, contains a cistern located in front of the building; and

**WHEREAS,** Fauquier County is requesting to remove the cistern to allow for direct ADA access from the parking lot; and

**WHEREAS,** the property is part of the historic Brentmoor property that is subject to a historic preservation easement held by the Virginia Board of Historic Resources and administered by the Department of Historic Resources (DHR); and

**WHEREAS,** the cistern is a noncontributing structure and not listed on the historic surveys conducted in 2019; and

**WHEREAS,** Fauquier County approached DHR, which found the proposed work of abandoning the cistern/well and thereby preserving it subsurface in the event that it is uncovered again in the future, removing the low wall and railing, and bricking over the cistern/well with pavers in a manner consistent with the existing walkway, to be consistent with the Terms of the easement and the Secretary of the Interior's Standards for Rehabilitation; and

**WHEREAS,** the Town of Warrenton Zoning Ordinance 3-5.3.4.5 states the demolition of a structure within the historic district may be approved by the Town Council if the structure has been identified as noncontributing.

**NOW THEREFORE BE IT RESOLVED,** by the Warrenton Town Council that Fauquier County shall be able to abandon, preserve, and brick over the cistern at 33 N. Calhoun Street, provided that all necessary permits are acquired.

draft

**Votes:**
**Ayes:** Ms. Heather Sutphin; Mr. Brett Hamby; Mr. James Hartman, Vice Mayor; Mr. Jay Heroux; Mr. Paul Mooney; Mr. David McGuire.
**Nays:**
**Absent from Meeting:** Mr. William Semple

**For Information:**
Community Development Director,
Town Attorney

**ATTEST:** _____ **Town Recorder**

**September 12, 2023**
**Town Council**
**Regular Meeting**

**A PROCLAMATION COMMENDING THE RAPPAHANNOCK-RAPIDAN REGIONAL COMMISSION ON ITS 50TH ANNIVERSARY**

**WHEREAS,** in 1966, the General Assembly created the Metropolitan Areas Study Commission (the Hahn Commission), which found that a holistic approach to solving local and regional problems needed to be taken; the Commission recommended a new concept, the creation of planning district commissions and service district commissions; and

**WHEREAS,** the Virginia Area Development Act (VADA), passed in 1968, created the Planning District Commission framework "to encourage and facilitate local government cooperation and state-local cooperation in addressing on a regional basis, problems of greater than local significance"; and

**WHEREAS,** on January 16, 1973, the Rappahannock-Rapidan Regional Commission (RRRC) held its first meeting at the Culpeper Town Hall with charter members from Fauquier County, Orange County, Rappahannock County and the Town of Warrenton attending; and

**WHEREAS,** the Rappahannock-Rapidan Regional Commission is now led by members representing the Counties of Culpeper, Fauquier, Madison, Orange, and Rappahannock, and the Towns of Culpeper, Gordonsville, Madison, Orange, Remington, The Plains, Warrenton, and Washington; and

**WHEREAS,** the RRRC has provided professional planning and technical resources, a concerted approach to regional cooperation, planning assistance with program delivery, and a forum for the interaction of appointed and elected officials and citizen members of the region, and serves as a liaison between local and state governments, partnering with the Commonwealth to carry out state initiatives at the local and regional level; and

**WHEREAS,** the RRRC and its partners have worked on numerous projects impacting the Rappahannock-Rapidan region in the areas of agricultural development, environmental planning, transportation planning and coordination, regional tourism, criminal justice planning, housing development and homeless services, hazard mitigation planning and regional growth issues; and

**WHEREAS,** the RRRC takes great pride in the value that its work has brought to the Rappahannock-Rapidan region over the past 50 years and recognizes the importance of regional collaboration in addressing challenges in the future; and

**NOW, THEREFORE BE IT RESOLVED,** that the Town Council of the Town of Warrenton on this 12th day of September 2023, commends the Rappahannock-Rapidan Regional Commission on their 50th Anniversary and all the exceptional work they have brought not just to the Town, but to the region.

**Votes:**
**Ayes:** Ms. Heather Sutphin; Mr. Brett Hamby; Mr. James Hartman, Vice Mayor; Mr. Jay Heroux; Mr. Paul Mooney; Mr. David McGuire
**Nays:**
**Absent from Meeting:** Mr. William Semple

**ATTEST:** _____ **Town Recorder**

draft

**September 12, 2023**
**Town Council**
**Regular Meeting**

**A RESOLUTION TO IMPLEMENT VOLUNTARY TOBACCO FREE AND E-CIGARETTE FREE AREAS IN TOWN PARKS**

**WHEREAS,** smoking increases risk for disease, disability and death for smokers and those who are exposed to second-hand smoke throughout their life; and

**WHEREAS,** children exposed to even small amounts of secondhand smoke are at a heightened risk for adverse health effects; and

**WHEREAS,** cigarette butts and one-use disposable e-cigarette products lead to increased litter in parks, playgrounds and sidewalks, causing pollution and degradation of our streams and ponds; and

**WHEREAS,** by encouraging tobacco free and e-cigarette free areas the Town of Warrenton aims to reduce the normalcy and social acceptability of smoking behaviors and encourage the role modeling of healthy behaviors; and

**WHEREAS,** by committing to and partnering with the Share the Air campaign, the Town of Warrenton promotes a clean, healthy, and safe environment for the community

**NOW, THEREFORE, BE IT RESOLVED** by the Warrenton Town Council of the Town of Warrenton, Virginia that voluntary tobacco free and e-cigarette free areas will be within 50 feet of any sporting event, spectators or gathering in parks shall be adopted and signed accordingly calling for voluntary nonsmoking.

ATTACHMENT: Share the Air Commitment Form

draft

**Votes:**
**Ayes:** Ms. Heather Sutphin; Mr. Brett Hamby; Mr. James Hartman, Vice Mayor; Mr. Jay Heroux; Mr. Paul Mooney; Mr. David McGuire
**Nays:**
**Absent from Meeting:** Mr. William Semple

**For Information:**
Parks and Recreation Director

**ATTEST:** _____
**Town Recorder**

**September 12, 2023**
**Town Council**
**Regular Meeting**

**A RESOLUTION OF SUPPORT FOR A VIRGINIA DEPARTMENT OF TRANSPORTATION REVENUE SHARING**

**WHEREAS,** the Town Council of the Town of Warrenton desires to submit and application for an allocation of up to $195,928.26 for the total project cost through the Virginia Department of Transportation Fiscal Year 2027-2028, Revenue Sharing Program; and

**WHEREAS,** $97,964.13 of these funds is requested to fund Culpeper Street Milling and Paving, from Shirley Avenue to Main Street, in Fiscal Year 2027; and

**NOW, THEREFORE, BE IT RESOLVED THAT,** the Town Council of the Town of Warrenton hereby support this application for an allocation of $97,964.13 through the Virginia Department of Transportation Revenue Sharing Program.

**BE IT FURTHERT RESOLVED THAT,** the Town Council of the Town of Warrenton hereby grants authority for the Town Manager to execute project administration agreements for any approved revenue sharing projects.

ATTACHMENT: Staff Report and Supporting Documents

**Votes:**

**Ayes:** Ms. Heather Sutphin; Mr. Brett Hamby; Mr. James Hartman, Vice Mayor; Mr. Jay Heroux; Mr. Paul Mooney; Mr. David McGuire.

**Nays:**

**Absent from Meeting:** Mr. William Semple

**For Information:**
**Interim Town Manager,**
**Project Coordinator**

**ATTEST:** _____
**Town Recorder**

draft

FORM MOTION FOR CONVENING A CLOSED MEETING September 12th, 2023.

I move that the Council convene in closed session to discuss the following:

____ As permitted by Virginia Code § 2.2-3711 (A)(1), a personnel matter involving:
Discussion, consideration, or interviews of prospective candidates for employment or appointment; OR
assignment, appointment, promotion, performance, demotion, salaries, disciplining, or resignation of specific public officers, appointees, or employees of the Town; specifically dealing with

__X__ As permitted by Virginia Code § 2.2-3711 (A)(3), a matter involving:
__X__ discussion or consideration of the acquisition of real property for a public purpose; OR
____ disposition of publicly held real property
specifically involving __The Warrenton Horse Show Grounds_____ *[Give location of property]*, because discussion in an open meeting would adversely affect the City's bargaining position or negotiating strategy.

____ As permitted by Virginia Code § 2.2-3711 (A)(4), a matter requiring the protection of the privacy of individuals in personal matters not involving the public business.

____ As permitted by Virginia Code § 2.2-3711 (A)(7), consultation with legal counsel or briefing by staff members or consultants pertaining to:
____ probable litigation involving _____ *[Give subject]*; OR
____ the pending case of _____ *[Give case name]*,
where such consultation or briefing in open meeting would adversely affect the negotiating or litigating posture of the City.

___ As permitted by Virginia Code § 2.2-3711 (A)(8), consultation with legal counsel regarding specific legal matters requiring the provision of legal advice by such counsel, relating to

____ As permitted by Virginia Code § 2.2-3711 (A)(29), discussion of the award of a public contract for *[Give nature of the contract]* involving the expenditure of public funds, including interviews of bidders or offerors, and discussion of the terms or scope of such contract, where discussion in an open session would adversely affect the bargaining position or negotiating strategy of the City Council.

____ As permitted by Virginia Code § 2.2-3711(A)(19). a matter involving: _____
_____.

[IDENTIFY THE APPLICABLE PARAGRAPH OF § 2.2-3711(A) OR OTHER LAW AND GIVE THE SUBJECT MATTER AND PURPOSE FOR THE CLOSED SESSION.]

Votes:

Ayes: Ms. Heather Sutphin; Mr. William Semple; Mr. Brett Hamby; Mr. James Hartman, Vice Mayor; Mr. Jay Heroux; Mr. David McGuire

Nays:

Absent from Meeting: Mr. Paul Mooney

draft

**CERTIFICATION MOTION AFTER RECONVENING IN PUBLIC SESSION:**
(requires a recorded roll call vote)

I move that the Council certify that, in the closed session just concluded, nothing was discussed except the matter or matters (1) specifically identified in the motion to convene in closed session and (2) lawfully permitted to be discussed in a closed session under the provisions of the Virginia Freedom of Information Act as cited in that motion.

Votes:

Ayes: Ms. Heather Sutphin; Mr. William Semple; Mr. Brett Hamby; Mr. James Hartman, Vice Mayor; Mr. Jay Heroux; Mr. David McGuire

Nays:

Absent from Meeting: Mr. Paul Mooney

For Information:
Town Clerk

Effective date: September 12th, 2023.

Stephen Clough, Town Recorder _____.

draft

**September 12th, 2023**
**Town Council**
**Regular Meeting**

**A RESOLUTION CANCELLING THE SPECIAL MEETING CALLED ON SEPTEMBER 16TH, 2023, FOR THE PURPOSE OF A STRATEGIC RETREAT FOR THE WARRENTON TOWN COUNCIL.**

**WHEREAS,** at the June 13th Regular Meeting of the Town Council of the Town of Warrenton, a resolution was adopted to schedule a Special Meeting for the purpose of a strategic retreat for September 16th, 2023; and

**WHEREAS,** unforeseen scheduling conflicts have prevented the selected facilitators from hosting the strategic retreat for the Town Council; and

**WHEREAS,** at the September 12th, 2023, Regular Town Council Meeting, a proposed strategic goal setting timeline was presented to the Council as an alternative for the Strategic retreat; and

**WHEREAS,** the timeline proposed to the Council was reviewed for inclusion in the upcoming meeting schedule; and

**NOW, THEREFORE, BE IT RESOLVED** that Special Meeting of the Warrenton Town Council on September 16th, 2023, to hold a strategic retreat will be cancelled with the goals of said retreat being reviewed at a future Town Council meeting.

draft

**Votes:**
**Ayes:** Ms. Heather Sutphin; Mr. Brett Hamby; Mr. James Hartman, Vice Mayor; Mr. Jay Heroux; Mr. Paul Mooney; Mr. David McGuire.
**Nays:**
**Absent from Meeting:** Mr. William Semple

**For Information:**
Town Clerk
Town Manager

**ATTEST:** _____
**Town Recorder**

# TOWN COUNCIL SPECIAL MEETING

21 Main Street

Thursday, September 07, 2023 at 11:09 AM

**MINUTES**

**A SPECIAL MEETING OF THE TOWN COUNCIL OF THE TOWN OF WARRENTON, VIRGINIA, WAS HELD ON FEBRUARY 10th, 2023, AT 4:00 P.M.**

Special Meeting

PRESENT — Mr. Carter Nevill, Mayor; Ms. Heather Sutphin; Mr. Brett Hamby; Mr. James Hartman, Vice Mayor; Mr. Jay Heroux; Mr. David McGuire; Mr. Stephen Clough, Town Clerk; Mr. Frank Cassidy, Interim Town Manager; Mr. Steven Friend, Assistant Director of Public Utilities; Mr. Christopher Melmer, Emergency Services and Risk Manager.

ABSENT — Mr. William Semple; Mr. Paul Mooney.

Draft

## I. WORKSESSION - 9:00 AM

1. Drought Conditions Currently Affecting the Town and the Impact on Water Resources

Mr. Frank Cassidy, interim Town Manager introduced the reason for the Special Meeting being called. He explained that the Virginia Department of Environment Quality had declared a drought watch advisory for the region and that this meeting was called to proactively enable to the Town Manager to declare a Water Emergency if necessary due to the current conditions. He reiterated that the Emergency declaration was not necessary at this time but that conditions may change rapidly over the next few days and that this meeting would enable staff to respond accordingly without having to call a Special Meeting reactively.

Mr. Cassidy explained the actions that have been taken by staff and water users in the service district already to lower water usage including pausing washing Town vehicles, pausing irrigation of Town properties, modifying procedures at the water plants and pausing bulk water sales. He introduced Mr. Steven Friend, the Assistant Director of Public Utilities, to discuss water levels of the reservoirs and provide an outline of the situation to the Council.

Mr. Friend reiterated that the levels were in good shape for the reservoirs currently especially compared to other areas in the county. He expanded on actions taken to preserve the water levels available.

The Town Council inquired about the necessary actions to take currently for enforcement as well as inquiring about additional ways to save water that may be easy options for staff to implement.

Mr. Cassidy explained that the next course of actions if an emergency was declared and the subject matter experts on staff determined that conditions warranted a deceleration was to elevate to condition 2 under Sec. 17-150 of the Warrenton Town Code which laid out water conservation measures.

Motion put forth by Vice Mayor Hartman to approve the following: **A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF WARRENTON, VIRGINIA AUTHORIZING THE TOWN MANAGER TO DECLARE A WATER EMERGENCY AFFECTING THE USE OF WATER BY PERSONS AND PROPERTIES SERVED BY TOWN WATER, INSIDE AND OUTSIDE OF THE TOWN BOUNDARIES, AND TO CONTROL AND RESTRICT THE USE OF WATER DURING AN EMERGENCY CAUSED BY A WATER SHORTAGE.**

Seconded by Councilman Heroux.

Councilmen Heroux requested a roll call vote on the resolution.

The vote was as follows:

***Ayes:*** ***Ms. Heather Sutphin; Mr. Brett Hamby; Mr. James Hartman, Vice Mayor; Mr. Jay Heroux; Mr. David McGuire.***

***Nays:***
***Abstention:***
***Absent: Mr. William Semple; Mr. Paul Mooney.***

The motion passed unanimously, Town Council of the Town of Warrenton hereby authorizes the Town Manager to declare a water emergency affecting the use of water by persons and properties served by town water, inside and outside of the town boundaries, authorizes the publication of such emergency declaration pursuant to Section 17-147 of the Warrenton Town Code as needed and authorizes the Town Manager to take all necessary actions to implement conservation and other restrictions authorized under Sections 17-148 and 17-150 of the Warrenton Town Code to control and restrict the use of water during an emergency caused by a water shortage, including, but not limited to, imposition of penalties as provided under Section 17-151 of the Warrenton Town Code.

Draft

**ADJOURNMENT.**

**With no further business, this meeting was adjourned at 9:21 AM**

**I hereby certify that this is a true and exact record of actions taken by the Town Council of the Town of Warrenton on September 7th, 2023.**

_____

Stephen M. Clough
Town Recorder

Draft

**September 7, 2023**
**Town Council**
**Special Meeting**

**A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF WARRENTON, VIRGINIA AUTHORIZING THE TOWN MANAGER TO DECLARE A WATER EMERGENCY AFFECTING THE USE OF WATER BY PERSONS AND PROPERTIES SERVED BY TOWN WATER, INSIDE AND OUTSIDE OF THE TOWN BOUNDARIES, AND TO CONTROL AND RESTRICT THE USE OF WATER DURING AN EMERGENCY CAUSED BY A WATER SHORTAGE.**

**WHEREAS,** on September 1st, 2023, the Virginia Department of Environment Quality issued a drought Watch Advisory for Fauquier County; and

**WHEREAS,** according to the Virginia Drought Monitoring Task Force, surface and groundwater indicators such as precipitation, groundwater, stream flows have continued to decline throughout the past fourteen-day monitoring period; and

**WHEREAS,** on September 5th, 2022, the National Weather Service issued a heat advisory for the region citing record breaking heat across the east and southern United States of America. This heat advisory is bringing heat indexes of up to 107 degrees Fahrenheit through Thursday September 7th, 2023, exacerbating the existing drought conditions; and

**WHEREAS,** Section 17-146 of the Warrenton Town Code authorizes the Town Manager to declare water Emergencies with the approval of the Town Council; and

**WHEREAS,** a Special Meeting of the Warrenton Town Council was called on September 7th, 2023, to request approval of the Declaration of a Water Emergency; and

**NOW, THEREFORE, BE IT RESOLVED THAT,** the Town Council of the Town of Warrenton hereby authorizes the Town Manager to declare a water emergency affecting the use of water by persons and properties served by town water, inside and outside of the town boundaries, authorizes the publication of such emergency declaration pursuant to Section 17-147 of the Warrenton Town Code as needed and authorizes the Town Manager to take all necessary actions to implement conservation and other restrictions authorized under Sections 17-148 and 17-150 of the Warrenton Town Code to control and restrict the use of water during an emergency caused by a water shortage, including, but not limited to, imposition of penalties as provided under Section 17-151 of the Warrenton Town Code.

ATTACHMENT: Staff Report and Supporting Documents

**Votes:**

**Ayes:** **Ms. Heather Sutphin; Mr. Brett Hamby; Mr. James Hartman, Vice Mayor; Mr. Jay Heroux; Mr. David McGuire.**

**Nays:**

Draft

**Absent from Meeting:** Mr. William Semple; Mr. Paul Mooney.

**For Information:**
**Town Manager**
**Assistant Director Public Utilities**

**ATTEST:** _____
**Town Recorder**

Draft

Office of the Town Manager
Frank Cassidy

# STAFF REPORT

**Warrenton Town Council**
Carter Nevill, Mayor
Heather Sutphin, Ward 1
William Semple, Ward 2
Brett Hamby, Ward 3
James Hartman, Ward 4 Vice Mayor
Eric Gagnon, Ward 5
Paul Mooney, At Large
David McGuire, At Large

| | |
|---|---|
| **Council Meeting Date:** | July 9th, 2024 |
| **Agenda Title:** | Rezoning REZN-23-021163, Wargo Properties, LLC (Owner/Applicant) – Wargo Property |
| **Requested Action:** | Initiate Amendment of Tri-Party Agreement |
| **Department / Agency Lead:** | Public Utilities |
| **Staff Lead:** | Steven Friend, Staff |

## EXECUTIVE SUMMARY

Wargo Properties, LLC is requesting to amend the zoning ("rezone") of PIN 6984-95-2640-000 from R-1 to R-4. Rezoning the subject parcel will allow an increase in residential lot density from the existing one (1) allowable dwelling to a total of six (6) dwellings, similar and compatible with the adjacent properties, particularly Millfield Subdivision and White's Mill. This increase to density was not part of nor factored into the most recent 2022 capacity study that was completed by staff and WRA.

## BACKGROUND

Currently the property is zoned R-1 (Residential District, 1 Dwelling Unit/Acre) and consists of one (1) owner-occupied single-family residence and detached garage, once rezoned, the applicant proposes that the subject parcel will be subdivided into six (6) – 10,000 SF (minimum) single-family residential lots as shown on the attached Conceptual Subdivision Plan.
The proposed subdivision will be developed in accordance with all R-4 zoning district requirements.

## STAFF RECOMMENDATION

Due to not being factored into the capacity study staff recommend that any request to amend the Tri-Party Agreement or additional service requests be thoroughly vetted prior to any approval that would increase density. At this time staff recommends that any increase in density be postponed until all modernizations to the facilities and a system wide capacity study is completed.

## Service Level/Collaborative Impact

Adoption of rezoning will increase the density of allowable homes increasing the demand of water, sewer, infrastructure maintenance, and meter reads.

## Policy Direction/Warrenton Plan 2040

Community Facilities Goals
CF-4 Ensure healthy, safe, adequate water and wastewater services.

## Fiscal Impact

Cost association in relation to added water and wastewater treatment, infrastructure and meter maintenance, and utility billing.

## Legal Impact

Review of Tri-Party Agreement

## ATTACHMENTS

1. Statement of Justification
2. Concept Development Plan
3. Tri-Part Modification Letter Request
4. Related Emails

# *Rezoning*
# *STATEMENT OF JUSTIFICATION*
# *REZN-23-021163*

## PIN 6984-95-2640-000
## 6415 Academy Hill Road

## Fauquier County, Virginia

*Applicant:*

*Wargo Properties, LLC*
*6415 Academy Hill Road*
*Warrenton, Virginia 20187*

*Prepared By:*

*Hinchey & Baines, PLC*
*R. Lee Baines, P.E.*
*125 East Davis Street*
*Suite 201*
*Culpeper, Virginia 22701*
*(540) 829-2220*

*November 2023*

# TABLE OF CONTENTS

**Zoning Request Overview**

**Site Description**

**Land Use**

*Existing Zoning and Use*

*Proposed Zoning and Use*

**Site Design**

**Access and Transportation**

*Trip Generation*

**Environment**

**Comprehensive Plan Compliance**

**ATTACHMENTS**

Photo of site (Google Maps – Street View)
Aerial with topography Map (Fauquier County GIS)
Zoning Map (Fauquier County GIS)
Future Land Use Map (Fauquier County GIS)
Warrenton Service District Map (Fauquier County GIS)
Wetlands Potential Map (National Wetlands Inventory Mapper)
Soils Map (USDA Web Soil Survey)
Hydrologic Soils Group Map (USDA Web Soil Survey)
Shrink-Swell Potential Map (Fauquier County GIS)

## REZONING REQUEST OVERVIEW

Wargo Properties, LLC is requesting to amend the zoning ("rezone") of PIN 6984-95-2640-000 from R-1 to R-4. Rezoning the subject parcel will allow residential lot density that is similar and compatible with the adjacent properties, particularly Millfield Subdivision and White's Mill.

## SITE DESCRIPTION

| PIN | Current Owner | Zoning District | Acreage |
|---|---|---|---|
| 6984-95-2640 | Wargo Properties LLC | R-1 | 1.68 |

| | |
|---|---|
| Current Zoning District: | R-1 (Residential District, 1 Dwelling Unit/Acre) |
| Current Use: | Single-Family Residential |
| Service District: | Warrenton |
| Magisterial District: | Cedar Run |
| Elementary School District: | Smith |
| Middle School District: | Taylor/Warrenton |
| High School District: | Kettle Run |
| Agricultural/Forestal: | No |
| FEMA Floodplain: | No |
| Shrink Swell Soil Potential: | Moderate |

The property is bounded on the north by Academy Hill Road, on the east by dedicated open space for Woods of Warrenton and on the south and west by Millfield Subdivision.

## LAND USE

### *Existing Zoning and Use*

Currently the property is zoned R-1 (Residential District, 1 Dwelling Unit/Acre) and consists of one (1) owner-occupied single-family residence and detached garage.

No Special/Overlay Districts apply to the subject parcel.
The subject parcel is located within the Warrenton Service District.

### *Proposed Zoning and Use*

The applicant proposes changing the zoning to R-4 (Residential District, 4 Dwelling Units/Acre).

Once rezoned, the applicant proposes that the subject parcel will be subdivided into six (6) – 10,000 SF (minimum) single-family residential lots as shown on the attached Conceptual Subdivision Plan. This lot size and density is similar and compatible with the adjacent Millfield Subdivision.

The proposed subdivision will be developed in accordance with all R-4 zoning district requirements.

**SITE DESIGN**

In general, the site will be developed consistent with Millfield Subdivision.

Major Watters Lane will be extended from its current temporary cul-de-sac in the Millfield Subdivision and connected to Academy Hill Road. Major Watters Lane right-of-way, street cross-section will be maintained.

Domestic water and sanitary sewer systems within Millfield Subdivision will be extended into the subject parcel to serve all proposed lots. The water and sanitary sewer systems will be dedicated to the Town of Warrenton.

Stormwater management (quantity) will be provided in the existing stormwater management facility located in the Millfield Subdivision. Stormwater management (quality) will likely be provided by purchasing water quality credits from an accredited nutrient bank.

**ACCESS AND TRANSPORATION**

The applicant proposes to extend Major Watters Lane from its current temporary terminus and connect it with Academy Hill Road. Major Watters Lane was constructed as part of Millfield Phase 4 and terminated at the common property line with the subject parcel with a temporary turn-around and future road extension sign.

***Trip Generation***

The proposed development will generate approximately 60 vehicles per day (10 vehicles per day per lot). A total of 220 vpd are anticipated at the proposed Major Watters Lane/Academy Hill Road intersection. These trips include traffic from 16 existing lots in Millfield and the 6 proposed lots on the Wargo property (22 lots x 10 vpd/lot). Since total number of trips are less than 400 vpd, the proposed road extension will remain as a local subdivision road. The trips from the existing Millfield lots will reduce the total trips to the Millfield Drive/Academy Hill Road intersection and reduce interior traffic within the Millfield Subdivison.

**ENVIRONMENT**

National Wetlands Inventory mapping indicates that there are no potential wetland areas on the subject parcel, therefore, impacts to environmentally sensitive areas are not anticipated. If areas of concern are discovered, site design techniques will be utilized to avoid and or minimize impacts to any environmentally sensitive areas on or adjacent to the property.

Stormwater Management for any developed areas, if required, will comply with Fauquier County Stormwater Management Ordinance and Virginia Stormwater Management Regulations. Natural drainage patterns will be maintained.

**COMPREHENSIVE PLAN COMPLIANCE**

The Introduction of the Fauquier County Comprehensive Plan states: *"The Fauquier County Comprehensive Plan presents a long-range vision for the County. The Comprehensive Plan sets forth a guide for development within the County to promote, preserve and protect the health, safety and general welfare of its citizens. The purpose of this document is not to regulate, but rather to guide land use, transportation, infrastructure and resources decisions. The*

*Comprehensive Plan is a vital tool in understanding and influencing outcomes, by providing direction to protect resources and permit orderly development, ensuring a continued quality of life for the citizens and businesses of Fauquier County."*

*Guiding Principle B: The County's unique communities, from rural and agricultural to village settlements to urbanized, are integral to the County's collective identity.*
The proposed rezoning and development supports Policy #2, #3 and #5 under this Guiding Principle.

*Policy #2: Focus development within the areas of the County designated to have the infrastructure to serve higher density and intensity development.*
The subject parcel is within the Warrenton Service District. Water and sewer services are readily available to the site.

*Policy #3: Accommodate housing needs for all stages of life. This would involve a range of housing from affordable and accessible units for singles and young families just entering the housing market in the form of multi-family, townhouses and small single-family homes to larger homes as well as active adult and assisted care facilities.*
The proposed development offering 10,000 SF lots provides for affordable and accessible housing options.

*Policy #5: Provide quality recreational and cultural opportunities.*
The subject parcel is directly adjacent to Warrenton Greenway Open Space and Linear Trail System.

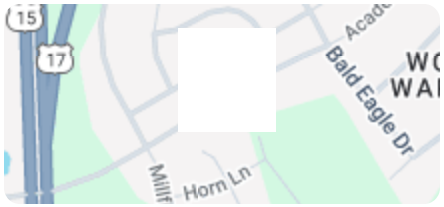
Item d.

# 6430 Academy Hill Extended

6415 Academy Hill Road




Image capture: Jun 2022 © 2023 Google




1258

# Aerial with Topography Map

Item d.

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0 0.01 0.02 0.04 km

Road Centerlines_without labels_1K
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- MINOR; RAMP
- COUNTY
- LOCAL
- PRIVATE
- TaxParcel_1K

Encumbrances_1K
Railroad_1K
Current
Municipal
School Location_1K
5' Contours

Maxar, Microsoft, Bloomfield Township MI, Esri., Inc.

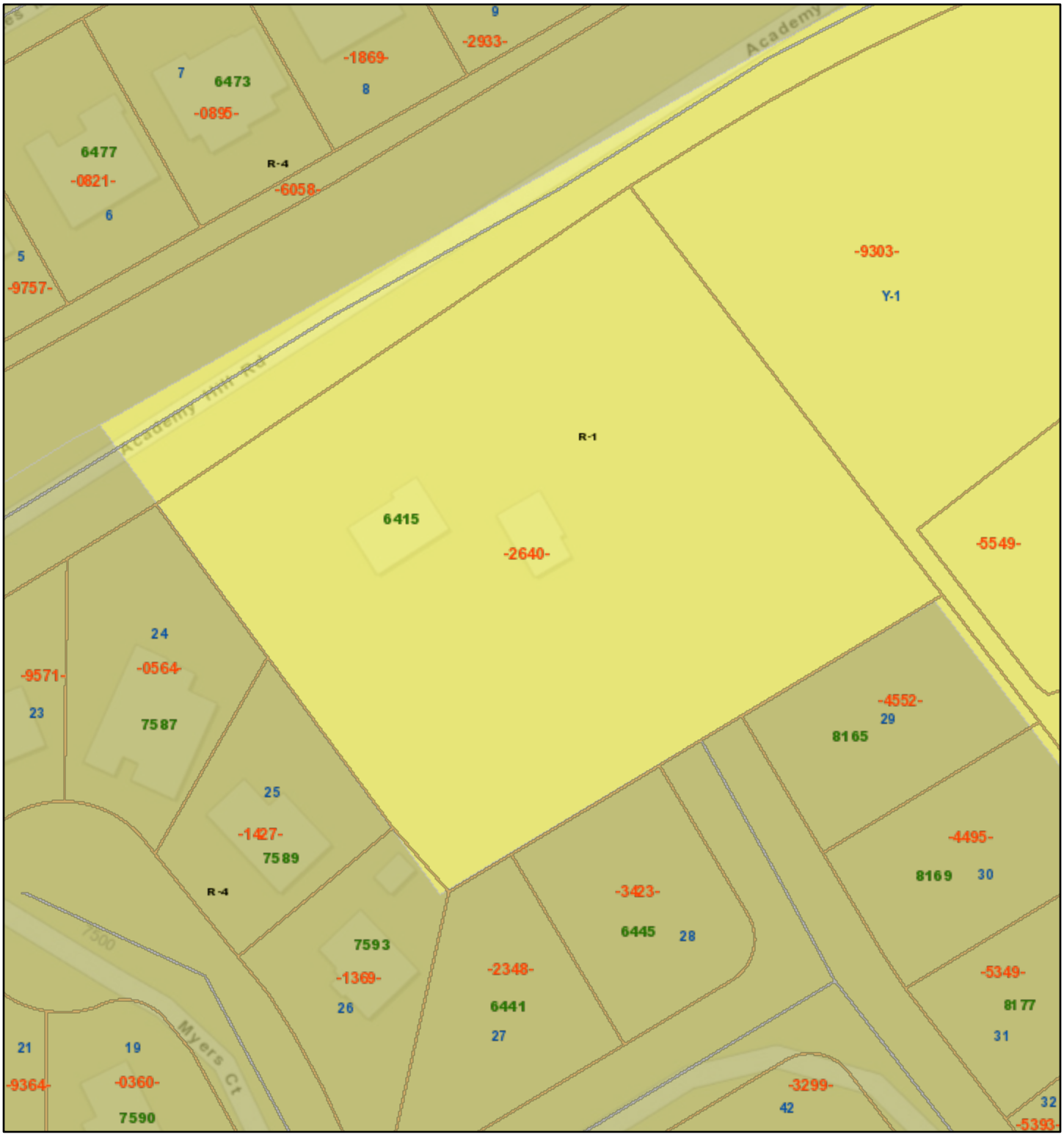
1259

Fauquier County GIS

Bloomfield Township MI, Esri., Inc. | Maxar, Microsoft |

# Current Zoning Map

Item d.

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0 0.01 0.02 0.04 km

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- MINOR; RAMP
- COUNTY
- LOCAL
- PRIVATE
- TaxParcel_1K
- Encumbrances_1K
- Railroad_1K
- Current
- Municipal
- School Location_1K

Zoning Districts
- Rural Agricultural
- Rural Conservation
- Village
- Rural Residential
- Residential -1 Dwelling Units/Acre
- Residential -2 Dwelling Units/Acre
- Residential -4 Dwelling Units/Acre
- Townhouse
- Manufactured Dwelling Park
- Garden Apartment
- Marshall Residential
- Marshall Town
- Marshall Gateway
- Planned Residential Development
- Commercial Village
- Commercial Neighborhood
- Commercial Highway
- Shopping Center, Community/Regional
- Business Park
- Industrial Park
- Industrial General
- Planned Commercial Industrial Development
- Mixed Use Bealeton

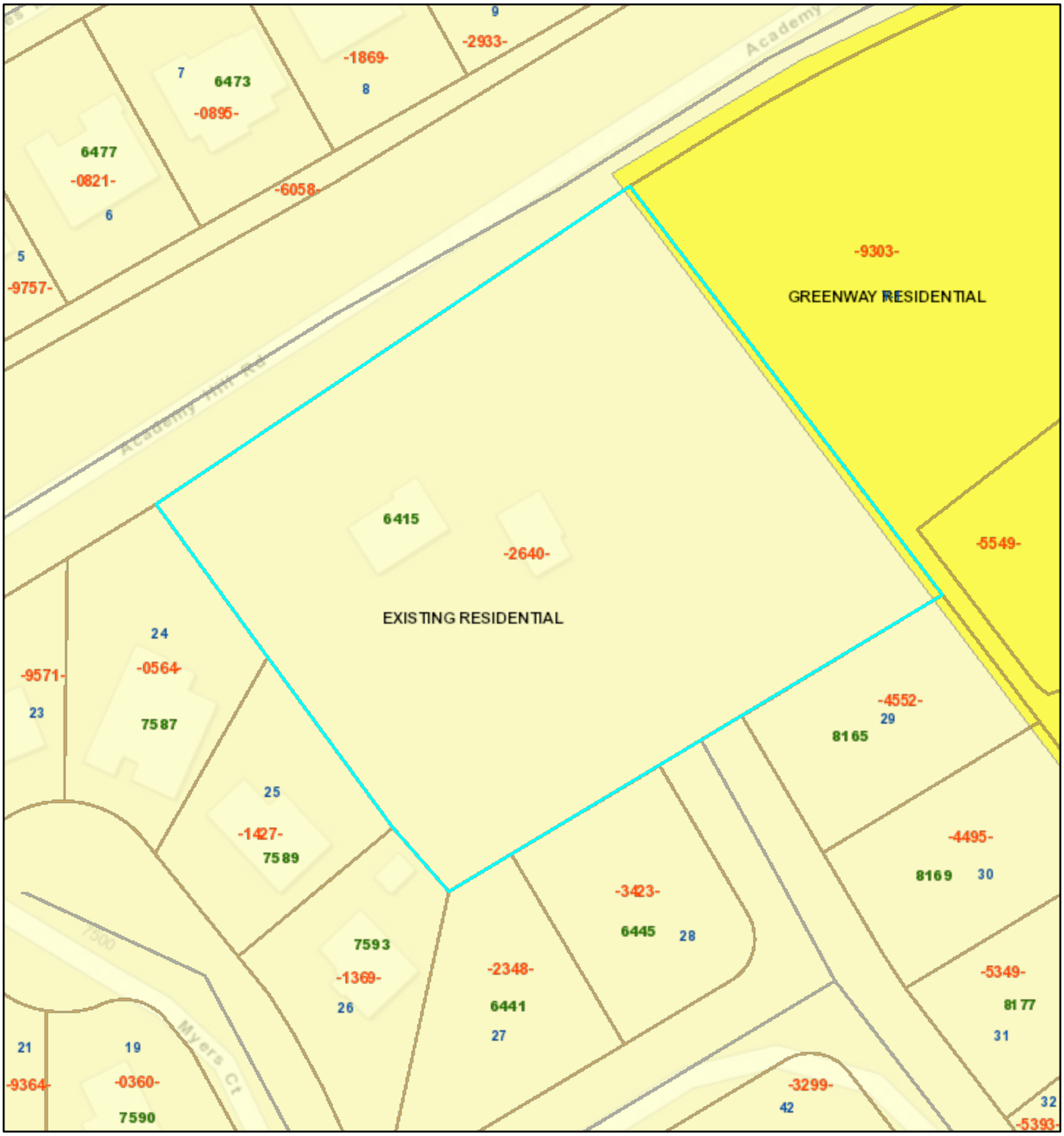
Bloomfield Township MI, Esri., Inc., VITA, Esri, HERE, Garmin, INCREMENT P, NGA, USGS



Fauquier County GIS
Bloomfield Township MI, Esri., Inc. | VITA, Esri, HERE, Garmin, INCREMENT P, NGA, USGS |

# Future Land Use Map

Item d.

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- COUNTY
- LOCAL
- PRIVATE
- TaxParcel_1K
- Encumbrances_1K
- Railroad_1K

Current
- Municipal
- School Location_1K

Warrenton Service District
- EXISTING RESIDENTIAL
- GREENWAY RESIDENTIAL
- GATEWAY RESIDENTIAL
- GREENWAY/GATEWAY RESIDENTIAL
- OPEN SPACE/PARK
- COMMERCIAL RECREATION
- COMMERCIAL HIGHWAY
- COMMUNITY BUSINESS
- WATER REMEDIATION
- FLEX INDUSTRIAL
- CAMPUS OFFICE/EMPLOYMENT
- SCHOOL
- PARK/RIDE
- GATEWAY

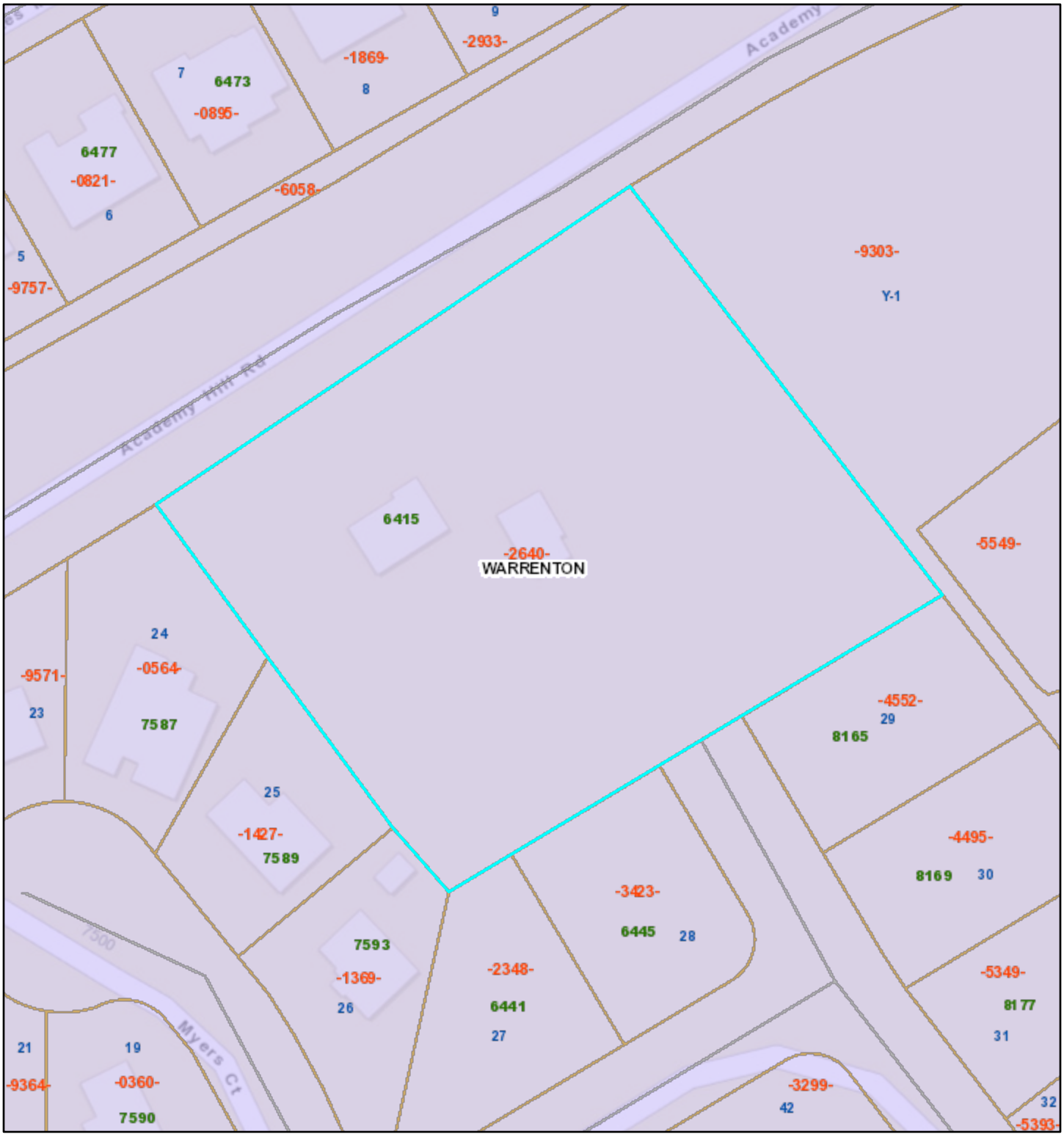
Bloomfield Township MI, Esri., Inc., VITA, Esri, HERE, Garmin, INCREMENT P, NGA, USGS



Fauquier County GIS
Bloomfield Township MI, Esri., Inc. | VITA, Esri, HERE, Garmin, INCREMENT P, NGA, USGS |

# Service District Map

Item d.

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- MINOR; RAMP
- COUNTY
- LOCAL
- PRIVATE

TaxParcel_1K

Encumbrances_1K

Railroad_1K
- Current
- Municipal

School Location_1K

Service District Boundary
- BEALETON
- CALVERTON
- CATLETT
- MARSHALL
- MIDLAND
- NEW BALTIMORE
- OPAL
- REMINGTON
- WARRENTON

Bloomfield Township MI, Esri., Inc., VITA, Esri, HERE, Garmin, INCREMENT P, NGA, USGS

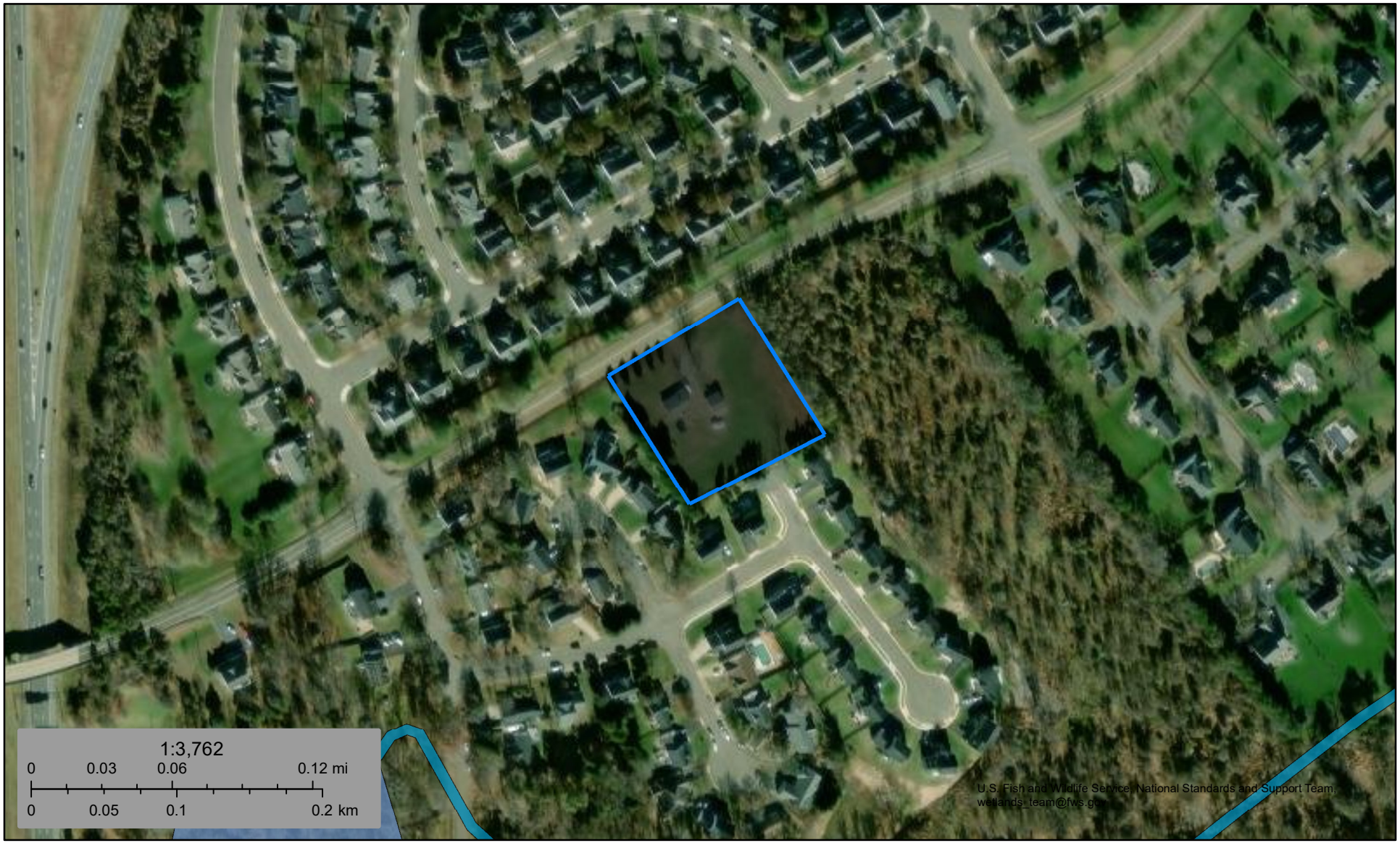


Fauquier County GIS
Bloomfield Township MI, Esri., Inc. | VITA, Esri, HERE, Garmin, INCREMENT P, NGA, USGS |

U.S. Fish and Wildlife Service
National Wetlands Inventory

# 6415 Academy Hill Road

Item d.




November 16, 2023

**Wetlands**

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.



National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Soil Map—Fauquier County, Virginia
(PIN 6984-95-2640)




Map Scale: 1:945 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 10 20 40 60

Feet
0 45 90 180 270

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

## MAP LEGEND

**Area of Interest (AOI)**
- Area of Interest (AOI)

**Soils**
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

**Special Point Features**
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

**Water Features**
- Streams and Canals

**Transportation**
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

**Background**
- Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Fauquier County, Virginia
Survey Area Data: Version 19, Aug 25, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

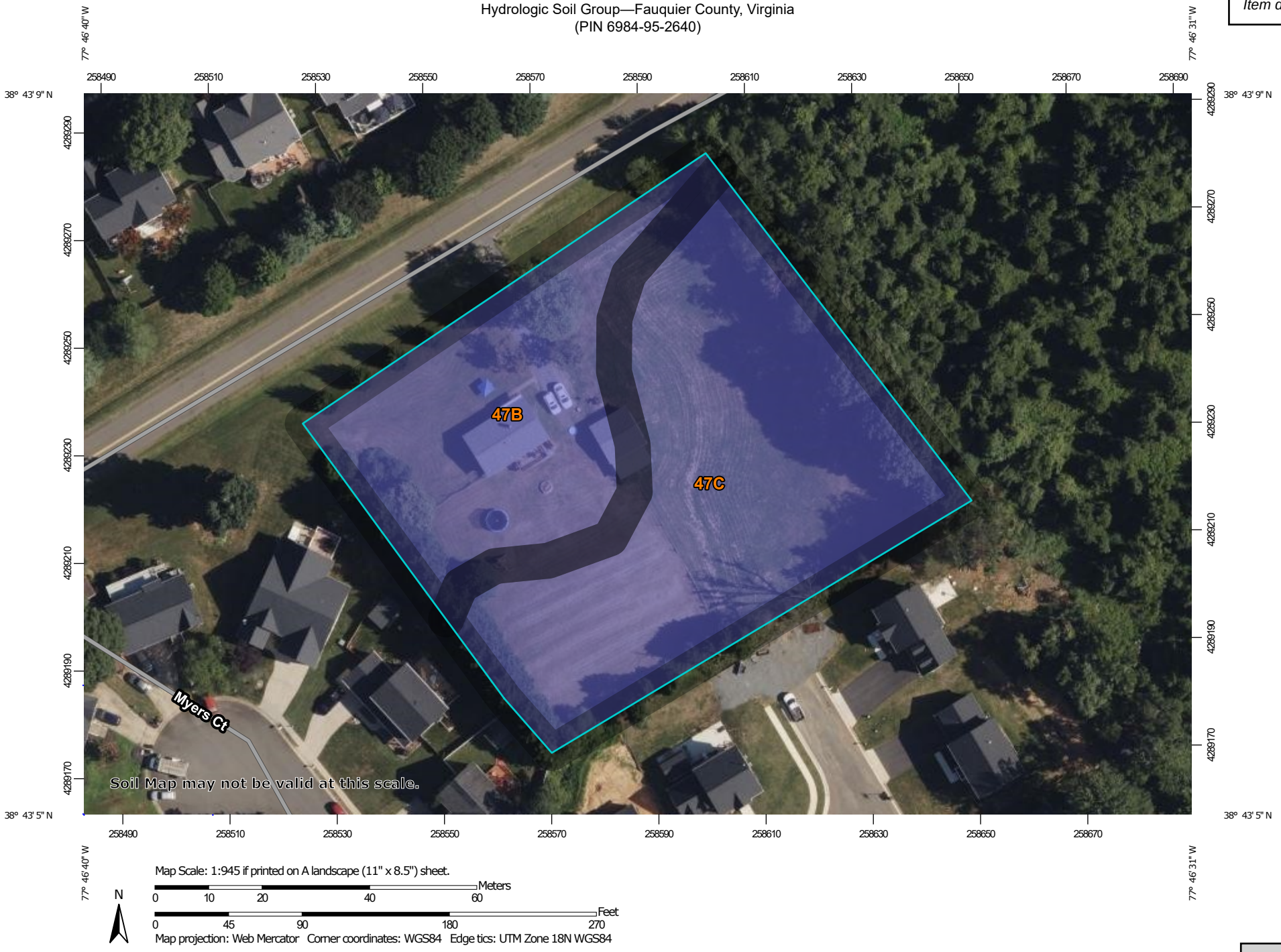
Date(s) aerial images were photographed: Jul 13, 2022—Oct 6, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

# Map Unit Legend

| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|---|---|---|---|
| 47B | Elioak-Fauquier complex, 2 to 7 percent slopes | 0.7 | 37.4% |
| 47C | Elioak-Fauquier complex, 7 to 15 percent slopes | 1.1 | 62.6% |
| **Totals for Area of Interest** | | **1.8** | **100.0%** |

# Hydrologic Soil Group—Fauquier County, Virginia
(PIN 6984-95-2640)




Map Scale: 1:945 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 10 20 40 60

Feet
0 45 90 180 270

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

## MAP LEGEND

**Area of Interest (AOI)**
- Area of Interest (AOI)

**Soils**

**Soil Rating Polygons**
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

**Soil Rating Lines**
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

**Soil Rating Points**
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

**Water Features**
- Streams and Canals

**Transportation**
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

**Background**
- Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Fauquier County, Virginia
Survey Area Data: Version 19, Aug 25, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 13, 2022—Oct 6, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

# Hydrologic Soil Group

| Map unit symbol | Map unit name | Rating | Acres in AOI | Percent of AOI |
|---|---|---|---|---|
| 47B | Elioak-Fauquier complex, 2 to 7 percent slopes | B | 0.7 | 37.4% |
| 47C | Elioak-Fauquier complex, 7 to 15 percent slopes | B | 1.1 | 62.6% |
| **Totals for Area of Interest** | | | **1.8** | **100.0%** |

## Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

## Rating Options

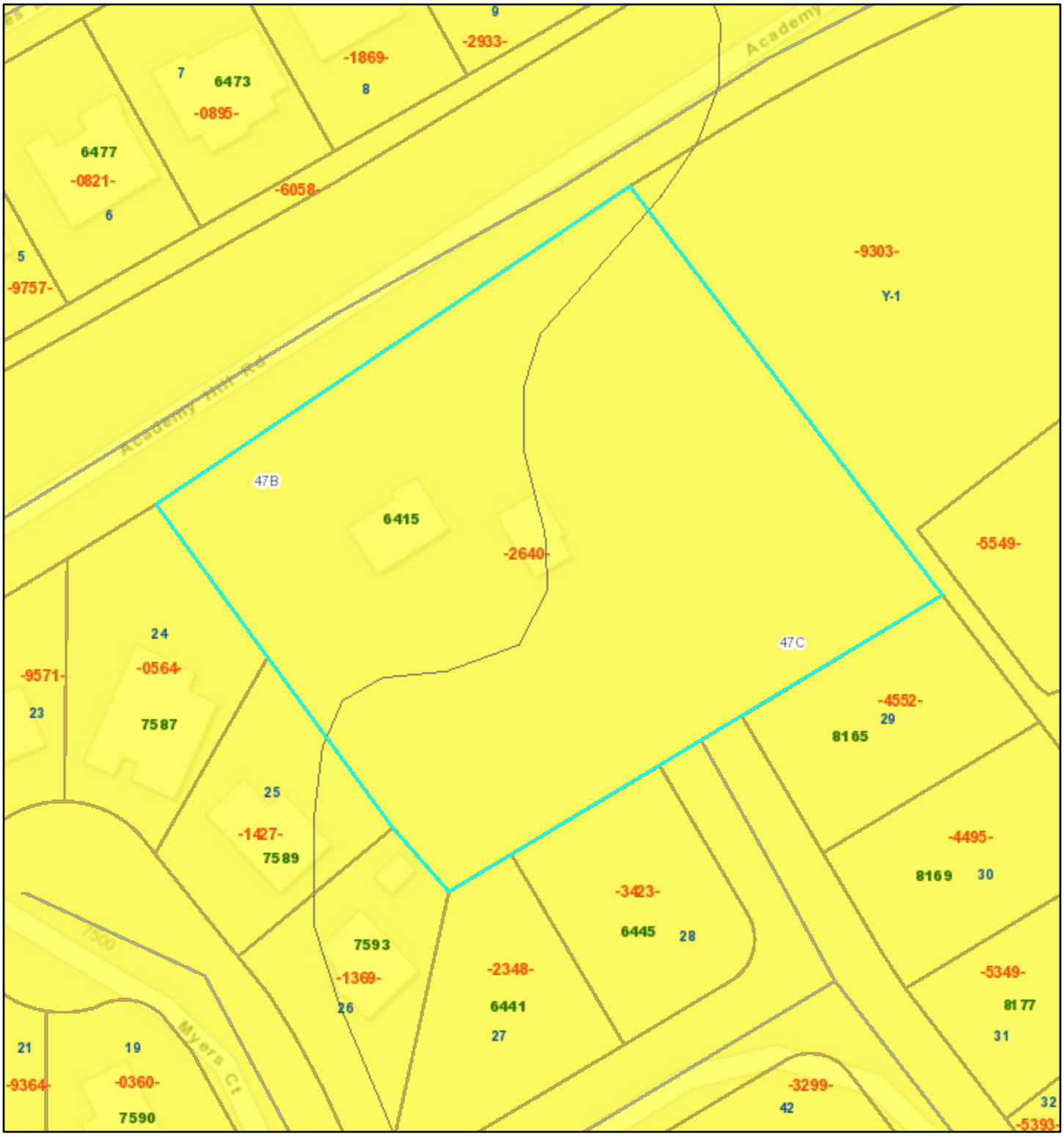
*Aggregation Method:* Dominant Condition

*Component Percent Cutoff: None Specified*

*Tie-break Rule:* Higher

# Shrink-Swell Soil Potential Map

Item d.




11/16/2023, 12:31:34 PM

1:1,128

0 0.01 0.01 0.03 mi

0 0.01 0.02 0.04 km

Road Centerlines_without labels_1K
- MAJOR
- MINOR; RAMP
- COUNTY
- LOCAL
- PRIVATE
- TaxParcel_1K

- Encumbrances_1K
- Railroad_1K
- Current
- Municipal
- School Location_1K

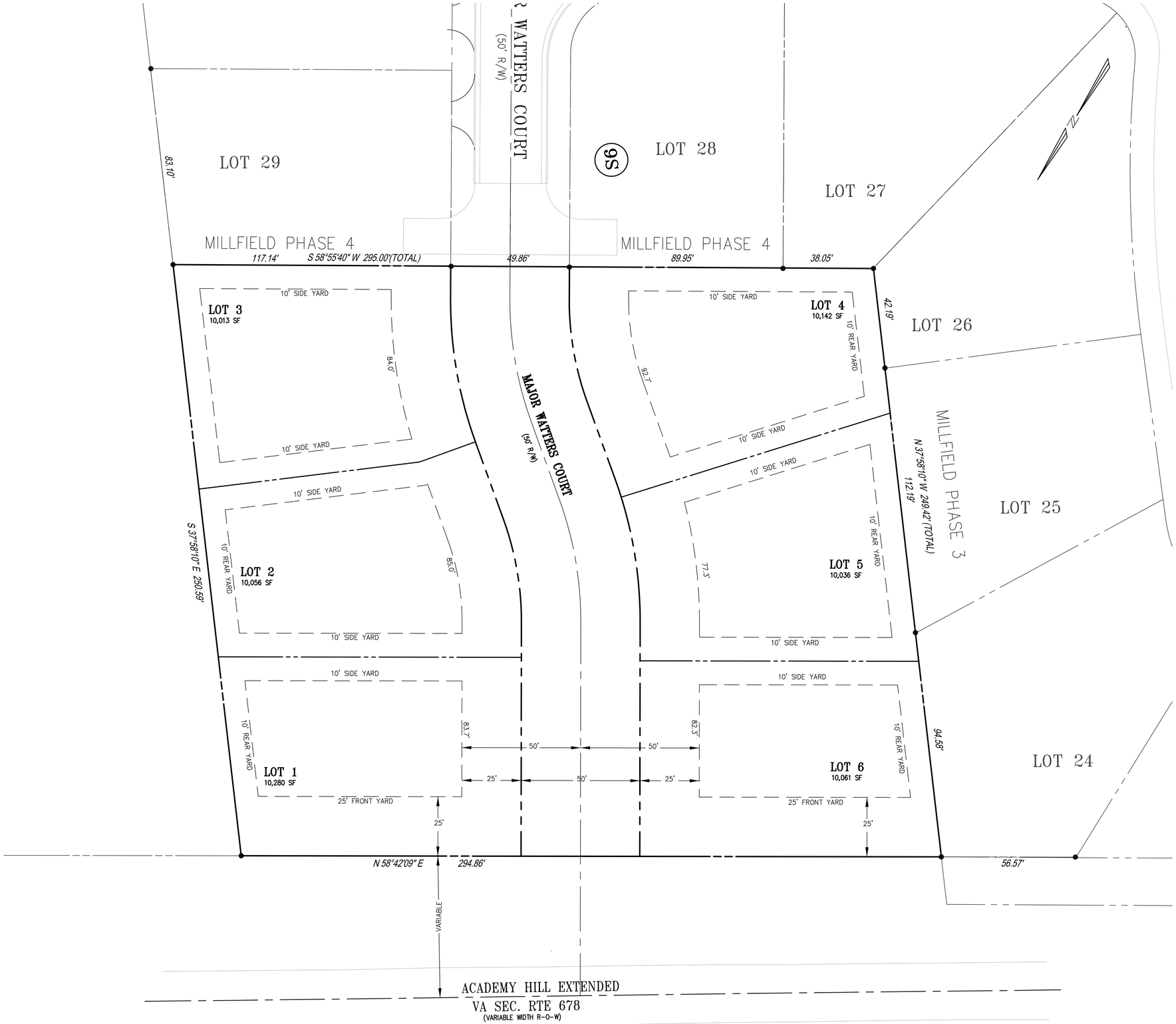
Soils - Shrink Swell Potential
- Low Shrink-Swell Potential
- Moderate Shrink-Swell Potential
- High Shrink-Swell Potential
- Very High Shrink-Swell Potential
- Water
- Not Rated - Variable
- Not Compiled

Bloomfield Township MI, Esri., Inc., VITA, Esri, HERE, Garmin, INCREMENT P, NGA, USGS

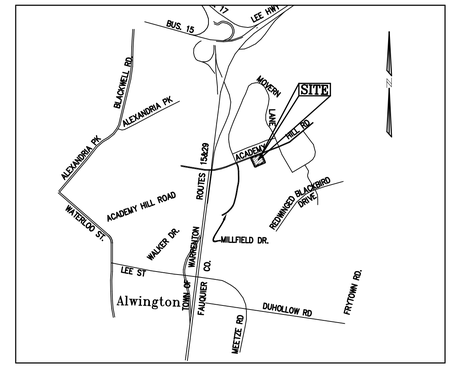
1271



Bloomfield Township MI, Esri., Inc. | VITA, Esri, HERE, Garmin, INCREMENT P, NGA, USGS |




**CONCEPTUAL SUBDIVISON LAYOUT**
SCALE: 1" = 20'




**VICINITY MAP**
SCALE: 1" = 2,000'

CONCEPTUAL DEVELOPMENT PLAN FOR

# WARGO SUBDIVISION

PIN 6984-95-2640
REZN-23-021163

## PLAN NOTES

1. PARCEL IDENTIFICATION: PIN 6984-95-2640-000 (1.6808 ACRES)
2. OWNER/APPLICANT: WARGO PROPERTIES LLC
   BOB WARGO
   6415 ACADEMY HILL ROAD
   WARRENTON, VA 20187
3. PROPOSED USE/DEVELOPMENT: SIX (6) SINGLE-FAMILY RESIDENTIAL LOTS (MIN 10,000 SF)
4. BOUNDARY AND TOPOGRAPHIC INFORMATION TAKEN FROM A PLAT ENTITLED "PLAT SHOWING TOPOGRAPHIC & BOUNDARY SURVEY ON THE PROPERTY OF WARGO PROPERTIES, LLC DATED 03/23/2023 BY CARDINAL CIVIL RESOURCES.
5. CURRENT ZONING: R-1 (RESIDENTIAL DISTRICT, 1 DWELLING UNIT/AC)
   PROPOSED ZONING: R-4 (RESIDENTIAL DISTRICT, 4 DWELLING UNITS/AC)

*R-4 ZONING DISTRICT USE LIMITATIONS*

| | |
|---|---|
| MINIMUM LOT WIDTH: | 70' (CONVENTIONAL) |
| MINIMUM FRONT YARD: | 50' FROM CENTERLINE (LOCAL ROAD) |
| MINIMUM SIDE AND REAR YARD: | 10' |
| MAXIMUM BUILDING HEIGHT: | 35' |
| MINIMUM OPEN SPACE: | NOT REQUIRED PER Z.O. SEC. 2-406.1(2) |

## SHEET INDEX


1. COVER SHEET
2. TOPOGRAPHIC & BOUNDARY SURVEY
3. CONCEPTUAL SUBDIVISON PLAN
4. CONCEPTUAL GRADING PLAN
5. CONCEPTUAL LANDSCAPING PLAN
6. CONCEPTUAL STORMWATER MANAGEMENT PLAN


20 10 0 20 40
GRAPHIC SCALE
SCALE: 1" = 20'

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HINCHEY & BAINES, PLC
ENGINEERING AND LAND PLANNING
125 EAST DAVIS STREET
SUITE 201
CULPEPER, VIRGINIA 22701
PHONE (540) 829-2220
FAX (540) 829-2239


COMMONWEALTH OF VIRGINIA
RICHARD L. BAINES
LIC. NO. 040234
03/10/2024
PROFESSIONAL ENGINEER

COVER SHEET
**WARGO SUBDIVISION**
PIN 6984-95-2640-000
CEDAR RUN MAGISTERIAL DISTRICT - FAUQUIER COUNTY, VIRGINIA

SCALE: 1"=20'
DATE: 11/17/2023
REVISIONS:
3/10/24 COUNTY COMMENTS

SHEET 1 OF 6
FILE NO. 1659

Item d.
1272

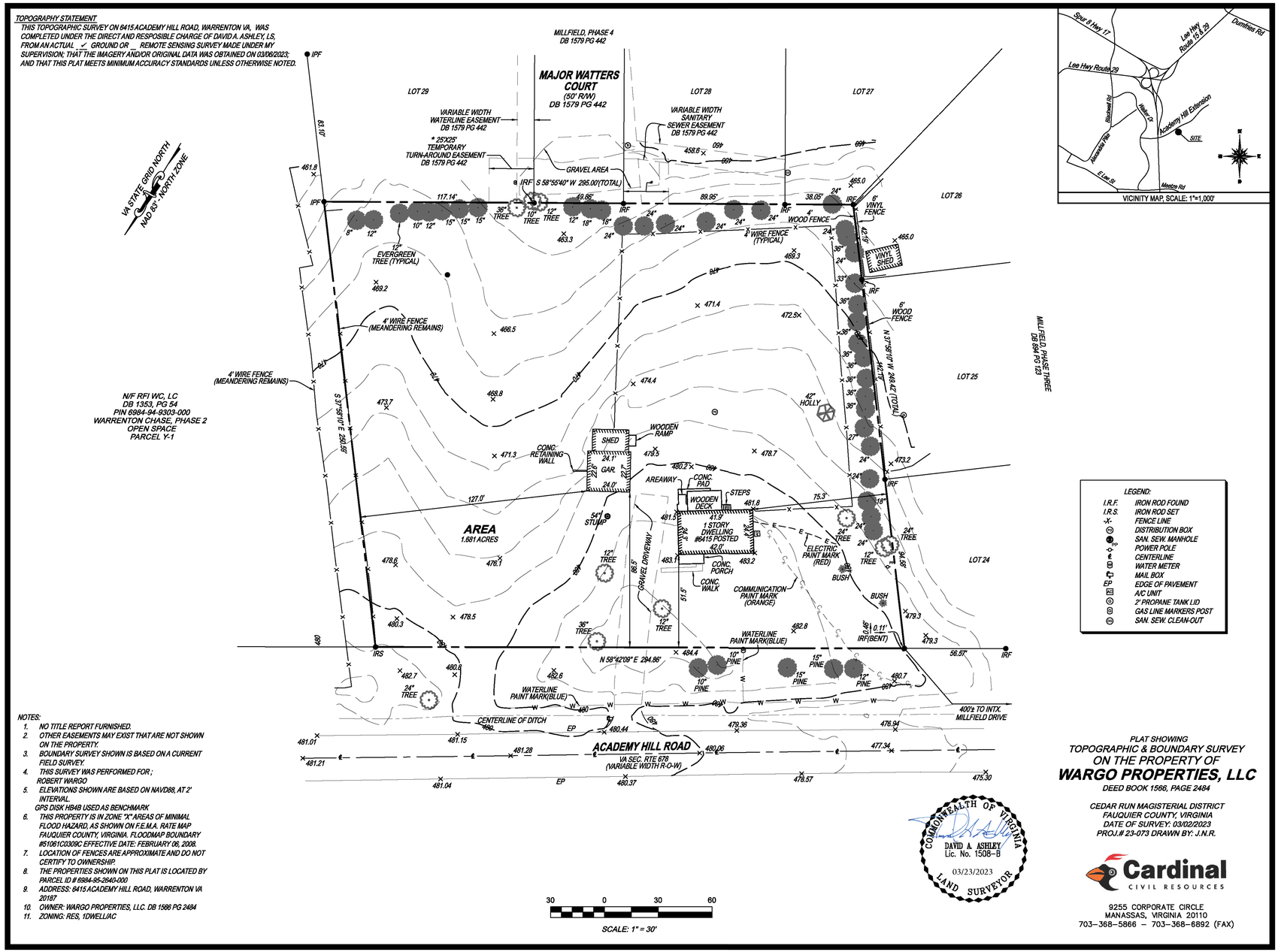
HINCHEY & BAINES, PLC
ENGINEERING AND LAND PLANNING
125 EAST DAVIS STREET
SUITE 201
CULPEPPER, VIRGINIA 22701
PHONE (540) 829-2220
FAX (540) 829-2239

TOPOGRAPHIC & BOUNDARY SURVEY

**WARGO SUBDIVISION**

PIN 6984-95-2640-000

CEDAR RUN MAGISTERIAL DISTRICT – FAUQUIER COUNTY, VIRGINIA




NOTES:

1. NO TITLE REPORT FURNISHED.
2. OTHER EASEMENTS MAY EXIST THAT ARE NOT SHOWN ON THE PROPERTY.
3. BOUNDARY SURVEY SHOWN IS BASED ON A CURRENT FIELD SURVEY.
4. THIS SURVEY WAS PERFORMED FOR ; ROBERT WARGO
5. ELEVATIONS SHOWN ARE BASED ON NAVD88, AT 2' INTERVAL. GPS DISK HB4B USED AS BENCHMARK
6. THIS PROPERTY IS IN ZONE "X" AREAS OF MINIMAL FLOOD HAZARD, AS SHOWN ON F.E.M.A. RATE MAP FAUQUIER COUNTY, VIRGINIA. FLOODMAP BOUNDARY #51061C0309C EFFECTIVE DATE: FEBRUARY 06, 2008.
7. LOCATION OF FENCES ARE APPROXIMATE AND DO NOT CERTIFY TO OWNERSHIP.
8. THE PROPERTIES SHOWN ON THIS PLAT IS LOCATED BY PARCEL ID # 6984-95-2640-000
9. ADDRESS: 6415 ACADEMY HILL ROAD, WARRENTON VA 20187
10. OWNER: WARGO PROPERTIES, LLC. DB 1566 PG 2484
11. ZONING: RES, 1DWELL/AC

COMMONWEALTH OF VIRGINIA
DAVID A ASHLEY
Lic. No. 1508-B
03/23/2023
LAND SURVEYOR

PLAT SHOWING
TOPOGRAPHIC & BOUNDARY SURVEY
ON THE PROPERTY OF
**WARGO PROPERTIES, LLC**
DEED BOOK 1566, PAGE 2484

CEDAR RUN MAGISTERIAL DISTRICT
FAUQUIER COUNTY, VIRGINIA
DATE OF SURVEY: 03/02/2023
PROJ.# 23-073 DRAWN BY: J.N.R.

Cardinal CIVIL RESOURCES
9255 CORPORATE CIRCLE
MANASSAS, VIRGINIA 20110
703-368-5866 – 703-368-6892 (FAX)

SCALE: AS NOTED

DATE: 11/17/2023

REVISIONS:
3/10/24 COUNTY COMMENTS

SHEET 2 OF 6

FILE NO. 1659

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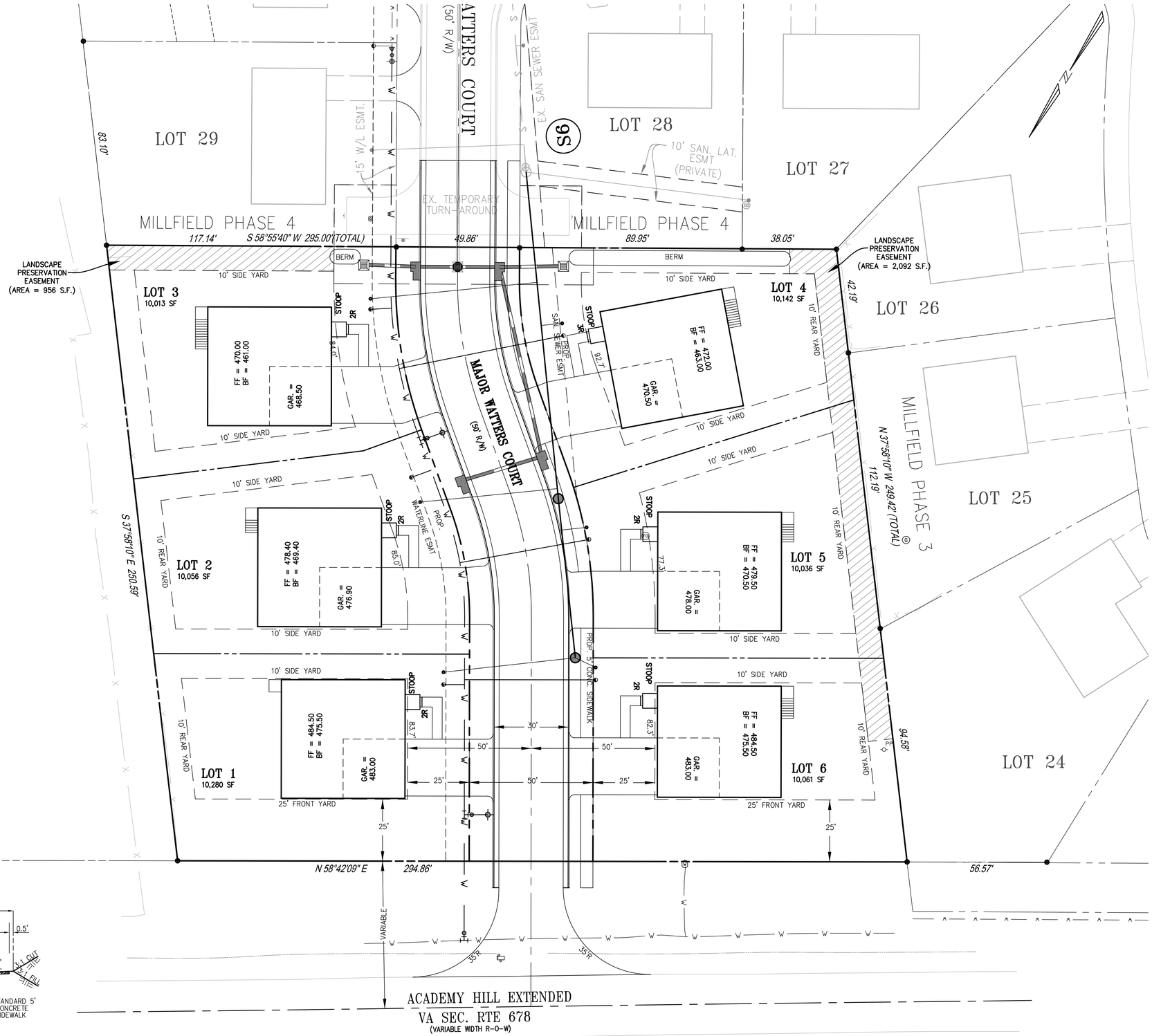
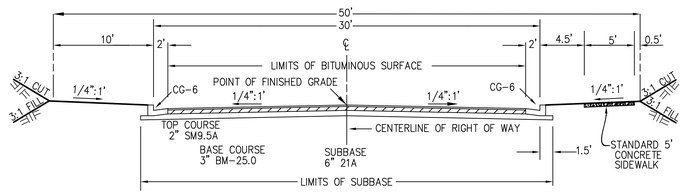



## TYPICAL STREET SECTION
## MAJOR WATTERS COURT




SUBBASE DEPTH FOR SUBGRADE BASED ON CBR VALUE OF 6, BASED ON AN ACTUAL DETERMINATION PER SOIL TEST (OR) AN ESTIMATE WHICH WILL BE REVISED ONCE THE SOIL TESTS OF THE SUBGRADE ARE PERFORMED.

SOIL TEST OF SUBGRADE MUST BE SUBMITTED FOR ACTUAL DETERMINATION OF REQUIRED SUBBASE THICKNESS PRIOR TO CONSTRUCTION.

ST'D UD-3 AND 4" MINIMUM AGGREGATE BENEATH ST'D SIDEWALK.

20 10 0 20 40
GRAPHIC SCALE
SCALE: 1" = 20'

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ENGINEERING AND LAND PLANNING
125 EAST DAVIS STREET
SUITE 201
CULPEPER, VIRGINIA 22701
PHONE (540) 829-2220
FAX (540) 829-2239

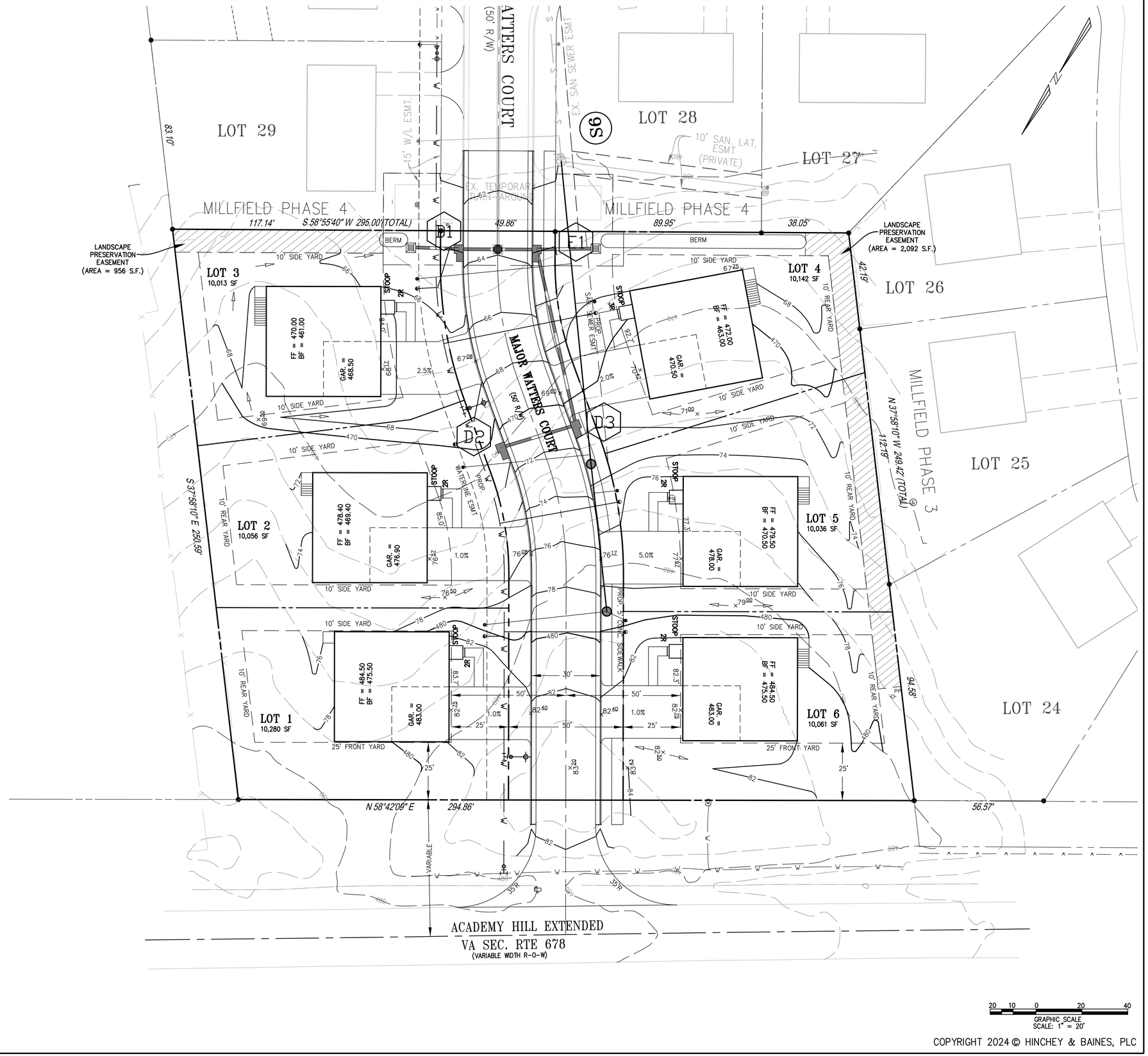
COMMONWEALTH OF VIRGINIA
RICHARD L. BAINES
LIC. NO. 040234
03/10/2024
PROFESSIONAL ENGINEER

CONCEPTUAL DEVELOPMENT PLAN
**WARGO SUBDIVISION**
PIN 6984-95-2640-000
CEDAR RUN MAGISTERIAL DISTRICT - FAUQUIER COUNTY, VIRGINIA

SCALE: 1"=20'
DATE: 11/17/2023
REVISIONS:
3/10/24 COUNTY COMMENTS

SHEET 3 OF 6
FILE NO. 1659

Item d.
1274




20 10 0 20 40
GRAPHIC SCALE
SCALE: 1" = 20'

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125 EAST DAVIS STREET
SUITE 201
CULPEPER, VIRGINIA 22701
PHONE (540) 829-2220
FAX (540) 829-2239

COMMONWEALTH OF VIRGINIA
RICHARD A. BAINES
040239
PROFESSIONAL ENGINEER
03/10/2024

# CONCEPTUAL GRADING PLAN
# WARGO SUBDIVISION
PIN 6984-95-2640-000
CEDAR RUN MAGISTERIAL DISTRICT - FAUQUIER COUNTY, VIRGINIA

SCALE: 1"=20'
DATE: 11/17/2023
REVISIONS:
3/10/24 COUNTY COMMENTS

SHEET 4 OF 6
FILE NO. 1659

## PLANT LIST

| KEY | QUANTITY | BOTANICAL NAME | COMMON NAME | CALIPER | HEIGHT | CANOPY/ SPREAD | REMARKS | TOTAL |
|---|---|---|---|---|---|---|---|---|
| TREES: | | | | | | | | |
| AR | 6 | ACER RUBRUM | RED MAPLE | 2-1/4" MIN. | 6' MIN. | 310 SF | B&B | 1,860 SF |
| AP | 6 | ACER PLATANOIDES 'CRIMSON KING' | NORWAY MAPLE | 2-1/4" MIN. | 6' MIN. | 310 SF | B&B | 1,860 SF |
| KP | 2 | KOELREUTERIA PANICULATA | GOLDENRAIN TREE | 2-1/4" MIN. | 6' MIN. | 175 SF | B&B | 350 SF |
| QC | 6 | QUERCUS COCCINEA | SCARLET OAK | 2-1/4" MIN. | 6' MIN. | 250 SF | B&B | 1,500 SF |
| | | | | TOTAL CANOPY AREA OF TREES TO BE PLANTED: | | | | 5,570 SF |

## PLANT LEGEND

**KP** — MEDIUM DECIDUOUS:
KOELREUTERIA PANICULATA/GOLDENRAIN TREE

**AR** — LARGE DECIDUOUS:
ACER RUBRUM/RED MAPLE

**AP** — LARGE DECIDUOUS:
ACER PLATANOIDES 'CRIMSON KING'/NORWAY MAPLE

**QC** — LARGE DECIDUOUS:
QUERCUS COCCINEA/SCARLET OAK

## STREET TREE PLANTING

REQUIRED: 1 CANOPY TREE PER 50 LINEAR FEET
ACADEMY HILL ROAD = 294.86' – 50' R.O.W. = 244.86'/50 = 4.90
5 TREES REQUIRED
MAJOR WATTERS COURT = 252.50' – 15' STORM SEWER EASEMENT = 237.5'/50 = 4.75
5 TREES REQUIRED (BOTH SIDES)

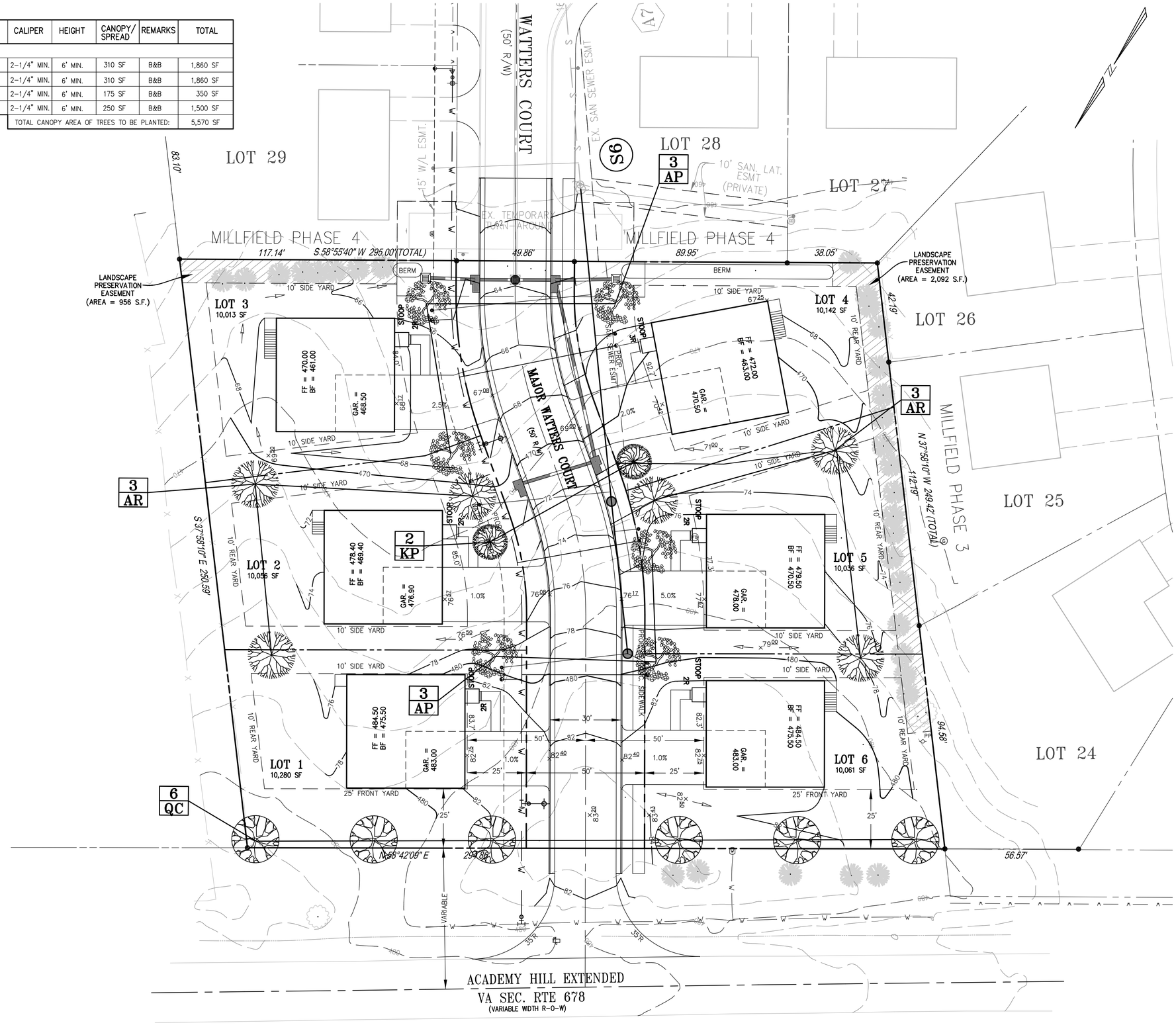
PROVIDED: ACADEMY ROAD = 6 TREES
MAJOR WATTERS COURT = 5 TREES (BOTH SIDES)

## TREE CANOPY COVER CALCULATIONS

GROSS SITE AREA: (1.6808 AC.) = 73,216 SF.
EXCLUSIONS:
R.O.W. = 12,628 S.F.
UTILITY EASEMENTS = 4,590 S.F.
TOTAL = 17,218 S.F.
NET AREA: 73,216 – 17,218 = 55,998 S.F.
MULTIPLIED BY PERCENTAGE OF TREE COVER REQ'D = (R1&R4=15%):
55,998 (0.15) = 8,399.7 SF
CANOPY AREA REQUIRED = 8,400 SF.

AREA OF EXISTING WOODLANDS TO BE PRESERVED WITHIN EASEMENTS: 3,048 S.F.
CANOPY AREA OF TREES TO BE PLANTED: 5,570 S.F.
TOTAL CANOPY AREA PROVIDED = 8,618 SF.

CANOPY AREA PROVIDED EXCEEDS REQUIRED

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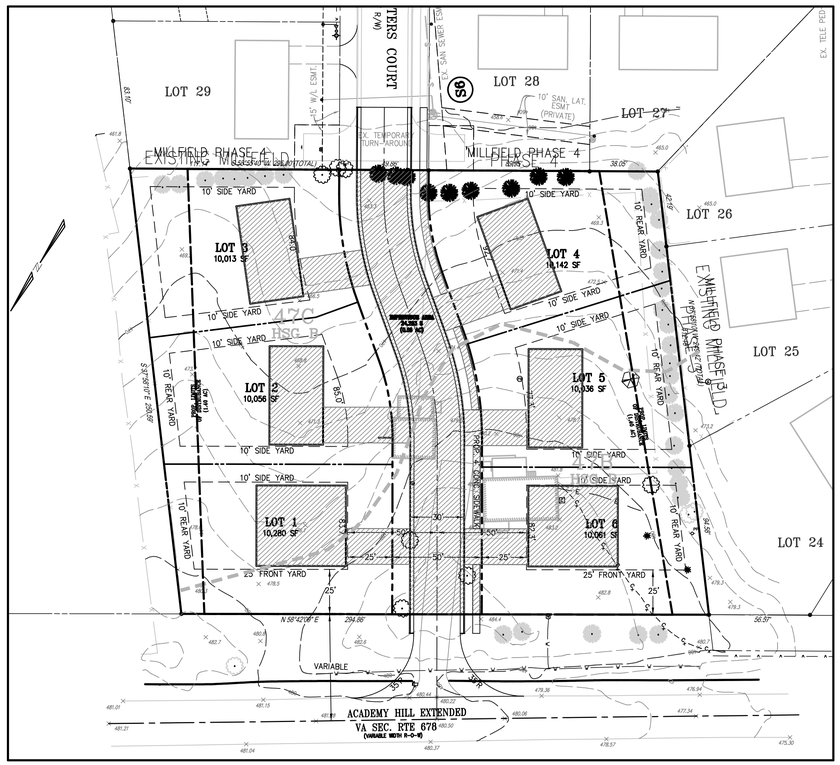
ENGINEERING AND LAND PLANNING
125 EAST DAVIS STREET
SUITE 201
CULPEPER, VIRGINIA 22701
PHONE (540) 829-2220
FAX (540) 829-2239

COMMONWEALTH OF VIRGINIA — CHRISTOPHER M. BAINES — 040234 — PROFESSIONAL ENGINEER — 03/10/2024

CONCEPTUAL LANDSCAPE PLAN
**WARGO SUBDIVISION**
PIN 6984-95-2640-000
CEDAR RUN MAGISTERIAL DISTRICT – FAUQUIER COUNTY, VIRGINIA

SCALE: 1"=20'
DATE: 11/17/2023
REVISIONS:
3/10/24 COUNTY COMMENTS

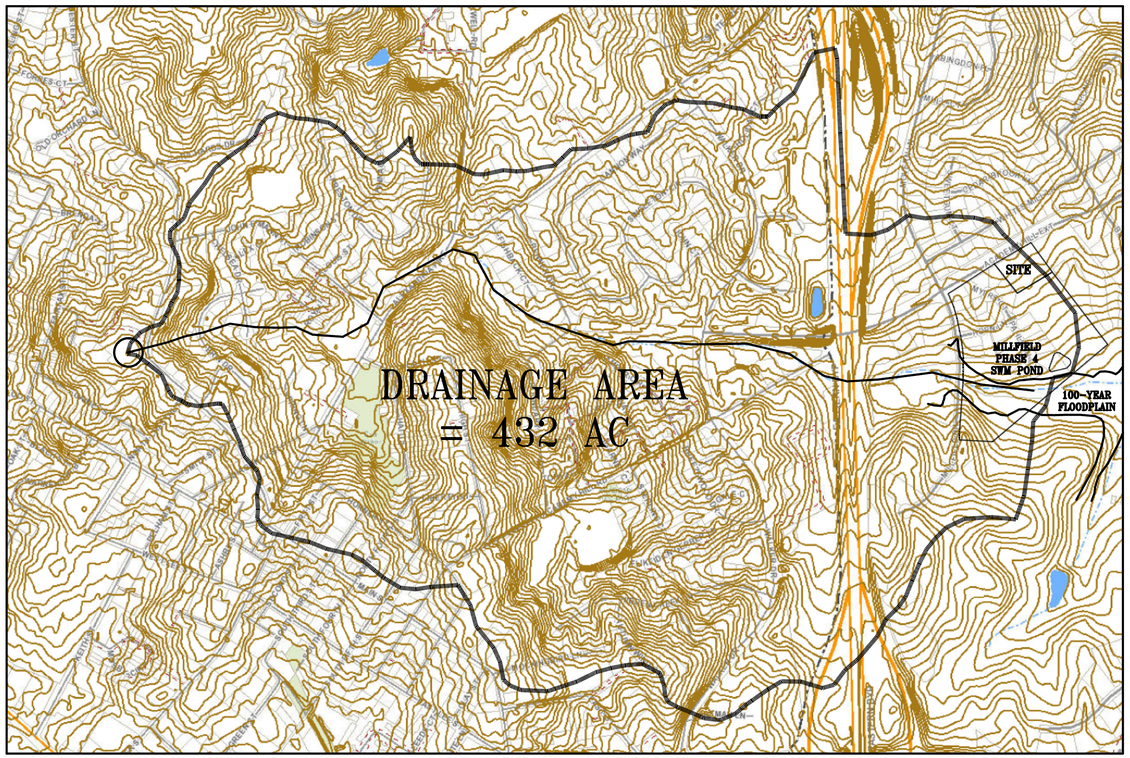
SHEET 5 OF 6
FILE NO. 1659




## POST-DEVELOPMENT QUALITY MAP

SCALE: 1" = 40'

GRAPHIC SCALE
40 20 0 40 80
SCALE: 1" = 40'




## OFFSITE DRAINAGE MAP

SCALE: 1" = 500'

GRAPHIC SCALE
500 250 0 500 1000
1" = 500'

Project Name: Wargo PIN 6984-95-2640-000
Date: 11/17/2023
Linear Development Project? No

CLEAR ALL (Ctrl+Shift+N)

data input cells
constant values
calculation cells
final results

### Site Information

### Post-Development Project (Treatment Volume and Loads)

Enter Total Disturbed Area *(acres)* → 1.40

Check:
BMP Design Specifications List: 2013 Draft Stds & Specs
Linear project? No
Land cover areas entered correctly? ✓
Total disturbed area entered? ✓

| | |
|---|---|
| Maximum reduction required | 20% |
| The site's net increase in impervious cover (acres) is | 0.42 |
| Post Development TP Load Reduction for Site (lb/yr) | 0.94 |

**Pre-ReDevelopment Land Cover (acres)**

| | A Soils | B Soils | C Soils | D Soils | Totals |
|---|---|---|---|---|---|
| Forest/Open Space (acres) -- undisturbed, forest/open space | | | | | 0.00 |
| Managed Turf (acres) -- disturbed, graded for yards or other turf to be | | 1.31 | | | 1.31 |
| Impervious Cover (acres) | | 0.09 | | | 0.09 |
| | | | | | 1.40 |

**Post-Development Land Cover (acres)**

| | A Soils | B Soils | C Soils | D Soils | Totals |
|---|---|---|---|---|---|
| Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested | | | | | 0.00 |
| Managed Turf (acres) -- disturbed, graded for yards or other turf to be | | 0.84 | | | 0.84 |
| Impervious Cover (acres) | | 0.56 | | | 0.56 |
| Area Check | OK. | OK. | OK. | OK. | 1.40 |

**Constants**

| | |
|---|---|
| Annual Rainfall (inches) | 43 |
| Target Rainfall Event (inches) | 1.00 |
| Total Phosphorus (TP) EMC (mg/L) | 0.26 |
| Total Nitrogen (TN) EMC (mg/L) | 1.86 |
| Target TP Load (lb/acre/yr) | 0.41 |
| Pj (unitless correction factor) | 0.90 |

**Runoff Coefficients (Rv)**

| | A Soils | B Soils | C Soils | D Soils |
|---|---|---|---|---|
| Forest/Open Space | 0.02 | 0.03 | 0.04 | 0.05 |
| Managed Turf | 0.15 | 0.20 | 0.22 | 0.25 |
| Impervious Cover | 0.95 | 0.95 | 0.95 | 0.95 |

**LAND COVER SUMMARY -- PRE-REDEVELOPMENT**

| *Land Cover Summary-Pre* | | |
|---|---|---|
| **Pre-ReDevelopment** | **Listed** | **Adjusted*** |
| Forest/Open Space Cover (acres) | 0.00 | 0.00 |
| Weighted Rv(forest) | 0.00 | 0.00 |
| % Forest | 0% | 0% |
| Managed Turf Cover (acres) | 1.31 | 0.84 |
| Weighted Rv(turf) | 0.20 | 0.20 |
| % Managed Turf | 94% | 60% |
| Impervious Cover (acres) | 0.09 | 0.09 |
| Rv(impervious) | 0.95 | 0.95 |
| % Impervious | 6% | 10% |
| **Total Site Area (acres)** | **1.40** | **0.93** |
| **Site Rv** | **0.21** | **0.27** |

**Treatment Volume and Nutrient Load**

| | | |
|---|---|---|
| **Pre-ReDevelopment Treatment Volume (acre-ft)** | 0.0290 | 0.0211 |
| **Pre-ReDevelopment Treatment Volume (cubic feet)** | 1,261 | 920 |
| **Pre-ReDevelopment TP Load (lb/yr)** | **0.79** | **0.58** |
| Pre-ReDevelopment TP Load per acre (lb/acre/yr) | 0.57 | 0.62 |
| Baseline TP Load (lb/yr) (0.41 lb/acre/yr applied to pre-redevelopment area excluding previous land proposed for new impervious cover) | | 0.38 |

**LAND COVER SUMMARY -- POST DEVELOPMENT**

| *Land Cover Summary-Post (Total)* | |
|---|---|
| **Post ReDev. & New Impervious** | |
| Forest/Open Space Cover (acres) | 0.00 |
| Weighted Rv(forest) | 0.00 |
| % Forest | 0% |
| Managed Turf Cover (acres) | 0.84 |
| Weighted Rv (turf) | 0.20 |
| % Managed Turf | 60% |
| ReDev. Impervious Cover (acres) | 0.09 |
| Rv(impervious) | 0.95 |
| % Impervious | 10% |
| **Final Site Area (acres)** | **1.40** |
| **Final Post Dev Site Rv** | **0.50** |

| *Land Cover Summary-Post* | |
|---|---|
| **Post-ReDevelopment** | |
| Forest/Open Space Cover (acres) | 0.00 |
| Weighted Rv(forest) | 0.00 |
| % Forest | 0% |
| Managed Turf Cover (acres) | 0.84 |
| Weighted Rv (turf) | 0.20 |
| % Managed Turf | 60% |
| ReDev. Impervious Cover (acres) | 0.09 |
| Rv(impervious) | 0.95 |
| % Impervious | 10% |
| **Total ReDev. Site Area (acres)** | **0.93** |
| **ReDev Site Rv** | **0.27** |

| *Land Cover Summary-Post* | |
|---|---|
| **Post-Development New Impervious** | |
| New Impervious Cover (acres) | 0.47 |
| Rv(impervious) | 0.95 |

**Treatment Volume and Nutrient Load**

| | | | |
|---|---|---|---|
| **Final Post-Development Treatment Volume (acre-ft)** | 0.0583 | **Post-ReDevelopment Treatment Volume (acre-ft)** | 0.0211 | **Post-Development Treatment Volume (acre-ft)** | 0.0372 |
| **Final Post-Development Treatment Volume (cubic feet)** | 2,541 | **Post-ReDevelopment Treatment Volume (cubic feet)** | 920 | **Post-Development Treatment Volume (cubic feet)** | 1,621 |
| **Final Post-Development TP Load (lb/yr)** | **1.60** | **Post-ReDevelopment TP Load (lb/yr)** | **0.58** | **Post-Development TP Load (lb/yr)** | **1.02** |
| Final Post-Development TP load per acre (lb/acre/yr) | 1.14 | Post-ReDevelopment TP load per acre (lb/acre/yr) | 0.62 | | |
| | | **Max. Reduction Required (Below Pre-ReDevelopment Load)** | 39% | | |
| | | **TP Load Reduction Required for New/Redeveloped Area (lb/yr)** | **0.12** | **TP Load Reduction Required for New Impervious Area (lb/yr)** | **0.83** |

*Adjusted Land Cover Summary: Pre-ReDevelopment land cover minus pervious land cover (forest/open space or managed turf) acreage proposed for new impervious cover.

Adjusted total acreage is consistent with Post-ReDevelopment acreage (minus acreage of new impervious cover).

Column I shows load reduction requirement for new impervious cover (based on new development load limit, 0.41 lbs/acre/year).

**Post-Development Requirement for Site Area**

| | |
|---|---|
| **TP Load Reduction Required (lb/yr)** | **0.94** |

**Nitrogen Loads (Informational Purposes Only)**

| | | | |
|---|---|---|---|
| Pre-ReDevelopment TN Load (lb/yr) | 5.67 | Final Post-Development TN Load (Post-ReDevelopment & New Impervious) (lb/yr) | 11.42 |

## CONCEPTUAL STORMWATER MANAGEMENT NARRATIVE

The proposed development is located along the southern side of Academy Hill Road to the north of the terminus of Major Watters Court. The existing site is approximately 1.68 acres and consists of one existing residential dwelling, and existing driveway, and open lawn areas. The project consists of the development of six single family detached lots along with associated improvements. Stormwater runoff generally discharges to the southern boundary line. Stormwater runoff will be collected in a closed conduit storm sewer system that will outfall into the existing, manmade storm sewer system located along Major Watters Court.

### WATER QUANTITY

Channel Protection:
Stormwater runoff from this development will discharge into an existing, manmade storm sewer system along Major Watters Court. Flow from the 2-year storm is non-erosive within the existing storm sewer system. In accordance with 9VAC25-870-66.B.4, the existing storm sewer system shall be analyzed from the point of discharge to the limits of analysis. The existing storm sewer system discharges into an existing SWM pond within Millfield Phase 4. The overall drainage area at the existing pond outfall is approximately 432 acres. The proposed site's contributing drainage area is less than 1% of the total drainage area at the existing pond outfall. Therefore, 9VAC25-870-66.B.1.A has been met since post-developed flow from the 2-year storm does not cause erosion to the existing manmade stormwater conveyance system from the point of discharge to the limits of analysis. Based on preliminary analysis of the existing SWM pond, the increase in runoff from this proposed development will not exceed the allowable release rate of the 2-year storm at the pond outfall as originally designed with the Millfield Phase 4 construction plan.

Flood Protection:
The existing storm sewer system along Major Watters Court does not currently experience localized flooding. Per 9VAC25-870-66.C.3, the existing storm sewer system shall be analyzed from the point of discharge to the limits of analysis. The existing storm sewer system discharges into an existing SWM pond within Millfield Phase 4. The overall drainage area at the existing pond outfall is approximately 432 acres. The proposed site's contributing drainage area is less than 1% of the total drainage area at the existing pond outfall. Therefore, 9VAC25-870-66.C.1. has been met since post-developed flow from the 10-year storm is contained within the existing stormwater conveyance system from the point of discharge to the limits of analysis. Based on preliminary analysis of the existing SWM pond, the increase in runoff from this proposed development will not exceed the allowable release rate of the 10-year storm at the pond outfall as originally designed with the Millfield Phase 4 construction plan.
.

### WATER QUALITY

Water Quality compliance has been analyzed using the Redevelopment Spreadsheet. The Site Area for this project is estimated to be 1.40 acres and is entirely B soils type (HSG). Pre-development Site Area consists of approximately 1.31 acres of managed turf and 0.09 acres of impervious surface. Total Phosphorous Load Reduction required is estimated to be 0.94 lbs/year. Stormwater quality compliance for this development will be provided by purchasing the required nutrient credits.

### NATURAL RESOURCES INVENTORY

Natural resources inventory is based on publicly available information and mapping. No field investigations or studies have been performed.

### SOIL CONDITIONS

According to the USDA Web Soil Survey, soils onsite consist of:
47B Elioak-Fauquier Complex (2-7% slopes) HSG: B
47C Elioak-Fauquier Complex (7-15% slopes)HSG: B
Soils boundaries and types have been shown on the plan.
Fauquier County GIS identifies all soils onsite to have moderate shrink-swell potential.

### WETLANDS POTENTIAL

According to the National Wetlands inventory, there are no potential wetland areas onsite or adjacent to the site.

### FOREST COVER and VEGETATION

The subject parcel is mostly open with managed turf yard. Trees line the property perimeter.

### TOPOGRAPHY

The subject parcel generally drains from north to south. Existing topography is consistant and ranges from 4 - 15%.

### ENVIRONMENTALLY SENSITIVE AREAS

Open space for Woods of Warrenton lies adjacent to the east of the subject property.

| Hyd. No. | Hydrograph type (origin) | Peak flow (cfs) | Time interval (min) | Time to Peak (min) | Hyd. volume (cuft) | Inflow hyd(s) | Maximum elevation (ft) | Total strge used (cuft) | Hydrograph Description |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Rational | 20.83 | 1 | 15 | 25,033 | ------ | ------ | ------ | PRE |
| 2 | Rational | 21.09 | 1 | 12 | 20,275 | ------ | ------ | ------ | POST to pond |
| 3 | Rational | 10.83 | 1 | 15 | 9,747 | ------ | ------ | ------ | BYPASS |
| 4 | Reservoir | 11.07 | 1 | 22 | 11,803 | 2 | 430.03 | 25,314 | ROUTE THRU 48 |
| 5 | Combine | 17.26 | 1 | 19 | 20,529 | 3, 4 | ------ | ------ | <no description> |
| PER PLAN SWM with WARGO.gpw | | | | | Return Period: 2 Year | | | Friday, 03 / 8 / 2024 | |

| Hyd. No. | Hydrograph type (origin) | Peak flow (cfs) | Time interval (min) | Time to Peak (min) | Hyd. volume (cuft) | Inflow hyd(s) | Maximum elevation (ft) | Total strge used (cuft) | Hydrograph Description |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Rational | 27.80 | 1 | 15 | 33,403 | ------ | ------ | ------ | PRE |
| 2 | Rational | 27.93 | 1 | 12 | 26,851 | ------ | ------ | ------ | POST to pond |
| 3 | Rational | 14.45 | 1 | 15 | 13,006 | ------ | ------ | ------ | BYPASS |
| 4 | Reservoir | 16.68 | 1 | 20 | 18,371 | 2 | 430.17 | 27,161 | ROUTE THRU 48 |
| 5 | Combine | 26.44 | 1 | 17 | 30,025 | 3, 4 | ------ | ------ | <no description> |
| PER PLAN SWM with WARGO.gpw | | | | | Return Period: 10 Year | | | Friday, 03 / 8 / 2024 | |

| Hyd. No. | Hydrograph type (origin) | Peak flow (cfs) | Time interval (min) | Time to Peak (min) | Hyd. volume (cuft) | Inflow hyd(s) | Maximum elevation (ft) | Total strge used (cuft) | Hydrograph Description |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Rational | 37.61 | 1 | 15 | 45,190 | ------ | ------ | ------ | PRE |
| 2 | Rational | 37.60 | 1 | 12 | 36,137 | ------ | ------ | ------ | POST to pond |
| 3 | Rational | 19.55 | 1 | 15 | 17,595 | ------ | ------ | ------ | BYPASS |
| 4 | Reservoir | 22.99 | 1 | 20 | 27,645 | 2 | 430.38 | 30,112 | ROUTE THRU 48 |
| 5 | Combine | 38.36 | 1 | 15 | 43,421 | 3, 4 | ------ | ------ | <no description> |
| PER PLAN SWM with WARGO.gpw | | | | | Return Period: 100 Year | | | Friday, 03 / 8 / 2024 | |

HINCHEY & BAINES, PLC
ENGINEERING AND LAND PLANNING
125 EAST DAVIS STREET
SUITE 201
CULPEPER, VIRGINIA 22701
PHONE (540) 829-2220
FAX (540) 829-2239

COMMONWEALTH OF VIRGINIA
RICHARD A. BAINES
LICENSE NO. 040239
PROFESSIONAL ENGINEER
03/10/2024

CONCEPTUAL STORMWATER MANAGEMENT PLAN
**WARGO SUBDIVISION**
PIN 6984-95-2640-000
FAUQUIER COUNTY, VIRGINIA

SCALE: AS NOTED
DATE: 11/17/2023
REVISIONS:
3/10/24 COUNTY COMMENTS

SHEET 6 OF 6
FILE NO. 1659

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| | |
|---|---|
| **From:** | Bob Wargo |
| **To:** | Steven Friend |
| **Subject:** | Fw: Tri-party Agreement Modification request |
| **Attachments:** | WARGO_Concept Development Plan_03-10-2024.pdf;Wargo_REZN-23-021163_Tri-Party Agreement Modification Request Letter.pdf;Statement of Justification_Wargo_03-10-2024.pdf; |
| **Sent:** | 6/7/2024 8:43:46 AM |

**[EXTERNAL EMAIL]** DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

You don't often get email from bobwargo@hotmail.com. Learn why this is important

fyi

---

**From:** Bob Wargo <bobwargo@hotmail.com>
**Sent:** Thursday, June 6, 2024 4:43 PM
**To:** fcassidy@warrentonva.gov <fcassidy@warrentonva.gov>; rwalton@warrentonva.gov <rwalton@warrentonva.gov>; hsutphin@warrentonva.gov <hsutphin@warrentonva.gov>
**Subject:** FW: Tri-party Agreement Modification request

Frank,

Attached is the request for an amendment to my tri party agreement. We are scheduled for the Fauquier County Planning Commission later this month and need to get on the agenda for next week's Town meeting. I have worked very hard on this project with Bo Tucker and many others and hope not to be delayed with this amendment.

Please call me with any questions.

Bob Wargo
Wargo Properties Llc
540 905 1379

Sent from my Verizon, Samsung Galaxy smartphone

-------- Original message --------
From: lee@hincheybaines.com
Date: 6/6/24 4:24 PM (GMT-05:00)
To: 'Bob Wargo' <bobwargo@hotmail.com>
Subject: Tri-party Agreement Modification request

Bob,
Attached is a memorandum requesting the Tri-Party Agreement modification, Statement of Justification and Concept Plan.

Let me know if you need additional information.
Lee

**R. Lee Baines, P.E.**
Hinchey & Baines, PLC
125 E. Davis Street
Suite 201
Culpeper, VA 22701

540.829.2220 office
540.229.7054 mobile
540.829.2239 fax

www.hincheybaines.com

**From:** Bob Wargo
**To:** Frank Cassidy
**Cc:** Rob Walton; Stephen Clough; Steven Friend;
**Subject:** RE: Tri-party Agreement Modification request
**Sent:** 6/24/2024 11:51:46 AM

**[EXTERNAL EMAIL]** DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

Frank,

Yes! I would like to be on the agenda for July. I am happy to meet or discuss with staff later this week or early July if needed. Thank you for your efforts regarding my situation.

Sincerely,

Bob Wargo
Wargo Properties Llc
540 905 1379

Sent from my Verizon, Samsung Galaxy smartphone

-------- Original message --------
From: Frank Cassidy <fcassidy@warrentonva.gov>
Date: 6/24/24 10:40 AM (GMT-05:00)
To: Bob Wargo <bobwargo@hotmail.com>
Cc: Rob Walton <rwalton@warrentonva.gov>, Stephen Clough <sclough@warrentonva.gov>, Steven Friend <sfriend@warrentonva.gov>
Subject: RE: Tri-party Agreement Modification request

Good morning.

Are you still requesting this item be discussed at our July 9 Council Work Session- please confirm.

Thank you,

Frank

**From:** Bob Wargo <bobwargo@hotmail.com>
**Sent:** Thursday, June 6, 2024 4:43 PM
**To:** Frank Cassidy <fcassidy@warrentonva.gov>; Rob Walton <rwalton@warrentonva.gov>; Heather Sutphin <hsutphin@warrentonva.gov>
**Subject:** FW: Tri-party Agreement Modification request

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Some people who received this message don't often get email from bobwargo@hotmail.com. Learn why this is important

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| | |
|---|---|
| **From:** | Rob Walton |
| **To:** | Stephen Clough |
| **Cc:** | Frank Cassidy; Steven Friend; |
| **Subject:** | FW: Tri-party Agreement Modification request |
| **Attachments:** | WARGO_Concept Development Plan_03-10-2024.pdf;Wargo_REZN-23-021163_Tri-Party Agreement Modification Request Letter.pdf;Statement of Justification_Wargo_03-10-2024.pdf; |
| **Sent:** | 6/7/2024 9:01:25 AM |

Stephen,

Good morning. Mayor Nevill has asked that this be placed on the work session agenda.

Thank you,
Rob

**From:** Bob Wargo <bobwargo@hotmail.com>
**Sent:** Thursday, June 6, 2024 4:43 PM
**To:** Frank Cassidy <fcassidy@warrentonva.gov>; Rob Walton <rwalton@warrentonva.gov>; Heather Sutphin <hsutphin@warrentonva.gov>
**Subject:** FW: Tri-party Agreement Modification request

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Bob Wargo
Wargo Properties Llc
540 905 1379

Sent from my Verizon, Samsung Galaxy smartphone

-------- Original message --------
From: lee@hincheybaines.com
Date: 6/6/24 4:24 PM (GMT-05:00)
To: 'Bob Wargo' <bobwargo@hotmail.com>
Subject: Tri-party Agreement Modification request

Bob,
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Let me know if you need additional information.
Lee

**R. Lee Baines, P.E.**
Hinchey & Baines, PLC
125 E. Davis Street
Suite 201
Culpeper, VA 22701

540.829.2220 office
540.229.7054 mobile
540.829.2239 fax

www.hincheybaines.com

| | |
|---|---|
| **From:** | Steven Friend |
| **To:** | bobwargo@hotmail.com |
| **Subject:** | July Council Meeting |
| **Sent:** | 6/25/2024 9:13:00 AM |

Good morning Mr. Wargo, please review the attached documents that you have provided and ensure they are correct. I am gathering information for your proposal to submit to council's agenda today. If you have additional information that you would like submitted, please provide. I will reach out to you by end of day with additional information, time, date and location regarding the upcoming council meeting. If you have any questions, please feel free to let me know and I would be more than happy to assist.

Thank you,

Steven Friend
Director - Public Utilities

21 Main Street
Warrenton, VA 20186
Office: (540)-347-1103
Cell: (540)-351-4908
warrentonva.gov

| | |
|---|---|
| **From:** | Rob Walton |
| **To:** | Shellenberger, Adam |
| **Cc:** | Frank Cassidy; Steven Friend; |
| **Subject:** | Wargo Rezoning REZN-23-021163 |
| **Sent:** | 6/5/2024 10:58:38 AM |

Adam,

Please see the attached comments on the Wargo application. Steven Friend and I are happy to answer any questions.

Thanks,
Rob

**Rob Walton**
Director of Community Development
Town of Warrenton
21 Main Street
Warrenton, VA 20186

**Office Phone:** (540) 347-1101
**Email:** rwalton@warrentonva.gov
**Website:** www.warrentonva.gov

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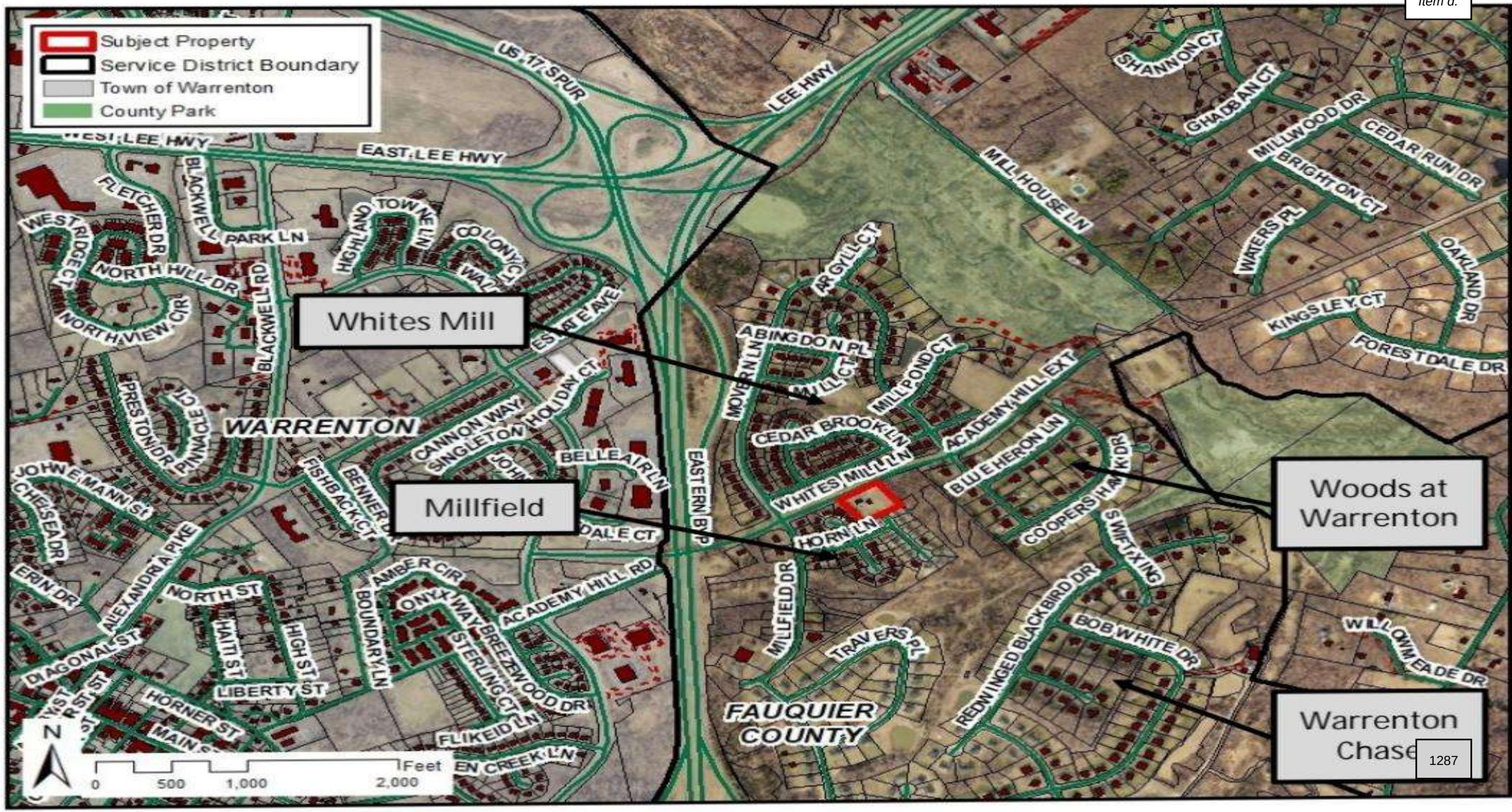
# Wargo Tri-Party Amendment

6415 Academy Hill Rd

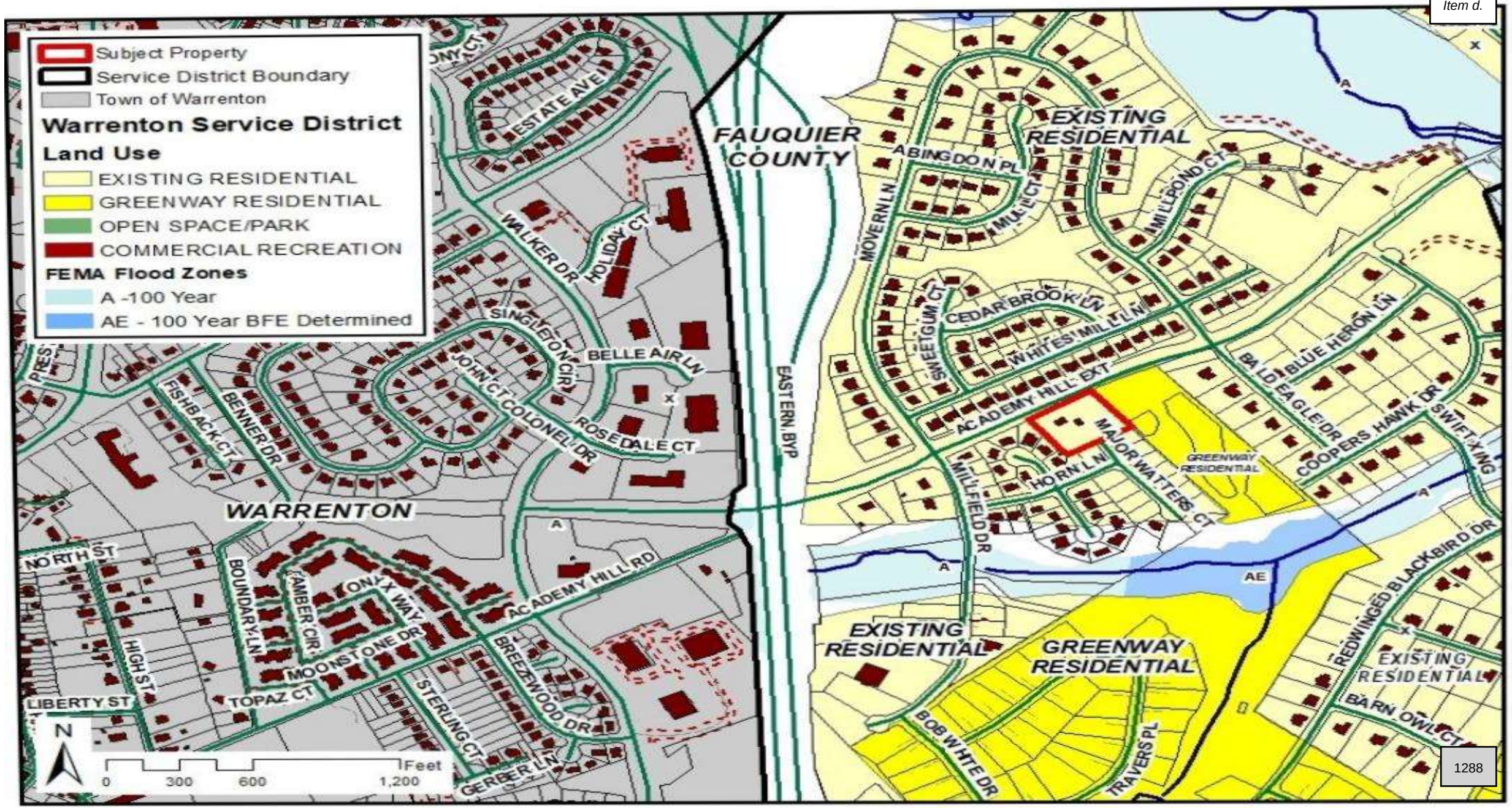
Warrenton, VA  20187

# Regional Aerial Map



# Land Use Map




Subject Property
Service District Boundary
Town of Warrenton
Warrenton Service District
Land Use
EXISTING RESIDENTIAL
GREENWAY RESIDENTIAL
OPEN SPACE/PARK
COMMERCIAL RECREATION
FEMA Flood Zones
A -100 Year
AE - 100 Year BFE Determined
FAUQUIER COUNTY
WARRENTON
EXISTING RESIDENTIAL
GREENWAY RESIDENTIAL
EXISTING RESIDENTIAL
EASTERN BYP
ABINGDON PL
MOVERN LN
MILL POND CT
SWEETGUM CT
CEDAR BROOK LN
WHITES MILL LN
ACADEMY HILL EXT
BLUE HERON LN
BALD EAGLE DR
COOPERS HAWK DR
SWIFT XING
MAJOR WATTERS CT
HORN LN
MILLFIELD DR
REDWINGED BLACKBIRD DR
BARN OWL CT
BOB WHITE DR
TRAVERS PL
ESTATE AVE
WALKER DR
HOLIDAY CT
SINGLETON CIR
BELLE AIR LN
JOHN CT
COLONEL DR
ROSEDALE CT
FISHBACK CT
BENNER DR
NORTH ST
HIGH ST
LIBERTY ST
BOUNDARY LN
AMBER CIR
ONAX WAY
MOONSTONE DR
TOPAZ CT
STERLING CT
BREEZEWOOD DR
GERBER LN
ACADEMY HILL RD
N
0
300
600
1,200
Feet

# Existing Zoning Map





# Property Summary

## Property Information:

- 6415 Academy Hill Extended, Warrenton
- Area: 1.68 acres
- Zoning: R-1
- Land Use: Warrenton Service District – Existing Residential

## Request:

- Rezone 1.68 acres of R-1 to R-4 w/ Proffers
  - 6 Single-family Detached Homes




Regional Aerial

# Site Aerial Map





# Proposal

**Proposed Development:**

- Rezone 1.68 acres of R-1 to R-4 w/ Proffers
- 6 Single-family Detached Homes
  - Area: 10,000 sf min
  - Width: 70’ min
  - Density: 3.57 du/ac
- Extend Major Watters Court
  - 50’ ROW and 30’ Pavement
  - 4.5’ Grass Strip and 5’ Sidewalk – 1 side
  - Street Trees outside ROW – both sides
- Public Water & Sewer – Town of Warrenton
- SWMF – Millfield facilities




Conceptual Development Plan

# 1. Executive Summary

Whitman, Requardt & Associates (WRA) has updated the April 2015 Water and Sewer Capacity Evaluation to include new data and to determine the impact of potential new housing and commercial development in the Town and in the Town's water and wastewater service area. Data on potential development was provided by the Warrenton Community Development Department. WRA estimated water demand and wastewater loadings from new developments including impacts to water and wastewater system capacity from overall development over time through year 2040.

The current water system capacity is 2.68 MGD from 2 reservoirs and 3 groundwater production wells. The Town's Water Filtration Plant has a capacity of 3 MGD. Water from the reservoirs is treated at the Filtration Plant and well water is treated at the well head. Average water production from 2015 through 2021 is 1.16 MGD. The current wastewater system treatment capacity at the Town's Wastewater Treatment Plant is 2.5 MGD. The average daily wastewater loading from 2015 through 2021 is 1.86 MGD. The Town is planning on expanding the capacity of the Wastewater Treatment Plant to 3 MGD over the next 10 years.

The estimated water system demand from the combination of the developments analyzed by WRA is 1.31 MGD. The estimated buildout water demand plus the 2021 water demand of 1.11 MGD provides an estimate of 2.42 MGD of future water demand. The estimated wastewater loading demand from the combination of the developments is 1.18 MGD. The estimated buildout wastewater loading plus the 2021 wastewater loading of 1.72 MGD provides an estimate of 2.9 MGD of future wastewater loading.

Per this analysis the Town of Warrenton has adequate water supply capacity and wastewater treatment capacity to accommodate the new housing and commercial developments identified by the Community Development Department. Several assumptions and assertions are included in this conclusion:

TOWN COUNCIL
H.E. Carter Nevill, Mayor
Paul W. Mooney
David A. McGuire
Heather D. Sutphin
William T. Semple II
Brett A. Hamby
James N. Hartman III, Vice Mayor
Eric F. Gagnon

**Motion- Triparty Agreement modification request.**

I move to direct staff to work with Wargo Properties, LLC, Fauquier County, and the Fauquier County Water & Sanitation Authority to modify the triparty agreement to incorporate 5 additional taps at PIN 6984-95-2640-000 in support of Rezoning REZN-23-021163, Wargo Properties, LLC (Owner/Applicant), and to bring the modified triparty agreement to the Town Council for approval.

**November 7, 2022**
**Town Council**
**Regular Meeting**

**A RESOLUTION ESTABLISHING A TOWN OF WARRENTON POLICY FOR ELECTRONIC MEETING PARTICIPATION UNDER VIRGINIA STATE CODE § 2.2-3708.3.**

**WHEREAS,** The Town Council of the Town of Warrenton has identified a need for electronic meeting ability for the Town Council, the boards and committees that serve the Town, and the public, even after the end of the COVID-19 emergency; and

**WHEREAS,** pursuant to Virginia State Code § 2.2-3708.3 individual members of a public body may use remote participation instead of attending a public meeting in person if, in advance of the public meeting, the public body has adopted a policy consistent with § 2.2-3708.3;

**NOW, THEREFORE, BE IT RESOLVED** that the Warrenton Town Council hereby establishes a policy under Virginia code § 2.2-3708.3 for electronic meeting participation by the Town Council and all other bodies covered by this policy as follows:

A. Subject to the process provided below, one or more individual members of a public body subject to this policy may use remote participation instead of attending a public meeting in person if, in advance of the public meeting, that member notifies the public body's presiding officer that:

1. The member has a temporary or permanent disability or other medical condition that prevents the member's physical attendance, or
2. A medical condition of a member of the member's family requires the member to provide care that prevents the member's physical attendance; or
3. The member is unable to attend the meeting due to a personal matter and identifies with specificity the nature of the personal matter. The member may not use remote participation due to personal matters more than two (2) meetings per calendar year or 25 percent of the meetings held per calendar year rounded up to the next whole number, whichever is greater.

B. Whenever a member of the public body wishes to participate from a remote location, a quorum of the public body shall be physically assembled at the primary or central public meeting location and arrangements shall be made for the voice of the member attending remotely to be heard by all persons at the primary or central public body meeting location. The public body holding the meeting shall record in its minutes the member's remote participation was due to one of the above reasons as well as including in the minutes the remote location from which the member participated; however, the remote location need not be open to the public and may be identified in the minutes by a general description. If the voice of the member attending remotely cannot be heard, the member may continue to listen to the meeting remotely but may not participate in discussion or voting.

C. A member's participation from a remote location shall be approved unless such participation would violate this ordinance or other applicable provision of the Virginia Freedom of Information Act. If a member's participation from a remote location pursuant to this subsection is disapproved because such participation would violate this policy, such disapproval shall be recorded in the minutes with specificity.

D. The mayor or other presiding officer of the public body shall initially rule on whether a member meets the requirements of this policy to participate in the meeting remotely, subject to being overruled by a majority vote of the body.

**BE IT FURTHER RESOLVED** that this policy applies to all committees, subcommittees, or other entities however designated created by the Town Council to perform delegated functions of the Town

Council or to advise the Town Council, including any multi-jurisdiction bodies performing such functions for the Town if similar policies have been adopted by the governing body or bodies of those jurisdictions.

**BE IT FINALLY RESOLVED** that this policy shall be applied strictly and without exception, to the entire membership and without regard to the identity of the member requesting remote participation or the matters that will be considered or voted on at the meeting.

**Votes:**
**Ayes:** Ms. Heather Sutphin; Mr. James Hartman; Mr. John Heroux; Mr. Renard Carlos
**Nays:**
**Absent from Vote:**
**Absent from Meeting:** Mr. William Semple; Mr. Brett Hamby; Mr. Sean Polster

**For Information:**
Town Clerk

**ATTEST:** _____
**Town Recorder**

**November 9, 2022**
**Town Council**
**Special Meeting**

Office of the Town Manager
Frank Cassidy

# STAFF REPORT

**Warrenton Town Council**
Carter Nevill, Mayor
Heather Sutphin, Ward 1
William Semple, Ward 2
Brett Hamby, Ward 3
James Hartman, Ward 4 Vice Mayor
Eric Gagnon, Ward 5
Paul Mooney, At Large
David McGuire, At Large

| | |
|---|---|
| **Council Meeting Date:** | July 9th, 2024. |
| **Agenda Title:** | Electronic Meeting Policy Update |
| **Requested Action:** | Consider the Resolution to update the electronic meeting policy |
| **Department / Agency Lead:** | Town Council/ Town Clerk |
| **Staff Lead:** | Stephen Clough CMC, Town Clerk. |

## EXECUTIVE SUMMARY

The General Assembly has modified the State Code to change the requirements for electronic meeting participation. The largest impact of this change is that the state code now allows a person with a disability or their caregiver to participate remotely as part of the public body in a meeting and count as part of a quorum.

The Town Council is required to adopt an updated policy under state code to enable electronic participation. Additionally, the policy will now need to be adopted annually.

A draft resolution and policy have been prepared for the Town Council's Consideration. Highlights to the policy have been made to call out certain new areas under the law.

## BACKGROUND

The legislation that affects our policy is summarized here-

**HB894 (Bennett-Parker) and SB734 (Marsden) Electronic meetings.**
*Amends the number of all-virtual meetings that certain public bodies may hold from 2 or 25% to 2 or 50% per calendar year, whichever is greater. Public bodies must annually adopt policy before the public body uses remote participation or uses all-virtual public meetings. Note: Local governing bodies, planning commissions, BZA's and ARB's cannot hold all virtual public meetings under this provision.*

**HB1040 (Bennett-Parker) and SB85 (Favola)** *Remote participation in meetings; definition of "caregiver". Allows a person with a disability or their caregiver to participate remotely as part of the public body in a meeting and count as part of a quorum. "Caregiver" means an adult who provides care for a person with a disability as defined in § 51.5-40.1. A caregiver shall be either related by blood, marriage, or adoption to or the legally appointed guardian of the person with a disability for whom he is caring.*

At the November 7th, 2023, Special Town Council Meeting, A resolution was passed to align the electronic meeting participant policy with the State Code.

## STAFF RECOMMENDATION

Adopt or amend the Resolution establishing an electronic meeting policy under Virginia State Code § 2.2-3708.3. for electronic meeting participation.

## Service Level/Collaborative Impact

A new format for requesting remote participation is being prepared by the Town Clerk to enable easier access and process for the members of the Town Council to request.

## Policy Direction/Warrenton Plan 2040

This policy update allows the Town Council to participate electronically leading towards all aspects of Warrenton Plan 2040.

## Fiscal Impact

No Fiscal impact is expected at this time.

## Legal Impact

This policy is adopted pursuant to the authorization of Va. Code § 2.2-3708.3 and is to be strictly construed in conformance with the Virginia Freedom of Information Act (VFOIA), Va. Code §§ 2.2-3700—3715.

## ATTACHMENTS

1. Resolution
2. Previous Passed resolution
3. Draft Policy for consideration

**July 9th, 2024**
**Town Council**
**Regular Meeting**

**A RESOLUTION ESTABLISHING A TOWN OF WARRENTON POLICY FOR ELECTRONIC MEETING PARTICIPATION UNDER VIRGINIA STATE CODE § 2.2-3708.3.**

**WHEREAS**, The Town Council of the Town of Warrenton has identified a need for electronic meeting ability for the Town Council, the boards and committees that serve the Town, and the public, even after the end of the COVID-19 emergency; and

**WHEREAS,** pursuant to Virginia State Code § 2.2-3708.3 individual members of a public body may use remote participation instead of attending a public meeting in person if, in advance of the public meeting, the public body has adopted a policy consistent with § 2.2-3708.3;

**NOW, THEREFORE, BE IT RESOLVED** that the Warrenton Town Council hereby establishes a policy under Virginia code § 2.2-3708.3 for electronic meeting participation by the Town Council and all other bodies covered by this policy as follows:

**THE WARRENTON TOWN COUNCIL POLICY FOR THE REMOTE PARTICIPATION OF MEMBERS**

1. **AUTHORITY AND SCOPE**

a. This policy is adopted pursuant to the authorization of Va. Code § 2.2-3708.3 and is to be strictly construed in conformance with the Virginia Freedom of Information Act (VFOIA), Va. Code §§ 2.2-3700—3715.

b. This policy shall not govern an electronic meeting conducted to address a state of emergency declared by the Governor or the Warrenton Town Council. Any meeting conducted by electronic communication means under such circumstances shall be governed by the provisions of Va. Code § 2.2-3708.2. This policy also does not apply to an all-virtual public meeting.

c. This policy must be reviewed and readopted annually. Va. Code § 2.2-3708.3(D).

d. This policy does not prohibit or restrict any individual member of a public body who is lawfully either participating in an all-virtual meeting or who is using remote participation from voting on matters before the public body. See Va. Code § 2.2-3708.3(D).

2. **DEFINITIONS**

a. "**Council**" means the Warrenton Town Council or any committee, subcommittee, or other entity of the Council

b. "**Member**" means any member of the Warrenton Town Council.

c. "**Remote participation**" means participation by an individual member of the Council by electronic communication means in a public meeting where a quorum of the Council is physically assembled, as defined by Va. Code § 2.2-3701.

d. "**Meeting**" means a meeting as defined by Va. Code § 2.2-3701.

e. "**Notify**" or "**notifies**" for purposes of this policy, means written notice, such as email or letter. Notice does not include text messages or communications via social media.

f. **"Person with a disability"** means a person who has a physical or mental impairment that substantially limits one or more of his major life activities or who has a record of such impairment.;

g. **"Caregiver"** means an adult related by blood, marriage, or adoption or the legally appointed guardian of the person with a disability for whom he is caring.

3. **MANDATORY REQUIREMENTS**

Regardless of the reasons why the member is participating in a meeting from a remote location by electronic communication means, the following conditions must be met for the member to participate remotely:

a) A quorum of the Council must be physically assembled at the primary or central meeting location;

b) For purposes of determining whether a quorum is physically assembled, an individual member of a public body who is either a person with a disability or who must act as a caregiver at the time of the meeting for a person with a disability, and is thus prevented from physically attending the meeting and who thus uses remote participation, will count toward the quorum as if the individual was physically present;

c) Arrangements have been made for the voice of the remotely participating member to be heard by all persons at the primary or central meeting location. If at any point during the meeting the voice of the remotely participating member is no longer able to be heard by all persons at the meeting location, the remotely participating member shall no longer be permitted to participate remotely; and

d) A statutorily conforming policy must be adopted by this Council at least once annually.

4. **PROCESS TO REQUEST REMOTE PARTICIPATION**

a. On or before the day of the meeting, and at any point before the meeting begins, the requesting member must notify the Chair of the meeting (or the Vice-Chair if the requesting member is the Chair) that they are unable to physically attend a meeting due to (i) a temporary or permanent disability or other medical condition that prevents the member's physical attendance, (ii) a family member's medical condition that requires the member to provide care for such family member, thereby preventing the member's physical attendance, (iii) their principal residence location more than 60 miles from the meeting location, or (iv) a personal matter and identifies with specificity the nature of the personal matter.

b. The requesting member shall also notify the Town staff liaison of their request, but their failure to do so shall not affect their ability to remotely participate.

c. If the requesting member is unable to physically attend the meeting due to a personal matter, the requesting member must state with specificity the nature of the personal matter. Remote participation due to a personal matter is limited each calendar year to two meetings or 25 percent of the meetings held per calendar year rounded up to the next whole number, whichever is greater. There is no limit to the number of times that a member may participate remotely for the other authorized purposes listed in 4(a)(i)—(iii) above.

d. The requesting member is not obligated to provide independent verification regarding the reason for their nonattendance, including the temporary or permanent disability or other medical condition or the family member's disability or medical condition that prevents their physical attendance at the meeting.

e. For purposes of establishing a quorum of the Council, the requesting member shall verify whether the requesting member is requesting remote participation due to his disability or need to act as caregiver for a person with a disability, pursuant to 3(b) above; and

f. The Chair (or the Vice-Chair if the requesting member is the Chair) shall promptly notify the requesting member whether their request is in conformance with this policy, and therefore approved or disapproved.

5. **PROCESS TO CONFIRM APPROVAL OR DISAPPROVAL OF PARTICIPATION FROM A REMOTE LOCATION**

When a quorum of the Council has assembled for the meeting, the Council shall vote to determine whether:

a. The Chair's decision to approve or disapprove the requesting member's request to participate from a remote location was in conformance with this policy; and

b. The voice of the remotely participating member can be heard by all persons at the primary or central meeting location.

6. **RECORDING IN MINUTES:**

a. If the member is allowed to participate remotely due to a temporary or permanent disability or other medical condition, a family member's medical condition that requires the member to provide care to the family member, or because their principal residence is located more than 60 miles from the meeting location the Council shall record in its minutes (1) the Council's approval of the member's remote participation; and (2) a general description of the remote location from which the member participated.

b. If the member is allowed to participate remotely due to a personal matter, such matter shall be cited in the minutes with specificity, as well as how many times the member has attended remotely due to a personal matter, and a general description of the remote location from which the member participated.

c. If a member's request to participate remotely is disapproved, the disapproval, including the grounds upon which the requested participation violates this policy or VFOIA, shall be recorded in the minutes with specificity.

7. **CLOSED SESSION**

If the Council goes into closed session, the member participating remotely shall ensure that no third party is able to hear or otherwise observe the closed meeting.

8. **STRICT AND UNIFORM APPLICATION OF THIS POLICY**

This Policy shall be applied strictly and uniformly, without exception, to the entire membership, and without regard to the identity of the member requesting remote participation or the matters that will be considered or voted on at the meeting.

The Chair (or Vice-Chair) or their appointee shall maintain the member's written request to participate remotely and the written response for a period of one year, or other such time required by records retention laws, regulations, and policies.

**BE IT FURTHER RESOLVED** that this policy applies to all committees, subcommittees, or other

entities however designated created by the Town Council to perform delegated functions of the Town Council or to advise the Town Council, including any multi-jurisdiction bodies performing such functions for the Town if similar policies have been adopted by the governing body or bodies of those jurisdictions.

**BE IT FINALLY RESOLVED** that this policy shall be applied strictly and without exception, to the entire membership and without regard to the identity of the member requesting remote participation or the matters that will be considered or voted on at the meeting.

**Votes:**
**Ayes:**
**Nays:**
**Absent from Vote:**
**Absent from Meeting:**

**For Information:**
Town Clerk

**ATTEST:** _____
**Town Recorder**

**July 9, 2024**
**Town Council**
**Regular Meeting**

# THE WARRENTON TOWN COUNCIL POLICY FOR THE REMOTE PARTICIPATION OF MEMBERS

## 1. AUTHORITY AND SCOPE

a. This policy is adopted pursuant to the authorization of Va. Code § 2.2-3708.3 and is to be strictly construed in conformance with the Virginia Freedom of Information Act (VFOIA), Va. Code §§ 2.2-3700—3715.

b. This policy shall not govern an electronic meeting conducted to address a state of emergency declared by the Governor or the Warrenton Town Council. Any meeting conducted by electronic communication means under such circumstances shall be governed by the provisions of Va. Code § 2.2-3708.2. This policy also does not apply to an all-virtual public meeting.

c. This policy must be reviewed and readopted annually. Va. Code § 2.2-3708.3(D).

d. This policy does not prohibit or restrict any individual member of a public body who is lawfully either participating in an all-virtual meeting or who is using remote participation from voting on matters before the public body. See Va. Code § 2.2-3708.3(D).

## 2. DEFINITIONS

a. "**Council**" means the Warrenton Town Council or any committee, subcommittee, or other entity of the Council

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d. "**Meeting**" means a meeting as defined by Va. Code § 2.2-3701.

e. "**Notify**" or "**notifies**" for purposes of this policy, means written notice, such as email or letter. Notice does not include text messages or communications via social media.

f. **"Person with a disability"** means a person who has a physical or mental impairment that substantially limits one or more of his major life activities or who has a record of such impairment.;

g. **"Caregiver"** means an adult related by blood, marriage, or adoption or the legally appointed guardian of the person with a disability for whom he is caring.

## 3. MANDATORY REQUIREMENTS

Regardless of the reasons why the member is participating in a meeting from a remote location by electronic communication means, the following conditions must be met for the member to participate remotely:

a) A quorum of the Council must be physically assembled at the primary or central meeting location;

b) For purposes of determining whether a quorum is physically assembled, an individual member of a public body who is either a person with a disability or who must act as a caregiver at the time of the meeting for a person with a disability, and is thus prevented from physically attending the meeting and who thus uses remote participation, will count toward the quorum as if the individual was physically present;

c) Arrangements have been made for the voice of the remotely participating member to be heard by all persons at the primary or central meeting location. If at any point during the meeting the voice of the remotely participating member is no longer able to be heard by all persons at the meeting location, the remotely participating member shall no longer be permitted to participate remotely; and

d) A statutorily conforming policy must be adopted by this Council at least once annually.

## 4. PROCESS TO REQUEST REMOTE PARTICIPATION

a. On or before the day of the meeting, and at any point before the meeting begins, the requesting member must notify the Chair of the meeting (or the Vice-Chair if the requesting member is the Chair) that they are unable to physically attend a meeting due to (i) a temporary or permanent disability or other medical condition that prevents the member's physical attendance, (ii) a family member's medical condition that requires the member to provide care for such family member, thereby preventing the member's physical attendance, (iii) their principal residence location more than 60 miles from the meeting location, or (iv) a personal matter and identifies with specificity the nature of the personal matter.

b. The requesting member shall also notify the Town staff liaison of their request, but their failure to do so shall not affect their ability to remotely participate.

c. If the requesting member is unable to physically attend the meeting due to a personal matter, the requesting member must state with specificity the nature of the personal matter. Remote participation due to a personal matter is limited each calendar year to two meetings or 25 percent of the meetings held per calendar year rounded up to the next whole number, whichever is greater. There is no limit to the number of times that a member may participate remotely for the other authorized purposes listed in 4(a)(i)—(iii) above.

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a. The Chair's decision to approve or disapprove the requesting member's request to participate from a remote location was in conformance with this policy; and

b. The voice of the remotely participating member can be heard by all persons at the primary or central meeting location.

## 6. RECORDING IN MINUTES:

a. If the member is allowed to participate remotely due to a temporary or permanent disability or other medical condition, a family member's medical

condition that requires the member to provide care to the family member, or because their principal residence is located more than 60 miles from the meeting location the Council shall record in its minutes (1) the Council's approval of the member's remote participation; and (2) a general description of the remote location from which the member participated.

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## 7. CLOSED SESSION

If the Council goes into closed session, the member participating remotely shall ensure that no third party is able to hear or otherwise observe the closed meeting.

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This Policy shall be applied strictly and uniformly, without exception, to the entire membership, and without regard to the identity of the member requesting remote participation or the matters that will be considered or voted on at the meeting.

The Chair (or Vice-Chair) or their appointee shall maintain the member's written request to participate remotely and the written response for a period of one year, or other such time required by records retention laws, regulations, and policies.

Office of the Town Manager
Frank Cassidy

# STAFF REPORT

**Warrenton Town Council**
Carter Nevill, Mayor
Heather Sutphin, Ward 1
William Semple, Ward 2
Brett Hamby, Ward 3
James Hartman, Ward 4 Vice Mayor
Eric Gagnon, Ward 5
Paul Mooney, At Large
David McGuire, At Large

| | |
|---|---|
| **Council Meeting Date:** | July 9, 2024 |
| **Agenda Title:** | Zoning Ordinance Text Amendment Update |
| **Requested Action:** | Hold the Work Session and Adopt Resolution |
| **Department / Agency Lead:** | Community Development |
| **Staff Lead:** | Rob Walton, Director of Community Development |

## EXECUTIVE SUMMARY

The Town Council held a Work Session, on June 11, 2024, with Clarion Associates, the consultant hired to help with the update of the Town's Zoning Ordinance, as part of their two day kick off of the project. Clarion provided Town Council with an overview of the project, the schedule, and seek input from Council on what may be priority changes to the Zoning Ordinance. In addition, Clarion provided an update on the public forum scheduled for the evening of Monday, June 10th.

During the May 13, 2024, Town Council Work Session, staff provided an overview of the recommended make up of a steering committee to help guide the development of the Zoning Ordinance update. Town Council was asked to recommend individuals to the Mayor who would then be appointed at the July 9, 2024 Town Council Meeting.

During the June 11, 2024, Regular Meeting, Town Council deferred the initiation of the Zoning Ordinance Text Amendment and selection of the steering committee until July 9, 2024. Town Council is asked to pass a resolution officially initiating the Zoning Ordinance and appointing the steering committee at this time.

**July 9, 2024**
**Town Council**
**Regular Meeting**
**Res. No.**

**RESOLUTION TO INITIATE AN UPDATE TO THE TOWN OF WARRENTON ZONING ORDINANCE AND APPOINT A STEERING COMMITTEE**

**WHEREAS,** Warrenton, VA (Hereinafter "the Town") is a municipal corporation located within the County of Fauquier; and

**WHEREAS,** the Town of Warrenton Zoning Ordinance ('the Ordinance") was last fully updated in 2006 after the 2002 comprehensive plan update; and

**WHEREAS,** the Town of Warrenton updated its comprehensive plan in 2021; and

**WHEREAS,** the Town Council appropriated funding to update the Ordinance in Fiscal Year 2024 budget; and

**WHEREAS,** the Town staff procured a consultant team to help in the Ordinance update; and

**WHEREAS,** best practices call for a citizen led steering committee to help guide the update of the Ordinance as an advisory committee under Virginia Code § 15.2-1411, serving without stipend but eligible for reimbursement of expenses and training to the extent authorized in advance by the Town Manager (the "Steering Committee"), and

**WHEREAS,** the Town Council held a work session on May 14th when the Mayor requested Town Council forward names of citizens who may be interested in serving on the Steering Committee; and

**WHEREAS,** the Town Council held a work session on June 11th with the consultant team to discuss the process and priorities of the Ordinance update; and

**WHEREAS**, the Warrenton Town Council finds that per the Code of Virginia Section 15.2-2286.A.7, amending, supplementing, or changing the regulations, district boundaries, or classifications of property through amendment of the Ordinance and its associated zoning maps is required by public necessity, convenience, general welfare, and good zoning practice;

**NOW, THEREFORE, BE IT RESOLVED** that the Warrenton Town Council this 9th day of July, 2024 hereby initiates the update to the Town of Warrenton Zoning Ordinance;

**BE IT FURTHER RESOLVED** that the Warrenton Town Council believes the Steering Committee should reflect the contributing voices of the community and understand the final proposal will be a product representing varied and valued stakeholder input to deliver the best planning framework to ensure a healthy, resilient, and stronger future for all of Warrenton;

**BE IT FURTHER RESOLVED** that the Warrenton Town Council expects the Steering Committee members to support the full Steering Committee recommendations once put forth in the final draft product and help engage and inform citizens about the Ordinance update;

**BE IT FURTHER RESOLVED** that the Warrenton Town Council hereby appoints the following citizens to serve on the Steering Committee with the expectations they shall follow the Town's adopted Code of Ethics to earn and maintain the public's full confidence of integrity.:

1. Paul Mooney, Town Council At Large
2. Darine Barbour, Planning Commissioner
3. Taylor Boyd, Warrenton Arts Commission Vice-Chair/Business Owner
4. Bill Chipman, Commercial Real Estate/Business Owner/Local Resident
5. Keith Farrish, Local Business and Property Owner
6. Jay Heroux, Affordable/Attainable Housing, Former TC Member/Local Resident
7. Jim Hricko, Local Business Owner/Architect/Local Resident
8. Kevin Kask, PEC Employee
9. Sam Parker, VP Local Bank/Local Resident
10. Ben Rose, Landscape Architect, Local Resident

And

**BE IT FINALLY RESOLVED** that the Warrenton Town Council directs the Steering Committee to report to the Town Council on its efforts as part of the work of the consultant team and staff, after which the Town Council will take additional action to refer the draft Ordinance Update to the Planning Commission for its consideration and public hearing pursuant to the Code of Virginia.

**Votes:**
**Ayes:**
**Nays:**
**Absent from Vote:**
**Absent from Meeting:**

**ATTEST:** _____
**Town Recorder**