# PLANNING COMMISSION - REGULAR MEETING

**Tuesday, December 09, 2025 at 7:00 PM**

**Council Chambers – 15000 Washington St., STE 100 Haymarket, VA 20169**

**http://www.townofhaymarket.org/**

# AGENDA

**I. CALL TO ORDER**

**II. PLEDGE OF ALLEGIANCE**

**III. CITIZENS TIME**

**IV. MINUTE APPROVAL**

1. Planning Commission - Regular Monthly Meeting: November 11, 2025

**V. AGENDA ITEMS**

1. REZ #2025-01: Rezoning for 14600 Washington Street: Set Public Hearing Date
2. Chick Fil-a Drive Through Expansion Site Plan
3. One Mile Review: Lumina Rezoning - REZ 2026-00020

**VI. OLD BUSINESS**

**VII. NEW BUSINESS**

**VIII. ARB UPDATES**

**IX. TOWN COUNCIL UPDATES**

1. Amended Strategic Plan from December 1 Town Council Meeting

**X. ADJOURNMENT**

# PLANNING COMMISSION REGULAR MEETING

**Tuesday, November 18, 2025 at 7:00 PM**

**Council Chambers – 15000 Washington St., STE 100 Haymarket, VA 20169**

**http://www.townofhaymarket.org/**

# DRAFT MINUTES

## I. CALL TO ORDER

A Regular Meeting of the Haymarket Planning Commission was held this evening in the Council Chambers, commencing at 7 PM.

Chairman Jerome Gonzalez called the meeting to order.

**PRESENT**
Chairman Jerome Gonzalez
Vice Chairman Justin Baker
Commissioner Jeff Kress

**ABSENT**
Commissioner Walt Young

## II. PLEDGE OF ALLEGIANCE

Chairman Gonzalez asked everyone to stand for the Pledge of Allegiance.

## III. CITIZENS TIME

There were not any citizens present at this evening's meeting.

## IV. MINUTE APPROVAL

EnterTextHere

1. Planning Commission - Regular Meeting - August 12, 2025

   Chairman Gonzalez asked if anyone would like to make any edits to the draft minutes presented for approval.

   **Vice Chairman Baker moved to approve the minutes from August 12, 2025. Commissioner Kress seconded the motion. The motion carried.**

   **Motion made by Vice Chairman Baker, Seconded by Commissioner Kress.**
   **Voting Yea: Chairman Gonzalez, Vice Chairman Baker, Commissioner Kress**
   **Absent: Commissioner Young**

## V. AGENDA ITEMS

1. Land Use Development Presentation: Town Manager Emily Kyriazi

At this time, Town Manager/Zoning Administrator Emily Kyriazi gave a presentation on current and future Land Use applications and the status of the ongoing projects. She started with the current pre-submission phase to include:
1. Proposed rezoning for 14600 Washington Street. More information and application will be coming to the Planning Commission in the coming weeks.
2. Self Storage Lots at Kapp Valley Way site plan approval. Question was raised about the railroad crossing in that area. Mrs. Kyriazi stated it is a private crossing. So it is up to the property owner to modify. It's not part of the site plan.
3. Site plan submission for two single family units at 6792 and 6794 Fayette Street.
4. A preliminary site plan was submitted for a hotel at 6501 Crossroads Village Blvd., which sits behind the CVS. Mrs. Kyriazi also shared that a preliminary site plan was submitted by the owner for retail space on the parcel in front of the Kiddie Academy building.

She continued with the Approved Plan Review and Pre-Construction Phase.
1. Town Center Site Plan. Town Manager Kyriazi shared that this site plan is the Town Hall lot including the right turn lane from Jefferson Street onto Washington Street.
2. Chick Fil-a SUP and site plan for drive through expansion. Mrs. Kyriazi shared that this item will likely be before the Planning Commission at their January meeting.
3. Karter School. There are two vacant lots in front of Robinson Village Townhome development. The larger lot is for Karter School, a Montessori based school. at the back of the lot and a retail type establishment in front. The smaller lot will also be retail space. Mrs. Kyriazi shared that this will be coming to Planning Commission very soon.
4. Magnolia Crossing. This property has been before the Planning Commission for 11 townhomes. Mrs. Kyriazi shared that the demolition permit for the three existing homes on the property will expire in December. She shared if no action is taken in December, the applicant will need to start the demolition permit process over again.
5. Masonic Foundation/Tobaccology. Mrs. Kyriazi shared that the Masonic Lodge is looking at the possibility of improving their lot. A site plan was previously approved. Based on the timing, the site plan has expired and will need to be resubmitted.
6. LIdl property at Crossroads Village Center. There is no determination if Lidl will proceed with construction at the site. She shared that there was over growth of weeds on the site. After the weeds were taken care of, a for sale/for lease sign was put up on the property. Mrs. Kyriazi shared that there is a signed site plan for Lidl at the property. But it has never been bonded.

Currently Under Construction
1. Kiddie Academy. This property is located behind Chick Fil-a at the Crossroads Village Development. Mrs. Kyriazi shared that the building is close to completion and working on final as-builts to be submitted.
2. Haymarket Ice Plex. This property has a previously approved site plan in which was working on phases. The current project is at phase 2 which is establishing more seating and office space by closing in a portion of a concrete space. They are not changing any of the foot print and not modifying anything on the exterior.

As-Builts and Bond Release
1. Chick Fil-a. Mrs. Kyriazi shared that when Chick Fil-a was first built in 2015, they never submitted their as-builts or received final approval. She shared that staff is working with Chick Fil-a to get the old record cleaned up so that they can continue with their new project.
2. Crossroad Village Center. They have submitted their as-builts for staff review and will be proceeding forward with bond release.
3.Town Park Sidewalk. Staff is working through the punch list in order to finalize this project.
4. Taco Bell. This is separate from Crossroads Village Center. Staff is working on the landscape bond release as well as the as-builts review.
5. Lifetime Smiles. They have not submitted their as-builts nor have they worked on bond release. Staff is following up on this project.

6. Robinson Paradise. This property is located off of Jefferson Street toward Heathcote Blvd. They recently finished construction of 22 single family homes. Mrs. Kyriazi shared that unfortunately there has been some significant flooding in some pre-existing houses, as well as a couple of newly built homes. She shared that the Town Engineer and herself are working together at getting this resolved.
7. Jefferson Street/Fayette Street lots. There are 2 lots at the corner. Staff is working on bond release phase with the developer. The developer has not submitted as-builts.
8. Robinson Village/Van Metre. Staff is holding the landscape bond in escrow. The development was finished in 2023 and the process of bond release started except for a portion of the landscaping bond. Staff is in the final stage with Van Metre.

Mrs. Kyriazi shared information on a grant funding that the Town received with the help from Prince William County looking into the Town's storm water system and some issues that the Town has. She shared the Town has a variety of storm water systems but does not know the status of them on how they are currently functioning. She shared the three areas of town where there is storm water issues. She shared that the grant team is coming into the Town to assess the areas of concern and look at what can be done to mitigate the impacts.

Lastly, she shared that the Town participates in courtesy one mile review cases. She shared the most recent significant proposed project on Heathcote which would include a Sprouts, a Wawa and a multi tenant building which will include a Panera Bread, a nail salon, Mr. Eye Dr. and a Chipotle. She shared on the other side will be a car wash, a tire and auto and a bank. She shared that there will be approximately 232 townhouses in the area. She stated that the Town receives one mile review applications for projects that are rezoning or special use permits that happen in Prince William County and are within one mile of the town boundary. She also shared a recent one mile review application. She shared that this application will be a topic of discussion at the December Planning Commission meeting so that she can get the comments to the County be the deadline. She tasked the Planning Commission to think about the traffic impacts, the service impacts, and infrastructure connectivity that could effect Haymarket. A short discussion followed on the subject. Discussion also followed on some items that were presented.

2. 2026 Meeting Schedule

Town Clerk Kim Henry presented the draft of the 2026 Meeting Schedule. She shared that all the meetings are on the second Tuesday of the month, as stated in the by-laws. She shared that there is one conflict, which is the September meeting. Ms. Henry stated that the Town Council policy states that if a holiday falls on a meeting Monday, the meeting would be scheduled for the next day. She stated that Labor Day falls on the first Monday in September which would have the Council meet on the next day. However that date is the second Tuesday of the month. She asked for direction from the Planning Commission for their September meeting. There was a consensus to have the September meeting be on the third Tuesday in September. Town Manager Emily Kyriazi also discussed with the Planning Commission the policy if the office closes due to inclement weather. She asked the Planning Commission to help staff by being able to quickly pivot to a different meeting date if the meeting needs to be rescheduled because of open applications.

3. Resignation of Planning Commissioner Dave Capossela

Chairman Gonzalez shared that the Planning Commission received a resignation letter from Dave Capossela because he was recently appointed to the Town Council.

4. Architectural Review Board Liaison Appointment

Chairman Gonzalez shared that Dave Capossela was the Planning Commission liaison to the Architectural Review Board. And since Mr. Capossela has resigned, the Planning Commission would need to appoint a new liaison. Mr. Gonzalez shared that Commissioner Kress has expressed an interest to be the liaison.

**Vice Chairman Baker nominated Jeff Kress as the Planning Commission liaison to the Architectural Review Board. Being that there were no other nominations, Vice Chairman Baker moved to appoint Jeff Kress to as the Planning Commission liaison to the Architectural Review Board. Chairman Gonzalez seconded the motion. The motion carried.**

**Motion made by Vice Chairman Baker, Seconded by Chairman Gonzalez.**
**Voting Yea: Chairman Gonzalez, Vice Chairman Baker, Commissioner Kress**

## VI. OLD BUSINESS

Town Manager Emily Kyriazi did not have any additional items since she went over most in the Land Use presentation earlier.

## VII. NEW BUSINESS

Town Manager Emily Kyriazi shared that she did not have any additional New Business since she went over alot of it in her Land Use presentation earlier.

## VIII. ARB UPDATES

Town Manager Emily Kyriazi shared that the ARB has not had any active applications so the meetings have been cancelled. She shared that the ARB is expected to have a meeting next month.

## IX. TOWN COUNCIL UPDATES

Councilmember Baker gave the Town Council updates. He shared shared that the Town had a successful Haymarket Day and Farmer's Market season. He also shared that the Council recently had their annual strategic planning meeting to review the progress that was made in the past year and to re-categorize their priorities going forward. He shared that the Town Manager sent out the RFP for the Town Park Pavilion design. He also shared that at the last meeting Chief Sibert recognized some staff members for going above and beyond. He stated that the Council awarded the Compensation Study RFP. Councilmember Baker shared the Thanksgiving and Christmas Holiday office hours. He also shared that the Haymarket Holiday Event is on December 13th. Lastly, Councilmember Baker congratulated Dave Capossela for being appointed to the Town Council.

## X. ADJOURNMENT

**With no further business before the Planning Commission, Vice Chairman Baker moved to adjourn seconded by Commissioner Kress. The motion carried.**

**Motion made by Vice Chairman Baker, Seconded by Commissioner Kress.**
**Voting Yea: Chairman Gonzalez, Vice Chairman Baker, Commissioner Kress**
**Absent: Commission Young**

DRAFT

Town of Haymarket
15000 Washington Street, #100
Haymarket, VA 20169
703-753-2600

# Memorandum

**To:** Planning Commission

**From:** Emily L. Kyriazi, Town Manager

**Re:** REZ2025-001 Schoolhouse Commons Rezoning, Planning Commission Public Hearing Date

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**Background:** Graystone Developers has submitted a rezoning application for 14600 Washington Street, Haymarket, VA 20169. The application was submitted and fully accepted for review on November 6, 2025. The application was submitted to the Town of Haymarket on October 2, 2025. Following completeness review, an additional document was required to be submitted with the property owner's signature. This was accepted by the Town on November 6, 2025, marking the application as complete.

I have met with the applicant and the Town Engineer on several occasions to go through the application submission in detail, provide initial feedback and request minor modifications to the application. The developer has worked closely with the Town Staff to address the initial comments by Staff. The applicant has amended the submission to address the initial comments. At this time, the application has been referred to the Planning Commission by the Town Council as of December 1, 2025. The Planning Commission shall set a public hearing for the Schoolhouse Commons Rezoning application to be heard. The proposed date of the Planning Commission Public Hearing is January 13, 2026 at 7:00 pm.

The Application is attached to the agenda for INFORMATIONAL PURPOSES and REFERENCE. The application will NOT be considered or review by the Planning Commission on December 9, 2025. The purpose of the application on the Planning Commission agenda, December 9th, is to formally set the public hearing date for the application.

The application file size is quite large. In an effort to conserve paper for the scheduling discussion, the hardcopy agenda sent to Planning Commission members will not include the printed pages of the application appendices. The application appendices are available on the Town's website in the December 9th meeting agenda. Printed copies of the application and all appendices will be made available as requested.

Draft Motion: I move the Planning Commission set the public hearing date for the Schoolhouse Commons Rezoning, REZ2025-001, application for January 13, 2026 at 7:00pm at the Haymarket Town Hall.

Or alternate motion.

# Rezoning Application
# For
# SCHOOLHOUSE COMMONS
## An 8.84-acre Mixed-Use Community
## 14600 Washington Street
## Haymarket, Virginia

Application Date
October 2, 2025

Prepared by:
**GRAYSTONE COMPANIES, LLC (Applicant)**
15091 Taylors Mill Place | Haymarket, VA 20169
Phone: (703) 929-1328 | sdosky@graystoneco.com

**THE KDL GROUP, LLC**
PO Box 609 | Haymarket, VA 20169
Phone: (703) 753-7592 | jdavis@kdlgroup.com

GRAYSTONE
COMPANIES

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# Section I

# ILLUSTRATIVE PLAN

COMMON GREENS
COMMUNITY CENTER
COMMON GREENS
RETAIL/ COMMERCIAL
RESIDENTIAL
RESIDENTIAL

# Section II

# APPLICATION

Check Appropriate Item(s):
☒ Amendment to Zoning Map & CPA
□ Zoning Text Amendment
□ Special Use
□ Variance
□ Appeal of Administrative Decision

Office Use Only:

Date Received: _____
Application Number: _____
Fees Received: _____

## **Part 1** – to be completed by **ALL** applicants

### 1-A Identification of Property – For zoning text amendments, this is the property in which the applicant has an interest, which will be affected by the text change. For all other applications, it is the land, which is covered by the application.

1) Number and Street: 14600 Washington Street
2) Present Zoning: B-1 3) Acres: 8.84
4) Legal Description of Property (Omit for zoning text amendment) – Attach if necessary.
See attached.

### 1-B Property – (Omit for zoning text amendments)

1) The deed restrictions, covenants, trust indentures, etc. on said property are as follows (or copy attached); if NONE, so state: None.

2) a) Has this property or any part thereof ever been considered for Variance, Special Use, Appeal of Administrative Decision or Amendment to the Zoning District Map before?
☒ YES □ NO
b) Date: 2013 c) Former Application No. REZ 20130528
d) What was the disposition of the case? Approved
e) Former Applicant Name: Haymarket Properties Group, LLC
Former Address: 14600 Washington Street Haymarket, VA 20169
Former Phone: (703) 498-8650

### 1-C Identification of Applicant – All applicants must have standing (an interest in property that will be directly affected by requested action)

1) Applicant Information:
Name: Graystone Companies, LLC
Address: 15091 Taylors Mill Place Haymarket, VA 20169
Phone Number: (703) 929-1328
2) Agent Information (if any):
Name: _____
Address: _____
Phone Number: _____

3) Owners of all property included in this application (omit for zoning text change):
*Name*: Haymarket Properties Group, LLC
Address: 14600 Washington Street Haymarket, VA 20169
Phone Number: (703) 498-8650
*Name*: _____
Address: _____
Phone Number: _____

*Name*: _____
Address: _____
Phone Number: _____
*Name*: _____
Address: _____
Phone Number: _____

4) If applicant is a Land Trust or Partnership or if the subject property is owned or controlled by a Land Trust or Partnership, List name and interest of **ALL** Land Trust Beneficiaries or Partners and attach evidence that the person submitting the application on behalf of the Land Trust or Partnership is authorized to do so.
*Trustee/Partner Name*: _____
Address: _____
Phone Number: _____ Interest: _____
_____
*Beneficiary/Partner Name*: _____
Address: _____
Phone Number: _____ Interest: _____
_____
*Beneficiary/Partner Name*: _____
Address: _____
Phone Number: _____ Interest: _____
_____

5) Does the applicant have a proprietary interest in the land or land improvements? □ YES X NO (In the case of a zoning text amendment, this means at least one parcel of land is subject to the text change)
If YES, state interest and attach documentation: _____
_____
If NO, state what interest otherwise qualifies the applicant to apply: ____
The applicant is the contract purchaser. _____

6) Names of the owners of improvement(s) on the property in this application if different from above: (Omit for zoning text amendment)
*Name*: _____
Address: _____
Phone Number: _____
*Name*: _____
Address: _____
Phone Number: _____
*Name*: _____
Address: _____
Phone Number: _____

7) If the applicant is a corporation, attach the evidence that the person submitting the application on behalf of the corporation is authorized to do so.
See Authorization letter dated _____.

**Part 2 –** Complete **ONLY** portion(s) of Pages 3, 4 & 5 pertaining to your case. (as checked at top of Page 1)

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**2-A Rezoning –** (Amendment to the zoning district map) – Applications for Amendments to the Zoning District Map are heard by the Planning Commission which makes a positive or negative recommendation to the Town Council. Only the Town Council has authority to grant or deny amendments to the Zoning District Map.

1) a) Existing Zoning: B-1 b) Proposed Zoning: B-1 and R-2
c) Existing Use: Commercial Uses (B-1)
d) Proposed Use: Commercial Uses (B-1) and Townhouse (R-2)

2) a) The following are submitted with this application:
□ Preliminary Site Plan □ Rendering or Perspective X Other : Zoning Map Amendment Plan
b) Are there any land use intensity (LUI) requirements? □ YES X NO
c) Attach brief justifying this request. This brief should include an analysis of how the rezoning application is supportive or not supportive of relevant goals, objectives, policies or programs in the Comprehensive Plan. (Staff will assist.)

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**2-B Zoning Text Amendment –** Applications for amendments to the zoning text are heard by the Planning Commission, which makes a recommendation to the Town Council. Only the Town Council has the authority to change the zoning text, which is done by passing an amendment to the Town Code.

1) What section(s) of the Town Code is proposed to be amended? _____
_____

2) What is the nature of the proposed change? _____
_____

3) Attach the exact language suggested by the application to be added, deleted, or changed in the Town Code.

4) Attach a written statement, which justifies the proposed change. The statement should also identify potential positive and negative impacts (if any) of the proposed change to the applicant's property, nearby properties, and the entire community if the application is approved or if it is denied.

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**2-C Special Use Request –** Special Use requests are heard by the Planning Commission, which makes a positive or negative recommendation to the Town Council. Only the Town Council has the authority to grant or deny a Special Use.

1) Are development plans submitted with this application? (Staff member will explain.) □ YES □ NO

2) Parking Requirements:
a) Proposed number of parking spaces to be provided: _____
b) Number of parking spaces required by Town Code: _____
c) Attach tabulation of total land area and percentage thereof designated for various uses
d) Are there any land use intensity (LUI) requirements? □ YES □ NO
If YES, attach data.

3) Estimated cost of proposed Special Use project:
a) Land: $_____ Improvements: $_____
b) Estimated completion date: _____

4) Submit a brief justifying the reasons for this request. This brief should include an analysis of how the rezoning application is supportive or not supportive of relevant goals, objectives, policies or programs in the Comprehensive Plan. (Staff will assist.)

**2-D Variance Request –** Variances are granted or denied by the Zoning Board of Appeals (ZBA). Reversal of ZBA decisions may be secured only through the judicial system.

1) a) All information required may be shown on one sheet if appropriate.
b) Check characteristic(s) of the property preventing it from being used in accordance with the terms of the Town Code (Zoning Ordinance):
□ Too Narrow □ Elevation □ Soil

□ Too Small □ Slope □ Subsurface
□ Too Shallow □ Shape □ Other (Attach specifics)
c) Attach a description and/or drawings of the item(s) checked, giving dimensions were appropriate.

2) Attach requirements for the appropriate zoning district from which relief is sought as described in the Town Code.

3) Attach a brief explanation how the above site zoning conditions prevent any reasonable use of the land under the terms of the Town Code (Zoning Ordinance).

4) a) To the best of your knowledge, can you affirm that the hardship described above was not created by an action of anyone having proprietary interest in the land after the zoning article or applicable part thereof became law? □ YES □ NO
b) If NO, explain why the hardship should not be regarded as self-imposed (self-imposed hardships are not entitled to variance).

_____

c) Are the conditions on the property the result of other man-made changes (such as relocation of a road or highway, etc.)? □ YES □ NO
d) If YES, attach descriptions and maps where appropriate.
e) Do the above-described conditions of hardship for which this request for variance is filed apply only to this property? If YES, attach an explanation. □ YES □ NO

5) Which of the following modifications will allow a reasonable use of the land?
□ Change in the setback requirements □ change in lot coverage requirements
□ Change in height requirements □ change in area requirements
□ Other (attach description)

6) a) Attach description of proposed use.
b) Is proposed use permitted in the zoning district? □ YES □ NO
c) Will the granting of a variance in the form requested be in harmony with the general purpose and intent of the zoning article and district statement of intent and not be injurious to the neighborhood or detrimental to the public welfare? □ YES □ NO
d) Attach a brief elaborating on this last point.

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**2-E Appeal of Administrative Decision –** Administrative decisions are reviewed by the Zoning Board of Appeals (ZBA). Such administrative decisions may be reversed or sustained by the ZBA. Reversal of ZBA decision may be secured only through the judicial system.

1) Date of administrative decision leading to this appeal: _____

2) Attach a brief, which specifically states the decision the administrative official made, the reasons given for the decision and specifically what you are herewith appealing. Elaborate on the reasons for this request, and why the Zoning Board of Appeals in your opinion should overrule the administrative official's decision.

## **Part 3** – To be completed by ALL applicants

**AFFIDAVIT** – This part of the application must be notarized. Do not sign until in the presence of a Notary Public.

1) To the best of my knowledge, I hereby affirm that all information in this application and any attached material and documents are true:

a) Signature of **applicant**: _____

b) Signature of **agent** (if any): _____

c) Date: 9/25/2025

*Notary Seal*

PATRIZIA BERNAL
NOTARY PUBLIC
REGISTRATION # 7368663
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES
SEPTEMBER 30, 2026

2) a) Signed and sworn before me this: 09-25-2025

b) Signature of **Notary**: _____

## Legal Description of PACE West School

BEGINNING AT AN IRON PIPE FOUND AT THE SOUTHWEST CORNER OF THE LAND OF TRUSTED MANAGEMENT AND SERVICES, LLC, THE NORTHERN RIGHT-OF-WAY LINE OF JOHN MARSHALL HIGHWAY (ROUTE 55) AND IS FURTHER IDENTIFIED AS THE SOUTHEAST CORNER OF THE PROPERTY HEREIN DESCRIBED.

THENCE, DEPARTING SAID LAND OF TRUSTED MANAGEMENT AND SERVICES, LLC AND RUNNING WITH THE SAID NORTHERN RIGHT-OF-WAY OF JOHN MARSHALL HIGHWAY, N 59°39'41" W A DISTANCE OF 454.00 FEET TO AN IRON ROD SET AT THE INTERSECTION OF THE NORTHERN LINE OF SAID JOHN MARSHALL HIGHWAY AND THE EASTERN RIGHT-OF-WAY LINE OF BLEIGHT DRIVE.

THENCE, DEPARTING SAID JOHN MARSHALL HIGHWAY AND RUNNING WITH THE EASTERN RIGHT-OF-WAY LINE OF SAID BLEIGHT DRIVE, N 28°02'47" E A DISTANCE OF 829.12 FEET TO AN IRON ROD SET AT THE EASTERN RIGHT-OF-WAY LINE OF BLEIGHT DRIVE AND THE SOUTHWEST CORNER OF PARCEL "A", ALEXANDRA'S KEEP BEING THE LAND OF ALEXANDRA'S KEEP HOMEOWNERS ASSOCIATION.

THENCE, DEPARTING SAID EASTERN RIGHT-OF-WAY LINE OF BLEIGHT DRIVE AND RUNNING WITH SAID PARCEL "A" AND THE SAME LINE CONTINUED WITH THE AFOREMENTIONED LAND OF TRUSTED MANAGEMENT AND SERVICES, LLC, S 59°32'55" E A DISTANCE OF 475.67 FEET, CROSSING OVER AN IRON PIPE FOUND AT 416.38 FEET, TO AN IRON PIPE FOUND AT THE AFOREMENTIONED LAND OF TRUSTED MANAGEMENT AND SERVICES, LLC.

THENCE, CONTINUING WITH THE AFOREMENTIONED LAND OF TRUSTED MANAGEMENT AND SERVICES, LLC, S 29°32'37" W A DISTANCE OF 827.60 FEET TO THE POINT OF BEGINNING.

CONTAINING 384,867 SQUARE FEET OR 8.8353 ACRES OF LAND MORE OR LESS.

# Section III

# SUMMARY NARRATIVE REZONING & COMPREHENSIVE PLAN AMENDMENT

**Summary of the Proposed Rezoning and Comprehensive Plan Amendment**

This application proposes the rezoning of 7.25 of 8.84 acres (GPIN 7397-19-1734) from B-1 (Town Center District) to R-2 Residential District. This would result in a downzoning, reducing traffic and the impact on adjacent residential neighbors.

The Schoolhouse Commons Zoning Map Amendment and Rezoning Plat dated September 30, 2025, prepared by KDL Group, LLC are contained in Appendix A.

The proposed Comprehensive Plan Amendment would revise the future land use designation of the 7.25 acres from Public Use to Moderate Density Residential.

This rezoning and plan amendment will support a vibrant horizontal mixed-use development that delivers much-needed residential housing options and community-scale commercial uses. The proposal prioritizes preservation of key historic assets. Specifically, the original Gainesville District School building and the only remaining Lewis Home remaining in the Town of Haymarket, by integrating them into the site as adaptive reuse projects, including a planned community center.

**Existing Use and Character of the Area**

The "Property" that is the subject of this rezoning consists of 8.84 acres of land that was improved with the Gainesville District School in 1935, which was subsequently expanded with additions in 1946, 1954 and 1963. The site was also improved with baseball fields, playgrounds, an asphalt basketball court and associated parking areas.

The school building was converted to commercial retail and office use after the property was sold into private ownership in 2013. The current tenant base includes offices, restaurants, Jui Jitsu, Jazzercise, and a Cookies and Cream shop situated in the historic Lewis Home that was moved to the site. The buildings contain approximately 31,000 square feet of rentable area, of which over 5,000 square feet is unoccupied. The unoccupied space is generally situated in the 1963 rear addition, which lacks requirements for most office or retail (visibility and access from Washington Street, ceilings too low, functional obsolescence).

The former recreational fields have been inactive for years and are no longer equipped or maintained. As such, the site today represents one of the largest underutilized properties within the Town—a unique infill opportunity. The Property is currently zoned B-1 Town Center Commercial and was designated for public use in the 2008 Comprehensive Plan, which relates to the property's former use as a public school.

Surrounding properties to the north, east, west, and south are designated for Moderate Density Residential, and are generally fully developed with single family attached or detached homes. The Property is bordered on the east by the Town boundary, an office/retail building along Washington Street and a new age-restricted townhome community. The Greenhill Crossing subdivision is situated to the north, across Washington Street.

**Trends of Growth or Change and Current/Future Requirements of the Town**

The Town experienced significant growth from 2000-2020, growing from a population of 1,019 in 2000 to 1,547 by 2020. According to the US Census Bureau, the Town of Haymarket has an estimated population of 1,545 in 2025, which is down from the 2020 census count. Growth has slowed in recent years due in part to the unavailability of vacant land in the Town. Like many other communities across the US, a severe housing shortage estimated between 3-5 million homes has restricted growth.

The Town has expressed a desire to keep the population below 3,500 people due to a trigger in the Virginia Code that would shift more responsibilities and costs to the Town.

This proposal aligns with that population management goal, while also increasing the Towns tax base. At an estimated 3.2 people per household, the proposed townhome community would introduce approximately 186 residents, keeping the Town's total population at just 1,731, less than 50% of the 3,500 threshold.

Schoolhouse Commons will enhance the housing opportunities in Haymarket by providing much needed housing, in a unique horizontal mixed-use development integrated with iconic buildings. The design provides beautiful open spaces, enhances the Washington Street streetscape, cleans up and beautifies the property for neighbors, and enhances the commercial viability for the historic school's tenants. This proposal encourages smart infill development and reuse of existing infrastructure—consistent with the principles of sustainable growth and community preservation.

**Transportation Requirements of the Community**

The Traffic Impact Analysis (TIA) conducted by Gorove Slade validates the need for the proposed construction of a connection to Bleight Drive, directly across from Dogwood Park Lane, improving neighborhood connectivity and traffic flow.

Additionally, and at the request of VDOT, the applicant proposes to:

- Realign the primary access point on Washington Street opposite Greenhill Crossing.
- Install a dedicated right-turn in lane from Washington Street for improved ingress/egress safety and traffic flow.
- Close and convert the easternmost Washington Street access point to green space, enhancing both safety and streetscape appeal.

Parking has been carefully planned to support both residential and commercial uses, exceeding code by 23 spaces and designed with an emphasis on flexibility and functionality. The demolition of approximately 7,000 rentable square feet of the underutilized 1963 rear addition allows for expanded parking, supporting shared use for resident and commercial visitors.

Our traffic engineer, Gorove Slade, was also engaged to perform an analysis of the surface parking use for the proposed Schoolhouse Commons project and their report is included in Appendix C. The shared parking analysis concluded that at peak demand there will be a surplus of 30 parking spaces for the combined residential and commercial uses.

The transportation upgrades will enhance access and internal circulation; improve vehicular, bicycle, and pedestrian safety on Washington Street and on the site; enhance visibility for commercial tenants, and support the overall walkability of the project. The Washington Street streetscape improvements, in harmony with the Washington Street Enhancement Project, will further fulfill the Town's Comprehensive Plan objectives.

**Suitability of the Property for the Proposed Uses and Conservation of Properties and their Values**

The following quotes are from the Town's Comprehensive Plan:

*"It is the intent of the Town of Haymarket (hereinafter, "the Town"), by adoption of these guidelines, to maintain and promote the historic flavor and consistency of architectural styles in this region of Virginia from circa 1750 to 1900. The ARB shall advise and assist the Town Council in rendering decisions with respect to the rehabilitation, restoration, preservation and protection of historic places and non-historic places by creating between them harmonious transitional areas through the use of Architectural and Landscape materials that are consistent with the unique characteristics of this time period."*

*"This blend of uses continues to the eastern town limit, where a neo-colonial residential development is across the street from public uses in two Sears {Lewis} houses fronted by a planned village green. The two Sears {Lewis} structures fit this area architecturally and historically and*

*should be preserved, if at all possible. Landscape materials that are consistent with the unique characteristics of this time period."*

*"Building and revitalizing the Town are simultaneous and equal objectives emphasizing the historic theme and should be integrated into all developments and adaptive uses."*

The Schoolhouse Commons plan preserves historic structures, like the Gainesville School and Lewis House, while creating "harmonious transitional areas" through context-sensitive architecture and landscaping.

*"The Washington Street Enhancement Project encompasses the improvement of Washington Street throughout the Town limits and includes enhanced pedestrian, bicyclist, and vehicle access through the Historic Town of Haymarket. The project also includes installation of brick sidewalks, colonial-style streetlights, park benches, trash receptacles, bicycle lanes and racks, brick planters and requisite engineering."*

This project will make the desired Washington Street enhancements and add landscaped open space along the streetscape that will blend with the existing Greenhill Crossing landscape across the street.

*"Demands for space, convenience and housing style are compromised by the costs of borrowing. Though some households will need to satisfy their housing demand with rented or multi-ownership units, the majority of households will continue to secure housing in single-family attached and detached units. Young households with children traditionally preferring single-family homes with ample yards are now accepting the townhouse environment."*

The residential portion of Schoolhouse Commons will provide much needed single family attached homes, which are beautifully integrated with the existing commercial uses, while providing the perfect transition from the single-family homes on Bleight Drive.

The Schoolhouse Commons project has been designed in direct alignment with the goals and principles outlined in the Town's Comprehensive Plan, particularly regarding historic preservation, appropriate architectural design, and the integration of new development into existing fabric. Key citations include:

- The Town's commitment to preserving historic structures, like the Gainesville School and Lewis Houses, and creating "harmonious transitional areas" through context-sensitive architecture and landscaping.
- The priority of integrating adaptive reuse into community revitalization.

- The importance of the Washington Street Enhancement Project, which this development directly supports through improved facades, pedestrian infrastructure, and green space along the corridor.

The existing school and Lewis Home will be preserved and adaptively reused for neighborhood-serving commercial and community uses, contributing to the town's cultural heritage, while introducing appropriate scale residential development in keeping with the R-2 zoning.

Importantly, this application reflects an effective "down-zoning":

- Under current B-1 zoning, the entire 8.84-acre site could be developed with up to 85% lot coverage.
- Under the proposed R-2 zoning, 7.25 acres (82% of the site) would be limited to 30% lot coverage, significantly reducing potential intensity and preserving more open and green space.

The proposal includes buffers, improved landscaping, and a neighborhood green that not only supports community interaction but also enhances the overall property values of the surrounding area.

The Proposed Schoolhouse Commons rezoning and Comprehensive Plan Amendment would accomplish many of the Comprehensive Plan's goals by encouraging a desirable land use pattern which serves to meet future Town needs for housing, roads and highways, employment, public facilities, recreation, and the protection of the environmental and historical character of the town.

According to the Town zoning ordinance:

*"The Town Center District, B-1, provides primarily for retail shopping and personal services to be developed either as a unit or in individual parcels oriented to attracting pedestrian shoppers, tourism, and local convenience. Recognizing the economic value of the existing historical area, it shall further be the intent of the district to encourage the retention and rehabilitation of structures and uses in the district that have historic and/or architectural significance. The range, size, hours of operation, lighting, signs, and other developmental aspects of permitted uses may be limited in order to enhance the general character and historic nature of the district."*

*"Residential R-2. The residential district R-2 is intended for use within those areas near the central core of the Town. This district should provide a suitable environment for families and persons seeking the amenities and convenience of townhouse living, or as an option, smaller detached single-family lots, or conventional singlefamily lots without fear of encroachment or dissimilar uses. This district is designed to stabilize, protect, and promote this type of development."*

The Property is uniquely positioned and historically underutilized. The existing adaptive reuse of the School and Lewis Home provides for the opportunity to integrate a local serving neighborhood with the commercial uses and a community center in the existing buildings, while preserving the historic nature of these assets. All while adding much needed housing to form a mixed-use neighborhood. The proposed development will serve to meet the intent of both the B-1 and R-2 zoning districts.

The preservation and enhancement of significantly useable green space provides the community with ample recreational areas, while enhancing the views from and to Washington Street. Additionally, relocating the Lewis Home to front Washington Street will enhance its visibility and present its historic significance and beauty to the Washington Street streetscape – in direct alignment with the Washington Street Enhancement Project.

**Conclusion**

The proposed zoning amendment is effectively a down zoning of 7.25 acres (R-2 portion), 82%, of the Property. Under the existing B-1 zoning, the entire site could be developed by-right with up to 85% maximum lot coverage whereas the R-2 zoning reduces the maximum lot coverage to 30%. The proposed plan overall density and traffic generation will be significantly reduced from what could be developed by-right under the existing B-1 zoning.

The proposed Schoolhouse Commons rezoning and Comprehensive Plan Amendment achieves multiple Town objectives and benefits, including:

- Preservation of key historic structures and neighborhood character
- A plan that is more compatible with the character and scale of the surrounding neighborhoods
- Providing much needed residential housing
- Converts unutilized land into a town asset and tax base
- Improves the conditions of the existing historic buildings and land to the benefit of the existing commercial tenants, residential neighbors, and the Town
- Provides a smart horizontal mixed-use development that will help support the unique challenges faced by the commercial tenants' lack of road visibility
- Enhancement of the Washington Street corridor at the Gateway for the Town
- Improved circulation and infrastructure without overburdening Town services

Schoolhouse Commons offers a balanced, community-sensitive redevelopment of a prominent and underutilized site—transforming it into a thriving mixed-use neighborhood that reflects the heritage and future vision of the Town of Haymarket.

# Section IV

# PROFFER STATEMENT

**Proffer Statement**

To Rezone 7.25 of the 8.84 Acres, GPIN 7397-19-1734, from B-1 (Town Center District) to R-2 (Residential District) in accordance with the Rezoning Plat dated September 30, 2025, prepared by KDL Group, LLC

October 2, 2025

The undersigned owners seek to amend the zoning of 7.25 of the Acres of GPIN parcel 7397-19-1734 (the "Property") from the existing zoning of B-1 (Town Center District) to R-2 (Residential District) zoning classification, subject to the following proffered conditions:

1. The Property shall be developed in substantial conformance with the submitted Zoning Map Amendment Plan entitled "Schoolhouse Commons" dated September 30, 2025 and prepared by KDL Group, LLC, "GDP". Minor modifications, including the location of travel ways, roads, parking, and buildings, shall be determined at the time of final site plan. More substantial variation from the GDP shall be permitted provided the integrity of the overall site layout is not compromised and subject to the concurrence of the Planning Director. The Applicant shall have the right to use the existing structures on the Property for purposes permitted under the existing B-1 zoning.

2. While the Proffer Justification Narrative was not able to recommend or justify any monetary proffers, the Applicant makes a voluntary contribution of $50,000 for each approved unit in excess of 54 units, to be used for enhancements to the park and for public safety. If approved as submitted, the voluntary contribution would be $200,000.

3. The proposed R-2 Residential District shall not exceed a maximum of 58 dwelling units. The residential portion of the property shall be developed as a single unified development to include a common architectural theme.

4. The R-2 Residential District shall be subject to one or more homeowners' associations that will be created and made responsible for the maintenance and repair of common areas, including common open space.

5. The Applicant shall provide amenities for the proposed community within the green spaces of the proposed development. The final locations of such amenities shall be determined at the time of final site plan review.

6. All plantings located within landscape areas shall be consistent with the Concept Landscape Plan. Applicant shall make any changes required for site plan approval. The overall site green area, tree canopy and setback landscaping requirements shall be met during site plan approval.

7. Storm water management for the Property shall employ best management practices ("BMP") and shall be provided during the site plan review process. Upon approval by the Town, the system shall be maintained by the herein referenced owners' association.

8. Sidewalks and bicycle trails shall be interconnected with the surrounding network of public sidewalks and trails external to the property, and within the Property shall form a network of internal sidewalks and bicycle trails connecting residential and nonresidential uses and amenity areas identified in the Concept Development Plan. The Applicant shall construct a 5' brick walk along the Washington Street frontage as shown on the GDP.

9. Provided all necessary Virginia Department of Transportation (VDOT) and Prince William County Department of Transportation (PWCDOT) approvals are obtained, the Applicant shall construct within the existing right-of-way various entrance improvements, generally as said improvements are depicted in the GDP. The final design of said improvements shall be determined in consultation with the Town and VDOT at the time the improvements are shown on said final site plan, with flexibility to address engineering and design considerations.

10. The Property shall be served by public sanitary sewer and water, and the Applicant shall be responsible for the costs and construction of those on and off-site improvements required to provide such service for the net additional demand generated by the development on the Property.

11. The Applicant shall move the existing Lewis Home from its existing location to Washington Street as shown on the GDP. If moving the home is structurally unsafe or damages the structure, Applicant will remodel or rebuild a replica of the home in the location shown on the GDP.

The undersigned hereby warrant that the owners of a legal interest in the subject property have signed this proffer statement, that they have full authority to bind the property to these conditions, and that the proffers contained in this statement are not "unreasonable" as that term is defined by Virginia Code § 15.2-2303.4,

Haymarket Properties Group, LLC

By:

_____

Printed Name:

Commonwealth of Virginia

County of Prince William

The foregoing instrument was acknowledged before me this _____ day of _____, _____, by _____.

_____ My commission Expires:_____

Notary Public

# Section V

# PROFFER JUSTIFICATION NARRATIVE

# SCHOOLHOUSE COMMONS DEVELOPMENT
# PRINCE WILLIAM COUNTY AND
# TOWN OF HAYMARKET, VIRGINIA

## PROFFER JUSTIFICATION NARRATIVE

**SEPTEMBER 17, 2025**

**PREPARED BY:**

MUNICAP, INC.
PUBLIC FINANCE

# SCHOOLHOUSE COMMONS DEVELOPMENT
# PRINCE WILLIAM COUNTY AND
# TOWN OF HAYMARKET, VIRGINIA

## PROFFER JUSTIFICATION NARRATIVE

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# I. Introduction

The purpose of this Proffer Justification Narrative is to satisfy requirements and requests from Prince William County (the "County") and the Town of Haymarket (the "Town") as these requirements and requests relate to the 2016 legislation (as subsequently described, and as subsequently amended) for the proposed Schoolhouse Commons mixed-use development (the "Development"). More specifically, this document addresses legislative requirements and County and Town policy related to proffers that the applicant has elected to propose in connection with the request for rezoning regarding the residential portion of the Development.

## Legislation Pertaining to Residential Proffers

Section 15.2-2303.4 of the Code of Virginia (the "Residential Proffer Legislation"), as it was amended effective July 1, 2019, places certain limitations on proffers for residential rezoning cases filed after July 1, 2016, or July 1, 2019, as applicable. As stipulated by the Residential Proffer Legislation, and unless an applicant elects to apply for a rezoning pursuant to Subsection D of that statute, a local government may only request or accept a proffer if it addresses an impact that is specifically attributable to a proposed new residential development, and, if it is an offsite proffer, it addresses an impact to an offsite public facility, such that (a) (i) the new residential development creates a need, or an identifiable portion of a need, for one or more public facility improvements in excess of existing public facility capacity at the time of the rezoning, and (b) (ii) each such new residential development applied for receives a direct and material benefit from a proffer made with respect to any such public facility improvements. For the purposes of the statute, a locality may base its assessment of public facility capacity on the projected impacts specifically attributable to the new residential development.

The Residential Proffer Legislation designates four categories of public improvements and facilities:

- **Public school facility improvements:** construction of new primary and secondary public schools or expansion of existing primary and secondary schools, to include all buildings, structures, parking, and other costs directly related thereto;

- **Public safety facility improvements:** construction of new law enforcement, fire, emergency, medical, and rescue facilities or expansion of existing public facilities, to include all buildings, structures, parking and other costs directly related thereto;

- **Public park facility improvements:** construction of public parks or improvements and/or expansion of existing public parks, with "public parks" including playgrounds and other recreational facilities; and

- **Public transportation facility improvements:** construction of new roads; improvement or expansion of existing roads and related appurtenances as required by applicable standards of the Virginia Department of Transportation, or the applicable standards of a locality; and construction, improvement, or expansion of buildings, structures, parking, and other costs directly related to transit.

According to the Residential Proffer Legislation, expenses of an existing public facility, such as ordinary maintenance or repair, or any capital improvement to an existing public facility, such as a renovation or technology upgrade, that does not expand the capacity of such facility shall be excluded. In addition, a proffer will be deemed unreasonable unless it addresses an impact to public facilities that is specifically attributable to the proposed residential development and there will not be adequate existing capacity at the given facilities for the impacts of the proposed residential development.

This document addresses the projected impacts of the residential portion of the Development on the foregoing infrastructure categories to which residential proffers may be directed.

## Proffer Justification Narrative Requirement and Request

In response to the Residential Proffer Legislation, the County adopted policies to ensure any proffer requested or accepted meets its mandated standards. Among them is the requirement that any residential rezoning or proffer amendment application subject to the Residential Proffer Legislation include a justification narrative identifying impacts to public facilities. The requirement states that the justification narrative must, in detail:

- Identify all of the impacts of the proposed rezoning/proffer amendment;
- Propose specific and detailed mitigation strategies and measures to address all of the impacts of the proposed rezoning/proffer amendment;
- Address whether all of the mitigation strategies and measures are consistent with all applicable law, including, but not limited to, the Residential Proffer Legislation; and
- Demonstrate the sufficiency and validity of those mitigation strategies using professional best accepted practices and criteria, including all data, records, and information used by the applicant or its employees or agents in identifying any impacts and developing any proposed mitigation strategies and measures.

The Town has not adopted a policy requiring a justification narrative but has requested that such a narrative be completed based on the residential portion of the Development.

Subsequent sections of this document provide a detailed description of the Development and the potential impacts of the residential portion of the Development on public facilities in the County and the Town and detailed descriptions of the methodologies employed in calculating these impacts.

# II. Schoolhouse Commons

## The Development

As proposed by Graystone Companies LLC (the "Developer" or "Applicant"), the Development is a mixed-used development consisting of 58 single-family attached units and 26,000 square feet of commercial space. The site currently includes a commercial building of approximately 33,000 square feet, and the planned commercial development represents a reduction and renovation of the current building. The site comprises a single parcel described in Table II-A.1. This parcel is bordered in all directions by additional residential development.

**TABLE II-A.1**
**Base Parcel[a]**

| *GPIN* | *Town Zoning* | *Acreage* |
|---|---|---|
| 7397-19-1734 | B-1 - Town Center | 8.8353 |
| **Total** | | **8.8353** |

[a]Provided by Town of Haymarket Administration and Prince William County Office of Real Estate Assessments.

As noted above, this parcel consists of approximately nine acres of land and is currently zoned within the Town as B-1 – Town Center. This zoning does not permit residential units, so no single-family attached units are permitted by-right. This parcel currently contains approximately 33,000 square feet of commercial space, including office and retail uses. Concurrent to the construction of the residential portion of the Development, this commercial space will be reduced to approximately 26,000 square feet. This commercial development may generate positive tax revenues; however, MuniCap has not evaluated this. As this analysis is intended to fulfill the requirements of the Residential Proffer Legislation, MuniCap examined only the impacts of the residential portion of the Development.

The Applicant is requesting a rezoning of the majority of the site parcel to Town Residential District R-2. Due to the commercial development, a portion will remain zoned as B-1. A site plan showing the proposed Development following the proposed rezoning is provided in Exhibit A on the following page.

# EXHIBIT A: SCHOOLHOUSE COMMONS GENERAL DEVELOPMENT PLAN

# III. Public Facility Impacts

## Overview

As mentioned, this document includes calculations of public facility impacts, which are detailed in the subsequent subsections. Included in each subsection is a discussion of the methodology employed in estimating impacts. These subsections are:

- **Public school facilities –** Impacts are calculated for elementary, middle, and high schools and are based on projected incremental additional students that will result from the residential portion of the Development.

- **Public safety facilities –** Impacts are calculated for both police services and fire and rescue services. These impacts are based on projected incremental additional residents that will result from the residential portion of the Development.

- **Public park facilities –** Impacts are based on projected incremental additional residents that will result from the residential portion of the Development.

- **Transportation facilities –** A separate traffic impact analysis will be provided to address impacts to traffic and transportation.

Within the Town of Haymarket, certain public services are provided by the Town and certain others are provided by the County. Each subsection of this analysis will delineate the services provided by each jurisdiction and any proposed proffer contribution to each jurisdiction within each subcategory as a result.

Level of service ("LOS") standards shown herein represent the County standards as described in the County Comprehensive Plan, or the Town standards as described through various sources. In some cases, the current LOS provided by the County or Town does not meet the stated LOS standard. Any calculation of proffers will take into account the LOS standard, the current County or Town LOS, and the amount pledged in the County's Capital Improvement Program ("County CIP") or Town Budget, which includes Capital Improvement Expenses ("Town CIP") to raise the current LOS to meet the planned LOS standard.

# III-A. Public School Facility Impacts

## PRINCE WILLIAM COUNTY

### Methodology

The Town does not have its own public school facilities. All public school students within the Town attend County schools. To project impacts to County public school facilities, MuniCap first reviewed the student generation factors used by Prince William County Public Schools. These factors are calculated separately by school type (elementary, middle, and high school) and by unit type (single-family detached, single-family attached, and multi-family). Student generation factors are shown in Table III-A.1.

**TABLE III-A.1**
**Current and Historical Student Generation Factors**

**Historical Data**

| | School Type | Unit Type | | | Total |
|---|---|---|---|---|---|
| | | SFD | SFA | MFA | |
| 2024-25 | Elementary | 0.366 | 0.208 | 0.125 | 0.233 |
| | Middle | 0.177 | 0.083 | 0.047 | 0.102 |
| | High | 0.196 | 0.099 | 0.081 | 0.125 |
| | Total | 0.739 | 0.390 | 0.253 | 0.461 |
| 2023-24 | Elementary | 0.386 | 0.209 | 0.130 | 0.242 |
| | Middle | 0.172 | 0.079 | 0.054 | 0.102 |
| | High | 0.218 | 0.097 | 0.064 | 0.126 |
| | Total | 0.776 | 0.385 | 0.249 | 0.470 |
| 2022-23 | Elementary | 0.380 | 0.206 | 0.101 | 0.229 |
| | Middle | 0.182 | 0.080 | 0.053 | 0.105 |
| | High | 0.224 | 0.094 | 0.061 | 0.126 |
| | Total | 0.785 | 0.381 | 0.216 | 0.461 |
| 2021-22 | Elementary | 0.382 | 0.191 | 0.090 | 0.221 |
| | Middle | 0.186 | 0.080 | 0.056 | 0.107 |
| | High | 0.225 | 0.098 | 0.060 | 0.128 |
| | Total | 0.793 | 0.370 | 0.207 | 0.457 |
| 2020-21 | Elementary | 0.366 | 0.191 | 0.075 | 0.211 |
| | Middle | 0.183 | 0.080 | 0.030 | 0.098 |
| | High | 0.222 | 0.096 | 0.047 | 0.122 |
| | Total | 0.771 | 0.368 | 0.152 | 0.430 |
| 2019-20 | Elementary | 0.396 | 0.188 | 0.082 | 0.222 |
| | Middle | 0.189 | 0.077 | 0.036 | 0.101 |
| | High | 0.223 | 0.095 | 0.051 | 0.123 |
| | Total | 0.807 | 0.360 | 0.170 | 0.446 |

Source: Prince William County Public Schools.

MuniCap then applied these student generation factors to the proposed residential units within the Development that are in excess of those that would be allowed under the current zoning designation. For purposes of this exercise it is assumed that all projected students are new to the County rather than relocated from elsewhere within the Prince William County Public Schools system. MuniCap then identified the schools that would be impacted by the residential units based on school boundaries, researched the current capacity at each applicable school, and determined whether the projected net student impacts represented additional students beyond current school capacity.

## Projected Net Student Impacts

As previously described, the residential portion of the Development includes 58 single-family attached units with zero units allowed by-right. Based on the student generation factors identified in Table III-A.1, the proposed development will generate an estimated total of 24 students net of by-right, as shown in Table III-A.2.

**TABLE III-A.2**
**Projected Student Generation**

| *School Type* | *Units[a]* | *Unit Type* | *Generation Factor[b]* | *Total Projected Students[c]* |
|---|---|---|---|---|
| Elementary | 58 | Single-family attached | 0.208 | **13** |
| Middle | 58 | Single-family attached | 0.083 | **5** |
| High | 58 | Single-family attached | 0.099 | **6** |
| **Total proposed** | | | | **24** |
| Elementary | 0 | Single-family detached | 0.366 | **0** |
| Middle | 0 | Single-family detached | 0.177 | **0** |
| High | 0 | Single-family detached | 0.196 | **0** |
| **Less: total-by-right** | | | | **0** |
| Elementary | | | | **13** |
| Middle | | | | **5** |
| High | | | | **6** |
| **Net students** | | | | **24** |

[a]Provided by Developer.
[b]See Table III-A.1.
[c]Projected students are rounded up to the nearest whole number.

## Projected Capacity of Public School Facilities

The public school facilities potentially impacted by the residential units are: Buckland Mills Elementary School, Reagan Middle School, and Gainesville High School. Therefore, Table III-A.3 on the following page shows the capacity and projected enrollment of each school. The Development is expected to be completed in 2029. Therefore, projected enrollment is given as of the 2029-2030 school year to coincide with likely completion and stabilization of the Development.

**TABLE III-A.3**
**County School Facilities – Projected Capacity and Enrollment**

| *School* | *Capacity[a]* | *Enrollment (2029-30)[a]* | *Excess Capacity* | *Projected Students[b]* | *Proffer Consideration* |
|---|---|---|---|---|---|
| Buckland Mills ES | 872 | 775 | 97 | 13 | Meets Capacity |
| Reagan MS | 1,311 | 1,243 | 68 | 5 | Meets Capacity |
| Gainesville HS | 2,557 | 2,376 | 181 | 6 | Meets Capacity |

[a]Source: Prince William County Public Schools: 2024-2025 Historical, Current, and Projected Enrollment.
[b]See Table III-A.2.

**Elementary School Facilities**

The Development site is located within the Buckland Mills Elementary School boundaries (see Exhibit C). According to Prince William County Public Schools, the school has a projected capacity of 872 students and a projected future enrollment of 775 students, meaning that the school will have capacity for 97 additional students. Therefore, the thirteen projected elementary school students above by-right that will be created by the residential units do not exceed capacity and do not represent an additional need for Prince William County Public School facilities.

**Middle School Facilities**

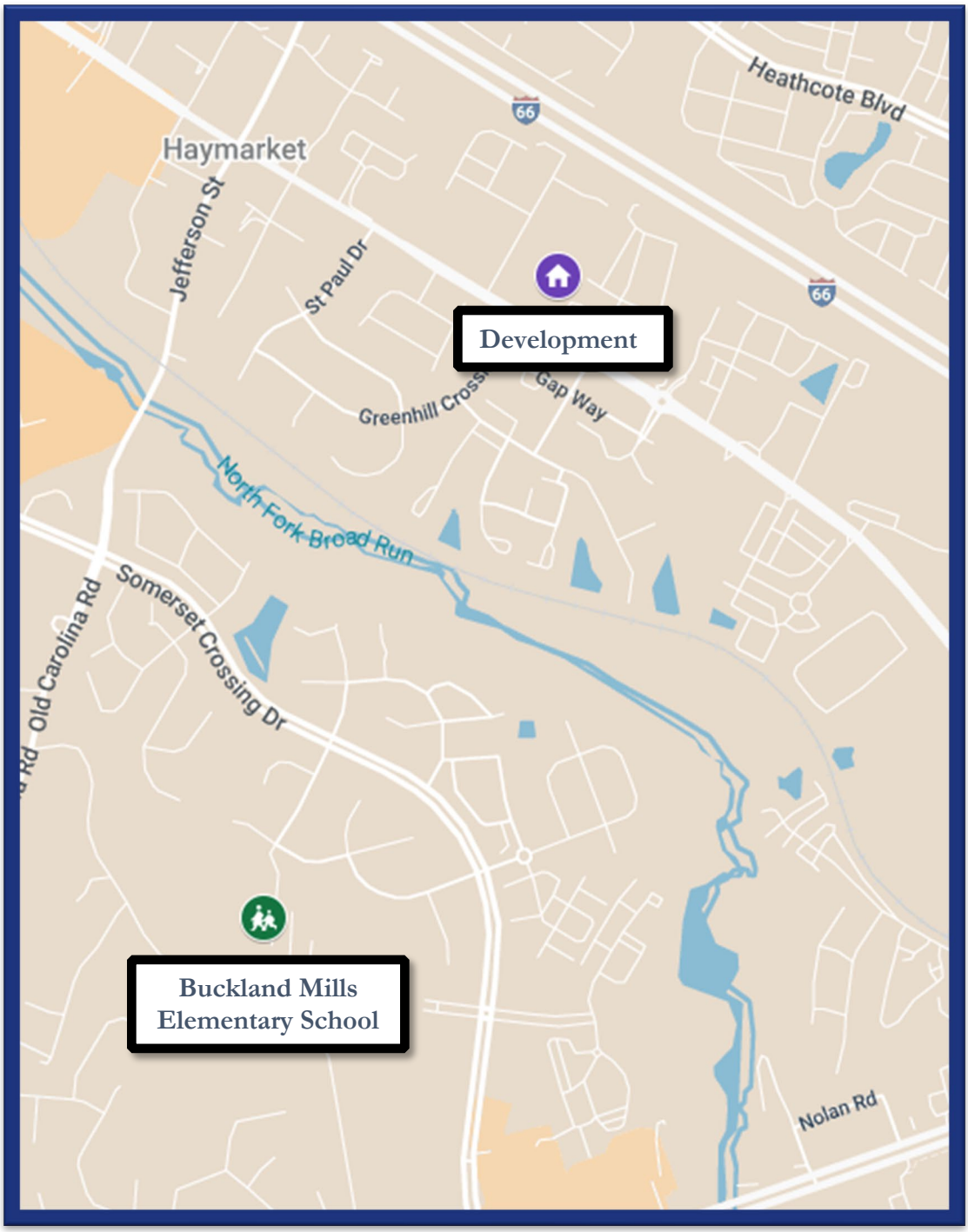
The Development site is located within the Reagan Middle School boundaries (see Exhibit D). According to Prince William County Public Schools, the school has a projected capacity of 1,311 students and a projected future enrollment of 1,243 students, meaning that the school will have capacity for 68 additional students. Therefore, the five projected middle school students above by-right that will be created by the residential units do not exceed capacity and do not represent an additional need for Prince William County Public School facilities.

**High School Facilities**

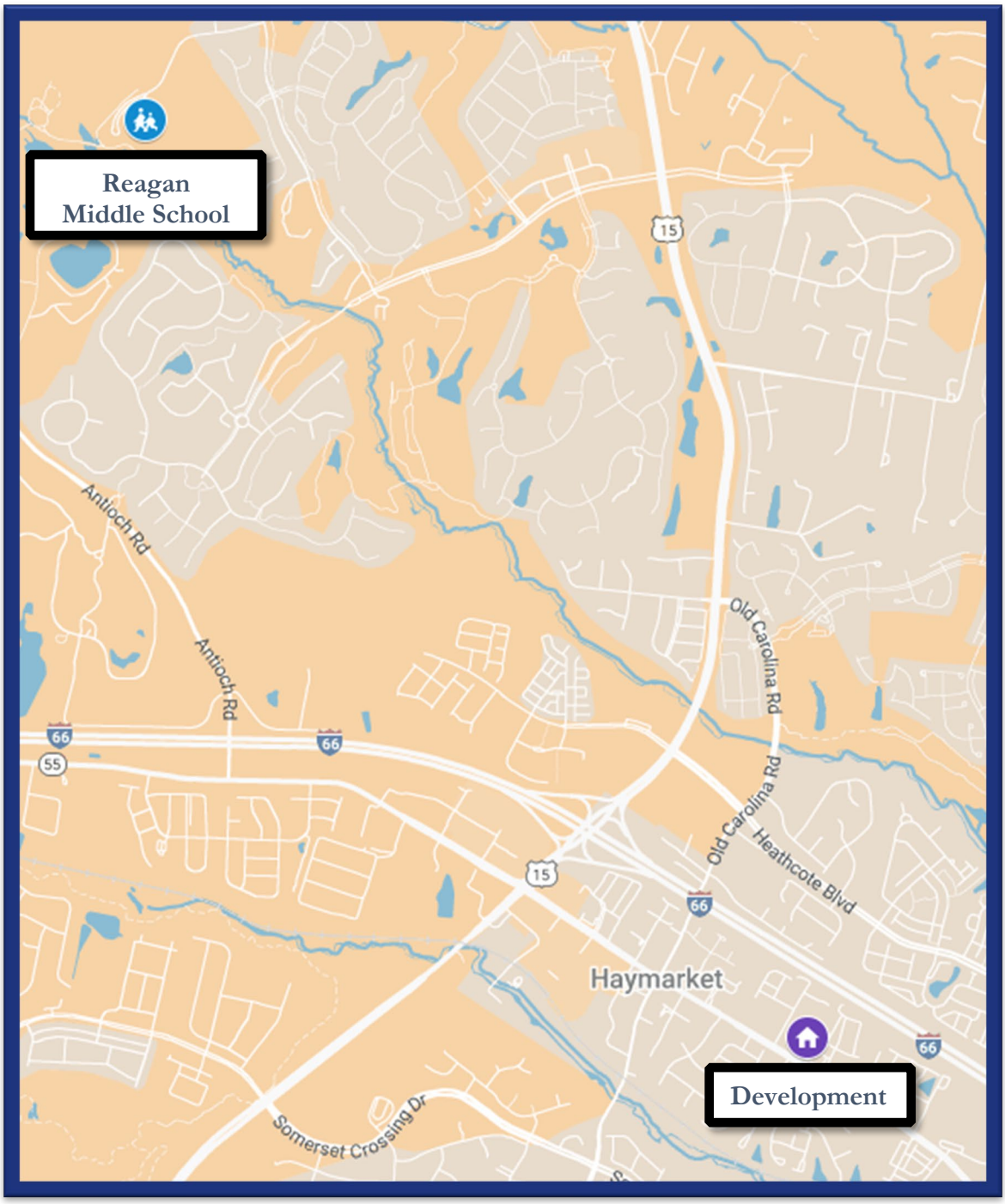
The Development site is located within the Gainesville High School boundaries (see Exhibit E). According to Prince William County Public Schools, the school has a projected capacity of 2,409 students and a projected enrollment of 2,376 students, meaning that the school will have capacity for 181 additional students. Therefore, the six projected high school students above by-right that will be created by the residential units do not exceed capacity and do not represent an additional need for Prince William County Public School facilities.

## EXHIBIT B: AREA MAP (DEVELOPMENT SITE & SCHOOL FACILITIES)

## EXHIBIT C: AREA MAP (DEVELOPMENT SITE, BUCKLAND MILLS ELEMENTARY SCHOOL)



## EXHIBIT D: AREA MAP (DEVELOPMENT SITE, REAGAN MIDDLE SCHOOL)



## EXHIBIT E: AREA MAP (DEVELOPMENT SITE, GAINESVILLE HIGH SCHOOL)

### Mitigation Strategies

The Residential Proffer Legislation stipulates that proffers can only provide for needs exceeding existing capacity. Therefore, any monetary proffer for public school facilities will be calculated on a per student basis for the projected students that will exceed the current capacity.

As detailed above, the projected students resulting from the residential units do not exceed capacity at any of the relevant schools. Therefore, a schools proffer contribution is not required.

## TOWN OF HAYMARKET

### Methodology and Mitigation Strategies

As noted, all public school students within the Town attend County facilities. Therefore, no proffer contribution for Town public school facilities is required.

# III-B. Public Safety Facility Impacts

## PRINCE WILLIAM COUNTY

### Methodology

Town residents are served by a mix of Town and County public safety facilities. The Town has its own police station and County police officers generally do not assist Town police with service calls. Therefore, impacts to police facilities will be estimated in The Town's portion of this subsection. In contrast, the Town does not have its own fire and rescue facilities and therefore this analysis examines the impact of the residential portion of the Development on County fire and rescue facilities.

To estimate impacts to County and Town public safety facilities, MuniCap first estimated the total population that will reside within the residential portion of the development. MuniCap then detailed the LOS standards for various public safety services as identified in the County Comprehensive Plan and determined through discussions with the Town and calculated the expected increases in demand for services as a result of the residential portion of the Development to determine whether projected demand for services exceeds the County and Town's LOS standards and the capacity of the relevant facilities.

### Projected Net Resident Impacts

As previously described, the residential portion of the Development includes 58 single-family attached units. Based on estimated residents per unit, the residential units will house an estimated 186 residents above by-right, as shown in Table III-B.1.

**TABLE III-B.1**
**Projected Residents**

| *Unit Type* | *Units[a]* | *Residents Per Unit[b]* | *Total Projected Residents[c]* |
|---|---|---|---|
| Single-family attached | 58 | 3.20 | 186 |
| Less by-right units (single-family detached) | 0 | 3.20 | 0 |
| **Net residents** | | | **186** |

[a]Provided by Developer.
[b]Source: United States Census Bureau, American Community Survey, Table of Selected Housing Characteristics, 2023 Five-Year Estimates. Represents residents per owner-occupied unit in Town of Haymarket.
[c]Residents are rounded to the nearest whole number.

## Current Capacity of Public Safety Facilities

### Police Facilities

As noted above, the Town provides police services through its own facilities. However, the Town collaborates with the County for use of the County's animal control facilities. The projected demand created by the residential portion of the Development for these facilities is shown in Table III-B.3 on the following page.

**TABLE III-B.3**
**Other Projected Police Facility Impacts**

| *Facility Type* | *Projected Resident Impact[a]* | *Sq. Ft. Required per 1,000 Residents[b]* | *Additional Facility Sq. Ft. Requirement* |
|---|---|---|---|
| Animal control | 186 | 67 | 12 |

[a]See Table III-B.1.

[b]Source: Prince William County Comprehensive Plan Safety and Secure Community.

The County LOS standard for animal control facilities is 67 square feet per 1,000 residents. According to the Prince William County Population Estimates, the Q2 2025 population of Prince William County is estimated as 508,109 (508.109 residents per thousand). This translates to a need for 34,043 square feet of animal control facility space (67 square feet per thousand residents × 508.109 thousand residents). Based on County Assessor data, the existing Prince William County Animal Services Center includes 27,772 square feet of space (19,440 square feet veterinary hospital and 8,332 square feet office building), implying that the center is already over capacity. Therefore, the projected impact of 12 square feet in necessary animal control facility space that will be generated by the residential portion of the Development represents a requirement in excess of current capacity. However, a project to renovate the center was recently completed and there are no current plans to expand square footage further, and no other relevant capital expenditures are listed in the County CIP. Therefore, a proffer contribution for Animal Control facilities is not calculated.

### Fire and Rescue Facilities

The County LOS standards for fire and rescue facilities servicing the Development are broken down into workload capacity and travel times. Tables III-B.4.A and III-B.4.B on the following page summarize the LOS standards according to the County Comprehensive Plan.

**TABLE III-B.4**
**Prince William County Fire and Rescue Level of Service Standards**

**A. Travel Times**

| Area | First Unit Travel Time in Minutes |
|---|---|
| Fire Suppression Emergency Standard - (Countywide) | 4.0 |
| Basic Life Support (BLS) Emergency Standard - (Countywide) | 4.0 |
| Advanced Life Support (ALS) Emergency Standard (Countywide) | 8.0 |

[a]Source: Prince William County Comprehensive Plan Safety and Secure Community.

**B. Workload**

| Factor | Standard |
|---|---|
| Responses per Tactical Unit | 2,000 per year |

[a]Source: Prince William County Comprehensive Plan Safety and Secure Community.

The Development is within the first due area of Station 4, located 0.8 miles away. Due to this distance, it is reasonable to assume that station personnel would be able to respond to an incident at the Development in under four minutes. According to the County Department of Fire and Rescue, the estimated first due population of Station 4 is 35,466 as of August 2025. In Calendar Year 2024, Station 4 had four tactical units, (Engine, Truck, Medic from January through August and Ambulance from September through end of year) each with the capacity to respond to 2,000 incidents per year. In 2024, the units at Station 4 responded to 4,250 total incidents, with Engine 4 responding to 3,595, Truck 4 responding to 1,830, Medic 4 responding to 2,073 and Ambulance 4 responding to 951. This implies that Station 4 is over capacity and cannot accommodate the projected impact of 186 incidents per year generated by residents above by-right at the residential portion of the Development. Table III-B.5 shows this projected call volume increase.

**TABLE III-B.5**
**Projected Fire and Rescue Facility Impacts**

| *Projected Resident Impact[a]* | *Average Annual Incident Rate[b]* | *Projected Annual Incident Increase[c]* |
|---|---|---|
| 186 | 0.12 | 23 |

[a]See Table III-B.1.
[b]Calculated as 4,250 incidents in calendar year 2024 divided by Station 4's first due population of 35,466 as of August 2025.
[c]Projected annual incidents are rounded up to the next whole number.

However, no relevant capital expenditures are listed in the County CIP for Station 4. Therefore, a proffer contribution for fire and rescue facilities is inappropriate.

## EXHIBIT F: AREA MAP (DEVELOPMENT SITE & FIRE STATION #4 FACILITY)

### Mitigation Strategies

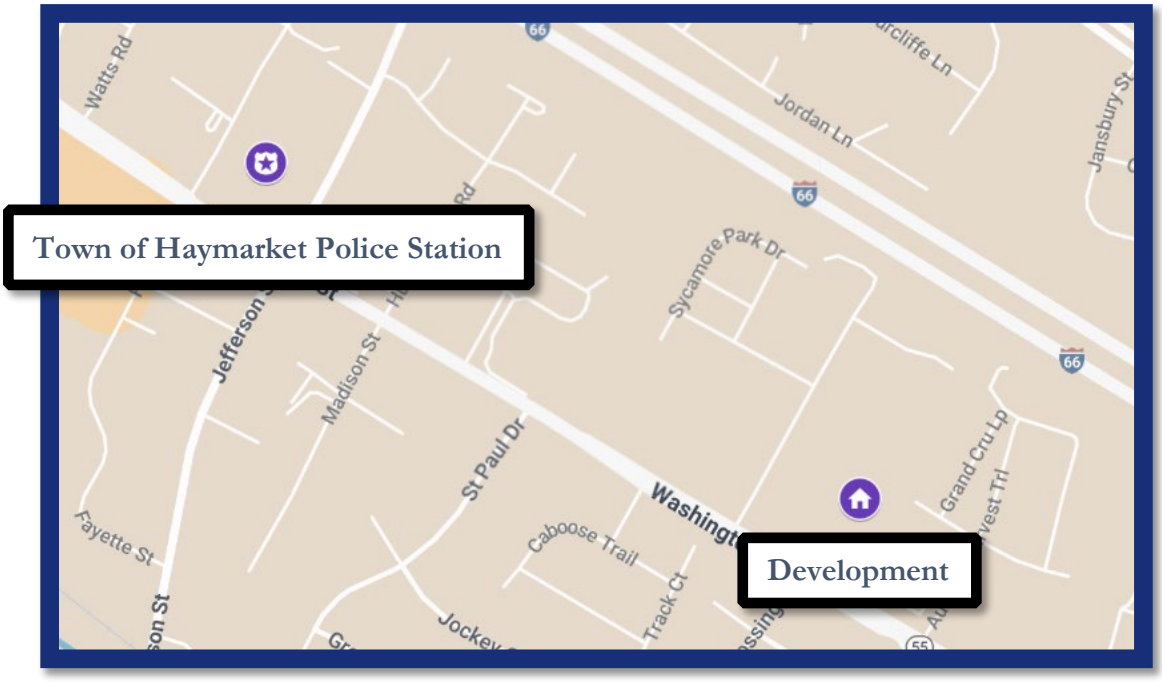
While impacts to Animal Control and Fire and Rescue Facilities from the residential portion of the Development may represent demand beyond current capacity, the County CIP does not include relevant capital improvements that would mitigate these impacts. Therefore, a proffer contribution related to these public safety categories would be inappropriate under the Residential Proffer Legislation.

## TOWN OF HAYMARKET

### Methodology and Mitigation Strategies

As noted above, the Town has its own police station, shown in Exhibit G below. According to the August 2025 Police Department Report to Council, Town police have responded to 1,208 calls in calendar year 2025, including calls received through dispatch, through direct contact with citizens, and initiated by police officers through their observations. The Town does not have official LOS standards indicating whether the station is currently over capacity or may become over capacity as a result of the residential units. However, in recent conversations with MuniCap, the Town Chief of Police noted that Town police answer service calls within an average of three minutes and thirty seconds and that this is a satisfactory level of service. Additionally, the Town recently hired two police officers and there is no indication that the Town's police force would be unable to meet increases in demand that the residential units may generate. Finally, the Town CIP does not include capital expenditures that would increase Police capacity. Therefore a proffer contribution for Police facilities is not calculated.

**EXHIBIT G: AREA MAP (DEVELOPMENT SITE & POLICE DEPARTMENT FACILITY)**



# III-C. Public Park Facility Impacts

## PRINCE WILLIAM COUNTY

### Methodology

Town residents are able to access County parks. Therefore, this analysis estimates an appropriate parks proffer contribution in part by reviewing relevant County park facilities. The Town has a single park, impacts to which will be addressed in the Town portion of this subsection.

To estimate County park impacts, MuniCap reviewed the LOS standards for public parks identified in the County Department of Parks, Recreation & Tourism's Parks, Recreation and Open Space Master Plan 2020, adopted October 6, 2020, (the "Master Plan"). The Applicant understands that the Department of Parks, Recreation & Tourism has a list of expanded services and visionary projects in the Master Plan. However, these improvements are speculative and are not accompanied by specific timeframes for construction and/or development in which the residential portion of the Development would receive a direct material benefit. Therefore, these projects do not meet the Residential Proffer Legislation threshold to be included in this analysis.

### Projected Net Resident Impacts

The Development includes 58 single-family attached units. Based on the average occupancy of owner-occupied units in the Town, the residential units will house an estimated 186 residents above by-right, as shown in Table III-B.1.

### Current Capacity of Public Parks Facilities

Based on the County's established Park Planning Districts, the Development falls within Park Planning District 3. To show the impacts of the residential portion of the Development on the parks system, service area and LOS quality were taken into account. Table III-C.1 on the following page shows the LOS standards for parks and recreation service areas.

**TABLE III-C.1**
**Prince William County Parks and Recreation Service Area Standards**

| PARK SERVICE AREAS | | |
|---|---|---|
| **PARK TYPE** | **WALK/BIKE SERVICE AREA** | **DRIVE TIME SERVICE AREA** |
| Neighborhood | 5 to 10-minute walk/bike time; bus stop within 1/4-mile, preferred | Less than 10 minutes |
| Community | 10 to 15-minute walk/bike time | 10 to 20-minute drive time |
| Regional | Greater than 15-minute walk/bike time | 20 to 30-minute drive time |
| Linear/Greenway | Dependent on Access Points | No Standard |
| Natural/Cultural Resource | Dependent on Access Points | No Standard |
| School/Community Use | 5 to 10-minute walk/bike time | Less than 10 minutes |

Source: Prince William County Parks, Recreation & Open Space Master Plan 2020.

Table III-C.2 notes the developed parks within Park Planning District 3, excluding school use parks due to their connections with the corresponding schools. The County states there are no typical service areas for linear/greenway parks as these parcels may extend across large distances or for natural/cultural resource parks as the locations of these parks are dependent upon the resources being protected. Therefore, service area times have not been calculated for these park types.

**TABLE III-C.2**
**Park Planning District 3 – Service Areas of Developed Parks[a]**

| *Park* | *Classification* | *Distance from Development[b]* | *Drive Time Estimate[b]* |
|---|---|---|---|
| Braemar Park | Neighborhood | 7.4 miles | 16 minutes |
| Rollins Ford Park | Community | 5.4 miles | 12 minutes |
| Prince William Golf Course | Regional | 6.3 miles | 13 minutes |
| Broad Run Linear Park (partial) | Linear/greenway | N/A | N/A |

[a]Source: Prince William County Comprehensive Plan - Parks Recreation & Tourism.

[b]Estimates determined using Google Maps.

The County evaluates parks and facilities using quality scores and letter grades to assess overall LOS. According to the County Comprehensive Plan – Parks Recreation & Tourism, the County's goal is for all parks and facilities to have a "B" or above LOS letter grade, which corresponds to a quality score of 0.71 or above. The current quality scores and letter grades of the abovementioned parks are shown in Table III-C.3 on the following page. As of this writing, quality scores and letter grades were not assigned to school-use parks.

**TABLE III-C.3**
**Park Planning District 3 – LOS of Developed Parks[a]**

| *Park* | *Classification* | *Quality Score* | *LOS Letter Grade* |
|---|---|---|---|
| Braemar Park | Neighborhood | 0.57 | C |
| Rollins Ford Park[b] | Community | 0.91 | A |
| Prince William Golf Course | Regional | 0.73 | B |
| Broad Run Linear Park (partial) | Linear/greenway | 0.60 | C |

[a]Source: Prince William County Comprehensive Plan - Parks Recreation & Tourism.

[b]Rollins Ford Park completed since publication of comprehensive plan. Letter grade and quality score are inferred based on recent completion and discussion with County.

Based on the LOS standards above, Rollins Ford Park and Prince William Golf Course meet the County's stated goal for quality and Braemar Park and Broad Run Linear Park do not. Therefore, the projected impact on neighborhood and linear/greenway park facilities that will be generated by the residential portion of the Development represents a requirement beyond existing capacity. A summary of mitigation strategies follows for these park types.

## Mitigation Strategies

### Neighborhood Parks

The Master Plan does not list neighborhood parks as a priority for Park Planning District 3. Moreover, the County CIP does not include capital improvements that increase neighborhood park capacity within Park Planning District 3. In addition, the Development will provide its residents with two accessible green spaces, which will feature a community center, a playground with equipment, and open greens for informal sports activities. As such, any proffer related to such facilities would be inappropriate under the Residential Proffer Legislation.

### Community Park

The Master Plan notes the following priorities related to community parks in Park Planning District 3.

- Seek opportunities to add additional Community, Regional, Linear/Greenway and Natural/Cultural Resource Parks within this PPD, particularly within the area of the Route 29 Small Area Plan.
- Complete the design and construction of Rollins Ford Park; phase park construction over several budget cycles to realize the full park vision and functionality; seek opportunities to connect Rollins Ford Park with the Broad Run Linear Trail.

Since publication of the Master Plan, Rollins Ford Park has been completed. Due to its recent completion and comments provided to MuniCap by the County Department of Parks, Recreation, &

Tourism, it is assumed to meet County LOS standards. The County CIP does not include additional capital improvements that increase community park capacity within Park Planning District 3. As such, any proffer related to such facilities would be inappropriate under the Residential Proffer Legislation.

**Regional Parks**

The Master Plan notes the following priorities related to regional parks in Park Planning District 3.

- Seek opportunities to add additional Community, Regional, Linear/Greenway and Natural/Cultural Resource Parks within this PPD, particularly within the area of the Route 29 Small Area Plan.

However, the County CIP does not include capital improvements that increase regional park capacity within Park Planning District 3. As such, any proffer related to such facilities would be inappropriate under the Residential Proffer Legislation.

**Linear/Greenway Parks**

The Master Plan notes the following priorities related to linear/greenway parks in Park Planning District 3.

- Secure additional land dedications or easements to complete the planned Broad Run Linear Trail between Lake Manassas and Linton Hall Road and identify funding opportunities/partnerships for bridge maintenance and repairs.
- Complete the design and construction of Rollins Ford Park; phase park construction over several budget cycles to realize the full park vision and functionality; seek opportunities to connect Rollins Ford Park with the Broad Run Linear Trail.
- Identify outdoor programming opportunities for families and the district's balanced age segmentation; utilize existing facilities within Broad Run Linear Park as a "nature classroom" to showcase Broad Run and its habitats.

Additionally, the Master Plan lists planned future construction of Bridlewood-Rocky Branch Park which has not been completed as of August 2025. However, the County CIP does not include capital improvements that increase linear/greenway park capacity within Park Planning District 3. As such, any proffer related to such facilities would be inappropriate under the Residential Proffer Legislation.

# TOWN OF HAYMARKET

## Methodology and Mitigation Strategies

The Town has a single park, the four-acre Haymarket Park and Playground, which is adjacent to the project site and within a five-to-ten-minute walk for residents of the Development. While the Town has not adopted official LOS standards for park facilities, it has indicated in discussions with MuniCap that the park lacks sufficient greenspace and parking to accommodate residents during peak hours. Following completion of the residential portion of the Development, the park may continue to face capacity

constraints; however, the Town CIP does not include capital improvements to expand its capacity. Accordingly, a proffer contribution is not required.

# III-D. Transportation Facility Impacts

## Methodology

A separate traffic impact analysis will be provided that will address impacts to transportation facilities within both the County and Town.

# IV. Conclusions, Assumptions, and Limitations

The preceding narrative provides projections of impacts to public facilities as mandated by the County proffer justification narrative requirement and as requested by the Town. This narrative is being submitted to the County and Town for review.

## Summary of Analysis

Based on MuniCap's analysis, a cash proffer to the County or the Town is not required as a result of the Development.

## Assumptions and Limitations

MuniCap obtained the information presented and used in this narrative from multiple sources. While these sources are believed to be reliable, MuniCap has not undertaken any efforts to independently verify the veracity of any such information.

While the methodology employed, and the content provided herein, are believed to be consistent with applicable law, including the Residential Proffer Legislation, none of the statements in this document should be construed as legal advice.

# Section VI

# DEED AND METES & BOUNDS LEGAL DESCRIPTION OF THE PROPERTY

Prepared By/Return To: Box 42
Gifford R. Hampshire – BH R# 28954
Blankingship & Keith, P.C.
9300 West Courthouse Road, Suite 201
Manassas, Virginia 20110
Title Ins.- Fidelity National Title

GPIN: 7397-19-1734

PLAT IS RECORDED AS
INSTR. #2013 10110102176

# GENERAL WARRANTY DEED

THIS DEED made this 8th day of October, 2013, by and between THE PRINCE WILLIAM COUNTY SCHOOL BOARD, a political subdivision of the Commonwealth of Virginia, GRANTOR and HAYMARKET PROPERTIES GROUP, LLC, a Virginia limited liability company, GRANTEE.

WITNESSETH:

NOW, THEREFORE, for and in consideration of the sum of One Dollar ($1.00), in cash paid, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Grantor, does hereby grant, bargain, sell and convey unto the Grantee, with GENERAL WARRANTY and English covenants of title, all that lot, piece or parcel of land, and all improvements thereon, and all rights and appurtenances thereto, located in the town of Haymarket and county of Prince William, known as Pace West School, and being more particularly described as follows:

SEE EXHIBIT A FOR LEGAL DESCRIPTION OF PROPERTY.

This being the same property conveyed to Grantor by the deeds recorded in the Land Records of Prince William County in Deed Book 177, page 503, Deed Book 99 at page 260 and Deed Book 97 at page 445.

This conveyance is subject to easements, conditions, restrictions, and rights of way of record, insofar as they may lawfully affect title hereby conveyed or any part thereof.

SEE ATTACHED PLAT

(SIGNATURE ON FOLLOWING PAGE)

Daniel H. Borinsky, Esq.
2080 Old Bridge Rd. Ste. 203
Lake Ridge, VA 22192

Exempt from Grantor's tax
58.1-811.C.5
Assessed value: 2,759,500.00
Appraised Value: $2,145,000.00

GRANTEES' ADDRESS
15000 Washington St. #200
Haymarket, VA 20169

201310110102175
Prince William County, VA Pgs: 3
10/11/2013 1:05:31PM
Michèle B. McQuigg, Clerk

**WITNESS** the following signature and seal:

**THE PRINCE WILLIAM COUNTY SCHOOL BOARD**

BY: _____
Milton C. Johns
TITLE: Chairman-At-Large

STATE OF Virginia
COUNTY/CITY OF Manassas, to-wit:

I, the undersigned Notary Public of and for the jurisdiction aforesaid, do hereby certify that MILTON C. JOHNS, Chairman-At-Large of THE PRINCE WILLIAM COUNTY SCHOOL BOARD, whose name is signed to the foregoing Special Warranty Deed dated 10/08, 2013, has this date appeared before me, and acknowledged the same.

Given under my hand and seal this 8th day of October, 2013.

_____
NOTARY PUBLIC

Registration No.: 7323299

My commission expires: 6/30/2014

JANET KRISTIN VALENTI
COMMONWEALTH OF VIRGINIA
REGISTRATION NO. 7323299
MY COMM. EXPIRES 06/30/2014
NOTARY PUBLIC

# EXHIBIT A

## Legal Description of PACE West School

BEGINNING AT AN IRON PIPE FOUND AT THE SOUTHWEST CORNER OF THE LAND OF TRUSTED MANAGEMENT AND SERVICES, LLC, THE NORTHERN RIGHT-OF-WAY LINE OF JOHN MARSHALL HIGHWAY (ROUTE 55) AND IS FURTHER IDENTIFIED AS THE SOUTHEAST CORNER OF THE PROPERTY HEREIN DESCRIBED.

THENCE, DEPARTING SAID LAND OF TRUSTED MANAGEMENT AND SERVICES, LLC AND RUNNING WITH THE SAID NORTHERN RIGHT-OF-WAY OF JOHN MARSHALL HIGHWAY, N 59°39'41" W A DISTANCE OF 454.00 FEET TO AN IRON ROD SET AT THE INTERSECTION OF THE NORTHERN LINE OF SAID JOHN MARSHALL HIGHWAY AND THE EASTERN RIGHT-OF-WAY LINE OF BLEIGHT DRIVE.

THENCE, DEPARTING SAID JOHN MARSHALL HIGHWAY AND RUNNING WITH THE EASTERN RIGHT-OF-WAY LINE OF SAID BLEIGHT DRIVE, N 28°02'47" E A DISTANCE OF 829.12 FEET TO AN IRON ROD SET AT THE EASTERN RIGHT-OF-WAY LINE OF BLEIGHT DRIVE AND THE SOUTHWEST CORNER OF PARCEL "A", ALEXANDRA'S KEEP BEING THE LAND OF ALEXANDRA'S KEEP HOMEOWNERS ASSOCIATION.

THENCE, DEPARTING SAID EASTERN RIGHT-OF-WAY LINE OF BLEIGHT DRIVE AND RUNNING WITH SAID PARCEL "A" AND THE SAME LINE CONTINUED WITH THE AFOREMENTIONED LAND OF TRUSTED MANAGEMENT AND SERVICES, LLC, S 59°32'55" E A DISTANCE OF 475.67 FEET, CROSSING OVER AN IRON PIPE FOUND AT 416.38 FEET, TO AN IRON PIPE FOUND AT THE AFOREMENTIONED LAND OF TRUSTED MANAGEMENT AND SERVICES, LLC.

THENCE, CONTINUING WITH THE AFOREMENTIONED LAND OF TRUSTED MANAGEMENT AND SERVICES, LLC, S 29°32'37" W A DISTANCE OF 827.60 FEET TO THE POINT OF BEGINNING.

CONTAINING 384,867 SQUARE FEET OR 8.8353 ACRES OF LAND MORE OR LESS.

NOTES

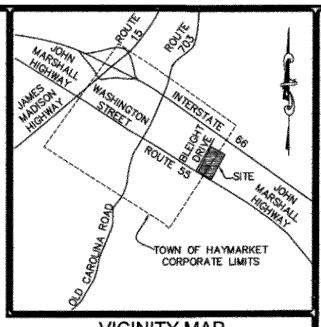
1) THE PROPERTY SHOWN HEREON IS CURRENTLY IN THE NAME OF THE COUNTY SCHOOL BOARD OF PRINCE WILLIAM COUNTY PER DEED BOOK 97 AT PAGE 445 DEED BOOK 99 AT PAGE 260 AND DEED BOOK 177 AT PAGE 503 RECORDED AMONG THE LAND RECORDS OF PRINCE WILLIAM COUNTY VIRGINIA
2) THE GEOGRAPHIC PARCEL IDENTIFICATION NUMBER FOR THE PROPERTY SHOWN HEREON IS 7397-19-1734
3) NO TITLE REPORT FURNISHED THIS SURVEY IS SUBJECT TO ANY EASEMENTS AND RESTRICTIONS OF RECORD IF ANY UNDERLYING EASEMENTS ARE NOT SHOWN ON THIS SURVEY ALL EXISTING PHYSICAL IMPROVEMENTS ARE NOT SHOWN HEREON
4) THIS SURVEY IS BASED UPON A FIELD RUN SURVEY PERFORMED BY RICE ASSOCIATES IN MAY 2013
5) THE PLAT OF THE PROPERTY SHOWN HEREON IS REFERENCED TO THE VIRGINIA COORDINATE SYSTEM OF 1983 (VCS 1983) WHICH IS TIED TO PRINCE WILLIAM COUNTY MONUMENTS GAINESVILLE 2 PW11 AND PW12 PER RECORD PLAT FOR ALEXANDRAS KEEP SUBDIVISION RECORDED AMONG THE LAND RECORDS OF PRINCE WILLIAM COUNTY VIRGINIA AT INSTRUMENT NUMBER 200906050054872 THE PLAT DISTANCES ARE INTENDED TO BE HORIZONTAL DISTANCES MEASURED AT THE MEAN ELEVATION OF THIS PROJECT THE BEARINGS SHOWN ARE REFERENCED TO VCS 1983 GRID NORTH
6) LOCATION OF FENCES (IF SHOWN) ARE APPROXIMATE AND DO NOT CERTIFY OWNERSHIP
7) THIS PLAT WAS FORWARDED ELECTRONICALLY IN READ ONLY FORMAT ANY ATTEMPT AT ALTERATION INVALIDATES THE SEAL AND SIGNATURE AN ORIGINAL HARD COPY REMAINS ON FILE AT RICE ASSOCIATES

201310110102176
Prince William County VA Pgs 1
10/11/2013 1:05 1PM
Michele B McQuigg Clerk

Filed with Instrument Number
201310110102176

COMMONWEALTH OF VIRGINIA
WILLIAM G CUPPY JR
Lic No 2887
5-23-13
LAND SURVEYOR

| ABBREVIATION LEGEND | |
|---|---|
| D B | DEED BOOK |
| MON | MONUMENT |
| PG | PAGE |
| IPF | IRON PIPE FOUND |
| INSTR | INSTRUMENT |
| No | NUMBER |
| IRS | IRON ROD SET WITH CAP |
| GPIN | GEOGRAPHIC PARCEL IDENTIFICATION NUMBER |




VICINITY MAP
1" = 2000'

NAD 83 VIRGINIA STATE GRID NORTH

BLEIGHT DRIVE
(40' RIGHT-OF-WAY)
D B 1092 PG 1944

N28°02 47"E 829 12'

JOHN MARSHALL HIGHWAY
ROUTE 55
(VARIABLE WIDTH RIGHT-OF-WAY)

IRS
N 6 979 009 27
E 11 730 722 47
LAT 38 48 34 02
LON 77 37 49 27"

WIRE FENCE

DETAIL
NOT TO SCALE
1 55
CONCRETE CORPORATE MON FOUND

N59°39'41"W 454 00'
294 47'

CONCRETE CORPORATE MON FOUND SEE DETAIL

N 6 978 860 54
E 11 730 976 61
LAT 38 48 32 53
LON 77 37 46 08"

159 53'

N 6 978 779 96
E 11 731 114 29
LAT 38 48 31 72
LON 77 37 44 35

IPF

CHAIN LINK FENCE

S29 32'37"W 827 60'

PACE WEST
THE COUNTY SCHOOL BOARD
OF PRINCE WILLIAM COUNTY
D B 97 PG 445
D B 99 PG 260
D B 177 PG 503
GPIN 7397-19-1734
8 8353 ACRES
#14550 JOHN MARSHALL HIGHWAY

TOWN OF HAYMARKET
PRINCE WILLIAM COUNTY

TRUSTED MANAGEMENT
AND SERVICES, LLC
INSTR No 200312010218900
GPIN 7397-19-4508

IRS
N 6 979 741 03
E 11 731 112 31
LAT 38 48 41 22
LON 77 37 44 26"

PARCEL "A"
ALEXANDRA'S KEEP
ALEXANDRA'S KEEP
HOMEOWNERS ASSOCIATION
INSTR No 200906050054871
GPIN 7397-19-3765

CHAIN LINK FENCE

416 38'
S59°32'55"E 475.67'

N 6 979,529 98
E 11 731 471 29
LAT 38 48 39 10
LON 77 37 39 75"

IPF

WIRE FENCE

N 6 979 499 95
E 11 731 522 37
LAT 38 48 38 80"
LON 77 37 39 11

59 29'

IPF

CONCRETE CORPORATE MON FOUND

GRAPHIC SCALE
0 50 100 150
1" = 50

RICE ASSOCIATES
LAND SURVEYING MAPPING CONSULTANTS
10625 GASKINS WAY
MANASSAS, VIRGINIA 20109
(703) 968-3200 FAX (703) 968-2705
WWW RICESURVEYS COM

PLAT SHOWING
THE PROPERTY OF
THE COUNTY SCHOOL BOARD
OF PRINCE WILLIAM COUNTY
THE TOWN OF HAYMARKET VIRGINIA

| REVISIONS | | | SCALE 1" = 50' |
|---|---|---|---|
| DATE | REVISION | BY | DATE MAY, 2013 |
| | | | DRAWN BY CGW |
| | | | CHECKED BY WGL |
| | | | FILE NAME ID1301 00 |
| | | | SHEET 1 OF 1 |

# SPECIAL POWER OF ATTORNEY AFFIDAVIT

I, Connor Leake, Managing Member of Haymarket Properties Group, LLC (hereinafter "Owner"), owner of property located in the Town of Haymarket, Virginia, identified by Grid Parcel Identification Number (GPIN): 7397-19-1734, do hereby make, constitute, and appoint Shivon Dosky of Graystone Companies LLC (hereinafter "Attorney-in-Fact"), as my true and lawful attorney-in-fact.

I hereby grant to said Attorney-in-Fact full power and authority to act in my name, place and stead, giving unto said Attorney-in-Fact full power and authority to do and perform all acts and make all representations necessary, without any limitation whatsoever, to make application for Rezoning or Proffer Amendment regarding the above-described property within the jurisdiction of the Town of Haymarket, Virginia. This special power of attorney authorizes the Attorney-in-Fact to execute all documents, pay all fees, appear before any boards, commissions, or governmental bodies, provide testimony, and take any other actions necessary or appropriate to complete the rezoning or proffer amendment process as fully as the Owner might or could do if personally present.

The rights, powers, and authority of said Attorney-in-Fact herein granted shall commence and be in full force and effect on October 1, 2025, and shall remain in full force and effect thereafter until actual notice, by certified mail, return receipt requested, is received by the Zoning Administrator of the Town of Haymarket, Virginia, stating that the terms of this power have been revoked or modified.

IN WITNESS WHEREOF, I have hereunto set my hand and seal this 1ST day of OCTOBER, 2025.

By: _____ (SEAL)
Name: CONNOR LEAKE
Title: MANAGING MEMBER

COMMONWEALTH OF VIRGINIA:
City/County of Prince William

The foregoing instrument was acknowledged before me this 6th day of November, 2025, by the above-named Attorney-in-Fact.

_____
Notary Public

My Commission Expires: 7/31/2026
Registration Number: 7818572

[NOTARY SEAL]

MAI KIM LUU
COMMONWEALTH OF VIRGINIA
REGISTRATION NO. #7818572
MY COMM. EXPIRES: 07/31/2026
NOTARY PUBLIC

# SCHOOLHOUSE COMMONS

## ZONING MAP AMENDMENT
## REZ2025-

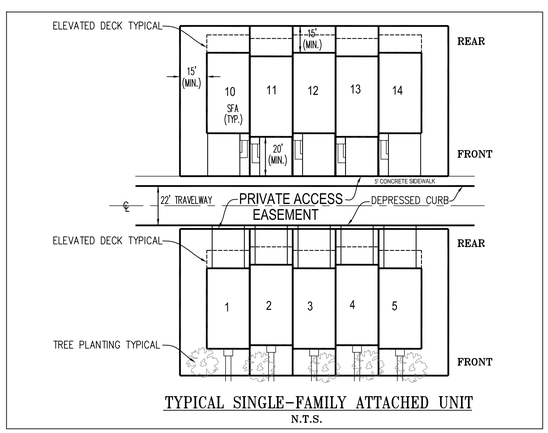
### TOWN OF HAYMARKET, VIRGINIA

## GENERAL NOTES:

1. THE PROPERTY SHOWN HEREON IS LOCATED ON GPIN 7397-19-1734 AND IS NOW IN THE NAME OF HAYMARKET PROPERTIES GROUP, LLC AS DOCUMENTED IN INSTRUMENT 201310110102175 AMONG THE LAND RECORDS OF PRINCE WILLIAM COUNTY, VIRGINIA.
2. THE BOUNDARY AND IMPROVEMENTS FOUND HEREON ARE TAKEN FROM THE ALTA/ACSM LAND TITLE SURVEY PREPARED BY RICE & ASSOCIATES DATED JUNE 2013 AND A CURRENT FIELD SURVEY BY BL SURVEY ARBORIST, LLC.

   TOPOGRAPHIC INFORMATION DEPICTED HEREON IS TAKEN FROM THE FIELD SURVEY PERFORMED BY BL SURVEY ARBORIST, LLC AND DATED FEBRUARY 1, 2014. THE VERTICAL DATUM IS TAKEN FROM GPS COORDINATES.
3. THE SUBJECT PROPERTY CONSISTS OF APPROXIMATELY 8.84 ACRES AND IS CURRENTLY ZONED B-1 IN ACCORDANCE WITH THE TOWN OF HAYMARKET, VA ZONING ORDINANCE.
4. THERE ARE NO KNOWN CEMETERIES ON THE SUBJECT PROPERTY. FURTHER, THERE ARE NO KNOWN NATURAL, CULTURAL, OR HISTORIC RESOURCES, RPA'S, OR 100-YEAR FLOOD AREAS IDENTIFIED ON THE PRINCE WILLIAM COUNTY, VA ONLINE MAPPING SYSTEM.
5. THE PROPERTY SHOWN HEREON LIES IN FLOOD ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 500-YEAR FLOODPLAIN PER FEMA FLOOD INSURANCE RATE MAP 51153C PANEL #0067D BEARING AN EFFECTIVE DATE OF JANUARY 5, 1995.
6. THE DEVELOPMENT OF THIS PROPERTY IS SUBJECT TO THE APPROVAL CONDITIONS OF THE 2013 REZONING APPLICATION WITH THE TOWN OF HAYMARKET.
7. ALL CONSTRUCTION SHALL CONFORM TO THE TOWN OF HAYMARKET, PWCSA USM, AND/OR VIRGINIA DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS.
8. ALL NEW OR RELOCATED UTILITIES SHALL BE PLACED UNDERGROUND.
9. THE PROPOSED USES WITHIN THE EXISTING BUILDING SHALL BE SERVED BY THE EXISTING PUBLIC WATER AND SEWER FACILITIES OWNED BY PWCSA AT NO COST TO THE TOWN OR COUNTY. THE ANTICIPATED SEWAGE FLOWS GENERATED BY SUBJECT DEVELOPMENT IS XXXX GPD.
10. STORMWATER MANAGEMENT AND BEST MANAGEMENT PRACTICES MEASURES WILL BE IMPLEMENTED WITH THE FINAL SITE PLAN PER THE LATEST VIRGINIA STORMWATER MANAGEMENT HANDBOOK (VSMH).
11. EXISTING WELLS AND SEPTIC SYSTEMS THAT WILL NOT BE USED SHALL BE ABANDONED IN ACCORDANCE WITH CURRENT PRINCE WILLIAM COUNTY HEALTH DEPARTMENT STANDARDS.
12. SITE LIGHTING SHALL BE PROVIDED IN ACCORDANCE WITH THE TOWN OF HAYMARKET ZONING ORDINANCE (SECTION 58-719).
13. LANDSCAPING AND BUFFERING SHALL BE PROVIDED IN ACCORDANCE WITH ARTICLE XVI OF THE TOWN OF HAYMARKET ZONING ORDINANCE.
14. STREET TREES LOCATED IN RESIDENTIAL ZONING DISTRICTS SHALL BE LOCATED GENERALLY WITHIN 20 FEET OF THE PUBLIC RIGHT-OF-WAY (SECTION 58-723(c)).
15. ALL OPEN SPACES SHALL BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION. THE HOMEOWNERS ASSOCIATION SHALL BE ESTABLISHED PRIOR TO THE APPROVAL OF THE FINAL SITE PLAN FOR THE SUBJECT PROPERTY IN A FORM APPROVED BT THE TOWN.
16. THE HOMEOWNERS ASSOCIATION DOCUMENTS SHALL INCORPORATE A PROVISION THAT RESTRICTS THE CONVERSION OF GARAGES TO LIVING SPACE OR OTHER USES THAT MIGHT RESTRICT THEIR USE FOR VEHICLE PARKING.

VICINITY MAP
SCALE: 1" = 1000'




TYPICAL SINGLE-FAMILY ATTACHED UNIT
N.T.S.

## OWNER:

HAYMARKET PROPERTIES GROUP LLC
14600 WASHINGTON STREET
HAYMARKET, VA 20169
GPIN: 7397-19-1734

## APPLICANT:

GRAYSTONE COMPANIES, LLC
15091 TAYLORS MILL PLACE
HAYMARKET, VA 20169
PHONE: (703) 929-1328

## SHEET INDEX:

1. COVER SHEET
2. ILLUSTRATIVE PLAN
3. ILLUSTRATIVE PLAN DETAILS
4. CONCEPT DEVELOPMENT PLAN
5. REZONING PLAT
6. EXISTING CONDITIONS AND SOILS MAP
7. COMMON AREA PLAN
8. SITE TABULATIONS
9. CONCEPTUAL LANDSCAPE PLAN
10. TYPICAL SECTIONS AND MISCELLANEOUS DETAILS

| REVISION BLOCK | | |
|---|---|---|
| NO. | SHEET NUMBER AND REVISON DESCRIPTION | DATE |
| | | |
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THE KDL GROUP LLC
P.O. BOX 609
HAYMARKET, VA 20168
PHONE: (703) 753-7592 FAX 703 753-7593
www.kdlgroup.com

COVER SHEET
SCHOOLHOUSE COMMONS
ZONING MAP AMENDMENT
TOWN OF HAYMARKET PRINCE WILLIAM COUNTY, VIRGINIA

REZ2025-

SCALE: H)
V)
DATE: AUGUST 2025
CHECKED:
DRAWN: JHD
FILE NO: ZMAP-004-HAY
SHEET NO.
1 OF 10

DWG PATH: S:\PROJECTS\PACE WEST SCHOOL\ENG\ZONING MAP AMENDMENT\DELIVERABLES\SCHOOLHOUSE COMMONS ZMAP.dwg

DWG PATH: S:\PROJECTS\PACE WEST SCHOOL\ENG\ZONING MAP AMENDMENT\DELIVERABLES\SCHOOLHOUSE COMMONS ZMAP.dwg

GRAPHIC SCALE
( IN FEET )
1 inch = 40 ft.

REZ2025–

SCALE: (H) 1"=40'
(V)
DATE: AUGUST 2025
CHECKED:
DRAWN: JHD
FILE NO: ZMAP-004-HAY
SHEET NO. 2 OF 10

ILLUSTRATIVE PLAN

# SCHOOLHOUSE COMMONS

ZONING MAP AMENDMENT

TOWN OF HAYMARKET PRINCE WILLIAM COUNTY, VIRGINIA

THE KDL GROUP LLC
P.O. BOX 609
HAYMARKET, VA 20168
PHONE 703 753-7592 FAX 703 753-7593
www.kdlgroup.com

Section V, Item1.

84

COMMON GREEN DETAIL

NOTE: THESE ARE REPRESENTATIVE EXAMPLES OF BENCHES THAT MAY BE USED FOR THE DEVELOPMENT. THE OWNER SHALL SPECIFY THE FINAL SELECTION ON THE SITE PLAN TO BE REVIEWED AND APPROVED BY THE DIRECTOR OF PLANNING.

PARK BENCH
NOT TO SCALE

PARK BENCH DETAIL

THE KDL GROUP LLC
P.O. BOX 609
HAYMARKET, VA 20168
PHONE: 703 753-7592 FAX 703 753-7593
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ILLUSTRATIVE PLAN DETAILS

# SCHOOLHOUSE COMMONS

ZONING MAP AMENDMENT

TOWN OF HAYMARKET PRINCE WILLIAM COUNTY, VIRGINIA

REZ2025-

| | |
|---|---|
| SCALE: H) AS NOTED | |
| V) | |
| DATE: | AUGUST 2025 |
| CHECKED: | |
| DRAWN: | JHD |
| FILE NO: | ZMAP-004-HAY |
| SHEET NO. | |
| 3 | OF 10 |

DWG PATH: S:\PROJECTS\PACE WEST SCHOOL\ENG\ZONING MAP AMENDMENT\DELIVERABLES\SCHOOLHOUSE COMMONS ZMAP.dwg

THE KDL GROUP LLC
P.O. BOX 609
HAYMARKET, VA 20168
PHONE: 703 753-7592 FAX 703 753-7593
www.kdlgroup.com

CONCEPT DEVELOPMENT PLAN

# SCHOOLHOUSE COMMONS

ZONING MAP AMENDMENT

TOWN OF HAYMARKET PRINCE WILLIAM COUNTY, VIRGINIA

EX. TRACK COURT

HAYMARKET STATION HOMEOWNERS ASSOCIATION, INC.
G.P.I.N.: 7397-09-5501
ZONING: R-2
INST. #200109170042689
DEED BOOK 2274 PG 1745

EASTBOUND LANE

EX. WASHINGTON STREET ROUTE 55
EX. R/W WIDTH VARIES
POSTED SPEED LIMIT 25 MPH

SIGHT DISTANCE

EX. 92' R/W

EX. JOHN MARSHALL HIGHWAY ROUTE #55

EX. GREENHILL CROSSING DRIVE

TOWN COUNTY

GREENHILL CROSSING COMMUNITY ASSOCIATION, INC.
G.P.I.N.: 7397-98-7684
ZONING: R-2
DB 2248 PG 253
USE: OPEN SPACE

GREENHILL CROSSING COMMUNITY ASSOCIATION, INC.
G.P.I.N.: 7397-98-7869
ZONING: R-2
DB 2383 PG 280
USE: OPEN SPACE

TOWN OF HAYMARKET VA
G.P.I.N.: 7397-09-4833
ZONING: R-1
INST. #200509220164097

BOTTINI JR NICHOLAS P &
G.P.I.N.: 7397-09-6810
INST. #202010150046963
ZONED: R-2
USE: SINGLE-FAMILY DETACHED

NAMGOONG, JOSEPH & JEE EUN LEE SURV
G.P.I.N.: 7397-09-7217
INST. #201706020041885
ZONED: R-2
USE: SINGLE-FAMILY DETACHED

RABINDRAN BERYL &
G.P.I.N.: 7397-09-7624
INST. #202006200031063
ZONED: R-2
USE: SINGLE-FAMILY DETACHED

ZAPATA DIONEL
G.P.I.N.: 7397-09-8031
INST. #201805300038056
ZONED: R-2
USE: SINGLE-FAMILY DETACHED

SCHULTZ, LARRY M & ANNA K SCHULTZ TRS
G.P.I.N.: 7397-09-8540
INST. #201801020000381
ZONED: R-2
USE: SINGLE-FAMILY DETACHED

GREGORY E & YVETTE C TERRE SURV
G.P.I.N.: 7397-09-9149
INST. #200503310050691
ZONED: R-2
USE: SINGLE-FAMILY DETACHED

EX. DOGWOOD PARK LANE

VILLAGES OF HAYMARKET HOMEOWNER ASSOC
G.P.I.N.: 7397-19-0063
INST. #202010090003893
ZONED: R-2
USE: OPEN SPACE

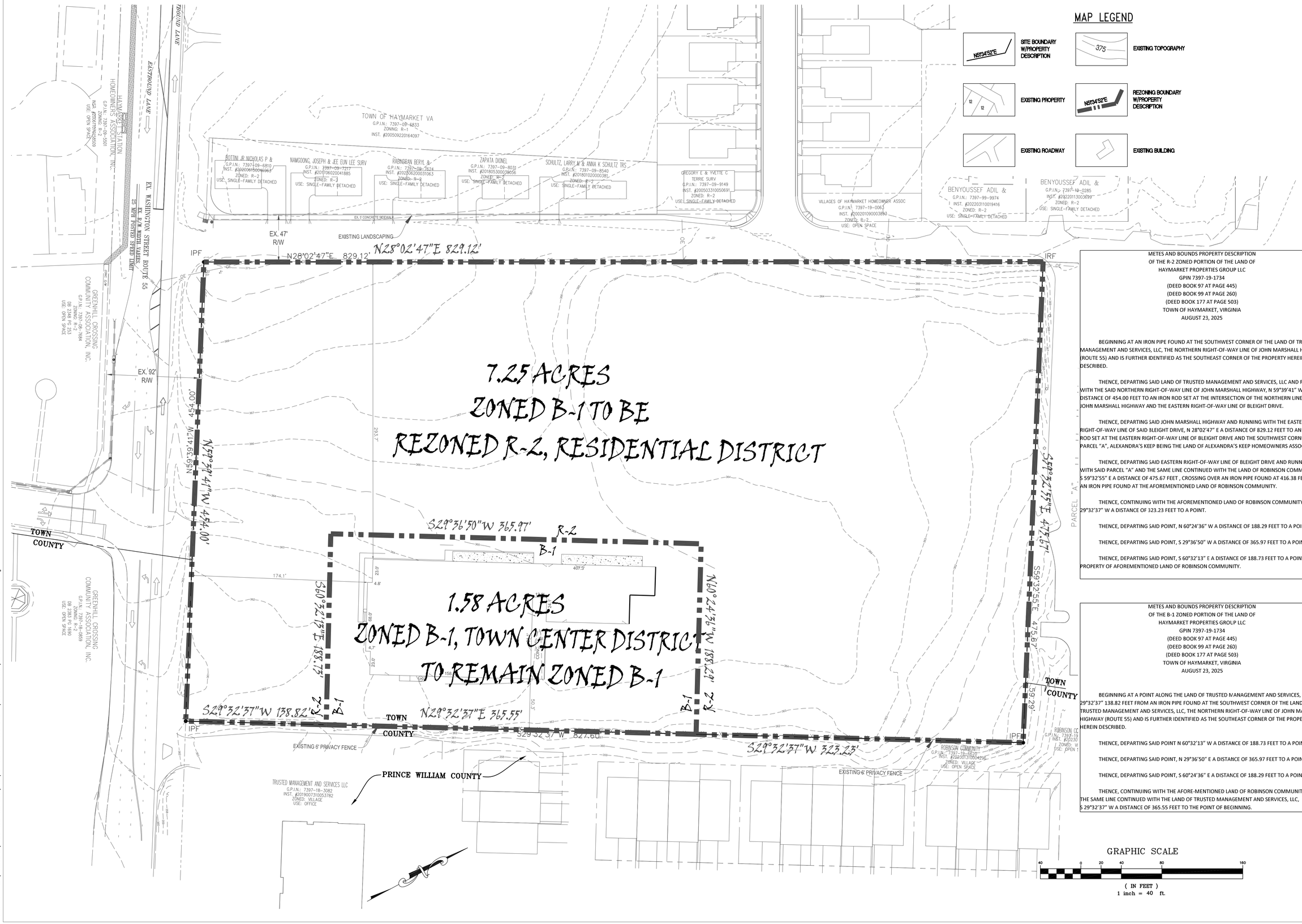
BENYOUSSEF ADIL &
G.P.I.N.: 7397-99-9974
INST. #202203110019416
ZONED: R-2
USE: SINGLE-FAMILY DETACHED

BENYOUSSEF ADIL &
G.P.I.N.: 7397-19-0285
INST. #202201130036997
ZONED: R-2
USE: SINGLE-FAMILY DETACHED

860 VPD
EX. 47' R/W
EXISTING LANDSCAPING
EX. 18" WATER LINE
EX. 5' CONCRETE SIDEWALK

EX. BLEIGHT DRIVE
SIGHT DISTANCE
N28°02'47"E 829.12'
IPF
IRF

5' CONCRETE SIDEWALK
15' MIN.
24' (TYP.)
20' MIN.
FACE OF CURB
STREET B
22'
26'
COMMON GREEN
EX. 92' R/W
N59°39'41"W 454.00'
EX. 8" SANITARY SEWER
EX. 12" WATER LINE
EX. 8" WATER LINE
EX. 8" SANITARY SEWER
EX. 6" WATER LINE
EX. 8" WATER LINE
EX. 8" SANITARY SEWER
EX. 8" WATER LINE
EX. 8" SANITARY SEWER
EX. 8" WATER LINE
EX. 8" SANITARY SEWER




METES AND BOUNDS PROPERTY DESCRIPTION
OF THE R-2 ZONED PORTION OF THE LAND OF
HAYMARKET PROPERTIES GROUP LLC
GPIN 7397-19-1734
(DEED BOOK 97 AT PAGE 445)
(DEED BOOK 99 AT PAGE 260)
(DEED BOOK 177 AT PAGE 503)
TOWN OF HAYMARKET, VIRGINIA
AUGUST 23, 2025

BEGINNING AT AN IRON PIPE FOUND AT THE SOUTHWEST CORNER OF THE LAND OF TRUSTED MANAGEMENT AND SERVICES, LLC, THE NORTHERN RIGHT-OF-WAY LINE OF JOHN MARSHALL HIGHWAY (ROUTE 55) AND IS FURTHER IDENTIFIED AS THE SOUTHEAST CORNER OF THE PROPERTY HEREIN DESCRIBED.

THENCE, DEPARTING SAID LAND OF TRUSTED MANAGEMENT AND SERVICES, LLC AND RUNNING WITH THE SAID NORTHERN RIGHT-OF-WAY LINE OF JOHN MARSHALL HIGHWAY, N 59°39'41" W A DISTANCE OF 454.00 FEET TO AN IRON ROD SET AT THE INTERSECTION OF THE NORTHERN LINE OF SAID JOHN MARSHALL HIGHWAY AND THE EASTERN RIGHT-OF-WAY LINE OF BLEIGHT DRIVE.

THENCE, DEPARTING SAID JOHN MARSHALL HIGHWAY AND RUNNING WITH THE EASTERN RIGHT-OF-WAY LINE OF SAID BLEIGHT DRIVE, N 28°02'47" E A DISTANCE OF 829.12 FEET TO AN IRON ROD SET AT THE EASTERN RIGHT-OF-WAY LINE OF BLEIGHT DRIVE AND THE SOUTHWEST CORNER OF PARCEL "A", ALEXANDRA'S KEEP BEING THE LAND OF ALEXANDRA'S KEEP HOMEOWNERS ASSOCIATION.

THENCE, DEPARTING SAID EASTERN RIGHT-OF-WAY LINE OF BLEIGHT DRIVE AND RUNNING WITH SAID PARCEL "A" AND THE SAME LINE CONTINUED WITH THE LAND OF ROBINSON COMMUNITY, S 59°32'55" E A DISTANCE OF 475.67 FEET , CROSSING OVER AN IRON PIPE FOUND AT 416.38 FEET, TO AN IRON PIPE FOUND AT THE AFOREMENTIONED LAND OF ROBINSON COMMUNITY.

THENCE, CONTINUING WITH THE AFOREMENTIONED LAND OF ROBINSON COMMUNITY, S 29°32'37" W A DISTANCE OF 323.23 FEET TO A POINT.

THENCE, DEPARTING SAID POINT, N 60°24'36" W A DISTANCE OF 188.29 FEET TO A POINT.

THENCE, DEPARTING SAID POINT, S 29°36'50" W A DISTANCE OF 365.97 FEET TO A POINT.

THENCE, DEPARTING SAID POINT, S 60°32'13" E A DISTANCE OF 188.73 FEET TO A POINT AT THE PROPERTY OF AFOREMENTIONED LAND OF ROBINSON COMMUNITY.

METES AND BOUNDS PROPERTY DESCRIPTION
OF THE B-1 ZONED PORTION OF THE LAND OF
HAYMARKET PROPERTIES GROUP LLC
GPIN 7397-19-1734
(DEED BOOK 97 AT PAGE 445)
(DEED BOOK 99 AT PAGE 260)
(DEED BOOK 177 AT PAGE 503)
TOWN OF HAYMARKET, VIRGINIA
AUGUST 23, 2025

BEGINNING AT A POINT ALONG THE LAND OF TRUSTED MANAGEMENT AND SERVICES, LLC, N 29°32'37" 138.82 FEET FROM AN IRON PIPE FOUND AT THE SOUTHWEST CORNER OF THE LAND OF TRUSTED MANAGEMENT AND SERVICES, LLC, THE NORTHERN RIGHT-OF-WAY LINE OF JOHN MARSHALL HIGHWAY (ROUTE 55) AND IS FURTHER IDENTIFIED AS THE SOUTHEAST CORNER OF THE PROPERTY HEREIN DESCRIBED.

THENCE, DEPARTING SAID POINT N 60°32'13" W A DISTANCE OF 188.73 FEET TO A POINT.

THENCE, DEPARTING SAID POINT, N 29°36'50" E A DISTANCE OF 365.97 FEET TO A POINT.

THENCE, DEPARTING SAID POINT, S 60°24'36" E A DISTANCE OF 188.29 FEET TO A POINT.

THENCE, CONTINUING WITH THE AFORE-MENTIONED LAND OF ROBINSON COMMUNITY AND THE SAME LINE CONTINUED WITH THE LAND OF TRUSTED MANAGEMENT AND SERVICES, LLC, S 29°32'37" W A DISTANCE OF 365.55 FEET TO THE POINT OF BEGINNING.

THE KDL GROUP LLC
P.O. BOX 609
HAYMARKET, VA 20168
PHONE: 703 753-7592 FAX 703 753-7593
www.kdlgroup.com

REZONING PLAT
# SCHOOLHOUSE COMMONS
ZONING MAP AMENDMENT
TOWN OF HAYMARKET PRINCE WILLIAM COUNTY, VIRGINIA

SCALE: H) 1"=40'
V)
DATE: AUGUST 2025
CHECKED:
DRAWN: JHD
FILE NO: ZMAP-004-HAY
SHEET NO.
5 OF 10

REZ2025-

DWG PATH: S:\PROJECTS\PACE WEST SCHOOL\ENG\ZONING MAP AMENDMENT\DELIVERABLES\SCHOOLHOUSE COMMONS ZMAP.dwg

## LEGEND

67B / 69A — SOILS TYPE DESCRIPTION

EX. TRACK COURT

TOWN OF HAYMARKET VA
G.P.I.N.: 7397-09-6833
ZONING: R-1
INST. #200509220164097

HAYMARKET STATION HOMEOWNERS ASSOCIATION, INC.
G.P.I.N.: 7397-09-4501
INST. #200311170158569
USE: OPEN SPACE

WESTBOUND LANE
EASTBOUND LANE
EX. WASHINGTON STREET ROUTE 55
EX. 8' W/ PAINTED MEDIAN
EX. 25 MPH POSTED SPEED LIMIT
EX. JOHN MARSHALL HIGHWAY ROUTE #55
(VARIABLE WIDTH R/W)
D.B. 84 PG. 174

EX. GREENHILL CROSSING DRIVE

TOWN
COUNTY

GREENHILL CROSSING COMMUNITY ASSOCIATION, INC.
G.P.I.N.: 7397-08-1684
ZONING: R-2
INST. #200311170158569
USE: OPEN SPACE

EX. 15" STORM DRAINAGE EASEMENT
INST. #201302220018429

EX. 10' LANDSCAPE BUFFER YARD
INST. #201302220018429

EX. VARIABLE WIDTH SANITARY SEWER EASEMENT
INST. #201302220018429

EX. WATER VALVES

SHALVER, TIMOTHY B & CATHLEEN E SURV
G.P.I.N.: 7397-09-5810
INST. #201612210104518
ZONED: R-2
USE: SINGLE-FAMILY DETACHED

WANGOONG, JOSEPH & LE ELON LEE SURV
G.P.I.N.: 7397-09-7215
INST. #201706020941885
ZONED: R-2
USE: SINGLE-FAMILY DETACHED

PUBBE, NICHOLAS J & LEIANA J PUBBE SURV
G.P.I.N.: 7397-09-7624
INST. #201805290037815
ZONED: R-2
USE: SINGLE-FAMILY DETACHED

ZAPATA DIONE
G.P.I.N.: 7397-09-8033
INST. #201805290038056
ZONED: R-2
USE: SINGLE-FAMILY DETACHED

SCHULTZ, HENRY W & ANNA K SCHULTZ TRS
G.P.I.N.: 7397-09-8540
INST. #201802020003381
ZONED: R-2
USE: SINGLE-FAMILY DETACHED

(RIGHT-OF-WAY VARIES)
INST. #201302220018429
D.B. 1092 PG. 1949

ASPHALT EX. BLEIGHT DRIVE

EX. 18" W/M

N25°02'47"E 829.12'

N31°12'31"E 443.25'

S28°02'58"W 110.00'

S28°02'58"W 200.00'

EX. 15" CMP

EX. 12" RCP

EX. 12" RCP

EX. 15" CMP

THE KDL GROUP LLC
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www.kdlgroup.com

# SCHOOLHOUSE COMMONS

## COMMON AREA PLAN AND SOILS MAP
## ZONING MAP AMENDMENT

TOWN OF HAYMARKET PRINCE WILLIAM COUNTY, VIRGINIA

EX. TRACK COURT

HAYMARKET STATION HOMEOWNERS ASSOCIATION, INC. G.P.I.N.: 7397-19-5051 ZONING: R-2 USE: OPEN SPACE

INST. #200307090058509

GREENHILL CROSSING COMMUNITY ASSOCIATION, INC. G.P.I.N.: 7397-19-7884 ZONING: R-2 DB 2246 PG 253 USE: OPEN SPACE

GREENHILL CROSSING COMMUNITY ASSOCIATION, INC. G.P.I.N.: 7397-19-4859 ZONING: R-2 DB 2383 PG 1699 USE: OPEN SPACE

EX. GREENHILL CROSSING DRIVE

TOWN COUNTY

EX. JOHN MARSHALL HIGHWAY ROUTE #55

EX. WASHINGTON STREET ROUTE 55

EX. R/W WIDTH VARIES

EX. 16' TO 25' WIDE TREE LINED STREET LIGHT

EX. 92' R/W

13,000 VPD

TOWN OF HAYMARKET VA
G.P.I.N.: 7397-09-6833
ZONING: R-1
INST. #200509220164097

BOTTINI JR NICHOLAS P &
G.P.I.N.: 7397-09-6810
INST. #202006150040963
ZONED: R-2
USE: SINGLE-FAMILY DETACHED

NAMGOONG, JOSEPH & JEE EUN LEE SURV
G.P.I.N.: 7397-09-7727
INST. #201706020041885
ZONED: R-2
USE: SINGLE-FAMILY DETACHED

RASINGRAN BERYL &
G.P.I.N.: 7397-09-7624
INST. #202006200031063
ZONED: R-2
USE: SINGLE-FAMILY DETACHED

ZAPATA DIONEL
G.P.I.N.: 7397-09-8031
INST. #201805300038056
ZONED: R-2
USE: SINGLE-FAMILY DETACHED

SCHULTZ, LARRY M & ANNA K SCHULTZ TRS
G.P.I.N.: 7397-09-8540
INST. #201810020000381
ZONED: R-2
USE: SINGLE-FAMILY DETACHED

GREGORY E & YVETTE C TERRY SURV
G.P.I.N.: 7397-09-9149
INST. #201903310050691
ZONED: R-2
USE: SINGLE-FAMILY DETACHED

EX. DOGWOOD PARK LANE

VILLAGES OF HAYMARKET HOMEOWNER ASSOC
G.P.I.N.: 7397-19-0063
INST. #202201090003893
ZONED: R-2
USE: OPEN SPACE

BENYOUSSEF ADIL &
G.P.I.N.: 7397-99-9974
INST. #202203110019416
ZONED: R-2
USE: SINGLE-FAMILY DETACHED

BENYOUSSEF ADIL &
G.P.I.N.: 7397-19-0285
INST. #202201130003699
ZONED: R-2
USE: SINGLE-FAMILY DETACHED

EX. BLEIGHT DRIVE

860 VPD

EX. 47' R/W

EXISTING LANDSCAPING

EX. 5' CONCRETE SIDEWALK

EX. 18" WATER LINE

N28°02'47"E 829.12'

35B

4B

11B

4B

5C

15' MIN.

24' (TYP.)

20' MIN.

15' MIN.

STREET B

STREET C

STREET A

STREET D

STREET E

FACE OF CURB

22'

26'

29.50'

5' CONCRETE SIDEWALK

EX. ALEXANDRA'S KEEP LANE

PARCEL "A" ALEXANDRA'S KEEP HOMEOWNERS ASSOCIATION INST. #202107060052871 G.P.I.N.: 7397-19-0052 ZONED: R-2 USE: OPEN SPACE

1,010 VPD

COMMON GREEN

15 SPACES FOR TOWNHOUSE VISITOR PARKING

8" SANITARY SEWER

R-2

B-1

407.3'

158.8'

LOADING SPACE

DUMPSTER ENCLOSURE

BRICK SIDEWALK

EX. 6' WATERLINE

EX. SANITARY SEWER

EX. SWM/BMP POND

N59°39'41"W 454.00'

S59°32'55"E 475.29'

S29°32'37"W 827.60'

TOWN COUNTY

PRINCE WILLIAM COUNTY

EXISTING 6' PRIVACY FENCE

TRUSCO MANAGEMENT AND SERVICES LLC
G.P.I.N.: 7397-18-3082
INST. #201907310053782
ZONED: VILLAGE
USE: OFFICE

ROBINSON COMMUNITY
G.P.I.N.: 7397-19-6800
INST. #202301310004296
ZONED: VILLAGE
USE: OPEN SPACE

## SOILS MAP
SCALE: 1" = 40'

## SOILS DESCRIPTIONS

| TYPE | NAME | GROUP | SLOPE |
|---|---|---|---|
| 4B | ARCOLA SILT LOAM | C | 2-7% |
| 5C | ARCOLA-NESTORIA COMPLEX | C | 7-15% |
| 11B | CALVERTON SILT LOAM | C | 0-7% |
| 35B | MANASSAS SILT LOAM | B | 2-7% |

## LEGEND

67B / 69A — SOILS TYPE DESCRIPTION

COMMON AREA

GRAPHIC SCALE
40 0 20 40 80 160
( IN FEET )
1 inch = 40 ft.

64C — DENOTES SOIL TYPE

| | |
|---|---|
| SCALE: H) 1"=40' | |
| V) | |
| DATE: | AUGUST 2025 |
| CHECKED: | |
| DRAWN: | JHD |
| FILE NO: | ZMAP-004-HAY |
| SHEET NO. | 7 OF 10 |

REZ2025-

DWG PATH: S:\PROJECTS\PACE WEST SCHOOL\ENG\ZONING MAP AMENDMENT\DELIVERABLES\SCHOOLHOUSE COMMONS ZMAP.dwg

| SCHOOLHOUSE COMMONS | | | |
|---|---|---|---|
| | | | |
| **GROSS PARCEL AREA** | | **8.83 AC GPIN 7397-19-1734** | |
| | | | |
| **ZONING:** | | **B-1 (EXISTING)** | **8.83 AC** |
| | | **R-2 (PROPOSED)** | **7.25 AC** |
| | | **B-1 (REMAINING)** | **1.58 AC** |
| | | | |
| | | | |
| **SITE TABULATIONS** | | | |
| | | | |
| **B-1, TOWN CENTER DISTRICT** | | | |
| | | | |
| **GROSS SITE AREA** | | **1.58 AC** | |
| | | | |
| | | **REQUIRED** | **PROVIDED** |
| | | | |
| | | | |
| BUILDING LOT COVERAGE | | 85% (MAX) | 35.22% |
| | | | |
| | | | |
| BUILDING HEIGHT | | 3-STORIES (35' MAX) | 35' (MAX) |
| | | | |
| FLOOR AREA RATIO | | NO MAXIMUM | N/A |
| | | | |
| **YARD REQUIREMENTS** | | | |
| | | | |
| FRONT YARD | | 10' | 37' |
| | | | |
| SIDE YARD | | 25' ABUTTING RESIDENTIAL DISTRICT | 25' |
| | | | |
| REAR YARD | | 25' ABUTTING RESIDENTIAL DISTRICT | 44' |
| | | | |
| BUFFER YARD REQUIREMENTS | | | |
| | | | |
| ADJOINING RESIDENTIAL | | 25' BUFFER YARD (TS) | 25' |
| | | | |
| | | | |
| | | | |
| **R-2 RESIDENTIAL (TOWNHOUSE)** | | | |
| | | | |
| **SECT. 58-10.1 INTENT - AMENITIES AND CONVENIENCE OF TOWNHOUSE OR SMALL LOT DETACHED** | | | |
| | | | |
| | | | |
| **GROSS SITE AREA** | | **7.25 AC** | |
| | | | |
| | | **REQUIRED** | **PROVIDED** |
| | | | |
| | | | |
| MINIMUM LOT SIZE | | 1,500 S.F. (MIN. LOT AREA) | 1,500 S.F. (MIN. LOT AREA) |
| | | 2,000 S.F. (MIN. AVERAGE LOT AREA) | 2,000 S.F. (MIN. AVERAGE LOT AREA) |
| | | | |
| BUILDING HEIGHT | | 2 1/2-STORIES (35' MAX) | 3 STORIES 35' (MAX) |
| | | | |
| MAXIMUM NUMBER OF UNITS PER GROSS ACRE | | 8 UNITS/AC (MAX) | 8.00 UNITS/AC |
| | | | |
| MINIMUM LOT FRONTAGE | | 20' (INTERIOR UNIT) | 24' |
| | | 35' (END UNIT) | 39' |
| | | | |
| **YARD REQUIREMENTS** | | | |
| | | | |
| FRONT YARD | | 15' | 15' |
| | | | |
| SIDE YARD | | 15' (END UNIT) | 15' |
| | | | |
| REAR YARD | | 20' | 20' |

| PARKING TABULATIONS | | | | |
|---|---|---|---|---|
| **PROPOSED USE** | | | | |
| | | **PARKING REQUIREMENTS** | **REQUIRED PARKING** | **PROPOSED PARKING** |
| | | | | |
| 6,925 G.S.F. GENERAL OFFICE | | 1 SPACE PER 300 S.F. | 23.08 | |
| | | OF GROSS FLOOR AREA | | |
| | | | | |
| 6,165 G.S.F. RESTAURANT | | 1 SPACE PER 100 S.F. | 61.65 | |
| | | OF GROSS FLOOR AREA | | |
| | | | | |
| 6,920 G.S.F. RECREATION FACILITY | | 1 SPACE PER 300 S.F. | 23.07 | |
| | | OF GROSS FLOOR AREA | | |
| | | | | |
| 2,208 G.S.F. WHOLESALE BUSINESS | | 1 SPACE PER 1,000 S.F. | 2.21 | |
| | | OF GROSS FLOOR AREA | | |
| | | | | |
| | | | | |
| **SUBTOTAL** | | | **110.01** | **133 SPACES (SURFACE PARKING)** |
| | | | | **(INCLUDES 5 H.C. PARKING SPACES)** |
| | | | | |
| | | | | |
| TOWNHOUSE (RESIDENT PARKING) | | 2 SPACES PER UNIT | 116.00 | 116 (GARAGE) |
| | | | | |
| TOWNHOUSE (VISITOR PARKING) | | 0.25 SPACES PER UNIT | 14.50 | 15 (SURFACE PARKING) |
| | | | | |
| **SUBTOTAL** | | | **130.50** | **131 SPACES** |
| | | | | |
| **TOTAL** | | | **240.51** | **264 SPACES** |

THE KDL GROUP LLC
P.O. BOX 609
HAYMARKET, VA 20168
PHONE: 703 753-7592 FAX 703 753-7593
www.kdlgroup.com

SITE TABULATIONS

# SCHOOLHOUSE COMMONS

ZONING MAP AMENDMENT

PRINCE WILLIAM COUNTY, VIRGINIA

TOWN OF HAYMARKET

REZ2025-

SCALE: H) AS NOTED
V)
DATE: AUGUST 2025
CHECKED:
DRAWN: JHD
FILE NO: ZMAP-004-HAY
SHEET NO.
8 OF 10

DWG PATH: S:\PROJECTS\PACE WEST SCHOOL\ENG\ZONING MAP AMENDMENT\DELIVERABLES\SCHOOLHOUSE COMMONS ZMAP.dwg

STORMWATER MANAGEMENT NARRATIVE

THE FRONT HALF OF THE SITE DRAINS TOWARDS EX. WASHINGTON STREET AND IS INTERCEPTED BY AN EXISTING CULVERT PIPE LOCATED IN THE SOUTHEASTERN FRONT CORNER. THE REAR HALF OF THE SITE DRAINS TOWARDS THE NORTHEASTERN REAR CORNER.

THE MAJORITY OF THE SITE'S POST-DEVELOPMENT RUNOFF WILL BE DETAINED USING STORMWATER MANAGEMENT PRACTICES (SWM) IN UNDERGROUND INFILTRATION TRENCHES LOCATED ALONG THE FRONT AND REAR OF THE SUBJECT SITE. THE PROPOSED SWM FACILITIES WILL BE STUDIED AT THE TIME OF SITE PLAN ENGINEERING WITH TOWN REVIEW TO DETERMINE IF UNDERGROUND INFILTRATION TRENCHES WILL BE ADEQUATE OR IF ADDITIONAL TREATMENT IS NEEDED.

BEST MANAGEMENT PRACTICES (BMP) REQUIREMENTS FOR THE SUBJECT DEVELOPMENT WILL BE SATISFIED THROUGH THE PURCHASE OF OFFSITE NUTRIENT CREDITS FROM AN AUTHORIZED NUTRIENT CREDIT TRADING FACILITY.

LEGEND

- Existing Landscape Buffer Planting
- Proposed Canopy Tree Planting
- Proposed Understory Tree Planting
- Proposed Shrub Planting

## NOTES:

1. TYPICAL TREE AND SHRUB LOCATIONS SHOWN HEREON ARE FOR ILLUSTRATIVE PURPOSES ONLY. LANDSCAPE PLANTINGS SHALL BE PROVIDED PER ARTICLE XIX OF THE LATEST TOWN OF HAYMARKET ZONING ORDINANCE AT THE TIME OF SITE PLAN SUBMISSION.
2. BUFFER PLANTINGS SHALL BE PROVIDED PER SECTION 58-19 OF THE LATEST TOWN OF HAYMARKET ZONING ORDINANCE AT THE TIME OF SITE PLAN SUBMISSION.
3. REQUIRED BUFFER PLANTINGS AND OTHER LANDSCAPING SHALL BE INSTALLED AT THE DEVELOPERS EXPENSE.
4. LOCATIONS AND QUANTITIES OF PROPOSED LANDSCAPE PLANTINGS ARE APPROXIMATE AND MAY VARY BASED ON ACTUAL FIELD CONDITIONS.
5. APPLICANT WILL PROVIDE ALL OPEN SPACE AND LANDSCAPING PER THE REQUIREMENTS OF THE TOWN OF HAYMARKET ZONING ORDINANCE. ACCORDINGLY, ADJUSTMENTS TO PARKING AND LANDSCAPING MAY OCCUR AT SITE PLAN REVIEW STAGE.
6. LANDSCAPING TO BE ADDED ADJACENT TO PROPOSED SWM/BMP FACILITY AREAS AT SITE PLAN REVIEW STAGE.

THIS SHEET IS FOR LANDSCAPE PURPOSES ONLY!!

GRAPHIC SCALE

( IN FEET )
1 inch = 40 ft.

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CONCEPTUAL LANDSCAPE PLAN

# SCHOOLHOUSE COMMONS

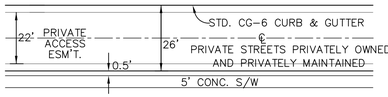
ZONING MAP AMENDMENT

TOWN OF HAYMARKET PRINCE WILLIAM COUNTY, VIRGINIA

REZ2025-

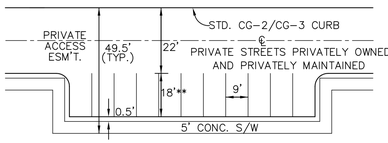
| | |
|---|---|
| SCALE: H) 1"=40' | V) |
| DATE: | AUGUST 2025 |
| CHECKED: | |
| DRAWN: | JHD |
| FILE NO: | ZMAP-004-HAY |
| SHEET NO. | 9 OF 10 |

DWG PATH: S:\PROJECTS\PACE WEST SCHOOL\ENG\ZONING MAP AMENDMENT\DELIVERABLES\SCHOOLHOUSE COMMONS ZMAP.dwg



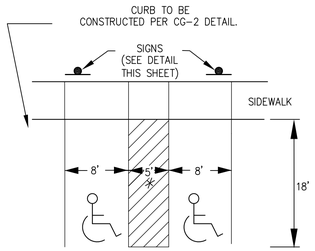

## TYPICAL PRIVATE ROADWAY SECTION

N.T.S.




## TYPICAL HEAD-IN PARKING DETAIL

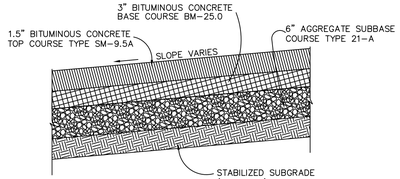
N.T.S.




## HANDICAPPED PARKING BAY DETAIL

(NOT TO SCALE)

*8' FOR VAN ACCESSIBLE SPACE




## TYPICAL PAVEMENT SECTION – PRIVATE STREET

1. * SUBBASE NOTE: SUBBASE DEPTH IS BASED ON A CBR VALUE OF 4, WHICH MAY BE REVISED ONCE SOIL TESTS OF SUBGRADE ARE PERFORMED.

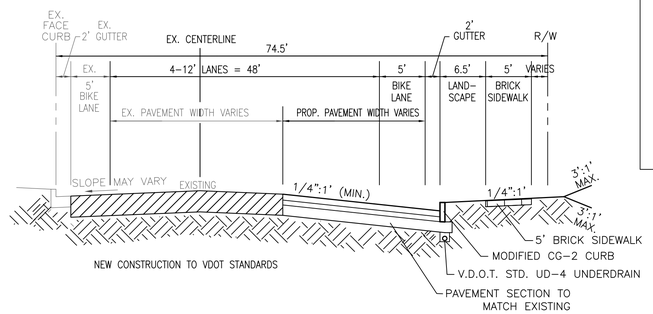
2. ALL FINAL PAVEMENT AND BASE COURSE THICKNESS SHALL BE DESIGNED IN ACCORDANCE WITH THE "DESIGN GUIDE FOR SUBDIVISION ROAD PAVEMENTS IN VIRGINIA", BY N.K. VASWANI, AND SHALL BE BASED ON A SUFFICIENT NUMBER OF CBR TEST TO DETERMINE THE TRUE SUPPORT VALUES OF THE VARIOUS SOILS IN THE SUBGRADE.

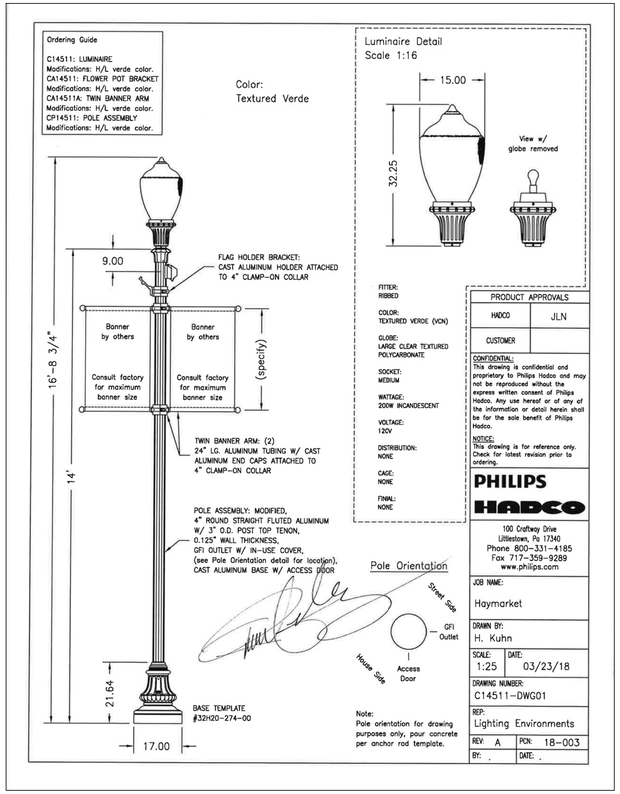
3. A SMOOTHING GRADE SHALL BE MAINTAINED FROM THE CENTERLINE OF THE EXISTING ROAD TO THE PROPOSED ENTRANCE FLOWLINE, TO PRECLUDE THE FORMING OF FALSE GUTTERS AND/OR PONDING OF ANY WATER ON THE ROADWAY.

4. STANDARD GUARDRAIL AND HANDRAIL SHALL BE INSTALLED AT HAZARDOUS LOCATIONS AS DESIGNATED DURING FINAL FIELD INSPECTIONS BY HANOVER COUNTY OR V.D.O.T.

## TYPICAL SECTION, WASHINGTON STREET – ROUTE 55 FRONTAGE IMPROVEMENTS

(NOT TO SCALE)



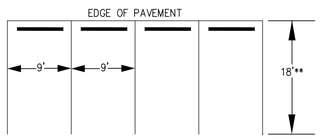

## TYPICAL LIGHTING DETAIL

NOTE
SUBGRADE SHALL BE COMPACTED TO 95% DENSITY

## SIDEWALK DETAIL

N.T.S.

SIDEWALK CONSTRUCTION SHALL CONFORM TO THE CURRENT VIRGINIA DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS.

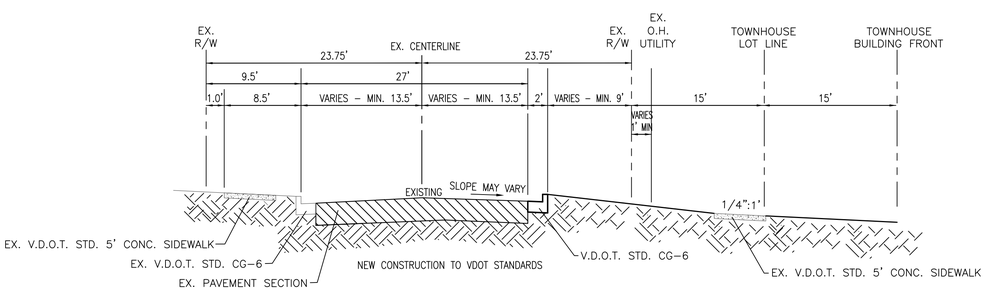


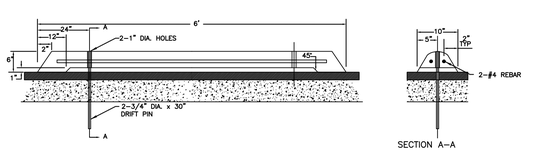

## TYPICAL PARKING BAY DETAILS

N.T.S.

## TYPICAL SECTION EX. BLEIGHT DRIVE ROADWAY IMPROVEMENTS

(NOT TO SCALE)




## PRECAST CONCRETE WHEEL STOP (OR APPROVED EQUAL)

THE KDL GROUP LLC
P.O. BOX 609
HAYMARKET, VA 20168
PHONE: (703) 753-7592 FAX 703 753-7593
www.kdlgroup.com

TYPICAL SECTIONS AND MISCELLANEOUS DETAILS

# SCHOOLHOUSE COMMONS

ZONING MAP AMENDMENT

TOWN OF HAYMARKET PRINCE WILLIAM COUNTY, VIRGINIA

SCALE: H) AS NOTED
V)
DATE: AUGUST 2025
CHECKED:
DRAWN: JHD
FILE NO: ZMAP-004-HAY
SHEET NO.
10 OF 10

REZ2025-

DWG PATH: S:\PROJECTS\PACE WEST SCHOOL\ENG\ZONING MAP AMENDMENT\DELIVERABLES\SCHOOLHOUSE COMMONS ZMAP.dwg

0 40 80 160 Feet

| SCHOOLHOUSE COMMONS | | | |
|---|---|---|---|
| | | | |
| **GROSS PARCEL AREA** | | **8.83 AC GPIN 7397-19-1734** | |
| | | | |
| **ZONING:** | | **B-1 (EXISTING)** | **8.83 AC** |
| | | **R-2 (PROPOSED)** | **7.25 AC** |
| | | **B-1 (REMAINING)** | **1.58 AC** |
| | | | |
| | | | |
| **SITE TABULATIONS** | | | |
| | | | |
| **B-1, TOWN CENTER DISTRICT** | | | |
| | | | |
| **GROSS SITE AREA** | | **1.58 AC** | |
| | | | |
| | | **REQUIRED** | **PROVIDED** |
| | | | |
| | | | |
| BUILDING LOT COVERAGE | | 85% (MAX) | 35.22% |
| | | | |
| | | | |
| BUILDING HEIGHT | | 3-STORIES (35' MAX) | 35' (MAX) |
| | | | |
| FLOOR AREA RATIO | | NO MAXIMUM | N/A |
| | | | |
| **YARD REQUIREMENTS** | | | |
| | | | |
| FRONT YARD | | 10' | 37' |
| | | | |
| SIDE YARD | | 25' ABUTTING RESIDENTIAL DISTRICT | 25' |
| | | | |
| REAR YARD | | 25' ABUTTING RESIDENTIAL DISTRICT | 44' |
| | | | |
| BUFFER YARD REQUIREMENTS | | | |
| | | | |
| ADJOINING RESIDENTIAL | | 25' BUFFER YARD (TS) | 25' |
| | | | |
| | | | |
| | | | |
| **R-2 RESIDENTIAL (TOWNHOUSE)** | | | |
| | | | |
| **SECT. 58-10.1 INTENT - AMENITIES AND CONVENIENCE OF TOWNHOUSE OR SMALL LOT DETACHED** | | | |
| | | | |
| | | | |
| **GROSS SITE AREA** | | **7.25 AC** | |
| | | | |
| | | **REQUIRED** | **PROVIDED** |
| | | | |
| | | | |
| MINIMUM LOT SIZE | | 1,500 S.F. (MIN. LOT AREA) | 1,500 S.F. (MIN. LOT AREA) |
| | | 2,000 S.F. (MIN. AVERAGE LOT AREA) | 2,000 S.F. (MIN. AVERAGE LOT AREA) |
| | | | |
| BUILDING HEIGHT | | 2 1/2-STORIES (35' MAX) | 3 STORIES 35' (MAX) |
| | | | |
| MAXIMUM NUMBER OF UNITS PER GROSS ACRE | | 8 UNITS/AC (MAX) | 8.00 UNITS/AC |
| | | | |
| MINIMUM LOT FRONTAGE | | 20' (INTERIOR UNIT) | 24' |
| | | 35' (END UNIT) | 39' |
| | | | |
| MINIMUM COMMON AREA | | NONE | 2.59 AC |
| | | | |
| **YARD REQUIREMENTS** | | | |
| | | | |
| FRONT YARD | | 15' | 15' |
| | | | |
| SIDE YARD | | 15' (END UNIT) | 15' |
| | | | |
| REAR YARD | | 20' | 20' |

| PARKING TABULATIONS | | | | | |
|---|---|---|---|---|---|
| **PROPOSED USE** | | | | | |
| | | **PARKING REQUIREMENTS** | **TENANT SPACE SQ. FT.** | **REQUIRED PARKING** | **PROPOSED PARKING** |
| | | | | | |
| QBE | | 1 SPACE PER 300 S.F. | 6,925 | 23.08 | |
| | | OF GROSS FLOOR AREA | | | |
| | | | | | |
| ZANDRAS | | 1 SPACE PER 100 S.F. | 2,865 | 28.65 | |
| | | OF GROSS FLOOR AREA | | | |
| | | | | | |
| TROUVAILLE | | 1 SPACE PER 100 S.F. | 3,300 | 33.00 | |
| | | OF GROSS FLOOR AREA | | | |
| | | | | | |
| JUI JITSU | | 1 SPACE PER 300 S.F. | 5,170 | 17.23 | |
| | | OF GROSS FLOOR AREA | | | |
| | | | | | |
| JAZZERCISE | | 1 SPACE PER 300 S.F. | 1,750 | 5.83 | |
| | | OF GROSS FLOOR AREA | | | |
| | | | | | |
| VACANT | | 1 SPACE PER 300 S.F. | 2,208 | 7.33 | |
| | | OF GROSS FLOOR AREA | | | |
| | | | | | |
| **SUBTOTAL** | | | | **115.12** | **141 SPACES (SURFACE PARKING)** |
| | | | | | **(INCLUDES 5 H.C. PARKING SPACES)** |
| | | | | | |
| | | | | | *** 76 SPACES B-1 ZONED** |
| | | | | | *** 65 SPACES R-2 ZONED** |
| | | | | | |
| | | | | | |
| TOWNHOUSE (RESIDENT PARKING) | | 2 SPACES PER UNIT | | 116.00 | 116 (GARAGE) |
| | | | | | |
| TOWNHOUSE (VISITOR PARKING) | | 0.25 SPACES PER UNIT | | 14.50 | 15 (SURFACE PARKING) |
| | | | | | |
| **SUBTOTAL** | | | | **130.50** | **131 SPACES** |
| | | | | | |
| **TOTAL** | | | | **245.62** | **272 SPACES** |
| | | | | | |
| SHARED PARKING STUDY RESULTS | | | | -30 | |
| | | | | | |
| **REDUCED TOTAL** | | | | **215.62** | **272 SPACES** |
| | | | | | |

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**SITE TABULATIONS**

# SCHOOLHOUSE COMMONS

ZONING MAP AMENDMENT

PRINCE WILLIAM COUNTY, VIRGINIA

TOWN OF HAYMARKET

REZ2025-

SCALE: H) AS NOTED
V)
DATE: AUGUST 2025
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SHEET NO.
8 OF 10

DWG PATH: S:\PROJECTS\PACE WEST SCHOOL\ENG\ZONING MAP AMENDMENT\DELIVERABLES\SCHOOLHOUSE COMMONS ZMAP.dwg

0 40 80 160 Feet

| SCHOOLHOUSE COMMONS | | | |
|---|---|---|---|
| | | | |
| **GROSS PARCEL AREA** | | **8.83 AC GPIN 7397-19-1734** | |
| | | | |
| **ZONING:** | | **B-1 (EXISTING)** | **8.83 AC** |
| | | **R-2 (PROPOSED)** | **7.25 AC** |
| | | **B-1 (REMAINING)** | **1.58 AC** |
| | | | |
| | | | |
| **SITE TABULATIONS** | | | |
| | | | |
| **B-1, TOWN CENTER DISTRICT** | | | |
| | | | |
| **GROSS SITE AREA** | | **1.58 AC** | |
| | | | |
| | | **REQUIRED** | **PROVIDED** |
| | | | |
| | | | |
| BUILDING LOT COVERAGE | | 85% (MAX) | 35.22% |
| | | | |
| | | | |
| BUILDING HEIGHT | | 3-STORIES (35' MAX) | 35' (MAX) |
| | | | |
| FLOOR AREA RATIO | | NO MAXIMUM | N/A |
| | | | |
| **YARD REQUIREMENTS** | | | |
| | | | |
| FRONT YARD | | 10' | 37' |
| | | | |
| SIDE YARD | | 25' ABUTTING RESIDENTIAL DISTRICT | 25' |
| | | | |
| REAR YARD | | 25' ABUTTING RESIDENTIAL DISTRICT | 44' |
| | | | |
| BUFFER YARD REQUIREMENTS | | | |
| | | | |
| ADJOINING RESIDENTIAL | | 25' BUFFER YARD (TS) | 25' |
| | | | |
| | | | |
| | | | |
| **R-2 RESIDENTIAL (TOWNHOUSE)** | | | |
| | | | |
| **SECT. 58-10.1 INTENT - AMENITIES AND CONVENIENCE OF TOWNHOUSE OR SMALL LOT DETACHED** | | | |
| | | | |
| | | | |
| **GROSS SITE AREA** | | **7.25 AC** | |
| | | | |
| | | **REQUIRED** | **PROVIDED** |
| | | | |
| | | | |
| MINIMUM LOT SIZE | | 1,500 S.F. (MIN. LOT AREA) | 1,500 S.F. (MIN. LOT AREA) |
| | | 2,000 S.F. (MIN. AVERAGE LOT AREA) | 2,000 S.F. (MIN. AVERAGE LOT AREA) |
| | | | |
| BUILDING HEIGHT | | 2 1/2-STORIES (35' MAX) | 3 STORIES 35' (MAX) |
| | | | |
| MAXIMUM NUMBER OF UNITS PER GROSS ACRE | | 8 UNITS/AC (MAX) | 8.00 UNITS/AC |
| | | | |
| MINIMUM LOT FRONTAGE | | 20' (INTERIOR UNIT) | 24' |
| | | 35' (END UNIT) | 39' |
| | | | |
| MINIMUM COMMON AREA | | NONE | 2.59 AC |
| | | | |
| **YARD REQUIREMENTS** | | | |
| | | | |
| FRONT YARD | | 15' | 15' |
| | | | |
| SIDE YARD | | 15' (END UNIT) | 15' |
| | | | |
| REAR YARD | | 20' | 20' |

| PARKING TABULATIONS | | | | | |
|---|---|---|---|---|---|
| **PROPOSED USE** | | | | | |
| | | **PARKING REQUIREMENTS** | **TENANT SPACE SQ. FT.** | **REQUIRED PARKING** | **PROPOSED PARKING** |
| | | | | | |
| QBE | | 1 SPACE PER 300 S.F. | 6,925 | 23.08 | |
| | | OF GROSS FLOOR AREA | | | |
| | | | | | |
| ZANDRAS | | 1 SPACE PER 100 S.F. | 2,865 | 28.65 | |
| | | OF GROSS FLOOR AREA | | | |
| | | | | | |
| TROUVAILLE | | 1 SPACE PER 100 S.F. | 3,300 | 33.00 | |
| | | OF GROSS FLOOR AREA | | | |
| | | | | | |
| JUI JITSU | | 1 SPACE PER 300 S.F. | 5,170 | 17.23 | |
| | | OF GROSS FLOOR AREA | | | |
| | | | | | |
| JAZZERCISE | | 1 SPACE PER 300 S.F. | 1,750 | 5.83 | |
| | | OF GROSS FLOOR AREA | | | |
| | | | | | |
| VACANT | | 1 SPACE PER 300 S.F. | 2,208 | 7.33 | |
| | | OF GROSS FLOOR AREA | | | |
| | | | | | |
| **SUBTOTAL** | | | | **115.12** | **132 SPACES (SURFACE PARKING)** |
| | | | | | **(INCLUDES 5 H.C. PARKING SPACES)** |
| | | | | | |
| | | | | | *** 76 SPACES B-1 ZONED** |
| | | | | | *** 56 SPACES R-2 ZONED** |
| | | | | | |
| | | | | | |
| TOWNHOUSE (RESIDENT PARKING) | | 2 SPACES PER UNIT | | 116.00 | 116 (GARAGE) |
| | | | | | |
| TOWNHOUSE (VISITOR PARKING) | | 0.25 SPACES PER UNIT | | 14.50 | 15 (SURFACE PARKING) |
| | | | | | |
| **SUBTOTAL** | | | | **130.50** | **131 SPACES** |
| | | | | | |
| | | | | | |
| **TOTAL** | | | | **245.62** | **263 SPACES** |
| | | | | | |
| SHARED PARKING STUDY RESULTS | | | | -30 | |
| | | | | | |
| **REDUCED TOTAL** | | | | **215.62** | **263 SPACES** |
| | | | | | |

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**SITE TABULATIONS**

# SCHOOLHOUSE COMMONS

ZONING MAP AMENDMENT

TOWN OF HAYMARKET PRINCE WILLIAM COUNTY, VIRGINIA

REZ2025-

SCALE: H) AS NOTED
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SHEET NO.
8 OF 10

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Traffic Impact Study

# Schoolhouse Commons

Town of Haymarket, Virginia

**August 19, 2025**

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# Executive Summary

## *Purpose of Report and Study Objectives*

This report presents the findings of Traffic Impact Analysis conducted for the proposed Schoolhouse Commons development in the Town of Haymarket, Virginia. This study was developed in accordance with Virginia Department of Transportation ("VDOT") and the Town of Haymarket guidelines.

The document is prepared in accordance with best professional practice and standards that assess the impact of a proposed development on the transportation system and recommends improvements to lessen or negate those impacts. Traffic Impact Analysis involves the evaluation of anticipated roadway conditions with and without the proposed development and recommend transportation improvements to offset both the impacts of the increase in future traffic volumes and the changes in traffic operations due to the development. The analysis assists public officials and developers to balance interrelations between efficient traffic movements with necessary lane access.

## *Site Location and Study Area*

The site is located in the Town of Haymarket. The vehicular study area has six (6) existing intersections, five (5) of which are located along Washington St (Rte. 55) and one (1) located along Bleight Dr.

## *Description of Proposed Development*

The planned development program for the site includes mix uses with approximately 26,000 SF of existing commercial/office land uses to remain and about 61 single family attached (townhome) units. Please note, for the purposes of the operational analysis, the development program analyzed 65 units to evaluate the most conservative scenario.

The site is currently occupied by approximately 32,000 SF of existing commercial uses. A portion of the commercial uses, approximately 5,900 SF of office space, are planned to be removed with this application while the remaining 26,000 SF is anticipated remain. The development currently has two access points (one entrance only and one exit only entrance) along Washington St. The current plan for the development proposes one full access entrance (inbound and outbound) along Washington St. The development is also planning a site access by constructing a fourth leg to the intersection of Bleight Dr & Dogwood Park Ln.

## *Principal Findings, Conclusions, and Proposed Mitigations*

Discussions regarding the study assumptions and relevant background information were held with the Town of Haymarket ("The Town") and VDOT staff during a June 13, 2025, scoping meeting. A finalized scope was agreed upon and signed by VDOT and PWCDOT on June 20, 2025.

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

## *Analysis Components*

- Existing counts, dated Tuesday June 3, 2025, were collected while schools were in session to reflect typical traffic patterns, and serve as the basis for this study. Existing traffic counts were conducted at the existing intersections on Saturday June,14, 2025. Please note there was approximately 4,700 SF of vacant commercial and church space at the time of collected counts, had the building been fully leased, the traffic volumes for the existing conditions would be slightly higher than presented in the report.
- As determined based on discussions at the scoping meeting, an inherent growth rate of 2% (compounded annually) for the period 2025-2029 has been applied to all through movements along Washington St at all intersections.
- The site is anticipated to generate approximately 26 total trips during the AM peak hour, 27 total trips during the PM peak hour, 444 total daily trips on a typical weekday and 296 Saturday daily trips.

- One (1) identified background development was included in the study – 6700 Bleight Drive – Which will consist of approximately 11 single family attached units.
- The scenarios to be included in this study are Existing Conditions (2025), Future without Development (2029), Future with Development (2029).
- The existing access to the site is served via two (2) intersections, one entrance and one egress. The development proposes to convert the existing entrance only driveway to a full access (inbound and outbound) driveway. The development also proposes to remove the existing exit only driveway as the primary bidirectional entrance would reduce driver confusion and better meet driver expectation. The proposed development is also planning to construct a fourth leg to the intersection of Bleight Dr & Dogwood Park Ln.

## *Conclusion*

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

## *Infrastructure*

- There is one (1) identified infrastructure change with this proposed development. Construction of a fourth leg to the intersection of Bleight Dr & Dogwood Park Ln, will serve as another site access for the proposed development. No additional background infrastructure changes were identified and agreed upon in the scope.

## *Analysis Results*

**Analysis Terms:**

- Level of Service (LOS) is based upon the traffic volume present in each lane on the roadway, the capacity of each lane at the intersection and the delay (in seconds) associated with each directional movement. This evaluation is consistent in all traffic analysis scenarios. Please refer to definitions of Level of Service in Appendix J.
- The 95$^{th}$ percentile queue length refers to the queue length within which 95% of all observed queues are contained during a specific analysis period. This evaluation is consistent in all traffic analysis scenarios.

**Existing Conditions (2025)**:

- All approaches and the overall intersections operate at an acceptable level of service.
- All the anticipated 95$^{th}$ percentile queues are contained in the available storage lane lengths for all the study intersections.

**Total Future without Development (2029)**:

- All approaches and the overall intersections operate at an acceptable level of service.
- All the anticipated 95$^{th}$ percentile queues are contained in the available storage length for all the study intersections.

**Total Future with Development (2029):**

The results of the Future with Development Conditions (2029) analysis scenario are as follows:

- All the approaches and the overall intersection operate at acceptable levels of service for all of the study intersections.
- All the anticipated 95$^{th}$ percentile queues are contained in the available storage length for all the study intersections.
- Please note that while all study intersections and approaches operate at acceptable levels of service, the following lane group was observed to experience larger delay:
    - Intersection #2 Washington St (Rte. 55) & Greenhill Crossing Dr/Site Access #1 – Northbound shared left/thru lane operates at LOS E in the PM peak hour. The overall approach operates acceptably.
    - The 95$^{th}$ percentile queue for the northbound shared left/thru lane is approximately 23 ft (less than one car). Therefore, the queues do not extend to the downstream driveways that serve the residential community.

- The reconfigurations and mitigations for this analysis scenario are as follows:
    - The existing primary driveway entrance (Access #1) will be reconfigured to a full-access driveway (inbound & outbound).
    - The existing exit-only driveway (Access #2) is planned to be closed to address the existing safety issues due to the proximity to the driveway to the east.
    - The addition of a westbound right turn lane at Intersection #2 (Washington St (Rte. 55) & Greenhill Crossing Dr/Site Access) is a proposed mitigation. Please note only a right turn taper is warranted using VDOT Road Design Manual (RDM) Turn Lane Assessment.
- In addition to the mitigation implemented for the Future Conditions with Development (2029) scenario, an alternative scenario was provided that reviewed the capacity of the adjacent roundabout to understand the capacity if existing vehicles were to reroute to utilize the intersection. The analysis confirms that the roundabout operates acceptably if additional vehicles were to use it.

### *Overall Conclusion*

Based on the capacity and queueing analysis results, the proposed development will not have a significant impact to the surrounding transportation and roadway network, assuming that all designs planned with the subject proposal, and mitigations discussed in this report are implemented.

# Introduction

This report presents the findings of Traffic Impact Analysis conducted for the proposed Schoolhouse Commons development in the Town of Haymarket, Virginia.

The site is currently occupied with approximately 32,000 SF of commercial and office space. The planned development program for the site includes approximately 26,000 SF of commercial/office land uses and about 61 single family attached (townhome) units. Please note for the purposes of the operational analysis, the development program analyzed 65 townhome units to evaluate the most conservative scenario. Also note, a portion of the site is currently occupied by existing commercial uses. A portion of the commercial uses, approximately 5,900 SF of office space, are planned to be removed with this application while the remaining 26,000 SF is anticipated remain. The projected build-out date for the site is assumed to be 2029.

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

- A scoping meeting was held on Friday, June 13, 2025, with VDOT and the Town of Haymarket “The Town” staff to discuss the parameters of this study as well as any relevant background information. A copy of the signed scoping document is included in Appendix A.
- Existing conditions were observed in the field to verify roadway geometry, pedestrian and bicycle infrastructure, and traffic flow characteristics.
- Existing traffic counts conducted at the existing intersections on Tuesday, June 3, 2025, during the weekday morning and weekday afternoon peak periods were used as baseline counts. Existing traffic counts were conducted at the existing intersections on Saturday June,14, 2025. Please note there was approximately 4,700 SF of vacant commercial and church space at the time of collected counts, had the building been fully leased, the traffic volumes for the existing conditions would be slightly higher than presented in the report.
- The Future Conditions without Development (2029) scenario was projected based on the existing traffic volumes and an inherent growth rate to account for regional growth on the roadway network. There was one (1) identified background development was included in the study – 6700 Bleight Drive – Which will consist of approximately 11 single family attached units.
- Proposed site traffic volumes were derived based on the methodology outlined in the Institute of Transportation Engineers’ (ITE) 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 Future Conditions with Development (2029) scenario was projected based on the existing traffic volumes, regional growth, background developments, and plans for the proposed development.
- Intersection capacity and queueing analyses were performed for the identified study intersections for the Existing Conditions (2025), Future without Development (2029), and Future with Development (2029) during the weekday morning (AM), weekday afternoon (PM) peak hours, and weekend afternoon (SAT) peak hour.
- Intersection capacity and queuing analyses were performed using Synchro, version 11, with results based on the Federal Highway Administration’s (FHWA) Highway Capacity Manual (HCM) 6 and (HCM) 2000 methodology and following VDOT’s Traffic Operations and Safety Manual (TOSAM).

Sources of data for this study include information provided by VDOT, PWCDOT, and the office files and field reconnaissance efforts of Gorove Slade.

## *Description of the Existing Site*

### *Site Location*

The site is located in the Town of Haymarket. The site is generally bounded by Alexandra's Keep Ln to the north, Washington St (Rte. 55) to the south, an existing residential community and office space to the east, and Bleight Dr to the west. The development proposes to convert the existing entrance only driveway to a full access (inbound and outbound) driveway. The development also proposes to remove the existing exit-only driveway as the primary bidirectional entrance would reduce driver confusion and better meet driver expectations. The development is also planning to construct a fourth leg to the intersection of Bleight Dr & Dogwood Park Ln. The site entrances for the development are shown on Figure 1 below.

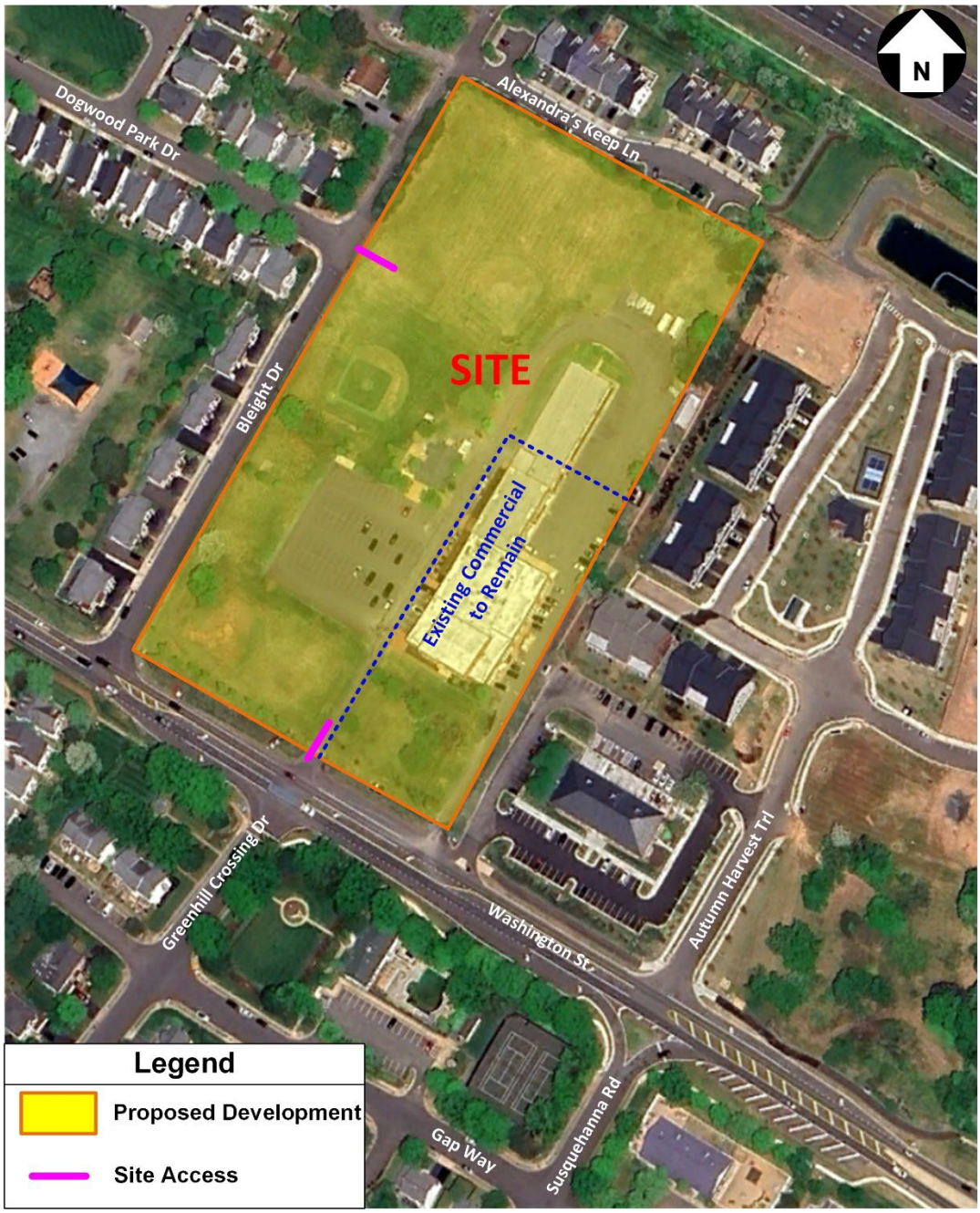



**Figure 1: Site Location & Access**

## *Location within Jurisdiction and Region*

The site is located in the northeast quadrant of the intersection of Washington St (Rte. 55) & Bleight Dr and is approximately 0.9 miles from the intersection of Washington St (Rte. 55) & James Madison Hwy (US-15). The site is located approximately 1.0 mile southeast of the interchange of James Madison Hwy (US-15) and I-66 shown in Figure 3. The site is also located approximately 1.3 miles northwest of the interchange of John Marshall Hwy (Rte. 55) and Lee Hwy (US-29).

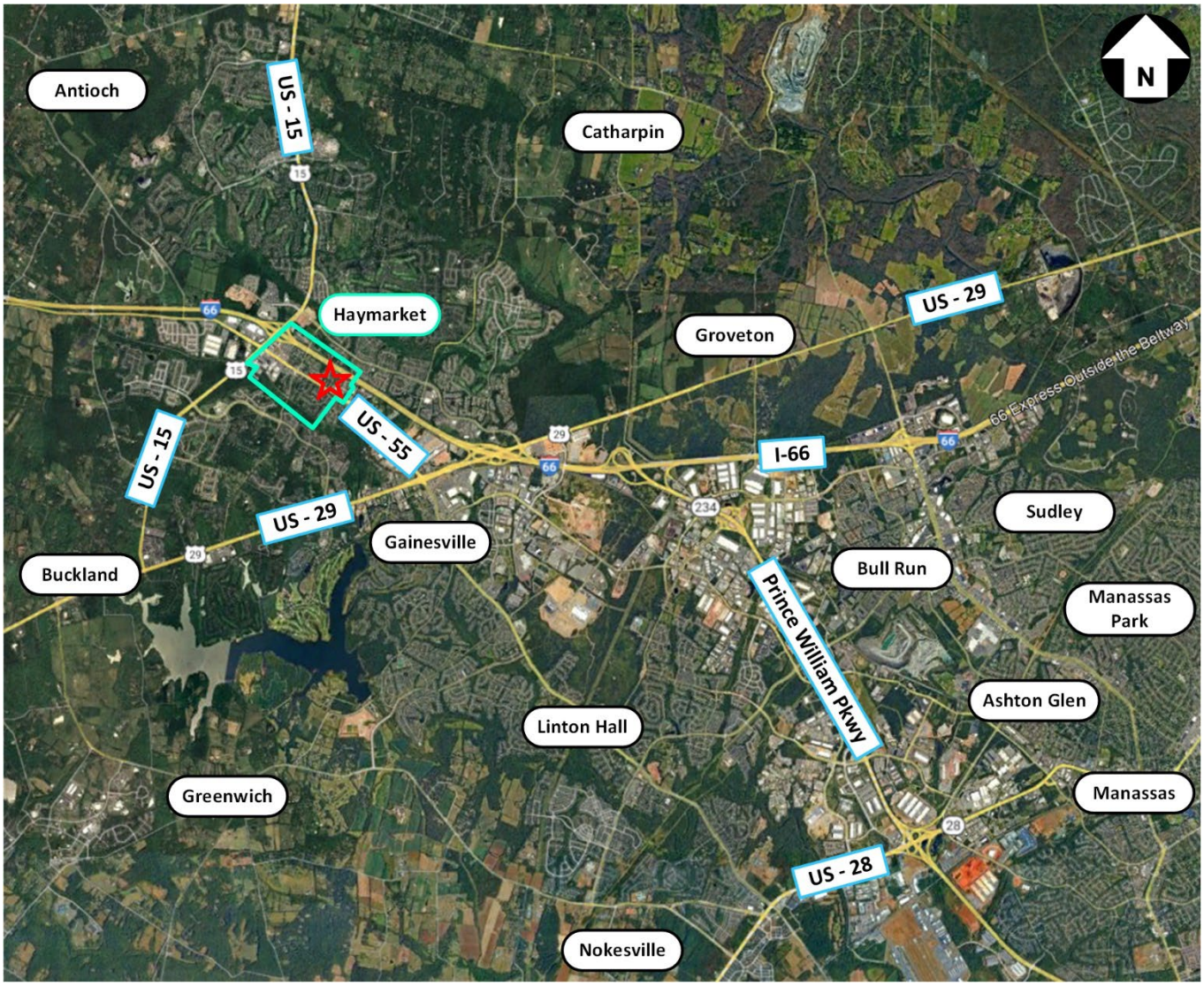



**Figure 2: Regional Location**

### *Existing Zoning and Long-Range Land-Use*

The existing zoning for the site is Town Center (B-1) as shown on Figure 3 and the Town of Haymarket's Planned Use designation for the site is Public as shown on Figure 4.

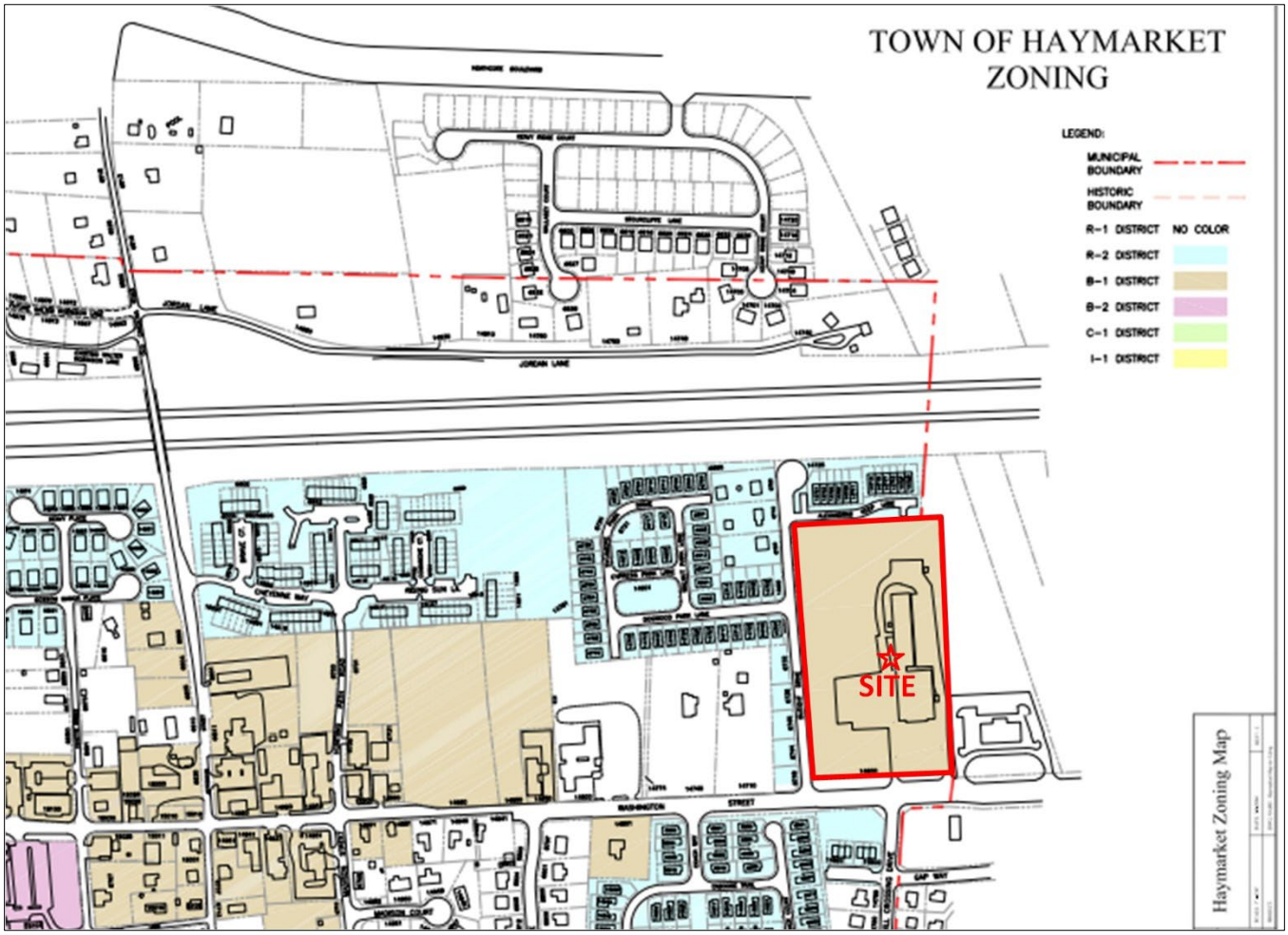



**Figure 3: Zoning Map**
(Source: Town of Haymarket Zoning)

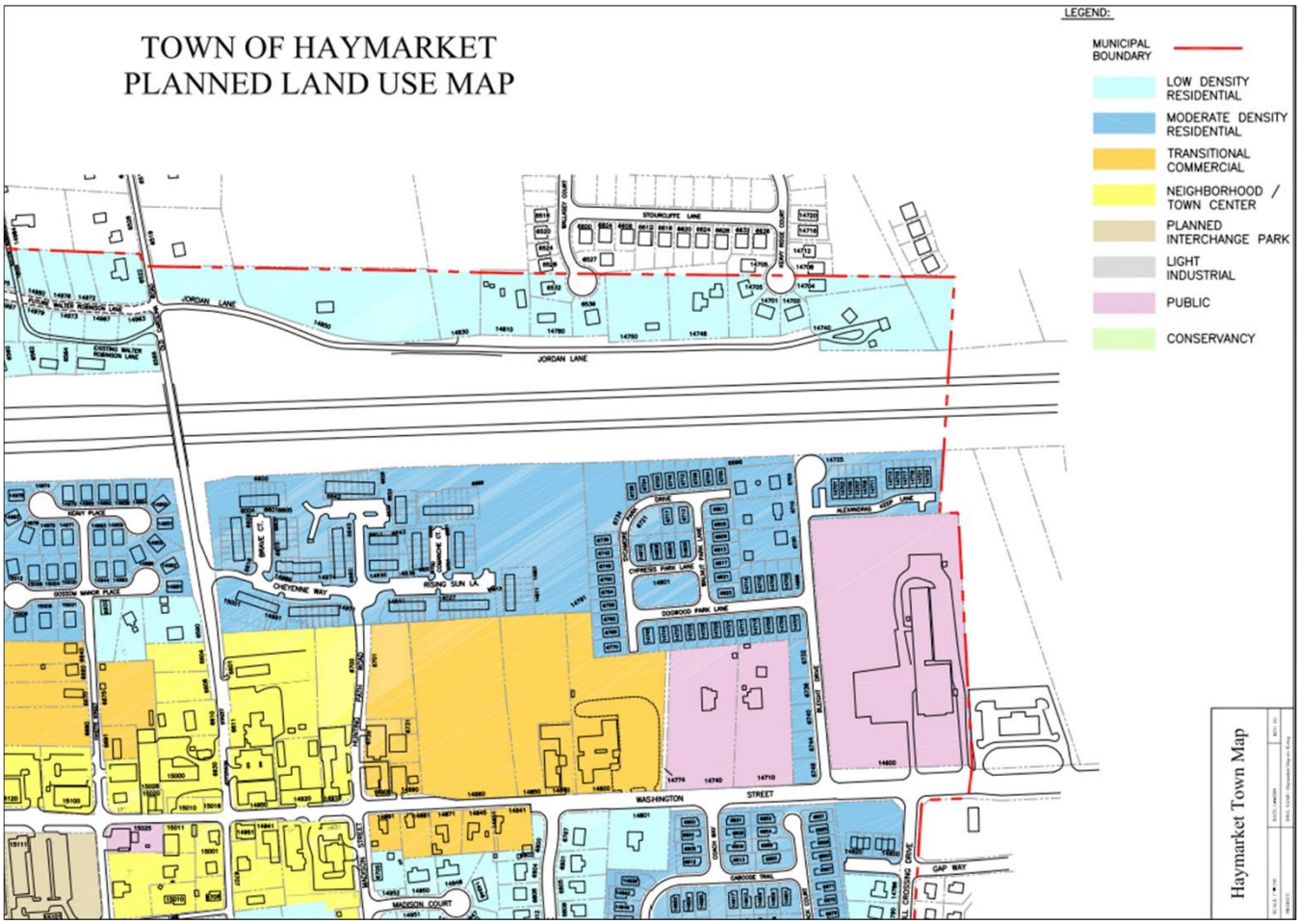



**Figure 4: Planned Use Map**
(Source: Town of Haymarket Planning Commission)

## *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 the Town guidance. The vehicular study area includes the following six (6) existing intersections:

**Intersection #1:** Washington St (Rte. 55) & Bleight Dr (existing full movement, two-way stop controlled);

**Intersection #2:** Washington St (Rte. 55) & Greenhill Crossing Dr/Site Access #1 (existing full movement on south side, one way entrance on north side, two-way stop controlled);

**Intersection #3:** Washington St (Rte. 55) & Site Access #2 (existing two-way stop controlled, one way exit);

**Intersection #4:** Washington St (Rte. 55) & Commercial Access (existing Right-In/Right-Out (RIRO));

**Intersection #5:** Washington St (Rte. 55) & Autumn Harvest Trl/Susquehanna Rd (existing partial movement, two-way stop controlled);

**Intersection #6:** Bleight Dr & Dogwood Park Dr/Future Site Access #3 (future site access proposed as fourth leg to existing intersection).

An aerial of the study intersections is provided in Figure 5.

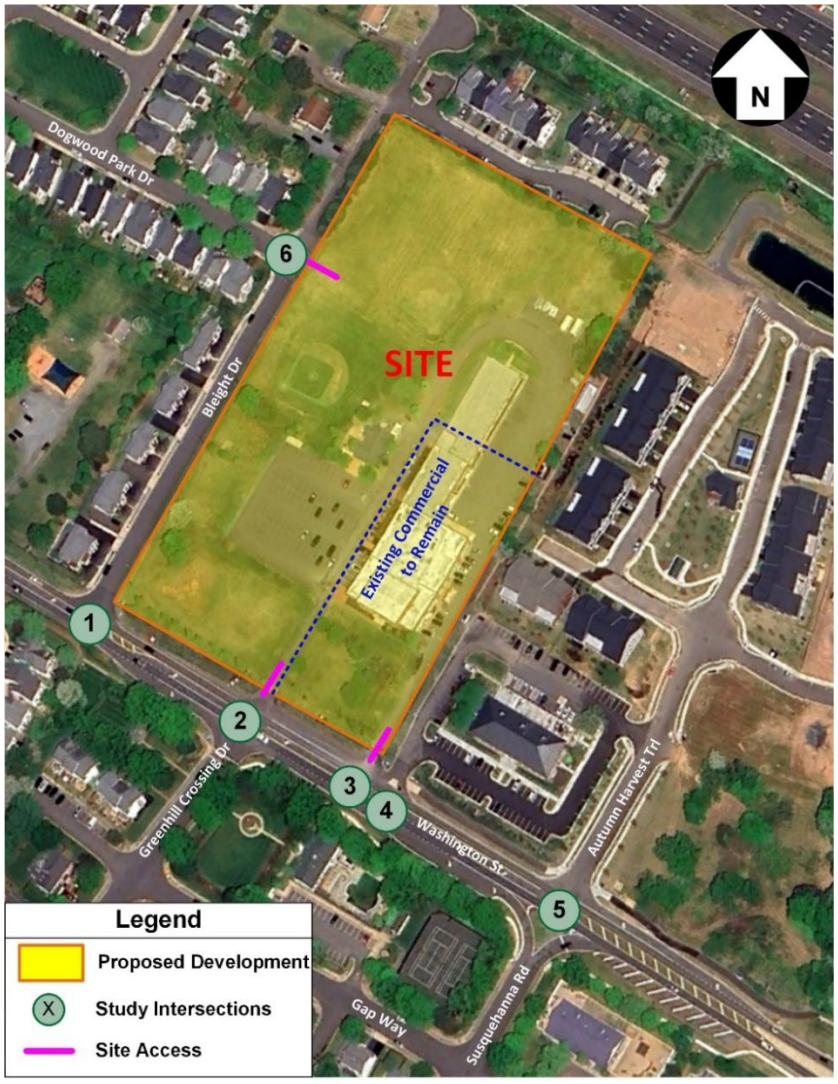



**Figure 5: Aerial of Study Boundaries (Study Intersections)**

### *Existing Roadway Network*

Washington St (Rte. 55) is the major road for this transportation study and the roadway information is displayed in Table 1 below.

**Table 1: Washington St (Rte. 55) Roadway Information**

| Roadway | RTE # | VDOT Classification | Posted Speed Limit (mph) | AADT (vpd) | k-factor |
|---|---|---|---|---|---|
| Washington St | VA 55 | Major Collector | 25 | 13,000 | 8.9% |

*Source: 2023 VDOT Published AADT Traffic Data*

### *Planned Future Transportation Improvements*

#### *Roadway Improvements*

There were no roadway improvements identified near the intersections for this transportation study. The roadway configuration for Washington St is expected to remain the same in all analyzed scenarios.

## Analysis of Existing Conditions (2025)

In order to project the future traffic conditions, it was necessary to create a baseline "existing" scenario. For the purposes of this report and as agreed to by VDOT and Town staff, 2025 roadway conditions were considered to be as "existing."

### *Existing Roadway Safety Assessment*

Historical crash data was obtained from VDOT's Crash Analysis Tool for the existing study intersections for a five-year period between January 2020 through December 2024. The summary of the reported crashes at the specified intersections are shown in Table 2.

The crash data by intersections is provided in Appendix I of this document.

**Table 2: Historical Crash Data Summary (January 2020- December 2024)**

| | Intersection | Approximate ADT | PDO | IC | Fatality | Total | Crash Rate (Per MEV) |
|---|---|---|---|---|---|---|---|
| **#2** | Washington St (Rte. 55) at Greenhill Crossing Dr/Site Entrance | 13,000 | 3 | 0 | 0 | 3 | 0.13 |

**Note the same ADT for each intersection was assumed for all years.*

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.

$$Rate_{intersection} = \frac{1{,}000{,}000 * \#\ of\ Crashes}{\#\ of\ Years * 365\ \left(\frac{days}{year}\right) * ADT_{approach}}$$

Typically, 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.

**Table 3: VDOT Crash Data at Washington St (Rte. 55) & Greenhill Crossing Dr/Site Entrance (Intersection #2)**

| Intersection Crash Analysis | Crash Data for the Intersection of Washington St (Rte. 55) and Greenhill Crossing Dr/Site Entrance (January 2020 - December 2024) | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2020 | 2021 | 2022 | 2023 | 2024 | 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 | | 2 | | 3 | 100.00% |
| ***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 | | 1 | | | | 1 | 33.33% |
| Angle Collision | | | | 2 | | 2 | 66.67% |
| 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) | | | | 1 | | 1 | 33.33% |
| 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)* | | | | *2* | | *2* | *66.67%* |
| *PM Peak Period (3 - 7 PM)* | | *1* | | | | *1* | *33.33%* |
| *Off Peak - Nighttime (7 PM - 6 AM)* | | | | | | | *0.00%* |
| ***CALCULATED CRASH RATE****** | | | | | | ***0.13*** | ***Crashes per MEV*** |

* It should be noted that an intersection radius of 150 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").

****Crash rate based on an approximated 12400 ADT.

As shown in Table 3 above, Intersection #2 had 3 reported crashes over the five-year period. The crash report for this intersection shows 100% of the crashes were classified as PDO (Property Damage Only). Average Daily Traffic (ADT) was reported at this intersection based on existing collected counts (2025). The intersection has a calculated crash rate of 0.13 crashes per MEV. Therefore, this intersection is not considered a high crash location.

**There were no reported crashes within a 150-foot radius of the other study intersections of this report.**

Additionally, study intersection #3 is planned to be removed in the future condition with the proposed development as the existing spacing between the access and the commercial driveway does not meet the VDOT access management standards.

### *Existing Traffic Volumes*

In order to determine the weekday morning (AM) and weekday afternoon (PM) peak hour turning movement traffic volumes, traffic counts were conducted at the following study intersections on Tuesday, June 3, 2025, during the weekday morning, weekday afternoon peak periods, and weekend afternoon (SAT) peak period. Please note there was approximately 4,700 SF of vacant commercial and church space at the time of collected counts, had the building been fully leased, the traffic volumes for the existing conditions would be slightly higher than presented in the report.

The system peak hours for the six (6) study intersections were determined to be:

- Weekday Morning (AM) Peak Hour: 8:00 AM to 9:00 AM
- Weekday Afternoon (PM) Peak Hour: 4:30 PM to 5:30 PM
- Saturday (SAT) Peak Hour: 5:45 PM to 6:45 PM

The 2025 existing road network lane configuration is presented in Figure 6. The 2025 existing conditions peak hour traffic volumes for the six (6) existing intersections within the study area are illustrated in Figure 7. The average daily traffic (“ADT”) volumes, depicted in this figure and in subsequent volume graphics, were calculated based on the PM peak hour turning movement volumes and multiplied by the VDOT historical k-factors from 2023. If the historic k-factor data was not available for a given roadway or roadway segment, then a k-factor of 0.10 was assumed.

Please note all vehicle maneuvers and volumes were balanced throughout the six (6) study intersections. The raw data for the existing turning count movements are provided in Appendix B.

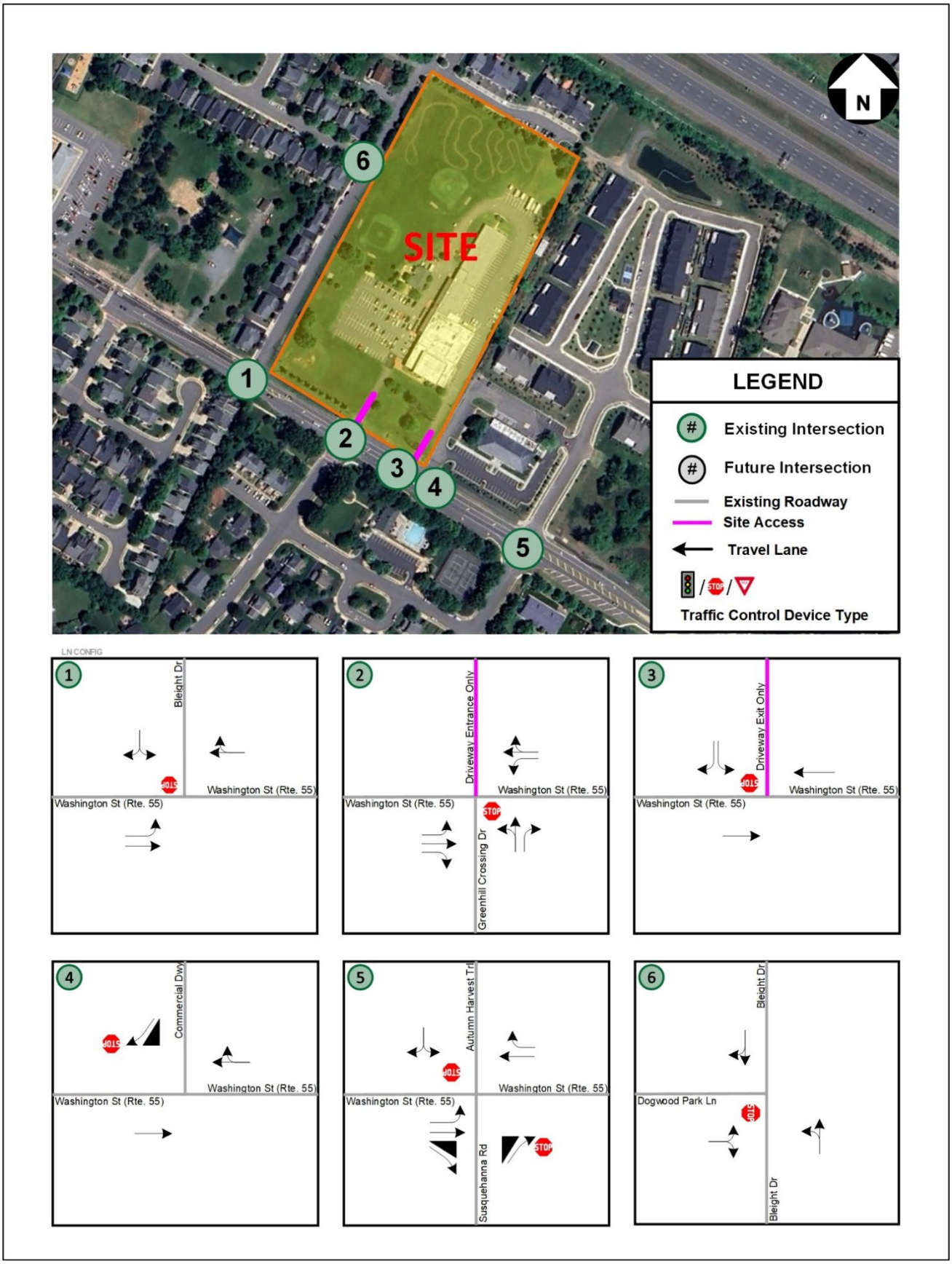



**Figure 6: 2025 Existing Conditions – Roadway Network Geometric Configuration and Traffic Control Devices**

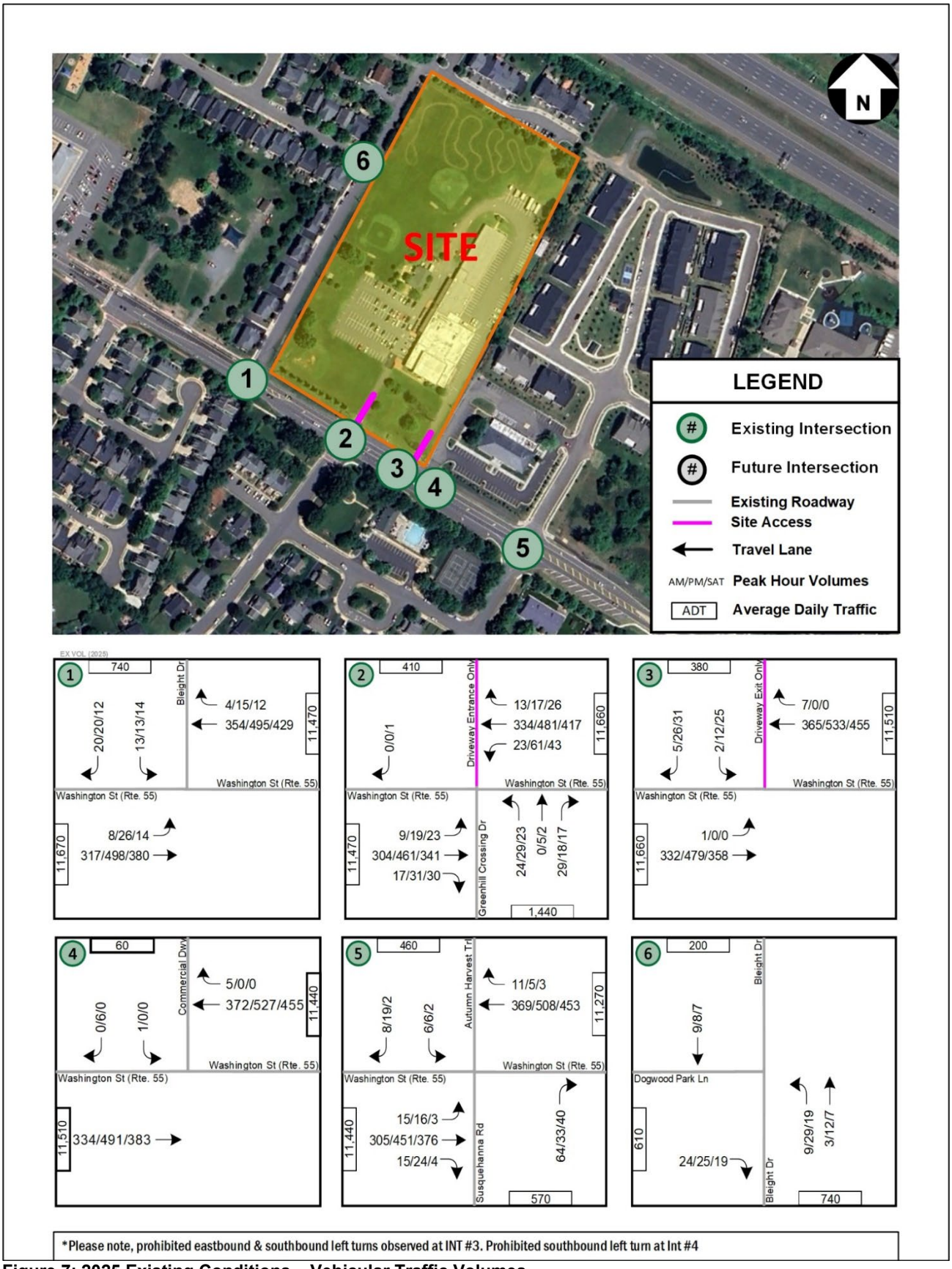



**Figure 7: 2025 Existing Conditions – Vehicular Traffic Volumes**

It should be noted that Figure 7 above illustrates the peak hour volumes by movement. The existing lane configuration for the study intersections should be referred from Figure 6. Please note that prohibited movements at Intersection #2 and #3 were observed as shown.

### *Existing Intersection Capacity and Queueing Analysis*

Intersection capacity and queuing analyses were performed for the Existing Conditions (2025) scenario at the study area intersections during AM, PM, and SAT peak hours. *Synchro,* version 11, was used to analyze the study intersections with results based on the Federal Highway Administration's (FHWA) Highway Capacity Manual[1] ("HCM") and analysis guidelines provided in VDOT's Traffic Operations and Safety Analysis Manual ("TOSAM"). The analysis herein includes level of service ("LOS"), delay, and queue length comparisons for the turning movements analyzed.

Signal timings and *Synchro* files were obtained from VDOT and were utilized as 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") were based on the traffic count and utilized on a by-intersection basis; PHF in the range of 0.85 to 1.00 were used for the existing scenario, consistent with VDOT analysis guidelines. Heavy vehicle percentages ("HV%") were based on existing traffic count data for each individual lane group.

Per the scoping meeting with VDOT and the Town staff, it would be considered acceptable and/or desirable to achieve an approach LOS D or better for traffic operations using HCM 6$^{th}$ edition methodology and HCM 2000 where applicable. The results of the intersection capacity analyses from *Synchro* are presented in Table 4 and graphically in Figure 8. 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 F and E are displayed in red.

The 95$^{th}$ percentile queues were also 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 description of different LOS and delay are included in Appendix J. The detailed analysis worksheets of 2025 Existing Conditions are contained in Appendix C.

**Table 4: Existing Conditions (2025) – Intersection Capacity and Queuing Analysis Results**

| No. | Intersection (Movement) | Effective Storage | AM Peak Hour | | | PM Peak Hour | | | SAT Peak Hour | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | LOS | Delay (sec/veh) | 95th % Queue (ft.) | LOS | Delay (sec/veh) | 95th % Queue (ft.) | LOS | Delay (sec/veh) | 95th % Queue (ft.) |
| | | | Synchro | | | Synchro | | | Synchro | | |
| 1 | **Washington St (Rte. 55) (E/W) & Bleight Dr (N/S) (TWSC)** | | | | | | | | | | |
| | ***Eastbound Approach*** | | | | | | | | | | |
| | Eastbound Left | 160 | A | 0.0 | 0 | A | 8.6 | 3 | A | 8.4 | 0 |
| | ***Southbound Approach*** | | ***B*** | ***13.3*** | | ***C*** | ***15.8*** | | ***C*** | ***15.5*** | |
| | Southbound Left/Right | | B | 13.3 | 8 | C | 15.8 | 8 | C | 15.5 | 8 |
| 2 | **Washington St (Rte. 55) (E/W) & Greenhill Crossing Dr/Driveway Entrance Only (N/S) (TWSC)** | | | | | | | | | | |
| | ***Eastbound Approach*** | | | | | | | | | | |
| | Eastbound Left | 145 | A | 8.1 | 0 | A | 8.4 | 3 | A | 8.5 | 3 |
| | ***Westbound Approach*** | | | | | | | | | | |
| | Westbound Left | 195 | A | 8.2 | 3 | A | 8.6 | 5 | A | 8.2 | 3 |
| | ***Northbound Approach*** | | ***B*** | ***13.4*** | | ***C*** | ***20.9*** | | ***C*** | ***16.5*** | |
| | Northbound Left/Thru | 175 | C | 17.0 | 8 | D | 26.1 | 15 | C | 20.6 | 10 |
| | Northbound Right | 175 | B | 10.5 | 5 | B | 11.2 | 3 | B | 10.5 | 3 |
| 3 | **Washington St (Rte. 55) (E/W) & Driveway Exit Only (N/S) (TWSC)** | | | | | | | | | | |
| | ***Eastbound Approach*** | | | | | | | | | | |
| | Eastbound Left | | A | 8.2 | 0 | -- | -- | -- | -- | -- | -- |
| | ***Southbound Approach*** | | ***B*** | ***11.1*** | | ***B*** | ***12.1*** | | ***B*** | ***12.0*** | |
| | Southbound Left | | B | 13.7 | 0 | C | 16.3 | 3 | B | 14.5 | 5 |
| | Southbound Right | | B | 10.0 | 0 | B | 10.1 | 3 | A | 9.9 | 3 |
| 4 | **Washington St (Rte. 55) (E/W) & Commercial RIRO (N/S) (TWSC)** | | | | | | | | | | |
| | ***Southbound Approach*** | | ***A*** | ***0.0*** | | ***B*** | ***11.7*** | | ***A*** | ***0.0*** | |
| | Southbound Left/Right | | A | 0.0 | 0 | B | 11.7 | 0 | A | 0.0 | 0 |
| 5 | **Washington St (Rte. 55) (E/W) & Susquehanna Rd/Autumn Harvest Trl (N/S) (TWSC)** | | | | | | | | | | |
| | ***Eastbound Approach*** | | | | | | | | | | |
| | Eastbound Left | 230 | A | 8.3 | 0 | A | 8.6 | 0 | A | 8.3 | 0 |
| | ***Northbound Approach*** | | ***B*** | ***10.9*** | | ***B*** | ***11.4*** | | ***B*** | ***10.9*** | |
| | Northbound Right | | B | 10.9 | 10 | B | 11.4 | 5 | B | 10.9 | 5 |
| | ***Southbound approach*** | | ***C*** | ***15.8*** | | ***B*** | ***14.8*** | | ***C*** | ***15.3*** | |
| | Southbound Left/Right | | C | 15.8 | 3 | B | 14.8 | 5 | C | 15.3 | 0 |
| 6 | **Dogwood Park Ln (E/W) & Bleight Dr (N/S) (TWSC)** | | | | | | | | | | |
| | ***Eastbound Approach*** | | ***A*** | ***8.5*** | | ***A*** | ***8.5*** | | ***A*** | ***8.4*** | |
| | Eastbound Left/Right | | A | 8.5 | 3 | A | 8.5 | 3 | A | 8.4 | 3 |
| | ***Northbound Approach*** | | | | | | | | | | |
| | Northbound Left | | A | 7.3 | 0 | A | 7.3 | 3 | A | 7.3 | 0 |

*NOTES:*

*[1] Effective storage length is based on the storage length plus one-half of the taper length per TOSAM guidelines.*

*[2] Prohibited eastbound left turn observed at INT #3.*

*[3] Prohibited southbound left turns observed at INT #3.*

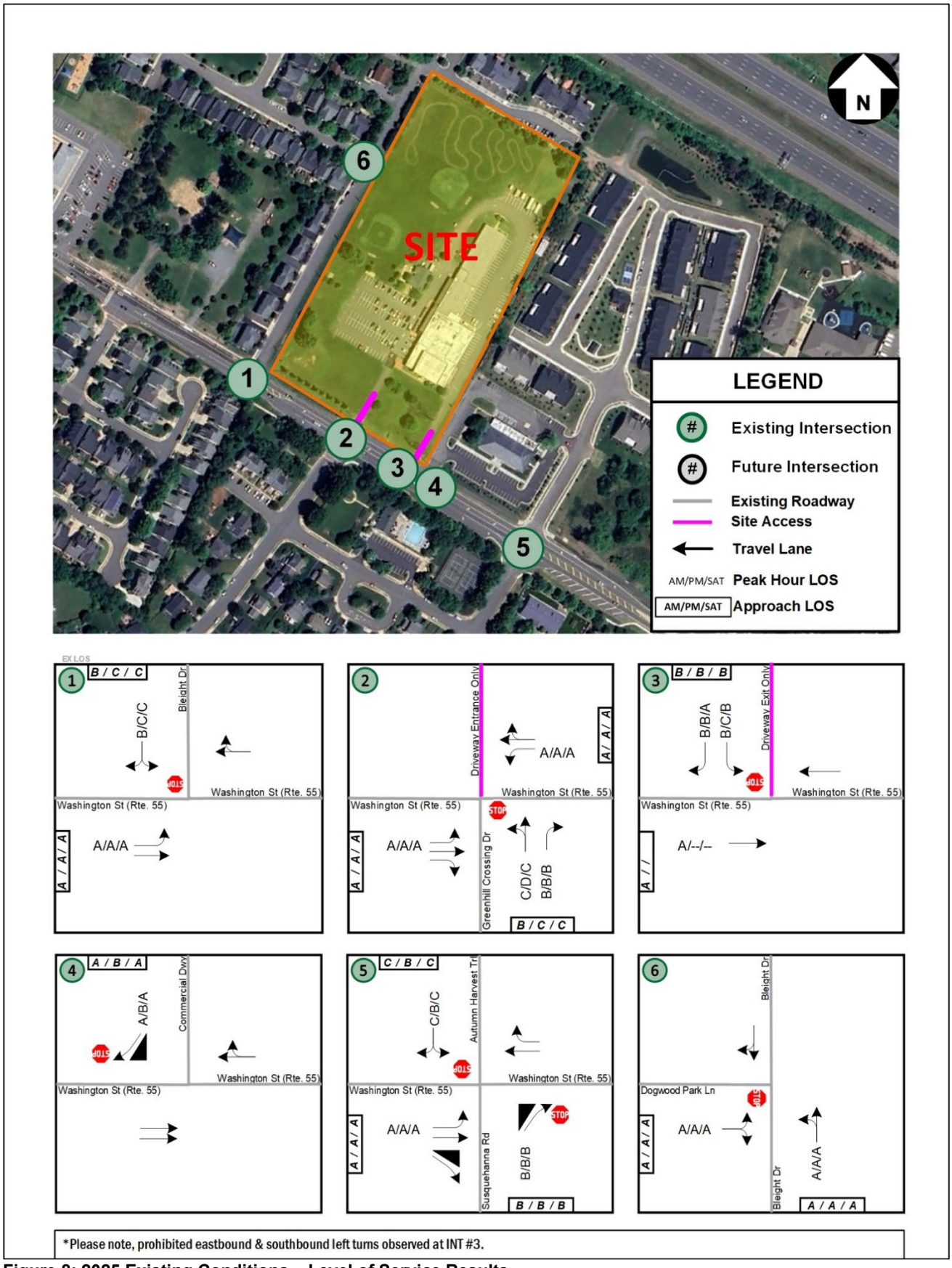



**Figure 8: 2025 Existing Conditions – Level of Service Results**

As mentioned previously, it would be considered acceptable and/or desirable to achieve an approach LOS D or better for traffic operations using HCM 6th edition methodology and HCM 2000 where applicable.

Analysis Terms:

- Level of Service (LOS) is based upon the traffic volume present in each lane on the roadway, the capacity of each lane at the intersection and the delay (in seconds) associated with each directional movement. This evaluation is consistent in all traffic analysis scenarios. Please refer to definitions of Level of Service in Appendix J.
- The 95th percentile queue length refers to the queue length within which 95% of all observed queues are contained during a specific analysis period. This evaluation is consistent in all traffic analysis scenarios.

The results of the Existing Conditions (2025) analysis scenario are as follows:

- All the approaches and the overall intersection operate at acceptable levels of service for all of the study intersections.
- All the anticipated 95th percentile queues are contained in the available storage length for all the study intersections.

# Analysis of Future Conditions without Development 2029

For the purposes of this study, the development is anticipated to be constructed by 2029; this scenario analyzes the future without development conditions for the year 2029.

The derivation of future without development traffic volumes was based on assumptions and parameters discussed with VDOT and the Town during the scoping process for this report. 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 anticipated roadway improvements.

## *Inherent Regional Growth*

The development is anticipated to be completed in 2029. In order to account for increased demand on the traffic network, 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. Historical VDOT AADT data for roadways bounding the site are shown in Table 5.

**Table 5: Historical Regional Growth within Vicinity of the Road Network**

| | | | Published VDOT AADT | | | | |
|---|---|---|---|---|---|---|---|
| **Road Segment:** | **From:** | **To:** | **2019** | **2020** | **2021** | **2022** | **2023** |
| Washington St | Old Carolina Rd | Town of Haymarket Bdry | 11,000 | 7,900 | 9,000 | 9,950 | 13,000 |

*Source: VDOT Published AADT Traffic Data*

As agreed upon in the scope for this study, to account for 2029 future conditions, an inherent growth rate of 2.0%, compounded annually over a four-year period, between 2025 to 2029 (and totaling 8.24% growth of the existing volumes) was applied to the mainline through movements on Washington St (Rte. 55) traveling eastbound and westbound.

The inherent regional growth volumes (for the period between 2025 and 2029) are illustrated in Figure 9.

## *Potential Background Development(s)*

One (1) background development was identified in the scoping meeting for inclusion in this study. The 6700 Bleight Drive background development is anticipated to consist of 11 single-family attached dwelling units. Volumes associated with this development are included in the Total Future without Development (future background) scenario of the analysis. 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 weekday morning (AM), weekday afternoon (PM) peak hours, typical weekday daily trips, and weekend (SAT) peak hour and daily trips. The projected trip generation for the 6700 Bleight Drive development using ITE rates is depicted in below.

**Table 6: 6700 Bleight Drive Site Trips**

| | | | ------ Weekday ------ | | | | | | | ------ Weekend ------ | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Land Use** | **ITE Code** | **Size** | **AM Peak Hour** | | | **PM Peak Hour** | | | **Daily** | **Saturday Peak Hour** | | | **Sat Daily** |
| | | | **In** | **Out** | **Total** | **In** | **Out** | **Total** | **Total** | **In** | **Out** | **Total** | **Total** |
| **Proposed Use** | | | | | | | | | | | | | |
| *Single-Family Attached Housing (RATES) | 215 | 11 DU | 1 | 4 | 5 | 4 | 2 | 6 | 79 | 3 | 3 | 6 | 96 |
| | | **Total Trips** | **1** | **4** | **5** | **4** | **2** | **6** | **79** | **3** | **3** | **6** | **96** |

**ITE equations not applicable for proposed density - ITE rates used in lieu.*

The 6700 Bleight Drive development is anticipated to generate approximately 5 trips in the AM peak hour, 6 trips in the PM peak hour, 79 typical weekday daily trips, 6 Saturday peak hour trips, and about 96 Saturday daily trips.

### *Potential Roadway Improvement(s)*

There were no identified background transportation improvements near the proposed development.

### *Future without Development Lane Configuration*

There were no adjustments to the roadway configuration identified for the future without development (future background) scenario. Therefore, the lane configuration is assumed to be the same as the existing lane configuration illustrated previously in Figure 6.

### *Future without Development (2029) Traffic Volumes*

In order to forecast the future (without development) traffic volumes for the year 2029, the 2025 existing traffic volumes were combined with the inherent growth traffic volumes presented in Figure 9 and the background trips associated with the one (1) background development shown in Figure 10. The trip generation summary tables for background development will be included in Appendix D.

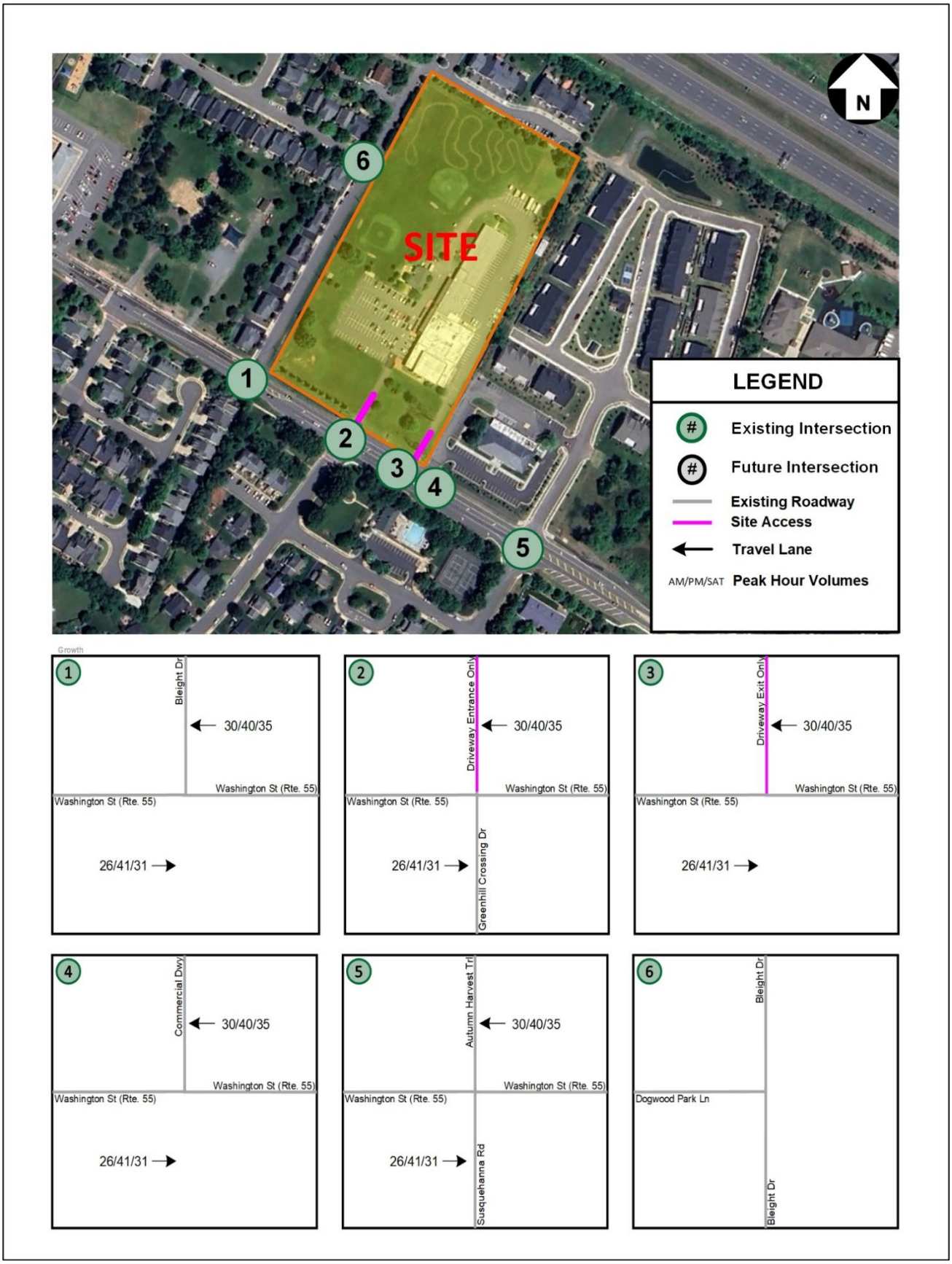



**Figure 9: Projected Inherent Regional Growth Traffic Volumes (2025 to 2029)**

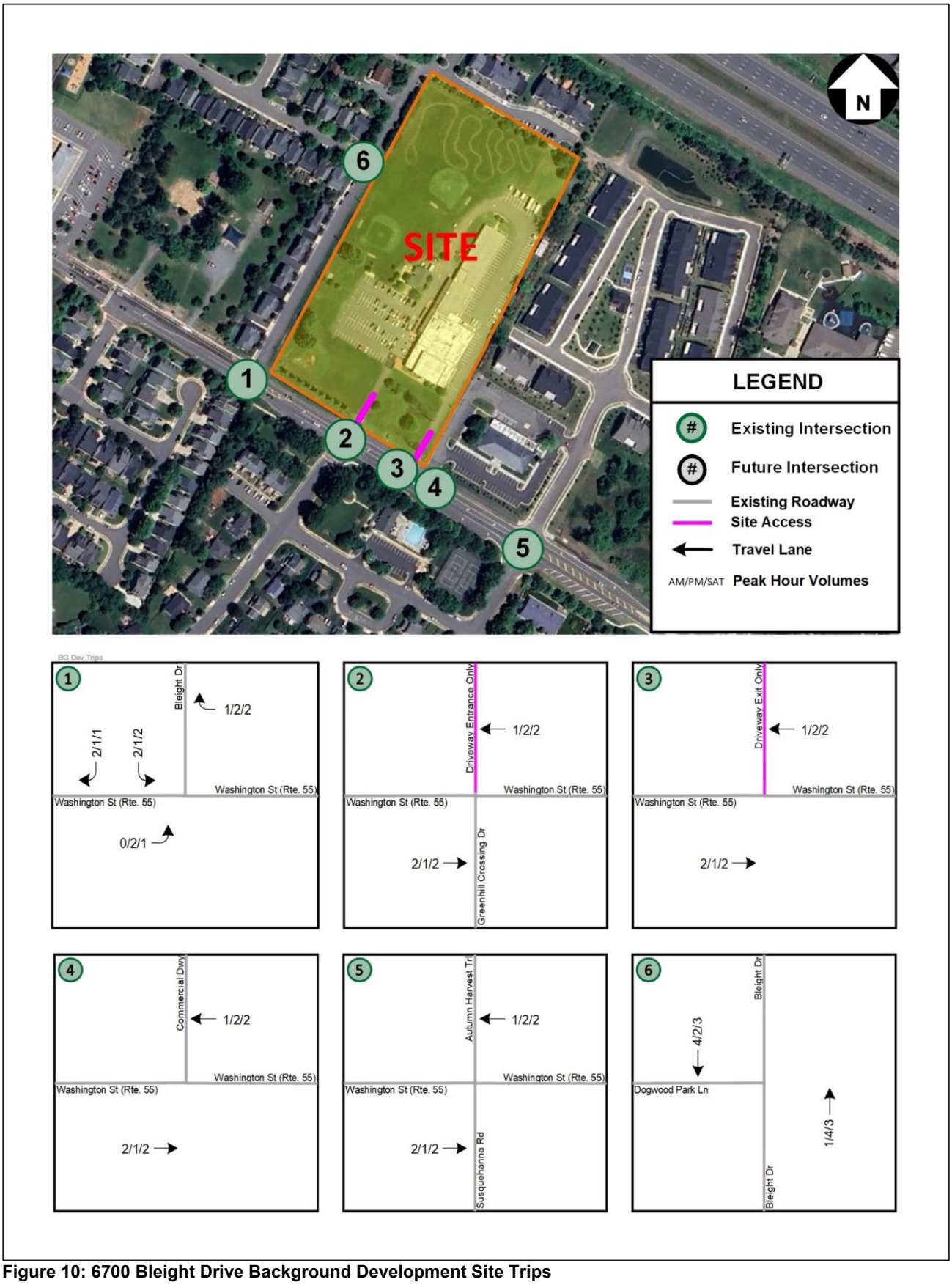



**Figure 10: 6700 Bleight Drive Background Development Site Trips**

The Future without Development (2029) volumes were derived by adding the projected inherent growth and background development site generated trips to the existing volumes and are illustrated in Figure 11.

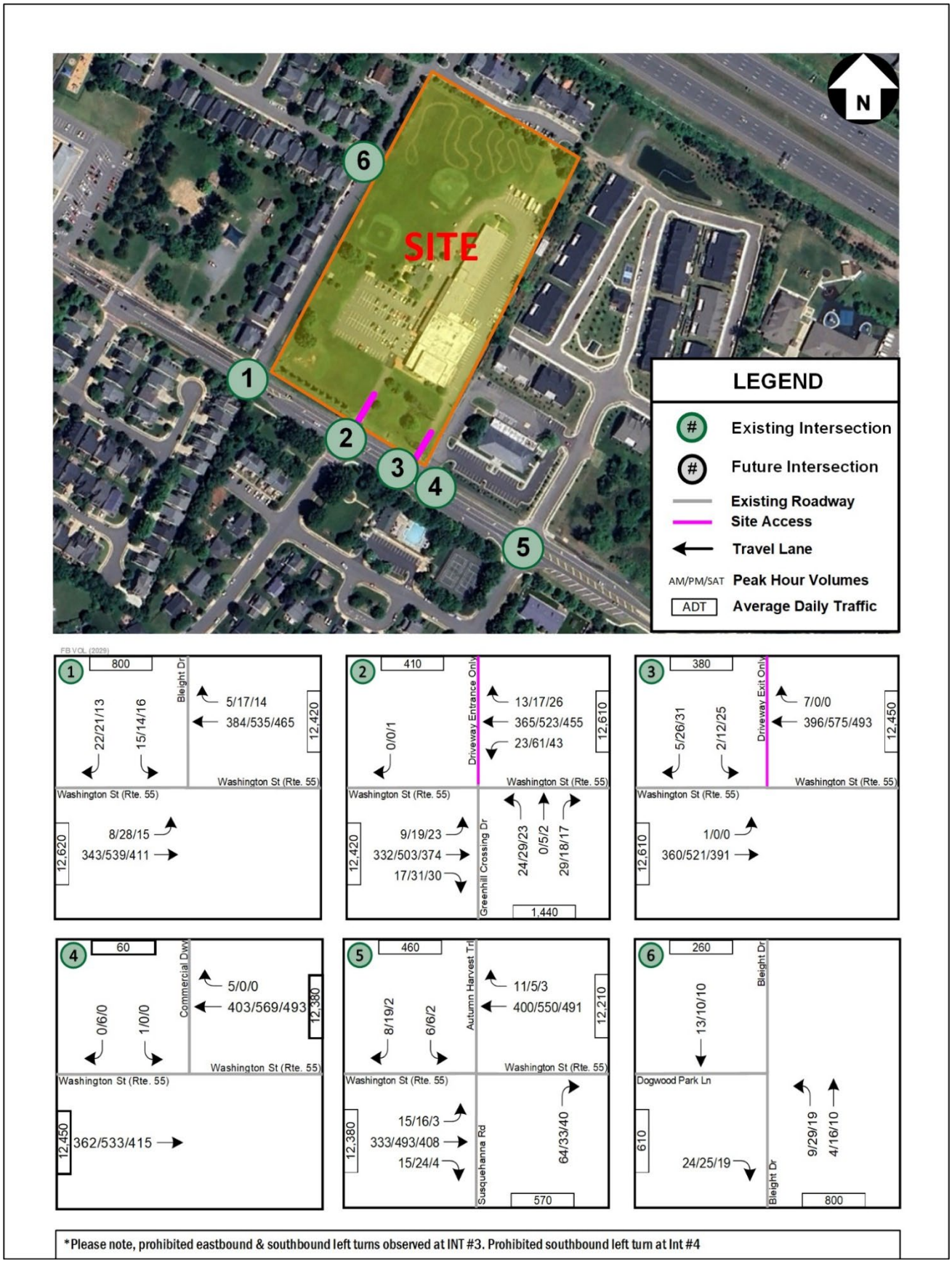



**Figure 11: 2029 Future Conditions without Development – Vehicular Traffic Volumes**

## *Future without Development Intersection Capacity and Queueing Analysis*

Intersection capacity analyses were performed for the 2029 Future Conditions without Development scenario at the study area intersections during the AM, PM, and SAT peak hours. *Synchro,* version 11, was used to analyze the study intersections with results based on the HCM and analysis guidelines provided in VDOT's TOSAM. The analysis herein includes LOS, delay, and queue length comparisons for the turning movements analyzed.

The intersection PHF utilized in the analysis of future conditions was determined based on the existing traffic counts with a minimum of 0.92. The HV% were based on existing traffic count data.

The results of the intersection capacity analyses from *Synchro* are presented in Table 7 and graphically in Figure 12. 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 F and LOS E are displayed in red.

The 95th percentile queues were also determined from *Synchro* and are expressed in feet. The lane groups where the queue lengths exceeded the available storage lengths of future turn lanes are displayed in red.

The detailed analysis worksheets of the 2029 Future Conditions without Development are contained in Appendix E.

**Table 7: Future Conditions without Development (2029) – Intersection Capacity and Queuing Analysis Results**

| No. | Intersection (Movement) | Effective Storage | AM Peak Hour | | | PM Peak Hour | | | SAT Peak Hour | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | LOS | Delay (sec/veh) | 95th % Queue (ft.) | LOS | Delay (sec/veh) | 95th % Queue (ft.) | LOS | Delay (sec/veh) | 95th % Queue (ft.) |
| | | | Synchro | | | Synchro | | | Synchro | | |
| 1 | **Washington St (Rte. 55) (E/W) & Bleight Dr (N/S) (TWSC)** | | | | | | | | | | |
| | ***Eastbound Approach*** | | | | | | | | | | |
| | Eastbound Left | 160 | A | 8.4 | 0 | A | 8.7 | 3 | A | 8.5 | 0 |
| | ***Southbound Approach*** | | ***B*** | ***13.4*** | | ***C*** | ***17.2*** | | ***C*** | ***16.3*** | |
| | Southbound Left/Right | | B | 13.4 | 8 | C | 17.2 | 10 | C | 16.3 | 8 |
| 2 | **Washington St (Rte. 55) (E/W) & Greenhill Crossing Dr/Driveway Entrance Only (N/S) (TWSC)** | | | | | | | | | | |
| | ***Eastbound Approach*** | | | | | | | | | | |
| | Eastbound Left | 145 | A | 8.1 | 0 | A | 8.5 | 3 | A | 8.6 | 3 |
| | ***Westbound Approach*** | | | | | | | | | | |
| | Westbound Left | | A | 8.2 | 3 | A | 8.7 | 5 | A | 8.3 | 3 |
| | ***Northbound Approach*** | | ***B*** | ***13.4*** | | ***C*** | ***23.1*** | | ***C*** | ***17.7*** | |
| | Northbound Left/Thru | 175 | C | 16.9 | 8 | D | 29.2 | 18 | C | 22.4 | 10 |
| | Northbound Right | 175 | B | 10.5 | 3 | B | 11.5 | 3 | B | 10.7 | 3 |
| 3 | **Washington St (Rte. 55) (E/W) & Driveway Exit Only (N/S) (TWSC)** | | | | | | | | | | |
| | ***Eastbound Approach*** | | | | | | | | | | |
| | Eastbound Left | | A | 8.2 | 0 | -- | -- | -- | -- | -- | -- |
| | ***Southbound Approach*** | | ***B*** | ***11.1*** | | ***B*** | ***12.5*** | | ***B*** | ***12.4*** | |
| | Southbound Left | | B | 13.7 | 0 | C | 17.4 | 3 | C | 15.4 | 5 |
| | Southbound Right | | B | 10.0 | 0 | B | 10.3 | 3 | B | 10.0 | 3 |
| 4 | **Washington St (Rte. 55) (E/W) & Commercial RIRO (N/S) (TWSC)** | | | | | | | | | | |
| | ***Southbound Approach*** | | ***A*** | ***0.0*** | | ***B*** | ***12.1*** | | ***A*** | ***0.0*** | |
| | Southbound Right | | A | 0.0 | 0 | B | 12.1 | 0 | A | 0.0 | 0 |
| 5 | **Washington St (Rte. 55) (E/W) & Susquehanna Rd/Autumn Harvest Trl (N/S) (TWSC)** | | | | | | | | | | |
| | ***Eastbound Approach*** | | | | | | | | | | |
| | Eastbound Left | 230 | A | 8.2 | 0 | A | 8.7 | 3 | A | 8.4 | 0 |
| | ***Northbound Approach*** | | ***B*** | ***10.9*** | | ***B*** | ***11.8*** | | ***B*** | ***11.2*** | |
| | Northbound Right | | B | 10.9 | 8 | B | 11.8 | 5 | B | 11.2 | 5 |
| | ***Southbound approach*** | | ***C*** | ***15.7*** | | ***C*** | ***15.9*** | | ***C*** | ***16.4*** | |
| | Southbound Left/Right | | C | 15.7 | 3 | C | 15.9 | 5 | C | 16.4 | 0 |
| 6 | **Dogwood Park Ln (E/W) & Bleight Dr (N/S) (TWSC)** | | | | | | | | | | |
| | ***Eastbound Approach*** | | ***A*** | ***8.5*** | | ***A*** | ***8.5*** | | ***A*** | ***8.4*** | |
| | Eastbound Left/Right | | A | 8.5 | 3 | A | 8.5 | 3 | A | 8.4 | 3 |
| | ***Northbound Approach*** | | | | | | | | | | |
| | Northbound Left | | A | 7.3 | 0 | A | 7.3 | 3 | A | 7.3 | 0 |

*NOTES:*
*[1] Effective storage length is based on the storage length plus one-half of the taper length per TOSAM guidelines.*
*[2] Prohibited eastbound left turn observed at INT #3.*
*[3] Prohibited southbound left turns observed at INT #3.*

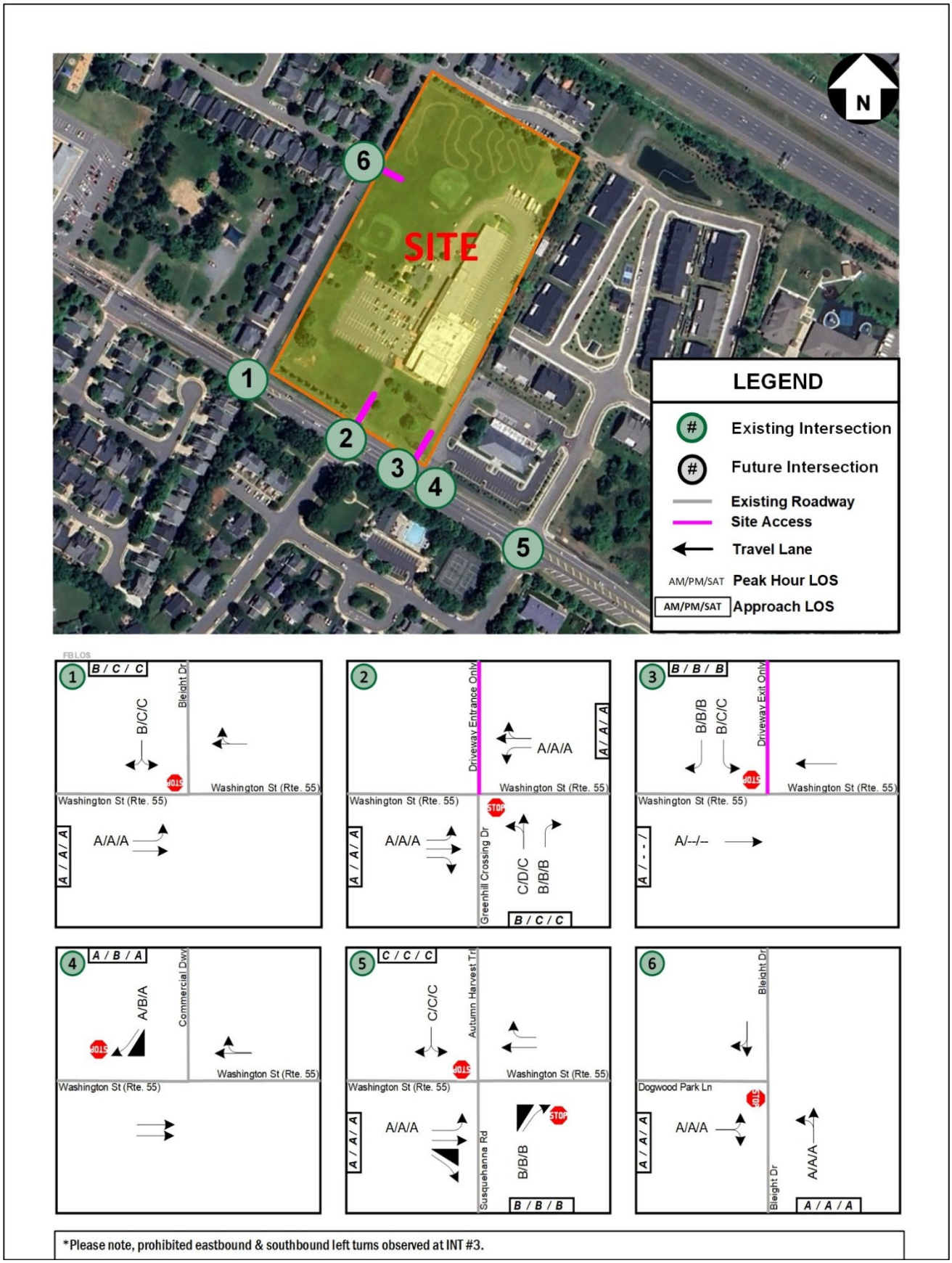



**Figure 12: 2029 Future Conditions without Development – Level of Service Results**

Analysis Terms:

- Level of Service (LOS) is based upon the traffic volume present in each lane on the roadway, the capacity of each lane at the intersection and the delay (in seconds) associated with each directional movement. This evaluation is consistent in all traffic analysis scenarios. Please refer to definitions of Level of Service in Appendix J.
- The 95$^{th}$ percentile queue length refers to the queue length within which 95% of all observed queues are contained during a specific analysis period. This evaluation is consistent in all traffic analysis scenarios.

The results of the Future without Development Conditions (2029) analysis scenario are as follows:

- All the approaches and the overall intersection operate at acceptable levels of service for all of the study intersections.
- All the anticipated 95$^{th}$ percentile queues are contained in the available storage length for all the study intersections.

# Analysis of Future Conditions with Development (2029)

For the purposes of this study, the development is anticipated to be constructed by 2029.

## *Site Description*

The site is located in the Town of Haymarket. The site is generally bounded by Alexandra's Keep Ln to the north, Washington St (Rte. 55) to the south, an existing residential community and office space to the east, and Bleight Dr to the west.

The planned development program for the site includes mix uses with approximately 26,000 SF of commercial/office land uses and about 61 single family attached (townhome) units. Please note, a portion of the site is currently occupied by existing commercial uses. A portion of the commercial uses, approximately 5,900 SF of office space, are planned to be removed with this application while the remaining 26,000 SF is anticipated remain.

## *Proposed Site Access*

The current plan for the development proposes one full access entrance (inbound and outbound) along Washington St at the existing entrance which is used as a one-way loop today. The existing exit only is planned to removed due to the proximity to the existing commercial driveway to the east. The removal of the access along Washington St is anticipated to increase the safety of the vehicles using the commercial entrance to the east. The development is also planning to construct a fourth leg to the intersection of Bleight Dr & Dogwood Park Ln as illustrated in Figure 13. Please note that the plans shown in this report are subject to change.

**Figure 13: Preliminary Site Layout Plan (For Illustrative Purposes Only; Subject to Change)**

## *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 weekday morning (AM), weekday afternoon (PM) peak hours, typical weekday daily trips, and weekend (SAT) peak hour and daily trips. The projected trip generation for the proposed development is depicted in Table 8. The anticipated development program will consist of approximately 61 single-family attached dwelling units. For the purposes of evaluating a conservative operational analysis, the development program analyzed assumes 65 dwelling units.

**Table 8: Site Trip Generation (Peak Hour of the Adjacent Street; ITE 11th Ed.)**

| Land Use | ITE Code | Size | Weekday | | | | | | | Weekend | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | | | PM Peak Hour | | | Daily | Saturday Peak Hour | | | Sat Daily |
| | | | In | Out | Total | In | Out | Total | Total | In | Out | Total | Total |
| **Proposed Use** | | | | | | | | | | | | | |
| Single-Family Attached Housing (EQUA | 215 | 65 DU | 7 | 21 | 28 | 21 | 14 | 35 | 566 | 23 | 24 | 47 | 414 |
| **Total Proposed Trips without Reduction** | | | **7** | **21** | **28** | **21** | **14** | **35** | **566** | **23** | **24** | **47** | **414** |
| *Internal Capture Residential - Restaurant*[1] | | *15% PM/SAT/DAILY* | *0* | *0* | *0* | *-3* | *-2* | *-5* | *-85* | *-3* | *-4* | *-7* | *-62* |
| **Total Proposed Trips with Reduction** | | | **7** | **21** | **28** | **18** | **12** | **30** | **481** | **20** | **20** | **40** | **352** |

*The internal reduction is based on the VDOT Updated Administrative Guidelines for the Traffic Impact Analysis Regulations:*
*(1) residential / non-residential components - smaller of 15% of residential trips or 15% of non-residential trips*

As illustrated in the table above, the proposed land use is expected to generate approximately 28 AM peak hour trips, 35 PM peak hour trips, 566 weekday trips, 47 Saturday peak hour trips and 414 Saturday daily trips. The total proposed trip generation with an assumed 15% internal capture reduction (residential to retail/restaurant) is expected to generate approximately 28 AM peak hour trips, 30 PM peak hour trips, 481 weekday trips, 40 Saturday peak hour trips and 352 Saturday daily trips.

## *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 for the peak hours trips is illustrated in Figure 14.

**Figure 14: Global Vehicular Direction of Approach**

### *Total Future with Development (2029) Lane Configuration*

Intersection #2 (Washington St & Greenhill Crossing Dr/Future Site Access #1) which in existing conditions operates as a driveway entrance only, will be reconfigured to be a full access intersection and include a westbound right turn lane. Additionally, Intersection #3 (Washington St & Future Site Access #2) will be removed . Construction of a fourth leg at Intersection #6 (Bleight Dr & Dogwood Park Ln/Future Site Access #3), will serve as the third site access for the proposed development. The Future with Development (2029) Lane Configurations are illustrated in Figure 15.

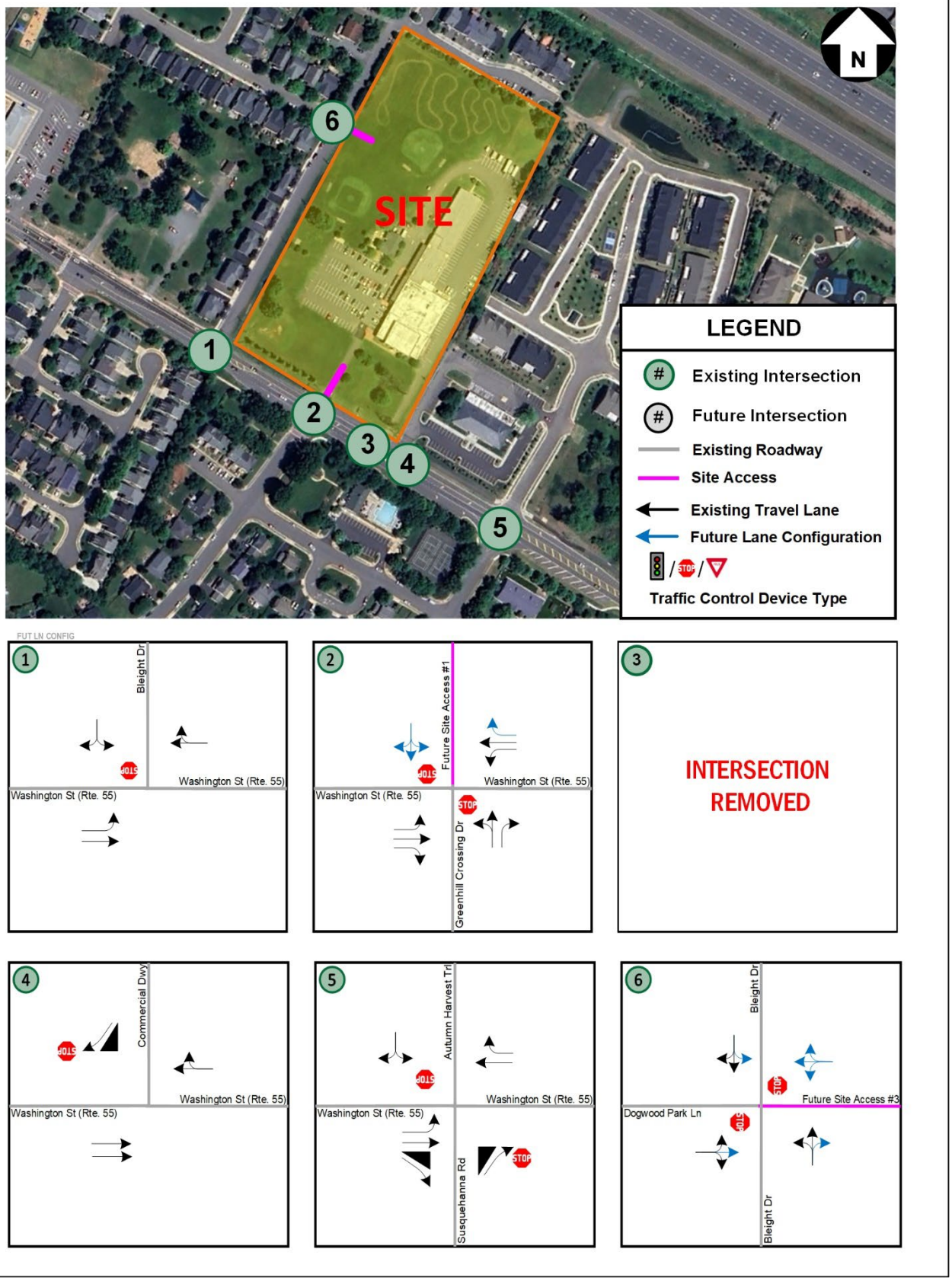



**Figure 15: Future with Development 2028 (Roadway Network Geometric Configuration and Traffic Control Devices)**

### *Analysis Scenario: Total Future with Development (2028)*

Using the direction of approach, the nature of the proposed development with the associated trip generation, and the location of proposed site entrance per current plans for the development, the site generated trips were assigned to the road network as illustrated in Figure 16. The figure shows site trips assigned to the study area network for the analysis.

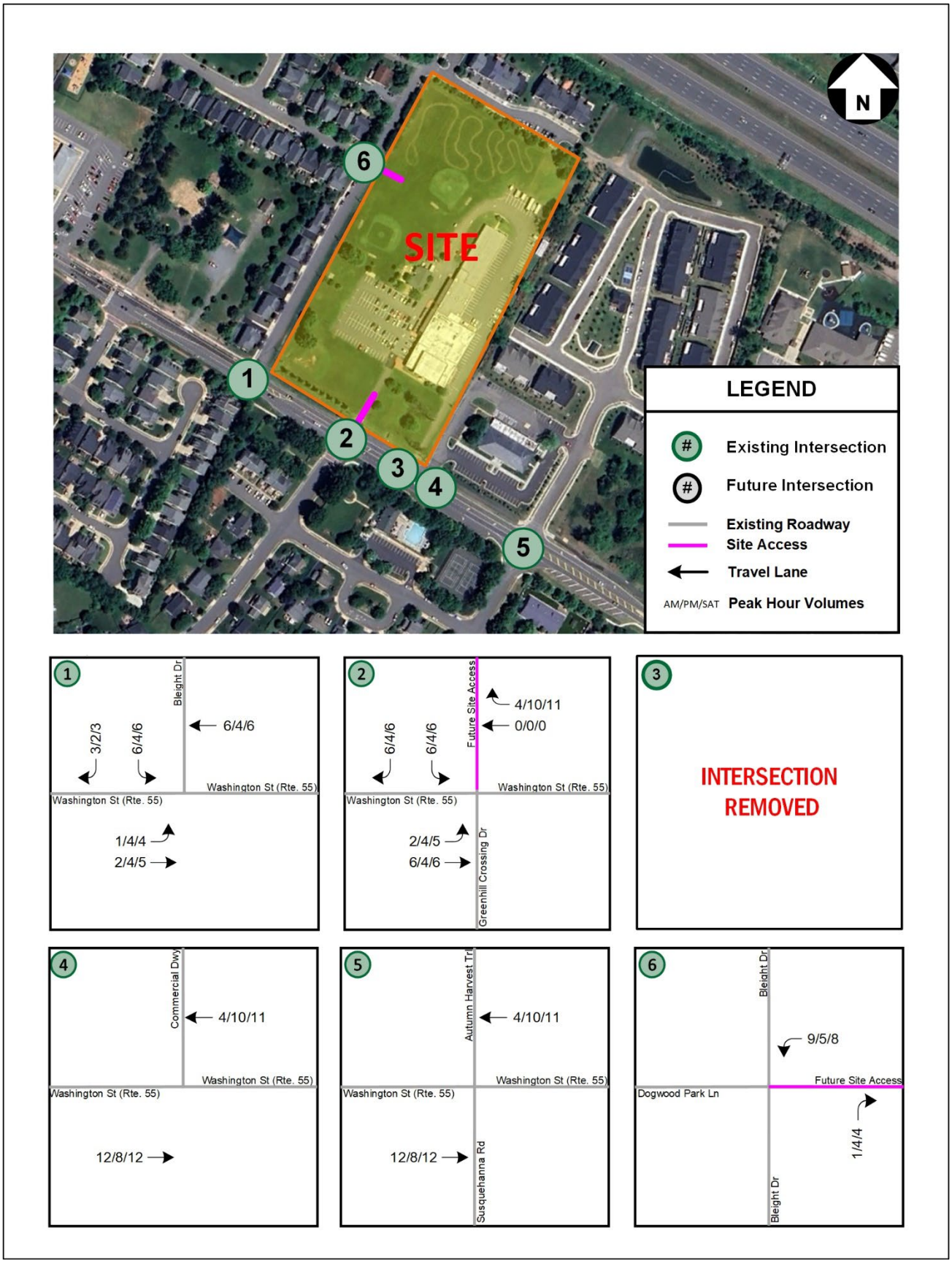



**Figure 16: Site Generated Trip Assignment**

### *Rerouted Existing Driveway Volumes*

As mentioned previously, Intersection #2 (Washington St & Greenhill Crossing Dr/Future Site Access #1) which in existing conditions operates as a driveway entrance only, will be reconfigured to be a full access intersection. In order to account for the change in access, all of the existing outbound volumes at Intersection #3 were rerouted to the main entrance at Intersection #2. This assumption was made based on the existing surface parking lot located west of the existing site buildings and reconfiguration of the intersection to allow for outbound movements at Intersection 2. The rerouted existing volumes are shown in Figure 17 below.

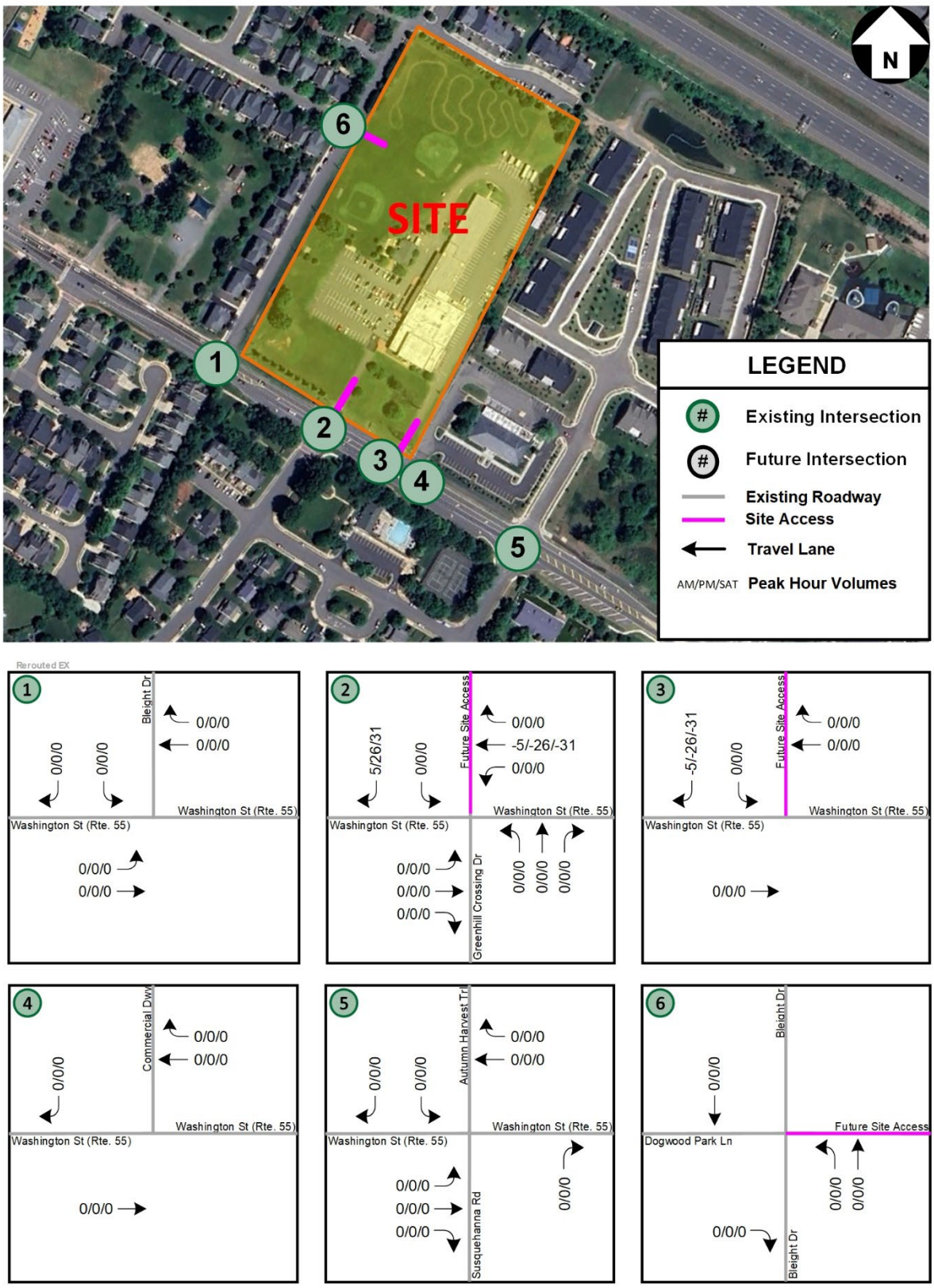



**Figure 17: Rerouted Existing Driveway Volumes**

### *Future with Development (2029) Traffic Volumes*

The Future with Development (2029) traffic volumes were obtained by adding the site generated trips presented in Figure 16 to the Future without Development (2029) volumes presented previously in Figure 11 and the rerouted existing driveway volumes presented in Figure 17. The Future with Development (2029) vehicular traffic volumes are shown in Figure 18.

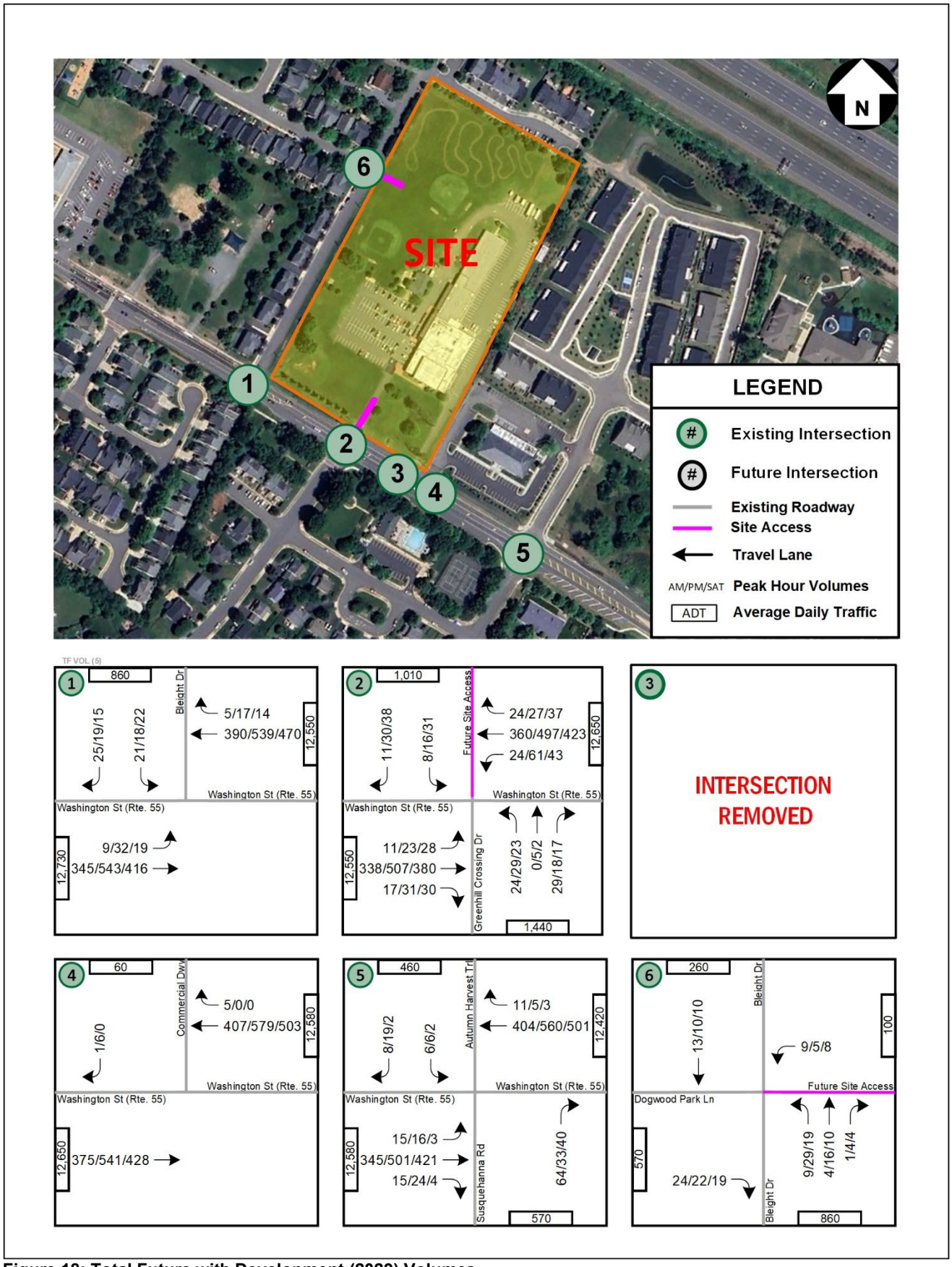



**Figure 18: Total Future with Development (2029) Volumes**

### *Future with Development (2029) Intersection Capacity and Queueing Analysis*

Intersection capacity analyses were performed for the Future with Development 2029 scenario at the study area intersections during the AM and PM peak hours. *Synchro,* version 11, was used to analyze the study intersections with results based on the HCM and analysis guidelines provided in VDOT's TOSAM. The analysis herein includes LOS, delay, and queue length comparisons for the turning movements analyzed.

The intersection peak hour factor utilized in the analysis of future conditions was determined based on the existing traffic counts with a minimum of 0.92. The HV% were based on existing traffic count data.

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 per request by the Town of Haymarket. The results of the intersection capacity analyses from *Synchro* are presented in Table 9 and graphically in Figure 19. 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 and LOS F are displayed in red.

The 95$^{th}$ percentile queues were also determined from *Synchro* and are expressed in feet. The lane groups where the queue lengths exceeded the available storage lengths of future turn lanes are displayed in red.

The detailed analysis worksheets of the Future with Development (2029) are contained in Appendix F of this report.

**Table 9: Future Conditions with Development (2029) – Intersection Capacity and Queuing Analysis Results**

| No. | Intersection (Movement) | Effective Storage | AM Peak Hour | | | PM Peak Hour | | | SAT Peak Hour | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | LOS | Delay (sec/veh) | 95th % Queue (ft.) | LOS | Delay (sec/veh) | 95th % Queue (ft.) | LOS | Delay (sec/veh) | 95th % Queue (ft.) |
| | | | Synchro | | | Synchro | | | Synchro | | |
| 1 | **Washington St (Rte. 55) (E/W) & Bleight Dr (N/S) (TWSC)** | | | | | | | | | | |
| | ***Eastbound Approach*** | | | | | | | | | | |
| | Eastbound Left | 160 | A | 8.4 | 0 | A | 8.7 | 0 | A | 8.5 | 0 |
| | ***Southbound Approach*** | | ***B*** | ***14.0*** | | ***C*** | ***18.7*** | | ***C*** | ***17.3*** | |
| | Southbound Left/Right | | B | 14.0 | 8 | C | 18.7 | 8 | C | 17.3 | 8 |
| 2 | **Washington St (Rte. 55) (E/W) & Greenhill Crossing Dr/Site Access (N/S) (TWSC)** | | | | | | | | | | |
| | ***Eastbound Approach*** | | | | | | | | | | |
| | Eastbound Left | 145 | A | 8.2 | 0 | A | 8.5 | 3 | A | 8.5 | 3 |
| | ***Westbound Approach*** | | | | | | | | | | |
| | Westbound Left | | A | 8.2 | 3 | A | 8.7 | 5 | A | 8.3 | 3 |
| | ***Northbound Approach*** | | ***B*** | ***14.8*** | | ***D*** | ***29.1*** | | ***C*** | ***21.5*** | |
| | Northbound Left/Thru | 175 | C | 19.8 | 8 | E | 38.3 | 23 | D | 28.7 | 13 |
| | Northbound Right | 175 | B | 10.6 | 3 | B | 11.6 | 3 | B | 10.8 | 3 |
| | ***Southbound Approach*** | | ***B*** | ***14.7*** | | ***C*** | ***20.9*** | | ***C*** | ***21.4*** | |
| | Southbound Left/Thru/Right | | B | 14.7 | 5 | C | 20.9 | 15 | C | 21.4 | 25 |
| 2 | **Washington St (Rte. 55) (E/W) & Greenhill Crossing Dr/Site Access (N/S) (TWSC) MIT** | | | | | | | | | | |
| | ***Eastbound Approach*** | | | | | | | | | | |
| | Eastbound Left | 145 | A | 8.1 | 0 | A | 8.5 | 3 | A | 8.6 | 3 |
| | ***Westbound Approach*** | | | | | | | | | | |
| | Westbound Left | | A | 8.2 | 3 | A | 8.7 | 5 | A | 8.3 | 3 |
| | ***Northbound Approach*** | | ***B*** | ***14.7*** | | ***D*** | ***28.9*** | | ***C*** | ***21.2*** | |
| | Northbound Left/Thru | 175 | C | 19.7 | 8 | E | 38.0 | 23 | D | 28.2 | 13 |
| | Northbound Right | 175 | B | 10.6 | 3 | B | 11.6 | 3 | B | 10.8 | 3 |
| | ***Southbound Approach*** | | ***C*** | ***15.2*** | | ***C*** | ***22.3*** | | ***B*** | ***22.6*** | |
| | Southbound Left/Thru/Right | | C | 15.2 | 3 | C | 22.3 | 13 | C | 22.6 | 23 |
| 3 | **Washington St (Rte. 55) (E/W) & Site Access RIRO (N/S) (TWSC)** | | Intersection Planned to be Removed | | | Intersection Planned to be Removed | | | Intersection Planned to be Removed | | |
| 4 | **Washington St (Rte. 55) (E/W) & Commercial RIRO (N/S) (TWSC)** | | | | | | | | | | |
| | ***Southbound Approach*** | | | | | | | | | | |
| | Southbound Right | | B | 10.9 | 0 | B | 12.2 | 0 | A | 0.0 | 0 |
| 5 | **Washington St (Rte. 55) (E/W) & Susquehanna Rd/Autumn Harvest Trl (N/S) (TWSC)** | | | | | | | | | | |
| | ***Eastbound Approach*** | | | | | | | | | | |
| | Eastbound Left | 230 | A | 8.3 | 0 | A | 8.7 | 0 | A | 8.4 | 0 |
| | ***Northbound Approach*** | | ***B*** | ***11.0*** | | ***B*** | ***11.9*** | | ***B*** | ***11.3*** | |
| | Northbound Right | | B | 11.0 | 8 | B | 11.9 | 8 | B | 11.3 | 8 |
| | ***Southbound approach*** | | ***C*** | ***15.9*** | | ***C*** | ***16.1*** | | ***C*** | ***16.7*** | |
| | Southbound Left/Right | | C | 15.9 | 3 | C | 16.1 | 3 | C | 16.7 | 3 |
| 6 | **Dogwood Park Ln (E/W) & Bleight Dr (N/S) (TWSC)** | | | | | | | | | | |
| | ***Eastbound Approach*** | | ***A*** | ***8.5*** | | ***A*** | ***8.4*** | | ***A*** | ***8.4*** | |
| | Eastbound Left/Right | | A | 8.5 | 3 | A | 8.4 | 3 | A | 8.4 | 3 |
| | ***Westbound Approach*** | | ***A*** | ***9.0*** | | ***A*** | ***9.3*** | | ***A*** | ***9.1*** | |
| | Westbound Left/Thru/Right | | A | 9.0 | 0 | A | 9.3 | 0 | A | 9.1 | 0 |
| | ***Northbound Approach*** | | | | | | | | | | |
| | Northbound Left/Thru/Right | | A | 7.3 | 0 | A | 7.3 | 3 | A | 7.3 | 0 |

*NOTES:*
*[1] Effective storage length is based on the storage length plus one-half of the taper length per TOSAM guidelines.*

**Intersection #2 mitigation includes the addition of a westbound right turn lane.*

The proposed mitigation for the Future with Development (2029) scenario includes the addition of a westbound right turn lane at Intersection #2 and the closing of the existing exit only driveway.

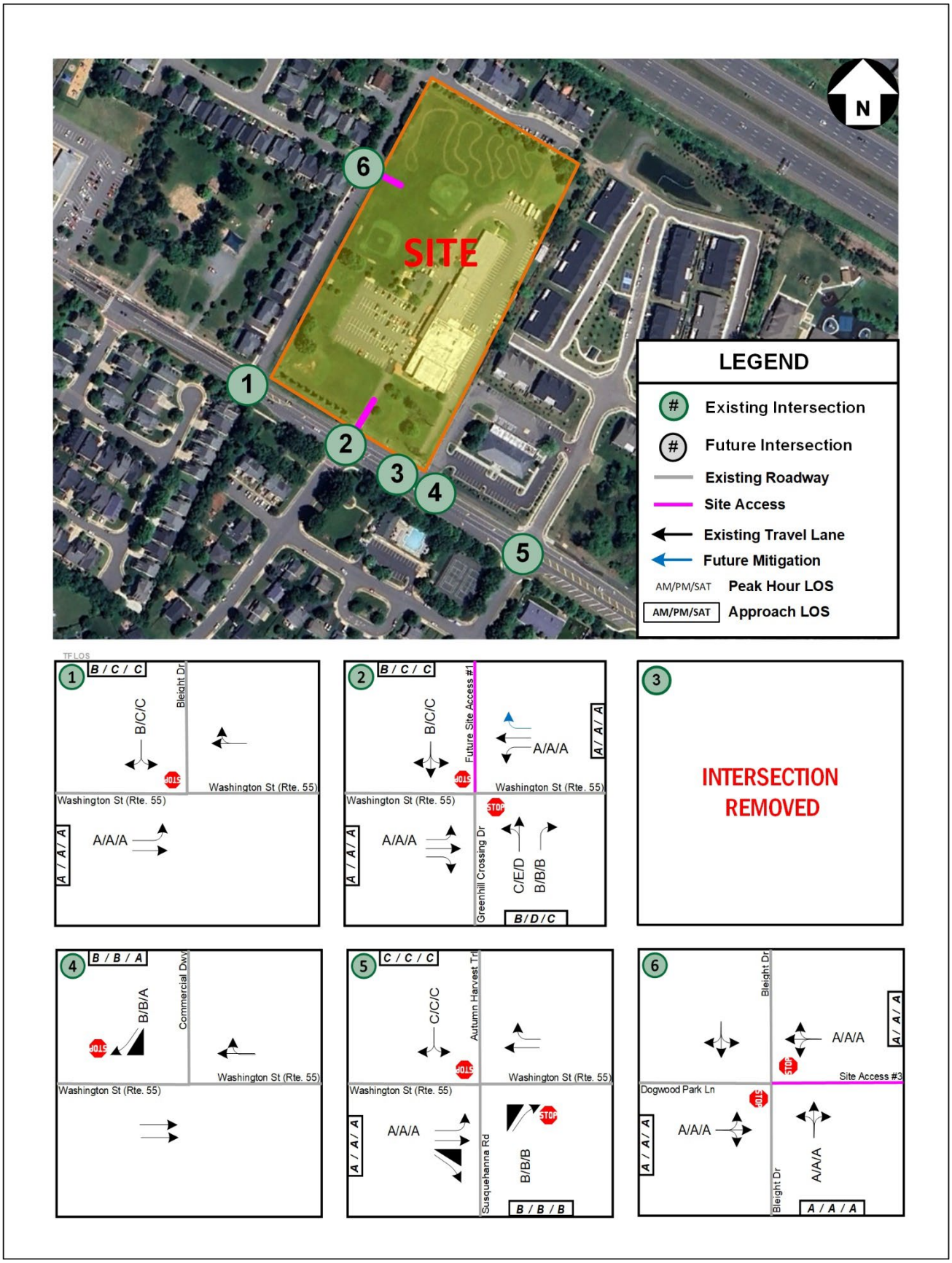



**Figure 19: Total Future with Development (2029) – Level of Service Results**

Analysis Terms:

- Level of Service (LOS) is based upon the traffic volume present in each lane on the roadway, the capacity of each lane at the intersection and the delay (in seconds) associated with each directional movement. This evaluation is consistent in all traffic analysis scenarios. Please refer to definitions of Level of Service in Appendix J.
- The 95$^{th}$ percentile queue length refers to the queue length within which 95% of all observed queues are contained during a specific analysis period. This evaluation is consistent in all traffic analysis scenarios.

The results of the Future with Development Conditions (2029) analysis scenario are as follows:

- All the approaches and the overall intersection operate at acceptable levels of service for all of the study intersections.
- All the anticipated 95$^{th}$ percentile queues are contained in the available storage length for all the study intersections.

Please note that while all study intersections and approaches operate at acceptable levels of service, the following lane group was observed to experience larger delay:

  - Intersection #2 Washington St (Rte. 55) & Greenhill Crossing Dr/Site Access #1 – Northbound shared left/thru lane operates at LOS D (26.1 s) in the existing PM peak hour & LOS E (38.3 s) in the future with development PM peak hour.
  - The 95$^{th}$ percentile queue for the northbound shared left/thru lane is approximately 23 ft (less than one car). Therefore, the queues do not extend to the downstream driveways that serve the residential community.

- The reconfigurations and mitigations for this analysis scenario are as follows:
  - The existing primary driveway entrance (Access #1) will be reconfigured to a full-access driveway (inbound & outbound).
  - The existing exit only driveway (Access #2) is planned to be closed to address the existing safety issues due to the proximity to the driveway to the east.
  - The addition of a westbound right turn lane at Intersection #2 (Washington St (Rte. 55) & Greenhill Crossing Dr/Site Access) is a proposed mitigation. Please note only a right turn taper is warranted using VDOT Road Design Manual (RDM) Turn Lane Assessment.

The detailed analysis worksheets of the Future Conditions with Development (2029) Mitigated are contained in Appendix G.

An additional section discussing the alternative route options for the vehicles making the northbound left turn at Intersection has been included below.

## *Alternative Routes Analysis*

As noted above, the northbound approach at Intersection #2 operates at an acceptable LOS; however the northbound left movement increase to LOS E. Therefore analysis was included to show that alternative routes are available with additional capacity if those vehicles chose to use alternative routes. For the purposes of this analysis, engineering judgment was used to evaluate an alternative route where a proportion of the northbound left turn volumes (45%) were rerouted to make a northbound right turn at Intersection #2 during the weekday peak hours only (AM & PM). These volumes were rerouted to the downstream roundabout intersection of Washington St (RTE. 55) & Gillis Way/Piedmont Center Plaza.

The volumes for this alternative are shown in Figure 20 below.

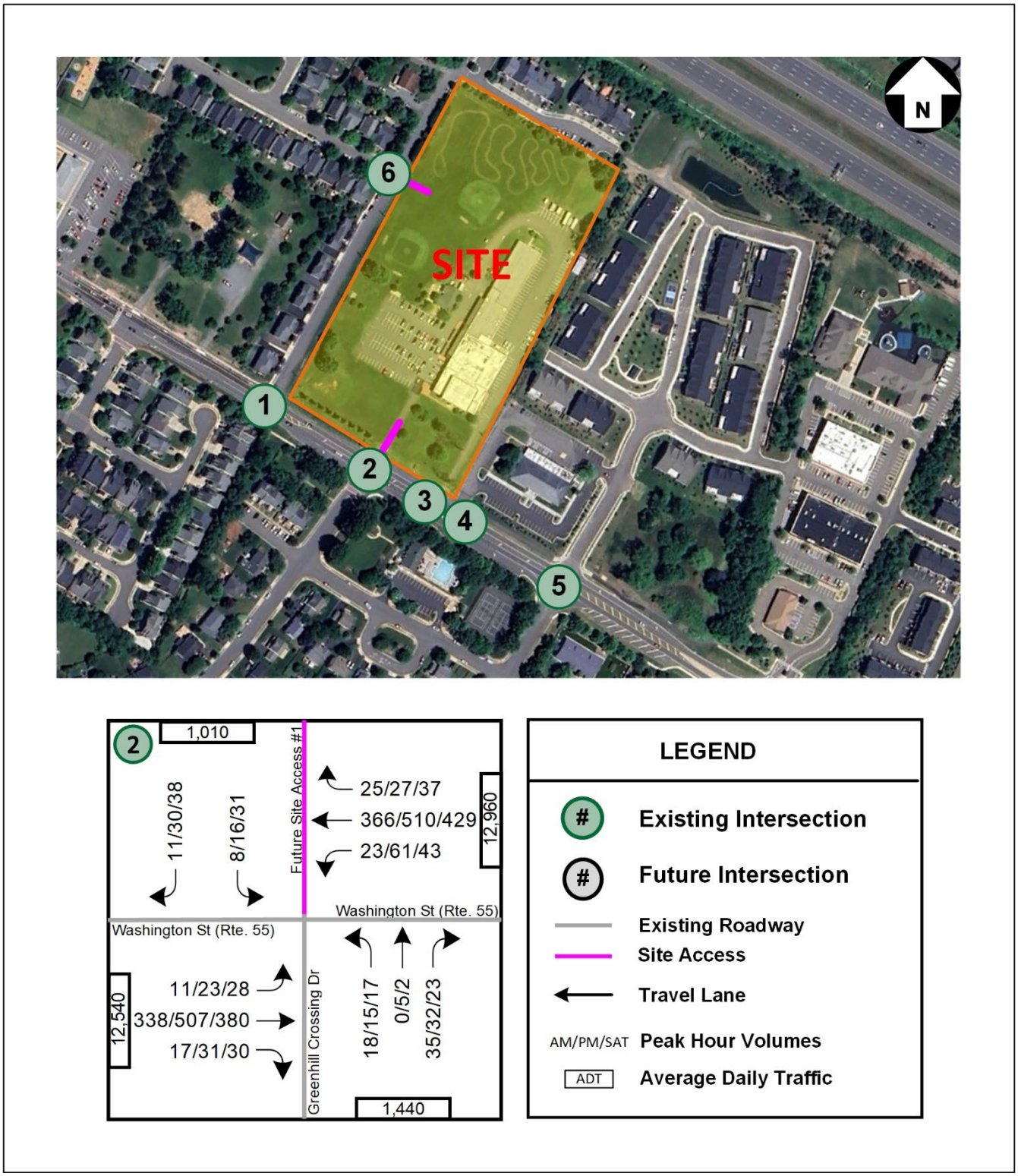



**Figure 20: Total Future with Development (2029) Alternative Volumes**

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 per request by the Town of Haymarket. The results of the intersection capacity analyses from *Synchro* are presented in Table 10 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.

**Table 10: Total Future with Development (2029) Alternative – Intersection Capacity and Queuing Analysis Results**

| No. | Intersection (Movement) | Effective Storage | AM Peak Hour | | | PM Peak Hour | | | SAT Peak Hour | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | LOS | Delay (sec/veh) | 95th % Queue (ft.) | LOS | Delay (sec/veh) | 95th % Queue (ft.) | LOS | Delay (sec/veh) | 95th % Queue (ft.) |
| | | | Synchro | | | Synchro | | | Synchro | | |
| 2 | **Washington St (Rte. 55) (E/W) & Greenhill Crossing Dr/Site Access (N/S) (TWSC)** | | | | | | | | | | |
| | ***Eastbound Approach*** | | | | | | | | | | |
| | Eastbound Left | 145 | A | 8.2 | 0 | A | 8.6 | 3 | A | 8.5 | 3 |
| | ***Westbound Approach*** | | | | | | | | | | |
| | Westbound Left | | A | 8.2 | 3 | A | 8.7 | 5 | A | 8.3 | 3 |
| | ***Northbound Approach*** | | ***B*** | ***13.6*** | | ***C*** | ***20.5*** | | ***C*** | ***18.4*** | |
| | Northbound Left/Thru | 175 | C | 19.5 | 5 | D | 34.5 | 13 | D | 27.7 | 10 |
| | Northbound Right | 175 | B | 10.6 | 5 | B | 11.7 | 5 | B | 10.8 | 3 |
| | ***Southbound Approach*** | | ***B*** | ***14.7*** | | ***C*** | ***21.2*** | | ***C*** | ***21.2*** | |
| | Southbound Left/Thru/Right | | B | 14.7 | 5 | C | 21.2 | 15 | C | 21.2 | 25 |

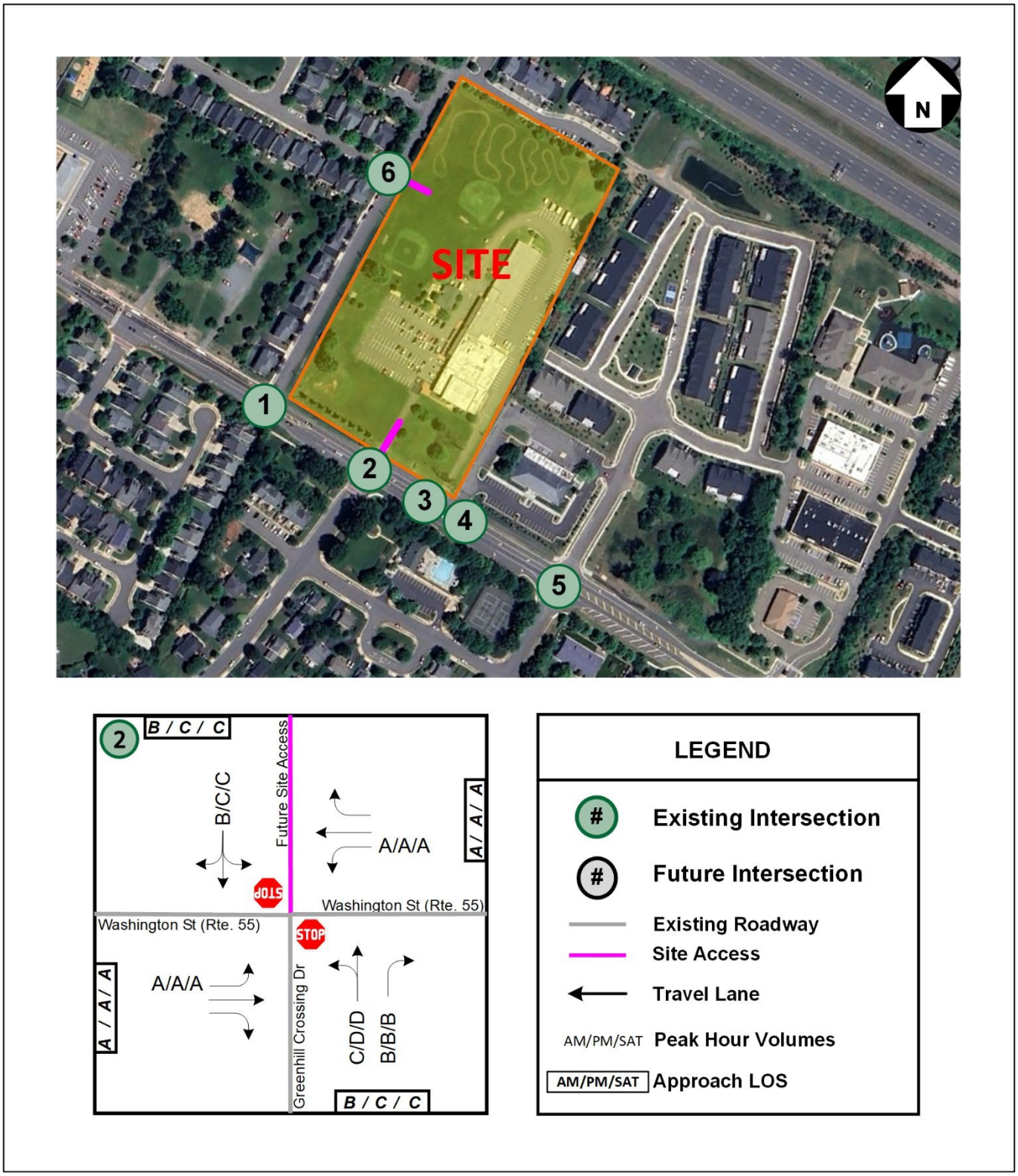



**Figure 21: Total Future with Development (2029) Alternative – Level of Service**

Sidra (HCM methodology) was used to analysis the existing roundabout intersection of Washington St (RTE. 55) & Gillis Way/Piedmont Center Plaza. The results of the analysis are shown in Table 11 below.

**Table 11: Roundabout Analysis at Washington St (RTE. 55) & Gillis Way/Piedmont Center Plaza**

| No. | Intersection (Movement) | AM Peak Hour | | | PM Peak Hour | | | SAT Peak Hour | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | LOS | Delay (sec/veh) | 95th % Queue (ft.) | LOS | Delay (sec/veh) | 95th % Queue (ft.) | LOS | Delay (sec/veh) | 95th % Queue (ft.) |
| | | Synchro | | | Synchro | | | Synchro | | |
| 1 | Gillis Way/Piedmont Center Plaza (N/S) & Washington St (Rte. 55) (E/W) (TWSC) **(Overall)** | **A** | **6.9** | | **A** | **9.0** | | **A** | **6.6** | |
| | ***Eastbound Approach*** | ***A*** | ***7.4*** | ***72*** | ***A*** | ***9.1*** | ***100*** | ***A*** | ***6.5*** | ***69*** |
| | ***Westbound Approach*** | ***A*** | ***6.7*** | ***65*** | ***A*** | ***9.5*** | ***108*** | ***A*** | ***6.7*** | ***84*** |
| | ***Northbound Approach*** | ***A*** | ***5.7*** | ***12*** | ***A*** | ***7.8*** | ***22*** | ***A*** | ***5.0*** | ***2*** |
| | ***Southbound Approach*** | ***A*** | ***5.7*** | ***9*** | ***A*** | ***7.4*** | ***18*** | ***A*** | ***5.5*** | ***5*** |

*[1] Effective storage length is based on the storage length plus one-half of the taper length per TOSAM guidelines.*

The results of the roundabout analysis show that the intersection operates at acceptable levels of service and does not experience extensive queues even with additional volumes. Therefore, it would be reasonable for drivers to reroute themselves using the roundabout to travel westbound on Washington St (Rte. 55) if they did not want to wait for a gap.

The detailed analysis worksheets of the Future Conditions with Development (2029) Alternative are contained in Appendix H.

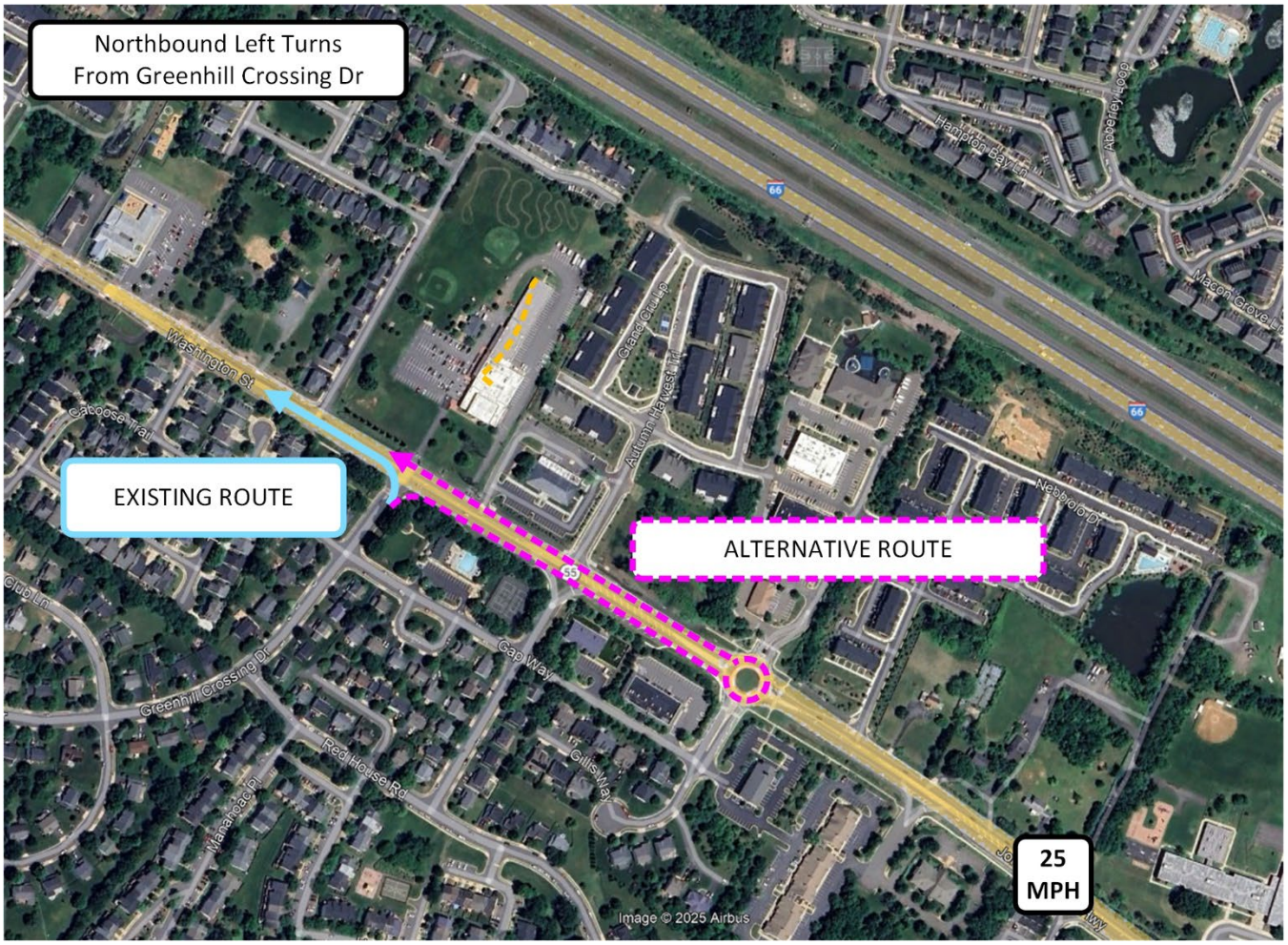



**Figure 22: Assumed Reroute Time and Distance**

## Overall Comparison of Analysis Scenarios

A level of service and delay comparison for all scenarios is presented in Table 12 and queue length comparison is presented in Table 13.

**Table 12: Intersection Level of Service and Delay Comparison**

| No. | Intersection (Movement) | Level of Service (LOS) (Sec./Veh.) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | | | | PM Peak Hour | | | | | SAT Peak Hour | | | | |
| | | 2025 EX | 2029 FB | 2029 TF | 2029 TF MIT | 2029 TF ALT | 2025 EX | 2029 FB | 2029 TF | 2029 TF MIT | 2029 TF ALT | 2025 EX | 2029 FB | 2029 TF | 2029 TF MIT | 2029 TF ALT |
| 1 | **Washington St (Rte. 55) (E/W) & Bleight Dr (N/S) (TWSC)** | | | | | | | | | | | | | | | |
| | *Eastbound Approach* | | | | | | | | | | | | | | | |
| | Eastbound Left | A (8.4) | A (8.4) | A (8.4) | | | A (8.6) | A (8.7) | A (8.7) | | | A (8.4) | A (8.5) | A (8.5) | | |
| | *Southbound Approach* | *B (13.3)* | *B (13.4)* | *B (14)* | | | *C (15.8)* | *C (17.2)* | *C (18.7)* | | | *C (15.5)* | *C (16.3)* | *C (17.3)* | | |
| | Southbound Left/Right | B (13.3) | B (13.4) | B (14) | | | C (15.8) | C (17.2) | C (18.7) | | | C (15.5) | C (16.3) | C (17.3) | | |
| 2 | **Washington St (Rte. 55) (E/W) & Greenhill Crossing Dr/Site Access #1 (N/S) (TWSC) *MITIGATED** | | | | | | | | | | | | | | | |
| | *Eastbound Approach* | | | | | | | | | | | | | | | |
| | Eastbound Left | A (8.1) | A (8.1) | A (8.2) | A (8.1) | A (8.2) | A (8.4) | A (8.5) | A (8.5) | A (8.5) | A (8.6) | A (8.5) | A (8.6) | A (8.5) | A (8.6) | A (8.6) |
| | *Westbound Approach* | | | | | | | | | | | | | | | |
| | Westbound Left | A (8.2) | A (8.2) | A (8.2) | A (8.2) | A (8.2) | A (8.6) | A (8.7) | A (8.7) | A (8.7) | A (8.6) | A (8.2) | A (8.3) | A (8.3) | A (8.3) | A (8.5) |
| | *Northbound Approach* | *B (13.4)* | *B (13.4)* | *B (14.8)* | *B (14.7)* | *B (13.6)* | *C (20.9)* | *C (23.1)* | *D (29.1)* | *D (28.9)* | *C (21)* | *C (16.5)* | *C (17.7)* | *C (21.5)* | *C (21.2)* | *C (18.4)* |
| | Northbound Left/Thru | C (17) | C (16.9) | C (19.8) | C (19.7) | C (19.5) | D (26.1) | D (29.2) | E (38.3) | E (38) | D (34.5) | C (20.6) | C (22.4) | D (28.7) | D (28.2) | D (27.7) |
| | Northbound Right | B (10.5) | B (10.5) | B (10.6) | B (10.6) | B (10.6) | B (11.2) | B (11.5) | B (11.6) | B (11.6) | B (11.7) | B (10.5) | B (10.7) | B (10.8) | B (10.8) | B (10.8) |
| | *Southbound Approach* | *-- (--)* | *-- (--)* | *C (14.7)* | *C (15.2)* | *C (14.7)* | *-- (--)* | *-- (--)* | *C (20.9)* | *C (22.3)* | *C (21.2)* | *-- (--)* | *-- (--)* | *C (21.4)* | *C (22.6)* | *C (21.2)* |
| | Southbound Left/Thru/Right | -- (--) | -- (--) | C (14.7) | C (15.2) | C (14.7) | -- (--) | -- (--) | C (20.9) | C (22.3) | C (21.2) | -- (--) | -- (--) | C (21.4) | C (22.6) | C (21.2) |
| 3 | **Washington St (Rte. 55) (E/W) & Site Access #2 (N/S) (TWSC)**(To Remove)** | | | | | | | | | | | | | | | |
| | *Eastbound Approach* | | | | | | | | | | | | | | | |
| | Eastbound Left | A (8.2) | A (8.2) | -- (--) | -- (--) | -- (--) | -- (--) | -- (--) | -- (--) | -- (--) | -- (--) | -- (--) | -- (--) | -- (--) | -- (--) | -- (--) |
| | *Southbound Approach* | *B (11.1)* | *B (11.1)* | *-- (--)* | *-- (--)* | *-- (--)* | *B (12.1)* | *B (12.5)* | *-- (--)* | *-- (--)* | *-- (--)* | *B (12)* | *B (12.4)* | *-- (--)* | *-- (--)* | *-- (--)* |
| | Southbound Left | B (13.7) | B (13.7) | -- (--) | -- (--) | -- (--) | C (16.3) | C (17.4) | -- (--) | -- (--) | -- (--) | B (14.5) | C (15.4) | -- (--) | -- (--) | -- (--) |
| | Southbound Right | B (10) | B (10) | -- (--) | -- (--) | -- (--) | B (10.1) | B (10.3) | -- (--) | -- (--) | -- (--) | A (9.9) | B (10) | -- (--) | -- (--) | -- (--) |
| 4 | **Washington St (Rte. 55) (E/W) & Commercial RIRO (N/S) (TWSC)** | | | | | | | | | | | | | | | |
| | *Southbound Approach* | *A (0)* | *A (0)* | *B (10.9)* | | | *B (11.7)* | *B (12.1)* | *B (12.2)* | | | *A (0)* | *A (0)* | *A (0)* | | |
| | Southbound Left/Right | A (0) | A (0) | B (10.9) | | | B (11.7) | B (12.1) | A (12.2) | | | A (0) | A (0) | A (0) | | |
| 5 | **Washington St (Rte. 55) (E/W) & Susquehanna Rd/Autumn Harvest Trl (N/S) (TWSC)** | | | | | | | | | | | | | | | |
| | *Eastbound Approach* | | | | | | | | | | | | | | | |
| | Eastbound Left | A (8.3) | A (8.2) | A (8.3) | | | A (8.6) | A (8.7) | A (8.7) | | | A (8.3) | A (8.4) | A (8.4) | | |
| | *Northbound Approach* | *B (10.9)* | *B (10.9)* | *B (11)* | | | *B (11.4)* | *B (11.8)* | *B (11.9)* | | | *B (10.9)* | *B (11.2)* | *B (11.3)* | | |
| | Northbound Right | B (10.9) | B (10.9) | B (11) | | | B (11.4) | B (11.8) | B (11.9) | | | B (10.9) | B (11.2) | B (11.3) | | |
| | *Southbound approach* | *C (15.8)* | *C (15.7)* | *C (15.9)* | | | *B (14.8)* | *C (15.9)* | *C (16.1)* | | | *C (15.3)* | *C (16.4)* | *C (16.7)* | | |
| | Southbound Right | C (15.8) | C (15.7) | C (15.9) | | | B (14.8) | C (15.9) | C (16.1) | | | C (15.3) | C (16.4) | C (16.7) | | |
| 6 | **Dogwood Park Ln/Site Access #3 (E/W) & Bleight Dr (N/S) (TWSC)** | | | | | | | | | | | | | | | |
| | *Eastbound Approach* | | | | | | | | | | | | | | | |
| | Eastbound Left/Right | A (8.5) | A (8.5) | A (8.5) | | | A (8.5) | A (8.5) | A (8.4) | | | A (8.4) | A (8.4) | A (8.4) | | |
| | *Westbound Approach* | *-- (--)* | *-- (--)* | *A (9)* | | | *-- (--)* | *-- (--)* | *A (9.3)* | | | *-- (--)* | *-- (--)* | *A (9.1)* | | |
| | Westbound Left/Thru/Right | -- (--) | -- (--) | A (9) | | | -- (--) | -- (--) | A (9.3) | | | -- (--) | -- (--) | A (9.1) | | |
| | *Northbound Approach* | | | | | | | | | | | | | | | |
| | Northbound Left/Thru/Right | A (7.3) | A (7.3) | A (7.3) | | | A (7.3) | A (7.3) | A (7.3) | | | A (7.3) | A (7.3) | A (7.3) | | |

**Intersection #2 mitigation includes the addition of a westbound right turn lane.*
***Intersection #3 to be removed in future scenarios*

**Table 13: Intersection Queue Length Comparison**

| No. | Intersection (Movement) | 95th Percentile Queues (ft.) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | | | | | PM Peak Hour | | | | | SAT Peak Hour | | | | |
| | | Effective Storage Length (ft.) | 2025 EX | 2029 FB | 2029 TF | 2029 TF MIT | 2029 TF ALT | 2025 EX | 2029 FB | 2029 TF | 2029 TF MIT | 2029 TF ALT | 2025 EX | 2029 FB | 2029 TF | 2029 TF MIT | 2029 TF ALT |
| 1 | **Washington St (Rte. 55) (E/W) & Bleight Dr (N/S) (TWSC)** | | | | | | | | | | | | | | | | |
| | *Eastbound Approach* | | | | | | | | | | | | | | | | |
| | Eastbound Left | 160 | 0 | 0 | 0 | | | 3 | 3 | 0 | | | 0 | 3 | 0 | | |
| | *Southbound Approach* | | | | | | | | | | | | | | | | |
| | Southbound Left/Right | | 8 | 8 | 8 | | | 8 | 10 | 8 | | | 8 | 8 | 8 | | |
| 2 | **Washington St (Rte. 55) (E/W) & Greenhill Crossing Dr/Site Access #1 (N/S) (TWSC) *MITIGATED** | | | | | | | | | | | | | | | | |
| | *Eastbound Approach* | | | | | | | | | | | | | | | | |
| | Eastbound Left | 145 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | *Westbound Approach* | | | | | | | | | | | | | | | | |
| | Westbound Left | 195 | 3 | 3 | 3 | 3 | 0 | 5 | 5 | 5 | 5 | 3 | 3 | 3 | 3 | 3 | 3 |
| | *Northbound Approach* | | | | | | | | | | | | | | | | |
| | Northbound Left/Thru | 175 | 8 | 8 | 8 | 8 | 5 | 15 | 18 | 23 | 23 | 13 | 10 | 10 | 13 | 13 | 10 |
| | Northbound Right | 175 | 5 | 3 | 3 | 3 | 5 | 3 | 3 | 3 | 3 | 5 | 3 | 3 | 3 | 3 | 3 |
| | *Southbound Approach* | | | | | | | | | | | | | | | | |
| | Southbound Left/Thru/Right | | -- | -- | 5 | 3 | 5 | -- | -- | 10 | 13 | 15 | -- | -- | 20 | 23 | 25 |
| 3 | **Washington St (Rte. 55) (E/W) & Site Access #2 (N/S) (TWSC)**(To Remove)** | | | | | | | | | | | | | | | | |
| | *Eastbound Approach* | | | | | | | | | | | | | | | | |
| | Eastbound Left | | 0 | -- | -- | -- | -- | 0 | -- | -- | -- | -- | 0 | -- | -- | -- | -- |
| | *Southbound Approach* | | | | | | | | | | | | | | | | |
| | Southbound Left | | 0 | 0 | 0 | -- | -- | 3 | 3 | 0 | -- | -- | 5 | 5 | 0 | -- | -- |
| | Southbound Right | | 0 | 0 | 0 | -- | -- | 3 | 3 | 0 | -- | -- | 3 | 3 | 0 | -- | -- |
| 4 | **Washington St (Rte. 55) (E/W) & Commercial RIRO (N/S) (TWSC)** | | | | | | | | | | | | | | | | |
| | *Southbound Approach* | | | | | | | | | | | | | | | | |
| | Southbound Left/Right | | 0 | 0 | 0 | | | 0 | 0 | 0 | | | 0 | 0 | 0 | | |
| 5 | **Washington St (Rte. 55) (E/W) & Susquehanna Rd/Autumn Harvest Trl (N/S) (TWSC)** | | | | | | | | | | | | | | | | |
| | *Eastbound Approach* | | | | | | | | | | | | | | | | |
| | Eastbound Left | 230 | 0 | 0 | 0 | | | 0 | 3 | 3 | | | 0 | 0 | 0 | | |
| | *Northbound Approach* | | | | | | | | | | | | | | | | |
| | Northbound Right | | 10 | 8 | 8 | | | 5 | 5 | 5 | | | 5 | 5 | 5 | | |
| | *Southbound approach* | | | | | | | | | | | | | | | | |
| | Southbound Right | | 3 | 3 | 3 | | | 5 | 5 | 5 | | | 0 | 0 | 0 | | |
| 6 | **Dogwood Park Ln/Site Access #3 (E/W) & Bleight Dr (N/S) (TWSC)** | | | | | | | | | | | | | | | | |
| | *Eastbound Approach* | | | | | | | | | | | | | | | | |
| | Eastbound Left/Right | | 3 | 3 | 3 | | | 3 | 3 | 3 | | | 3 | 3 | 3 | | |
| | *Westbound Approach* | | | | | | | | | | | | | | | | |
| | Westbound Left/Thru/Right | | -- | -- | 0 | | | -- | -- | 0 | | | -- | -- | 0 | | |
| | *Northbound Approach* | | | | | | | | | | | | | | | | |
| | Northbound Left/Thru/Right | | 0 | 0 | 0 | | | 3 | 3 | 3 | | | 0 | 0 | 0 | | |

**Intersection #2 mitigation includes the addition of a westbound right turn lane.*
***Intersection #3 to be removed in future scenarios*

The results of all the analysis scenarios show the proposed development is not anticipated to have a detrimental effect on the surrounding transportation network as all intersections and all approaches continue to operate at acceptable LOS. It should be noted however that the northbound left movement at Intersection #2 (Washington St (Rte. 55) & Greenhill Crossing Dr/Site Access #1) operates at LOS E. This intersection was mitigated through the conversion of the existing driveway inbound only entrance to a full access (inbound & outbound) and the addition of a westbound right turn lane. As discussed in the alternative scenario, a portion of the northbound left turns were rerouted to the existing roundabout. The evaluation of the total future with development conditions with the proposed mitigations and alternative scenario show that the development will not have a significant impact on transportation network.

# Turn Lane Warrant Assessments

Left and right turn lane warrants are based off VDOT's Road Desing Manual (RDM), Appendix F. In order to determine the need for exclusive left or right turn lanes at the site entrance along Washington St (Rte. 55) and the site entrance along Bleight Dr, the traffic data and anticipated development program provided in the 2029 Future with Development scenario section were utilized to provide a conservative analysis.

## *Right Turn Lane Assessments*

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.

The results of the northbound right (Bleight Dr) and westbound right (Washington St) turn lane warrant analysis are presented on Table 14 and Figure 23.

**Table 14: Right Turn Lane Warrant Assessments at Site Entrances (VDOT RDM-F Fig. 3-27)**

| Study Scenario | Approach Volume | Right Turn Volume | Minimum Right Turn Taper Threshold | Minimum Right Turn Full Lane Threshold | Treatment |
|---|---|---|---|---|---|
| **Intersection 2 WBR AM Peak Hour** | 408 | 24 | 29 | 65 | **Not Warranted** |
| **Intersection 2 WBR PM Peak Hour** | 585 | 27 | 20 | 42 | **Taper Required** |
| **Intersection 2 WBR SAT Peak Hour** | 503 | 37 | 20 | 53 | **Taper Required** |
| **Intersection 6 NBR AM Peak Hour** | 14 | 1 | 69 | 116 | **Not Warranted** |
| **Intersection 6 NBR PM Peak Hour** | 49 | 4 | 65 | 112 | **Not Warranted** |
| **Intersection 6 NBR SAT Peak Hour** | 33 | 4 | 67 | 114 | **Not Warranted** |

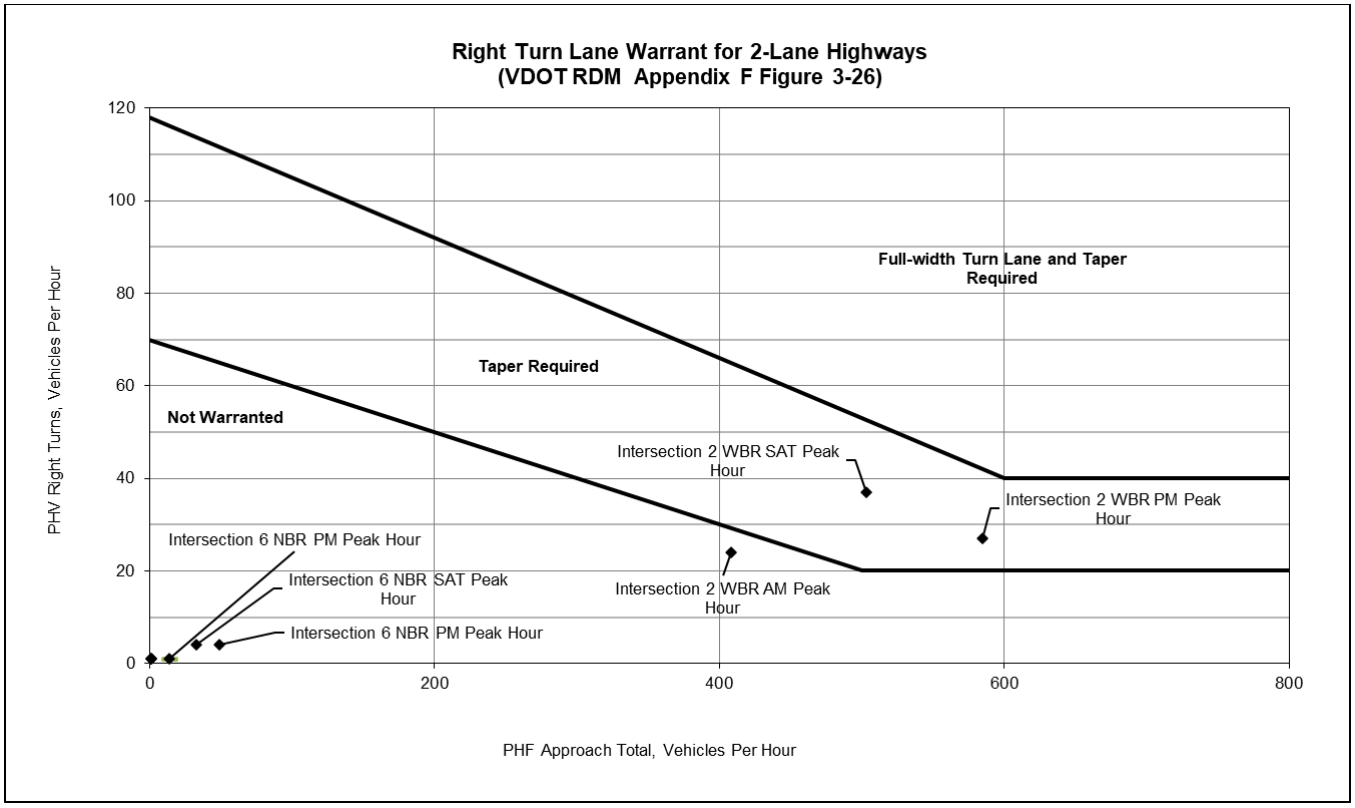



**Figure 23: Right Turn Warrant Analysis Chart (VDOT RDM FIGURE 3-27)**

As shown above, a westbound right taper is warranted for the site entrance at Intersection #2 (Washington St & Site Access #1) per VDOT RDM based on the Total Future with Development (2029) volumes, design speed (30 mph), and number of right turns. VDOT's RDM requires a 100' (single lane) taper for roadways with a design speed of 30 mph or less.

**Intersection 2 – Greenhill Crossing Dr/Site Access #1 (N/S) & Washington St (Rte. 55) (E/W)**

**i.** Westbound Right – Design Speed (30 mph)

100 feet taper length is required (RDM);

## *Left Turn Lane Assessment*

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). Please note there is an existing left-turn lane at Intersection #2 (Washington St & Site Access) and a left-turn lane is not feasible nor needed at other proposed site access location.

## *Access Management Assessment (Intersection Spacing with Adjacent Intersections)*

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 standards 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.

Washington St (Rte. 55) in the vicinity of the study area is classified as a "Major Collector" with a speed limit of 25 mph per VDOT Speed Limits Map. This section evaluates the minimum spacing requirements at the proposed site entrances. The applicable intersection spacing requirements (centerline-to-centerline) per RDM Appendix F Table 2-2 are illustrated in Figure 24 below.

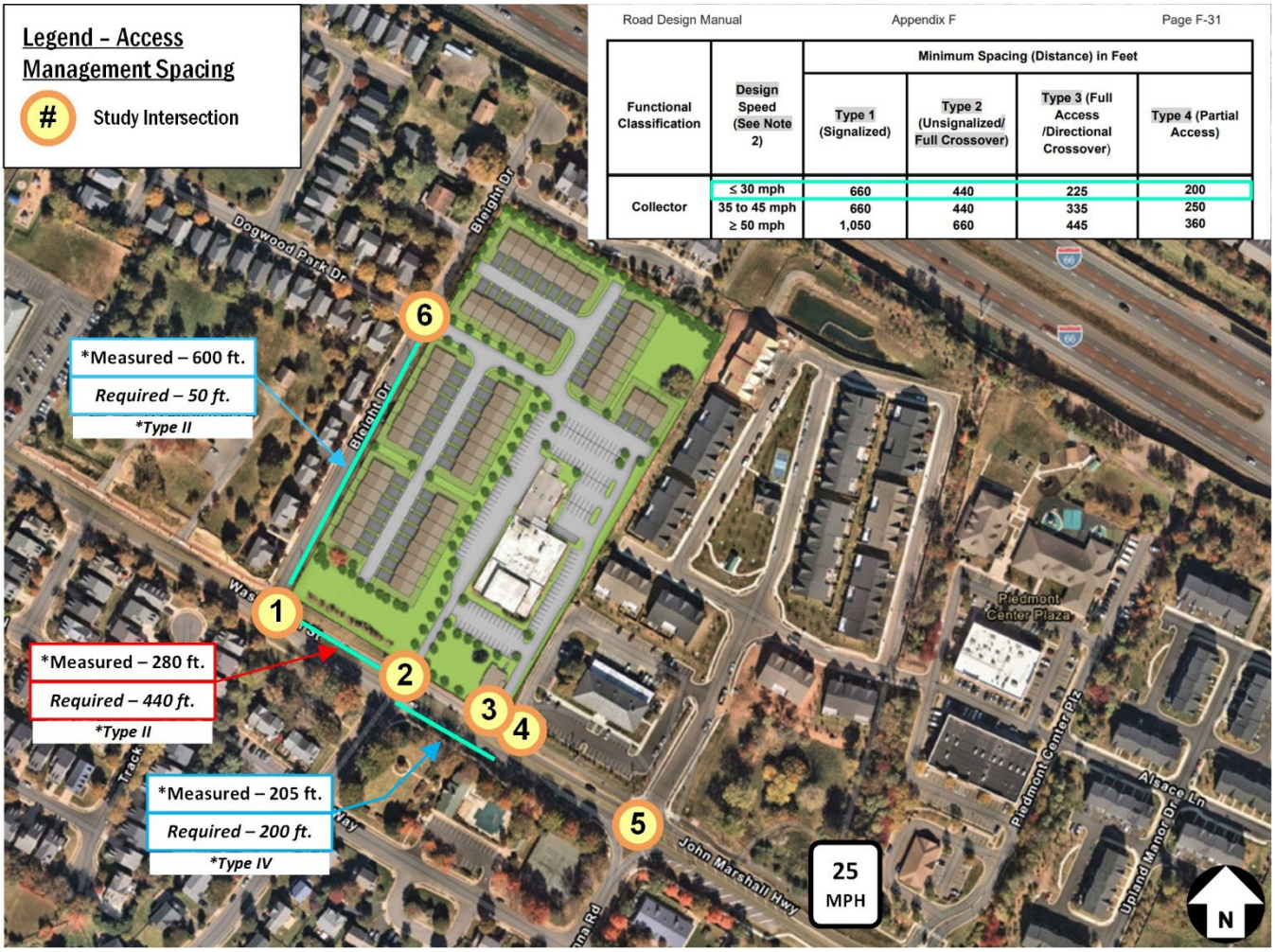



**Figure 24: Proposed Intersection Spacing Evaluations**

The following intersections would not meet VDOT intersection spacing requirements based on the current design:

- Washington St (Rte. 55)/Bleight Dr & Site Access #1 (Type II Intersection – Full Access)
    - Required spacing – 440 feet; Approximate measured spacing between intersections – 280 feet;
    - This is an existing intersection and is consistent with the character of historically rural towns like Haymarket.

- Washington St (Rte. 55) & Existing Exit Only Driveway – The existing intersection is planned to be removed due to the proximity to the commercial driveway to the east. The existing spacing between the intersections does not meet VDOT access management standards and presents an unsafe maneuver for the trips coming in to the development and the trips coming out of the commercial driveway.

Please note the locations of Site Access #1 already exists and is not proposed to shift locations.

## *Conclusion*

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

## *Analysis Components*

- Existing counts, dated Tuesday June 3, 2025, were collected while most schools were in session to reflect typical traffic patterns, and serve as the basis for this study. Existing traffic counts were conducted at the existing intersections on Saturday June,14, 2025.
- As determined based on discussions at the scoping meeting, an inherent growth rate of 2% (compounded annually) for the period 2025-2029 has been applied to all through movements along Washington St at all intersections.
- The site is anticipated to generate approximately 28 total trips during the AM peak hour, 30 total trips during the PM peak hour, 481 total daily trips on a typical weekday, 40 total trips during the Saturday peak hour, and 352 Saturday daily trips.
- One (1) identified background development was included in the study – 6700 Bleight Drive – Which will consist of approximately 11 single family attached units
- The scenarios to be included in this study are Existing Conditions (2025), Future without Development (2029), Future with Development (2029)
- The existing access to the site is served via two (2) intersections, one entrance and one egress. The development proposes to convert the existing entrance only driveway to a full access (inbound and outbound) driveway. The development also proposes to remove the existing exit only driveway as the primary bidirectional entrance would reduce driver confusion and better meet driver expectation. The proposed development is also planning to construct a fourth leg to the intersection of Bleight Dr & Dogwood Park Ln.

## *Infrastructure*

- There is one (1) identified infrastructure change with this proposed development. Construction of a fourth leg to the intersection of Bleight Dr & Dogwood Park Ln, will serve as another site access for the proposed development. No additional infrastructure changes were identified and agreed upon in the scope.

## *Analysis Results*

**Analysis Terms:**

- Level of Service (LOS) is based upon the traffic volume present in each lane on the roadway, the capacity of each lane at the intersection and the delay (in seconds) associated with each directional movement. This evaluation is consistent in all traffic analysis scenarios. Please refer to definitions of Level of Service in Appendix J.
- The 95$^{th}$ percentile queue length refers to the queue length within which 95% of all observed queues are contained during a specific analysis period. This evaluation is consistent in all traffic analysis scenarios.

**Existing Conditions (2025)**:

- All approaches and the overall intersections operate at an acceptable level of service.
- All the anticipated 95$^{th}$ percentile queues are contained in the available storage lane lengths for all the study intersections.

**Total Future without Development (2029)**:

- All approaches and the overall intersections operate at an acceptable level of service.
- All the anticipated 95th percentile queues are contained in the available storage length for all the study intersections.

**Total Future with Development (2029):**

The results of the Future with Development Conditions (2029) analysis scenario are as follows:

- All the approaches and the overall intersection operate at acceptable levels of service for all of the study intersections.
- All the anticipated 95th percentile queues are contained in the available storage length for all the study intersections.
- Please note that while all study intersections and approaches operate at acceptable levels of service, the following lane group was observed to experience larger delay:
    - Intersection #2 Washington St (Rte. 55) & Greenhill Crossing Dr/Site Access #1 – Northbound shared left/thru lane operates at LOS E in the PM peak hour. The overall approach operates acceptably.
    - The 95th percentile queue for the northbound shared left/thru lane is approximately 23 ft (less than one car). Therefore, the queues do not extend to the downstream driveways that serve the residential community.
- The reconfigurations and mitigations for this analysis scenario are as follows:
    - The existing primary driveway entrance (Access #1) will be reconfigured to a full-access driveway (inbound & outbound).
    - The existing exit-only driveway (Access #2) is planned to be closed to address the existing safety issues due to the proximity to the driveway to the east.
    - The addition of a westbound right turn lane at Intersection #2 (Washington St (Rte. 55) & Greenhill Crossing Dr/Site Access) is a proposed mitigation. Please note only a right turn taper is warranted using VDOT Road Design Manual (RDM) Turn Lane Assessment.
- In addition to the mitigation implemented for the Future Conditions with Development (2029) scenario, an alternative scenario was provided that reviewed the capacity of the adjacent roundabout to understand the capacity if existing vehicles were to reroute to utilize the intersection. The analysis confirms that the roundabout operates acceptably if additional vehicles were to use it.

## *Overall Conclusion*

Based on the capacity and queueing analysis results, the proposed development will not have a significant impact to the surrounding transportation and roadway network, assuming that all designs planned with the subject proposal, and mitigations discussed in this report are implemented.

# TECHNICAL APPENDICES

## APPENDIX LIST

Appendix A – Signed Scoping Document

Appendix B – Existing Turning Movement Counts

Appendix C – Intersection Analysis Worksheets – Existing 2025

Appendix D – Background Development Trip Generation

Appendix E – Intersection Analysis Worksheets – Future without Development (2029)

Appendix F – Intersection Analysis Worksheets – Future with Development (2029)

Appendix G – Intersection Analysis Worksheets – Future with Development (2029) Mitigated

Appendix H – Intersection Analysis Worksheets – Future with Development (2029) Alternative

Appendix I – Crash Data

Appendix J – Description of Traffic Level of Service

# APPENDIX 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: | Chad Baird, Gorove Slade<br><br>cab@goroveslade.com | | | |
| Developer/Owner Name:<br>Tele:<br>E-mail: | Graystone Companies<br><br>kjohnson@graystoneco.com | | | |
| **Project Information** | | | | |
| Project Name: | 14600 Washington St Development | Locality/County: | Town of Haymarket | |
| Project Location:<br>(Attach regional and site specific location map) | The proposed development is located north of Washington St, south of I-66, and east of Bleight Dr in the Town of Haymarket. | | | |
| Submission Type | Comp Plan ☐ | Rezoning ☒ | Site Plan ☐ | Subd Plat ☐ |
| Project Description:<br>(Including details on the land use, acreage, phasing, access location, etc. Attach additional sheet if necessary) | The site can be identified with the GPIN 7397-19-1734 and is currently zoned B-1 (Town Center). The development program for the site proposes mixed uses including 26,063 SF of commercial/office uses and up to 60 townhome units. The projected build-out date for the site is 2029. A portion of the site is currently occupied by existing commercial uses. A portion of the commercial uses (5,986 SF of Office) are planned to be removed with this application while the remaining 26,063 SF is anticipated to remain.<br><br>The site currently has 2 access points on Washington St, one of which aligns with Greenhill Crossing Drive. One additional entrance is proposed along Bleight Dr as the fourth leg to the existing intersection of Bleight Dr and Dogwood Park Ln. | | | |
| Proposed Use(s): | Residential ☐ | Commercial ☐ | Mixed Use ☒ | 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.

| | | | | |
|---|---|---|---|---|
| (Check all that apply; attach additional pages as necessary) | **Residential Uses(s)**<br>Number of Units: 60<br><br>ITE LU Code(s): 221<br><br>**Commercial Use(s)**<br>ITE LU Code(s):<br><br>Square Ft or Other Variable: | | **Other Use(s)**<br>ITE LU Code(s):<br><br>Independent Variable(s): | |
| Total Peak Hour Trip Projection: | Less than 100 ☒ | 100 – 499 ☐ | 500 – 999 ☐ | 1,000 or more ☐ |

## Traffic Impact Analysis Assumptions

| | | | |
|---|---|---|---|
| Study Period | Existing Year: 2025 | Build-out Year: 2029 | Design Year: N/A |
| Study Area Boundaries (Attach map) | North: I-66 | South: Washington St | |
| | West: Bleight Dr | East: Autumn Harvest Trl | |
| External Factors That Could Affect Project (Planned road improvements, other nearby developments) | Residential Development along Bleight Dr will be added to the analysis as a background development. | | |
| Consistency With Comprehensive Plan (Land use, transportation plan) | Town of Haymarket Planned Land use Map identifies the parcels' proposed land use as Public however the existing zoning is Town Center B-1. | | |
| Available Traffic Data (Historical, forecasts) | VDOT Historical AADT Data, Turning Movement Counts collected in 2025. | | |
| Trip Distribution (Attach sketch) Figure 2 | Road Name: Washington St (to/from West) – 50% | Road Name: Washington St (to/from East) – 50% | |
| | Road Name: (to/from North) – | Road Name: (to/from South) – | |

| | | | |
|---|---|---|---|
| Annual Vehicle Trip Growth Rate: Note #10 | 2.0% (2025-2029) | Peak Period for Study (check all that apply) | ☒ AM ☒ PM ☒ SAT |
| | | Peak Hour of Adjacent Street Table 1 | 26 AM / 32 PM / 44 SAT Peak / 522 DAILY |

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.

| | | |
|---|---|---|
| Study Intersections and/or Road Segments (Attach additional sheets as necessary) Please refer to attached Figure 1 | 1. Washington St and Bleight Dr | 6. Bleight Dr and Site Access/ Dogwood Park Dr |
| | 2. Washington St and Greenhill Crossing Dr | 7. |
| | 3. Washington St and Site Access | 8. |
| | 4. Washington St and Commercial Access | 9. |
| | 5. Washington St and Autumn Harvest Trl/Susquehanna Rd | 10. |
| Trip Adjustment Factors | Internal allowance: ☒ Yes ☐ No Reduction: 15% to existing restaurant uses in the plaza only PM/SAT/DAILY | Pass-by allowance: ☐ Yes ☒ No Reduction: |
| Software Methodology | ☒ Synchro ☐ HCS (v.2000/+) ☐ SIDRA ☐ CORSIM ☐ Other _____ | |
| Traffic Signal Proposed or Affected (Analysis software to be used, progression speed, cycle length) Note #8 | Analysis Software: Synchro version 11 Results: HCM 6 methodology | |
| Improvement(s) Assumed or to be Considered | None. | |
| Background Traffic Studies Considered | Residential Development along Bleight Dr | |
| Plan Submission | ☐ Master Development Plan (MDP) ☐ Generalized Development Plan (GDP) ☒ Preliminary/Sketch Plan ☐ Other Plan type (Final Site, Subd. Plan) | |
| Additional Issues to be Addressed | ☒ Queuing analysis ☐ Actuation/Coordination ☐ Weaving analysis ☐ Merge analysis ☒ Bike/Ped Accommodations ☒ Intersection(s) ☐ 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. Turning Movement Counts collected in 2025. The through volumes on the major movements will be balanced appropriately.
2. The scenarios to be included in the study are Existing Conditions (2025), Future without Development (2029) and Future with Development (2029).
3. Peak hour factors will be consistent with VDOT guidelines (VDOT TOSAM v2.0)
    a. Existing peak hour factors by overall intersection (minimum of 0.85) will be used for existing year analysis.
    b. For future year analysis, the PHF will be 0.92 or existing, whichever is higher.
4. Heavy vehicle percentages will be obtained from the collected traffic count data and a minimum of 2% will be used if not specified in counts. For any new intersection, the HV% will be based on a default Synchro value of 2%.
5. Acceptable Level of Service (LOS) for intersection approaches will be per Town of Haymarket's approved Comprehensive Plan. The analysis results will show intersection, approach, and movement LOS.
6. Will provide 95th percentile queues from Synchro at analyzed locations.
7. HCM 6 methodology will be utilized where applicable; HCM 2000 methodology will be utilized if HCM 6 methodology is not applicable for a certain location.
8. Preliminary Access Management/Intersections Spacing and Turn Lanes will be evaluated for the site entrances.
9. An inherent growth rate of 2% (compounded annually) for the period 2025-2029 will be applied to through movements along Washington St at all the intersections.
10. A safety assessment for all the study intersections will be included.
11. All improvements proposed by the background developments will be considered in the study.

SIGNED: DATE: 06/13/2025
Applicant or Consultant

PRINT NAME: Chad Baird
Applicant or Consultant

SIGNED: _____ DATE: _____
VDOT Representative

PRINT NAME: _____
VDOT Representative

SIGNED: _____ DATE: _____
Local Government Representative

PRINT NAME: _____
Local Government Representative

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.

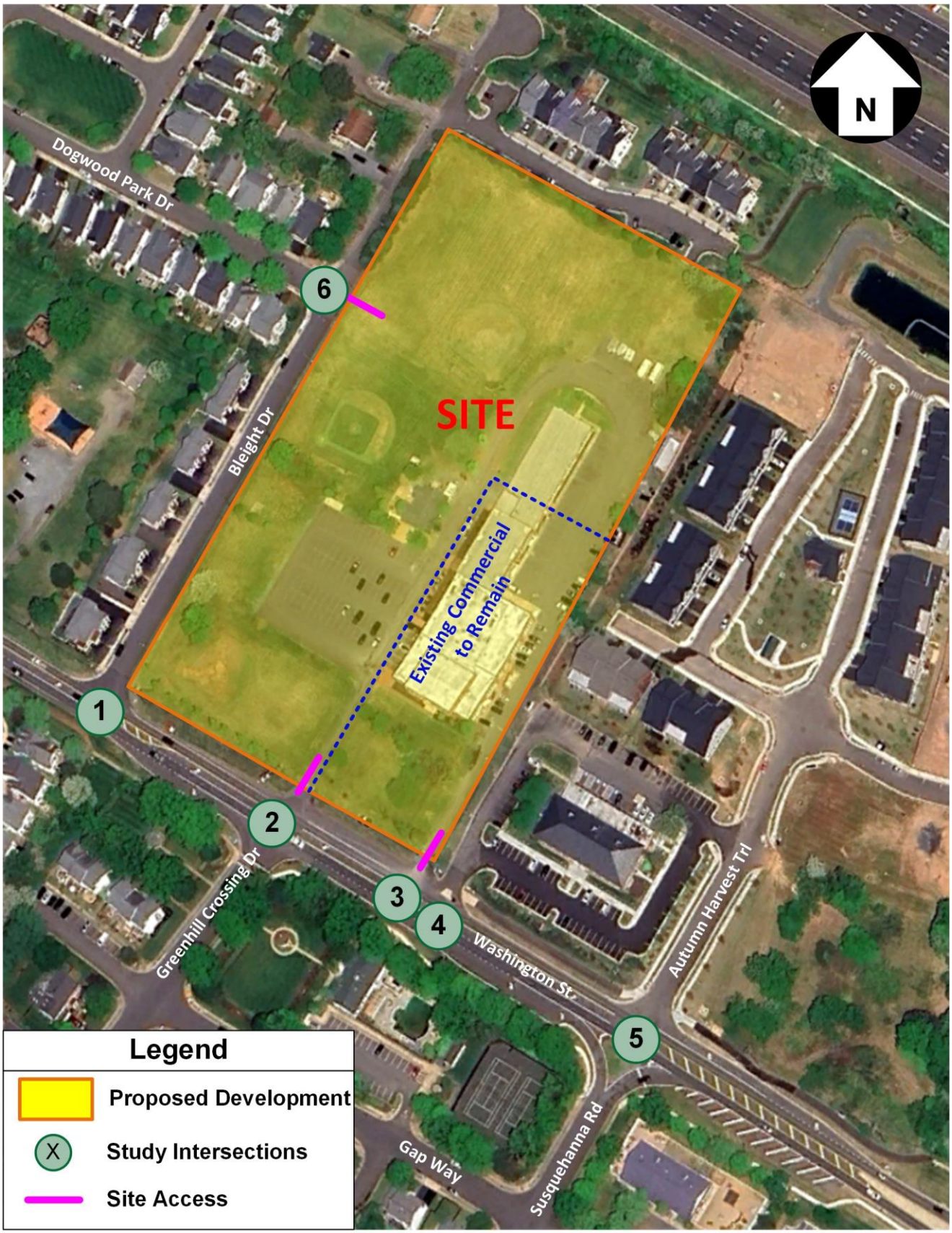



**Figure 1: Area Map and Study Intersections**

**Figure 2: Direction of Approach**

**Table 1: Trip Generation for Existing Commercial to be Removed – Peak Hour of Adjacent Street Traffic (ITE 11th Edition)**

| Land Use | ITE Code | Size | Weekday | | | | | | | Weekend | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | | | PM Peak Hour | | | Daily | Saturday Peak Hour | | | Sat Daily |
| | | | In | Out | Total | In | Out | Total | Total | In | Out | Total | Total |
| **Existing Uses to be Removed** | | | | | | | | | | | | | |
| General Office Building (EQUATIONS) | 710 | 6.0 kSF of GFA | -13 | -2 | -15 | -3 | -13 | -16 | -100 | -2 | -1 | -3 | -13 |
| **Total Exsting Trips to be Removed** | | | **-13** | **-2** | **-15** | **-3** | **-13** | **-16** | **-100** | **-2** | **-1** | **-3** | **-13** |

*Note - The office uses are currently vacant. The trips shown in the table represent the trips that the office uses could generate if fully occupied.*

**Table 2: Trip Generation for Proposed Development - Peak Hour of Adjacent Street Traffic (ITE 11th Edition)**

| Land Use | ITE Code | Size | Weekday | | | | | | | Weekend | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | | | PM Peak Hour | | | Daily | Saturday Peak Hour | | | Sat Daily |
| | | | In | Out | Total | In | Out | Total | Total | In | Out | Total | Total |
| **Proposed Use** | | | | | | | | | | | | | |
| Single-Family Attached Housing (EQUATIONS) | 215 | 60 DU | 6 | 20 | 26 | 19 | 13 | 32 | 522 | 21 | 23 | 44 | 348 |
| **Total Proposed Trips without Reduction** | | | **6** | **20** | **26** | **19** | **13** | **32** | **522** | **21** | **23** | **44** | **348** |
| *Internal Capture Residential - Restaurant*[1] | | *15% PM/SAT/DAILY* | *0* | *0* | *0* | *-3* | *-2* | *-5* | *-78* | *-3* | *-3* | *-7* | *-52* |
| **Total Proposed Trips with Reduction** | | | **6** | **20** | **26** | **16** | **11** | **27** | **444** | **18** | **20** | **37** | **296** |
| **Difference in Trips (Proposed - Existing)** | | | **-7** | **18** | **11** | **13** | **-2** | **11** | **344** | **16** | **19** | **34** | **283** |

[1] *Internal capture rates consider site trips "captured" within a mixed use development, recognizing that trips from one land use can access another land use within a site development without having to access the adjacent street system. Internal capture allows reduction of site trips from adjacent intersections and roadways.*

*The internal reduction is based on the VDOT Updated Administrative Guidelines for the Traffic Impact Analysis Regulations:*

*(1) residential / non-residential components - smaller of 15% of residential trips or 15% of non-residential trips*

**Table 3: VDOT Published Roadway Information (2023)**

| Roadway | RTE # | VDOT Classification | Posted Speed Limit (mph) | AADT (vpd) | k-factor |
|---|---|---|---|---|---|
| Washington St | VA 55 | Major Collector | 25 | 13,000 | 8.9% |

*Source: 2023 VDOT Published AADT Traffic Data*

**Table 4: VDOT Historical AADTs**

| | | | Published VDOT AADT | | | | |
|---|---|---|---|---|---|---|---|
| Road Segment: | From: | To: | 2019 | 2020 | 2021 | 2022 | 2023 |
| Washington St | Old Carolina Rd | Town of Haymarket Bdry | 11,000 | 7,900 | 9,000 | 9,950 | 13,000 |

*Source: VDOT Published AADT Traffic Data*

**Figure 3: Preliminary Sketch (For Illustrative Purposes Only)**

# APPENDIX B: EXISTING TURNING MOVEMENT COUNTS

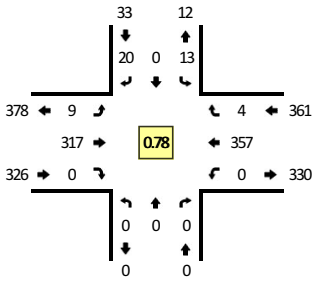
Type of peak hour being reported: Intersection Peak

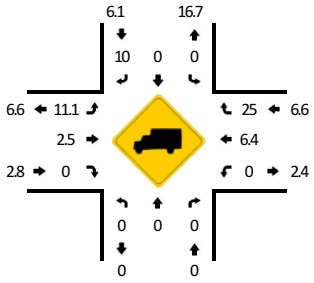
Method for determining peak hour: Tota

**LOCATION:** Bleight Dr -- Rte 55
**CITY/STATE:** Haymarket, VA

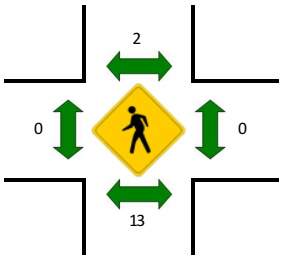
**QC JOB #:** 17110501
**DATE:** Tue, Jun 3 2025

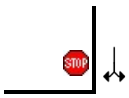
**Peak-Hour: 8:00 AM -- 9:00 AM**
**Peak 15-Min: 8:45 AM -- 9:00 AM**

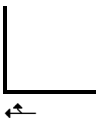


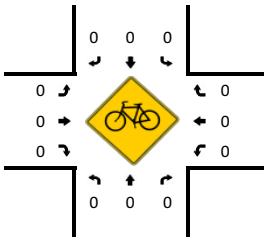



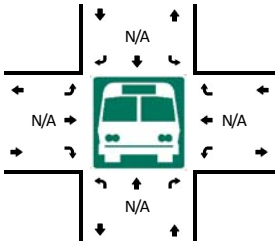

TRUE DATA TO IMPROVE MOBILITY

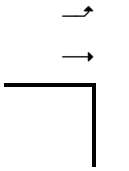


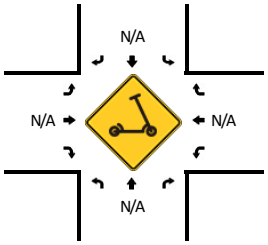








| 15-Min Count Period Beginning At | Bleight Dr (Northbound) | | | | Bleight Dr (Southbound) | | | | Rte 55 (Eastbound) | | | | Rte 55 (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 6:00 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 20 | 0 | 0 | 35 | |
| 6:15 AM | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 25 | 0 | 0 | 0 | 24 | 0 | 0 | 53 | |
| 6:30 AM | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 31 | 0 | 0 | 0 | 26 | 1 | 0 | 66 | |
| 6:45 AM | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 0 | 3 | 49 | 0 | 0 | 0 | 54 | 0 | 0 | 110 | 264 |
| 7:00 AM | 0 | 0 | 0 | 0 | 4 | 0 | 7 | 0 | 3 | 63 | 0 | 0 | 0 | 55 | 1 | 0 | 133 | 362 |
| 7:15 AM | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 0 | 0 | 53 | 0 | 0 | 0 | 41 | 2 | 0 | 101 | 410 |
| 7:30 AM | 0 | 0 | 0 | 0 | 3 | 0 | 4 | 0 | 1 | 69 | 0 | 0 | 0 | 62 | 1 | 0 | 140 | 484 |
| 7:45 AM | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 1 | 82 | 0 | 0 | 0 | 60 | 0 | 0 | 149 | 523 |
| 8:00 AM | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 0 | 0 | 71 | 0 | 0 | 0 | 63 | 1 | 0 | 140 | 530 |
| 8:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 4 | 0 | 4 | 74 | 0 | 0 | 0 | 77 | 0 | 0 | 160 | 589 |
| 8:30 AM | 0 | 0 | 0 | 0 | 2 | 0 | 5 | 0 | 1 | 79 | 0 | 0 | 0 | 101 | 2 | 0 | 190 | 639 |
| 8:45 AM | 0 | 0 | 0 | 0 | 6 | 0 | 10 | 0 | 3 | 93 | 0 | 1 | 0 | 116 | 1 | 0 | 230 | 720 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 0 | 0 | 0 | 24 | 0 | 40 | 0 | 12 | 372 | 0 | 4 | 0 | 464 | 4 | 0 | 920 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 8 | | 4 | 12 | 0 | | 0 | 12 | 4 | | 40 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 16 | | | | 0 | | | | 0 | | | | 0 | | | 16 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 6/13/2025 9:01 AM

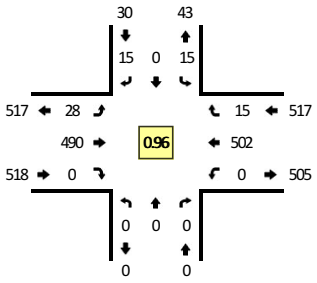
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

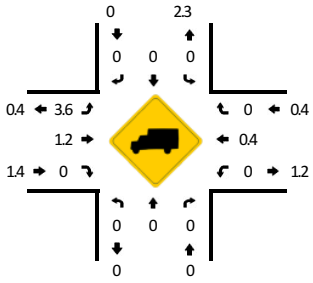
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Tota

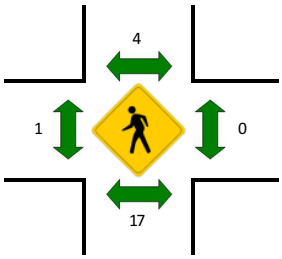
**LOCATION:** Bleight Dr -- Rte 55
**CITY/STATE:** Haymarket, VA

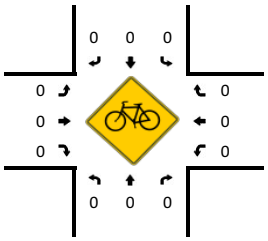
**QC JOB #:** 17110502
**DATE:** Tue, Jun 3 2025

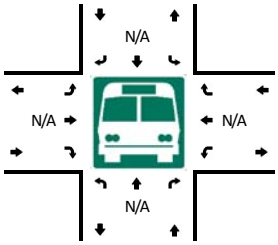
**Peak-Hour: 4:45 PM -- 5:45 PM**
**Peak 15-Min: 5:30 PM -- 5:45 PM**

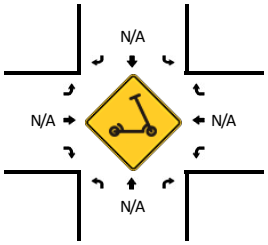









| 15-Min Count Period Beginning At | Bleight Dr (Northbound) | | | | Bleight Dr (Southbound) | | | | Rte 55 (Eastbound) | | | | Rte 55 (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 0 | 0 | 0 | 0 | 2 | 0 | 4 | 0 | 6 | 97 | 0 | 0 | 0 | 119 | 1 | 0 | 229 | |
| 4:15 PM | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 0 | 2 | 95 | 0 | 0 | 0 | 129 | 5 | 0 | 236 | |
| 4:30 PM | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 0 | 6 | 134 | 0 | 0 | 0 | 118 | 5 | 0 | 269 | |
| 4:45 PM | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 4 | 129 | 0 | 0 | 0 | 121 | 2 | 0 | 262 | 996 |
| 5:00 PM | 0 | 0 | 0 | 0 | 2 | 0 | 3 | 0 | 9 | 102 | 0 | 0 | 0 | 133 | 6 | 0 | 255 | 1022 |
| 5:15 PM | 0 | 0 | 0 | 0 | 7 | 0 | 4 | 0 | 7 | 133 | 0 | 0 | 0 | 117 | 2 | 0 | 270 | 1056 |
| 5:30 PM | 0 | 0 | 0 | 0 | 3 | 0 | 5 | 0 | 8 | 126 | 0 | 0 | 0 | 131 | 5 | 0 | 278 | 1065 |
| 5:45 PM | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 0 | 3 | 132 | 0 | 0 | 0 | 110 | 3 | 0 | 258 | 1061 |
| 6:00 PM | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 0 | 3 | 111 | 0 | 0 | 0 | 120 | 4 | 0 | 243 | 1049 |
| 6:15 PM | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 6 | 107 | 0 | 0 | 0 | 136 | 5 | 0 | 257 | 1036 |
| 6:30 PM | 0 | 0 | 0 | 0 | 6 | 0 | 3 | 0 | 1 | 90 | 0 | 0 | 0 | 130 | 5 | 0 | 235 | 993 |
| 6:45 PM | 0 | 0 | 0 | 0 | 1 | 0 | 6 | 0 | 3 | 99 | 0 | 0 | 0 | 120 | 6 | 0 | 235 | 970 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 0 | 0 | 0 | 12 | 0 | 20 | 0 | 32 | 504 | 0 | 0 | 0 | 524 | 20 | 0 | 1112 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 8 | | | | 12 | | | | 0 | | | | 0 | | | 20 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 6/13/2025 9:01 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

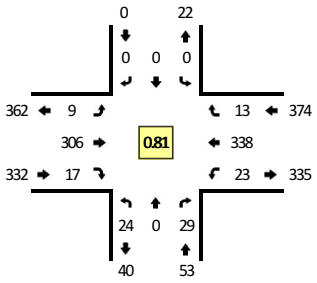
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Tota

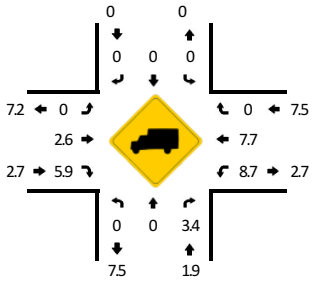
**LOCATION:** Greenhill Crossing Dr/Dwy -- Rte 55
**CITY/STATE:** Haymarket, VA

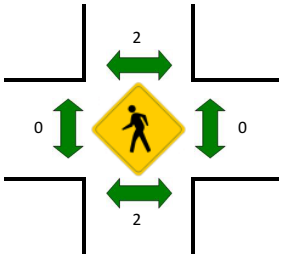
**QC JOB #:** 17110503
**DATE:** Tue, Jun 3 2025

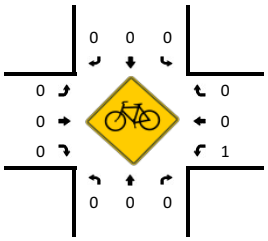
**Peak-Hour: 8:00 AM -- 9:00 AM**
**Peak 15-Min: 8:45 AM -- 9:00 AM**

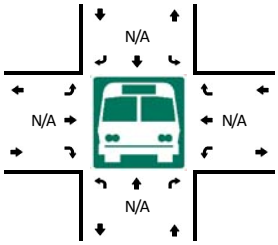


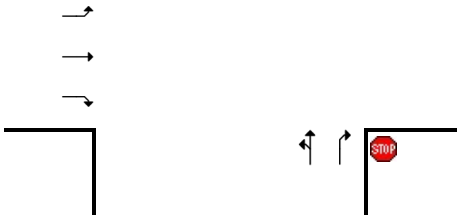

TRUE DATA TO IMPROVE MOBILITY

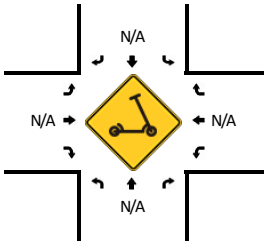





| 15-Min Count Period Beginning At | Greenhill Crossing Dr/Dwy (Northbound) | | | | Greenhill Crossing Dr/Dwy (Southbound) | | | | Rte 55 (Eastbound) | | | | Rte 55 (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 6:00 AM | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 1 | 0 | 2 | 18 | 2 | 0 | 43 | |
| 6:15 AM | 7 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 26 | 0 | 0 | 0 | 17 | 1 | 0 | 55 | |
| 6:30 AM | 7 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 0 | 0 | 2 | 20 | 0 | 0 | 72 | |
| 6:45 AM | 8 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 51 | 1 | 0 | 2 | 47 | 1 | 0 | 118 | 288 |
| 7:00 AM | 11 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 64 | 3 | 0 | 7 | 45 | 0 | 0 | 136 | 381 |
| 7:15 AM | 6 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 55 | 1 | 0 | 4 | 39 | 0 | 0 | 110 | 436 |
| 7:30 AM | 7 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 66 | 4 | 0 | 3 | 53 | 2 | 0 | 141 | 505 |
| 7:45 AM | 12 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 9 | 75 | 2 | 0 | 7 | 49 | 7 | 0 | 170 | 557 |
| 8:00 AM | 3 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 7 | 61 | 6 | 0 | 4 | 61 | 4 | 0 | 152 | 573 |
| 8:15 AM | 11 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 72 | 5 | 0 | 7 | 66 | 4 | 0 | 174 | 637 |
| 8:30 AM | 5 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 1 | 77 | 2 | 0 | 7 | 100 | 1 | 0 | 199 | 695 |
| 8:45 AM | 5 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 1 | 96 | 4 | 0 | 5 | 111 | 4 | 0 | 234 | 759 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 20 | 0 | 32 | 0 | 0 | 0 | 0 | 0 | 4 | 384 | 16 | 0 | 20 | 444 | 16 | 0 | 936 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 12 | 0 | | 0 | 20 | 0 | | 32 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 4 | 0 | 0 | | 4 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 6/13/2025 9:01 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

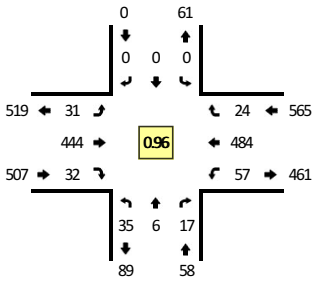
Type of peak hour being reported: Intersection Peak

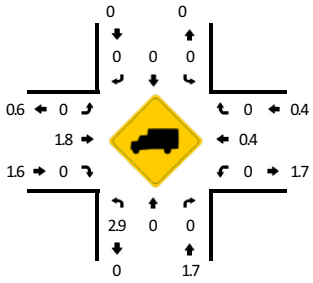
Method for determining peak hour: Tota

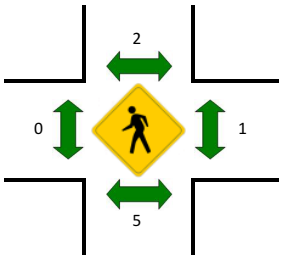
**LOCATION:** Greenhill Crossing Dr/Dwy -- Rte 55
**CITY/STATE:** Haymarket, VA

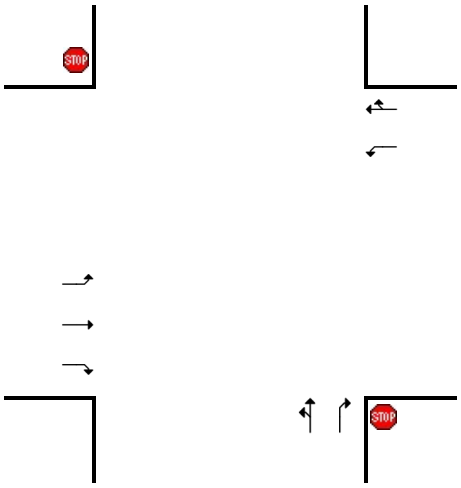
**QC JOB #:** 17110504
**DATE:** Tue, Jun 3 2025

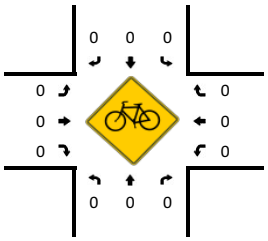
**Peak-Hour: 4:45 PM -- 5:45 PM**
**Peak 15-Min: 5:30 PM -- 5:45 PM**

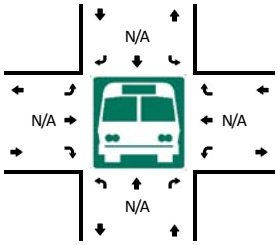




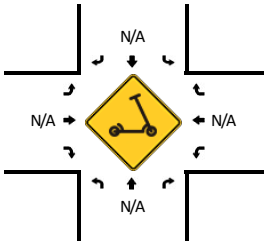










| 15-Min Count Period Beginning At | Greenhill Crossing Dr/Dwy (Northbound) | | | | Greenhill Crossing Dr/Dwy (Southbound) | | | | Rte 55 (Eastbound) | | | | Rte 55 (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 9 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 95 | 2 | 0 | 17 | 108 | 1 | 0 | 236 | |
| 4:15 PM | 8 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 3 | 86 | 8 | 0 | 10 | 126 | 6 | 0 | 252 | |
| 4:30 PM | 7 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 6 | 120 | 7 | 0 | 16 | 116 | 4 | 0 | 282 | |
| 4:45 PM | 9 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 6 | 119 | 10 | 0 | 12 | 117 | 4 | 0 | 284 | 1054 |
| 5:00 PM | 5 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 94 | 7 | 0 | 21 | 133 | 2 | 0 | 269 | 1087 |
| 5:15 PM | 8 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 4 | 128 | 7 | 0 | 12 | 112 | 7 | 0 | 284 | 1119 |
| 5:30 PM | 13 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 18 | 103 | 8 | 0 | 12 | 122 | 11 | 0 | 293 | 1130 |
| 5:45 PM | 9 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 14 | 113 | 6 | 0 | 12 | 106 | 8 | 0 | 275 | 1121 |
| 6:00 PM | 13 | 1 | 7 | 0 | 0 | 0 | 0 | 0 | 11 | 93 | 8 | 0 | 12 | 115 | 8 | 0 | 268 | 1120 |
| 6:15 PM | 12 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 9 | 93 | 3 | 0 | 11 | 128 | 2 | 0 | 262 | 1098 |
| 6:30 PM | 14 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 9 | 77 | 8 | 0 | 3 | 124 | 6 | 0 | 247 | 1052 |
| 6:45 PM | 9 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 6 | 91 | 0 | 0 | 5 | 120 | 6 | 0 | 242 | 1019 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 52 | 4 | 20 | 0 | 0 | 0 | 0 | 0 | 72 | 412 | 32 | 0 | 48 | 488 | 44 | 0 | 1172 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 8 | | | | 0 | | | | 0 | | | | 0 | | | 8 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 6/13/2025 9:01 AM

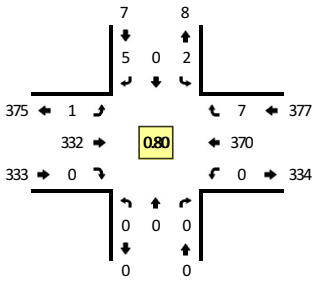
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

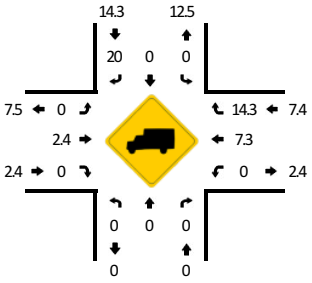
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Tota

**LOCATION:** Private Dwy -- Rte 55
**CITY/STATE:** Gainesville, VA

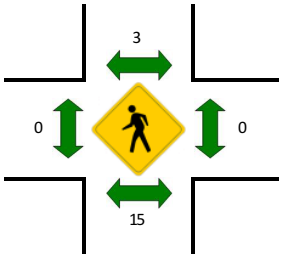
**QC JOB #:** 17110505
**DATE:** Tue, Jun 3 2025

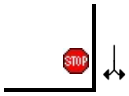
**Peak-Hour: 8:00 AM -- 9:00 AM**
**Peak 15-Min: 8:45 AM -- 9:00 AM**

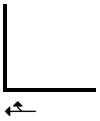


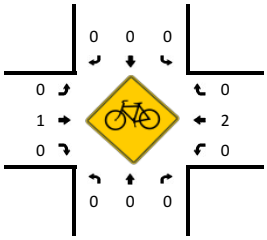



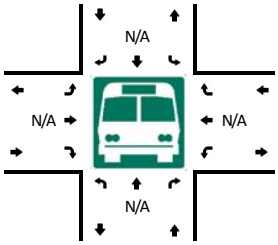

TRUE DATA TO IMPROVE MOBILITY

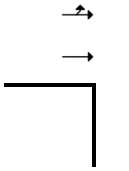


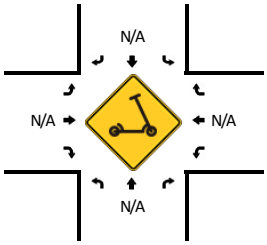








| 15-Min Count Period Beginning At | Private Dwy (Northbound) | | | | Private Dwy (Southbound) | | | | Rte 55 (Eastbound) | | | | Rte 55 (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 6:00 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 22 | 0 | 0 | 41 | |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 0 | 0 | 0 | 18 | 0 | 0 | 47 | |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 | 0 | 0 | 0 | 23 | 0 | 0 | 66 | |
| 6:45 AM | 0 | 0 | 0 | 0 | 7 | 0 | 7 | 0 | 0 | 59 | 0 | 0 | 0 | 43 | 0 | 0 | 116 | 270 |
| 7:00 AM | 0 | 0 | 0 | 0 | 2 | 0 | 3 | 0 | 0 | 70 | 0 | 0 | 0 | 48 | 0 | 0 | 123 | 352 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 59 | 0 | 0 | 0 | 43 | 0 | 0 | 102 | 407 |
| 7:30 AM | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 71 | 0 | 0 | 0 | 57 | 1 | 0 | 131 | 472 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 84 | 0 | 0 | 0 | 62 | 1 | 0 | 148 | 504 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 68 | 0 | 0 | 0 | 71 | 2 | 0 | 141 | 522 |
| 8:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 81 | 0 | 0 | 0 | 74 | 2 | 0 | 159 | 579 |
| 8:30 AM | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 82 | 0 | 0 | 0 | 108 | 1 | 0 | 194 | 642 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 101 | 0 | 0 | 0 | 117 | 2 | 0 | 223 | 717 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 4 | 404 | 0 | 0 | 0 | 468 | 8 | 0 | 892 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 12 | 0 | | 0 | 20 | 0 | | 32 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 12 | | | | 4 | | | | 0 | | | | 0 | | | 16 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 4 | 0 | | 4 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 6/13/2025 9:01 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

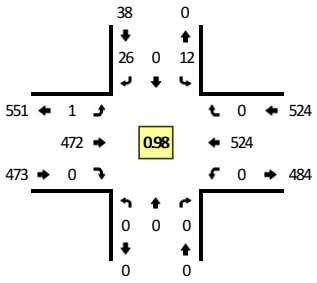
Type of peak hour being reported: Intersection Peak

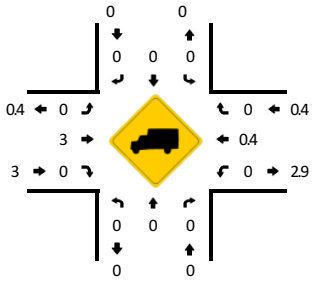
Method for determining peak hour: Tota

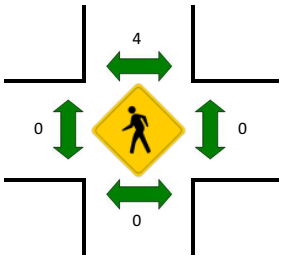
**LOCATION:** Private Dwy -- Rte 55
**CITY/STATE:** Gainesville, VA

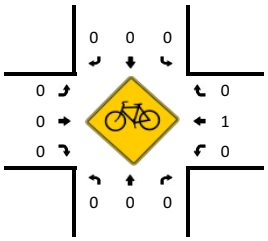
**QC JOB #:** 17110506
**DATE:** Tue, Jun 3 2025

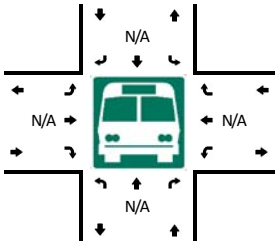
**Peak-Hour: 4:30 PM -- 5:30 PM**
**Peak 15-Min: 5:15 PM -- 5:30 PM**

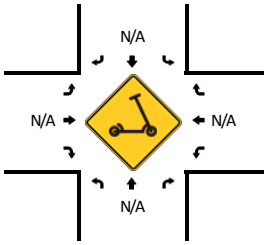









| 15-Min Count Period Beginning At | Private Dwy (Northbound) | | | | Private Dwy (Southbound) | | | | Rte 55 (Eastbound) | | | | Rte 55 (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 0 | 0 | 0 | 0 | 2 | 0 | 3 | 0 | 0 | 98 | 0 | 0 | 0 | 123 | 0 | 0 | 226 | |
| 4:15 PM | 0 | 0 | 0 | 0 | 4 | 0 | 3 | 0 | 0 | 90 | 0 | 0 | 0 | 139 | 0 | 0 | 236 | |
| 4:30 PM | 0 | 0 | 0 | 0 | 2 | 0 | 3 | 0 | 0 | 122 | 0 | 1 | 0 | 130 | 0 | 0 | 258 | |
| 4:45 PM | 0 | 0 | 0 | 0 | 3 | 0 | 4 | 0 | 0 | 125 | 0 | 0 | 0 | 129 | 0 | 0 | 261 | 981 |
| 5:00 PM | 0 | 0 | 0 | 0 | 2 | 0 | 11 | 0 | 0 | 95 | 0 | 0 | 0 | 143 | 0 | 0 | 251 | 1006 |
| 5:15 PM | 0 | 0 | 0 | 0 | 5 | 0 | 8 | 0 | 0 | 130 | 0 | 0 | 0 | 122 | 0 | 0 | 265 | 1035 |
| 5:30 PM | 0 | 0 | 0 | 0 | 2 | 0 | 5 | 0 | 0 | 104 | 0 | 0 | 0 | 138 | 0 | 0 | 249 | 1026 |
| 5:45 PM | 0 | 0 | 0 | 0 | 4 | 0 | 6 | 0 | 1 | 121 | 0 | 0 | 0 | 120 | 0 | 0 | 252 | 1017 |
| 6:00 PM | 0 | 0 | 0 | 0 | 2 | 0 | 6 | 0 | 0 | 99 | 0 | 0 | 0 | 131 | 1 | 0 | 239 | 1005 |
| 6:15 PM | 0 | 0 | 0 | 0 | 5 | 0 | 11 | 0 | 0 | 92 | 0 | 0 | 0 | 130 | 0 | 0 | 238 | 978 |
| 6:30 PM | 0 | 0 | 0 | 0 | 15 | 0 | 16 | 0 | 1 | 83 | 0 | 0 | 0 | 119 | 0 | 0 | 234 | 963 |
| 6:45 PM | 0 | 0 | 0 | 0 | 3 | 0 | 18 | 0 | 0 | 95 | 0 | 0 | 0 | 113 | 1 | 0 | 230 | 941 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 0 | 0 | 0 | 20 | 0 | 32 | 0 | 0 | 520 | 0 | 0 | 0 | 488 | 0 | 0 | 1060 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 4 | 0 | | 0 | 0 | 0 | | 4 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 4 | | | | 0 | | | | 0 | | | 4 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 6/13/2025 9:01 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

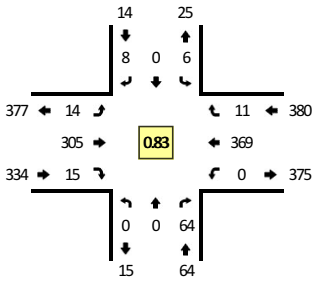
Type of peak hour being reported: Intersection Peak

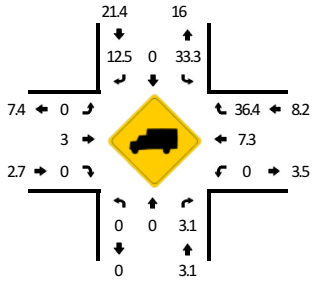
Method for determining peak hour: Tota

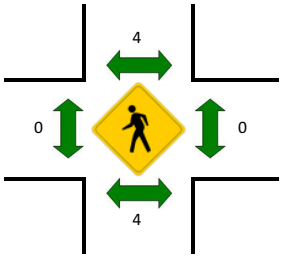
**LOCATION:** Autumn Harvest Trl/Susquehanna Rd -- Rte 55
**CITY/STATE:** Gainesville, VA

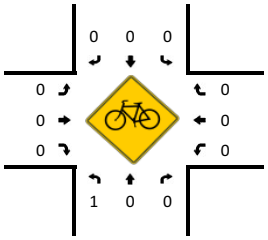
**QC JOB #:** 17110507
**DATE:** Tue, Jun 3 2025

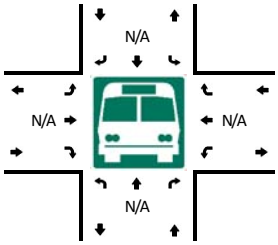
**Peak-Hour: 8:00 AM -- 9:00 AM**
**Peak 15-Min: 8:45 AM -- 9:00 AM**

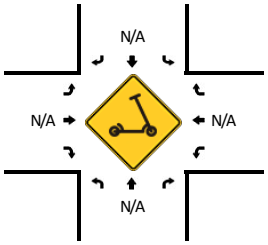







| 15-Min Count Period Beginning At | Autumn Harvest Trl/Susquehanna Rd (Northbound) | | | | Autumn Harvest Trl/Susquehanna Rd (Southbound) | | | | Rte 55 (Eastbound) | | | | Rte 55 (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 6:00 AM | 0 | 0 | 6 | 0 | 1 | 1 | 0 | 0 | 2 | 16 | 0 | 0 | 0 | 22 | 1 | 0 | 49 | |
| 6:15 AM | 0 | 0 | 28 | 0 | 0 | 0 | 0 | 0 | 1 | 25 | 1 | 0 | 0 | 19 | 1 | 0 | 75 | |
| 6:30 AM | 0 | 1 | 13 | 0 | 2 | 1 | 1 | 0 | 4 | 40 | 1 | 0 | 0 | 23 | 4 | 0 | 90 | |
| 6:45 AM | 0 | 0 | 14 | 0 | 1 | 0 | 1 | 0 | 0 | 64 | 2 | 0 | 0 | 41 | 2 | 0 | 125 | 339 |
| 7:00 AM | 0 | 0 | 17 | 0 | 0 | 0 | 1 | 0 | 2 | 67 | 3 | 0 | 0 | 47 | 0 | 0 | 137 | 427 |
| 7:15 AM | 0 | 0 | 14 | 0 | 2 | 0 | 1 | 0 | 1 | 53 | 4 | 0 | 0 | 42 | 1 | 0 | 118 | 470 |
| 7:30 AM | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 1 | 0 | 66 | 6 | 0 | 0 | 58 | 0 | 0 | 141 | 521 |
| 7:45 AM | 0 | 0 | 22 | 0 | 3 | 0 | 2 | 0 | 1 | 78 | 6 | 0 | 0 | 63 | 1 | 0 | 176 | 572 |
| 8:00 AM | 0 | 0 | 11 | 0 | 0 | 0 | 4 | 0 | 3 | 60 | 5 | 0 | 0 | 68 | 2 | 0 | 153 | 588 |
| 8:15 AM | 0 | 0 | 18 | 0 | 2 | 0 | 2 | 0 | 4 | 75 | 3 | 0 | 0 | 73 | 5 | 0 | 182 | 652 |
| 8:30 AM | 0 | 0 | 21 | 0 | 2 | 0 | 1 | 0 | 5 | 73 | 4 | 0 | 0 | 110 | 2 | 0 | 218 | 729 |
| 8:45 AM | 0 | 0 | 14 | 0 | 2 | 0 | 1 | 0 | 2 | 97 | 3 | 0 | 0 | 118 | 2 | 0 | 239 | 792 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 0 | 56 | 0 | 8 | 0 | 4 | 0 | 8 | 388 | 12 | 0 | 0 | 472 | 8 | 0 | 956 |
| Heavy Trucks | 0 | 0 | 0 | | 4 | 0 | 0 | | 0 | 12 | 0 | | 0 | 20 | 0 | | 36 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 8 | | | | 8 | | | | 0 | | | | 0 | | | 16 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 6/13/2025 9:01 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

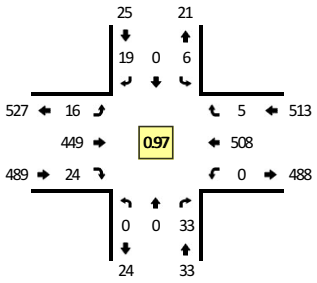
Type of peak hour being reported: Intersection Peak

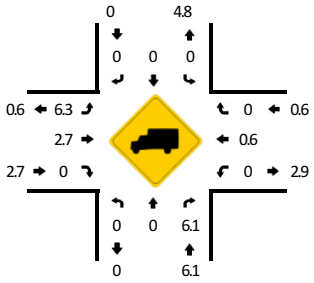
Method for determining peak hour: Tota

**LOCATION:** Autumn Harvest Trl/Susquehanna Rd -- Rte 55
**CITY/STATE:** Gainesville, VA

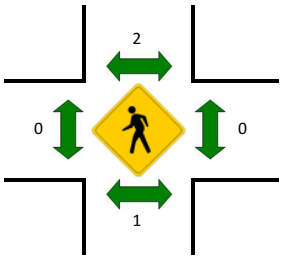
**QC JOB #:** 17110508
**DATE:** Tue, Jun 3 2025

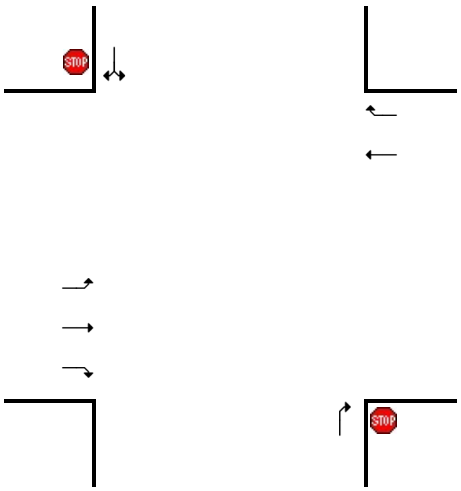
**Peak-Hour: 4:30 PM -- 5:30 PM**
**Peak 15-Min: 4:45 PM -- 5:00 PM**

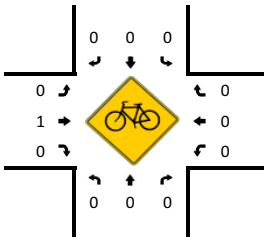


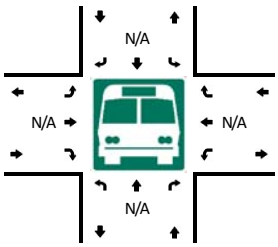




TRUE DATA TO IMPROVE MOBILITY



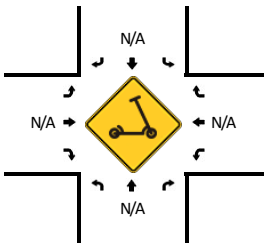










| 15-Min Count Period Beginning At | Autumn Harvest Trl/Susquehanna Rd (Northbound) | | | | Autumn Harvest Trl/Susquehanna Rd (Southbound) | | | | Rte 55 (Eastbound) | | | | Rte 55 (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 0 | 0 | 7 | 0 | 0 | 0 | 1 | 0 | 4 | 92 | 4 | 0 | 0 | 121 | 2 | 0 | 231 | |
| 4:15 PM | 0 | 0 | 8 | 0 | 2 | 0 | 2 | 0 | 3 | 88 | 4 | 0 | 0 | 138 | 3 | 0 | 248 | |
| 4:30 PM | 0 | 0 | 10 | 0 | 0 | 0 | 4 | 0 | 1 | 117 | 6 | 0 | 0 | 127 | 1 | 0 | 266 | |
| 4:45 PM | 0 | 0 | 11 | 0 | 0 | 0 | 3 | 0 | 6 | 117 | 6 | 0 | 0 | 127 | 2 | 0 | 272 | 1017 |
| 5:00 PM | 0 | 0 | 5 | 0 | 5 | 0 | 10 | 0 | 5 | 90 | 4 | 0 | 0 | 133 | 1 | 0 | 253 | 1039 |
| 5:15 PM | 0 | 0 | 7 | 0 | 1 | 0 | 2 | 0 | 4 | 125 | 8 | 0 | 0 | 121 | 1 | 0 | 269 | 1060 |
| 5:30 PM | 0 | 0 | 13 | 0 | 0 | 0 | 5 | 0 | 4 | 98 | 5 | 0 | 0 | 137 | 1 | 0 | 263 | 1057 |
| 5:45 PM | 0 | 0 | 4 | 0 | 1 | 0 | 5 | 0 | 6 | 114 | 6 | 0 | 1 | 115 | 3 | 0 | 255 | 1040 |
| 6:00 PM | 0 | 0 | 16 | 0 | 2 | 0 | 2 | 0 | 3 | 97 | 3 | 0 | 0 | 131 | 0 | 0 | 254 | 1041 |
| 6:15 PM | 0 | 0 | 14 | 0 | 0 | 0 | 1 | 0 | 3 | 95 | 3 | 0 | 0 | 131 | 4 | 0 | 251 | 1023 |
| 6:30 PM | 0 | 0 | 7 | 0 | 1 | 0 | 1 | 0 | 2 | 98 | 2 | 0 | 0 | 121 | 1 | 0 | 233 | 993 |
| 6:45 PM | 0 | 0 | 5 | 0 | 0 | 0 | 1 | 0 | 1 | 95 | 3 | 0 | 0 | 110 | 2 | 0 | 217 | 955 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 0 | 44 | 0 | 0 | 0 | 12 | 0 | 24 | 468 | 24 | 0 | 0 | 508 | 8 | 0 | 1088 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 4 | 16 | 0 | | 0 | 4 | 0 | | 24 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 4 | | | | 0 | | | | 0 | | | 4 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 6/13/2025 9:01 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

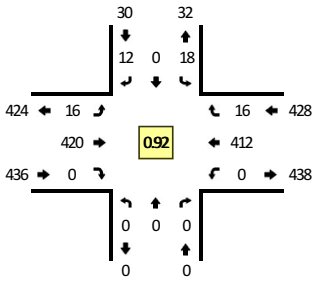
Type of peak hour being reported: Intersection Peak

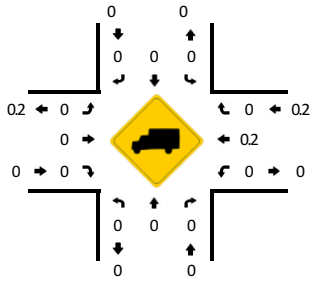
Method for determining peak hour: Tota

**LOCATION:** Bleight Dr -- Rte 55
**CITY/STATE:** Haymarket, VA

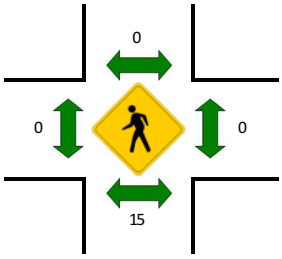
**QC JOB #:** 17126506
**DATE:** Sat, Jun 14 2025

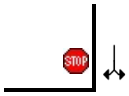
**Peak-Hour: 5:00 PM -- 6:00 PM**
**Peak 15-Min: 5:45 PM -- 6:00 PM**

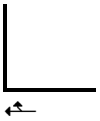


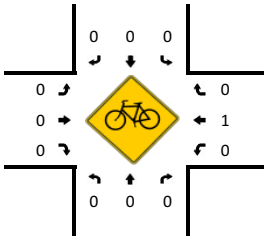



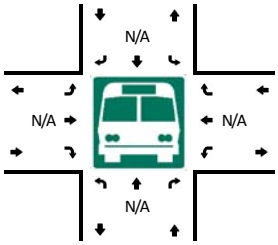

TRUE DATA TO IMPROVE MOBILITY

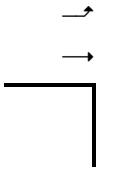


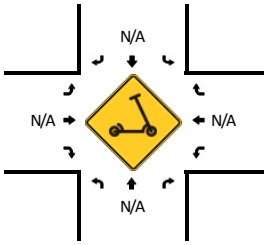








| 15-Min Count Period Beginning At | Bleight Dr (Northbound) | | | | Bleight Dr (Southbound) | | | | Rte 55 (Eastbound) | | | | Rte 55 (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:30 PM | 0 | 0 | 0 | 0 | 2 | 0 | 3 | 0 | 2 | 95 | 0 | 0 | 0 | 95 | 3 | 0 | 200 | |
| 4:45 PM | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 0 | 3 | 99 | 0 | 0 | 0 | 87 | 1 | 0 | 196 | |
| 5:00 PM | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 3 | 109 | 0 | 0 | 0 | 107 | 2 | 0 | 225 | |
| 5:15 PM | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 0 | 3 | 95 | 0 | 0 | 0 | 105 | 6 | 0 | 214 | 835 |
| 5:30 PM | 0 | 0 | 0 | 0 | 4 | 0 | 2 | 0 | 5 | 111 | 0 | 0 | 0 | 87 | 4 | 0 | 213 | 848 |
| 5:45 PM | 0 | 0 | 0 | 0 | 8 | 0 | 7 | 0 | 5 | 105 | 0 | 0 | 0 | 113 | 4 | 0 | 242 | 894 |
| 6:00 PM | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 4 | 94 | 0 | 0 | 0 | 112 | 4 | 0 | 217 | 886 |
| 6:15 PM | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 90 | 0 | 0 | 0 | 92 | 0 | 0 | 187 | 859 |
| 6:30 PM | 0 | 0 | 0 | 0 | 2 | 0 | 3 | 0 | 3 | 91 | 0 | 0 | 0 | 112 | 4 | 0 | 215 | 861 |
| 6:45 PM | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 0 | 5 | 82 | 0 | 0 | 0 | 87 | 7 | 0 | 187 | 806 |
| 7:00 PM | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 0 | 2 | 89 | 0 | 0 | 0 | 87 | 4 | 0 | 187 | 776 |
| 7:15 PM | 0 | 0 | 0 | 0 | 2 | 0 | 3 | 0 | 2 | 68 | 0 | 0 | 0 | 76 | 3 | 0 | 154 | 743 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 0 | 0 | 0 | 32 | 0 | 28 | 0 | 20 | 420 | 0 | 0 | 0 | 452 | 16 | 0 | 968 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 4 | 0 | | 4 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 4 | | | | 0 | | | | 0 | | | | 0 | | | 4 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 4 | 0 | | 4 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 6/18/2025 9:05 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

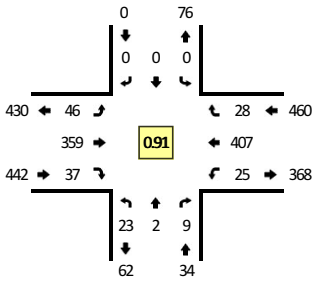
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Tota

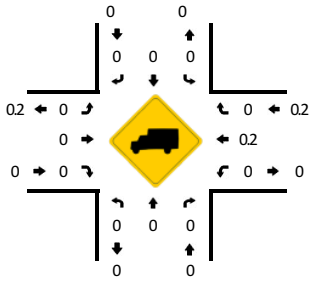
**LOCATION:** Greenhill Crossing Dr/Dwy -- Rte 55
**CITY/STATE:** Haymarket, VA

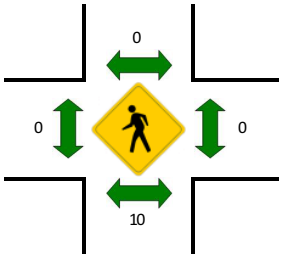
**QC JOB #:** 17126507
**DATE:** Sat, Jun 14 2025

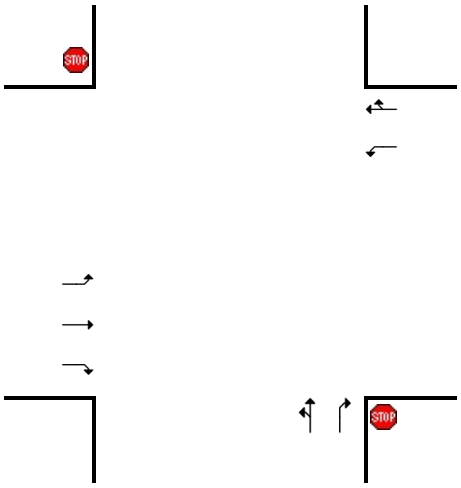
**Peak-Hour: 5:00 PM -- 6:00 PM**
**Peak 15-Min: 5:45 PM -- 6:00 PM**

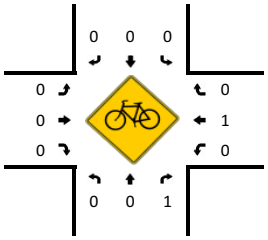


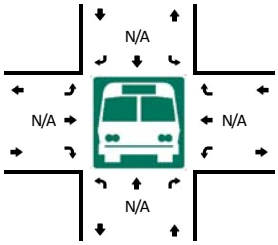

TRUE DATA TO IMPROVE MOBILITY



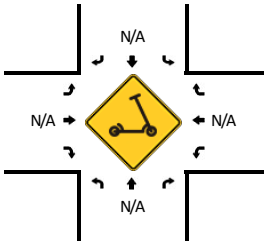










| 15-Min Count Period Beginning At | Greenhill Crossing Dr/Dwy (Northbound) | | | | Greenhill Crossing Dr/Dwy (Southbound) | | | | Rte 55 (Eastbound) | | | | Rte 55 (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:30 PM | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 5 | 83 | 10 | 0 | 6 | 97 | 7 | 0 | 212 | |
| 4:45 PM | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 4 | 89 | 7 | 0 | 11 | 82 | 4 | 0 | 207 | |
| 5:00 PM | 7 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 5 | 101 | 5 | 0 | 7 | 103 | 7 | 0 | 238 | |
| 5:15 PM | 6 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 16 | 71 | 13 | 0 | 6 | 104 | 6 | 0 | 224 | 881 |
| 5:30 PM | 7 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 11 | 98 | 5 | 0 | 6 | 83 | 6 | 0 | 218 | 887 |
| 5:45 PM | 3 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 14 | 89 | 14 | 0 | 6 | 117 | 9 | 0 | 256 | 936 |
| 6:00 PM | 5 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 5 | 89 | 5 | 0 | 9 | 108 | 9 | 0 | 237 | 935 |
| 6:15 PM | 7 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 2 | 87 | 4 | 0 | 11 | 86 | 6 | 0 | 206 | 917 |
| 6:30 PM | 8 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 2 | 84 | 7 | 0 | 17 | 105 | 2 | 0 | 231 | 930 |
| 6:45 PM | 7 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 9 | 73 | 2 | 0 | 7 | 88 | 6 | 0 | 196 | 870 |
| 7:00 PM | 7 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 9 | 77 | 6 | 0 | 4 | 84 | 4 | 0 | 193 | 826 |
| 7:15 PM | 4 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 5 | 58 | 8 | 0 | 8 | 74 | 8 | 0 | 170 | 790 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 12 | 8 | 8 | 0 | 0 | 0 | 0 | 0 | 56 | 356 | 56 | 0 | 24 | 468 | 36 | 0 | 1024 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 4 | 0 | | 4 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 12 | | | | 0 | | | | 0 | | | | 0 | | | 12 |
| Bicycles | 0 | 0 | 4 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 4 | 0 | | 8 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 6/18/2025 9:05 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

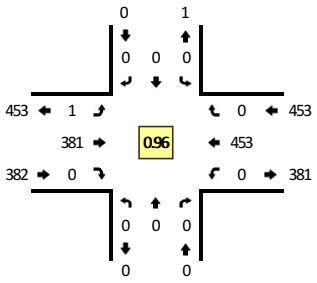
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Tota

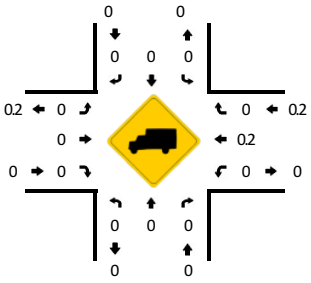
**LOCATION:** Private Dwy (East) -- Rte 55
**CITY/STATE:** Gainesville, VA

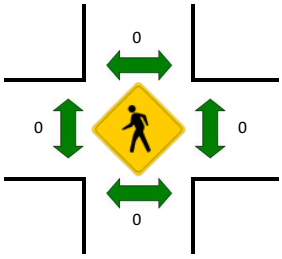
**QC JOB #:** 17126508
**DATE:** Sat, Jun 14 2025

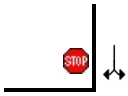
**Peak-Hour: 5:45 PM -- 6:45 PM**
**Peak 15-Min: 6:00 PM -- 6:15 PM**

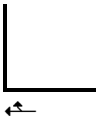


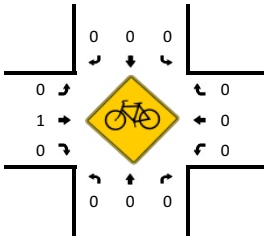

TRUE DATA TO IMPROVE MOBILITY

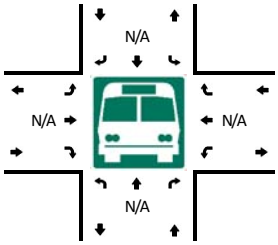


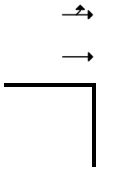



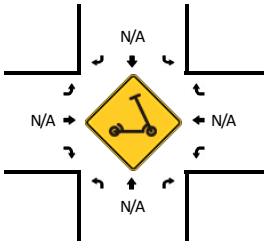








| 15-Min Count Period Beginning At | Private Dwy (East) (Northbound) | | | | Private Dwy (East) (Southbound) | | | | Rte 55 (Eastbound) | | | | Rte 55 (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 88 | 0 | 0 | 0 | 104 | 1 | 0 | 194 | |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 99 | 0 | 0 | 0 | 85 | 1 | 0 | 187 | |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 110 | 0 | 0 | 0 | 108 | 0 | 0 | 218 | |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 77 | 0 | 0 | 0 | 97 | 0 | 0 | 174 | 773 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 103 | 0 | 0 | 0 | 89 | 0 | 0 | 192 | 771 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 90 | 0 | 0 | 0 | 125 | 0 | 0 | 215 | 799 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 97 | 0 | 0 | 0 | 120 | 0 | 0 | 217 | 798 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 97 | 0 | 0 | 0 | 94 | 0 | 0 | 192 | 816 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 97 | 0 | 0 | 0 | 114 | 0 | 0 | 211 | 835 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 81 | 0 | 0 | 0 | 92 | 0 | 0 | 173 | 793 |
| 7:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 92 | 0 | 0 | 0 | 84 | 0 | 0 | 176 | 752 |
| 7:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 72 | 0 | 0 | 0 | 87 | 0 | 0 | 159 | 719 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 388 | 0 | 0 | 0 | 480 | 0 | 0 | 868 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 6/18/2025 9:05 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

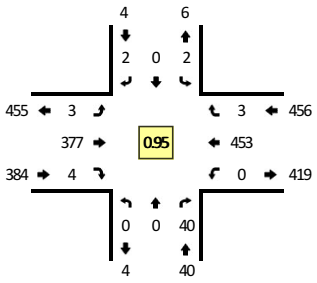
Type of peak hour being reported: Intersection Peak

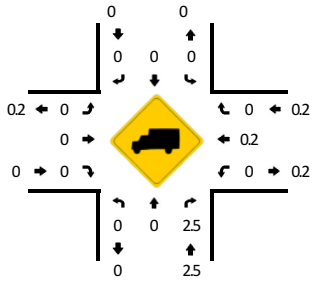
Method for determining peak hour: Tota

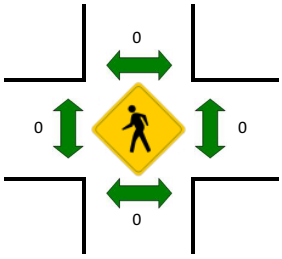
**LOCATION:** Autumn Harvest Trl/Susquehanna Rd -- Rte 55
**CITY/STATE:** Gainesville, VA

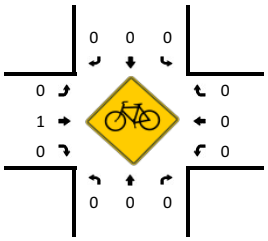
**QC JOB #:** 17126509
**DATE:** Sat, Jun 14 2025

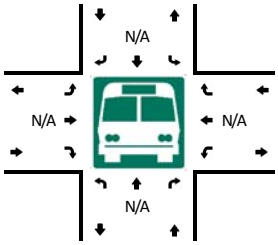
**Peak-Hour: 5:45 PM -- 6:45 PM**
**Peak 15-Min: 6:00 PM -- 6:15 PM**

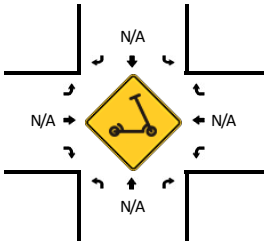



| 15-Min Count Period Beginning At | Autumn Harvest Trl/Susquehanna Rd (Northbound) | | | | Autumn Harvest Trl/Susquehanna Rd (Southbound) | | | | Rte 55 (Eastbound) | | | | Rte 55 (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:30 PM | 0 | 0 | 8 | 0 | 1 | 0 | 2 | 0 | 1 | 86 | 1 | 0 | 0 | 103 | 0 | 0 | 202 | |
| 4:45 PM | 0 | 0 | 6 | 0 | 2 | 0 | 1 | 0 | 1 | 94 | 3 | 0 | 0 | 89 | 2 | 0 | 198 | |
| 5:00 PM | 0 | 0 | 7 | 0 | 2 | 0 | 1 | 0 | 0 | 108 | 2 | 0 | 0 | 103 | 0 | 0 | 223 | |
| 5:15 PM | 0 | 0 | 5 | 0 | 0 | 0 | 1 | 0 | 1 | 75 | 0 | 0 | 0 | 97 | 1 | 0 | 180 | 803 |
| 5:30 PM | 0 | 0 | 10 | 0 | 0 | 0 | 1 | 0 | 2 | 102 | 2 | 0 | 0 | 92 | 1 | 0 | 210 | 811 |
| 5:45 PM | 0 | 0 | 12 | 0 | 1 | 0 | 0 | 0 | 1 | 90 | 0 | 0 | 0 | 123 | 0 | 0 | 227 | 840 |
| 6:00 PM | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 96 | 2 | 0 | 0 | 123 | 0 | 0 | 232 | 849 |
| 6:15 PM | 0 | 0 | 7 | 0 | 0 | 0 | 2 | 0 | 0 | 98 | 1 | 0 | 0 | 92 | 3 | 0 | 203 | 872 |
| 6:30 PM | 0 | 0 | 10 | 0 | 1 | 0 | 0 | 0 | 2 | 93 | 1 | 0 | 0 | 115 | 0 | 0 | 222 | 884 |
| 6:45 PM | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 84 | 2 | 0 | 0 | 94 | 0 | 0 | 188 | 845 |
| 7:00 PM | 0 | 0 | 8 | 0 | 0 | 0 | 2 | 0 | 1 | 89 | 1 | 0 | 0 | 80 | 2 | 0 | 183 | 796 |
| 7:15 PM | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 67 | 4 | 0 | 0 | 88 | 0 | 0 | 162 | 755 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 0 | 44 | 0 | 0 | 0 | 0 | 0 | 0 | 384 | 8 | 0 | 0 | 492 | 0 | 0 | 928 |
| Heavy Trucks | 0 | 0 | 4 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 4 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 6/18/2025 9:05 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

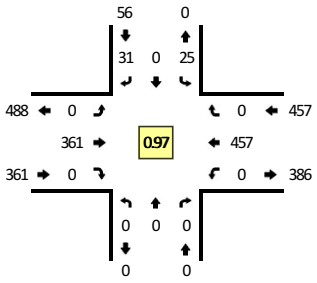
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Tota

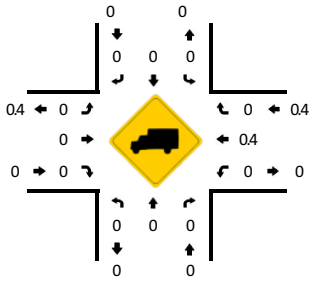
**LOCATION:** Private Dwy (West) -- Rte 55
**CITY/STATE:** Gainesville, VA

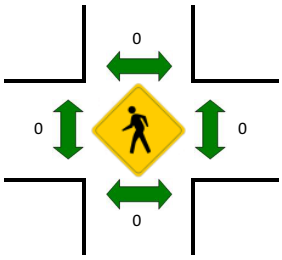
**QC JOB #:** 17126511
**DATE:** Sat, Jun 14 2025

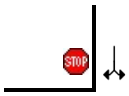
**Peak-Hour: 5:45 PM -- 6:45 PM**
**Peak 15-Min: 6:00 PM -- 6:15 PM**

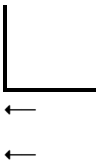


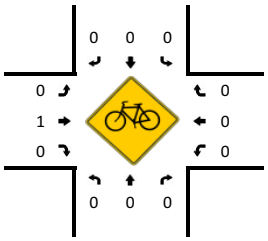

TRUE DATA TO IMPROVE MOBILITY

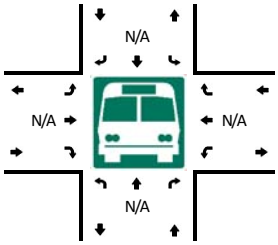


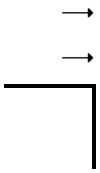



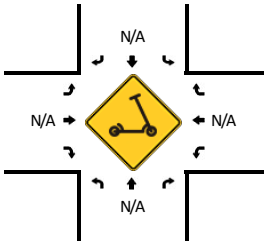








| 15-Min Count Period Beginning At | Private Dwy (West) (Northbound) | | | | Private Dwy (West) (Southbound) | | | | Rte 55 (Eastbound) | | | | Rte 55 (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:30 PM | 0 | 0 | 0 | 0 | 4 | 0 | 5 | 0 | 0 | 84 | 0 | 0 | 0 | 105 | 0 | 0 | 198 | |
| 4:45 PM | 0 | 0 | 0 | 0 | 5 | 0 | 9 | 0 | 0 | 94 | 0 | 0 | 0 | 87 | 0 | 0 | 195 | |
| 5:00 PM | 0 | 0 | 0 | 0 | 6 | 0 | 11 | 0 | 0 | 104 | 0 | 0 | 0 | 107 | 1 | 0 | 229 | |
| 5:15 PM | 0 | 0 | 0 | 0 | 5 | 0 | 17 | 0 | 0 | 73 | 0 | 0 | 0 | 98 | 0 | 0 | 193 | 815 |
| 5:30 PM | 0 | 0 | 0 | 0 | 4 | 0 | 5 | 0 | 0 | 100 | 0 | 0 | 0 | 90 | 0 | 0 | 199 | 816 |
| 5:45 PM | 0 | 0 | 0 | 0 | 3 | 0 | 6 | 0 | 0 | 88 | 0 | 0 | 0 | 126 | 0 | 0 | 223 | 844 |
| 6:00 PM | 0 | 0 | 0 | 0 | 5 | 0 | 7 | 0 | 0 | 93 | 0 | 0 | 0 | 121 | 0 | 0 | 226 | 841 |
| 6:15 PM | 0 | 0 | 0 | 0 | 9 | 0 | 7 | 0 | 0 | 90 | 0 | 0 | 0 | 95 | 0 | 0 | 201 | 849 |
| 6:30 PM | 0 | 0 | 0 | 0 | 8 | 0 | 11 | 0 | 0 | 90 | 0 | 0 | 0 | 115 | 0 | 0 | 224 | 874 |
| 6:45 PM | 0 | 0 | 0 | 0 | 6 | 0 | 8 | 0 | 0 | 76 | 0 | 0 | 0 | 93 | 0 | 0 | 183 | 834 |
| 7:00 PM | 0 | 0 | 0 | 0 | 13 | 0 | 8 | 0 | 0 | 79 | 0 | 0 | 0 | 84 | 0 | 0 | 184 | 792 |
| 7:15 PM | 0 | 0 | 0 | 0 | 10 | 0 | 3 | 0 | 0 | 63 | 0 | 0 | 0 | 87 | 0 | 0 | 163 | 754 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 0 | 0 | 0 | 20 | 0 | 28 | 0 | 0 | 372 | 0 | 0 | 0 | 484 | 0 | 0 | 904 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 6/18/2025 9:05 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

# APPENDIX C: INTERSECTION ANALYSIS WORKSHEETS (EXISTING 2025)

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.7 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 8 | 317 | 354 | 4 | 13 | 20 |
| Future Vol, veh/h | 8 | 317 | 354 | 4 | 13 | 20 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 160 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 13 | 3 | 6 | 25 | 0 | 10 |
| Mvmt Flow | 9 | 373 | 416 | 5 | 15 | 24 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 421 | 0 | - | 0 | 810 | 419 |
| Stage 1 | - | - | - | - | 419 | - |
| Stage 2 | - | - | - | - | 391 | - |
| Critical Hdwy | 4.23 | - | - | - | 6.4 | 6.3 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 2.317 | - | - | - | 3.5 | 3.39 |
| Pot Cap-1 Maneuver | 1082 | - | - | - | 352 | 617 |
| Stage 1 | - | - | - | - | 668 | - |
| Stage 2 | - | - | - | - | 688 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1082 | - | - | - | 349 | 617 |
| Mov Cap-2 Maneuver | - | - | - | - | 349 | - |
| Stage 1 | - | - | - | - | 663 | - |
| Stage 2 | - | - | - | - | 688 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0.2 | 0 | 13.3 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1082 | - | - | - | 474 |
| HCM Lane V/C Ratio | 0.009 | - | - | - | 0.082 |
| HCM Control Delay (s) | 8.4 | - | - | - | 13.3 |
| HCM Lane LOS | A | - | - | - | B |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.3 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 9 | 304 | 17 | 23 | 334 | 13 | 24 | 0 | 29 | 0 | 0 | 0 |
| Future Vol, veh/h | 9 | 304 | 17 | 23 | 334 | 13 | 24 | 0 | 29 | 0 | 0 | 0 |
| 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 | 140 | - | 140 | - | - | - | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 0 | 3 | 6 | 9 | 8 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 11 | 358 | 20 | 27 | 393 | 15 | 28 | 0 | 34 | 0 | 0 | 0 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | |
|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 408 | 0 | 0 | 378 | 0 | 0 | 835 | 842 | 358 |
| Stage 1 | - | - | - | - | - | - | 380 | 380 | - |
| Stage 2 | - | - | - | - | - | - | 455 | 462 | - |
| Critical Hdwy | 4.1 | - | - | 4.19 | - | - | 6.4 | 6.5 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 5.4 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 5.4 | 5.5 | - |
| Follow-up Hdwy | 2.2 | - | - | 2.281 | - | - | 3.5 | 4 | 3.327 |
| Pot Cap-1 Maneuver | 1162 | - | - | 1143 | - | - | 340 | 303 | 684 |
| Stage 1 | - | - | - | - | - | - | 696 | 617 | - |
| Stage 2 | - | - | - | - | - | - | 643 | 568 | - |
| Platoon blocked, % | | - | - | | - | - | | | |
| Mov Cap-1 Maneuver | 1162 | - | - | 1143 | - | - | 329 | 0 | 684 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 329 | 0 | - |
| Stage 1 | - | - | - | - | - | - | 690 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 628 | 0 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0.2 | 0.5 | 13.4 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 329 | 684 | 1162 | - | - | 1143 | - | - |
| HCM Lane V/C Ratio | 0.086 | 0.05 | 0.009 | - | - | 0.024 | - | - |
| HCM Control Delay (s) | 17 | 10.5 | 8.1 | - | - | 8.2 | - | - |
| HCM Lane LOS | C | B | A | - | - | A | - | - |
| HCM 95th %tile Q(veh) | 0.3 | 0.2 | 0 | - | - | 0.1 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.1 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑ | ↑↑ | | ↰ | ↱ |
| Traffic Vol, veh/h | 1 | 332 | 365 | 7 | 2 | 5 |
| Future Vol, veh/h | 1 | 332 | 365 | 7 | 2 | 5 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 0 | 2 | 7 | 14 | 0 | 20 |
| Mvmt Flow | 1 | 391 | 429 | 8 | 2 | 6 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 437 | 0 | - | 0 | 631 | 219 |
| Stage 1 | - | - | - | - | 433 | - |
| Stage 2 | - | - | - | - | 198 | - |
| Critical Hdwy | 4.1 | - | - | - | 6.8 | 7.3 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.8 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.8 | - |
| Follow-up Hdwy | 2.2 | - | - | - | 3.5 | 3.5 |
| Pot Cap-1 Maneuver | 1134 | - | - | - | 418 | 732 |
| Stage 1 | - | - | - | - | 627 | - |
| Stage 2 | - | - | - | - | 822 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1134 | - | - | - | 418 | 732 |
| Mov Cap-2 Maneuver | - | - | - | - | 418 | - |
| Stage 1 | - | - | - | - | 626 | - |
| Stage 2 | - | - | - | - | 822 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 11.1 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1134 | - | - | - | 418 | 732 |
| HCM Lane V/C Ratio | 0.001 | - | - | - | 0.006 | 0.008 |
| HCM Control Delay (s) | 8.2 | - | - | - | 13.7 | 10 |
| HCM Lane LOS | A | - | - | - | B | B |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0 | 0 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 0 | 334 | 372 | 5 | 1 | 0 |
| Future Vol, veh/h | 0 | 334 | 372 | 5 | 1 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | Free | - | None |
| Storage Length | - | - | - | - | - | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 363 | 404 | 5 | 1 | 0 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 0 | 586 | 404 |
| Stage 1 | - | - | - | - | 404 | - |
| Stage 2 | - | - | - | - | 182 | - |
| Critical Hdwy | - | - | - | - | 6.63 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.43 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.83 | - |
| Follow-up Hdwy | - | - | - | - | 3.519 | 3.319 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | 457 | 646 |
| Stage 1 | 0 | - | - | 0 | 673 | - |
| Stage 2 | 0 | - | - | 0 | 832 | - |
| Platoon blocked, % | | - | - | | | |
| Mov Cap-1 Maneuver | - | - | - | - | 457 | 646 |
| Mov Cap-2 Maneuver | - | - | - | - | 457 | - |
| Stage 1 | - | - | - | - | 673 | - |
| Stage 2 | - | - | - | - | 832 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 0 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBT | WBT | SBLn1 |
|---|---|---|---|
| Capacity (veh/h) | - | - | - |
| HCM Lane V/C Ratio | - | - | - |
| HCM Control Delay (s) | - | - | 0 |
| HCM Lane LOS | - | - | A |
| HCM 95th %tile Q(veh) | - | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 15 | 305 | 15 | 0 | 369 | 11 | 0 | 0 | 64 | 6 | 0 | 8 |
| Future Vol, veh/h | 15 | 305 | 15 | 0 | 369 | 11 | 0 | 0 | 64 | 6 | 0 | 8 |
| 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 | - | - | Free | - | - | None | - | - | Stop | - | - | None |
| Storage Length | 225 | - | 0 | - | - | 225 | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 0 | 3 | 0 | 0 | 7 | 36 | 0 | 0 | 3 | 33 | 0 | 13 |
| Mvmt Flow | 18 | 359 | 18 | 0 | 434 | 13 | 0 | 0 | 75 | 7 | 0 | 9 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 447 | 0 | - | - | - | 0 | - | - | 359 | 829 | 829 | 434 |
| Stage 1 | - | - | - | - | - | - | - | - | - | 434 | 434 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 395 | 395 | - |
| Critical Hdwy | 4.1 | - | - | - | - | - | - | - | 6.23 | 7.43 | 6.5 | 6.33 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | 6.43 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | 6.43 | 5.5 | - |
| Follow-up Hdwy | 2.2 | - | - | - | - | - | - | - | 3.327 | 3.797 | 4 | 3.417 |
| Pot Cap-1 Maneuver | 1124 | - | 0 | 0 | - | - | 0 | 0 | 683 | 257 | 308 | 599 |
| Stage 1 | - | - | 0 | 0 | - | - | 0 | 0 | - | 544 | 585 | - |
| Stage 2 | - | - | 0 | 0 | - | - | 0 | 0 | - | 573 | 608 | - |
| Platoon blocked, % | | - | | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1124 | - | - | - | - | - | - | - | 683 | 226 | 303 | 599 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | 226 | 303 | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | 535 | 585 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 502 | 598 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.4 | 0 | 10.9 | 15.8 |
| HCM LOS | | | B | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 683 | 1124 | - | - | - | 351 |
| HCM Lane V/C Ratio | 0.11 | 0.016 | - | - | - | 0.047 |
| HCM Control Delay (s) | 10.9 | 8.3 | - | - | - | 15.8 |
| HCM Lane LOS | B | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0.4 | 0 | - | - | - | 0.1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 6 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 0 | 24 | 9 | 3 | 9 | 0 |
| Future Vol, veh/h | 0 | 24 | 9 | 3 | 9 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 28 | 11 | 4 | 11 | 0 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 37 | 11 | 11 | 0 | - | 0 |
| Stage 1 | 11 | - | - | - | - | - |
| Stage 2 | 26 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 975 | 1070 | 1608 | - | - | - |
| Stage 1 | 1012 | - | - | - | - | - |
| Stage 2 | 997 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 968 | 1070 | 1608 | - | - | - |
| Mov Cap-2 Maneuver | 968 | - | - | - | - | - |
| Stage 1 | 1005 | - | - | - | - | - |
| Stage 2 | 997 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 8.5 | 5.4 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1608 | - | 1070 | - | - |
| HCM Lane V/C Ratio | 0.007 | - | 0.026 | - | - |
| HCM Control Delay (s) | 7.3 | 0 | 8.5 | - | - |
| HCM Lane LOS | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 0.1 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.7 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 26 | 498 | 495 | 15 | 13 | 20 |
| Future Vol, veh/h | 26 | 498 | 495 | 15 | 13 | 20 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 160 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 98 | 98 | 98 | 98 | 98 | 98 |
| Heavy Vehicles, % | 4 | 3 | 1 | 0 | 0 | 0 |
| Mvmt Flow | 27 | 508 | 505 | 15 | 13 | 20 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 520 | 0 | - | 0 | 1075 | 513 |
| Stage 1 | - | - | - | - | 513 | - |
| Stage 2 | - | - | - | - | 562 | - |
| Critical Hdwy | 4.14 | - | - | - | 6.4 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 2.236 | - | - | - | 3.5 | 3.3 |
| Pot Cap-1 Maneuver | 1036 | - | - | - | 245 | 565 |
| Stage 1 | - | - | - | - | 605 | - |
| Stage 2 | - | - | - | - | 575 | - |
| Platoon blocked, % | | | - | - | - | |
| Mov Cap-1 Maneuver | 1036 | - | - | - | 239 | 565 |
| Mov Cap-2 Maneuver | - | - | - | - | 239 | - |
| Stage 1 | - | - | - | - | 589 | - |
| Stage 2 | - | - | - | - | 575 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0.4 | 0 | 15.8 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1036 | - | - | - | 368 |
| HCM Lane V/C Ratio | 0.026 | - | - | - | 0.092 |
| HCM Control Delay (s) | 8.6 | - | - | - | 15.8 |
| HCM Lane LOS | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 0.3 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.6 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 19 | 461 | 31 | 61 | 481 | 17 | 29 | 5 | 18 | 0 | 0 | 0 |
| Future Vol, veh/h | 19 | 461 | 31 | 61 | 481 | 17 | 29 | 5 | 18 | 0 | 0 | 0 |
| 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 | 140 | - | 140 | - | - | - | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 |
| Heavy Vehicles, % | 0 | 3 | 3 | 2 | 1 | 0 | 7 | 0 | 0 | 0 | 0 | 0 |
| Mvmt Flow | 19 | 466 | 31 | 62 | 486 | 17 | 29 | 5 | 18 | 0 | 0 | 0 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | |
|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 503 | 0 | 0 | 497 | 0 | 0 | 1123 | 1131 | 466 |
| Stage 1 | - | - | - | - | - | - | 504 | 504 | - |
| Stage 2 | - | - | - | - | - | - | 619 | 627 | - |
| Critical Hdwy | 4.1 | - | - | 4.12 | - | - | 6.47 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 5.47 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 5.47 | 5.5 | - |
| Follow-up Hdwy | 2.2 | - | - | 2.218 | - | - | 3.563 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1072 | - | - | 1067 | - | - | 222 | 205 | 601 |
| Stage 1 | - | - | - | - | - | - | 597 | 544 | - |
| Stage 2 | - | - | - | - | - | - | 528 | 479 | - |
| Platoon blocked, % | | - | - | | - | - | | | |
| Mov Cap-1 Maneuver | 1072 | - | - | 1067 | - | - | 205 | 0 | 601 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 205 | 0 | - |
| Stage 1 | - | - | - | - | - | - | 586 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 497 | 0 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0.3 | 0.9 | 20.9 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 205 | 601 | 1072 | - | - | 1067 | - | - |
| HCM Lane V/C Ratio | 0.168 | 0.03 | 0.018 | - | - | 0.058 | - | - |
| HCM Control Delay (s) | 26.1 | 11.2 | 8.4 | - | - | 8.6 | - | - |
| HCM Lane LOS | D | B | A | - | - | A | - | - |
| HCM 95th %tile Q(veh) | 0.6 | 0.1 | 0.1 | - | - | 0.2 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.4 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑ | ↑↑ | | ↰ | ↱ |
| Traffic Vol, veh/h | 0 | 479 | 533 | 0 | 12 | 26 |
| Future Vol, veh/h | 0 | 479 | 533 | 0 | 12 | 26 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 98 | 98 | 98 | 98 | 98 | 98 |
| Heavy Vehicles, % | 0 | 3 | 0 | 0 | 0 | 0 |
| Mvmt Flow | 0 | 489 | 544 | 0 | 12 | 27 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 0 | 789 | 272 |
| Stage 1 | - | - | - | - | 544 | - |
| Stage 2 | - | - | - | - | 245 | - |
| Critical Hdwy | - | - | - | - | 6.8 | 6.9 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.8 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.8 | - |
| Follow-up Hdwy | - | - | - | - | 3.5 | 3.3 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | 332 | 732 |
| Stage 1 | 0 | - | - | 0 | 551 | - |
| Stage 2 | 0 | - | - | 0 | 779 | - |
| Platoon blocked, % | | - | - | | | |
| Mov Cap-1 Maneuver | - | - | - | - | 332 | 732 |
| Mov Cap-2 Maneuver | - | - | - | - | 332 | - |
| Stage 1 | - | - | - | - | 551 | - |
| Stage 2 | - | - | - | - | 779 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 12.1 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBT | WBT | SBLn1 | SBLn2 |
|---|---|---|---|---|
| Capacity (veh/h) | - | - | 332 | 732 |
| HCM Lane V/C Ratio | - | - | 0.037 | 0.036 |
| HCM Control Delay (s) | - | - | 16.3 | 10.1 |
| HCM Lane LOS | - | - | C | B |
| HCM 95th %tile Q(veh) | - | - | 0.1 | 0.1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.1 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑ | ↱ | | | ↗ |
| Traffic Vol, veh/h | 0 | 491 | 527 | 0 | 0 | 6 |
| Future Vol, veh/h | 0 | 491 | 527 | 0 | 0 | 6 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | Free | - | None |
| Storage Length | - | - | - | - | - | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 98 | 98 | 98 | 98 | 98 | 98 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 501 | 538 | 0 | 0 | 6 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 0 | - | 538 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 3.319 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | 0 | 542 |
| Stage 1 | 0 | - | - | 0 | 0 | - |
| Stage 2 | 0 | - | - | 0 | 0 | - |
| Platoon blocked, % | | - | - | | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 542 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 11.7 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBT | WBT | SBLn1 |
|---|---|---|---|
| Capacity (veh/h) | - | - | 542 |
| HCM Lane V/C Ratio | - | - | 0.011 |
| HCM Control Delay (s) | - | - | 11.7 |
| HCM Lane LOS | - | - | B |
| HCM 95th %tile Q(veh) | - | - | 0 |

| 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 | 16 | 451 | 24 | 0 | 508 | 5 | 0 | 0 | 33 | 6 | 0 | 19 |
| Future Vol, veh/h | 16 | 451 | 24 | 0 | 508 | 5 | 0 | 0 | 33 | 6 | 0 | 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 | - | - | Free | - | - | None | - | - | Stop | - | - | None |
| Storage Length | 225 | - | 0 | - | - | 225 | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 |
| Heavy Vehicles, % | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 16 | 465 | 25 | 0 | 524 | 5 | 0 | 0 | 34 | 6 | 0 | 20 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 529 | 0 | - | - | - | 0 | - | - | 465 | 1021 | 1021 | 524 |
| Stage 1 | - | - | - | - | - | - | - | - | - | 524 | 524 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 497 | 497 | - |
| Critical Hdwy | 4.15 | - | - | - | - | - | - | - | 6.23 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 2.245 | - | - | - | - | - | - | - | 3.327 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1023 | - | 0 | 0 | - | - | 0 | 0 | 595 | 217 | 238 | 557 |
| Stage 1 | - | - | 0 | 0 | - | - | 0 | 0 | - | 540 | 533 | - |
| Stage 2 | - | - | 0 | 0 | - | - | 0 | 0 | - | 559 | 548 | - |
| Platoon blocked, % | | - | | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1023 | - | - | - | - | - | - | - | 595 | 202 | 234 | 557 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | 202 | 234 | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | 531 | 533 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 519 | 539 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.3 | 0 | 11.4 | 14.8 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 595 | 1023 | - | - | - | 392 |
| HCM Lane V/C Ratio | 0.057 | 0.016 | - | - | - | 0.066 |
| HCM Control Delay (s) | 11.4 | 8.6 | - | - | - | 14.8 |
| HCM Lane LOS | B | A | - | - | - | B |
| HCM 95th %tile Q(veh) | 0.2 | 0 | - | - | - | 0.2 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.8 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 0 | 25 | 29 | 12 | 8 | 0 |
| Future Vol, veh/h | 0 | 25 | 29 | 12 | 8 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 29 | 34 | 14 | 9 | 0 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 91 | 9 | 9 | 0 | - | 0 |
| Stage 1 | 9 | - | - | - | - | - |
| Stage 2 | 82 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 909 | 1073 | 1611 | - | - | - |
| Stage 1 | 1014 | - | - | - | - | - |
| Stage 2 | 941 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 890 | 1073 | 1611 | - | - | - |
| Mov Cap-2 Maneuver | 890 | - | - | - | - | - |
| Stage 1 | 993 | - | - | - | - | - |
| Stage 2 | 941 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 8.5 | 5.2 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1611 | - | 1073 | - | - |
| HCM Lane V/C Ratio | 0.021 | - | 0.027 | - | - |
| HCM Control Delay (s) | 7.3 | 0 | 8.5 | - | - |
| HCM Lane LOS | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | 0.1 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.6 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 14 | 380 | 429 | 12 | 14 | 12 |
| Future Vol, veh/h | 14 | 380 | 429 | 12 | 14 | 12 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 160 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 89 | 89 | 89 | 89 | 89 | 89 |
| Heavy Vehicles, % | 0 | 0 | 0 | 8 | 0 | 8 |
| Mvmt Flow | 16 | 427 | 482 | 13 | 16 | 13 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 495 | 0 | - | 0 | 948 | 489 |
| Stage 1 | - | - | - | - | 489 | - |
| Stage 2 | - | - | - | - | 459 | - |
| Critical Hdwy | 4.1 | - | - | - | 6.4 | 6.28 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 2.2 | - | - | - | 3.5 | 3.372 |
| Pot Cap-1 Maneuver | 1079 | - | - | - | 292 | 567 |
| Stage 1 | - | - | - | - | 621 | - |
| Stage 2 | - | - | - | - | 641 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1079 | - | - | - | 288 | 567 |
| Mov Cap-2 Maneuver | - | - | - | - | 288 | - |
| Stage 1 | - | - | - | - | 612 | - |
| Stage 2 | - | - | - | - | 641 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0.3 | 0 | 15.5 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1079 | - | - | - | 373 |
| HCM Lane V/C Ratio | 0.015 | - | - | - | 0.078 |
| HCM Control Delay (s) | 8.4 | - | - | - | 15.5 |
| HCM Lane LOS | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.3 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 23 | 341 | 30 | 43 | 417 | 26 | 23 | 2 | 17 | 0 | 0 | 1 |
| Future Vol, veh/h | 23 | 341 | 30 | 43 | 417 | 26 | 23 | 2 | 17 | 0 | 0 | 1 |
| 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 | 140 | - | 140 | - | - | - | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mvmt Flow | 25 | 375 | 33 | 47 | 458 | 29 | 25 | 2 | 19 | 0 | 0 | 1 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | |
|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 487 | 0 | 0 | 408 | 0 | 0 | 992 | 1006 | 375 |
| Stage 1 | - | - | - | - | - | - | 425 | 425 | - |
| Stage 2 | - | - | - | - | - | - | 567 | 581 | - |
| Critical Hdwy | 4.14 | - | - | 4.1 | - | - | 6.4 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 5.4 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 5.4 | 5.5 | - |
| Follow-up Hdwy | 2.236 | - | - | 2.2 | - | - | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1066 | - | - | 1162 | - | - | 275 | 243 | 676 |
| Stage 1 | - | - | - | - | - | - | 664 | 590 | - |
| Stage 2 | - | - | - | - | - | - | 572 | 503 | - |
| Platoon blocked, % | | - | - | | - | - | | | |
| Mov Cap-1 Maneuver | 1066 | - | - | 1162 | - | - | 258 | 0 | 676 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 258 | 0 | - |
| Stage 1 | - | - | - | - | - | - | 649 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 549 | 0 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0.5 | 0.7 | 16.5 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 258 | 676 | 1066 | - | - | 1162 | - | - |
| HCM Lane V/C Ratio | 0.106 | 0.028 | 0.024 | - | - | 0.041 | - | - |
| HCM Control Delay (s) | 20.6 | 10.5 | 8.5 | - | - | 8.2 | - | - |
| HCM Lane LOS | C | B | A | - | - | A | - | - |
| HCM 95th %tile Q(veh) | 0.4 | 0.1 | 0.1 | - | - | 0.1 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.8 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑ | ↑↑ | | ↰ | ↱ |
| Traffic Vol, veh/h | 0 | 358 | 455 | 0 | 25 | 31 |
| Future Vol, veh/h | 0 | 358 | 455 | 0 | 25 | 31 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 97 | 97 | 97 | 97 | 97 | 97 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 0 |
| Mvmt Flow | 0 | 369 | 469 | 0 | 26 | 32 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 0 | 654 | 235 |
| Stage 1 | - | - | - | - | 469 | - |
| Stage 2 | - | - | - | - | 185 | - |
| Critical Hdwy | - | - | - | - | 6.8 | 6.9 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.8 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.8 | - |
| Follow-up Hdwy | - | - | - | - | 3.5 | 3.3 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | 404 | 773 |
| Stage 1 | 0 | - | - | 0 | 602 | - |
| Stage 2 | 0 | - | - | 0 | 834 | - |
| Platoon blocked, % | | - | - | | | |
| Mov Cap-1 Maneuver | - | - | - | - | 404 | 773 |
| Mov Cap-2 Maneuver | - | - | - | - | 404 | - |
| Stage 1 | - | - | - | - | 602 | - |
| Stage 2 | - | - | - | - | 834 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 12 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBT | WBT | SBLn1 | SBLn2 |
|---|---|---|---|---|
| Capacity (veh/h) | - | - | 404 | 773 |
| HCM Lane V/C Ratio | - | - | 0.064 | 0.041 |
| HCM Control Delay (s) | - | - | 14.5 | 9.9 |
| HCM Lane LOS | - | - | B | A |
| HCM 95th %tile Q(veh) | - | - | 0.2 | 0.1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 0 | 383 | 455 | 0 | 0 | 0 |
| Future Vol, veh/h | 0 | 383 | 455 | 0 | 0 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | Free | - | None |
| Storage Length | - | - | - | - | - | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 96 | 96 | 96 | 96 | 96 | 96 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 0 |
| Mvmt Flow | 0 | 399 | 474 | 0 | 0 | 0 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 0 | - | 474 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 3.3 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | 0 | 595 |
| Stage 1 | 0 | - | - | 0 | 0 | - |
| Stage 2 | 0 | - | - | 0 | 0 | - |
| Platoon blocked, % | | - | - | | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 595 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 0 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBT | WBT | SBLn1 |
|---|---|---|---|
| Capacity (veh/h) | - | - | - |
| HCM Lane V/C Ratio | - | - | - |
| HCM Control Delay (s) | - | - | 0 |
| HCM Lane LOS | - | - | A |
| HCM 95th %tile Q(veh) | - | - | - |

| 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 | 3 | 376 | 4 | 0 | 453 | 3 | 0 | 0 | 40 | 2 | 0 | 2 |
| Future Vol, veh/h | 3 | 376 | 4 | 0 | 453 | 3 | 0 | 0 | 40 | 2 | 0 | 2 |
| 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 | - | - | Free | - | - | None | - | - | Stop | - | - | None |
| Storage Length | 225 | - | 0 | - | - | 225 | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 3 | 396 | 4 | 0 | 477 | 3 | 0 | 0 | 42 | 2 | 0 | 2 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 480 | 0 | - | - | - | 0 | - | - | 396 | 879 | 879 | 477 |
| Stage 1 | - | - | - | - | - | - | - | - | - | 477 | 477 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 402 | 402 | - |
| Critical Hdwy | 4.1 | - | - | - | - | - | - | - | 6.23 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 2.2 | - | - | - | - | - | - | - | 3.327 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1093 | - | 0 | 0 | - | - | 0 | 0 | 651 | 270 | 288 | 592 |
| Stage 1 | - | - | 0 | 0 | - | - | 0 | 0 | - | 573 | 559 | - |
| Stage 2 | - | - | 0 | 0 | - | - | 0 | 0 | - | 629 | 604 | - |
| Platoon blocked, % | | - | | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1093 | - | - | - | - | - | - | - | 651 | 252 | 287 | 592 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | 252 | 287 | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | 571 | 559 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 587 | 602 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.1 | 0 | 10.9 | 15.3 |
| HCM LOS | | | B | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 651 | 1093 | - | - | - | 354 |
| HCM Lane V/C Ratio | 0.065 | 0.003 | - | - | - | 0.012 |
| HCM Control Delay (s) | 10.9 | 8.3 | - | - | - | 15.3 |
| HCM Lane LOS | B | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0.2 | 0 | - | - | - | 0 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.7 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 0 | 19 | 19 | 7 | 7 | 0 |
| Future Vol, veh/h | 0 | 19 | 19 | 7 | 7 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 22 | 22 | 8 | 8 | 0 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 60 | 8 | 8 | 0 | - | 0 |
| Stage 1 | 8 | - | - | - | - | - |
| Stage 2 | 52 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 947 | 1074 | 1612 | - | - | - |
| Stage 1 | 1015 | - | - | - | - | - |
| Stage 2 | 970 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 934 | 1074 | 1612 | - | - | - |
| Mov Cap-2 Maneuver | 934 | - | - | - | - | - |
| Stage 1 | 1001 | - | - | - | - | - |
| Stage 2 | 970 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 8.4 | 5.3 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1612 | - | 1074 | - | - |
| HCM Lane V/C Ratio | 0.014 | - | 0.021 | - | - |
| HCM Control Delay (s) | 7.3 | 0 | 8.4 | - | - |
| HCM Lane LOS | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 0.1 | - | - |

# APPENDIX D: BACKGROUND DEVELOPMENT TRIP GENERATION

6700 Bleight Drive (BG)

| Land Use | ITE Code | Size | Weekday | | | | | | | Weekend | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | | | PM Peak Hour | | | Daily | Saturday Peak Hour | | | Sat Daily |
| | | | In | Out | Total | In | Out | Total | Total | In | Out | Total | Total |
| **Proposed Use** | | | | | | | | | | | | | |
| *Single-Family Attached Housing (RATES) | 215 | 11 DU | 1 | 4 | 5 | 4 | 2 | 6 | 79 | 3 | 3 | 6 | 96 |
| | | **Total Trips** | **1** | **4** | **5** | **4** | **2** | **6** | **79** | **3** | **3** | **6** | **96** |

**ITE equations not applicable for proposed density - ITE rates used in lieu.*

# APPENDIX E: INTERSECTION ANALYSIS WORKSHEETS – FUTURE WITHOUT DEVELOPMENT (2029)

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.7 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 8 | 343 | 384 | 5 | 15 | 22 |
| Future Vol, veh/h | 8 | 343 | 384 | 5 | 15 | 22 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 160 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 13 | 3 | 6 | 25 | 0 | 10 |
| Mvmt Flow | 9 | 373 | 417 | 5 | 16 | 24 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 422 | 0 | - | 0 | 811 | 420 |
| Stage 1 | - | - | - | - | 420 | - |
| Stage 2 | - | - | - | - | 391 | - |
| Critical Hdwy | 4.23 | - | - | - | 6.4 | 6.3 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 2.317 | - | - | - | 3.5 | 3.39 |
| Pot Cap-1 Maneuver | 1081 | - | - | - | 352 | 617 |
| Stage 1 | - | - | - | - | 667 | - |
| Stage 2 | - | - | - | - | 688 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1081 | - | - | - | 349 | 617 |
| Mov Cap-2 Maneuver | - | - | - | - | 349 | - |
| Stage 1 | - | - | - | - | 662 | - |
| Stage 2 | - | - | - | - | 688 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0.2 | 0 | 13.4 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1081 | - | - | - | 471 |
| HCM Lane V/C Ratio | 0.008 | - | - | - | 0.085 |
| HCM Control Delay (s) | 8.4 | - | - | - | 13.4 |
| HCM Lane LOS | A | - | - | - | B |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.3 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 9 | 332 | 17 | 23 | 365 | 13 | 24 | 0 | 29 | 0 | 0 | 0 |
| Future Vol, veh/h | 9 | 332 | 17 | 23 | 365 | 13 | 24 | 0 | 29 | 0 | 0 | 0 |
| 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 | 140 | - | 140 | - | - | - | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 3 | 6 | 9 | 8 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 10 | 361 | 18 | 25 | 397 | 14 | 26 | 0 | 32 | 0 | 0 | 0 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | |
|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 411 | 0 | 0 | 379 | 0 | 0 | 835 | 842 | 361 |
| Stage 1 | - | - | - | - | - | - | 381 | 381 | - |
| Stage 2 | - | - | - | - | - | - | 454 | 461 | - |
| Critical Hdwy | 4.1 | - | - | 4.19 | - | - | 6.4 | 6.5 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 5.4 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 5.4 | 5.5 | - |
| Follow-up Hdwy | 2.2 | - | - | 2.281 | - | - | 3.5 | 4 | 3.327 |
| Pot Cap-1 Maneuver | 1159 | - | - | 1142 | - | - | 340 | 303 | 681 |
| Stage 1 | - | - | - | - | - | - | 695 | 617 | - |
| Stage 2 | - | - | - | - | - | - | 644 | 569 | - |
| Platoon blocked, % | | - | - | | - | - | | | |
| Mov Cap-1 Maneuver | 1159 | - | - | 1142 | - | - | 329 | 0 | 681 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 329 | 0 | - |
| Stage 1 | - | - | - | - | - | - | 689 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 630 | 0 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0.2 | 0.5 | 13.4 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 329 | 681 | 1159 | - | - | 1142 | - | - |
| HCM Lane V/C Ratio | 0.079 | 0.046 | 0.008 | - | - | 0.022 | - | - |
| HCM Control Delay (s) | 16.9 | 10.5 | 8.1 | - | - | 8.2 | - | - |
| HCM Lane LOS | C | B | A | - | - | A | - | - |
| HCM 95th %tile Q(veh) | 0.3 | 0.1 | 0 | - | - | 0.1 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.1 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑ | ↑↑ | | ↰ | ↱ |
| Traffic Vol, veh/h | 1 | 360 | 396 | 7 | 2 | 5 |
| Future Vol, veh/h | 1 | 360 | 396 | 7 | 2 | 5 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 2 | 7 | 14 | 0 | 20 |
| Mvmt Flow | 1 | 391 | 430 | 8 | 2 | 5 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 438 | 0 | - | 0 | 632 | 219 |
| Stage 1 | - | - | - | - | 434 | - |
| Stage 2 | - | - | - | - | 198 | - |
| Critical Hdwy | 4.1 | - | - | - | 6.8 | 7.3 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.8 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.8 | - |
| Follow-up Hdwy | 2.2 | - | - | - | 3.5 | 3.5 |
| Pot Cap-1 Maneuver | 1133 | - | - | - | 417 | 732 |
| Stage 1 | - | - | - | - | 627 | - |
| Stage 2 | - | - | - | - | 822 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1133 | - | - | - | 417 | 732 |
| Mov Cap-2 Maneuver | - | - | - | - | 417 | - |
| Stage 1 | - | - | - | - | 626 | - |
| Stage 2 | - | - | - | - | 822 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 11.1 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1133 | - | - | - | 417 | 732 |
| HCM Lane V/C Ratio | 0.001 | - | - | - | 0.005 | 0.007 |
| HCM Control Delay (s) | 8.2 | - | - | - | 13.7 | 10 |
| HCM Lane LOS | A | - | - | - | B | B |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0 | 0 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 0 | 362 | 403 | 5 | 1 | 0 |
| Future Vol, veh/h | 0 | 362 | 403 | 5 | 1 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | Free | - | None |
| Storage Length | - | - | - | - | - | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 393 | 438 | 5 | 1 | 0 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 0 | 635 | 438 |
| Stage 1 | - | - | - | - | 438 | - |
| Stage 2 | - | - | - | - | 197 | - |
| Critical Hdwy | - | - | - | - | 6.63 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.43 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.83 | - |
| Follow-up Hdwy | - | - | - | - | 3.519 | 3.319 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | 426 | 618 |
| Stage 1 | 0 | - | - | 0 | 650 | - |
| Stage 2 | 0 | - | - | 0 | 817 | - |
| Platoon blocked, % | | - | - | | | |
| Mov Cap-1 Maneuver | - | - | - | - | 426 | 618 |
| Mov Cap-2 Maneuver | - | - | - | - | 426 | - |
| Stage 1 | - | - | - | - | 650 | - |
| Stage 2 | - | - | - | - | 817 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 0 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBT | WBT | SBLn1 |
|---|---|---|---|
| Capacity (veh/h) | - | - | - |
| HCM Lane V/C Ratio | - | - | - |
| HCM Control Delay (s) | - | - | 0 |
| HCM Lane LOS | - | - | A |
| HCM 95th %tile Q(veh) | - | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 15 | 333 | 15 | 0 | 400 | 11 | 0 | 0 | 64 | 6 | 0 | 8 |
| Future Vol, veh/h | 15 | 333 | 15 | 0 | 400 | 11 | 0 | 0 | 64 | 6 | 0 | 8 |
| 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 | - | - | Free | - | - | None | - | - | Stop | - | - | None |
| Storage Length | 225 | - | 0 | - | - | 225 | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 3 | 0 | 0 | 7 | 36 | 0 | 0 | 3 | 33 | 0 | 13 |
| Mvmt Flow | 16 | 362 | 16 | 0 | 435 | 12 | 0 | 0 | 70 | 7 | 0 | 9 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 447 | 0 | - | - | - | 0 | - | - | 362 | 829 | 829 | 435 |
| Stage 1 | - | - | - | - | - | - | - | - | - | 435 | 435 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 394 | 394 | - |
| Critical Hdwy | 4.1 | - | - | - | - | - | - | - | 6.23 | 7.43 | 6.5 | 6.33 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | 6.43 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | 6.43 | 5.5 | - |
| Follow-up Hdwy | 2.2 | - | - | - | - | - | - | - | 3.327 | 3.797 | 4 | 3.417 |
| Pot Cap-1 Maneuver | 1124 | - | 0 | 0 | - | - | 0 | 0 | 680 | 257 | 308 | 598 |
| Stage 1 | - | - | 0 | 0 | - | - | 0 | 0 | - | 544 | 584 | - |
| Stage 2 | - | - | 0 | 0 | - | - | 0 | 0 | - | 573 | 609 | - |
| Platoon blocked, % | | - | | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1124 | - | - | - | - | - | - | - | 680 | 228 | 304 | 598 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | 228 | 304 | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | 536 | 584 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 507 | 600 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.4 | 0 | 10.9 | 15.7 |
| HCM LOS | | | B | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 680 | 1124 | - | - | - | 353 |
| HCM Lane V/C Ratio | 0.102 | 0.015 | - | - | - | 0.043 |
| HCM Control Delay (s) | 10.9 | 8.2 | - | - | - | 15.7 |
| HCM Lane LOS | B | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0.3 | 0 | - | - | - | 0.1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.4 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 0 | 24 | 9 | 4 | 13 | 0 |
| Future Vol, veh/h | 0 | 24 | 9 | 4 | 13 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 26 | 10 | 4 | 14 | 0 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 38 | 14 | 14 | 0 | - | 0 |
| Stage 1 | 14 | - | - | - | - | - |
| Stage 2 | 24 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 974 | 1066 | 1604 | - | - | - |
| Stage 1 | 1009 | - | - | - | - | - |
| Stage 2 | 999 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 968 | 1066 | 1604 | - | - | - |
| Mov Cap-2 Maneuver | 968 | - | - | - | - | - |
| Stage 1 | 1003 | - | - | - | - | - |
| Stage 2 | 999 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 8.5 | 5 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1604 | - | 1066 | - | - |
| HCM Lane V/C Ratio | 0.006 | - | 0.024 | - | - |
| HCM Control Delay (s) | 7.3 | 0 | 8.5 | - | - |
| HCM Lane LOS | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 0.1 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.7 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 28 | 539 | 535 | 17 | 14 | 21 |
| Future Vol, veh/h | 28 | 539 | 535 | 17 | 14 | 21 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 160 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 98 | 98 | 98 | 98 | 98 | 98 |
| Heavy Vehicles, % | 4 | 3 | 1 | 0 | 0 | 0 |
| Mvmt Flow | 29 | 550 | 546 | 17 | 14 | 21 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 563 | 0 | - | 0 | 1163 | 555 |
| Stage 1 | - | - | - | - | 555 | - |
| Stage 2 | - | - | - | - | 608 | - |
| Critical Hdwy | 4.14 | - | - | - | 6.4 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 2.236 | - | - | - | 3.5 | 3.3 |
| Pot Cap-1 Maneuver | 999 | - | - | - | 217 | 535 |
| Stage 1 | - | - | - | - | 579 | - |
| Stage 2 | - | - | - | - | 547 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 999 | - | - | - | 211 | 535 |
| Mov Cap-2 Maneuver | - | - | - | - | 211 | - |
| Stage 1 | - | - | - | - | 562 | - |
| Stage 2 | - | - | - | - | 547 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0.4 | 0 | 17.2 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 999 | - | - | - | 331 |
| HCM Lane V/C Ratio | 0.029 | - | - | - | 0.108 |
| HCM Control Delay (s) | 8.7 | - | - | - | 17.2 |
| HCM Lane LOS | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 0.4 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.6 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 19 | 503 | 31 | 61 | 523 | 17 | 29 | 5 | 18 | 0 | 0 | 0 |
| Future Vol, veh/h | 19 | 503 | 31 | 61 | 523 | 17 | 29 | 5 | 18 | 0 | 0 | 0 |
| 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 | 140 | - | 140 | - | - | - | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 |
| Heavy Vehicles, % | 0 | 3 | 3 | 2 | 1 | 0 | 7 | 0 | 0 | 0 | 0 | 0 |
| Mvmt Flow | 19 | 508 | 31 | 62 | 528 | 17 | 29 | 5 | 18 | 0 | 0 | 0 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | |
|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 545 | 0 | 0 | 539 | 0 | 0 | 1207 | 1215 | 508 |
| Stage 1 | - | - | - | - | - | - | 546 | 546 | - |
| Stage 2 | - | - | - | - | - | - | 661 | 669 | - |
| Critical Hdwy | 4.1 | - | - | 4.12 | - | - | 6.47 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 5.47 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 5.47 | 5.5 | - |
| Follow-up Hdwy | 2.2 | - | - | 2.218 | - | - | 3.563 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1034 | - | - | 1029 | - | - | 198 | 183 | 569 |
| Stage 1 | - | - | - | - | - | - | 571 | 521 | - |
| Stage 2 | - | - | - | - | - | - | 504 | 459 | - |
| Platoon blocked, % | | - | - | | - | - | | | |
| Mov Cap-1 Maneuver | 1034 | - | - | 1029 | - | - | 183 | 0 | 569 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 183 | 0 | - |
| Stage 1 | - | - | - | - | - | - | 561 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 474 | 0 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0.3 | 0.9 | 23.1 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 183 | 569 | 1034 | - | - | 1029 | - | - |
| HCM Lane V/C Ratio | 0.188 | 0.032 | 0.019 | - | - | 0.06 | - | - |
| HCM Control Delay (s) | 29.2 | 11.5 | 8.5 | - | - | 8.7 | - | - |
| HCM Lane LOS | D | B | A | - | - | A | - | - |
| HCM 95th %tile Q(veh) | 0.7 | 0.1 | 0.1 | - | - | 0.2 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.4 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑ | ↑↑ | | ↰ | ↱ |
| Traffic Vol, veh/h | 0 | 521 | 575 | 0 | 12 | 26 |
| Future Vol, veh/h | 0 | 521 | 575 | 0 | 12 | 26 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 98 | 98 | 98 | 98 | 98 | 98 |
| Heavy Vehicles, % | 0 | 3 | 0 | 0 | 0 | 0 |
| Mvmt Flow | 0 | 532 | 587 | 0 | 12 | 27 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 0 | 853 | 294 |
| Stage 1 | - | - | - | - | 587 | - |
| Stage 2 | - | - | - | - | 266 | - |
| Critical Hdwy | - | - | - | - | 6.8 | 6.9 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.8 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.8 | - |
| Follow-up Hdwy | - | - | - | - | 3.5 | 3.3 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | 302 | 708 |
| Stage 1 | 0 | - | - | 0 | 524 | - |
| Stage 2 | 0 | - | - | 0 | 760 | - |
| Platoon blocked, % | | - | - | | | |
| Mov Cap-1 Maneuver | - | - | - | - | 302 | 708 |
| Mov Cap-2 Maneuver | - | - | - | - | 302 | - |
| Stage 1 | - | - | - | - | 524 | - |
| Stage 2 | - | - | - | - | 760 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 12.5 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBT | WBT | SBLn1 | SBLn2 |
|---|---|---|---|---|
| Capacity (veh/h) | - | - | 302 | 708 |
| HCM Lane V/C Ratio | - | - | 0.041 | 0.037 |
| HCM Control Delay (s) | - | - | 17.4 | 10.3 |
| HCM Lane LOS | - | - | C | B |
| HCM 95th %tile Q(veh) | - | - | 0.1 | 0.1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.1 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑ | ↱ | | | ↗ |
| Traffic Vol, veh/h | 0 | 533 | 569 | 0 | 0 | 6 |
| Future Vol, veh/h | 0 | 533 | 569 | 0 | 0 | 6 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | Free | - | None |
| Storage Length | - | - | - | - | - | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 98 | 98 | 98 | 98 | 98 | 98 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 544 | 581 | 0 | 0 | 6 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 0 | - | 581 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 3.319 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | 0 | 513 |
| Stage 1 | 0 | - | - | 0 | 0 | - |
| Stage 2 | 0 | - | - | 0 | 0 | - |
| Platoon blocked, % | | - | - | | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 513 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 12.1 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBT | WBT | SBLn1 |
|---|---|---|---|
| Capacity (veh/h) | - | - | 513 |
| HCM Lane V/C Ratio | - | - | 0.012 |
| HCM Control Delay (s) | - | - | 12.1 |
| HCM Lane LOS | - | - | B |
| HCM 95th %tile Q(veh) | - | - | 0 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.8 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 16 | 493 | 24 | 0 | 550 | 5 | 0 | 0 | 33 | 6 | 0 | 19 |
| Future Vol, veh/h | 16 | 493 | 24 | 0 | 550 | 5 | 0 | 0 | 33 | 6 | 0 | 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 | - | - | Free | - | - | None | - | - | Stop | - | - | None |
| Storage Length | 225 | - | 0 | - | - | 225 | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 |
| Heavy Vehicles, % | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 16 | 508 | 25 | 0 | 567 | 5 | 0 | 0 | 34 | 6 | 0 | 20 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 572 | 0 | - | - | - | 0 | - | - | 508 | 1107 | 1107 | 567 |
| Stage 1 | - | - | - | - | - | - | - | - | - | 567 | 567 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 540 | 540 | - |
| Critical Hdwy | 4.15 | - | - | - | - | - | - | - | 6.23 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 2.245 | - | - | - | - | - | - | - | 3.327 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 986 | - | 0 | 0 | - | - | 0 | 0 | 563 | 189 | 212 | 527 |
| Stage 1 | - | - | 0 | 0 | - | - | 0 | 0 | - | 512 | 510 | - |
| Stage 2 | - | - | 0 | 0 | - | - | 0 | 0 | - | 530 | 524 | - |
| Platoon blocked, % | | - | | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 986 | - | - | - | - | - | - | - | 563 | 175 | 209 | 527 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | 175 | 209 | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | 504 | 510 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 490 | 516 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.3 | 0 | 11.8 | 15.9 |
| HCM LOS | | | B | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 563 | 986 | - | - | - | 355 |
| HCM Lane V/C Ratio | 0.06 | 0.017 | - | - | - | 0.073 |
| HCM Control Delay (s) | 11.8 | 8.7 | - | - | - | 15.9 |
| HCM Lane LOS | B | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0.2 | 0.1 | - | - | - | 0.2 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.3 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 0 | 25 | 29 | 16 | 10 | 0 |
| Future Vol, veh/h | 0 | 25 | 29 | 16 | 10 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 27 | 32 | 17 | 11 | 0 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 92 | 11 | 11 | 0 | - | 0 |
| Stage 1 | 11 | - | - | - | - | - |
| Stage 2 | 81 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 908 | 1070 | 1608 | - | - | - |
| Stage 1 | 1012 | - | - | - | - | - |
| Stage 2 | 942 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 890 | 1070 | 1608 | - | - | - |
| Mov Cap-2 Maneuver | 890 | - | - | - | - | - |
| Stage 1 | 992 | - | - | - | - | - |
| Stage 2 | 942 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 8.5 | 4.7 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1608 | - | 1070 | - | - |
| HCM Lane V/C Ratio | 0.02 | - | 0.025 | - | - |
| HCM Control Delay (s) | 7.3 | 0 | 8.5 | - | - |
| HCM Lane LOS | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | 0.1 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.6 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 15 | 411 | 465 | 14 | 16 | 13 |
| Future Vol, veh/h | 15 | 411 | 465 | 14 | 16 | 13 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 160 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 0 | 0 | 8 | 0 | 8 |
| Mvmt Flow | 16 | 447 | 505 | 15 | 17 | 14 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 520 | 0 | - | 0 | 992 | 513 |
| Stage 1 | - | - | - | - | 513 | - |
| Stage 2 | - | - | - | - | 479 | - |
| Critical Hdwy | 4.1 | - | - | - | 6.4 | 6.28 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 2.2 | - | - | - | 3.5 | 3.372 |
| Pot Cap-1 Maneuver | 1056 | - | - | - | 275 | 549 |
| Stage 1 | - | - | - | - | 605 | - |
| Stage 2 | - | - | - | - | 627 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1056 | - | - | - | 271 | 549 |
| Mov Cap-2 Maneuver | - | - | - | - | 271 | - |
| Stage 1 | - | - | - | - | 596 | - |
| Stage 2 | - | - | - | - | 627 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0.3 | 0 | 16.3 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1056 | - | - | - | 351 |
| HCM Lane V/C Ratio | 0.015 | - | - | - | 0.09 |
| HCM Control Delay (s) | 8.5 | - | - | - | 16.3 |
| HCM Lane LOS | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.3 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 23 | 374 | 30 | 43 | 455 | 26 | 23 | 2 | 17 | 0 | 0 | 1 |
| Future Vol, veh/h | 23 | 374 | 30 | 43 | 455 | 26 | 23 | 2 | 17 | 0 | 0 | 1 |
| 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 | 140 | - | 140 | - | - | - | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mvmt Flow | 25 | 407 | 33 | 47 | 495 | 28 | 25 | 2 | 18 | 0 | 0 | 1 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | |
|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 523 | 0 | 0 | 440 | 0 | 0 | 1060 | 1074 | 407 |
| Stage 1 | - | - | - | - | - | - | 457 | 457 | - |
| Stage 2 | - | - | - | - | - | - | 603 | 617 | - |
| Critical Hdwy | 4.14 | - | - | 4.1 | - | - | 6.4 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 5.4 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 5.4 | 5.5 | - |
| Follow-up Hdwy | 2.236 | - | - | 2.2 | - | - | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1033 | - | - | 1131 | - | - | 250 | 222 | 648 |
| Stage 1 | - | - | - | - | - | - | 642 | 571 | - |
| Stage 2 | - | - | - | - | - | - | 550 | 484 | - |
| Platoon blocked, % | | - | - | | - | - | | | |
| Mov Cap-1 Maneuver | 1033 | - | - | 1131 | - | - | 234 | 0 | 648 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 234 | 0 | - |
| Stage 1 | - | - | - | - | - | - | 627 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 527 | 0 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0.5 | 0.7 | 17.7 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 234 | 648 | 1033 | - | - | 1131 | - | - |
| HCM Lane V/C Ratio | 0.116 | 0.029 | 0.024 | - | - | 0.041 | - | - |
| HCM Control Delay (s) | 22.4 | 10.7 | 8.6 | - | - | 8.3 | - | - |
| HCM Lane LOS | C | B | A | - | - | A | - | - |
| HCM 95th %tile Q(veh) | 0.4 | 0.1 | 0.1 | - | - | 0.1 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.7 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑ | ↑↑ | | ↰ | ↱ |
| Traffic Vol, veh/h | 0 | 391 | 493 | 0 | 25 | 31 |
| Future Vol, veh/h | 0 | 391 | 493 | 0 | 25 | 31 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 97 | 97 | 97 | 97 | 97 | 97 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 0 |
| Mvmt Flow | 0 | 403 | 508 | 0 | 26 | 32 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 0 | 710 | 254 |
| Stage 1 | - | - | - | - | 508 | - |
| Stage 2 | - | - | - | - | 202 | - |
| Critical Hdwy | - | - | - | - | 6.8 | 6.9 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.8 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.8 | - |
| Follow-up Hdwy | - | - | - | - | 3.5 | 3.3 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | 372 | 752 |
| Stage 1 | 0 | - | - | 0 | 575 | - |
| Stage 2 | 0 | - | - | 0 | 818 | - |
| Platoon blocked, % | | - | - | | | |
| Mov Cap-1 Maneuver | - | - | - | - | 372 | 752 |
| Mov Cap-2 Maneuver | - | - | - | - | 372 | - |
| Stage 1 | - | - | - | - | 575 | - |
| Stage 2 | - | - | - | - | 818 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 12.4 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBT | WBT | SBLn1 | SBLn2 |
|---|---|---|---|---|
| Capacity (veh/h) | - | - | 372 | 752 |
| HCM Lane V/C Ratio | - | - | 0.069 | 0.042 |
| HCM Control Delay (s) | - | - | 15.4 | 10 |
| HCM Lane LOS | - | - | C | B |
| HCM 95th %tile Q(veh) | - | - | 0.2 | 0.1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑ | ↱ | | | ↗ |
| Traffic Vol, veh/h | 1 | 415 | 493 | 0 | 0 | 0 |
| Future Vol, veh/h | 1 | 415 | 493 | 0 | 0 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | Free | - | None |
| Storage Length | - | - | - | - | - | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 96 | 96 | 96 | 96 | 96 | 96 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 0 |
| Mvmt Flow | 1 | 432 | 514 | 0 | 0 | 0 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 514 | 0 | - | 0 | - | 514 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | 4.1 | - | - | - | - | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | 2.2 | - | - | - | - | 3.3 |
| Pot Cap-1 Maneuver | 1062 | - | - | 0 | 0 | 564 |
| Stage 1 | - | - | - | 0 | 0 | - |
| Stage 2 | - | - | - | 0 | 0 | - |
| Platoon blocked, % | | - | - | | | |
| Mov Cap-1 Maneuver | 1062 | - | - | - | - | 564 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 0 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | SBLn1 |
|---|---|---|---|---|
| Capacity (veh/h) | 1062 | - | - | - |
| HCM Lane V/C Ratio | 0.001 | - | - | - |
| HCM Control Delay (s) | 8.4 | - | - | 0 |
| HCM Lane LOS | A | - | - | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - |

| 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 | 3 | 408 | 4 | 0 | 491 | 3 | 0 | 0 | 40 | 2 | 0 | 2 |
| Future Vol, veh/h | 3 | 408 | 4 | 0 | 491 | 3 | 0 | 0 | 40 | 2 | 0 | 2 |
| 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 | - | - | Free | - | - | None | - | - | Stop | - | - | None |
| Storage Length | 225 | - | 0 | - | - | 225 | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 3 | 429 | 4 | 0 | 517 | 3 | 0 | 0 | 42 | 2 | 0 | 2 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 520 | 0 | - | - | - | 0 | - | - | 429 | 952 | 952 | 517 |
| Stage 1 | - | - | - | - | - | - | - | - | - | 517 | 517 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 435 | 435 | - |
| Critical Hdwy | 4.1 | - | - | - | - | - | - | - | 6.23 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 2.2 | - | - | - | - | - | - | - | 3.327 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1056 | - | 0 | 0 | - | - | 0 | 0 | 624 | 241 | 261 | 562 |
| Stage 1 | - | - | 0 | 0 | - | - | 0 | 0 | - | 545 | 537 | - |
| Stage 2 | - | - | 0 | 0 | - | - | 0 | 0 | - | 604 | 584 | - |
| Platoon blocked, % | | - | | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1056 | - | - | - | - | - | - | - | 624 | 224 | 260 | 562 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | 224 | 260 | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | 543 | 537 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 562 | 582 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.1 | 0 | 11.2 | 16.4 |
| HCM LOS | | | B | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 624 | 1056 | - | - | - | 320 |
| HCM Lane V/C Ratio | 0.067 | 0.003 | - | - | - | 0.013 |
| HCM Control Delay (s) | 11.2 | 8.4 | - | - | - | 16.4 |
| HCM Lane LOS | B | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0.2 | 0 | - | - | - | 0 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.2 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 0 | 19 | 19 | 10 | 10 | 0 |
| Future Vol, veh/h | 0 | 19 | 19 | 10 | 10 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 21 | 21 | 11 | 11 | 0 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 64 | 11 | 11 | 0 | - | 0 |
| Stage 1 | 11 | - | - | - | - | - |
| Stage 2 | 53 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 942 | 1070 | 1608 | - | - | - |
| Stage 1 | 1012 | - | - | - | - | - |
| Stage 2 | 970 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 930 | 1070 | 1608 | - | - | - |
| Mov Cap-2 Maneuver | 930 | - | - | - | - | - |
| Stage 1 | 999 | - | - | - | - | - |
| Stage 2 | 970 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 8.4 | 4.8 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1608 | - | 1070 | - | - |
| HCM Lane V/C Ratio | 0.013 | - | 0.019 | - | - |
| HCM Control Delay (s) | 7.3 | 0 | 8.4 | - | - |
| HCM Lane LOS | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 0.1 | - | - |

# APPENDIX F: INTERSECTION ANALYSIS WORKSHEETS – FUTURE WITH DEVELOPMENT (2029)

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.9 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 9 | 345 | 390 | 5 | 21 | 25 |
| Future Vol, veh/h | 9 | 345 | 390 | 5 | 21 | 25 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 160 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 13 | 3 | 6 | 25 | 0 | 10 |
| Mvmt Flow | 10 | 375 | 424 | 5 | 23 | 27 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 429 | 0 | - | 0 | 822 | 427 |
| Stage 1 | - | - | - | - | 427 | - |
| Stage 2 | - | - | - | - | 395 | - |
| Critical Hdwy | 4.23 | - | - | - | 6.4 | 6.3 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 2.317 | - | - | - | 3.5 | 3.39 |
| Pot Cap-1 Maneuver | 1074 | - | - | - | 346 | 611 |
| Stage 1 | - | - | - | - | 662 | - |
| Stage 2 | - | - | - | - | 685 | - |
| Platoon blocked, % | | | - | - | - | |
| Mov Cap-1 Maneuver | 1074 | - | - | - | 343 | 611 |
| Mov Cap-2 Maneuver | - | - | - | - | 343 | - |
| Stage 1 | - | - | - | - | 656 | - |
| Stage 2 | - | - | - | - | 685 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0.2 | 0 | 14 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1074 | - | - | - | 450 |
| HCM Lane V/C Ratio | 0.009 | - | - | - | 0.111 |
| HCM Control Delay (s) | 8.4 | - | - | - | 14 |
| HCM Lane LOS | A | - | - | - | B |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.4 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.6 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 11 | 338 | 17 | 24 | 360 | 24 | 24 | 0 | 29 | 8 | 0 | 11 |
| Future Vol, veh/h | 11 | 338 | 17 | 24 | 360 | 24 | 24 | 0 | 29 | 8 | 0 | 11 |
| 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 | 140 | - | 140 | - | - | - | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 3 | 6 | 9 | 8 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 12 | 367 | 18 | 26 | 391 | 26 | 26 | 0 | 32 | 9 | 0 | 12 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 417 | 0 | 0 | 385 | 0 | 0 | 853 | 860 | 367 | 872 | 865 | 404 |
| Stage 1 | - | - | - | - | - | - | 391 | 391 | - | 456 | 456 | - |
| Stage 2 | - | - | - | - | - | - | 462 | 469 | - | 416 | 409 | - |
| Critical Hdwy | 4.1 | - | - | 4.19 | - | - | 7.1 | 6.5 | 6.23 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.1 | 5.5 | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.1 | 5.5 | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 2.2 | - | - | 2.281 | - | - | 3.5 | 4 | 3.327 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1153 | - | - | 1136 | - | - | 281 | 296 | 676 | 273 | 294 | 651 |
| Stage 1 | - | - | - | - | - | - | 637 | 611 | - | 588 | 572 | - |
| Stage 2 | - | - | - | - | - | - | 584 | 564 | - | 618 | 600 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1153 | - | - | 1136 | - | - | 269 | 286 | 676 | 254 | 284 | 651 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 269 | 286 | - | 254 | 284 | - |
| Stage 1 | - | - | - | - | - | - | 631 | 605 | - | 582 | 559 | - |
| Stage 2 | - | - | - | - | - | - | 560 | 551 | - | 583 | 594 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.2 | 0.5 | 14.8 | 14.7 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 269 | 676 | 1153 | - | - | 1136 | - | - | 393 |
| HCM Lane V/C Ratio | 0.097 | 0.047 | 0.01 | - | - | 0.023 | - | - | 0.053 |
| HCM Control Delay (s) | 19.8 | 10.6 | 8.2 | - | - | 8.2 | - | - | 14.7 |
| HCM Lane LOS | C | B | A | - | - | A | - | - | B |
| HCM 95th %tile Q(veh) | 0.3 | 0.1 | 0 | - | - | 0.1 | - | - | 0.2 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑ | ↱ | | | ↗ |
| Traffic Vol, veh/h | 0 | 375 | 407 | 5 | 0 | 1 |
| Future Vol, veh/h | 0 | 375 | 407 | 5 | 0 | 1 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | Free | - | None |
| Storage Length | - | - | - | - | - | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 408 | 442 | 5 | 0 | 1 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 0 | - | 442 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 3.319 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | 0 | 615 |
| Stage 1 | 0 | - | - | 0 | 0 | - |
| Stage 2 | 0 | - | - | 0 | 0 | - |
| Platoon blocked, % | | - | - | | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 615 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 10.9 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBT | WBT | SBLn1 |
|---|---|---|---|
| Capacity (veh/h) | - | - | 615 |
| HCM Lane V/C Ratio | - | - | 0.002 |
| HCM Control Delay (s) | - | - | 10.9 |
| HCM Lane LOS | - | - | B |
| HCM 95th %tile Q(veh) | - | - | 0 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 15 | 345 | 15 | 0 | 404 | 11 | 0 | 0 | 64 | 6 | 0 | 8 |
| Future Vol, veh/h | 15 | 345 | 15 | 0 | 404 | 11 | 0 | 0 | 64 | 6 | 0 | 8 |
| 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 | - | - | Free | - | - | None | - | - | Stop | - | - | None |
| Storage Length | 225 | - | 0 | - | - | 225 | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 3 | 0 | 0 | 7 | 36 | 0 | 0 | 3 | 33 | 0 | 13 |
| Mvmt Flow | 16 | 375 | 16 | 0 | 439 | 12 | 0 | 0 | 70 | 7 | 0 | 9 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 451 | 0 | - | - | - | 0 | - | - | 375 | 846 | 846 | 439 |
| Stage 1 | - | - | - | - | - | - | - | - | - | 439 | 439 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 407 | 407 | - |
| Critical Hdwy | 4.1 | - | - | - | - | - | - | - | 6.23 | 7.43 | 6.5 | 6.33 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | 6.43 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | 6.43 | 5.5 | - |
| Follow-up Hdwy | 2.2 | - | - | - | - | - | - | - | 3.327 | 3.797 | 4 | 3.417 |
| Pot Cap-1 Maneuver | 1120 | - | 0 | 0 | - | - | 0 | 0 | 669 | 250 | 301 | 595 |
| Stage 1 | - | - | 0 | 0 | - | - | 0 | 0 | - | 541 | 582 | - |
| Stage 2 | - | - | 0 | 0 | - | - | 0 | 0 | - | 564 | 601 | - |
| Platoon blocked, % | | - | | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1120 | - | - | - | - | - | - | - | 669 | 222 | 297 | 595 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | 222 | 297 | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | 533 | 582 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 498 | 593 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.3 | 0 | 11 | 15.9 |
| HCM LOS | | | B | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 669 | 1120 | - | - | - | 346 |
| HCM Lane V/C Ratio | 0.104 | 0.015 | - | - | - | 0.044 |
| HCM Control Delay (s) | 11 | 8.3 | - | - | - | 15.9 |
| HCM Lane LOS | B | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0.3 | 0 | - | - | - | 0.1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.8 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ⇕ | | | ⇕ | | | ⇕ | | | ⇕ | |
| Traffic Vol, veh/h | 0 | 0 | 24 | 9 | 0 | 0 | 9 | 4 | 1 | 0 | 13 | 0 |
| Future Vol, veh/h | 0 | 0 | 24 | 9 | 0 | 0 | 9 | 4 | 1 | 0 | 13 | 0 |
| 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 | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 0 | 26 | 10 | 0 | 0 | 10 | 4 | 1 | 0 | 14 | 0 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 39 | 39 | 14 | 52 | 39 | 5 | 14 | 0 | 0 | 5 | 0 | 0 |
| Stage 1 | 14 | 14 | - | 25 | 25 | - | - | - | - | - | - | - |
| Stage 2 | 25 | 25 | - | 27 | 14 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 | 4.12 | - | - | 4.12 | - | - |
| Critical Hdwy Stg 1 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 | 2.218 | - | - | 2.218 | - | - |
| Pot Cap-1 Maneuver | 966 | 853 | 1066 | 947 | 853 | 1078 | 1604 | - | - | 1616 | - | - |
| Stage 1 | 1006 | 884 | - | 993 | 874 | - | - | - | - | - | - | - |
| Stage 2 | 993 | 874 | - | 990 | 884 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 961 | 848 | 1066 | 920 | 848 | 1078 | 1604 | - | - | 1616 | - | - |
| Mov Cap-2 Maneuver | 961 | 848 | - | 920 | 848 | - | - | - | - | - | - | - |
| Stage 1 | 1000 | 884 | - | 987 | 869 | - | - | - | - | - | - | - |
| Stage 2 | 987 | 869 | - | 966 | 884 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 8.5 | 9 | 4.7 | 0 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1604 | - | - | 1066 | 920 | 1616 | - | - |
| HCM Lane V/C Ratio | 0.006 | - | - | 0.024 | 0.011 | - | - | - |
| HCM Control Delay (s) | 7.3 | 0 | - | 8.5 | 9 | 0 | - | - |
| HCM Lane LOS | A | A | - | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.1 | 0 | 0 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.8 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 32 | 543 | 539 | 17 | 18 | 19 |
| Future Vol, veh/h | 32 | 543 | 539 | 17 | 18 | 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 | 160 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 98 | 98 | 98 | 98 | 98 | 98 |
| Heavy Vehicles, % | 4 | 3 | 1 | 0 | 0 | 0 |
| Mvmt Flow | 33 | 554 | 550 | 17 | 18 | 19 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 567 | 0 | - | 0 | 1179 | 559 |
| Stage 1 | - | - | - | - | 559 | - |
| Stage 2 | - | - | - | - | 620 | - |
| Critical Hdwy | 4.14 | - | - | - | 6.4 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 2.236 | - | - | - | 3.5 | 3.3 |
| Pot Cap-1 Maneuver | 995 | - | - | - | 212 | 532 |
| Stage 1 | - | - | - | - | 576 | - |
| Stage 2 | - | - | - | - | 540 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 995 | - | - | - | 205 | 532 |
| Mov Cap-2 Maneuver | - | - | - | - | 205 | - |
| Stage 1 | - | - | - | - | 557 | - |
| Stage 2 | - | - | - | - | 540 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0.5 | 0 | 18.7 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 995 | - | - | - | 300 |
| HCM Lane V/C Ratio | 0.033 | - | - | - | 0.126 |
| HCM Control Delay (s) | 8.7 | - | - | - | 18.7 |
| HCM Lane LOS | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 0.4 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 23 | 507 | 31 | 61 | 497 | 27 | 29 | 5 | 18 | 16 | 0 | 30 |
| Future Vol, veh/h | 23 | 507 | 31 | 61 | 497 | 27 | 29 | 5 | 18 | 16 | 0 | 30 |
| 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 | 140 | - | 140 | - | - | - | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 |
| Heavy Vehicles, % | 0 | 3 | 3 | 2 | 1 | 0 | 7 | 0 | 0 | 0 | 0 | 0 |
| Mvmt Flow | 23 | 512 | 31 | 62 | 502 | 27 | 29 | 5 | 18 | 16 | 0 | 30 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 529 | 0 | 0 | 543 | 0 | 0 | 1213 | 1211 | 512 | 1225 | 1229 | 516 |
| Stage 1 | - | - | - | - | - | - | 558 | 558 | - | 640 | 640 | - |
| Stage 2 | - | - | - | - | - | - | 655 | 653 | - | 585 | 589 | - |
| Critical Hdwy | 4.1 | - | - | 4.12 | - | - | 7.17 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.17 | 5.5 | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.17 | 5.5 | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 2.2 | - | - | 2.218 | - | - | 3.563 | 4 | 3.3 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1048 | - | - | 1026 | - | - | 155 | 184 | 566 | 157 | 179 | 563 |
| Stage 1 | - | - | - | - | - | - | 505 | 515 | - | 467 | 473 | - |
| Stage 2 | - | - | - | - | - | - | 447 | 467 | - | 501 | 499 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1048 | - | - | 1026 | - | - | 138 | 169 | 566 | 139 | 165 | 563 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 138 | 169 | - | 139 | 165 | - |
| Stage 1 | - | - | - | - | - | - | 494 | 504 | - | 457 | 445 | - |
| Stage 2 | - | - | - | - | - | - | 397 | 439 | - | 470 | 488 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.3 | 0.9 | 29.1 | 20.9 |
| HCM LOS | | | D | C |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 142 | 566 | 1048 | - | - | 1026 | - | - | 273 |
| HCM Lane V/C Ratio | 0.242 | 0.032 | 0.022 | - | - | 0.06 | - | - | 0.17 |
| HCM Control Delay (s) | 38.3 | 11.6 | 8.5 | - | - | 8.7 | - | - | 20.9 |
| HCM Lane LOS | E | B | A | - | - | A | - | - | C |
| HCM 95th %tile Q(veh) | 0.9 | 0.1 | 0.1 | - | - | 0.2 | - | - | 0.6 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.1 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 0 | 541 | 579 | 0 | 0 | 6 |
| Future Vol, veh/h | 0 | 541 | 579 | 0 | 0 | 6 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | Free | - | None |
| Storage Length | - | - | - | - | - | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 98 | 98 | 98 | 98 | 98 | 98 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 552 | 591 | 0 | 0 | 6 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 0 | - | 591 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 3.319 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | 0 | 506 |
| Stage 1 | 0 | - | - | 0 | 0 | - |
| Stage 2 | 0 | - | - | 0 | 0 | - |
| Platoon blocked, % | | - | - | | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 506 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 12.2 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBT | WBT | SBLn1 |
|---|---|---|---|
| Capacity (veh/h) | - | - | 506 |
| HCM Lane V/C Ratio | - | - | 0.012 |
| HCM Control Delay (s) | - | - | 12.2 |
| HCM Lane LOS | - | - | B |
| HCM 95th %tile Q(veh) | - | - | 0 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.8 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 16 | 501 | 24 | 0 | 560 | 5 | 0 | 0 | 33 | 6 | 0 | 19 |
| Future Vol, veh/h | 16 | 501 | 24 | 0 | 560 | 5 | 0 | 0 | 33 | 6 | 0 | 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 | - | - | Free | - | - | None | - | - | Stop | - | - | None |
| Storage Length | 225 | - | 0 | - | - | 225 | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 |
| Heavy Vehicles, % | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 16 | 516 | 25 | 0 | 577 | 5 | 0 | 0 | 34 | 6 | 0 | 20 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 582 | 0 | - | - | - | 0 | - | - | 516 | 1125 | 1125 | 577 |
| Stage 1 | - | - | - | - | - | - | - | - | - | 577 | 577 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 548 | 548 | - |
| Critical Hdwy | 4.15 | - | - | - | - | - | - | - | 6.23 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 2.245 | - | - | - | - | - | - | - | 3.327 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 978 | - | 0 | 0 | - | - | 0 | 0 | 557 | 184 | 207 | 520 |
| Stage 1 | - | - | 0 | 0 | - | - | 0 | 0 | - | 506 | 505 | - |
| Stage 2 | - | - | 0 | 0 | - | - | 0 | 0 | - | 524 | 520 | - |
| Platoon blocked, % | | - | | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 978 | - | - | - | - | - | - | - | 557 | 171 | 204 | 520 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | 171 | 204 | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | 498 | 505 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 484 | 512 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.3 | 0 | 11.9 | 16.1 |
| HCM LOS | | | B | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 557 | 978 | - | - | - | 349 |
| HCM Lane V/C Ratio | 0.061 | 0.017 | - | - | - | 0.074 |
| HCM Control Delay (s) | 11.9 | 8.7 | - | - | - | 16.1 |
| HCM Lane LOS | B | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0.2 | 0.1 | - | - | - | 0.2 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.1 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ⇕ | | | ⇕ | | | ⇕ | | | ⇕ | |
| Traffic Vol, veh/h | 0 | 0 | 22 | 5 | 0 | 0 | 29 | 16 | 4 | 0 | 10 | 0 |
| Future Vol, veh/h | 0 | 0 | 22 | 5 | 0 | 0 | 29 | 16 | 4 | 0 | 10 | 0 |
| 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 | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 0 | 24 | 5 | 0 | 0 | 32 | 17 | 4 | 0 | 11 | 0 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 94 | 96 | 11 | 106 | 94 | 19 | 11 | 0 | 0 | 21 | 0 | 0 |
| Stage 1 | 11 | 11 | - | 83 | 83 | - | - | - | - | - | - | - |
| Stage 2 | 83 | 85 | - | 23 | 11 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 | 4.12 | - | - | 4.12 | - | - |
| Critical Hdwy Stg 1 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 | 2.218 | - | - | 2.218 | - | - |
| Pot Cap-1 Maneuver | 889 | 794 | 1070 | 873 | 796 | 1059 | 1608 | - | - | 1595 | - | - |
| Stage 1 | 1010 | 886 | - | 925 | 826 | - | - | - | - | - | - | - |
| Stage 2 | 925 | 824 | - | 995 | 886 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 876 | 778 | 1070 | 841 | 780 | 1059 | 1608 | - | - | 1595 | - | - |
| Mov Cap-2 Maneuver | 876 | 778 | - | 841 | 780 | - | - | - | - | - | - | - |
| Stage 1 | 990 | 886 | - | 907 | 809 | - | - | - | - | - | - | - |
| Stage 2 | 907 | 808 | - | 973 | 886 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 8.4 | 9.3 | 4.3 | 0 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1608 | - | - | 1070 | 841 | 1595 | - | - |
| HCM Lane V/C Ratio | 0.02 | - | - | 0.022 | 0.006 | - | - | - |
| HCM Control Delay (s) | 7.3 | 0 | - | 8.4 | 9.3 | 0 | - | - |
| HCM Lane LOS | A | A | - | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | - | 0.1 | 0 | 0 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.9 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 19 | 416 | 470 | 14 | 22 | 15 |
| Future Vol, veh/h | 19 | 416 | 470 | 14 | 22 | 15 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 160 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 0 | 0 | 8 | 0 | 8 |
| Mvmt Flow | 21 | 452 | 511 | 15 | 24 | 16 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 526 | 0 | - | 0 | 1013 | 519 |
| Stage 1 | - | - | - | - | 519 | - |
| Stage 2 | - | - | - | - | 494 | - |
| Critical Hdwy | 4.1 | - | - | - | 6.4 | 6.28 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 2.2 | - | - | - | 3.5 | 3.372 |
| Pot Cap-1 Maneuver | 1051 | - | - | - | 267 | 545 |
| Stage 1 | - | - | - | - | 601 | - |
| Stage 2 | - | - | - | - | 617 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1051 | - | - | - | 262 | 545 |
| Mov Cap-2 Maneuver | - | - | - | - | 262 | - |
| Stage 1 | - | - | - | - | 589 | - |
| Stage 2 | - | - | - | - | 617 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0.4 | 0 | 17.3 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1051 | - | - | - | 332 |
| HCM Lane V/C Ratio | 0.02 | - | - | - | 0.121 |
| HCM Control Delay (s) | 8.5 | - | - | - | 17.3 |
| HCM Lane LOS | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 0.4 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.8 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 28 | 380 | 30 | 43 | 423 | 37 | 23 | 2 | 17 | 31 | 0 | 38 |
| Future Vol, veh/h | 28 | 380 | 30 | 43 | 423 | 37 | 23 | 2 | 17 | 31 | 0 | 38 |
| 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 | 140 | - | 140 | - | - | - | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mvmt Flow | 30 | 413 | 33 | 47 | 460 | 40 | 25 | 2 | 18 | 34 | 0 | 41 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 500 | 0 | 0 | 446 | 0 | 0 | 1068 | 1067 | 413 | 1074 | 1080 | 480 |
| Stage 1 | - | - | - | - | - | - | 473 | 473 | - | 574 | 574 | - |
| Stage 2 | - | - | - | - | - | - | 595 | 594 | - | 500 | 506 | - |
| Critical Hdwy | 4.14 | - | - | 4.1 | - | - | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.1 | 5.5 | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.1 | 5.5 | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 2.236 | - | - | 2.2 | - | - | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1054 | - | - | 1125 | - | - | 201 | 224 | 643 | 199 | 220 | 590 |
| Stage 1 | - | - | - | - | - | - | 576 | 562 | - | 507 | 506 | - |
| Stage 2 | - | - | - | - | - | - | 494 | 496 | - | 557 | 543 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1054 | - | - | 1125 | - | - | 177 | 209 | 643 | 182 | 205 | 590 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 177 | 209 | - | 182 | 205 | - |
| Stage 1 | - | - | - | - | - | - | 560 | 546 | - | 493 | 485 | - |
| Stage 2 | - | - | - | - | - | - | 440 | 475 | - | 524 | 528 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.5 | 0.7 | 21.5 | 21.4 |
| HCM LOS | | | C | C |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 179 | 643 | 1054 | - | - | 1125 | - | - | 294 |
| HCM Lane V/C Ratio | 0.152 | 0.029 | 0.029 | - | - | 0.042 | - | - | 0.255 |
| HCM Control Delay (s) | 28.7 | 10.8 | 8.5 | - | - | 8.3 | - | - | 21.4 |
| HCM Lane LOS | D | B | A | - | - | A | - | - | C |
| HCM 95th %tile Q(veh) | 0.5 | 0.1 | 0.1 | - | - | 0.1 | - | - | 1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 0 | 428 | 503 | 0 | 0 | 0 |
| Future Vol, veh/h | 0 | 428 | 503 | 0 | 0 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | Free | - | None |
| Storage Length | - | - | - | - | - | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 96 | 96 | 96 | 96 | 96 | 96 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 0 |
| Mvmt Flow | 0 | 446 | 524 | 0 | 0 | 0 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 0 | - | 524 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 3.3 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | 0 | 557 |
| Stage 1 | 0 | - | - | 0 | 0 | - |
| Stage 2 | 0 | - | - | 0 | 0 | - |
| Platoon blocked, % | | - | - | | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 557 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 0 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBT | WBT | SBLn1 |
|---|---|---|---|
| Capacity (veh/h) | - | - | - |
| HCM Lane V/C Ratio | - | - | - |
| HCM Control Delay (s) | - | - | 0 |
| HCM Lane LOS | - | - | A |
| HCM 95th %tile Q(veh) | - | - | - |

| 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 | 3 | 421 | 4 | 0 | 501 | 3 | 0 | 0 | 40 | 2 | 0 | 2 |
| Future Vol, veh/h | 3 | 421 | 4 | 0 | 501 | 3 | 0 | 0 | 40 | 2 | 0 | 2 |
| 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 | - | - | Free | - | - | None | - | - | Stop | - | - | None |
| Storage Length | 225 | - | 0 | - | - | 225 | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 3 | 443 | 4 | 0 | 527 | 3 | 0 | 0 | 42 | 2 | 0 | 2 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 530 | 0 | - | - | - | 0 | - | - | 443 | 976 | 976 | 527 |
| Stage 1 | - | - | - | - | - | - | - | - | - | 527 | 527 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 449 | 449 | - |
| Critical Hdwy | 4.1 | - | - | - | - | - | - | - | 6.23 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 2.2 | - | - | - | - | - | - | - | 3.327 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1048 | - | 0 | 0 | - | - | 0 | 0 | 613 | 232 | 253 | 555 |
| Stage 1 | - | - | 0 | 0 | - | - | 0 | 0 | - | 538 | 532 | - |
| Stage 2 | - | - | 0 | 0 | - | - | 0 | 0 | - | 593 | 576 | - |
| Platoon blocked, % | | - | | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1048 | - | - | - | - | - | - | - | 613 | 216 | 252 | 555 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | 216 | 252 | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | 536 | 532 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 551 | 574 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.1 | 0 | 11.3 | 16.7 |
| HCM LOS | | | B | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 613 | 1048 | - | - | - | 311 |
| HCM Lane V/C Ratio | 0.069 | 0.003 | - | - | - | 0.014 |
| HCM Control Delay (s) | 11.3 | 8.4 | - | - | - | 16.7 |
| HCM Lane LOS | B | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0.2 | 0 | - | - | - | 0 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ⇕ | | | ⇕ | | | ⇕ | | | ⇕ | |
| Traffic Vol, veh/h | 0 | 0 | 19 | 8 | 0 | 0 | 19 | 10 | 4 | 0 | 10 | 0 |
| Future Vol, veh/h | 0 | 0 | 19 | 8 | 0 | 0 | 19 | 10 | 4 | 0 | 10 | 0 |
| 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 | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 0 | 21 | 9 | 0 | 0 | 21 | 11 | 4 | 0 | 11 | 0 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 66 | 68 | 11 | 77 | 66 | 13 | 11 | 0 | 0 | 15 | 0 | 0 |
| Stage 1 | 11 | 11 | - | 55 | 55 | - | - | - | - | - | - | - |
| Stage 2 | 55 | 57 | - | 22 | 11 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 | 4.12 | - | - | 4.12 | - | - |
| Critical Hdwy Stg 1 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 | 2.218 | - | - | 2.218 | - | - |
| Pot Cap-1 Maneuver | 927 | 823 | 1070 | 912 | 825 | 1067 | 1608 | - | - | 1603 | - | - |
| Stage 1 | 1010 | 886 | - | 957 | 849 | - | - | - | - | - | - | - |
| Stage 2 | 957 | 847 | - | 996 | 886 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 918 | 812 | 1070 | 886 | 814 | 1067 | 1608 | - | - | 1603 | - | - |
| Mov Cap-2 Maneuver | 918 | 812 | - | 886 | 814 | - | - | - | - | - | - | - |
| Stage 1 | 997 | 886 | - | 945 | 838 | - | - | - | - | - | - | - |
| Stage 2 | 945 | 836 | - | 977 | 886 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 8.4 | 9.1 | 4.2 | 0 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1608 | - | - | 1070 | 886 | 1603 | - | - |
| HCM Lane V/C Ratio | 0.013 | - | - | 0.019 | 0.01 | - | - | - |
| HCM Control Delay (s) | 7.3 | 0 | - | 8.4 | 9.1 | 0 | - | - |
| HCM Lane LOS | A | A | - | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.1 | 0 | 0 | - | - |

# APPENDIX G: INTERSECTION ANALYSIS WORKSHEETS – FUTURE WITH DEVELOPMENT (2029) MITIGATED

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.9 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 9 | 345 | 390 | 5 | 21 | 25 |
| Future Vol, veh/h | 9 | 345 | 390 | 5 | 21 | 25 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 160 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 13 | 3 | 6 | 25 | 0 | 10 |
| Mvmt Flow | 10 | 375 | 424 | 5 | 23 | 27 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 429 | 0 | - | 0 | 822 | 427 |
| Stage 1 | - | - | - | - | 427 | - |
| Stage 2 | - | - | - | - | 395 | - |
| Critical Hdwy | 4.23 | - | - | - | 6.4 | 6.3 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 2.317 | - | - | - | 3.5 | 3.39 |
| Pot Cap-1 Maneuver | 1074 | - | - | - | 346 | 611 |
| Stage 1 | - | - | - | - | 662 | - |
| Stage 2 | - | - | - | - | 685 | - |
| Platoon blocked, % | | | - | - | - | |
| Mov Cap-1 Maneuver | 1074 | - | - | - | 343 | 611 |
| Mov Cap-2 Maneuver | - | - | - | - | 343 | - |
| Stage 1 | - | - | - | - | 656 | - |
| Stage 2 | - | - | - | - | 685 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0.2 | 0 | 14 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1074 | - | - | - | 450 |
| HCM Lane V/C Ratio | 0.009 | - | - | - | 0.111 |
| HCM Control Delay (s) | 8.4 | - | - | - | 14 |
| HCM Lane LOS | A | - | - | - | B |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.4 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.6 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 11 | 338 | 17 | 24 | 360 | 24 | 24 | 0 | 29 | 8 | 0 | 11 |
| Future Vol, veh/h | 11 | 338 | 17 | 24 | 360 | 24 | 24 | 0 | 29 | 8 | 0 | 11 |
| 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 | 140 | - | 140 | - | - | 0 | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 3 | 6 | 9 | 8 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 12 | 367 | 18 | 26 | 391 | 26 | 26 | 0 | 32 | 9 | 0 | 12 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 417 | 0 | 0 | 385 | 0 | 0 | 853 | 860 | 367 | 859 | 852 | 391 |
| Stage 1 | - | - | - | - | - | - | 391 | 391 | - | 443 | 443 | - |
| Stage 2 | - | - | - | - | - | - | 462 | 469 | - | 416 | 409 | - |
| Critical Hdwy | 4.1 | - | - | 4.19 | - | - | 7.1 | 6.5 | 6.23 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.1 | 5.5 | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.1 | 5.5 | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 2.2 | - | - | 2.281 | - | - | 3.5 | 4 | 3.327 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1153 | - | - | 1136 | - | - | 281 | 296 | 676 | 279 | 299 | 662 |
| Stage 1 | - | - | - | - | - | - | 637 | 611 | - | 598 | 579 | - |
| Stage 2 | - | - | - | - | - | - | 584 | 564 | - | 618 | 600 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1153 | - | - | 1136 | - | - | 269 | 286 | 676 | 259 | 289 | 662 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 269 | 286 | - | 259 | 289 | - |
| Stage 1 | - | - | - | - | - | - | 631 | 605 | - | 592 | 566 | - |
| Stage 2 | - | - | - | - | - | - | 560 | 551 | - | 583 | 594 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.2 | 0.5 | 14.8 | 14.5 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 269 | 676 | 1153 | - | - | 1136 | - | - | 400 |
| HCM Lane V/C Ratio | 0.097 | 0.047 | 0.01 | - | - | 0.023 | - | - | 0.052 |
| HCM Control Delay (s) | 19.8 | 10.6 | 8.2 | - | - | 8.2 | - | - | 14.5 |
| HCM Lane LOS | C | B | A | - | - | A | - | - | B |
| HCM 95th %tile Q(veh) | 0.3 | 0.1 | 0 | - | - | 0.1 | - | - | 0.2 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑ | ↱ | | | ↗ |
| Traffic Vol, veh/h | 0 | 375 | 407 | 5 | 0 | 1 |
| Future Vol, veh/h | 0 | 375 | 407 | 5 | 0 | 1 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | Free | - | None |
| Storage Length | - | - | - | - | - | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 408 | 442 | 5 | 0 | 1 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 0 | - | 442 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 3.319 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | 0 | 615 |
| Stage 1 | 0 | - | - | 0 | 0 | - |
| Stage 2 | 0 | - | - | 0 | 0 | - |
| Platoon blocked, % | | - | - | | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 615 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 10.9 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBT | WBT | SBLn1 |
|---|---|---|---|
| Capacity (veh/h) | - | - | 615 |
| HCM Lane V/C Ratio | - | - | 0.002 |
| HCM Control Delay (s) | - | - | 10.9 |
| HCM Lane LOS | - | - | B |
| HCM 95th %tile Q(veh) | - | - | 0 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 15 | 345 | 15 | 0 | 404 | 11 | 0 | 0 | 64 | 6 | 0 | 8 |
| Future Vol, veh/h | 15 | 345 | 15 | 0 | 404 | 11 | 0 | 0 | 64 | 6 | 0 | 8 |
| 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 | - | - | Free | - | - | None | - | - | Stop | - | - | None |
| Storage Length | 225 | - | 0 | - | - | 225 | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 3 | 0 | 0 | 7 | 36 | 0 | 0 | 3 | 33 | 0 | 13 |
| Mvmt Flow | 16 | 375 | 16 | 0 | 439 | 12 | 0 | 0 | 70 | 7 | 0 | 9 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 451 | 0 | - | - | - | 0 | - | - | 375 | 846 | 846 | 439 |
| Stage 1 | - | - | - | - | - | - | - | - | - | 439 | 439 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 407 | 407 | - |
| Critical Hdwy | 4.1 | - | - | - | - | - | - | - | 6.23 | 7.43 | 6.5 | 6.33 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | 6.43 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | 6.43 | 5.5 | - |
| Follow-up Hdwy | 2.2 | - | - | - | - | - | - | - | 3.327 | 3.797 | 4 | 3.417 |
| Pot Cap-1 Maneuver | 1120 | - | 0 | 0 | - | - | 0 | 0 | 669 | 250 | 301 | 595 |
| Stage 1 | - | - | 0 | 0 | - | - | 0 | 0 | - | 541 | 582 | - |
| Stage 2 | - | - | 0 | 0 | - | - | 0 | 0 | - | 564 | 601 | - |
| Platoon blocked, % | | - | | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1120 | - | - | - | - | - | - | - | 669 | 222 | 297 | 595 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | 222 | 297 | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | 533 | 582 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 498 | 593 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.3 | 0 | 11 | 15.9 |
| HCM LOS | | | B | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 669 | 1120 | - | - | - | 346 |
| HCM Lane V/C Ratio | 0.104 | 0.015 | - | - | - | 0.044 |
| HCM Control Delay (s) | 11 | 8.3 | - | - | - | 15.9 |
| HCM Lane LOS | B | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0.3 | 0 | - | - | - | 0.1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.8 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ⇕ | | | ⇕ | | | ⇕ | | | ⇕ | |
| Traffic Vol, veh/h | 0 | 0 | 24 | 9 | 0 | 0 | 9 | 4 | 1 | 0 | 13 | 0 |
| Future Vol, veh/h | 0 | 0 | 24 | 9 | 0 | 0 | 9 | 4 | 1 | 0 | 13 | 0 |
| 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 | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 0 | 26 | 10 | 0 | 0 | 10 | 4 | 1 | 0 | 14 | 0 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 39 | 39 | 14 | 52 | 39 | 5 | 14 | 0 | 0 | 5 | 0 | 0 |
| Stage 1 | 14 | 14 | - | 25 | 25 | - | - | - | - | - | - | - |
| Stage 2 | 25 | 25 | - | 27 | 14 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 | 4.12 | - | - | 4.12 | - | - |
| Critical Hdwy Stg 1 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 | 2.218 | - | - | 2.218 | - | - |
| Pot Cap-1 Maneuver | 966 | 853 | 1066 | 947 | 853 | 1078 | 1604 | - | - | 1616 | - | - |
| Stage 1 | 1006 | 884 | - | 993 | 874 | - | - | - | - | - | - | - |
| Stage 2 | 993 | 874 | - | 990 | 884 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 961 | 848 | 1066 | 920 | 848 | 1078 | 1604 | - | - | 1616 | - | - |
| Mov Cap-2 Maneuver | 961 | 848 | - | 920 | 848 | - | - | - | - | - | - | - |
| Stage 1 | 1000 | 884 | - | 987 | 869 | - | - | - | - | - | - | - |
| Stage 2 | 987 | 869 | - | 966 | 884 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 8.5 | 9 | 4.7 | 0 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1604 | - | - | 1066 | 920 | 1616 | - | - |
| HCM Lane V/C Ratio | 0.006 | - | - | 0.024 | 0.011 | - | - | - |
| HCM Control Delay (s) | 7.3 | 0 | - | 8.5 | 9 | 0 | - | - |
| HCM Lane LOS | A | A | - | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.1 | 0 | 0 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.8 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 32 | 543 | 539 | 17 | 18 | 19 |
| Future Vol, veh/h | 32 | 543 | 539 | 17 | 18 | 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 | 160 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 98 | 98 | 98 | 98 | 98 | 98 |
| Heavy Vehicles, % | 4 | 3 | 1 | 0 | 0 | 0 |
| Mvmt Flow | 33 | 554 | 550 | 17 | 18 | 19 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 567 | 0 | - | 0 | 1179 | 559 |
| Stage 1 | - | - | - | - | 559 | - |
| Stage 2 | - | - | - | - | 620 | - |
| Critical Hdwy | 4.14 | - | - | - | 6.4 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 2.236 | - | - | - | 3.5 | 3.3 |
| Pot Cap-1 Maneuver | 995 | - | - | - | 212 | 532 |
| Stage 1 | - | - | - | - | 576 | - |
| Stage 2 | - | - | - | - | 540 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 995 | - | - | - | 205 | 532 |
| Mov Cap-2 Maneuver | - | - | - | - | 205 | - |
| Stage 1 | - | - | - | - | 557 | - |
| Stage 2 | - | - | - | - | 540 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0.5 | 0 | 18.7 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 995 | - | - | - | 300 |
| HCM Lane V/C Ratio | 0.033 | - | - | - | 0.126 |
| HCM Control Delay (s) | 8.7 | - | - | - | 18.7 |
| HCM Lane LOS | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 0.4 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 23 | 507 | 31 | 61 | 497 | 27 | 29 | 5 | 18 | 16 | 0 | 30 |
| Future Vol, veh/h | 23 | 507 | 31 | 61 | 497 | 27 | 29 | 5 | 18 | 16 | 0 | 30 |
| 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 | 140 | - | 140 | - | - | 0 | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 |
| Heavy Vehicles, % | 0 | 3 | 3 | 2 | 1 | 0 | 7 | 0 | 0 | 0 | 0 | 0 |
| Mvmt Flow | 23 | 512 | 31 | 62 | 502 | 27 | 29 | 5 | 18 | 16 | 0 | 30 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 529 | 0 | 0 | 543 | 0 | 0 | 1213 | 1211 | 512 | 1211 | 1215 | 502 |
| Stage 1 | - | - | - | - | - | - | 558 | 558 | - | 626 | 626 | - |
| Stage 2 | - | - | - | - | - | - | 655 | 653 | - | 585 | 589 | - |
| Critical Hdwy | 4.1 | - | - | 4.12 | - | - | 7.17 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.17 | 5.5 | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.17 | 5.5 | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 2.2 | - | - | 2.218 | - | - | 3.563 | 4 | 3.3 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1048 | - | - | 1026 | - | - | 155 | 184 | 566 | 161 | 183 | 573 |
| Stage 1 | - | - | - | - | - | - | 505 | 515 | - | 475 | 480 | - |
| Stage 2 | - | - | - | - | - | - | 447 | 467 | - | 501 | 499 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1048 | - | - | 1026 | - | - | 138 | 169 | 566 | 143 | 168 | 573 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 138 | 169 | - | 143 | 168 | - |
| Stage 1 | - | - | - | - | - | - | 494 | 504 | - | 465 | 451 | - |
| Stage 2 | - | - | - | - | - | - | 398 | 439 | - | 470 | 488 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.3 | 0.9 | 29.1 | 20.4 |
| HCM LOS | | | D | C |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 142 | 566 | 1048 | - | - | 1026 | - | - | 280 |
| HCM Lane V/C Ratio | 0.242 | 0.032 | 0.022 | - | - | 0.06 | - | - | 0.166 |
| HCM Control Delay (s) | 38.3 | 11.6 | 8.5 | - | - | 8.7 | - | - | 20.4 |
| HCM Lane LOS | E | B | A | - | - | A | - | - | C |
| HCM 95th %tile Q(veh) | 0.9 | 0.1 | 0.1 | - | - | 0.2 | - | - | 0.6 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.1 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑ | ↱ | | | ↗ |
| Traffic Vol, veh/h | 0 | 541 | 579 | 0 | 0 | 6 |
| Future Vol, veh/h | 0 | 541 | 579 | 0 | 0 | 6 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | Free | - | None |
| Storage Length | - | - | - | - | - | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 98 | 98 | 98 | 98 | 98 | 98 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 552 | 591 | 0 | 0 | 6 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 0 | - | 591 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 3.319 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | 0 | 506 |
| Stage 1 | 0 | - | - | 0 | 0 | - |
| Stage 2 | 0 | - | - | 0 | 0 | - |
| Platoon blocked, % | | - | - | | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 506 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 12.2 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBT | WBT | SBLn1 |
|---|---|---|---|
| Capacity (veh/h) | - | - | 506 |
| HCM Lane V/C Ratio | - | - | 0.012 |
| HCM Control Delay (s) | - | - | 12.2 |
| HCM Lane LOS | - | - | B |
| HCM 95th %tile Q(veh) | - | - | 0 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.8 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 16 | 501 | 24 | 0 | 560 | 5 | 0 | 0 | 33 | 6 | 0 | 19 |
| Future Vol, veh/h | 16 | 501 | 24 | 0 | 560 | 5 | 0 | 0 | 33 | 6 | 0 | 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 | - | - | Free | - | - | None | - | - | Stop | - | - | None |
| Storage Length | 225 | - | 0 | - | - | 225 | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 |
| Heavy Vehicles, % | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 16 | 516 | 25 | 0 | 577 | 5 | 0 | 0 | 34 | 6 | 0 | 20 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 582 | 0 | - | - | - | 0 | - | - | 516 | 1125 | 1125 | 577 |
| Stage 1 | - | - | - | - | - | - | - | - | - | 577 | 577 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 548 | 548 | - |
| Critical Hdwy | 4.15 | - | - | - | - | - | - | - | 6.23 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 2.245 | - | - | - | - | - | - | - | 3.327 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 978 | - | 0 | 0 | - | - | 0 | 0 | 557 | 184 | 207 | 520 |
| Stage 1 | - | - | 0 | 0 | - | - | 0 | 0 | - | 506 | 505 | - |
| Stage 2 | - | - | 0 | 0 | - | - | 0 | 0 | - | 524 | 520 | - |
| Platoon blocked, % | | - | | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 978 | - | - | - | - | - | - | - | 557 | 171 | 204 | 520 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | 171 | 204 | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | 498 | 505 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 484 | 512 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.3 | 0 | 11.9 | 16.1 |
| HCM LOS | | | B | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 557 | 978 | - | - | - | 349 |
| HCM Lane V/C Ratio | 0.061 | 0.017 | - | - | - | 0.074 |
| HCM Control Delay (s) | 11.9 | 8.7 | - | - | - | 16.1 |
| HCM Lane LOS | B | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0.2 | 0.1 | - | - | - | 0.2 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.1 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ⇕ | | | ⇕ | | | ⇕ | | | ⇕ | |
| Traffic Vol, veh/h | 0 | 0 | 22 | 5 | 0 | 0 | 29 | 16 | 4 | 0 | 10 | 0 |
| Future Vol, veh/h | 0 | 0 | 22 | 5 | 0 | 0 | 29 | 16 | 4 | 0 | 10 | 0 |
| 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 | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 0 | 24 | 5 | 0 | 0 | 32 | 17 | 4 | 0 | 11 | 0 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 94 | 96 | 11 | 106 | 94 | 19 | 11 | 0 | 0 | 21 | 0 | 0 |
| Stage 1 | 11 | 11 | - | 83 | 83 | - | - | - | - | - | - | - |
| Stage 2 | 83 | 85 | - | 23 | 11 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 | 4.12 | - | - | 4.12 | - | - |
| Critical Hdwy Stg 1 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 | 2.218 | - | - | 2.218 | - | - |
| Pot Cap-1 Maneuver | 889 | 794 | 1070 | 873 | 796 | 1059 | 1608 | - | - | 1595 | - | - |
| Stage 1 | 1010 | 886 | - | 925 | 826 | - | - | - | - | - | - | - |
| Stage 2 | 925 | 824 | - | 995 | 886 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 876 | 778 | 1070 | 841 | 780 | 1059 | 1608 | - | - | 1595 | - | - |
| Mov Cap-2 Maneuver | 876 | 778 | - | 841 | 780 | - | - | - | - | - | - | - |
| Stage 1 | 990 | 886 | - | 907 | 809 | - | - | - | - | - | - | - |
| Stage 2 | 907 | 808 | - | 973 | 886 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 8.4 | 9.3 | 4.3 | 0 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1608 | - | - | 1070 | 841 | 1595 | - | - |
| HCM Lane V/C Ratio | 0.02 | - | - | 0.022 | 0.006 | - | - | - |
| HCM Control Delay (s) | 7.3 | 0 | - | 8.4 | 9.3 | 0 | - | - |
| HCM Lane LOS | A | A | - | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | - | 0.1 | 0 | 0 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.9 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 19 | 416 | 470 | 14 | 22 | 15 |
| Future Vol, veh/h | 19 | 416 | 470 | 14 | 22 | 15 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 160 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 0 | 0 | 8 | 0 | 8 |
| Mvmt Flow | 21 | 452 | 511 | 15 | 24 | 16 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 526 | 0 | - | 0 | 1013 | 519 |
| Stage 1 | - | - | - | - | 519 | - |
| Stage 2 | - | - | - | - | 494 | - |
| Critical Hdwy | 4.1 | - | - | - | 6.4 | 6.28 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 2.2 | - | - | - | 3.5 | 3.372 |
| Pot Cap-1 Maneuver | 1051 | - | - | - | 267 | 545 |
| Stage 1 | - | - | - | - | 601 | - |
| Stage 2 | - | - | - | - | 617 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1051 | - | - | - | 262 | 545 |
| Mov Cap-2 Maneuver | - | - | - | - | 262 | - |
| Stage 1 | - | - | - | - | 589 | - |
| Stage 2 | - | - | - | - | 617 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0.4 | 0 | 17.3 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1051 | - | - | - | 332 |
| HCM Lane V/C Ratio | 0.02 | - | - | - | 0.121 |
| HCM Control Delay (s) | 8.5 | - | - | - | 17.3 |
| HCM Lane LOS | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 0.4 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.8 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 28 | 380 | 30 | 43 | 423 | 37 | 23 | 2 | 17 | 31 | 0 | 38 |
| Future Vol, veh/h | 28 | 380 | 30 | 43 | 423 | 37 | 23 | 2 | 17 | 31 | 0 | 38 |
| 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 | 140 | - | 140 | - | - | 0 | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mvmt Flow | 30 | 413 | 33 | 47 | 460 | 40 | 25 | 2 | 18 | 34 | 0 | 41 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 500 | 0 | 0 | 446 | 0 | 0 | 1068 | 1067 | 413 | 1054 | 1060 | 460 |
| Stage 1 | - | - | - | - | - | - | 473 | 473 | - | 554 | 554 | - |
| Stage 2 | - | - | - | - | - | - | 595 | 594 | - | 500 | 506 | - |
| Critical Hdwy | 4.14 | - | - | 4.1 | - | - | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.1 | 5.5 | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.1 | 5.5 | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 2.236 | - | - | 2.2 | - | - | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1054 | - | - | 1125 | - | - | 201 | 224 | 643 | 206 | 226 | 605 |
| Stage 1 | - | - | - | - | - | - | 576 | 562 | - | 520 | 517 | - |
| Stage 2 | - | - | - | - | - | - | 494 | 496 | - | 557 | 543 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1054 | - | - | 1125 | - | - | 177 | 209 | 643 | 188 | 210 | 605 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 177 | 209 | - | 188 | 210 | - |
| Stage 1 | - | - | - | - | - | - | 560 | 546 | - | 505 | 495 | - |
| Stage 2 | - | - | - | - | - | - | 441 | 475 | - | 524 | 528 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.5 | 0.7 | 21.5 | 20.7 |
| HCM LOS | | | C | C |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 179 | 643 | 1054 | - | - | 1125 | - | - | 303 |
| HCM Lane V/C Ratio | 0.152 | 0.029 | 0.029 | - | - | 0.042 | - | - | 0.248 |
| HCM Control Delay (s) | 28.7 | 10.8 | 8.5 | - | - | 8.3 | - | - | 20.7 |
| HCM Lane LOS | D | B | A | - | - | A | - | - | C |
| HCM 95th %tile Q(veh) | 0.5 | 0.1 | 0.1 | - | - | 0.1 | - | - | 1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑ | ↱ | | | ↗ |
| Traffic Vol, veh/h | 0 | 428 | 503 | 0 | 0 | 0 |
| Future Vol, veh/h | 0 | 428 | 503 | 0 | 0 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | Free | - | None |
| Storage Length | - | - | - | - | - | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 96 | 96 | 96 | 96 | 96 | 96 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 0 |
| Mvmt Flow | 0 | 446 | 524 | 0 | 0 | 0 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 0 | - | 524 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 3.3 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | 0 | 557 |
| Stage 1 | 0 | - | - | 0 | 0 | - |
| Stage 2 | 0 | - | - | 0 | 0 | - |
| Platoon blocked, % | | - | - | | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 557 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 0 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBT | WBT | SBLn1 |
|---|---|---|---|
| Capacity (veh/h) | - | - | - |
| HCM Lane V/C Ratio | - | - | - |
| HCM Control Delay (s) | - | - | 0 |
| HCM Lane LOS | - | - | A |
| HCM 95th %tile Q(veh) | - | - | - |

| 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 | 3 | 421 | 4 | 0 | 501 | 3 | 0 | 0 | 40 | 2 | 0 | 2 |
| Future Vol, veh/h | 3 | 421 | 4 | 0 | 501 | 3 | 0 | 0 | 40 | 2 | 0 | 2 |
| 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 | - | - | Free | - | - | None | - | - | Stop | - | - | None |
| Storage Length | 225 | - | 0 | - | - | 225 | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 3 | 443 | 4 | 0 | 527 | 3 | 0 | 0 | 42 | 2 | 0 | 2 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 530 | 0 | - | - | - | 0 | - | - | 443 | 976 | 976 | 527 |
| Stage 1 | - | - | - | - | - | - | - | - | - | 527 | 527 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 449 | 449 | - |
| Critical Hdwy | 4.1 | - | - | - | - | - | - | - | 6.23 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 2.2 | - | - | - | - | - | - | - | 3.327 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1048 | - | 0 | 0 | - | - | 0 | 0 | 613 | 232 | 253 | 555 |
| Stage 1 | - | - | 0 | 0 | - | - | 0 | 0 | - | 538 | 532 | - |
| Stage 2 | - | - | 0 | 0 | - | - | 0 | 0 | - | 593 | 576 | - |
| Platoon blocked, % | | - | | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1048 | - | - | - | - | - | - | - | 613 | 216 | 252 | 555 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | 216 | 252 | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | 536 | 532 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 551 | 574 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.1 | 0 | 11.3 | 16.7 |
| HCM LOS | | | B | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 613 | 1048 | - | - | - | 311 |
| HCM Lane V/C Ratio | 0.069 | 0.003 | - | - | - | 0.014 |
| HCM Control Delay (s) | 11.3 | 8.4 | - | - | - | 16.7 |
| HCM Lane LOS | B | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0.2 | 0 | - | - | - | 0 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ⇕ | | | ⇕ | | | ⇕ | | | ⇕ | |
| Traffic Vol, veh/h | 0 | 0 | 19 | 8 | 0 | 0 | 19 | 10 | 4 | 0 | 10 | 0 |
| Future Vol, veh/h | 0 | 0 | 19 | 8 | 0 | 0 | 19 | 10 | 4 | 0 | 10 | 0 |
| 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 | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 0 | 21 | 9 | 0 | 0 | 21 | 11 | 4 | 0 | 11 | 0 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 66 | 68 | 11 | 77 | 66 | 13 | 11 | 0 | 0 | 15 | 0 | 0 |
| Stage 1 | 11 | 11 | - | 55 | 55 | - | - | - | - | - | - | - |
| Stage 2 | 55 | 57 | - | 22 | 11 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 | 4.12 | - | - | 4.12 | - | - |
| Critical Hdwy Stg 1 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 | 2.218 | - | - | 2.218 | - | - |
| Pot Cap-1 Maneuver | 927 | 823 | 1070 | 912 | 825 | 1067 | 1608 | - | - | 1603 | - | - |
| Stage 1 | 1010 | 886 | - | 957 | 849 | - | - | - | - | - | - | - |
| Stage 2 | 957 | 847 | - | 996 | 886 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 918 | 812 | 1070 | 886 | 814 | 1067 | 1608 | - | - | 1603 | - | - |
| Mov Cap-2 Maneuver | 918 | 812 | - | 886 | 814 | - | - | - | - | - | - | - |
| Stage 1 | 997 | 886 | - | 945 | 838 | - | - | - | - | - | - | - |
| Stage 2 | 945 | 836 | - | 977 | 886 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 8.4 | 9.1 | 4.2 | 0 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1608 | - | - | 1070 | 886 | 1603 | - | - |
| HCM Lane V/C Ratio | 0.013 | - | - | 0.019 | 0.01 | - | - | - |
| HCM Control Delay (s) | 7.3 | 0 | - | 8.4 | 9.1 | 0 | - | - |
| HCM Lane LOS | A | A | - | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.1 | 0 | 0 | - | - |

# APPENDIX H: TERSECTION ANALYSIS WORKSHEETS – FUTURE WITH DEVELOPMENT (2029) ALTERNATIVE

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.9 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 9 | 345 | 390 | 5 | 21 | 25 |
| Future Vol, veh/h | 9 | 345 | 390 | 5 | 21 | 25 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 160 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 13 | 3 | 6 | 25 | 0 | 10 |
| Mvmt Flow | 10 | 375 | 424 | 5 | 23 | 27 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 429 | 0 | - | 0 | 822 | 427 |
| Stage 1 | - | - | - | - | 427 | - |
| Stage 2 | - | - | - | - | 395 | - |
| Critical Hdwy | 4.23 | - | - | - | 6.4 | 6.3 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 2.317 | - | - | - | 3.5 | 3.39 |
| Pot Cap-1 Maneuver | 1074 | - | - | - | 346 | 611 |
| Stage 1 | - | - | - | - | 662 | - |
| Stage 2 | - | - | - | - | 685 | - |
| Platoon blocked, % | | | - | - | - | |
| Mov Cap-1 Maneuver | 1074 | - | - | - | 343 | 611 |
| Mov Cap-2 Maneuver | - | - | - | - | 343 | - |
| Stage 1 | - | - | - | - | 656 | - |
| Stage 2 | - | - | - | - | 685 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0.2 | 0 | 14 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1074 | - | - | - | 450 |
| HCM Lane V/C Ratio | 0.009 | - | - | - | 0.111 |
| HCM Control Delay (s) | 8.4 | - | - | - | 14 |
| HCM Lane LOS | A | - | - | - | B |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.4 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 11 | 338 | 17 | 23 | 366 | 25 | 18 | 0 | 35 | 8 | 0 | 11 |
| Future Vol, veh/h | 11 | 338 | 17 | 23 | 366 | 25 | 18 | 0 | 35 | 8 | 0 | 11 |
| 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 | 140 | - | 140 | - | - | 0 | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 3 | 6 | 9 | 8 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 12 | 367 | 18 | 25 | 398 | 27 | 20 | 0 | 38 | 9 | 0 | 12 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 425 | 0 | 0 | 385 | 0 | 0 | 859 | 866 | 367 | 867 | 857 | 398 |
| Stage 1 | - | - | - | - | - | - | 391 | 391 | - | 448 | 448 | - |
| Stage 2 | - | - | - | - | - | - | 468 | 475 | - | 419 | 409 | - |
| Critical Hdwy | 4.1 | - | - | 4.19 | - | - | 7.1 | 6.5 | 6.23 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.1 | 5.5 | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.1 | 5.5 | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 2.2 | - | - | 2.281 | - | - | 3.5 | 4 | 3.327 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1145 | - | - | 1136 | - | - | 279 | 293 | 676 | 275 | 297 | 656 |
| Stage 1 | - | - | - | - | - | - | 637 | 611 | - | 594 | 576 | - |
| Stage 2 | - | - | - | - | - | - | 579 | 561 | - | 616 | 600 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1145 | - | - | 1136 | - | - | 267 | 284 | 676 | 253 | 287 | 656 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 267 | 284 | - | 253 | 287 | - |
| Stage 1 | - | - | - | - | - | - | 631 | 605 | - | 588 | 563 | - |
| Stage 2 | - | - | - | - | - | - | 556 | 549 | - | 575 | 594 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.2 | 0.5 | 13.6 | 14.7 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 267 | 676 | 1145 | - | - | 1136 | - | - | 393 |
| HCM Lane V/C Ratio | 0.073 | 0.056 | 0.01 | - | - | 0.022 | - | - | 0.053 |
| HCM Control Delay (s) | 19.5 | 10.6 | 8.2 | - | - | 8.2 | - | - | 14.7 |
| HCM Lane LOS | C | B | A | - | - | A | - | - | B |
| HCM 95th %tile Q(veh) | 0.2 | 0.2 | 0 | - | - | 0.1 | - | - | 0.2 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 0 | 381 | 413 | 5 | 0 | 1 |
| Future Vol, veh/h | 0 | 381 | 413 | 5 | 0 | 1 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | Free | - | None |
| Storage Length | - | - | - | - | - | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 414 | 449 | 5 | 0 | 1 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 0 | - | 449 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 3.319 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | 0 | 609 |
| Stage 1 | 0 | - | - | 0 | 0 | - |
| Stage 2 | 0 | - | - | 0 | 0 | - |
| Platoon blocked, % | | - | - | | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 609 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 10.9 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBT | WBT | SBLn1 |
|---|---|---|---|
| Capacity (veh/h) | - | - | 609 |
| HCM Lane V/C Ratio | - | - | 0.002 |
| HCM Control Delay (s) | - | - | 10.9 |
| HCM Lane LOS | - | - | B |
| HCM 95th %tile Q(veh) | - | - | 0 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 15 | 351 | 15 | 0 | 410 | 11 | 0 | 0 | 64 | 6 | 0 | 8 |
| Future Vol, veh/h | 15 | 351 | 15 | 0 | 410 | 11 | 0 | 0 | 64 | 6 | 0 | 8 |
| 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 | - | - | Free | - | - | None | - | - | Stop | - | - | None |
| Storage Length | 225 | - | 0 | - | - | 225 | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 3 | 0 | 0 | 7 | 36 | 0 | 0 | 3 | 33 | 0 | 13 |
| Mvmt Flow | 16 | 382 | 16 | 0 | 446 | 12 | 0 | 0 | 70 | 7 | 0 | 9 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 458 | 0 | - | - | - | 0 | - | - | 382 | 860 | 860 | 446 |
| Stage 1 | - | - | - | - | - | - | - | - | - | 446 | 446 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 414 | 414 | - |
| Critical Hdwy | 4.1 | - | - | - | - | - | - | - | 6.23 | 7.43 | 6.5 | 6.33 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | 6.43 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | 6.43 | 5.5 | - |
| Follow-up Hdwy | 2.2 | - | - | - | - | - | - | - | 3.327 | 3.797 | 4 | 3.417 |
| Pot Cap-1 Maneuver | 1114 | - | 0 | 0 | - | - | 0 | 0 | 663 | 244 | 296 | 590 |
| Stage 1 | - | - | 0 | 0 | - | - | 0 | 0 | - | 536 | 577 | - |
| Stage 2 | - | - | 0 | 0 | - | - | 0 | 0 | - | 559 | 597 | - |
| Platoon blocked, % | | - | | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1114 | - | - | - | - | - | - | - | 663 | 216 | 292 | 590 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | 216 | 292 | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | 528 | 577 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 493 | 589 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.3 | 0 | 11.1 | 16.1 |
| HCM LOS | | | B | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 663 | 1114 | - | - | - | 339 |
| HCM Lane V/C Ratio | 0.105 | 0.015 | - | - | - | 0.045 |
| HCM Control Delay (s) | 11.1 | 8.3 | - | - | - | 16.1 |
| HCM Lane LOS | B | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0.3 | 0 | - | - | - | 0.1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.8 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 0 | 0 | 24 | 9 | 0 | 0 | 9 | 4 | 1 | 0 | 13 | 0 |
| Future Vol, veh/h | 0 | 0 | 24 | 9 | 0 | 0 | 9 | 4 | 1 | 0 | 13 | 0 |
| 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 | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 0 | 26 | 10 | 0 | 0 | 10 | 4 | 1 | 0 | 14 | 0 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 39 | 39 | 14 | 52 | 39 | 5 | 14 | 0 | 0 | 5 | 0 | 0 |
| Stage 1 | 14 | 14 | - | 25 | 25 | - | - | - | - | - | - | - |
| Stage 2 | 25 | 25 | - | 27 | 14 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 | 4.12 | - | - | 4.12 | - | - |
| Critical Hdwy Stg 1 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 | 2.218 | - | - | 2.218 | - | - |
| Pot Cap-1 Maneuver | 966 | 853 | 1066 | 947 | 853 | 1078 | 1604 | - | - | 1616 | - | - |
| Stage 1 | 1006 | 884 | - | 993 | 874 | - | - | - | - | - | - | - |
| Stage 2 | 993 | 874 | - | 990 | 884 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 961 | 848 | 1066 | 920 | 848 | 1078 | 1604 | - | - | 1616 | - | - |
| Mov Cap-2 Maneuver | 961 | 848 | - | 920 | 848 | - | - | - | - | - | - | - |
| Stage 1 | 1000 | 884 | - | 987 | 869 | - | - | - | - | - | - | - |
| Stage 2 | 987 | 869 | - | 966 | 884 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 8.5 | 9 | 4.7 | 0 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1604 | - | - | 1066 | 920 | 1616 | - | - |
| HCM Lane V/C Ratio | 0.006 | - | - | 0.024 | 0.011 | - | - | - |
| HCM Control Delay (s) | 7.3 | 0 | - | 8.5 | 9 | 0 | - | - |
| HCM Lane LOS | A | A | - | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.1 | 0 | 0 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.8 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 32 | 543 | 539 | 17 | 18 | 18 |
| Future Vol, veh/h | 32 | 543 | 539 | 17 | 18 | 18 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 160 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 98 | 98 | 98 | 98 | 98 | 98 |
| Heavy Vehicles, % | 4 | 3 | 1 | 0 | 0 | 0 |
| Mvmt Flow | 33 | 554 | 550 | 17 | 18 | 18 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 567 | 0 | - | 0 | 1179 | 559 |
| Stage 1 | - | - | - | - | 559 | - |
| Stage 2 | - | - | - | - | 620 | - |
| Critical Hdwy | 4.14 | - | - | - | 6.4 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 2.236 | - | - | - | 3.5 | 3.3 |
| Pot Cap-1 Maneuver | 995 | - | - | - | 212 | 532 |
| Stage 1 | - | - | - | - | 576 | - |
| Stage 2 | - | - | - | - | 540 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 995 | - | - | - | 205 | 532 |
| Mov Cap-2 Maneuver | - | - | - | - | 205 | - |
| Stage 1 | - | - | - | - | 557 | - |
| Stage 2 | - | - | - | - | 540 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0.5 | 0 | 18.9 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 995 | - | - | - | 296 |
| HCM Lane V/C Ratio | 0.033 | - | - | - | 0.124 |
| HCM Control Delay (s) | 8.7 | - | - | - | 18.9 |
| HCM Lane LOS | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 0.4 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 23 | 507 | 31 | 61 | 510 | 27 | 15 | 5 | 32 | 16 | 0 | 30 |
| Future Vol, veh/h | 23 | 507 | 31 | 61 | 510 | 27 | 15 | 5 | 32 | 16 | 0 | 30 |
| 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 | 140 | - | 140 | - | - | 0 | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 |
| Heavy Vehicles, % | 0 | 3 | 3 | 2 | 1 | 0 | 7 | 0 | 0 | 0 | 0 | 0 |
| Mvmt Flow | 23 | 512 | 31 | 62 | 515 | 27 | 15 | 5 | 32 | 16 | 0 | 30 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 542 | 0 | 0 | 543 | 0 | 0 | 1226 | 1224 | 512 | 1231 | 1228 | 515 |
| Stage 1 | - | - | - | - | - | - | 558 | 558 | - | 639 | 639 | - |
| Stage 2 | - | - | - | - | - | - | 668 | 666 | - | 592 | 589 | - |
| Critical Hdwy | 4.1 | - | - | 4.12 | - | - | 7.17 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.17 | 5.5 | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.17 | 5.5 | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 2.2 | - | - | 2.218 | - | - | 3.563 | 4 | 3.3 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1037 | - | - | 1026 | - | - | 152 | 181 | 566 | 156 | 180 | 564 |
| Stage 1 | - | - | - | - | - | - | 505 | 515 | - | 468 | 474 | - |
| Stage 2 | - | - | - | - | - | - | 439 | 460 | - | 496 | 499 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1037 | - | - | 1026 | - | - | 135 | 166 | 566 | 135 | 165 | 564 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 135 | 166 | - | 135 | 165 | - |
| Stage 1 | - | - | - | - | - | - | 494 | 504 | - | 458 | 446 | - |
| Stage 2 | - | - | - | - | - | - | 390 | 432 | - | 453 | 488 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.4 | 0.9 | 20.5 | 21.2 |
| HCM LOS | | | C | C |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 142 | 566 | 1037 | - | - | 1026 | - | - | 268 |
| HCM Lane V/C Ratio | 0.142 | 0.057 | 0.022 | - | - | 0.06 | - | - | 0.173 |
| HCM Control Delay (s) | 34.5 | 11.7 | 8.6 | - | - | 8.7 | - | - | 21.2 |
| HCM Lane LOS | D | B | A | - | - | A | - | - | C |
| HCM 95th %tile Q(veh) | 0.5 | 0.2 | 0.1 | - | - | 0.2 | - | - | 0.6 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.1 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑ | ↱ | | | ↗ |
| Traffic Vol, veh/h | 0 | 554 | 592 | 0 | 0 | 6 |
| Future Vol, veh/h | 0 | 554 | 592 | 0 | 0 | 6 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | Free | - | None |
| Storage Length | - | - | - | - | - | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 98 | 98 | 98 | 98 | 98 | 98 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 565 | 604 | 0 | 0 | 6 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 0 | - | 604 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 3.319 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | 0 | 497 |
| Stage 1 | 0 | - | - | 0 | 0 | - |
| Stage 2 | 0 | - | - | 0 | 0 | - |
| Platoon blocked, % | | - | - | | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 497 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 12.3 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBT | WBT | SBLn1 |
|---|---|---|---|
| Capacity (veh/h) | - | - | 497 |
| HCM Lane V/C Ratio | - | - | 0.012 |
| HCM Control Delay (s) | - | - | 12.3 |
| HCM Lane LOS | - | - | B |
| HCM 95th %tile Q(veh) | - | - | 0 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.8 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 16 | 514 | 24 | 0 | 573 | 5 | 0 | 0 | 33 | 6 | 0 | 19 |
| Future Vol, veh/h | 16 | 514 | 24 | 0 | 573 | 5 | 0 | 0 | 33 | 6 | 0 | 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 | - | - | Free | - | - | None | - | - | Stop | - | - | None |
| Storage Length | 225 | - | 0 | - | - | 225 | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 |
| Heavy Vehicles, % | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 16 | 530 | 25 | 0 | 591 | 5 | 0 | 0 | 34 | 6 | 0 | 20 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 596 | 0 | - | - | - | 0 | - | - | 530 | 1153 | 1153 | 591 |
| Stage 1 | - | - | - | - | - | - | - | - | - | 591 | 591 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 562 | 562 | - |
| Critical Hdwy | 4.15 | - | - | - | - | - | - | - | 6.23 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 2.245 | - | - | - | - | - | - | - | 3.327 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 966 | - | 0 | 0 | - | - | 0 | 0 | 547 | 176 | 199 | 511 |
| Stage 1 | - | - | 0 | 0 | - | - | 0 | 0 | - | 497 | 498 | - |
| Stage 2 | - | - | 0 | 0 | - | - | 0 | 0 | - | 515 | 513 | - |
| Platoon blocked, % | | - | | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 966 | - | - | - | - | - | - | - | 547 | 163 | 196 | 511 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | 163 | 196 | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | 489 | 498 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 475 | 504 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.3 | 0 | 12 | 16.5 |
| HCM LOS | | | B | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 547 | 966 | - | - | - | 338 |
| HCM Lane V/C Ratio | 0.062 | 0.017 | - | - | - | 0.076 |
| HCM Control Delay (s) | 12 | 8.8 | - | - | - | 16.5 |
| HCM Lane LOS | B | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0.2 | 0.1 | - | - | - | 0.2 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.1 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ⇕ | | | ⇕ | | | ⇕ | | | ⇕ | |
| Traffic Vol, veh/h | 0 | 0 | 21 | 5 | 0 | 0 | 29 | 16 | 4 | 0 | 10 | 0 |
| Future Vol, veh/h | 0 | 0 | 21 | 5 | 0 | 0 | 29 | 16 | 4 | 0 | 10 | 0 |
| 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 | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 0 | 23 | 5 | 0 | 0 | 32 | 17 | 4 | 0 | 11 | 0 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 94 | 96 | 11 | 106 | 94 | 19 | 11 | 0 | 0 | 21 | 0 | 0 |
| Stage 1 | 11 | 11 | - | 83 | 83 | - | - | - | - | - | - | - |
| Stage 2 | 83 | 85 | - | 23 | 11 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 | 4.12 | - | - | 4.12 | - | - |
| Critical Hdwy Stg 1 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 | 2.218 | - | - | 2.218 | - | - |
| Pot Cap-1 Maneuver | 889 | 794 | 1070 | 873 | 796 | 1059 | 1608 | - | - | 1595 | - | - |
| Stage 1 | 1010 | 886 | - | 925 | 826 | - | - | - | - | - | - | - |
| Stage 2 | 925 | 824 | - | 995 | 886 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 876 | 778 | 1070 | 842 | 780 | 1059 | 1608 | - | - | 1595 | - | - |
| Mov Cap-2 Maneuver | 876 | 778 | - | 842 | 780 | - | - | - | - | - | - | - |
| Stage 1 | 990 | 886 | - | 907 | 809 | - | - | - | - | - | - | - |
| Stage 2 | 907 | 808 | - | 974 | 886 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 8.4 | 9.3 | 4.3 | 0 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1608 | - | - | 1070 | 842 | 1595 | - | - |
| HCM Lane V/C Ratio | 0.02 | - | - | 0.021 | 0.006 | - | - | - |
| HCM Control Delay (s) | 7.3 | 0 | - | 8.4 | 9.3 | 0 | - | - |
| HCM Lane LOS | A | A | - | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | - | 0.1 | 0 | 0 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.9 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 19 | 416 | 470 | 14 | 22 | 15 |
| Future Vol, veh/h | 19 | 416 | 470 | 14 | 22 | 15 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 160 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 0 | 0 | 8 | 0 | 8 |
| Mvmt Flow | 21 | 452 | 511 | 15 | 24 | 16 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 526 | 0 | - | 0 | 1013 | 519 |
| Stage 1 | - | - | - | - | 519 | - |
| Stage 2 | - | - | - | - | 494 | - |
| Critical Hdwy | 4.1 | - | - | - | 6.4 | 6.28 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 2.2 | - | - | - | 3.5 | 3.372 |
| Pot Cap-1 Maneuver | 1051 | - | - | - | 267 | 545 |
| Stage 1 | - | - | - | - | 601 | - |
| Stage 2 | - | - | - | - | 617 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1051 | - | - | - | 262 | 545 |
| Mov Cap-2 Maneuver | - | - | - | - | 262 | - |
| Stage 1 | - | - | - | - | 589 | - |
| Stage 2 | - | - | - | - | 617 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0.4 | 0 | 17.3 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1051 | - | - | - | 332 |
| HCM Lane V/C Ratio | 0.02 | - | - | - | 0.121 |
| HCM Control Delay (s) | 8.5 | - | - | - | 17.3 |
| HCM Lane LOS | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 0.4 |

| 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 | 28 | 380 | 30 | 43 | 429 | 37 | 17 | 2 | 23 | 31 | 0 | 38 |
| Future Vol, veh/h | 28 | 380 | 30 | 43 | 429 | 37 | 17 | 2 | 23 | 31 | 0 | 38 |
| 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 | 140 | - | 140 | - | - | 0 | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mvmt Flow | 30 | 413 | 33 | 47 | 466 | 40 | 18 | 2 | 25 | 34 | 0 | 41 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 506 | 0 | 0 | 446 | 0 | 0 | 1074 | 1073 | 413 | 1063 | 1066 | 466 |
| Stage 1 | - | - | - | - | - | - | 473 | 473 | - | 560 | 560 | - |
| Stage 2 | - | - | - | - | - | - | 601 | 600 | - | 503 | 506 | - |
| Critical Hdwy | 4.14 | - | - | 4.1 | - | - | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.1 | 5.5 | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.1 | 5.5 | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 2.236 | - | - | 2.2 | - | - | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1049 | - | - | 1125 | - | - | 199 | 222 | 643 | 203 | 224 | 601 |
| Stage 1 | - | - | - | - | - | - | 576 | 562 | - | 516 | 514 | - |
| Stage 2 | - | - | - | - | - | - | 491 | 493 | - | 555 | 543 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1049 | - | - | 1125 | - | - | 176 | 206 | 643 | 183 | 208 | 601 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 176 | 206 | - | 183 | 208 | - |
| Stage 1 | - | - | - | - | - | - | 559 | 546 | - | 501 | 492 | - |
| Stage 2 | - | - | - | - | - | - | 438 | 472 | - | 516 | 527 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.5 | 0.7 | 18.4 | 21.2 |
| HCM LOS | | | C | C |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 179 | 643 | 1049 | - | - | 1125 | - | - | 297 |
| HCM Lane V/C Ratio | 0.115 | 0.039 | 0.029 | - | - | 0.042 | - | - | 0.253 |
| HCM Control Delay (s) | 27.7 | 10.8 | 8.5 | - | - | 8.3 | - | - | 21.2 |
| HCM Lane LOS | D | B | A | - | - | A | - | - | C |
| HCM 95th %tile Q(veh) | 0.4 | 0.1 | 0.1 | - | - | 0.1 | - | - | 1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 0 | 434 | 509 | 0 | 0 | 0 |
| Future Vol, veh/h | 0 | 434 | 509 | 0 | 0 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | Free | - | None |
| Storage Length | - | - | - | - | - | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 96 | 96 | 96 | 96 | 96 | 96 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 0 |
| Mvmt Flow | 0 | 452 | 530 | 0 | 0 | 0 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 0 | - | 530 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 3.3 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | 0 | 553 |
| Stage 1 | 0 | - | - | 0 | 0 | - |
| Stage 2 | 0 | - | - | 0 | 0 | - |
| Platoon blocked, % | | - | - | | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 553 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 0 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBT | WBT | SBLn1 |
|---|---|---|---|
| Capacity (veh/h) | - | - | - |
| HCM Lane V/C Ratio | - | - | - |
| HCM Control Delay (s) | - | - | 0 |
| HCM Lane LOS | - | - | A |
| HCM 95th %tile Q(veh) | - | - | - |

| 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 | 3 | 427 | 4 | 0 | 507 | 3 | 0 | 0 | 40 | 2 | 0 | 2 |
| Future Vol, veh/h | 3 | 427 | 4 | 0 | 507 | 3 | 0 | 0 | 40 | 2 | 0 | 2 |
| 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 | - | - | Free | - | - | None | - | - | Stop | - | - | None |
| Storage Length | 225 | - | 0 | - | - | 225 | - | - | 0 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 3 | 449 | 4 | 0 | 534 | 3 | 0 | 0 | 42 | 2 | 0 | 2 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 537 | 0 | - | - | - | 0 | - | - | 449 | 989 | 989 | 534 |
| Stage 1 | - | - | - | - | - | - | - | - | - | 534 | 534 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 455 | 455 | - |
| Critical Hdwy | 4.1 | - | - | - | - | - | - | - | 6.23 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 2.2 | - | - | - | - | - | - | - | 3.327 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1041 | - | 0 | 0 | - | - | 0 | 0 | 608 | 228 | 249 | 550 |
| Stage 1 | - | - | 0 | 0 | - | - | 0 | 0 | - | 534 | 528 | - |
| Stage 2 | - | - | 0 | 0 | - | - | 0 | 0 | - | 589 | 572 | - |
| Platoon blocked, % | | - | | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1041 | - | - | - | - | - | - | - | 608 | 212 | 248 | 550 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | 212 | 248 | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | 532 | 528 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 547 | 570 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.1 | 0 | 11.4 | 16.9 |
| HCM LOS | | | B | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 608 | 1041 | - | - | - | 306 |
| HCM Lane V/C Ratio | 0.069 | 0.003 | - | - | - | 0.014 |
| HCM Control Delay (s) | 11.4 | 8.5 | - | - | - | 16.9 |
| HCM Lane LOS | B | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0.2 | 0 | - | - | - | 0 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ⇕ | | | ⇕ | | | ⇕ | | | ⇕ | |
| Traffic Vol, veh/h | 0 | 0 | 19 | 8 | 0 | 0 | 19 | 10 | 4 | 0 | 10 | 0 |
| Future Vol, veh/h | 0 | 0 | 19 | 8 | 0 | 0 | 19 | 10 | 4 | 0 | 10 | 0 |
| 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 | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 0 | 21 | 9 | 0 | 0 | 21 | 11 | 4 | 0 | 11 | 0 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 66 | 68 | 11 | 77 | 66 | 13 | 11 | 0 | 0 | 15 | 0 | 0 |
| Stage 1 | 11 | 11 | - | 55 | 55 | - | - | - | - | - | - | - |
| Stage 2 | 55 | 57 | - | 22 | 11 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 | 4.12 | - | - | 4.12 | - | - |
| Critical Hdwy Stg 1 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 | 2.218 | - | - | 2.218 | - | - |
| Pot Cap-1 Maneuver | 927 | 823 | 1070 | 912 | 825 | 1067 | 1608 | - | - | 1603 | - | - |
| Stage 1 | 1010 | 886 | - | 957 | 849 | - | - | - | - | - | - | - |
| Stage 2 | 957 | 847 | - | 996 | 886 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 918 | 812 | 1070 | 886 | 814 | 1067 | 1608 | - | - | 1603 | - | - |
| Mov Cap-2 Maneuver | 918 | 812 | - | 886 | 814 | - | - | - | - | - | - | - |
| Stage 1 | 997 | 886 | - | 945 | 838 | - | - | - | - | - | - | - |
| Stage 2 | 945 | 836 | - | 977 | 886 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 8.4 | 9.1 | 4.2 | 0 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1608 | - | - | 1070 | 886 | 1603 | - | - |
| HCM Lane V/C Ratio | 0.013 | - | - | 0.019 | 0.01 | - | - | - |
| HCM Control Delay (s) | 7.3 | 0 | - | 8.4 | 9.1 | 0 | - | - |
| HCM Lane LOS | A | A | - | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.1 | 0 | 0 | - | - |

# APPENDIX I: CRASH DATA

# VDOT Crash Data Summary Table

| Crash Data for the Intersection of Washington St (Rte. 55) and Greenhill Crossing Dr/Site Entrance (January 2020 - December 2024) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Document Number** | **Date** | **Crash Severity** | **Collsion Type** | **Pedestrain Injury** | **Persons Injured** | **Fatalities** | **Work Zone Related** | **Adverse Weather Conditions** | **Distracted Driver** |
| 210355168 | 2/3/2021 | PDO. Property Damage Only | 1. Rear End | 0 | 0 | 0 | | no | no |
| 233305159 | 11/21/2023 | PDO. Property Damage Only | 2. Angle | 0 | 0 | 0 | | yes | no |
| 231355164 | 5/13/2023 | PDO. Property Damage Only | 2. Angle | 0 | 0 | 0 | | no | no |

# APPENDIX J: DESCRIPTION OF TRAFFIC LEVEL OF SERVICE

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.



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## 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.

GOROVE SLADE
Transportation Planners and Engineers

# TECHNICAL MEMORANDUM

| | | |
|---|---|---|
| To: | Kirk Johnson | Graystone Companies |
| From: | Kayla Ord, PE, PTOE | |
| | Gee Sreekanth Gopi, EIT | |
| | Mike King | |
| Date: | July 17, 2025 | |
| Subject: | **14600 Washington Street – Shared Parking Analysis Memo** | |

## Introduction

This memorandum presents the findings of a shared parking analysis for the proposed '14600 Washington Street' development located in the Town of Haymarket, in Prince William County, Virginia. This memorandum includes the following elements:

- A review of the applicable parking requirements.
- A review of the proposed on-site shared parking.
- A discussion on the anticipated average parking demand and how the proposed supply exceeds the demand.

The site is currently occupied with approximately 32 kSF of commercial and office space. The planned development program for the site includes mix uses with approximately 26 kSF of commercial/office land uses and up to 61 single family attached (townhome) units. Please note, a portion of the site is currently occupied by existing commercial uses. A portion of the commercial uses, approximately 5.9 kSF of office space, are planned to be removed with this application while the remaining 26 kSF is anticipated remain. The location of the site is shown in Figure 1.



4114 Legato Road / Suite 650 / Fairfax, VA 22033 / **T** 703.787.9595 goroveslade.com

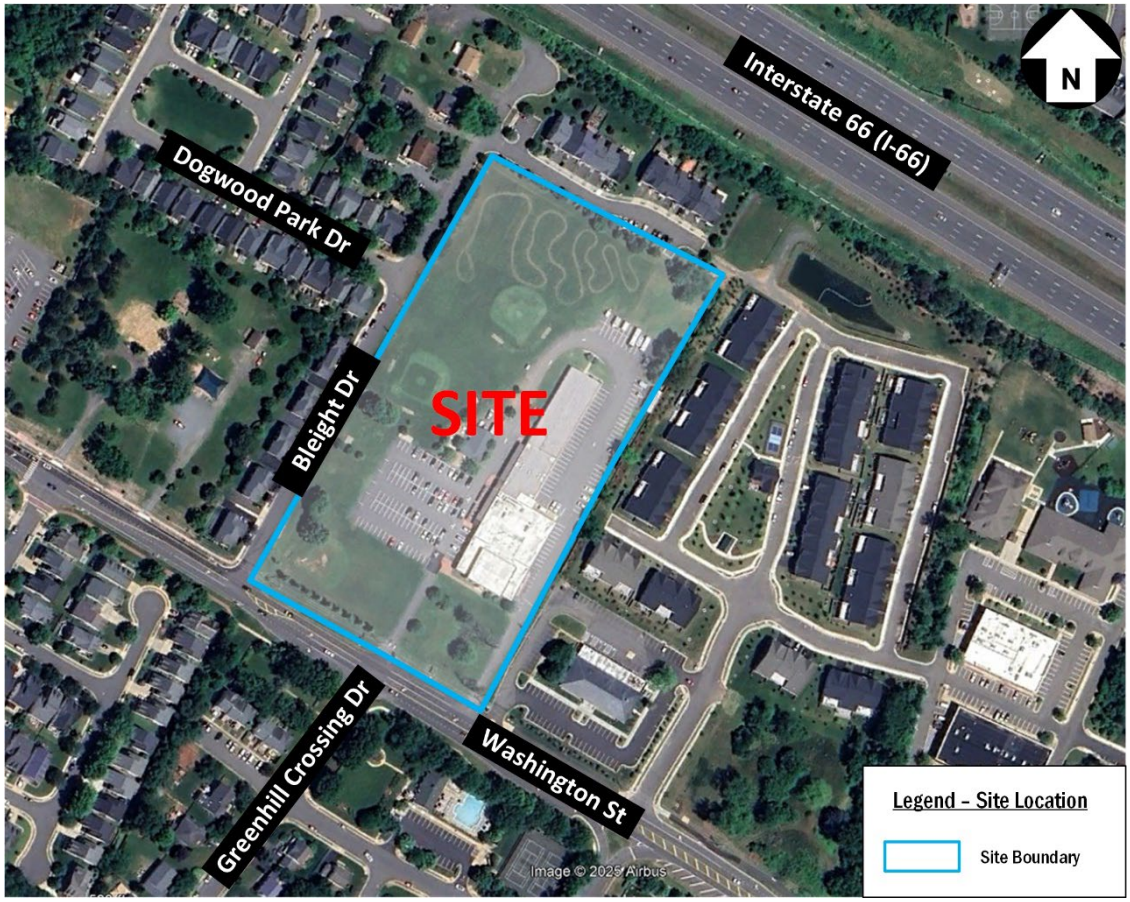



**Figure 1: Site Location**

## Background

The proposed development is to be situated on one (1) parcel of land with the land area of approximately 8.8 acres. The parcel is located within the Town of Haymarket and can be identified on Prince William County Mapper with the GPIN: 7397-19-1734. As previously mentioned, the planned development program for the site includes mix uses with approximately 26 kSF of commercial/office land uses and up to 61 single family attached (townhome) units. Total site build-out is planned for the year 2030.

## Minimum Off-Street Parking and Loading

The Town of Haymarket Code of Zoning Ordinance stipulates parking ratios (i.e., the number of parking spaces per unit) in Section 58-6.1. The municipality's minimum parking requirements for the proposed (Mixed-Use) land uses and the number of spaces provided are summarized in Table 1.

**Table 1: Off-Street Parking Requirements & Tabulations (Mixed-Use)**

| Proposed Use | Density (SF) | *Parking Rate (Required) | # Spaces Required | Provided Spaces |
|---|---|---|---|---|
| General Office | 6,925 | 1 space/300 sf | 23 | |
| Restaurant | 6,165 | 1 space/100 sf | 62 | |
| Recreation Facility | 6,920 | 1 space/300 sf | 23 | |
| Wholesale Business | 2,028 | 1 space/1,000 sf | 2 | |
| Ice Cream Shop | 1,600 | 1 space/100 sf | 16 | |
| **Total** | **23,638** | | **126** | **147** |

**Town of Haymarket Zoning Ordinance*

Per the Town's parking requirements, the mixed-use portion of the 14600 Washington St development would require 126 parking spaces. A total of 147 parking spaces are planned to be provided, for mixed-use purposes, on the surface level parking lot. Please note this exceeds the Town of Haymarket requirements for the proportion of proposed land uses shown in Table 1 above.

Similarly, the Town of Haymarket's minimum parking requirements for the proposed residential use are shown in Table 2 below.

**Table 2: Off-Street Parking Requirements & Tabulations (Residential)**

| Proposed Use | Density (units) | *Parking Rate (Required) | # Required | Proposed Parking |
|---|---|---|---|---|
| Single Family Attached | 61 | 2.25/du | 137 | 122 |

**Town of Haymarket Zoning Ordinance*

Per the Town's parking requirements, the residential portion of the 14600 Washington St development would require 137 parking spaces (122 reserved for residential & 15 reserved for visitor parking). A total of 122 parking spaces are planned to be provided within the residential units and reserved for residents with the remaining 15 spaces to be provided in the surface lot.

## On-Site Parking Supply

The Applicant is planning to construct a total of 269 parking spaces on-site. The final breakdown of parking provided for each use is subject to change as the project develops and final mix and density are approved. The summarized parking breakdown is shown on Table 3 below.

**Table 3: Summarized Parking Tabulations**

| Proposed Use | # Spaces Required | Provided Spaces |
|---|---|---|
| Mixed-Use | 126 | 147 |
| Residential | 137 | 122 |
| **TOTAL** | **263** | **269** |

## *Shared Parking Analysis*

Section 58-6.1.B states "The minimum required parking spaces may be reduced if a land owner can provide parking that will be shared by complementary adjacent land uses. Such a proposal must be prepared using the methods set forth in the latest edition of the Shared Parking Manual of the Urban Land Institute (ULI). The necessary calculations and other data that show the suitability of a shared parking proposal must be submitted to the Town in conjunction with a site plan or other applicable development application…"

Shared parking is planned on-site to accommodate the proposed parking reduction. Shared parking is the use of a parking space to serve two or more individual land uses without conflict or encroachment. The ability to share parking spaces is the result of two conditions:

- Variations in the accumulation of vehicles by hour, by day, or by season at the individual land uses, and
- Relationships among the land uses that result in visiting multiple land uses on the same trip.

The key goal of shared parking analysis is to find the balance between providing adequate parking to support a development from a commercial viewpoint and minimizing the negative aspects of excessive land area or resources devoted to parking.

The process below outlines the shared parking methodology:

1. *Determine* the applicable parking ratios – The base parking ratios were split between residents/employees and visitors using the parking ratios provided in the Urban Land Institute's (ULI) *Shared Parking*, 3rd Edition (2020). The base parking ratios per the Town of Haymarket Zoning Ordinance is shown in Table 4.

**Table 4: Base Parking Ratios (Haymarket ZO)**

| Land Use | Development | *Base Parking Ratio | Base Parking Supply | Proposed |
|---|---|---|---|---|
| Recreation Facility | 6,920 SF | 1.0 /300 SF | 23 spaces | |
| General Office | 6,925 SF | 1.0 /300 SF | 23 spaces | |
| Wholesale Retail | 2,028 SF | 1.0 /1,000 SF | 2 spaces | |
| Dine-In Restaurant | 6,165 SF | 1.0 /100 SF | 62 spaces | |
| Residential (Reserved) | 61 DU | 2.00 /DU | 122 spaces | |
| Residential (Visitor) | 61 DU | 0.25 /DU | 15 Spaces | |
| Fast Casual Restaurant | 1,600 SF | 1.0 /100 SF | 16 spaces | |
| | | | **263 spaces** | **269 spaces** |

**Town of Haymarket Off-Street Parking Requirements per Zoning Ordinance*

2. *Determine* the number of reserved parking spaces – For the purposes of this analysis, reserved spaces were assumed for only the residential portion of the development.
3. *Determine* the peak parking scenario – This is shown in the following tables. The hourly factors are based on the Urban Land Institute (ULI) *Shared Parking*, 3rd Edition (2020) time-of-day factors. The hourly factors are applied to the base parking ratios shown in Table 4 to determine the peak parking scenario.
4. *Determine* the peak parking demand – This is shown in the following tables.

The shared parking analysis includes all the proposed uses. This analysis looks at the shared characteristics of these uses in the surface parking lot which is planned to contain 147 parking spaces.

## *Weekday*

The weekday parking accumulation calculations are shown in Table 5 and Figure 2. The peak weekday parking demand is anticipated to occur at 7:00 PM. Based on the ULI time-of-day factors, the peak weekday demand is 239 parking spaces, which is less than the 269 spaces provided.

**Table 5: Weekday Shared Parking Hourly Characteristics**

| Proposed | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ULI - 3rd Edition | | Residential - Reserved | | Residential - Visitor | | Wholesale Retail - [6] | | Dine-In Restaurant - [8] | | Fast Casual Restaurant - [10] | | Recreation Facilities - [2] | | General Office - Employees[4] | | Total | Surplus |
| | | Time of Day Adjust | Demand | Time of Day Adjust | Demand | Time of Day Adjust | Demand | Time of Day Adjust | Demand | Time of Day Adjust | Demand | Time of Day Adjust | Demand | Time of Day Adjust | Demand | Demand | |
| Time of Day | *6:00 AM* | 100% | 122 | 0% | 0 | 1% | 1 | 0% | 0 | 5% | 1 | 70% | 17 | 3% | 1 | 142 | 142 |
| | *7:00 AM* | 100% | 122 | 10% | 2 | 5% | 1 | 0% | 0 | 10% | 2 | 40% | 10 | 15% | 4 | 141 | 128 |
| | *8:00 AM* | 100% | 122 | 20% | 3 | 15% | 1 | 0% | 0 | 20% | 4 | 40% | 10 | 50% | 12 | 152 | 117 |
| | *9:00 AM* | 100% | 122 | 20% | 3 | 35% | 1 | 0% | 0 | 30% | 5 | 70% | 17 | 90% | 21 | 169 | 100 |
| | *10:00 AM* | 100% | 122 | 20% | 3 | 60% | 2 | 15% | 10 | 55% | 9 | 70% | 17 | 100% | 24 | 187 | 82 |
| | *11:00 AM* | 100% | 122 | 20% | 3 | 75% | 2 | 40% | 25 | 85% | 14 | 80% | 19 | 100% | 24 | 209 | 60 |
| | *12:00 PM* | 100% | 122 | 20% | 3 | 100% | 3 | 75% | 47 | 100% | 16 | 60% | 14 | 85% | 20 | 225 | 44 |
| | *1:00 PM* | 100% | 122 | 20% | 3 | 100% | 3 | 75% | 47 | 100% | 16 | 70% | 17 | 85% | 20 | 228 | 41 |
| | *2:00 PM* | 100% | 122 | 20% | 3 | 95% | 2 | 65% | 41 | 90% | 15 | 70% | 17 | 95% | 22 | 222 | 47 |
| | *3:00 PM* | 100% | 122 | 20% | 3 | 85% | 2 | 40% | 25 | 60% | 10 | 70% | 17 | 95% | 22 | 201 | 68 |
| | *4:00 PM* | 100% | 122 | 20% | 3 | 85% | 2 | 50% | 31 | 55% | 9 | 80% | 19 | 85% | 20 | 206 | 63 |
| | *5:00 PM* | 100% | 122 | 40% | 6 | 85% | 2 | 75% | 47 | 60% | 10 | 90% | 21 | 60% | 14 | 222 | 47 |
| | *6:00 PM* | 100% | 122 | 60% | 9 | 90% | 2 | 95% | 59 | 85% | 14 | 100% | 24 | 25% | 6 | 236 | 33 |
| | *7:00 PM* | 100% | 122 | 100% | 15 | 80% | 2 | 100% | 62 | 80% | 13 | 90% | 21 | 15% | 4 | 239 | 30 |
| | *8:00 PM* | 100% | 122 | 100% | 15 | 65% | 2 | 100% | 62 | 50% | 8 | 80% | 19 | 5% | 2 | 230 | 39 |
| | *9:00 PM* | 100% | 122 | 100% | 15 | 45% | 1 | 100% | 62 | 30% | 5 | 70% | 17 | 3% | 1 | 223 | 46 |
| | *10:00 PM* | 100% | 122 | 100% | 15 | 15% | 1 | 95% | 59 | 20% | 4 | 35% | 9 | 1% | 1 | 211 | 58 |
| | *11:00 PM* | 100% | 122 | 80% | 12 | 5% | 1 | 75% | 47 | 10% | 2 | 10% | 3 | 0% | 0 | 187 | 82 |
| | *12:00 AM* | 100% | 122 | 50% | 8 | 0% | 0 | 25% | 16 | 5% | 1 | 0% | 0 | 0% | 0 | 147 | 122 |

*Time of Day Sources:*

*2. Health Club Visitors - ULI Shared Parking, 3rd Edition,*

*4. Office Employees - ULI Shared Parking, 3rd Edition*

*6. Retail Employees - ULI Shared Parking, 3rd Edition*

*8. Dine-In Restaurant Visitors - ULI Shared Parking, 3rd Edition*

*10. Fast Casual Restaurant Visitors - ULI Shared Parking, 3rd Edition*

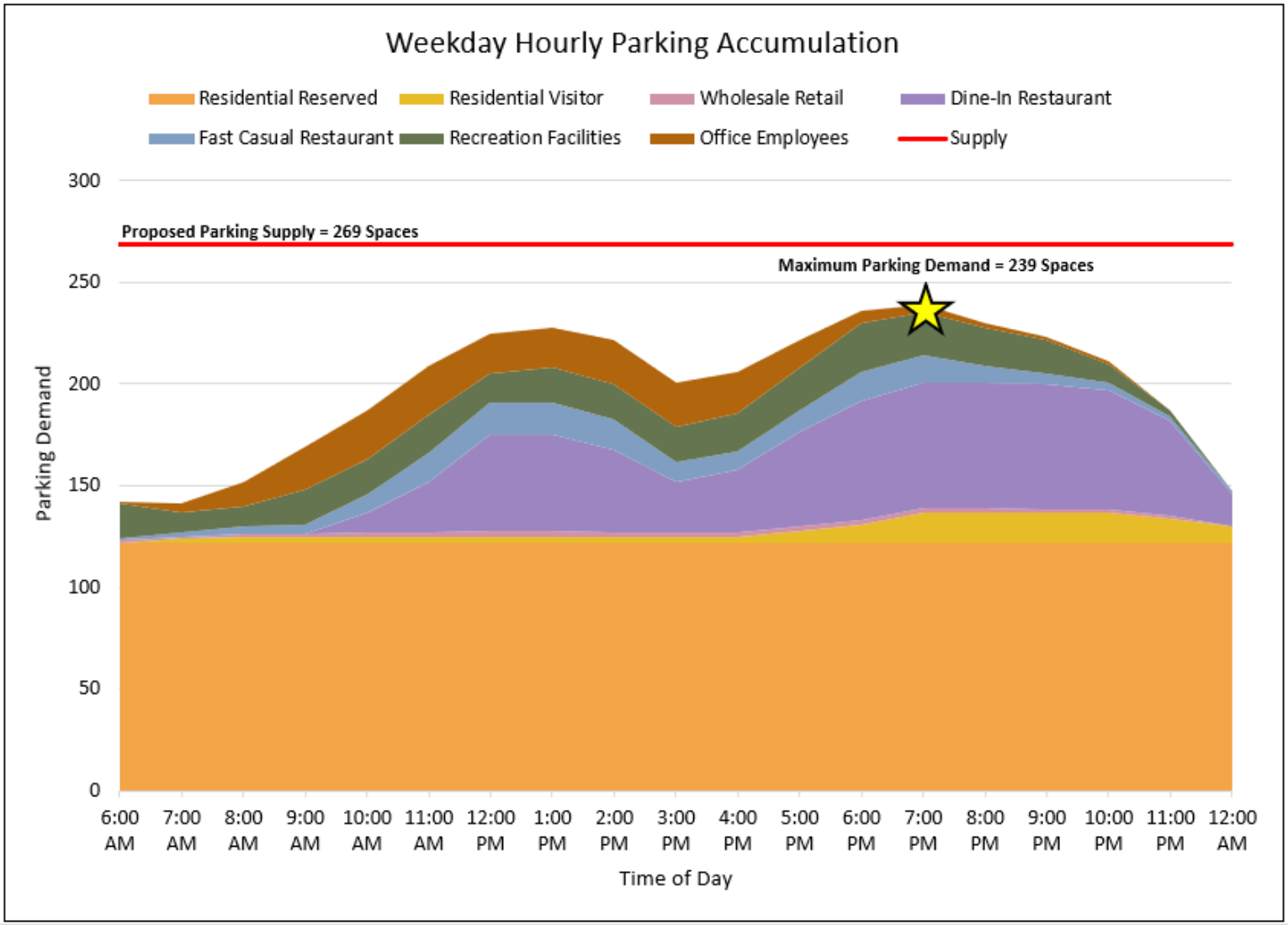



**Figure 2: Weekday Shared Parking Hourly Characteristics**

The parking supply is anticipated to exceed of the demand during the week by (30) spaces.

## *Weekend*

The weekend parking accumulation calculations are shown in Table 6 and Figure 3. The peak weekend parking demand is anticipated to occur at 6:00 PM. Based on the ULI time-of-day factors, the peak weekend demand is 227 parking spaces, which is less than the 269 spaces provided.

**Table 6: Weekend Shared Parking Hourly Characteristics**

| Proposed | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ULI - 3rd Edition | | Residential - Reserved | | Residential Visitor | | Wholesale Retail - [6] | | Dine-In Restaurant - [8] | | Fast Casual Restaurant - [10] | | Recreation Facilities - [2] | | General Office - Employees[4] | | Total | Surplus |
| | | Time of Day Adjust | Demand | Time of Day Adjust | Demand | Time of Day Adjust | Demand | Time of Day Adjust | Demand | Time of Day Adjust | Demand | Time of Day Adjust | Demand | Time of Day Adjust | Demand | Demand | |
| Time of Day | *6:00 AM* | 100% | 122 | 0% | 0 | 1% | 1 | 0% | 0 | 5% | 1 | 80% | 19 | 0% | 0 | 143 | 126 |
| | *7:00 AM* | 100% | 122 | 20% | 3 | 5% | 1 | 0% | 0 | 10% | 2 | 45% | 11 | 20% | 5 | 144 | 125 |
| | *8:00 AM* | 100% | 122 | 20% | 3 | 30% | 1 | 0% | 0 | 20% | 4 | 35% | 9 | 60% | 14 | 153 | 116 |
| | *9:00 AM* | 100% | 122 | 20% | 3 | 50% | 2 | 0% | 0 | 30% | 5 | 50% | 12 | 80% | 19 | 163 | 106 |
| | *10:00 AM* | 100% | 122 | 20% | 3 | 70% | 2 | 0% | 0 | 55% | 9 | 35% | 9 | 90% | 21 | 166 | 103 |
| | *11:00 AM* | 100% | 122 | 20% | 3 | 90% | 2 | 15% | 10 | 85% | 14 | 50% | 12 | 100% | 24 | 187 | 82 |
| | *12:00 PM* | 100% | 122 | 20% | 3 | 95% | 2 | 50% | 31 | 100% | 16 | 50% | 12 | 90% | 21 | 207 | 62 |
| | *1:00 PM* | 100% | 122 | 20% | 3 | 100% | 3 | 55% | 34 | 100% | 16 | 30% | 7 | 80% | 19 | 204 | 65 |
| | *2:00 PM* | 100% | 122 | 20% | 3 | 100% | 3 | 45% | 28 | 90% | 15 | 25% | 6 | 60% | 14 | 191 | 78 |
| | *3:00 PM* | 100% | 122 | 20% | 3 | 95% | 2 | 45% | 28 | 60% | 10 | 30% | 7 | 40% | 10 | 182 | 87 |
| | *4:00 PM* | 100% | 122 | 20% | 3 | 90% | 2 | 45% | 28 | 55% | 9 | 55% | 13 | 20% | 5 | 182 | 87 |
| | *5:00 PM* | 100% | 122 | 70% | 11 | 80% | 2 | 60% | 37 | 60% | 10 | 100% | 24 | 10% | 3 | 209 | 60 |
| | *6:00 PM* | 100% | 122 | 60% | 9 | 75% | 2 | 90% | 56 | 85% | 14 | 95% | 22 | 5% | 2 | 227 | 42 |
| | *7:00 PM* | 100% | 122 | 100% | 15 | 70% | 2 | 95% | 59 | 80% | 13 | 60% | 14 | 0% | 0 | 225 | 44 |
| | *8:00 PM* | 100% | 122 | 100% | 15 | 65% | 2 | 100% | 62 | 50% | 8 | 30% | 7 | 0% | 0 | 216 | 53 |
| | *9:00 PM* | 100% | 122 | 100% | 15 | 50% | 2 | 90% | 56 | 30% | 5 | 10% | 3 | 0% | 0 | 203 | 66 |
| | *10:00 PM* | 100% | 122 | 100% | 15 | 30% | 1 | 90% | 56 | 20% | 4 | 1% | 1 | 0% | 0 | 199 | 70 |
| | *11:00 PM* | 100% | 122 | 80% | 12 | 10% | 1 | 90% | 56 | 10% | 2 | 1% | 1 | 0% | 0 | 194 | 75 |
| | *12:00 AM* | 100% | 122 | 50% | 8 | 0% | 0 | 50% | 31 | 5% | 1 | 0% | 0 | 0% | 0 | 162 | 107 |

*Time of Day Sources:*

*2. Health Club Visitors - ULI Shared Parking, 3rd Edition,*

*4. Office Employees - ULI Shared Parking, 3rd Edition*

*6. Retail Employees - ULI Shared Parking, 3rd Edition*

*8. Dine-In Restaurant Visitors - ULI Shared Parking, 3rd Edition*

*10. Fast Casual Restaurant Visitors - ULI Shared Parking, 3rd Edition*

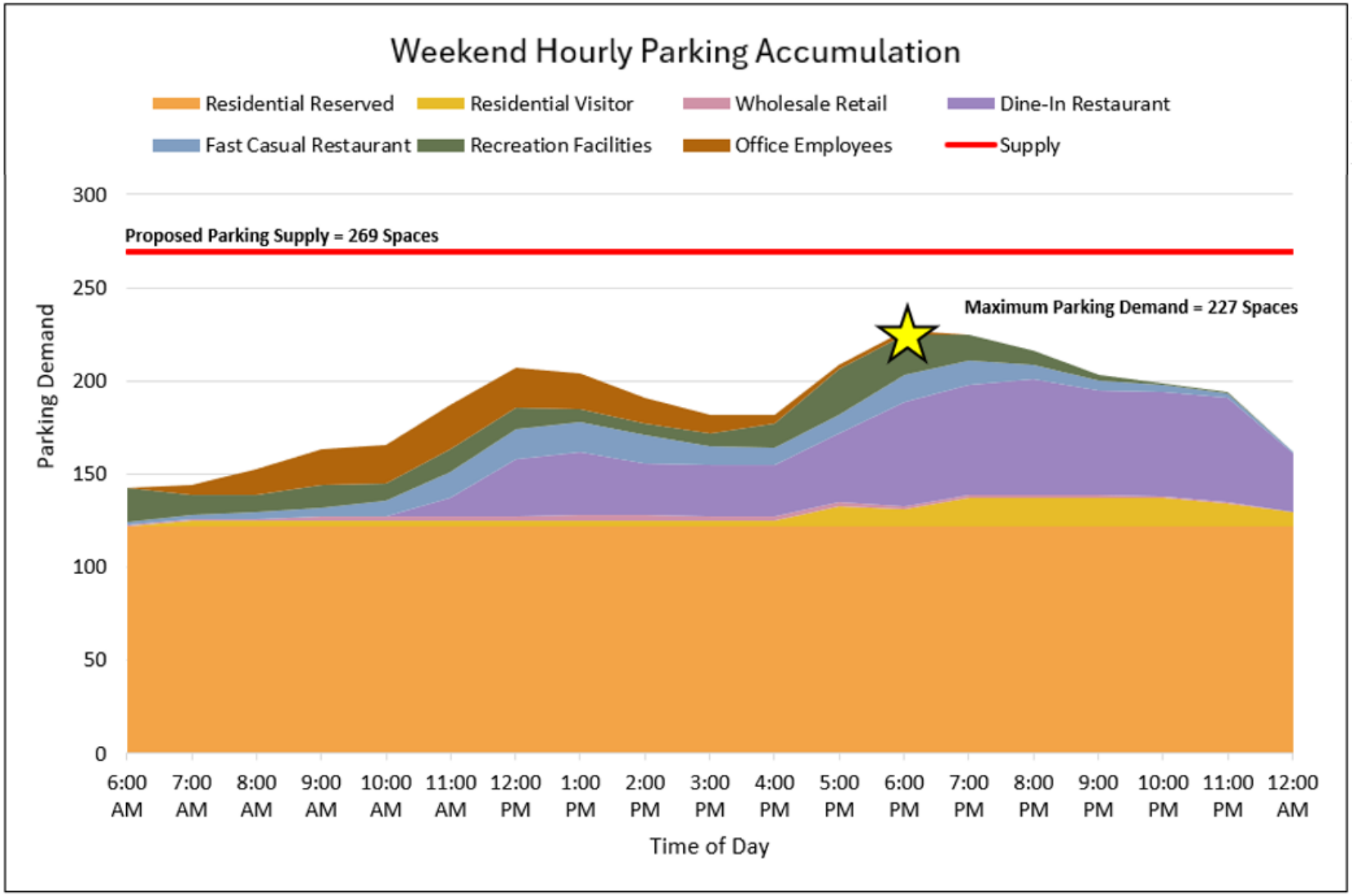



**Figure 3: Weekend Shared Parking Hourly Characteristics**

The parking supply is anticipated to exceed the demand on the weekend with a surplus of (42) spaces.

## Conclusion

This memorandum presented the findings of a shared parking analysis conducted in conjunction with the redevelopment of the 14600 Washington Street site in the Town of Haymarket Virginia. This memorandum supports the following conclusions:

- Per the Town of Haymarket *Code of Ordinances*, a total of 263 parking spaces would be required for the application.
- The Applicant is proposing to construct a total of 269 parking spaces on-site, with 122 of those spaces reserved within the residential units.
    - The proposed parking supply would provide a surplus of six (6) parking spaces to what is required per the Town's zoning ordinance.
    - The final breakdown of parking provided for each use is subject to change as the project develops and final mix and density are approved.
- Shared parking could be provided on-site in the surface parking lot to further accommodate the minimum parking requirements.
    - The shared parking tables and figures show that the uses peak at different times of day and that the on-site surface lot can accommodate the uses at all times of the day.
    - The peak parking demand was found to be on weekdays at 7:00 PM with a peak demand of 239 spaces which is 30 spaces less than the provided 269 spaces.

Town of Haymarket
15000 Washington Street, #100
Haymarket, VA 20169
703-753-2600

# Memorandum

**To:** Planning Commission

**From:** Emily L. Kyriazi, Town Manager

**Re:** Chick-fil-a Site Plan, Drive-thru Expansion, per the Approved Special Use Permit

---

**Background:** Chick-fil-a filed for a Special Use Permit to expand the existing drive thru to add an additional lane. The Special Use Permit was approved by the Town Council in Spring of 2025. Subsequently the applicant submitted the site plan for the proposed improvements. The site plan has been in review by the Zoning Administrator and the Town Engineer.

Per the Town Engineer – "Per your request, I have reviewed the second submission of the Chick-fil-A Site Plan Amendment. I used the Haymarket Zoning and Subdivision Ordinance, Site Plan Checklist, Town Code, approved Quarles/Chick-fil-A plans and first submission comment response letter to review this plan. The applicant is working to address the remaining minor outstanding comments to the satisfaction of Staff. Therefore, due to the minor nature of the outstanding comments, I recommend conditional approval of the plan contingent upon coordination with staff on the remaining comments."

As stated by the Town Engineer, the applicant is addressing minor comments on the site plan at this time. Due to the nature of the comments, Town Staff recommends the conditional approval of the site plan at the December 9th meeting. Following conditional approval, the applicant will work directly with the Zoning Administrator and the Town Engineer to finalize the comments and give the final approval. Following the approval process the applicant will submit the appropriate deeds, plats, bond agreements and bonds. Once all documents are submitted and approved the applicant will start the construction phase, to include pre-construction meetings with Town Staff.

Draft Motion: I move the Planning Commission conditionally approve the Chick-fil-a site plan to expand the existing drive-thru lanes. The expansion will include an additional lane on site, with modified parking and curbing on the adjoining property as noted in the site plan. All comments from the Town Staff shall be addressed in full prior to the approval of the site plan and signature by the Zoning Administrator.

Or alternate motion.

28 Blackwell Park Lane, Suite 201
Warrenton, VA 20186
o. 540.349.4500

September 16, 2025
Via Hand Delivery & Electronic Mail

Town of Haymarket
Planning & Zoning
15000 Washington Street
Suite #100
Haymarket, VA 20169

Attn: Emily Kyriazi

Re: Chick-fil-A Haymarket
Major Site Plan 1st Review
Response
15180 Washington Street
Haymarket, VA 20169
Town of Haymarket
BE # VAB230141.00

Dear Ms. Kyriazi:

Bohler Engineering is pleased to submit on behalf of Chick-fil-A, Inc., the Major Site Plan 2nd submission for the Chick-fil-A in Haymarket, Virginia. The following is our comment response letter addressing comments received from various departments. Each comment is addressed and responded to as follows:

**Engineering – Emily Kyriazi**

58-3.7.c.4
**Comment 1:** Provide plan names and numbers for Lifetime Smiles, Lidl, Kiddie Academy and Crossroads Village projects adjacent to the site.
**Response 1:** **Plan numbers for adjacent properties have been added to the property text for each parcel on sheet C-1.2. For properties outside the extents of the plan view, note #6 has been added to sheet C-1.2.**

58-3.7.c.6.a
**Comment 2:** Label direction of flow for all existing storm drains
**Response 2:** **Flow arrows have been added to all existing storm drains, see sheet C-1.2.**

58-3.7.c.12 ADA Stds for Accessible Design 502.2

**Comment 3:** The accessible parking spot provided at the bank needs to be van accessible. Van parking spaces shall be 132 inches wide minimum, and are permitted to be 96 inches wide minimum where the access aisle is 96 inches wide minimum.

Provide spot shots demonstrating parking space and access aisle meet ADA slope requirements.

**Response 3:** **The Chick-fil-a and adjacent Bank are within the same parcel, therefore only one van spot is required, based on there being 5 ADA spaces total. 1 van space is already provided in front of the Chick-fil-a, therefore no additional van spaces are required within the parcel. See parking tabulations for the Quarles Center on Sheet C-0.0.**

58-3.7.c.15

**Comment 4:** Clarify whether average daily trips is for Chick-fil-A specifically, or overall development. Provide existing and proposed estimated vehicular trips for both Chick-fil-A site and Bank site, as both are impacted by this work.

**Response 4:** **Note 5 on sheet C-2.0 has been revised to read, "AVERAGE DAILY TRIPS (ADT) FOR THE RESTAURANT IS 3,256 VPD.". The number has been revised to match what was shown on the previously approved plan. Row J in the Zoning Requirements table on the cover sheet has been revised to show the vehicular trips for both the bank and restaurant.**

58-3.7.c.18

**Comment 5:** a. Indicate locations of FDCs and hydrants for each building on the plans. Ensure they are shown on sheet C-2.1.

b. Where will existing fire lane sign in existing island adjacent to existing fire hydrant be relocated? Sign designated for relocation on demo plan could not be located on site plan.

**Response 5:** **a. FDCs do not exist for these buildings per previous plans provided; Chick-fil-A building is not sprinklered. Hydrants are labeled on sheet C-2.1.**

**b. The sign has been revised to remain.**

58-3.7.c.21

**Comment 6:** With the proposed break in the curb, is more flow being directed toward structure #078? The drainage map included on the erosion control plan is not clear. Provide more clear pre and post development drainage areas with structure numbers, c-factors ,and areas. Update calculations to any structures where the project is creating changes to these components.

**Response 6:** **The erosion and sediment control plan is now broken out into two phases, so the difference in drainage areas can be seen, see sheets C-3.1 and C-3.2. Existing and proposed storm conveyance calculations are on sheet C-3.4.**

58-3.7.c.22

**Comment 7:** Provide stormwater management calculations, narrative, details and maps.

**Response 7:** **A stormwater management plan has been added to the set, see C-4.0-C-4.4.**

58-3.7.c.23

**Comment 8:** a. Label existing finished floor elevations at all building doors, including the bank building.
b. The slope between the proposed catch curb gutter at the north end of the bank building parking area and the tie in the existing pavement seems excessive (13-14%). Revise.
c. Label tops of storm drain structures on the grading plan for evaluating drainage.
d. There appears to be a low spot created in the sidewalk north of the entrance to the bank. Ensure adequate drainage away from building.
e. Coordinate high points and low points with drainage area maps.

**Response 8:** **a. Existing finished floor elevation labels, based on the previously approved plan, have been added to all doors on sheet C-3.0.**

**b. The slopes in the catch curb gutter at the north end of the bank building are within allowable range, see sheet C-3.0.**

**c. Storm drain rim and invert elevation labels added to sheet C-3.0.**

**d. Adequate drainage away from the building is shown on sheet C-3.0.**

**e. Drainage area maps on sheet C-3.1 align with high point and low points shown on sheet C-3.0.**

58-3.7.c.24

**Comment 9:** Ensure LOD and LOW are coordinated to encompass all proposed work. There appears to be striping outside of LOD at drive thru.

**Response 9:** **The LOD and LOW have been updated on all sheets to encompass all work.**

58-3.7.c.25

**Comment 10:** a. Provide erosion and sediment control notes and narrative. Include the Erosion and Sediment Control Checklist.
b. Include a legend on the E&S plan sheet to clarify drainage divides, soil types, silt fence, safety fence, etc.
c. Label drainage areas and C factors delineated to each structure impacted by LOD. Structures should have structure numbers.
d. Is the exit to the northeast of the site toward Crossroads Village included in the scope of work? It shows permanent seeding and mulch proposed but I do not see any demolition or site plan work in the area.

**Response 10:** **a. E&S notes and narrative have been added as sheet C-3.3.**
**b. Legends are on each E&S phase sheet, see C-3.1-3.2.**
**c. Drainage area and C factor labels have been added to sheets C-3.1 – C-3.2. Structure labels have also been added.**

58-3.7.c.26

**Comment 11:** Provide documentation and analysis for adequate outfall.

**Response 11:** **Adequate outfall is on sheet C-4.2, which is a reference to the previously approved plan. The impervious amount did not change, therefore the previously approved narrative applies.**

58-3.7.c.27

**Comment 12:** a. How will the existing tree in the island in front of the bank be preserved/protected during construction? Or is it proposed to be replaced? Same question for the tree at the drive thru exit.

b. Much of the previously proposed landscaping was either not installed or has been removed. Provide Landscape Schedule – CFA Parcel in addition to the new landscape schedule to ensure all required landscaping is provided at project completion. Landscaping shall be installed prior to release of landscape bond.

c. Revise proposed landscaping along building near driveway exit to move proposed plantings out of building footprint.

d. Lessee of CFA parcel shall be responsible for ensuring landscaping along the eastern property boundary of the CFA parcel is in conformance with the approved landscaping plan shown on sheet L-1.1 of the original approved plan prior to any landscape escrow release by the Town of Haymarket for the CFA parcel.

e. Include notes referencing the Quarles plan for overall landscape plan compliance.

f. Per the previously approved Chick-fil-A (CFA) plan, the landscaping escrow will not be released until all landscaping on the entire 6.0-acre parcel, per the approved site plan as shown on sheet L1.1 of the approved CFA plan set, is in healthy condition.

**Response 12:** **a. The existing trees are to remain; they have been added to the existing conditions plan on sheet C-1.2. Tree protection has been added around them on the E&S sheets, see C-3.1 – C-3.2.**

**b. The new landscape schedule is on sheet L-1.0 and the previously approved schedule is on sheet L-1.2.**

**c. The proposed landscaping along the building has been shifted to not overlap with the building, see sheet L-1.0.**

**d. This has been added as landscape note 3 to sheet L-1.0.**

**e. This has been added as landscape note 3 to sheet L-1.0.**

**f. This has been added as landscape note 4 to sheet L-1.0.**

58-3.7.c.28

**Comment 13:** Provide final lighting/photometric plan.

**Response 13:** **The approved lighting plan from the Quarles Center Site Plan Revision has been added to the set as sheet C-3.3, since no changes have been made to photometrics with the proposed site improvements.**

58-3.7.c.29

**Comment 14:** a. Provide additional signage for new one-way traffic pattern in bank parking lot.

b. Show linework for existing features and parking striping where 'bank parking only' signs are proposed parallel to Washington Street.

c. Drive thru exit signage currently directs traffic right toward I-66 or US 15. New signage appears to direct all traffic back toward Chick-fil-A entrance. Revise signage to minimize queuing at entrance.

**Response 14: a. Additional "stop" and "do not enter" signs have been added along the one-way bank access aisle. Left and right turn pavement arrows have also been added. See sheet C-2.0.**

**b. Linework has been added to all sheets to show the area where bank parking signs were added.**

**c. Signage plan on Sheet C-3.5 was proposed at the request of, and coordinated with the Town to minimize unnecessary traffic from existing onto Washington Street.**

58-3.7.c.32

**Comment 15:** Will the restaurant remain open during construction for dine in and pick up orders or will it be temporarily closed? Provide additional signage and safety measures for customers during construction if restaurant is to remain open.

**Response 15: The restaurant will be closed during construction.**

58-3.7.c.41

**Comment 16:** Delineate buildable area on the plans.

**Response 16: The building setbacks to define the buildable area are now shown and labeled on Sheet C-2.0.**

58-3.8

**Comment 17:** Revisions shall have a completed revision block on each sheet identifying the revisions. In addition, a revision to an approved plan shall include a detailed narrative outlining the proposed revisions and all revisions shall be circled in red.

**Response 17: A narrative revision has been added to the cover sheet. This revision includes all changes circled in red.**

General

**Comment 18:** a. The number of parking spaces at the bank has been reduced. Revise Zoning Requirements to show the Allowed/Required for the Quarles Center Development, provided with the Quarles Center Development, and provided for the Site/Lease Area to ensure overall requirements for the development are still able to be met with this plan.

b. Ensure parking space dimensions listed in zoning table apply to angled parking which is proposed at the bank as well as perpendicular parking.

c. Include approval of zoning text amendment to permit the number of stacking spaces proposed or add a reference to the approval to the plan.

**Response 18:** **a. The parking requirements section of the Zoning Requirements table on the cover sheet has been revised to show three columns: "Allowed/Required (Quarles Center)", "Provided (Quarles Center)", and "Provided (Chick-fil-A/Lease Area)".**

**b. The parking space dimensions have been updated in the Zoning Requirements table on the cover sheet to reflect 60-degree parking.**

**c. Row P has been added to the Zoning Requirements table on the cover sheet to show the site meets stacking requirements. A note that reads, "RESTAURANT STACKING WAS PREVIOUSLY APPROVED UNDER PLAN AFS20080813. THE STACKING REMAINS THE SAME WITH THIS PLAN." has been added under the Zoning Requirements table on the cover sheet. The previously approved plan has also been added to the References and Contacts section on the cover sheet.**

General

**Comment 19:** Prince William County Fire & Rescue provides services to the Town of Haymarket. The Town does not have its own fire department. Revise cover sheet.
Drive aisle width for bank is less than minimum fire lane width and minimum drive aisle width required in PWC DCSM Table 6-10. Verify with fire marshal whether a waiver/modification and fire lane signs are required.

**Response 19:** **The contact information on the cover sheet has been updated to PWC Fire and Rescue. The drive aisle width for the bank has been approved by the fire marshal. Coordination with the Fire Marshal's office clarifying that this drive aisle is not to be used for fire access included with this submission.**

General

**Comment 20:** Provide documentation of outside agency approvals (VDOT – if needed, PWCSA).

**Response 20:** **Documentation is provided with this submission.**

**Planning – Thomas Britt**

Section 58-3.7(c)(28)

**Comment 1:** Include photometric plan sheet, even if no alterations to lighting are included in scope of work.

**Response 1:** **The approved lighting plan from the Quarles Center Site Plan Revision has been added to the set as sheet C-3.3, since no changes have been made to photometrics.**

Section 58-3.7(c)(34)

**Comment 2:** Resubmit easement plat, draft deeds, and stormwater management agreement, where applicable.

**Response 2:** **Acknowledged; no plats, deeds, or stormwater management agreements required for the proposed improvements.**

Section 58-19.12

**Comment 3:** Replace CLETHRA ALNIFOLIA, “SUMMERSWEET CLETHRA,” with deciduous shrubs listed on landscaping schedule.

**Response 3:** **The Clethra Alnifolia has been replaced with viburnum dentatum 'blue muffin', see Sheet L-1.0.**

Should you have any questions regarding this project or require additional information, please do not hesitate to contact me at (540) 349-4500.

Sincerely,

**Bohler Engineering**

Katherine Roberts, P.E.

KR/tk
H:\2023\VAB230141.00\Admin\Letters\250916 Major Site Plan (Revised) 1st Review CRL.doc

Outlook

## RE: Chick-fil-A Haymarket

**From** Christina Hughes <chughes@bohlereng.com>
**Date** Mon 4/14/2025 12:55 PM
**To** Loh, Lyndon <lloh@pwcgov.org>
**Cc** Tara Kerr <tkerr@bohlereng.com>; Brandy Booker <bbooker@bohlereng.com>; Eitler, Andrew <andrew.eitler@jll.com>; Churchwell, Colt <Colt.Churchwell@jll.com>; VAB230141.00@nf.bohlereng.com <VAB230141.00@nf.bohlereng.com>; Chad Baker <chad.baker@cfacorp.com>

Understood – thanks for the confirmation.

Thanks so much,

**Christina Hughes, P.E.**
Project Manager, Land Development
o 540-349-4500 / [chughes@bohlereng.com]chughes@bohlereng.com
BOHLER

**From:** Loh, Lyndon <lloh@pwcgov.org>
**Sent:** Monday, April 14, 2025 12:06 PM
**To:** Chad Baker <chad.baker@cfacorp.com>; Christina Hughes <chughes@bohlereng.com>
**Cc:** Tara Kerr <tkerr@bohlereng.com>; Brandy Booker <bbooker@bohlereng.com>; Eitler, Andrew <andrew.eitler@jll.com>; Churchwell, Colt <Colt.Churchwell@jll.com>; vab230141.00@nf.bohlereng.com
**Subject:** RE: Chick-fil-A Haymarket

**EXTERNAL:** Use caution with attachments and links.

Note that for this project, the fire department emergency access road or fire lane is within 150 feet to all parts of the exterior building on the first level for both the bank and restaurant, therefore the additional road that is proposed to be 15 feet wide is not a requirement for fire vehicular emergency access. The road along the sides of the building does not appear longer than 150 feet (dead end) so no fire truck turnaround is required, otherwise the 15 foot would be needed for a fire truck to drive through, then it would need to be 20 feet wide.

Other projects may be different.

**Lyndon Loh, P.E.**
Fire Protection Engineer
Assistant Fire Marshal
Prince William County Fire Marshal Office
5 County Complex Court
Prince William, Virginia 22192
Tel: 703.792.6360
Fax: 703.792.6492
website: www.pwcgov.org/fire

*"What you do today could save someone's life tomorrow."*

# SITE PLAN AMENDMENT

FOR

# STORE # 3197

## CHICK-FIL-A HAYMARKET

## LOCATION OF SITE

15180 WASHINGTON ST

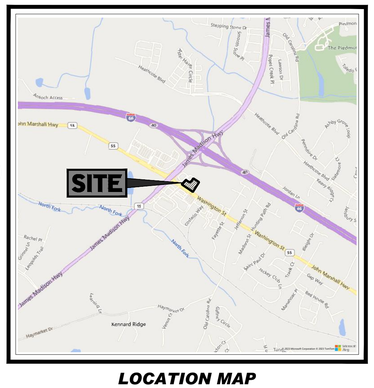
TOWN OF HAYMARKET

GAINESVILLE MAGISTERIAL DISTRICT

PRINCE WILLIAM COUNTY, VA 20169

PID: GPIN 7298-71-6403.01

SERVICE AUTHORITY PLAN NO. #SA2024-0052




### LOCATION MAP

SCALE: 1" = 2,000'

PLAN REFERENCE: MICROSOFT CORPORATION

### OWNER

MELADON HAYMARKET, LLC
1602 VILLAGE MARKET BOULEVARD SE, SUITE 235,
LEESBURG, VA 20175
CONTACT: DON WOODEN
CONTACT PHONE: 571-375-1750
CONTACT EMAIL: DWOODEN@MELADON.NET

### DEVELOPER

CHICK-FIL-A
5200 BUFFINGTON ROAD
ATLANTA, GA 30349-2998
CONTACT: CHAD BAKER
PHONE: (404) 309-6301

### TOWN OF HAYMARKET REPRESENTATIVE

MELADON HAYMARKET, LLC
15000 WASHINGTON STREET #100
HAYMARKET, VA 20169
CONTACT: THOMAS BRITT
CONTACT PHONE: 703-753-2600
CONTACT EMAIL: TBRITT@TOWNOFHAYMARKET.ORG

PREPARED BY

**BOHLER**

**28 BLACKWELL PARK LANE, SUITE 201**
**WARRENTON, VIRGINIA 20186**
**PHONE: 540-349-4500**
**EMAIL: KROBERTS@BOHLERENG.COM**
**CONTACT: KATHERINE S. ROBERTS, P.E.**

### REFERENCES AND CONTACTS

REFERENCES

♦BOUNDARY & TOPOGRAPHIC SURVEY:
"ALTA/NSPS LAND TITLE SURVEY, CHICK-FIL-A INC.
15180 WASHINGTON STREET, GAINESVILLE MAGISTERIAL DISTRICT, PRINCE WILLIAM COUNTY, VIRGINIA"
DATED: 08/10/2023, REVISED: 09/18/2023
JOB #: VAB230141.00
ELEVATIONS: NAVD 1988

♦GEOTECHNICAL INVESTIGATION REPORT:
"CHICK-FIL-A #03197 HAYMARKET FSU PLUS ADDITIONAL LAND HAYMARKET, PRINCE WILLIAM COUNTY, VIRGINIA"
TERRACON CONSULTANTS, INC.
19955 HIGHLAND VISTA DRIVE SUITE 170, ASHBURN, VA 20147-2698
DATED: 09/23/23

♦PREVIOUSLY APPROVED PLAN:
"FINAL SITE PLAN AMENDMENT (AFS20080813) QUARLES CENTER SITE PLAN REVISION DOCUMENTS"
PREPARED BY: BOHLER ENGINEERING
DATED: 12/01/15
APPROVED:12/7/15

**GOVERNING AGENCIES**

♦TOWN OF HAYMARKET PLANNING AND ZONING COMMITTEE
15000 WASHINGTON STREET, SUITE 100
HAYMARKET, VA 20169
EMILY KYRIAZI
PHONE: 703-753-2600
EMAIL: EKYRIAZI@TOWNOFHAYMARKET.ORG

♦BUILDING DEPARTMENT
PRINCE WILLIAM COUNTY DEPARTMENT OF DEVELOPMENT SERVICES
5 COUNTY COMPLEX SUITE 120, PRINCE WILLIAM, VA 22192
PHONE: (703) 792-4040
EMAIL: BOC@PWCGOV.ORG

♦PRINCE WILLIAM COUNTY FIRE AND RESCUE
1 COUNTY COMPLEX CT.
PRINCE WILLIAM, VA 22192
FIRE RESCUE CHIEF: THOMAS L. LABELLE
PHONE: 703-792-6800

**UTILITY CONTACTS**

♦SANITARY SEWER
PRINCE WILLIAM COUNTY SERVICE AUTHORITY
4 COUNTY COMPLEX COURT, WOODBRIDGE, VA 22192
CONTACT: CONRAD HOLTSLAG
PHONE: 703-898-3433

♦WATER
PRINCE WILLIAM COUNTY SERVICE AUTHORITY
4 COUNTY COMPLEX COURT, WOODBRIDGE, VA 22192
CONTACT: CONRAD HOLTSLAG
PHONE: 703-898-3433

♦STORM DRAINAGE
TOWN OF HAYMARKET
15000 WASHINGTON STREET, SUITE 100, HAYMARKET, VA 22192
CONTACT: HOLLY MONTAGUE, TOWN ENGINEER
703-753-2600

♦GAS UTILITY
WASHINGTON GAS
6801 INDUSTRIAL ROAD, SPRINGFIELD, VA 22151
CONTACT: PAT ESTRADA-PALMA
PHONE: 703-750-5657

♦ELECTRIC
DOMINION VIRGINIA POWER
1901 REDDY DRIVE, WOODBRIDGE, VA 22191
CONTACT: KENNY SIMPSON
703-490-2839

♦TELEPHONE
VERIZON
9401 PEABODY STREET, MANASSAS, VA 20110
CONTACT: MIKE HALEY
PHONE: 703-369-9566

♦CABLE
COMCAST
4391 DALE BLVD, WOODBRIDGE, VA
CONTACT: JEFF KELLEY
PHONE: 703-670-0189

* 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.

REVISION NARRATIVE: THIS PLAN IS A REVISION TO THE APPROVED PLAN NAME AFS20080813. WITHIN THIS PLAN, IT IS PROPOSED TO EXTEND THE DRIVE THRU TO ADD AN ADDITIONAL LANE AT THE PICK UP WINDOW. IT IS ALSO PROPOSED TO ALTER THE BANKS PARKING ROW ON THE EAST SIDE OF THE BANK TO ANGLED PARKING AND ONE WAY TRAVEL.

### SHEET INDEX


| SHEET TITLE | SHEET NUMBERS |
|---|---|
| COVER SHEET | C-0.0 |
| GENERAL NOTES | C-0.1 |
| LEGEND AND APPLICABLE CASES | C-0.2 |
| ALTA/NSPS LAND TITLE SURVEY | C-1.0 - C-1.1 |
| DEMOLITION PLAN | C-1.2 |
| SITE PLAN | C-2.0 |
| TRUCK TURN PLAN | C-2.1 |
| GRADING PLAN | C-3.0 |
| EROSION AND SEDIMENT CONTROL PLAN PHASE I | C-3.1 |
| EROSION AND SEDIMENT CONTROL PLAN PHASE II | C-3.2 |
| EROSION AND SEDIMENT CONTROL PLAN NOTES | C-3.3 |
| EROSION AND SEDIMENT CONTROL PLAN DETAILS | C-3.4 |
| SIGNAGE PLAN | C-3.5 |
| UNIT PRICE LIST | C-3.6 |
| PHOTOMETRIC PLAN (BY OTHERS) | C-3.7 |
| STORMWATER MANAGEMENT PLAN | C-4.0 |
| VRRM COMPUTATIONS | C-4.1 |
| STORMWATER MANAGEMENT REFERENCES | C-4.2 - C-4.4 |
| SITE DETAILS | C-400 - C-404 |
| LANDSCAPE PLAN | L-1.0 |
| LANDSCAPE DETAILS | L-1.1 |
| LANDSCAPE REFERENCE | L-1.2 |


### ZONING REQUIREMENTS

| | | | | |
|---|---|---|---|---|
| A. ZONING | B-2 | | | |
| B. USE | RESTAURANT WITH DRIVE THRU | | | |
| C. DAILY TRIPS | UNCHANGED | | | |
| | | ALLOWED/REQUIRED (QUARLES CENTER) | PROVIDED (QUARLES CENTER) | PROVIDED (CHICK-FIL-A/LEASE AREA) |
| D. MIN. LOT AREA | | N/A | 2.09 AC | 1.49 AC |
| E. BUILDING AREA | | N/A | N/A | 4,904 SF(UNCHANGED) |
| F. LOT COVERAGE | | 75% MAX | 81% | 78% |
| G. MIN. BUFFER TO ADJACENT PROPERTY | | | | |
| | FRONT BUFFER (WASHINGTON STREET) | 10' | N/A | 11.8 (UNCHANGED) |
| | REAR SETBACK (VACANT LOT) | NONE | N/A | 24.9' (UNCHANGED) |
| | SIDE SETBACK (VACANT LOT) | NONE | N/A | 11.75 (UNCHANGED) |
| | SIDE SETBACK (BANK) | NONE | N/A | 0' (UNCHANGED) |
| H. MIN. BUILDING SETBACK | | | | |
| | FRONT SETBACK (WASHINGTON STREET) | 10' | 90'± | 60.9' (UNCHANGED) |
| | REAR SETBACK (VACANT LOT) | NONE | 101'± | 32.3' (CANOPY) |
| | SIDE SETBACK (EAST) | NONE | 40'± | 132.5' (UNCHANGED) |
| | SIDE SETBACK (WEST) | NONE | 76'± | 4.9' (CANOPY) |
| I. PARKING REQUIREMENTS | | | | |
| | RESTAURANT USE: 1 SPACE/100 SF OF GROSS FLOOR AREA (4,904/100 = 50) | 66 | 93 | 72 |
| | RETAIL USE: 1 SPACE PER 250 GROSS FLOOR AREA (3,955/250=16) | | | |
| | ADA STARDARD SPACE REQUIREMENT | 4 SPACES | 4 SPACES | 2 SPACES |
| | ADA VAN ACCESSIBLE SPACE REQUIREMENT | 1 VAN SPACE | 1 VAN SPACE | 1 VAN SPACE |
| J. VEHICLES PER DAY | | N/A | 1,981 VPD (BANK) 3,256 VPD (RESTAURANT) | 1,981 VPD (BANK) 3,256 VPD (RESTAURANT) |
| K. MIN. PARKING SPACE DIMENSIONS (60° PARKING) | | 9' X 20' | 9' X 22' | N/A |
| L. MIN. PARKING SPACE DIMENSIONS (90° PARKING) | | 9' X 18' | 9' X 18' | 9' X 18' |
| M. BUILDING HEIGHT | | 35' | 30' | 25' |
| N. PROPOSED IMPERVIOUS | | N/A | 1.70 AC | 1.17 AC |
| O. PROPOSED PERVIOUS | | N/A | 0.39 AC | 0.32 AC |
| P. SEWER DEMANDS | | N/A | N/A | 1,750 GPD |
| Q. STACKING (RESTAURANT) | | 6: ORDER BOX/SPEAKER 4: PICK-UP WINDOW | N/A | 7: ORDER BOX/SPEAKER 7: PICK-UP WINDOW |

NOTE: RESTAURANT STACKING WAS PREVIOUSLY APPROVED UNDER PLAN AFS20080813. THE STACKING REMAINS THE SAME WITH THIS PLAN.

### AREA TABLE

| |
|---|
| LIMITS OF DISTURBANCE AREA = 0.20 AC OR 8,515 SF |
| LIMITS OF WORK AREA = 0.04 OR 1,915 SF |

*NOTE: WORK OUTSIDE OF THE LOD BUT WITH IN THE LOW SHALL BE TO LIMITED TO THE REMOVAL OF THE STONE BASE NOT TO CONSTITUTE DISTURBANCE.

### STORMWATER SUMMARY

| |
|---|
| TOTAL SITE AREA = 1.44 AC OR 62,564 SF |
| NET IMPERVIOUS AREA INCREASE OF 112 SF |
| TOTAL AREA OF DISTURBANCE = 0.20 AC OR 8,515 SF |

*NOTE: TOTAL PROPOSED SOIL DISTURBANCE IS LESS THAN 2,500 SF AND THEREFORE IS EXEMPT FOR SWM REQUIREMENTS. AREAS INDICATED AS LIMITS OF WORK (LOW) DO NOT INVOLVE SOIL DISTURBANCE.

5200 Buffington Rd
Atlanta Georgia, 30349-2998

811 Know what's below. Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's the law.

REVISIONS:

| MARK | DATE | BY |
|---|---|---|
| 1 | 07/07/2025 | GAP |
| | COUNTY COMMENTS | |
| MARK | DATE | BY |
| 2 | 9/16/2025 | AG |
| | COUNTY COMMENTS | |
| MARK | DATE | BY |
| | | |

COMMONWEALTH OF VIRGINIA
KATHERINE ROBERTS
Lic. No. 0402060193
9/16/2025
PROFESSIONAL ENGINEER

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROJECT MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
ENTITLEMENT SERVICES
TRANSPORTATION SERVICES

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

STORE
SERIES 08C-R
#3197
15180 WASHINGTON ST
HAYMARKET,
VA, 20169

SHEET TITLE
**COVER SHEET**

DWG EDITION 02.4

☐ PRELIMINARY
☒ 80% SUBMITTAL
☐ FOR CONSTRUCTION

| | |
|---|---|
| JOB NO. | :VAB230141.00 |
| STORE | : #3197 |
| DATE | : 01/31/2024 |
| DRAWN BY | : GAP |
| CHECKED BY | : KBR |
| CAD ID | : CNDS-0 |

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PWCSA PL #SA2024-0052

## GENERAL NOTES

(Rev. 1/2023)

1. THESE PLANS ARE SOLELY BASED ON INFORMATION THE OWNER AND OTHERS PROVIDED TO BOHLER ENGINEERING, VA, LLC (HEREIN "BOHLER") PRIOR TO THE DATE ON WHICH THE PROFESSIONAL OF RECORD AND BOHLER PREPARED THESE PLANS. THE CONTRACTOR MUST FIELD VERIFY ALL EXISTING CONDITIONS AND IMMEDIATELY NOTIFY BOHLER , IN WRITING, IF ANY ACTUAL SITE CONDITIONS DIFFER FROM THOSE SHOWN ON THESE PLANS, OR IF THE PROPOSED WORK CONFLICTS WITH ANY OTHER SITE FEATURES.
2. THE CONTRACTOR MUST STRICTLY COMPLY WITH THESE NOTES AND ALL SPECIFICATIONS/REPORTS CONTAINED HEREIN. THE CONTRACTOR MUST ENSURE THAT ALL SUBCONTRACTORS FULLY AND COMPLETELY CONFORM TO AND COMPLY WITH THESE REQUIREMENTS, THESE NOTES, AND THE REQUIREMENTS ARTICULATED IN THE NOTES CONTAINED IN ALL THE OTHER DRAWINGS THAT COMPRISE THE PLAN SET OF DRAWINGS. ADDITIONAL NOTES AND SPECIFIC PLAN NOTES MAY BE FOUND ON THE INDIVIDUAL PLANS. THESE GENERAL NOTES APPLY TO THIS ENTIRE DOCUMENT PACKAGE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW ALL CONSTRUCTION CONTRACT DOCUMENTS INCLUDING, BUT NOT LIMITED TO, ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THE PROJECT WORK SCOPE, PRIOR TO THE INITIATION AND COMMENCEMENT OF CONSTRUCTION.
3. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR MUST CONFIRM WITH THE PROFESSIONAL OF RECORD AND BOHLER THAT THE LATEST EDITION OF THE DOCUMENTS AND/OR REPORTS REFERENCED WITHIN THE PLAN REFERENCES ARE BEING USED FOR CONSTRUCTION. THIS IS THE CONTRACTOR'S SOLE AND COMPLETE RESPONSIBILITY.
4. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR MUST ENSURE THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION IS TO BEGIN UNTIL THE CONTRACTOR HAS RECEIVED AND THOROUGHLY REVIEWED THE CONDITIONS OF APPROVAL FOR ALL PLANS AND OTHER DOCUMENTS REVIEWED AND APPROVED DIRECTLY AND INDIRECTLY BY THE AHJ, AND HAS ALSO CONFIRMED THAT ALL NECESSARY AND REQUIRED PERMITS HAVE BEEN OBTAINED. THE CONTRACTOR MUST HAVE COPIES OF ALL PERMITS AND APPROVALS ON SITE AT ALL TIMES.
5. THE CONTRACTOR MUST ENSURE THAT ALL WORK IS PERFORMED IN ACCORDANCE WITH THESE PLANS, SPECIFICATIONS/REPORTS AND CONDITIONS OF APPROVAL, AND ALL APPLICABLE REQUIREMENTS, RULES, REGULATIONS, STATUTORY REQUIREMENTS, CODES, LAWS AND STANDARDS OF ALL FEDERAL, STATE, AND LOCAL ENTITIES WITH JURISDICTION OVER THE PROJECT, AND ALL PREREQUISITE CONDITIONS OF THE CONSTRUCTION CONTRACT WITH THE OWNER/DEVELOPER INCLUDING ALL EXHIBITS, ATTACHMENTS AND ADDENDA TO SAME.
6. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR MUST COORDINATE THE BUILDING LAYOUT BY CAREFULLY REVIEWING THE MOST CURRENT ARCHITECTURAL, CIVIL, AND STRUCTURAL CONSTRUCTION DOCUMENTS INCLUDING, BUT NOT LIMITED TO, MECHANICAL, ELECTRICAL, PLUMBING AND FIRE SUPPRESSION PLANS, WHERE APPLICABLE). THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE OWNER, ARCHITECT AND PROFESSIONAL OF RECORD AND BOHLER IN WRITING, OF ANY CONFLICTS, DISCREPANCIES OR AMBIGUITIES WHICH EXIST BETWEEN THESE PLANS AND ANY OTHER PLANS THAT COMPRISE THE CONSTRUCTION DOCUMENTS.
7. CONTRACTOR MUST REFER TO AND ENSURE COMPLIANCE WITH THE APPROVED ARCHITECTURAL/BUILDING PLANS OF RECORD FOR EXACT LOCATIONS OF BUILDING TIE-INS, ENTRY/EXIT POINTS, ELEVATIONS, PRECISE BUILDING DIMENSIONS, AND EXACT BUILDING UTILITY CONNECTIONS.
8. THE CONTRACTOR MUST FIELD VERIFY ALL DIMENSIONS AND MEASUREMENTS SHOWN ON THESE PLANS, PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE PROFESSIONAL OF RECORD AND BOHLER, IN WRITING, OF ANY CONFLICTS, DISCREPANCIES, OR AMBIGUITIES THAT EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION. NO EXTRA COMPENSATION WILL BE PAID TO THE CONTRACTOR FOR WORK WHICH HAS TO BE RE-DONE OR REPAIRED DUE TO DIMENSIONS, MEASUREMENTS OR GRADES SHOWN INCORRECTLY ON THESE PLANS PRIOR TO BOTH (A) THE CONTRACTOR GIVING THE PROFESSIONAL OF RECORD AND BOHLER WRITTEN NOTICE OF SUCH ERRORS AND (B) PROFESSIONAL OF RECORD AND BOHLER, THEREAFTER, PROVIDING THE CONTRACTOR WITH WRITTEN AUTHORIZATION TO PROCEED WITH SUCH ADDITIONAL WORK.
9. THE CONTRACTOR MUST VERIFY ALL DIMENSIONS AND MEASUREMENTS INCLUDED ON DESIGN DOCUMENTS HEREIN AND MUST NOT SCALE OFF THE DRAWINGS DUE TO POTENTIAL PRINTING INACCURACIES. ALL DIMENSIONS AND MEASUREMENTS ARE TO BE CHECKED AND CONFIRMED BY THE GENERAL CONTRACTOR PRIOR TO FABRICATION, ORDERING OF PARTS AND MATERIALS, AND CONSTRUCTION. SHOP DRAWINGS, FABRICATION AND ASSEMBLY DRAWINGS MUST BE SUBMITTED TO THE OWNER FOR REVIEW AND APPROVAL PRIOR TO THE COMMENCEMENT OF SITE WORK. SITE PLAN DRAWINGS ARE NOT INTENDED AS SURVEY DOCUMENTS. DIMENSIONS SUPERSEDE GRAPHICAL REPRESENTATIONS. THE CONTRACTOR MUST MAKE CONTRACTORS OWN MEASUREMENTS FOR LAYOUT OF IMPROVEMENTS.
10. THE OWNER AND CONTRACTOR MUST BE FAMILIAR WITH AND SATISFY THE REQUIREMENT OF ANY AND ALL CERTIFICATIONS REQUIRED FOR THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
11. WHERE LISTED AS ONE OF THE REFERENCED DOCUMENTS, THE GEOTECHNICAL REPORT, SPECIFICATIONS AND RECOMMENDATIONS SET FORTH THEREIN ARE A PART OF THE REQUIRED CONSTRUCTION DOCUMENTS AND, IN CASE OF CONFLICT, DISCREPANCY OR AMBIGUITY, THE MORE STRINGENT REQUIREMENTS AND/OR RECOMMENDATIONS CONTAINED IN: (A) THE PLANS; AND (B) THE GEOTECHNICAL REPORT AND RECOMMENDATIONS, MUST TAKE PRECEDENCE UNLESS SPECIFICALLY NOTED OTHERWISE. THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE PROFESSIONAL OF RECORD AND BOHLER, IN WRITING, OF ANY SUCH CONFLICT, DISCREPANCY OR AMBIGUITY BETWEEN THE GEOTECHNICAL REPORT AND PLANS AND SPECIFICATIONS, PRIOR TO PROCEEDING WITH ANY FURTHER WORK. IF A GEOTECHNICAL REPORT WAS NOT CREATED, THEN THE CONTRACTOR MUST FOLLOW AND COMPLY WITH ALL OF THE REQUIREMENTS OF ANY AND ALL MUNICIPAL, COUNTY, STATE, AND FEDERAL LAWS AND APPLICABLE SPECIFICATIONS WHICH HAVE JURISDICTION OVER THIS PROJECT.
12. THE PROFESSIONAL OF RECORD AND BOHLER ARE EITHER LIABLE NOR RESPONSIBLE FOR ANY SUBSURFACE CONDITIONS AND FURTHER, HAS NO LIABILITY FOR ANY HAZARDOUS MATERIALS, HAZARDOUS SUBSTANCES, OR POLLUTANTS ON, ABOUT OR UNDER THE PROPERTY.
13. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING WHEN AND WHERE SHORING IS REQUIRED AND FOR IMPLEMENTING SHORING REQUIRED DURING EXCAVATION (TO BE PERFORMED IN ACCORDANCE WITH CURRENT OSHA STANDARDS) AND ANY ADDITIONAL PRECAUTIONS TO BE TAKEN TO ASSURE THE STABILITY OF ADJACENT, NEARBY AND CONTIGUOUS STRUCTURES AND PROPERTIES. ALL OF THIS WORK IS TO BE PERFORMED AT CONTRACTOR'S SOLE COST AND EXPENSE.
14. THE CONTRACTOR MUST EXERCISE EXTREME CAUTION WHEN PERFORMING ANY WORK ACTIVITIES ADJACENT TO PAVEMENT, STRUCTURES, ETC., WHICH ARE TO REMAIN EITHER FOR AN INITIAL PHASE OF THE PROJECT OR AS PART OF THE FINAL CONDITION. THE CONTRACTOR IS RESPONSIBLE FOR TAKING ALL APPROPRIATE MEASURES REQUIRED TO ENSURE THE STRUCTURAL STABILITY OF SIDEWALKS AND PAVEMENT, UTILITIES, BUILDINGS, AND INFRASTRUCTURE WHICH ARE TO REMAIN, AND TO PROVIDE A SAFE WORK AREA FOR THIRD PARTIES, PEDESTRIANS AND ANYONE INVOLVED WITH THE PROJECT.
15. DEBRIS MUST NOT BE BURIED ON THE SUBJECT SITE. ALL DEMOLITION AND CONSTRUCTION WASTES, UNSUITABLE EXCAVATED MATERIAL, EXCESS SOIL AND DEBRIS (SOLID WASTE) MUST BE DISPOSED OF IN ACCORDANCE WITH THE REQUIREMENTS OF ANY APPLICABLE MUNICIPAL, COUNTY, STATE, AND FEDERAL LAWS AND APPLICABLE CODES WHICH HAVE JURISDICTION OVER THIS PROJECT OR OVER THE CONTRACTOR.
16. IT IS THE CONTRACTORS SOLE RESPONSIBILITY TO MAINTAIN RECORDS TO DEMONSTRATE PROPER AND FULLY COMPLIANT DISPOSAL ACTIVITIES, TO BE PROMPTLY PROVIDED TO THE OWNER UPON REQUEST.
17. THE CONTRACTOR MUST REPAIR, AT CONTRACTOR'S SOLE COST, ALL DAMAGE DONE TO ANY NEW OR EXISTING CONSTRUCTION OR PROPERTY DURING THE COURSE OF CONSTRUCTION, INCLUDING BUT NOT LIMITED TO DRAINAGE, UTILITIES, PAVEMENT, CURBING, SIDEWALKS, ETC. THE CONTRACTOR MUST REPAIR ALL COSTS ASSOCIATED WITH SAME TO INCLUDE, BUT NOT BE LIMITED TO, REDESIGN, RE-SURVEY, RE-PERMITTING AND CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR AND MUST REPLACE ALL SIGNAL INTERCONNECTION CABLE, WIRING CONDUITS, AND ANY UNDERGROUND ACCESSORY EQUIPMENT DAMAGED DURING CONSTRUCTION. CONTRACTOR MUST REPAIR ALL COSTS ASSOCIATED WITH SAME. THE CONTRACTOR MUST REPAIR OR EXISTING CONSTRUCTION OR PROPERTY MUST RESTORE SUCH CONSTRUCTION OR PROPERTY TO A CONDITION EQUIVALENT TO OR BETTER THAN THE CONDITION EXISTING PRIOR TO COMMENCEMENT OF THE WORK AND MUST REPAIR ALL COSTS ASSOCIATED WITH SAME. THE CONTRACTOR MUST REPAIR OR EXISTING CONSTRUCTION OR PROPERTY MUST RESTORE SUCH CONSTRUCTION OR PROPERTY TO A CONDITION EQUIVALENT TO OR BETTER THAN THE CONDITION EXISTING PRIOR TO COMMENCEMENT OF THE WORK AND MUST REPAIR ALL COSTS ASSOCIATED WITH SAME. THE CONTRACTOR MUST REGULATIONS, STATUTORY REQUIREMENTS AND STATUTES. THE CONTRACTOR MUST BEAR ALL COSTS ASSOCIATED WITH SAME. THE CONTRACTOR MUST, PROMPTLY, DOCUMENT ALL EXISTING DAMAGE AND NOTIFY, IN WRITING, THE OWNER AND THE CONSTRUCTION MANAGER PRIOR TO THE START OF CONSTRUCTION.
18. THE PROFESSIONAL OF RECORD AND BOHLER ARE NOT RESPONSIBLE FOR AND HAVE NO CONTRACTUAL, LEGAL OR OTHER RESPONSIBILITIES FOR JOB SITE SAFETY, JOB SITE SUPERVISION, OR ANYTHING RELATED TO THESE. THE PROFESSIONAL OF RECORD AND BOHLER'S ROLE IS LIMITED TO THE SERVICES RETAINED TO PERFORM OR TO BE RESPONSIBLE FOR JOB SITE SAFETY. SAME BEING WHOLLY OUTSIDE OF THE PROFESSIONAL OF RECORD'S AND BOHLER SERVICES AS RELATED TO THE PROJECT. THE PROFESSIONAL OF RECORD AND BOHLER ARE NOT RESPONSIBLE TO IDENTIFY OR REPORT ANY JOB SITE SAFETY ISSUES OR ANY JOB SITE CONDITIONS, AT ANY TIME.
19. THE CONTRACTOR MUST IMMEDIATELY IDENTIFY IN WRITING, TO THE PROFESSIONAL OF RECORD AND BOHLER, ANY DISCREPANCIES THAT MAY OR COULD AFFECT THE PUBLIC SAFETY, HEALTH OR GENERAL WELFARE, OR PROJECT COST. IF THE CONTRACTOR PROCEEDS WITH CONSTRUCTION WITHOUT PROVIDING PROPER WRITTEN NOTIFICATION AS DESCRIBED ABOVE, IT WILL BE AT THE CONTRACTORS OWN RISK AND, FURTHER, THE CONTRACTOR MUST INDEMNIFY, DEFEND AND HOLD HARMLESS THE PROFESSIONAL OF RECORD AND BOHLER FOR ANY AND ALL DAMAGES, COSTS, INJURIES, ATTORNEY'S FEES AND THE LIKE WHICH RESULT FROM OR ARE IN ANY WAY RELATED TO SAME INCLUDING, BUT NOT LIMITED TO, ANY THIRD PARTY AND FIRST PARTY CLAIMS.
20. THE PROFESSIONAL OF RECORD AND BOHLER ARE NOT RESPONSIBLE FOR ANY INJURY OR DAMAGES RESULTING FROM THE CONTRACTOR'S FAILURE TO BUILD OR CONSTRUCT IN STRICT ACCORDANCE WITH THE APPROVED PLANS, CURRENT CODES, RULES, STATUTES AND THE LIKE. IF THE CONTRACTOR AND/OR OWNER FAIL TO BUILD OR CONSTRUCT IN STRICT ACCORDANCE WITH APPROVED PLANS, RULES, STATUTES, CODES AND THE LIKE, THE CONTRACTOR AND/OR OWNER AGREE TO AND MUST JOINTLY, INDEPENDENTLY, SEPARATELY, AND SEVERALLY INDEMNIFY AND HOLD THE PROFESSIONAL OF RECORD AND BOHLER HARMLESS FOR AND FROM ALL INJURIES, CLAIMS AND DAMAGES THAT THE PROFESSIONAL OF RECORD AND BOHLER SUFFER AND ANY AND ALL COSTS THAT THE PROFESSIONAL OF RECORD AND BOHLER INCUR AS RELATED TO SAME.
21. ALL CONTRACTORS MUST CARRY AT LEAST THE MINIMUM AMOUNT OF THE SPECIFIED AND COMMERCIALLY REASONABLE STATUTORY WORKER'S COMPENSATION INSURANCE, EMPLOYER'S LIABILITY INSURANCE AND COMMERCIAL GENERAL LIABILITY INSURANCE (CGL) INSURANCE WITH AN ALSO ALL UMBRELLA COVERAGES. ALL CONTRACTORS MUST HAVE THEIR CGL POLICIES ENDORSED TO NAME BOHLER , AND ITS PAST, PRESENT AND FUTURE OWNERS, OFFICERS, DIRECTORS, SHAREHOLDERS, EMPLOYEES, MEMBERS, PRINCIPALS, COMMISSIONERS, AGENTS, CONSULTANTS, EMPLOYEES, AFFILIATES, SUBSIDIARIES, AND RELATED ENTITIES, AND ITS SUBCONTRACTORS AND SUBCONSULTANTS AS ADDITIONAL NAMED INSUREDS AND TO PROVIDE CONTRACTUAL LIABILITY COVERAGE SUFFICIENT TO INSURE (DEFEND, IF APPLICABLE) AND HOLD HARMLESS AND INDEMNITY OBLIGATIONS ASSUMED AND AGREED TO BY THE CONTRACTOR UNDER THE CONTRACT DOCUMENTS. CONTRACTOR SHALL FURNISH BOHLER WITH CERTIFICATES OR CERTIFICATES OF INSURANCE AS EVIDENCE OF THE REQUIRED INSURANCE COVERAGES PRIOR TO COMMENCING ANY WORK AND UPON RENEWAL OF EACH POLICY DURING THE ENTIRE PERIOD OF CONSTRUCTION AND FOR ONE YEAR AFTER THE COMPLETION AND ACCEPTANCE OF CONSTRUCTION AND ALL PERMITS ARE ISSUED, WHICHEVER DATE IS LATER. IN ADDITION, ALL CONTRACTORS AGREE THAT THEY WILL, TO THE FULLEST EXTENT PERMITTED UNDER THE LAW, INDEMNIFY, DEFEND AND HOLD HARMLESS BOHLER AND ITS PAST, PRESENT AND FUTURE OWNERS, OFFICERS, DIRECTORS, PARTNERS, SHAREHOLDERS, EMPLOYEES, MEMBERS, PRINCIPALS, AGENTS, CONSULTANTS, EMPLOYEES, AFFILIATES, SUBSIDIARIES, AND RELATED ENTITIES, AND ITS SUBCONTRACTORS AND SUBCONSULTANTS FROM AND AGAINST ANY DAMAGES, INJURIES, CLAIMS, ACTIONS, PENALTIES, EXPENSES, PUNITIVE DAMAGES, TORT DAMAGES, STATUTORY CLAIMS, STATUTORY CAUSES OF ACTION, LOSSES, CAUSES OF ACTION, LIABILITIES OR COSTS, INCLUDING, BUT NOT LIMITED TO, REASONABLE ATTORNEYS' FEES AND DEFENSE COSTS, ARISING OUT OF OR IN ANY WAY CONNECTED WITH OR TO THE PROJECT, INCLUDING ALL CLAIMS BY EMPLOYEES OF THE CONTRACTOR(S), ALL CLAIMS BY THIRD PARTIES AND ALL CLAIMS RELATED TO THE PROJECT. THE CONTRACTOR MUST EMPTY, CLEAN AND REMOVE FROM THE SITE ALL UNDERGROUND STORAGE TANKS, IF ENCOUNTERED, IN ACCORDANCE WITH FEDERAL, STATE, COUNTY AND LOCAL REQUIREMENTS, PRIOR TO CONTINUING CONSTRUCTION IN THE AREA AROUND THE TANK WHICH EMPTYING, CLEANING AND REMOVAL ARE AT THE CONTRACTORS SOLE COST.
22. THE PROFESSIONAL OF RECORD AND BOHLER ARE NOT RESPONSIBLE FOR CONSTRUCTION METHODS, MEANS, TECHNIQUES OR PROCEDURES, GENERALLY OR FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES OR PROCEDURES FOR COMPLETION OF THE WORK DEPICTED BOTH ON THESE PLANS, AND FOR ANY CONFLICTS IN SCOPE AND REVISIONS THAT RESULT FROM SAME. THE CONTRACTOR IS FULLY AND SOLELY RESPONSIBLE FOR DETERMINING THE MEANS AND METHODS FOR COMPLETION OF THE WORK, PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
23. NEITHER THE PROFESSIONAL ACTIVITIES OF BOHLER, NOR THE PRESENCE OF BOHLER AND/OR ITS PAST, PRESENT AND FUTURE OWNERS, OFFICERS, DIRECTORS, PARTNERS, SHAREHOLDERS, EMPLOYEES, MEMBERS, PRINCIPALS, AGENTS, CONSULTANTS, EMPLOYEES, AFFILIATES, SUBSIDIARIES, AND RELATED ENTITIES, AND ITS SUBCONTRACTORS AND SUBCONSULTANTS AT A CONSTRUCTION/PROJECT SITE (HEREIN "BOHLER PARTIES"), RELIEVES OR WILL RELIEVE THE CONTRACTOR OF AND FROM CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, CONTROLLING AND COORDINATING THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND COMPLIANCE WITH ALL HEALTH AND SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES WITH JURISDICTION OVER THE PROJECT AND/OR PROPERTY. BOHLER PARTIES DO NOT HAVE AUTHORITY TO EXERCISE ANY CONTROL OVER OR ANY RESPONSIBILITY FOR) ANY CONSTRUCTION, THE CONTRACTOR OR ITS EMPLOYEES RELATING TO THEIR WORK AND ANY AND ALL HEALTH AND SAFETY PROGRAMS OR PROCEDURES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR JOB SITE SAFETY. THE CONTRACTOR MUST INDEMNIFY, DEFEND, PROTECT AND HOLD HARMLESS BOHLER PARTIES FOR AND FROM ANY LIABILITY TO BOHLER PARTIES RESULTING FROM THE CONTRACTOR'S WORK, SERVICES AND/OR VIOLATIONS OF THIS NOTE. THESE NOTES OR ANY NOTES IN THE PLAN SET AND, FURTHER, THE CONTRACTOR MUST NAME BOHLER AS AN ADDITIONAL INSURED UNDER THE GENERAL CONTRACTOR'S POLICIES OF GENERAL LIABILITY INSURANCE AS DESCRIBED ABOVE.
24. WHEN IT IS CLEARLY AND SPECIFICALLY WITHIN BOHLER'S SCOPE OF SERVICES CONTRACT WITH THE OWNER/DEVELOPER, BOHLER WILL REVIEW OR TAKE OTHER APPROPRIATE ACTION ON THE CONTRACTOR SUBMITTALS, SUCH AS SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND OTHER DATA, WHICH THE CONTRACTOR IS REQUIRED TO SUBMIT, BUT ONLY FOR THE LIMITED PURPOSE OF EVALUATING CONFORMANCE WITH THE DESIGN INTENT AND THE INFORMATION SHOWN IN THE CONSTRUCTION CONTRACT DOCUMENTS. CONSTRUCTION MEANS AND METHODS AND/OR TECHNIQUES OR PROCEDURES, COORDINATION OF THE WORK WITH OTHER TRADES, AND CONSTRUCTION SAFETY PRECAUTIONS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND BOHLER HAS NO RESPONSIBILITY OR LIABILITY FOR SAME. BOHLER WILL PERFORM ITS SHOP DRAWING REVIEW WITH REASONABLE PROMPTNESS, AS CONDITIONS PERMIT. ANY DOCUMENT, DOCUMENTING BOHLER'S REVIEW OF A SPECIFIC ITEM OR LIMITED SCOPE, MUST NOT INDICATE THAT BOHLER HAS REVIEWED THE ENTIRE ASSEMBLY OF WHICH THE ITEM IS A COMPONENT. BOHLER IS NOT RESPONSIBLE FOR ANY DEVIATIONS FROM THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR MUST, IN WRITING, PROMPTLY and IMMEDIATELY BRING ANY DEVIATIONS FROM THE CONSTRUCTION DOCUMENTS TO BOHLER'S ATTENTION. BOHLER IS NOT REQUIRED TO REVIEW PARTIAL SUBMISSIONS OR THOSE FOR WHICH SUBMISSIONS OF CORRELATED ITEMS HAVE NOT BEEN RECEIVED.
25. IF THE CONTRACTOR DEVIATES FROM THESE PLANS AND/OR SPECIFICATIONS, INCLUDING THE NOTES CONTAINED HEREIN, WITHOUT FIRST OBTAINING THE PRIOR WRITTEN AUTHORIZATION OF THE PROFESSIONAL OF RECORD AND BOHLER FOR ALL DEVIATIONS WITHIN THE PROFESSIONAL OF RECORD'S AND BOHLER SCOPE, THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE PAYMENT OF ALL COSTS INCURRED IN CORRECTING ANY WORK PERFORMED WHICH DEVIATES FROM THE PLANS, SPECIFICATIONS AND/OR PERMITS AND FURTHER AGREES TO AND ALL COMPENSATORY OR PUNITIVE DAMAGES RESULTING THEREFROM AND, FURTHER, MUST DEFEND, INDEMNIFY, PROTECT, AND HOLD HARMLESS THE PROFESSIONAL OF RECORD AND BOHLER AND THEIR PARTIES TO THE FULLEST EXTENT PERMITTED UNDER THE LAW, FOR ALL COSTS, FEES, ATTORNEY FEES, ATTORNEY FEES, DAMAGES, COSTS, JUDGMENTS, CLAIMS, INJURIES, PENALTIES AND THE LIKE RELATED TO SAME.
26. THE CONTRACTOR IS RESPONSIBLE FOR A MAINTAINING AND PROTECTING THE TRAFFIC CONTROL PLAN AND ELEMENTS IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REQUIREMENTS. FOR ALL WORK THAT AFFECTS PUBLIC STREETS, EITHER IN THE RIGHT OF WAY OR ON SITE. THE COST FOR THIS ITEM MUST BE INCLUDED IN THE CONTRACTOR'S PRICE AND IS THE CONTRACTOR'S SOLE RESPONSIBILITY.
27. OWNER MUST MAINTAIN AND PRESERVE ALL PHYSICAL SITE FEATURES AND DESIGN FEATURES AS SHOWN ON THE PLANS AND RELATED DOCUMENTS IN STRICT ACCORDANCE WITH THE APPROVED PLAN(S) AND DESIGN; AND, FURTHER, THE PROFESSIONAL OF RECORD AND BOHLER ARE NOT RESPONSIBLE FOR ANY FAILURE TO SO MAINTAIN OR PRESERVE SITE AND/OR DESIGN FEATURES. IF OWNER FAILS TO MAINTAIN AND/OR PRESERVE ALL PHYSICAL SITE FEATURES AND DESIGN FEATURES DEPICTED ON THE PLANS AND RELATED DOCUMENTS, OWNER AGREES TO INDEMNIFY AND HOLD THE PROFESSIONAL OF RECORD AND BOHLER PARTIES, HARMLESS FOR ALL INJURIES, DAMAGES AND COSTS THAT THE PROFESSIONAL OF RECORD AND BOHLER INCUR AS A RESULT OF SAID FAILURE OR FAILURE TO PRESERVE.
28. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ENSURING THAT ALL CONSTRUCTION ACTIVITIES AND MATERIALS COMPLY WITH AND CONFORM TO APPLICABLE FEDERAL, STATE AND LOCAL RULES AND REGULATIONS, LAWS, ORDINANCES, AND CODES, AND ALL APPLICABLE REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970, (29 U.S.C. 651 ET SEQ.) AS AMENDED, AND ANY MODIFICATIONS, AMENDMENTS OR REVISIONS TO SAME.
29. THE CONTRACTOR MUST STRICTLY COMPLY WITH THE LATEST AND CURRENT OSHA STANDARDS AND REGULATIONS, AND/OR ANY OTHER AGENCY WITH JURISDICTION OVER EXCAVATION AND TRENCHING PROCEDURES. THE PROFESSIONAL OF RECORD AND BOHLER HAS NO RESPONSIBILITY FOR OR AS RELATED TO EXCAVATION AND TRENCHING PROCEDURES AND WORK.
30. THE CONTRACTOR AND THE OWNER MUST INSTALL ALL ELEMENTS AND COMPONENTS IN STRICT COMPLIANCE WITH AND IN ACCORDANCE WITH MANUFACTURER'S STANDARDS AND RECOMMENDED INSTALLATION CRITERIA AND SPECIFICATIONS. IF THE CONTRACTOR AND/OR OWNER FAIL TO DO SO, THEY AGREE TO JOINTLY, INDEPENDENTLY, SEPARATELY, COLLECTIVELY, AND SEVERALLY INDEMNIFY AND HOLD THE PROFESSIONAL OF RECORD AND BOHLER PARTIES HARMLESS FOR ALL INJURIES AND DAMAGES THAT PROFESSIONAL OF RECORD SUFFERS AND COSTS THAT THE PROFESSIONAL OF RECORD INCURS AS A RESULT OF SAID FAILURE.
31. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN AN ON-SITE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IN COMPLIANCE WITH THE ENVIRONMENTAL PROTECTION AGENCY (EPA) REQUIREMENTS OR LOCAL GOVERNING AGENCY FOR SITES WHERE ONE (1) ACRE OR MORE IS DISTURBED BY CONSTRUCTION ACTIVITIES (UNLESS THE LOCAL JURISDICTION REQUIRES A DIFFERENT THRESHOLD). THE CONTRACTOR MUST ENSURE THAT ALL ACTIVITIES, INCLUDING THOSE OF ALL SUBCONTRACTORS, ARE IN COMPLIANCE WITH THE SWPPP, INCLUDING BUT NOT LIMITED TO LOGGING ACTIVITIES (MINIMUM ONCE PER WEEK AND AFTER RAINFALL EVENTS) AND CORRECTIVE MEASURES, AS APPROPRIATE AND FURTHER, THE CONTRACTOR IS SOLELY AND COMPLETELY RESPONSIBLE FOR FAILING TO DO SO.
32. AS CONTAINED IN THESE DRAWINGS AND ASSOCIATED DOCUMENTS PREPARED BY THE PROFESSIONAL OF RECORD AND BOHLER, THE USE OF THE WORDS 'CERTIFY' OR 'CERTIFICATION' CONSTITUTE(S) AN EXPRESSION ONLY OF PROFESSIONAL OPINION REGARDING THE INFORMATION WHICH IS THE SUBJECT OF THE PROFESSIONAL OF RECORD'S AND BOHLER KNOWLEDGE OR BELIEF AND IN ACCORDANCE WITH COMMON AND ACCEPTED PROCEDURE CONSISTENT WITH THE APPLICABLE STANDARDS OF PRACTICE, AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE OF ANY NATURE OR TYPE, EITHER EXPRESSED OR IMPLIED, UNDER ANY CIRCUMSTANCES.

## DEMOLITION NOTES

(Rev. 1/2023)

1. THE GENERAL NOTES MUST BE INCLUDED AS PART OF THIS ENTIRE DOCUMENT PACKAGE AND ARE PART OF THE CONTRACT DOCUMENTS. THE GENERAL NOTES ARE REFERENCED HEREIN, AND THE CONTRACTOR MUST REFER TO THEM AND FULLY COMPLY WITH THESE NOTES, IN THEIR ENTIRETY. THE CONTRACTOR MUST BE FAMILIAR WITH AND ACKNOWLEDGE FAMILIARITY WITH ALL OF THE GENERAL NOTES AND ALL OF THE PLANS' SPECIFIC NOTES.
2. THE CONTRACTOR MUST CONDUCT DEMOLITION/REMOVALS ACTIVITIES IN SUCH A MANNER AS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, SIDEWALKS, WALKWAYS, AND ALL OTHER ADJACENT FACILITIES. THE CONTRACTOR MUST OBTAIN ALL APPLICABLE PERMITS FROM THE APPROPRIATE GOVERNMENTAL AUTHORITY(IES) PRIOR TO THE COMMENCEMENT OF ANY ROAD OPENING OR DEMOLITION ACTIVITIES IN OR ADJACENT TO THE RIGHT-OF-WAY.
3. WHEN DEMOLITION-RELATED ACTIVITIES IMPACT ROADWAYS AND/OR ROADWAY RIGHT-OF-WAY, THE CONTRACTOR MUST PROVIDE TRAFFIC CONTROL PLANS DESIGNED AND PREPARED BY A NEW JERSEY CERTIFIED TRAFFIC CONTROL PLANNER IN ACCORDANCE WITH THE CURRENT FEDERAL HIGHWAY ADMINISTRATION "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD), AND THE FEDERAL, STATE, AND LOCAL REGULATIONS.
4. THE DEMOLITION (AND/OR REMOVALS) PLAN IS INTENDED TO PROVIDE GENERAL INFORMATION AND TO IDENTIFY ONLY CONDITIONS REGARDING ITEMS TO BE DEMOLISHED, REMOVED, AND/OR TO REMAIN.
   A. THE CONTRACTOR MUST ALSO REVIEW ALL CONSTRUCTION DOCUMENTS AND INCLUDE WITHIN THE DEMOLITION ACTIVITIES ALL INCIDENTAL WORK NECESSARY FOR THE CONSTRUCTION OF THE NEW SITE IMPROVEMENTS.
   B. THIS PLAN IS NOT INTENDED TO DESIGNATE MEANS AND METHODS OR PERMITTING AUTHORITY GUIDELINES. MEANS, METHODS, SEQUENCING, TECHNIQUES AND PROCEDURES TO BE EMPLOYED TO ACCOMPLISH THE WORK, ALL MEANS, METHODS, SEQUENCING, TECHNIQUES AND PROCEDURES TO BE USED MUST BE IN STRICT ACCORDANCE AND CONFORMANCE WITH ALL STATE, FEDERAL, LOCAL, AND JURISDICTIONAL REQUIREMENTS. THE CONTRACTOR MUST COMPLY WITH ALL OSHA SAFETY PRECAUTIONS NECESSARY TO PROVIDE A SAFE WORK SITE FOR THE CONTRACTOR AND THE PUBLIC.
5. THE CONTRACTOR MUST PROVIDE ALL "METHODS AND PROCEDURES" NECESSARY FOR THE DEMOLITION, REMOVAL, DISMANTLEMENT, OR COLLAPSE OF EXISTING STRUCTURES, AND ANY OTHER IMPROVEMENTS THAT ARE REMAINING ON OR OFF SITE. THE CONTRACTOR, AT THE CONTRACTOR'S SOLE COST, MUST REPAIR ALL DAMAGE TO ALL ITEMS AND FEATURES THAT ARE TO REMAIN, DISTURBED OR DAMAGED DURING THE DEMOLITION ACTIVITIES. REPAIRS MUST RESTORE THE CONDITION OF THE ITEMS AND FEATURES REPAIRED TO THEIR PRE-DEMOLITION CONDITION, OR BETTER. CONTRACTOR MUST PERFORM ALL REPAIRS AT THE DIRECTIONS OF THE OWNER.
6. THE PROFESSIONAL OF RECORD AND BOHLER ARE NOT RESPONSIBLE FOR JOB SITE SAFETY OR SUPERVISION. THE CONTRACTOR MUST PROCEED WITH THE DEMOLITION IN A SYSTEMATIC AND SAFE MANNER, COMPLYING WITH ALL OSHA REQUIREMENTS, TO ENSURE PUBLIC AND CONSTRUCTION SAFETY AT ALL TIMES. THE SITE SUPERVISOR MUST BE ON SITE OR AVAILABLE OR NEAR TO THE SAME.
7. THE CONTRACTOR IS RESPONSIBLE FOR JOB SITE SAFETY, W

#SUP20140121, CHIC-FIL-A,15250 WASHINGTON STREET
CONDITIONS OF APPROVAL
12-07-15

**SPECIAL USE PERMIT #SUP20140121**

**CHIC-FIL-A, 15250 WASHINGTON STREET**

**CONDITIONS OF APPROVAL – DECEMBER 7, 2015**

**FAST FOOD RESTAURANT WITH DRIVE-THRU WINDOW**

1. **Substantial Conformance.** The development of the Special Use described in Condition 2 below shall be in substantial conformance with the Sketch Plan Sheets 1, 2, and 3 of 3 entitled "Special Use Permit for Chick-fil-A", prepared by Bohler Engineering, dated December 19, 2013 (the "Sketch Plan"), revised through December 1, 2015, and the Town of Haymarket Zoning Ordinance (the "Zoning Ordinance"). Approval of this permit for 15250 Washington Street (the "Property") shall not relieve the applicant or the owner or owners ("Owners") of the Property from the obligation to comply with and conform to any other Zoning Ordinance, Codified Ordinance, or applicable regulatory requirement.

2. **Uses Permitted and Use Restrictions.** This Special Use Permit SUP 20140121 grants a Fast food restaurant with drive-thru (drive-in) pursuant to Section 58-218(7), as defined in the Zoning Ordinance in the Neighborhood Business Commercial District B-2.

3. **Enforcement.** Failure by the Town of any other party to insist on any of the terms or conditions of SUP20140121 or the provisions of any local, state or federal law or requirement shall not be deemed a waiver thereof.

Attachment: 2. SUP20140121 CONDITIONS OF APPROVAL - CHIC-FIL-A (AGI-2015-117 : Chick-fil-A)



## DEMO LEGEND

| | |
|---|---|
| PROPERTY LINE | |
| EASEMENT LINE | |
| SETBACK LINE | |
| UTILITY POLE | |
| TYPICAL SIGN | |
| PARKING COUNT | |
| CONTOUR | |
| SPOT ELEVATIONS | TC 516.4 BR 516.4 |
| SANITARY LATERAL | |
| SANITARY MAIN | |
| WATER LINE | |
| ELECTRIC LINE | |
| GAS LINE | |
| OVERHEAD WIRE | |
| STORM SEWER | |
| HYDRANT | |
| SANITARY MANHOLE | |
| STORM MANHOLE | |
| WATER VALVE | WV |
| WATER METER | WM |
| GAS VALVE | |
| TYPICAL END SECTION | |
| CLEANOUT | |

## ABBREVIATION LEGEND

| | |
|---|---|
| LSA | LANDSCAPE AREA |
| TBR | TO BE REMOVED |
| TBRL | TO BE RELOCATED |

## EXISTING LEGEND

| | |
|---|---|
| CONTOUR | 123 |
| SPOT ELEVATION | X 123.45 |
| EDGE OF PAVEMENT ELEVATION | X EP 123.45 |
| TOP OF CURB ELEVATION | X TC 123.45 |
| GUTTER ELEVATION | X G 123.35 |
| TOP OF WALL ELEVATION | X TW 123.45 |
| BOTTOM OF WALL ELEVATION | X BW 123.35 |
| TOP OF ISLAND ELEVATION | X TI 123.45 |
| BOTTOM OF ISLAND ELEVATION | X BI 123.35 |
| FIRE DEPARTMENT CONNECTION | |
| GAS VALVE | |
| OVERHEAD WIRES | OH |
| APPROX LOC UNDERGROUND CABLE LINE PER UTILITY MARKOUT | C |
| APPROX LOC UNDERGROUND ELEC LINE PER UTILITY MARKOUT | E |
| APPROX LOC UNDERGROUND FIBER OPTIC LINE PER UTILITY MARKOUT | FO |
| APPROX LOC UNDERGROUND GAS LINE PER UTILITY MARKOUT | G |
| APPROX LOC UNDERGROUND SEWER LINE PER REF __ | |
| APPROX LOC UNDERGROUND TEL LINE PER UTILITY MARKOUT | T |
| APPROX LOC UNDERGROUND STORM SEWER LINE PER REF __ | |
| LIMITS OF FLOODPLAIN | FP FP |
| FLARED END SECTION | |
| UTILITY POLE | |
| TRAFFIC SIGNAL | |
| MONITORING WELL | |
| ELECTRIC METER | EM |
| ELECTRIC BOX | EB |
| TRANSFORMER | TF |
| SANITARY MANHOLE | S |
| TELEPHONE MANHOLE | T |
| ELECTRIC MANHOLE | E |
| WATER MANHOLE | W |
| STORM DRAIN MANHOLE | D |
| GAS METER | GM |
| ROOF DRAIN | RD |
| SIGN | |
| MAIL BOX | |
| BOLLARD | |
| U-BOLLARD | |
| METAL GUARDRAIL | |
| FENCE | X |
| LANDSCAPED AREA | LSA |
| AREA LIGHT | |
| CLEAN OUT | |
| PAINTED ARROWS | |
| TITLE REPORT EXCEPTION | |
| DENOTES PARKING SPACE COUNT | |
| BENCHMARK | |
| UTILITY POLE/LIGHT POLE | |
| STREET LIGHT | |
| GUY WIRE | |
| TRAFFIC SIGNAL POLE | |
| TREE LINE | |
| TREE (SIZE AS NOTED) | |
| PROP CORNERS TO BE SET | |
| BORING LOCATION | P-29 ELEV=28.50 |
| WETLANDS | WF-29 WF-28 |

## PROP SITE LEGEND

| | |
|---|---|
| PROPERTY LINE | |
| EASEMENT LINE | |
| SETBACK LINE | |
| INTERIOR PROPERTY LINE | |
| LEASE LINE | |
| LIMIT OF WORK | LOW |
| LIMIT OF DISTURBANCE | LOD |
| CURB | |
| UTILITY POLE | |
| TYPICAL SIGN | |
| BOLLARD | |
| UTILITY POLE W/ LIGHT | |
| TYPICAL LIGHT | |
| PARKING COUNT | X |

## PROP GRADING LEGEND

| | |
|---|---|
| PROPERTY LINE | |
| EASEMENT LINE | |
| SETBACK LINE | |
| INTERIOR PROPERTY LINE | |
| LEASE LINE | |
| LIMIT OF WORK | LOW |
| LIMIT OF DISTURBANCE | LOD |
| SAWCUT LINE | |
| CONTOUR | 191 190 |
| SPOT ELEVATIONS | FF 517.00 TC 516.00 BC 515.55 ME 516.00 |
| TEST PIT | T-# |
| BORING | B-# |

## PRINCE WILLIAM WATER LEGEND

| | |
|---|---|
| EXISTING WATERLINE W/ TEE | W |
| PROPOSED WATERLINE W/ TEE | W |
| EXISTING FIRE HYDRANT | |
| PROPOSED FIRE HYDRANT | |
| EXISTING WATER VALVE | W |
| PROPOSED WATER VALVE | W |
| PROPOSED WATER METER | |
| EXISTING REDUCER | W |
| PROPOSED REDUCER | W |

5200 Buffington Rd
Atlanta, Georgia 30349-2998

811 Know what's below. Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's the law.

REVISIONS:

| MARK | DATE | BY |
|---|---|---|
| 1 | 07/07/2025 | GAP |
| | COUNTY COMMENTS | |
| 2 | 9/16/2025 | AG |
| | COUNTY COMMENTS | |

| MARK | DATE | BY |
|---|---|---|

COMMONWEALTH OF VIRGINIA
KATHERINE ROBERTS
Lic. No. 0402060193
PROFESSIONAL ENGINEER
9/16/2025

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

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

STORE
SERIES 08C-R
#3197
15180 WASHINGTON ST
HAYMARKET,
VA, 20169

SHEET TITLE
**LEGEND AND APPLICABLE CASES**

DWG EDITION 02.4

☐ PRELIMINARY
☒ 80% SUBMITTAL
☐ FOR CONSTRUCTION

| | |
|---|---|
| JOB NO. | VAB230141.00 |
| STORE | #3197 |
| DATE | 01/31/2024 |
| DRAWN BY | GAP |
| CHECKED BY | KBR |
| CAD ID | CNDS0 |

SHEET
C-0.2

PWCSA PL #SA2024-0052

**NOTES:**

1. THE CFA LEASE PARCEL AND ADDITONAL LEASE AREA ARE PART OF UNIT 1 HAYMARKET MELADON CENTER LAND CONDOMINIUM AS RECORDED IN INSTRUMENT NUMBER 202304030015548 & 202304060016408, BEING THE LANDS OF MELADON HAYMARKET, LLC AS RECORDED IN INSTRUMENT NUMBERS 20211280141680 AND 20220829006308б, ALL AMONG THE LAND RECORDS OF PRINCE WILLIAM COUNTY, VIRGINIA AND HAVING A GPIN OF 7298-71-6403.01 PER THE DEPARTMENT OF ASSESSMENTS.
2. CFA LEASE AREA = 62,564 SQUARE FEET OR 1.436 ACRES (MEASURED)
   ADDITIONAL LEASE AREA = 1,945 SQUARE FEET OR 0.045 ACRES (MEASURED)
3. LOCATION OF ALL UNDERGROUND UTILITIES ARE APPROXIMATE. SOURCE INFORMATION FROM PLANS AND MARKINGS HAS BEEN COMBINED WITH OBSERVED EVIDENCE OF UTILITIES TO DEVELOP A VIEW OF THOSE UNDERGROUND UTILITIES. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY AND RELIABLY DEPICTED. WHERE ADDITIONAL OR MORE DETAILED INFORMATION IS REQUIRED, THE CLIENT IS ADVISED THAT EXCAVATION MAY BE NECESSARY.

   APPROXIMATE LOCATION OF UNDERGROUND UTILITIES ARE SHOWN PER PRIVATE UTILITY MARKOUT PERFORMED BY INSIGHT, LLC ON JULY 13, 2023 AND FIELD LOCATED WITH CONVENTIONAL FIELD SURVEY METHODS UNLESS OTHERWISE NOTED.
4. THIS SURVEY WAS PERFORMED IN THE FIELD ON JULY 19, 2023 UTILIZING THE REFERENCE DOCUMENTS AS LISTED HEREON AND DEPICTS BUILDINGS, STRUCTURES AND OTHER IMPROVEMENTS.
5. ELEVATIONS ARE BASED ON NAVD 88 DATUM PER GPS OBSERVATIONS.
6. THE PROPERTIES ARE LOCATED IN OTHER AREAS ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 500-YEAR FLOODPLAIN) PER MAP ENTITLED "FIRM, FLOOD INSURANCE RATE MAP, PRINCE WILLIAM COUNTY, VIRGINIA AND INCORPORATED AREAS, PANEL 59 OF 330", MAP NUMBER 51153C009 D, WITH A MAP EFFECTIVE DATE OF JANUARY 05, 1995.
7. THERE IS NO OBSERVABLE EVIDENCE OF SITE USE AS A SOLID WASTE DUMP, SUMP OR SANITARY LANDFILL.
8. THERE ARE NO GAPS, GORES, OVERLAPS, OR HIATUSES BETWEEN THE RIGHT-OF-WAY LINES OF WASHINGTON STREET - U.S. RTE. 55 AND THE CFA LEASE AREA.
9. THERE ARE NO GAPS, GORES, OVERLAPS, OR HIATUSES BETWEEN THE ADDITIONAL LEASE AREA AND THE CFA LEASE PARCEL.
10. ALL MATTERS SHOWN ON RECORDED PLATS PROVIDED TO THE SURVEYOR THAT ARE LEGIBLE, WITHIN THE LIMITS OF THIS SURVEY, AND ARE PLOTTABLE, ARE SHOWN.
11. THERE IS NO RECENT EVIDENCE OF EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS OBSERVED IN THE PROCESS OF CONDUCTING THE FIELDWORK.
12. THERE ARE NOT ANY CHANGES IN STREET RIGHT-OF-WAY LINES EITHER COMPLETED OR PROPOSED, AND AVAILABLE FROM THE CONTROLLING JURISDICTION AND THERE IS NO EVIDENCE OF RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS OBSERVED IN THE PROCESS OF CONDUCTING THE FIELDWORK.
13. NO SURVEY OF SUBTERRANEAN STRUCTURES OR INTERIOR SPACES SUCH AS FOOTINGS, FOUNDATIONS, VAULTS OR BASEMENTS WAS PERFORMED AS PART OF THIS LAND SURVEY, AND THIS PLAN SHOULD NOT BE CONSTRUED AS CERTIFICATION TO THE EXISTENCE OR LOCATION OF THE SAME.
14. THE CFA LEASE AREA HAS VEHICULAR ACCESS TO WASHINGTON STREET - U.S. RTE. 55.
15. THERE ARE NO VISIBLE ENCROACHMENTS ON THE SURVEY. ENCROACHMENT IS A LEGAL CONDITION, NOT A MATTER OF SURVEY AND, AS A RESULT, THERE MAY BE OTHER POSSIBLE ENCROACHMENTS AFFECTING THE PROPERTY THAT ARE NOT SHOWN.

**TITLE DESCRIPTION (2016)**

ALL THAT CERTAIN LOT OR PARCEL OF LAND TOGETHER WITH ALL IMPROVEMENTS THEREON LOCATED AND BEING IN THE COUNTY OF PRINCE WILLIAM, VIRGINIA AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

TRACT I

METES AND BOUNDS DESCRIPTION
CHICK-FIL-A LEASE PARCEL
PART OF RESIDUAL PARCEL A
ON THE PROPERTY OF
THIRD GENERATION, L.P.
INSTRUMENT #20070814009340 2
PART OF THE LANDS OF
QUARLES HAYMARKET CENTER, LLC
INSTRUMENT #200901090002222
TOWN OF HAYMARKET
PRINCE WILLIAM COUNTY, VIRGINIA

BEGINNING AT AN IRON PIPE FOUND MARKING THE INTERSECTION OF THE DIVISION LINE BETWEEN RESIDUAL PARCEL A ON THE PROPERTY OF THIRD GENERATION, L.P. (INSTR. #20070814009340 2) ON THE WEST, AND THE LANDS OF EDWARD M. SMITH AND DAVID D. PEETE, TRUSTEES (DEED BOOK 1024 PAGE 594) ON THE EAST, WITH THE NORTHERLY RIGHT-OF-WAY LIMITS OF WASHINGTON STREET - VA RTE. 55 (VARIABLE WIDTH RIGHT-OF-WAY), THENCE WITH SAID NORTHERLY RIGHT-OF-WAY LIMITS;

A. NORTH 57° 04' 18" WEST, 196.71 FEET, THENCE DEPARTING SAID NORTHERLY RIGHT-OF-WAY LIMITS AND WITH A LINE THROUGH SAID RESIDUAL PARCEL A, THE FOLLOWING TWO COURSES AND DISTANCES;

B. NORTH 32° 54' 04" EAST, 345.93 FEET, THENCE;

1. CONTINUING, SOUTH 57° 05' 56" EAST, 193.55 FEET TO THE SAID DIVISION LINE BETWEEN RESIDUAL PARCEL A ON THE PROPERTY OF THIRD GENERATION, L.P. ON THE WEST, AND THE LANDS OF EDWARD M. SMITH AND DAVID D. PEETE, TRUSTEES ON THE EAST, THENCE WITH SAID DIVISION LINE;

2. SOUTH 32° 22' 38" WEST, 346.04 FEET TO THE POINT OF BEGINNING.

CONTAINING 67,511 SQUARE FEET OR 1.550 ACRES, MORE OR LESS

TRACT II

TOGETHER WITH THOSE CERTAIN EASEMENTS SET FORTH IN THE DEED OF SHORT FORM LEASE BY AND BETWEEN QUARLES HAYMARKET CENTER, LLC, LANDLORD AND CHICK-FIL-A, INC., TENANT RECORDED AS INSTRUMENT NO. 201403070014712; AS AMENDED BY FIRST AMENDMENT TO DEED OF SHORT FORM LEASE RECORDED AS INSTRUMENT NO. 201502100039657; AS AFFECTED BY CONFIRMATION OF DEED OF SHORT FORM LEASE BY AND BETWEEN QUARLES HAYMARKET CENTER, LLC AND CHICK-FIL-A, INC., RECORDED AS INSTRUMENT NO. 201603210019604.

**TITLE DESCRIPTION (2023)**

THE LAND IS DESCRIBED AS FOLLOWS:

ALL THAT CERTAIN LOT OR PARCEL OF LAND TOGETHER WITH ALL IMPROVEMENTS THEREON LOCATED AND BEING IN THE COUNTY OF PRINCE WILLIAM, VIRGINIA AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

ALL THAT CERTAIN TRACT OR PARCEL OF LAND BEGINNING AT (A) AN IRON PIPE SET ON THE NORTH RIGHT-OF-WAY LINE OF VIRGINIA ROUTE 55 A CORNER TO THE RESIDUE OF THE PETERS PROPERTY, THENCE WITH SAID RESIDUE AND FOLLOWING GENERALLY ALONG A WIRE FENCE N 39 DEGREES 34' 56" E 448.40 FEET TO (B) AN IRON PIPE, THENCE STILL WITH PETERS N 49 DEGREES 25' 15" W 530.61 FEET TO (C) AN IRON PIPE SET ON THE EAST RIGHT-OF-WAY LINE OF U.S. ROUTE 15, THENCE WITH THE EAST SIDE OF U.S. RT. 15 AS FOLLOWS: S 55 DEGREES 33' 30" W 335.40 FEET TO (D) A VIRGINIA STATE HIGHWAY DEPARTMENT CONCRETE MARKER THENCE RUNNING WITH THE FLAIR CONNECTING U.S. ROUTE 15 AND VIRGINIA ROUTE 55, S 11 DEGREES 15' 56" W 130.38 FEET TO (E) A VIRGINIA STATE HIGHWAY DEPARTMENT CONCRETE MARKER, THENCE S 20 DEGREES 08' 00" W 15.00 FEET TO (F) AN IRON PIPE ON THE NORTH RIGHT-OF-WAY LINE OF VIRGINIA RT. 55, THENCE WITH VIRGINIA RT. 55, S 49 DEGREES 52' 00" E 561.18 FEET TO (A) THE POINT OF BEGINNING, SAID TRACT CONTAINING 6.000 ACRES, MORE OR LESS.

LESS AND EXCEPT PROPERTY CONVEYED TO THE TOWN OF HAYMARKET, VIRGINIA FOR PUBLIC STREET PURPOSES BY DEED OF DEDICATION, EASEMENT AND RESERVATION, DATED JULY 9, 2007, RECORDED AUGUST 15, 2007, AS INSTRUMENT NO. 20070814009340 2.

LESS AND EXCEPT PROPERTY CONVEYED TO THE COMMONWEALTH OF VIRGINIA, FOR PUBLIC STREET PURPOSES BY DEED, DATED MAY 18, 2016, RECORDED JUNE 27, 2016, AS INSTRUMENT NO. 201606270048487.

LESS AND EXCEPT PROPERTY CONVEYED TO WASHINGTON STREET REAL ESTATE HOLDINGS, LLC, DATED APRIL 28, 2023, RECORDED MAY 1, 2023 AS INSTRUMENT NO. 202305010021 19.

**TITLE NOTES**

THIS SURVEY IS PREPARED WITH REFERENCE TO A COMMITMENT FOR TITLE INSURANCE PREPARED BY CHICAGO TITLE INSURANCE COMPANY POLICY NO. 248012011, WITH AN EFFECTIVE DATE OF MARCH 21, 2016. OUR OFFICE HAS REVIEWED THE FOLLOWING SURVEY-RELATED EXCEPTIONS IN SCHEDULE B, PART II:

(2) TERMS, PROVISIONS, CONDITIONS AND EASEMENTS CONTAINED IN WELL LOT DECLARATION BY AND BETWEEN DOUGLAS E. QUARLES, JR. ET AL. RECORDED IN DEED BOOK 2008 AT PAGE 764 AND IN DEED BOOK 2011 AT PAGE 853; (AFFECTS TRACT II); **DO NOT AFFECT CFA LEASE PARCEL OR ADDITIONAL LEASE AREA, AFFECTS LANDS TO THE NORTHWEST.**

(3) RIGHT OF WAY GRANTED TO COLUMBIA GAS OF VIRGINIA, INC. RECORDED AS INSTRUMENT NO. 200903260028101 AS CORRECTED BY CORRECTED RIGHT OF WAY RECORDED AS INSTRUMENT NO. 200909030086882; (AFFECTS TRACT II); **DOES NOT AFFECT CFA LEASE PARCEL OR ADDITIONAL LEASE AREA, AFFECTS LANDS TO THE NORTHWEST.**

(4) TERMS, PROVISIONS, RESTRICTIONS, CONDITIONS, EASEMENTS AND RESERVATIONS CONTAINED IN STORM WATER MANAGEMENT FACILITIES MAINTENANCE AGREEMENT BY AND BETWEEN THIRD GENERATION, L.P. AND PRINCE WILLIAM COUNTY SERVICE AUTHORITY RECORDED AS INSTRUMENT NO. 200708140093404; **AFFECT CFA LEASE PARCEL AND ADDITIONAL LEASE AREA , NOT PLOTTABLE, GENERAL IN NATURE.**

(5) TERMS, PROVISIONS, CONDITIONS AND EASEMENTS CONTAINED IN DEED OF EASEMENT AND VACATION BY AND BETWEEN QUARLES PETROLEUM, INC. AND PRINCE WILLIAM COUNTY SERVICE AUTHORITY RECORDED AS INSTRUMENT NO. 200907300075577; AS CORRECTED BY CORRECTED DEED OF EASEMENT AND VACATION RECORDED AS INSTRUMENT NO. 200909030086883 AND PLAT RECORDED AS INSTRUMENT NO. 200909030086884 AS AFFECTED BY WATER AND SEWER EASEMENT RECORDED AS INSTRUMENT NO. 201603140017300; **AFFECT CFA LEASE PARCEL AND ADDITIONAL LEASE AREA, EASEMENTS ARE SHOWN.**

(6) TERMS, PROVISIONS, RESTRICTIONS, CONDITIONS, EASEMENTS AND RESERVATIONS CONTAINED IN DEED OF DEDICATION, EASEMENT AND RESERVATION RECORDED AS INSTRUMENT NO. 200708140093402 AND PLAT RECORDED AS INSTRUMENT NO. 200708140093403, BUT OMITTING ANY COVENANTS OR RESTRICTIONS, IF ANY, BASED UPON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, HANDICAP, NATIONAL ORIGIN, ANCESTRY, OR SOURCE OF INCOME, AS SET FORTH IN APPLICABLE STATE OR FEDERAL LAWS, EXCEPT TO THE EXTENT THAT SAID COVENANT OR RESTRICTION IS PERMITTED BY APPLICABLE LAW; **AFFECT CFA LEASE PARCEL AND ADDITIONAL LEASE AREA, EASEMENTS ARE SHOWN.**

(7) TERMS, PROVISIONS, CONDITIONS AND EASEMENTS CONTAINED IN DEED OF SHORT FORM LEASE BY AND BETWEEN QUARLES HAYMARKET CENTER, LLC, LANDLORD AND CHICK-FIL-A, INC., TENANT RECORDED AS INSTRUMENT NO. 201403070014712; AS AMENDED BY FIRST AMENDMENT TO DEED OF SHORT FORM LEASE RECORDED AS INSTRUMENT NO. 201502100039657; AS AFFECTED BY CONFIRMATION OF DEED OF SHORT FORM LEASE BY AND BETWEEN QUARLES HAYMARKET CENTER, LLC AND CHICK-FIL-A, INC., DATED MARCH 1,2016 AND RECORDED MARCH 21,2016 AS INSTRUMENT NO. 201603210019604; **AFFECT AND BENEFIT THE CFA LEASE PARCEL, AFFECT THE ADDITIONAL LEASE AREA, THE LEASE LINE AND PROTECTED DRIVE AREA ARE SHOWN. INCLUDES USE RESTRICTIONS ON ADJACENT PARCELS.**

(8) JUDGMENT DATED JANUARY 11, 2000, DOCKETED APRIL 5, 2000 RECORDED IN DEED BOOK 100 AT PAGE 1858 BY JEAN ROMERIL AND JACK RUNYON, PLAINTIFFS AGAINST QUARLES PETROLEUM, INC., DEFENDANT IN THE AMOUNT OF $11,267.06 IN COMPENSATORY DAMAGES AND $20,000.00 IN PUNITIVE DAMAGES, PLUS PLAINTIFF'S ATTORNEY FEES OF $15,600.00 AND COST IN THE AMOUNT OF $7,650.00; **NOT SURVEY RELATED.**

THIS SURVEY IS PREPARED WITH REFERENCE TO A COMMITMENT FOR TITLE INSURANCE PREPARED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY ORDER NO. 29335578, WITH A SCOPE OF SEARCH BEGINNING MARCH 21, 2016 AND EXTENDING THROUGH NOVEMBER 30, 2022. OUR OFFICE HAS REVIEWED THE FOLLOWING SURVEY-RELATED EXCEPTIONS:

(3) TYPE OF DEED: DEED (OUTSALE)
FROM: QUARLES HAYMARKET CENTER, LLC, A VIRGINIA LIMITED LIABILITY COMPANY
TO: COMMONWEALTH OF VIRGINIA
DATED: MAY 18, 2016
RECORDED ON: JUNE 27, 2016
RECORDED IN: INSTRUMENT NO. 201606270048487
**AFFECT THE CFA LEASE PARCEL, A PORTION OF THE LEASE PARCEL LIES WITHIN THE AREA OF DEDICATION. DOES NOT AFFECT ADDITIONAL LEASE AREA.**

(4) DEED OF EASEMENT IN FAVOR OF COMMONWEALTH OF VIRGINIA SET FORTH IN INSTRUMENT RECORDED ON JUNE 27, 2016 IN INSTRUMENT NO. 201606270048488; **AFFECTS THE CFA LEASE PARCEL, DOES NOT AFFECT THE ADDITIONAL LEASE AREA, EASEMENT IS SHOWN.**

(5) TYPE OF DEED: DEED
FROM: QUARLES HAYMARKET CENTER, LLC, A VIRGINIA LIMITED LIABILITY COMPANY
TO: MELADON HAYMARKET, LLC, A DELAWARE LIMITED LIABILITY COMPANY
DATED: DECEMBER 28, 2021
RECORDED ON: DECEMBER 28, 2021
RECORDED IN: INSTRUMENT NO. 202112280141680;
NOTE: RE-RECORDED TO CORRECT GRANTEE TO MELADON HAYMARKET, LLC, A VIRGINIA LIMITED LIABILITY COMPANY RECORDED AUGUST 29, 2022 IN INSTRUMENT NO. 202208290063086; **DOES NOT AFFECT THE CFA LEASE PARCEL OR ADDITIONAL LEASE AREA, DOCUMENT DOES NOT GRANT ANY EASEMENTS OR RESTRICTIONS.**

(6) DEED OF TRUST FROM MELADON HAYMARKET LLC, A VIRGINIA LIMITED LIABILITY COMPANY, GRANTOR(S), TO JOHN P. BOWERS AND JONATHAN B. COMER, TRUSTEE(S) IN FAVOR OF THE FIRST BANK AND TRUST COMPANY, DATED DECEMBER 28, 2021 AND RECORDED DECEMBER 28, 2021, IN INSTRUMENT NO. 202112280141681, IN THE AMOUNT OF $10,500,000.00, IN THE CLERK'S OFFICE, PRINCE WILLIAM COUNTY; ASSIGNMENT OF RENTS AND LEASES RECORDED DECEMBER 28, 2021 IN INSTRUMENT NO. 202112280141682; **DOES NOT AFFECT THE CFA LEASE PARCEL OR ADDITIONAL LEASE AREA, DOCUMENT DOES NOT GRANT ANY EASEMENTS OR RESTRICTIONS.**

(7) RIGHT OF WAY AGREEMENT IN FAVOR OF VIRGINIA ELECTRIC AND POWER COMPANY, A VIRGINIA PUBLIC SERVICE CORPORATION SET FORTH IN INSTRUMENT RECORDED ON SEPTEMBER 21, 2022 IN INSTRUMENT NO. 202209210068457; **DOES NOT AFFECT THE CFA LEASE PARCEL OR ADDITIONAL LEASE AREA, AFFECTS THE LANDS TO THE NORTHWEST.**

THIS SURVEY IS PREPARED WITH REFERENCE TO A COMMITMENT FOR TITLE INSURANCE PREPARED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY COMMITMENT NO. 248012011AVA, WITH A COMMITMENT DATE OF JULY 10, 2023. OUR OFFICE HAS REVIEWED THE FOLLOWING SURVEY-RELATED EXCEPTIONS IN SCHEDULE B, PART II:

(4.) TERMS, PROVISIONS, CONDITIONS AND EASEMENTS CONTAINED IN DEED RECORDED IN DEED BOOK 138 AT PAGE 93; **DO NOT AFFECT CFA LEASE PARCEL OR ADDITIONAL LEASE AREA. EASEMENT GRANTED IS NOW WITHIN THE EXISTING RIGHT-OF-WAY FOR U.S. ROUTE 15.**

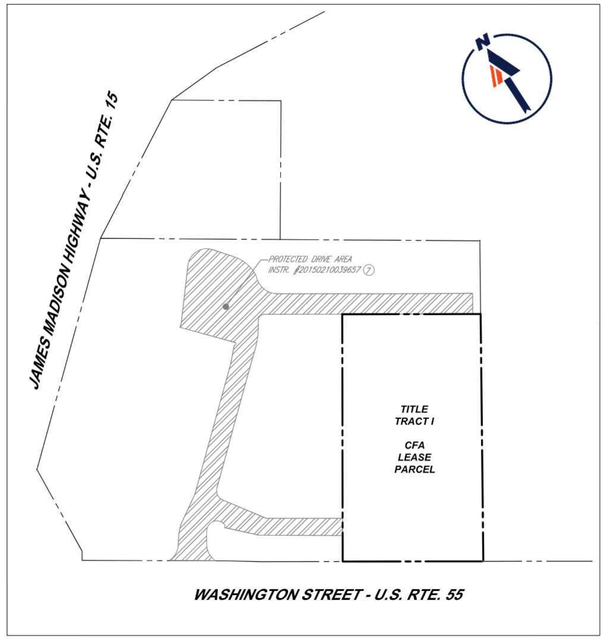
(5.) TERMS, PROVISIONS, CONDITIONS AND EASEMENTS CONTAINED IN SEWER EASEMENT AGREEMENT BY AND BETWEEN GLADYS T. & D. E. QUARLES, JR. AND PRINCE WILLIAM COUNTY SERVICE AUTHORITY RECORDED IN DEED BOOK 1939 AT PAGE 1329; **AFFECT THE CFA LEASE PARCEL, DOES NOT AFFECT THE ADDITIONAL LEASE AREA, REMAINDER OF EASEMENT IS SHOWN.**

(6.) RIGHT-OF-WAY GRANTED TO VIRGINIA ELECTRIC AND POWER COMPANY RECORDED AS INSTRUMENT NO. 200909110089046; **DOES NOT AFFECT CFA LEASE PARCEL OR ADDITIONAL LEASE AREA, EASEMENT WAS PARTIALLY VACATED BY INSTRUMENT NO. 201603140017301. AFFECTS LANDS TO THE WEST, EASEMENT IS SHOWN.**

(7.) TERMS, PROVISIONS, CONDITIONS AND EASEMENTS CONTAINED IN THAT CERTAIN LEASE BY AND BETWEEN QUARLES HAYMARKET CENTER, L.L.C., LANDLORD AND CVS 75692 VA, L.L.C., TENANT AS EVIDENCED BY MEMORANDUM OF LEASE RECORDED AS INSTRUMENT NO. 200909030086888; AS AFFECTED BY CERTIFICATE OF NAME CHANGE RECORDED AS INSTRUMENT NO. 201010060087475; **AFFECT CFA LEASE PARCEL AND ADDITIONAL LEASE AREA, CONTAINS USE RESTRICTIONS.**

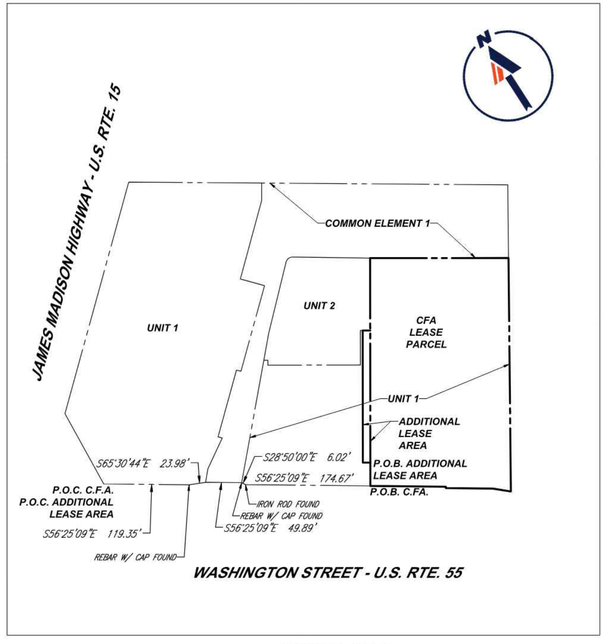
(8.) TERMS, PROVISIONS, CONDITIONS AND EASEMENTS CONTAINED IN THAT CERTAIN DEED OF SUBLEASE BY AND BETWEEN SCP 2010-C35-531 L.L.C., LANDLORD AND VIRGINIA CVS PHARMACY, L.L.C., TENANT AS EVIDENCED BY THAT CERTAIN MEMORANDUM OF DEED OF SUBLEASE RECORDED AS INSTRUMENT NO. 201010060087478; AS AFFECTED BY TERMS, PROVISIONS, CONDITIONS AND EASEMENT CONTAINED IN SUBORDINATION, NON-DISTURBANCE AND ATTORNMENT AGREEMENT BY AND BETWEEN SCP 2010-C35-531 LLC, WELLS FARGO BANK NORTHWEST, NATIONAL ASSOCIATION AND VIRGINIA CVS PHARMACY, L.L.C. RECORDED AS INSTRUMENT NO. 201010060087479; **DO NOT AFFECT CFA LEASE PARCEL OR ADDITIONAL LEASE AREA, AFFECTS LANDS TO THE NORTHWEST.**

(9.) CREDIT LINE LEASEHOLD DEED OF TRUST, SECURITY AGREEMENT, ASSIGNMENT OF LEASES AND RENTS AND FIXTURE FILING SECURING AN ORIGINAL PRINCIPAL INDEBTEDNESS OF $2,549,879.08 FROM SCP 2010-C35-531 LLC AS BORROWER TO ALEXANDER TITLE AGENCY INCORPORATED AS TRUSTEE(S) FOR THE BENEFIT OF WELL FARGO BANK NORTHWEST, NATIONAL ASSOCIATION, DATED SEPTEMBER 13, 2010 RECORDED OCTOBER 6, 2010 AS INSTRUMENT NO. 201010060087476; AS AFFECTED BY ASSIGNMENT OF LEASES AND RENTS FROM SCP 2010-C35-531 LLC AS ASSIGNOR TO WELL FARGO BANK NORTHWEST, NATIONAL ASSOCIATION AS ASSIGNEE, DATED SEPTEMBER 13, 2010, RECORDED OCTOBER 6, 2010 AS INSTRUMENT NO. 201010060087477; **DOES NOT AFFECT CFA LEASE PARCEL OR ADDITIONAL LEASE AREA, AFFECTS LANDS TO THE NORTHWEST.**




**2016 TITLE EXHIBIT**

SCALE: 1"=100'




**DETAIL MAP**

SCALE: 1"=100'

**SURVEYED DESCRIPTION**

CFA LEASE PARCEL

PART OF
UNIT 1
HAYMARKET MELADON CENTER
INSTRUMENT #202304030015549

LANDS OF
MELADON HAYMARKET, LLC
INSTRUMENT #20211220416 80
INSTRUMENT #20220829006308б
GAINESVILLE MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

COMMENCING AT THE INTERSECTION OF THE EASTERLY RIGHT-OF-WAY LIMITS OF JAMES MADISON HIGHWAY - U.S. RTE. 15 (VARIABLE WIDTH PUBLIC RIGHT-OF-WAY) WITH THE NORTHERLY RIGHT-OF-WAY LIMITS OF WASHINGTON STREET - U.S. RTE. 55 (VARIABLE WIDTH PUBLIC RIGHT-OF-WAY), THENCE WITH SAID NORTHERLY RIGHT-OF-WAY LIMITS, THE FOLLOWING FIVE (5) COURSES AND DISTANCES;

A. SOUTH 56° 25' 09" EAST, 119.35 FEET TO A REBAR WITH CAP FOUND, THENCE;

B. CONTINUING, SOUTH 65° 30' 44" EAST, 23.98 FEET, THENCE;

C. CONTINUING, SOUTH 56° 25' 09" EAST, 49.89 FEET TO A REBAR WITH CAP FOUND, THENCE;

D. CONTINUING, SOUTH 28° 50' 00" EAST, 6.02 FEET TO AN IRON ROD FOUND, THENCE;

E. CONTINUING, SOUTH 56° 25' 09" EAST, 174.67 FEET TO THE POINT OF BEGINNING, THENCE DEPARTING SAID NORTHERLY RIGHT-OF-WAY LIMITS AND WITH A LINE THROUGH UNIT 1, HAYMARKET MELADON CENTER (INSTRUMENT #202304030015549) AND FURTHER CONTINUING WITH THE DIVISION LINE BETWEEN SAID UNIT 1 ON THE EAST AND UNIT 2, HAYMARKET MELADON CENTER (INSTRUMENT #202304030015549) ON THE WEST;

1. NORTH 32° 56' 24" EAST, 318.56 FEET TO THE DIVISION LINE BETWEEN SAID UNIT 1 ON THE SOUTH AND COMMON ELEMENT 1, HAYMARKET MELADON CENTER (INSTRUMENT #202304030015549) ON THE NORTH, THENCE WITH SAID DIVISION;

2. SOUTH 57° 03' 36" EAST, 193.54 FEET TO THE INTERSECTION OF SAID DIVISION LINE WITH THE DIVISION LINE BETWEEN SAID UNIT 1 ON THE WEST AND UNIT 1, CROSSROADS VILLAGE CENTER LAND CONDOMINIUM (INSTRUMENT #202211210080313) ON THE EAST, THENCE WITH SAID DIVISION LINE;

3. SOUTH 32° 25' 02" WEST, 326.51 FEET TO SAID NORTHERLY RIGHT-OF-WAY LIMITS OF WASHINGTON STREET - U.S. RTE. 55, THENCE WITH SAID NORTHERLY RIGHT-OF-WAY LIMITS, THE FOLLOWING FOUR (4) COURSES AND DISTANCES;

4. NORTH 48° 01' 55" WEST, 25.52 FEET TO A REBAR WITH CAP FOUND, THENCE;

5. CONTINUING, NORTH 56° 25' 11" WEST, 65.77 FEET TO A PK NAIL FOUND, THENCE;

6. CONTINUING, NORTH 33° 34' 51" EAST, 2.00 FEET TO A PK NAIL FOUND, THENCE;

7. CONTINUING, NORTH 56° 25' 09" WEST, 105.57 FEET TO THE POINT OF BEGINNING.

CONTAINING 62,564 SQUARE FEET OR 1.436 ACRES

BEING PART OF THE PROPERTY AS DESCRIBED IN A COMMITMENT FOR TITLE INSURANCE PREPARED BY CHICAGO TITLE INSURANCE COMPANY, POLICY NO. 248012011, WITH AN EFFECTIVE DATE OF MARCH 21, 2016 AND A TITLE UPDATE REPORT PREPARED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY ORDER NO. 29335578, WITH A SCOPE OF SEARCH BEGINNING MARCH 21, 2016 AND EXTENDING THROUGH NOVEMBER 30, 2022 AND ALSO BEING PART OF A PROPERTY AS DESCRIBED IN A COMMITMENT FOR TITLE INSURANCE PREPARED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, POLICY NO. 248012011AVA, WITH A COMMITMENT DATE OF JULY 10, 2023 AND IS SUBJECT TO RESTRICTIONS, COVENANTS AND/OR EASEMENTS, WRITTEN OR IMPLIED.

**SURVEYED DESCRIPTION**

ADDITIONAL LEASE AREA

PART OF
UNIT 1
HAYMARKET MELADON CENTER
INSTRUMENT #202304030015549

LANDS OF
MELADON HAYMARKET, LLC
INSTRUMENT #20211220416 80
INSTRUMENT #20220829006308б
GAINESVILLE MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

COMMENCING AT THE INTERSECTION OF THE EASTERLY RIGHT-OF-WAY LIMITS OF JAMES MADISON HIGHWAY - U.S. RTE. 15 (VARIABLE WIDTH PUBLIC RIGHT-OF-WAY) WITH THE NORTHERLY RIGHT-OF-WAY LIMITS OF WASHINGTON STREET - U.S. RTE. 55 (VARIABLE WIDTH PUBLIC RIGHT-OF-WAY), THENCE WITH SAID NORTHERLY RIGHT-OF-WAY LIMITS, THE FOLLOWING FIVE (5) COURSES AND DISTANCES;

A. SOUTH 56° 25' 09" EAST, 119.35 FEET TO A REBAR WITH CAP FOUND, THENCE;

B. CONTINUING, SOUTH 65° 30' 44" EAST, 23.98 FEET, THENCE;

C. CONTINUING, SOUTH 56° 25' 09" EAST, 49.89 FEET TO A REBAR WITH CAP FOUND, THENCE;

D. CONTINUING, SOUTH 28° 50' 00" EAST, 6.02 FEET TO AN IRON ROD FOUND, THENCE;

E. CONTINUING, SOUTH 56° 25' 09" EAST, 174.67 FEET, THENCE DEPARTING SAID NORTHERLY RIGHT-OF-WAY LIMITS WITH A LINE THROUGH UNIT 1, HAYMARKET MELADON CENTER (INSTRUMENT #202304030015549) AND BINDING ON THE WESTERLY LIMITS OF THE CHICK-FIL-A LEASE PARCEL;

F. NORTH 32° 56' 24" EAST, 32.57 FEET TO THE BEGINNING OF THE HEREIN DESCRIBED ADDITIONAL LEASE AREA, THENCE CONTINUING WITH A LINE THROUGH SAID UNIT 1 THE FOLLOWING TWO (2) COURSES AND DISTANCES;

1. NORTH 57° 06' 46" WEST, 10.53 FEET, THENCE;

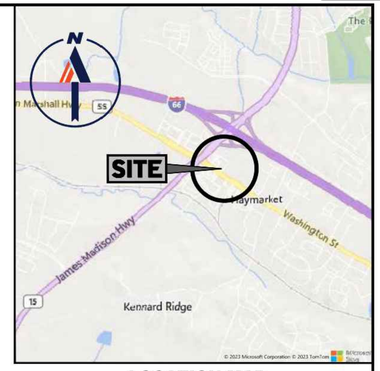
2. CONTINUING, NORTH 32° 56' 24" EAST, 184.76 FEET TO THE DIVISION LINE BETWEEN SAID UNIT 1 ON THE SOUTH AND UNIT 2, HAYMARKET MELADON CENTER (INSTRUMENT #202304030015549) ON THE NORTH, THENCE WITH SAID DIVISION LINE;

3. SOUTH 57° 06' 46" EAST, 10.53 FEET TO THE INTERSECTION OF SAID DIVISION LINE WITH SAID WESTERLY LIMITS OF THE CHICK-FIL-A PARCEL, THENCE DEPARTING SAID DIVISION LINE WITH A LINE THROUGH SAID UNIT 1 AND BINDING ON SAID WESTERLY LIMITS OF THE CHICK-FIL-A LEASE PARCEL;

4. SOUTH 32° 56' 24" WEST, 184.76 FEET TO THE POINT OF BEGINNING.

CONTAINING 1,945 SQUARE FEET OR 0.045 ACRES

BEING PART OF A PROPERTY AS DESCRIBED IN A COMMITMENT FOR TITLE INSURANCE PREPARED BY LAWYERS TITLE INSURANCE CORPORATION, POLICY NO.248012011AVA, WITH A COMMITMENT DATE OF JULY 10, 2023 AND IS SUBJECT TO RESTRICTIONS, COVENANTS AND/OR EASEMENTS, WRITTEN OR IMPLIED.




**LOCATION MAP**

SCALE: 1"=2000'

TO CHICK-FIL-A, INC., A GEORGIA CORPORATION; CHICAGO TITLE INSURANCE COMPANY; AND FIDELITY NATIONAL INSURANCE COMPANY:

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 2, 3, 4, 5, 7(A), 7(B)(1), 7(C), 8, 9, 11(A), 11(B), 13, 16, 17, 19 & 20 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON JULY 19, 2023.

Jane S. Clauss — Digitally signed by Jane S. Clauss DN: C=US, E=jclauss@bohlereng.com, O=Bohler, CN=Jane S. Clauss Date: 2023.09.18 17:00:43-04'00'

COMMONWEALTH OF VIRGINIA — JANE SALES CLAUSS — Lic. No. 2940 — LAND SURVEYOR

**JANE SALES CLAUSS** DATE

VIRGINIA LICENSED LAND SURVEYOR NO. 2940

THIS CERTIFICATION IS MADE TO ONLY NAMED PARTIES FOR PURCHASE AND/OR MORTGAGE OF HEREIN DELINEATED PROPERTY BY THE NAMED PURCHASER. NO RESPONSIBILITY OR LIABILITY IS ASSUMED BY SURVEYOR FOR THE USE OF SURVEY FOR ANY OTHER PURPOSE INCLUDING, BUT NOT LIMITED TO, USE OF SURVEY AFFIDAVIT, RESALE OF PROPERTY, OR TO ANY OTHER PERSON NOT LISTED IN CERTIFICATION, EITHER DIRECTLY OR INDIRECTLY.

| No. | DESCRIPTION OF REVISION | BY: | DATE |
|---|---|---|---|
| 1 | REVISED PER CLIENT COMMENTS | E.P.B. | 09/18/23 |

**ALTA/NSPS LAND TITLE SURVEY**

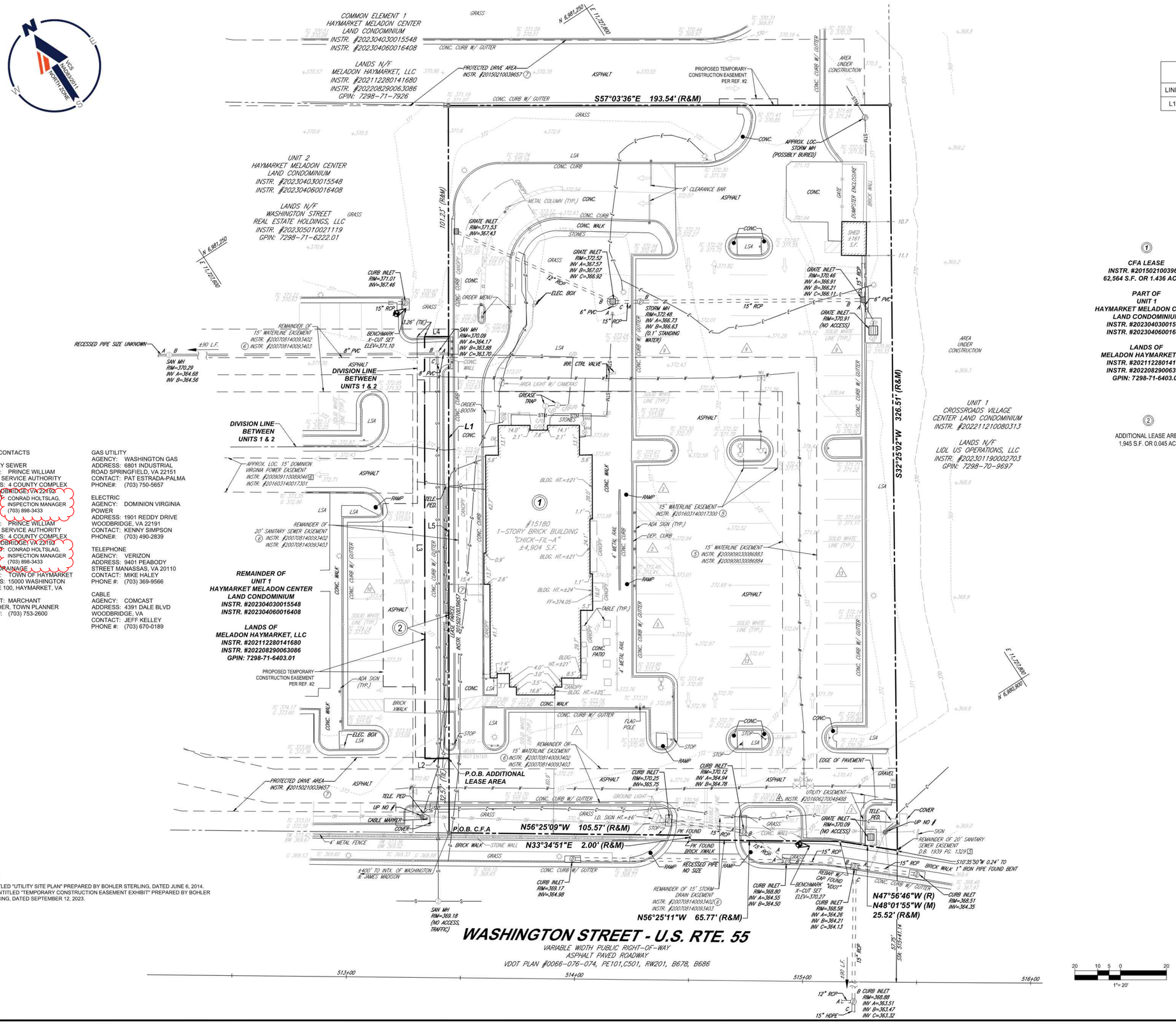
CHICK-FIL-A, INC.

15180 WASHINGTON STREET
GAINESVILLE MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

#03197

| FILE NO. | DATE | FIELD DATE | CREW CHIEF | DRAWN | REVIEWED | APPROVED | SCALE | DWG. NO. |
|---|---|---|---|---|---|---|---|---|
| VAB230141.00 | 08/10/23 | 07/19/23 | CM/JK | CB | SE | JB | AS NOTED | C-1.0 |

BOHLER




| CFA LEASE PARCEL LINE TABLE | | |
|---|---|---|
| LINE | BEARING | DISTANCE |
| L1 | N32° 56' 24"E | 318.56' |

| ADDITIONAL LEASE AREA LINE TABLE | | |
|---|---|---|
| LINE | BEARING | DISTANCE |
| L2 | N57° 06' 46"W | 10.53' |
| L3 | N32° 56' 24"E | 184.76' |
| L4 | S57° 06' 46"E | 10.53' |
| L5 | S32° 56' 24"W | 184.76' |

① **CFA LEASE**
***INSTR. #20150210039657***
***62,564 S.F. OR 1.436 AC. (M)***

***PART OF***
***UNIT 1***
***HAYMARKET MELADON CENTER***
***LAND CONDOMINIUM***
***INSTR. #202304030015548***
***INSTR. #202304060016408***

***LANDS OF***
***MELADON HAYMARKET, LLC***
***INSTR. #201112280141680***
***INSTR. #202208290063086***
***GPIN: 7298-71-6403.01***

② ADDITIONAL LEASE AREA
1,945 S.F. OR 0.045 AC.

## LEGEND

- EXISTING CONTOUR
- X 123.45 EXISTING SPOT ELEVATION
- X TC 123.45 EXIST. TOP OF CURB ELEVATION
- X G 122.95 EXIST. GUTTER ELEVATION
- HYDRANT
- WV WATER VALVE
- OH OVERHEAD WIRES
- APPROX. LOC. UNDERGROUND CABLE LINE PER UTILITY MARKOUT
- APPROX. LOC. UNDERGROUND GAS LINE PER UTILITY MARKOUT
- APPROX. LOC. UNDERGROUND WATER LINE PER UTILITY MARKOUT
- APPROX. LOC. UNDERGROUND ELEC. LINE PER UTILITY MARKOUT
- S APPROX. LOC. UNDERGROUND SEWER LINE PER REF. #1
- STM APPROX. LOC. UNDERGROUND STORM LINE PER REF. #1
- UTILITY POLE
- ELECTRIC METER
- TELE PED. TELEPHONE PEDESTAL
- SANITARY MANHOLE
- STORM DRAIN MANHOLE
- FENCE
- LSA LANDSCAPED AREA
- AREA LIGHT
- CLEAN OUT
- PAINTED ARROWS
- 5 3 5 TITLE REPORT EXCEPTION
- 10 DENOTES PARKING SPACE COUNT
- BENCHMARK
- GUY WIRE
- PROP. CORNER TO BE SET
- *(R&M)* RECORD AND MEASURED
- ***P.O.B.*** POINT OF BEGINNING
- ***P.O.C.*** POINT OF COMMENCEMENT

UTILITY CONTACTS

SANITARY SEWER
AGENCY: PRINCE WILLIAM COUNTY SERVICE AUTHORITY
ADDRESS: 4 COUNTY COMPLEX CT. WOODBRIDGE, VA 22192
CONTACT: CONRAD HOLTSLAG, INSPECTION MANAGER
PHONE#: (703) 898-3433

WATER
AGENCY: PRINCE WILLIAM COUNTY SERVICE AUTHORITY
ADDRESS: 4 COUNTY COMPLEX CT. WOODBRIDGE, VA 22192
CONTACT: CONRAD HOLTSLAG, INSPECTION MANAGER
PHONE#: (703) 898-3433

STORM DRAINAGE
AGENCY: TOWN OF HAYMARKET
ADDRESS: 15000 WASHINGTON ST SUITE 100, HAYMARKET, VA 20168
CONTACT: MARCHANT SCHNEIDER, TOWN PLANNER
PHONE #: (703) 753-2600

GAS UTILITY
AGENCY: WASHINGTON GAS
ADDRESS: 6801 INDUSTRIAL ROAD SPRINGFIELD, VA 22151
CONTACT: PAT ESTRADA-PALMA
PHONE#: (703) 750-5657

ELECTRIC
AGENCY: DOMINION VIRGINIA POWER
ADDRESS: 1901 REDDY DRIVE WOODBRIDGE, VA 22191
CONTACT: KENNY SIMPSON
PHONE#: (703) 490-2839

TELEPHONE
AGENCY: VERIZON
ADDRESS: 9401 PEABODY STREET MANASSAS, VA 20110
CONTACT: MIKE HALEY
PHONE #: (703) 369-9566

CABLE
AGENCY: COMCAST
ADDRESS: 4391 DALE BLVD WOODBRIDGE, VA
CONTACT: JEFF KELLEY
PHONE #: (703) 670-0189

**REFERENCES:**

1. MAP ENTITLED "UTILITY SITE PLAN" PREPARED BY BOHLER STERLING, DATED JUNE 6, 2014.
2. EXHIBIT ENTITLED "TEMPORARY CONSTRUCTION EASEMENT EXHIBIT" PREPARED BY BOHLER ENGINEERING, DATED SEPTEMBER 12, 2023.

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COMMONWEALTH OF VIRGINIA
JANE SALES CLAUSS
Lic. No. 2940
LAND SURVEYOR

Jane S. Clauss — Digitally signed by Jane S. Clauss DN: C=US, E=jclauss@bohlereng.com, O=Bohler, CN=Jane S. Clauss Date: 2023.09.18 17:01:21 -04'00'

***JANE SALES CLAUSS*** DATE
VIRGINIA LICENSED LAND SURVEYOR NO. 2940

| No. | DESCRIPTION OF REVISION | BY: | DATE |
|---|---|---|---|
| 1 | REVISED PER CLIENT COMMENTS | E.P.B. | 09/18/23 |

***ALTA/NSPS LAND TITLE SURVEY***

CHICK-FIL-A, INC.

15180 WASHINGTON STREET
GAINESVILLE MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

Chick-fil-A #03197

| FILE NO. | DATE | FIELD DATE | CREW CHIEF | DRAWN | REVIEWED | APPROVED | SCALE | DWG. NO. |
|---|---|---|---|---|---|---|---|---|
| VAB230141.00 | 08/10/23 | 07/19/23 | CM/JK | CB | SE | JB | 1" = 20' | C-1.1 |

BOHLER
12825 WORLDGATE DRIVE, SUITE 700
HERNDON, VIRGINIA 20170
703.709.9500
www.bohlerengineering.com
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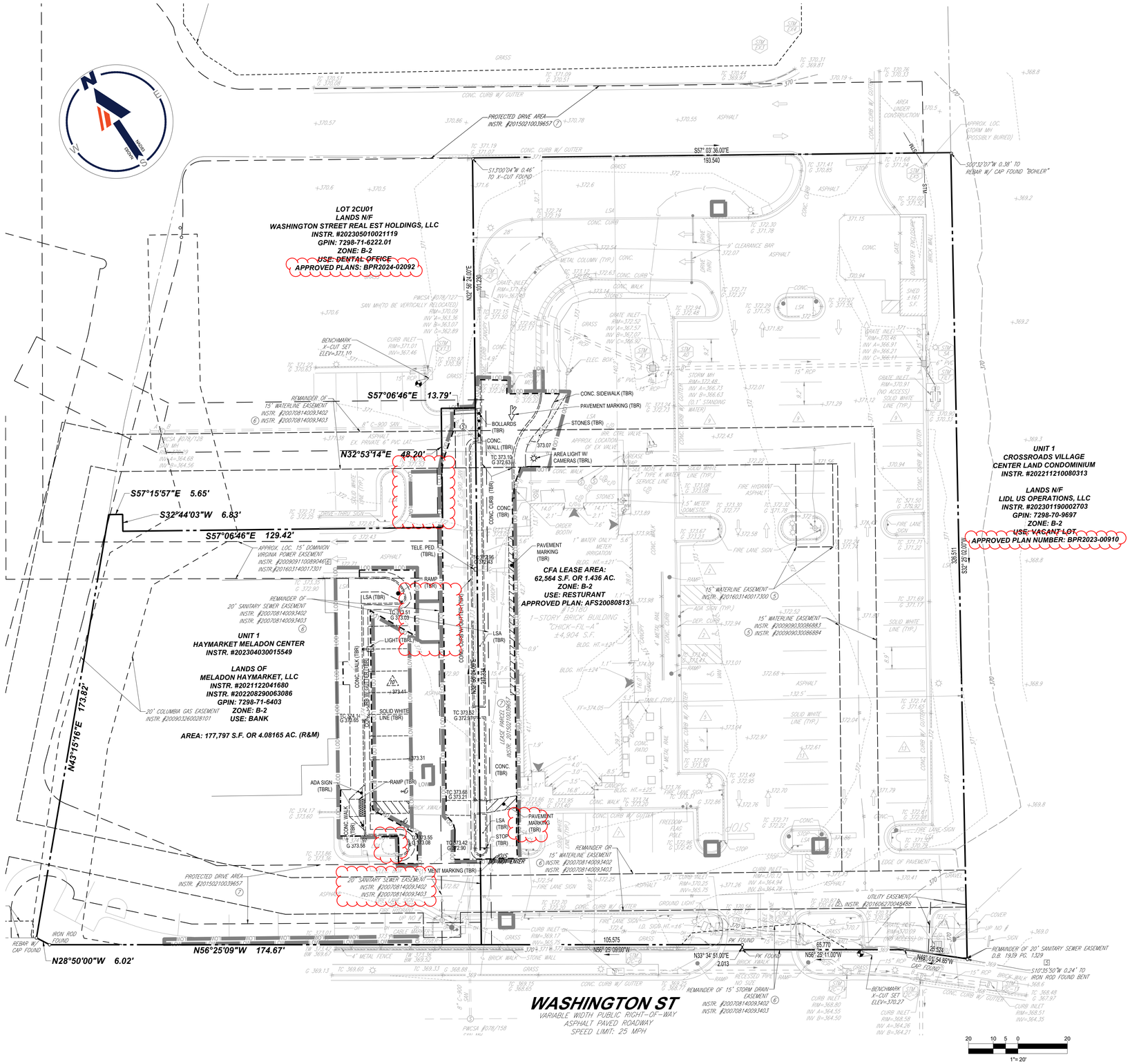


## EXISTING CONDITIONS NOTE:

CONTRACTOR TO NOTIFY BOHLER OF ANY DISCREPANCIES WITH FIELD VERIFIED CONDITIONS.

## DEMOLITION PLAN NOTES:

1. LIMITS OF SOIL DISTURBANCE = 0.20 AC.
2. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE AND HAVE NOT BEEN FIELD VERIFIED. CONTRACTOR SHALL DETERMINE ACTUAL LOCATIONS AND DEPTHS OF ALL UTILITIES PRIOR TO CONSTRUCTION. IF CONFLICTS EXIST, NOTIFY ENGINEER IMMEDIATELY.
3. AREAS WITHIN LIMITS OF DISTURBANCE WILL REQUIRE THE REMOVAL OF CURB AND/OR REPLACEMENT OF FULL DEPTH ASPHALT.

   AREAS SHOWN WITHIN LIMITS OF WORK ARE FOR INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES OR OTHER NON-LAND DISTURBANCE (SUB GRADE DISTURBANCE) ACTIVITIES ONLY.
4. CONTRACTOR TO VERIFY LOCATION OF EXISTING VALVE. IF PAVED OVER CONTRACTOR TO UNCOVER AND SET TO MATCH FINAL PAVING GRADE.
5. THERE ARE NO KNOWN WETLANDS, RPA BOUNDARIES, CEMETERIES OR HISTORIC SITES LOCATED WITHIN THE PROJECT SITE PER PRINCE WILLIAM COUNTY GIS.
6. SURROUNDING PROPERTY PWC PLAN NUMBERS:
   - 6.1. KIDDIE ACADEMY (PID: 7298-81-0546): CMN2024-00016
   - 6.2. CROSSROADS VILLAGE (PID: 7298-81-2707): CMN2022-00030

5200 Buffington Rd
Atlanta Georgia, 30349-2998

Know what's below. Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's the law.

REVISIONS:

| MARK | DATE | BY |
|---|---|---|
| 1 | 07/07/2025 | GAP |
| | COUNTY COMMENTS | |
| 2 | 9/16/2025 | AG |
| | COUNTY COMMENTS | |

COMMONWEALTH OF VIRGINIA
KATHERINE ROBERTS
Lic. No. 0402060193
PROFESSIONAL ENGINEER
9/16/2025

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROJECT MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
REGULATORY ASSISTANCE
TRANSPORTATION SERVICES

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

STORE
SERIES 08C-R
#3197
15180 WASHINGTON ST
HAYMARKET,
VA, 20169

SHEET TITLE
**DEMOLITION PLAN**

DWG EDITION 02.4

☐ PRELIMINARY
☒ 80% SUBMITTAL
☐ FOR CONSTRUCTION

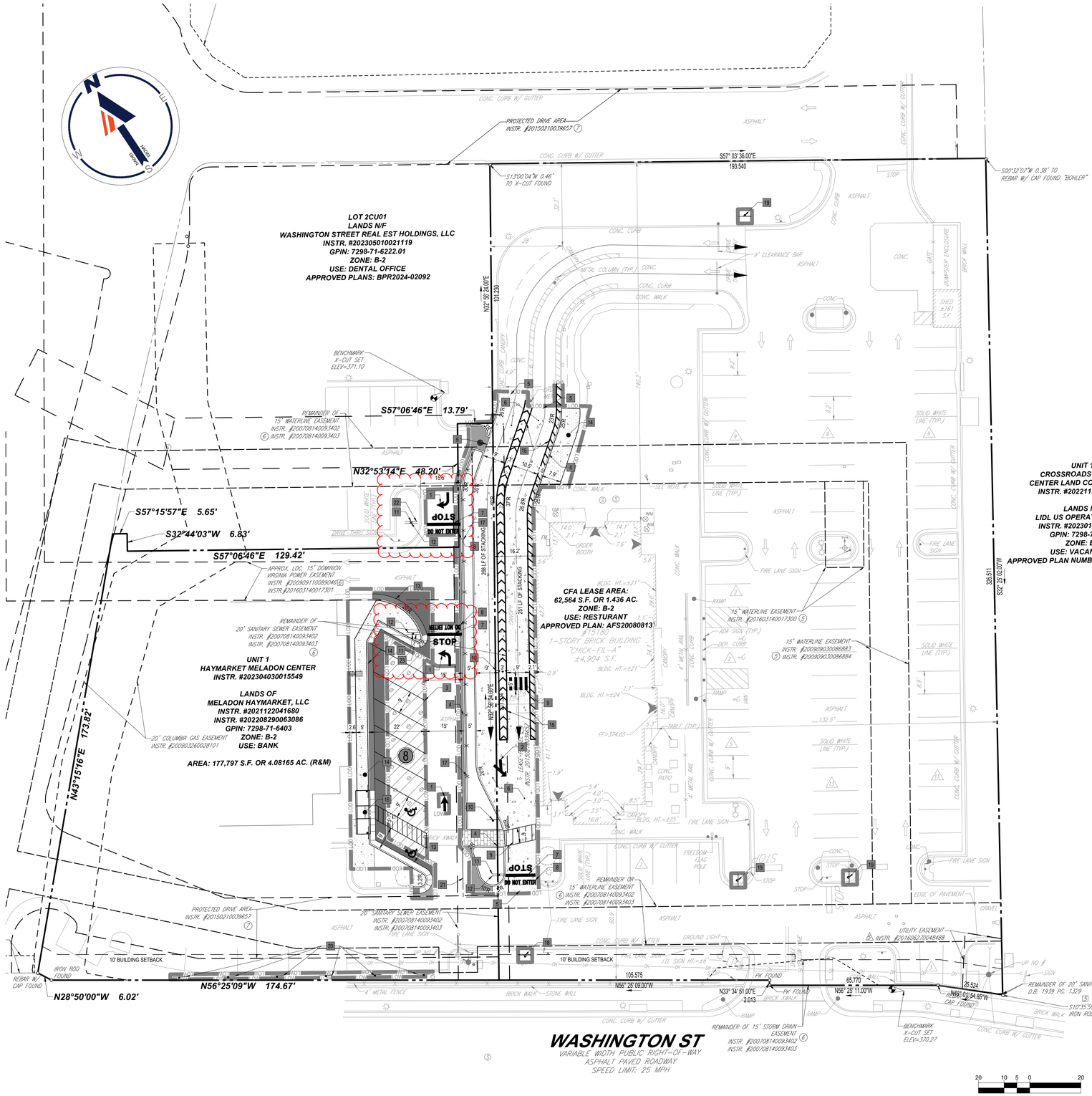
| | |
|---|---|
| JOB NO. | :VAB230141.00 |
| STORE | : #3197 |
| DATE | : 01/31/2024 |
| DRAWN BY | : GAP |
| CHECKED BY | : KBR |
| CAD ID | : SITE -0 |

SHEET
C-1.2

PWCSA PL #SA2024-0052



I:\BOHLERENG.NET\SHARES\VA-PROJECTS\2023\VAB230141.00\CAD\DRAWING\SPLAN SETS\SITE PLAN\VAB230141.00 - SITE - 1.DWG PRINTED BY: AGREENE 9.16.25 @ 1:25 PM LAST SAVED BY: AGREENE

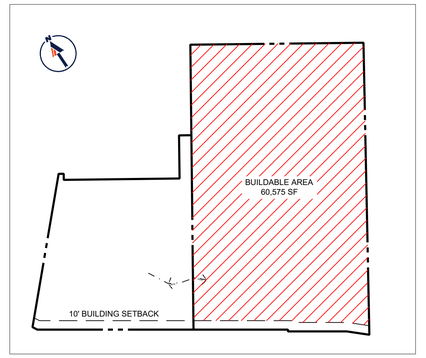



## SITE PLAN DESIGN NOTES & KEY PLAN

1. DIRECTIONAL ARROW (1A C-400)
2. MULTI-LANE DIRECTIONAL ARROW (4 C-400)
3. 4" SOLID WHITE STRIPING
4. HEADER CURB (10 C-401)
5. PAVEMENT EDGE (5 C-402)
6. CONCRETE PAVING DRIVE THRU LANE (3 C-402)
7. STOP BAR GRAPHIC (2B C-400)
8. "DO NOT ENTER" PAVEMENT MARKING
9. CROSSWALK MARKINGS (3 C-400)
10. "PEDESTRIAN CROSSING" SIGN
11. "STOP" SIGN
12. "DO NOT ENTER" SIGN
13. CURB AND GUTTER (8 C-401)
14. CONCRETE SIDEWALK (4 C-401)
15. 4" SOLID DRIVE-THRU STRIPING
16. SIDEWALK ACCESSIBLE RAMP (1 C-401)
17. DECORATIVE FENCE
18. DIRECTIONAL SIGN; REFER TO SIGNAGE PLAN ON SHEET C-3.2
19. DRIVE-THRU SIGN; REFER TO SIGNAGE PLAN ON SHEET C-3.2
20. "BANK PARKING ONLY" SIGN
21. LEASE LINE
22. "RIGHT TURN ONLY" SIGN
23. "LEFT TURN ONLY" SIGN

## BUILDABLE AREA KEY MAP

SCALE: 1" = 80'




## SITE PLAN NOTES

1. CONTRACTOR TO PROVIDE MINIMUM PAVEMENT SECTION (OR MATCH EXISTING WHICHEVER IS GREATER) AND MATCH EXISTING CROSS-SLOPES IF ASPHALT PATCHING IS REQUIRED. SEE PAVEMENT DETAILS.
2. CONTRACTOR SHALL INSTALL NECESSARY TRAFFIC CONTROL, SAFETY BARRICADES, LIGHTING, AND OTHER REQUIRED CONTROL MEASURES TO SECURE THE WORK AREA FROM EXISTING TRAFFIC AND TO ENSURE PUBLIC SAFETY.
3. CONTRACTOR SHALL INSTALL EXPANSION JOINT BETWEEN ALL CONCRETE PAVEMENT INTERFACE WITH BUILDINGS, CURB & GUTTER, AND OTHER CONSTRAINED OBJECTS.
4. CONTRACTOR TO PROVIDE 3' MINIMUM CLEARANCE BETWEEN SIGN AND HYDRANT.
5. AVERAGE DAILY TRIPS (ADT) FOR THE RESTAURANT IS 3,256 VPD.
6. EXISTING PHOTOMETRIC LEVELS ARE NOT IMPACTED WITH THE PROPOSED IMPROVEMENTS.

## HATCH LEGEND

| | |
|---|---|
| PROP CONCRETE PAVEMENT | |
| PROP CONCRETE SIDEWALK | |
| PROP BRICK PAVERS | |
| PROP MILL & OVERLAY | |
| PROP ASHPALT | |

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COMMONWEALTH OF VIRGINIA
KATHERINE ROBERTS
Lic. No. 0402060193
PROFESSIONAL ENGINEER
9/16/2025

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SHEET TITLE
**SITE PLAN**

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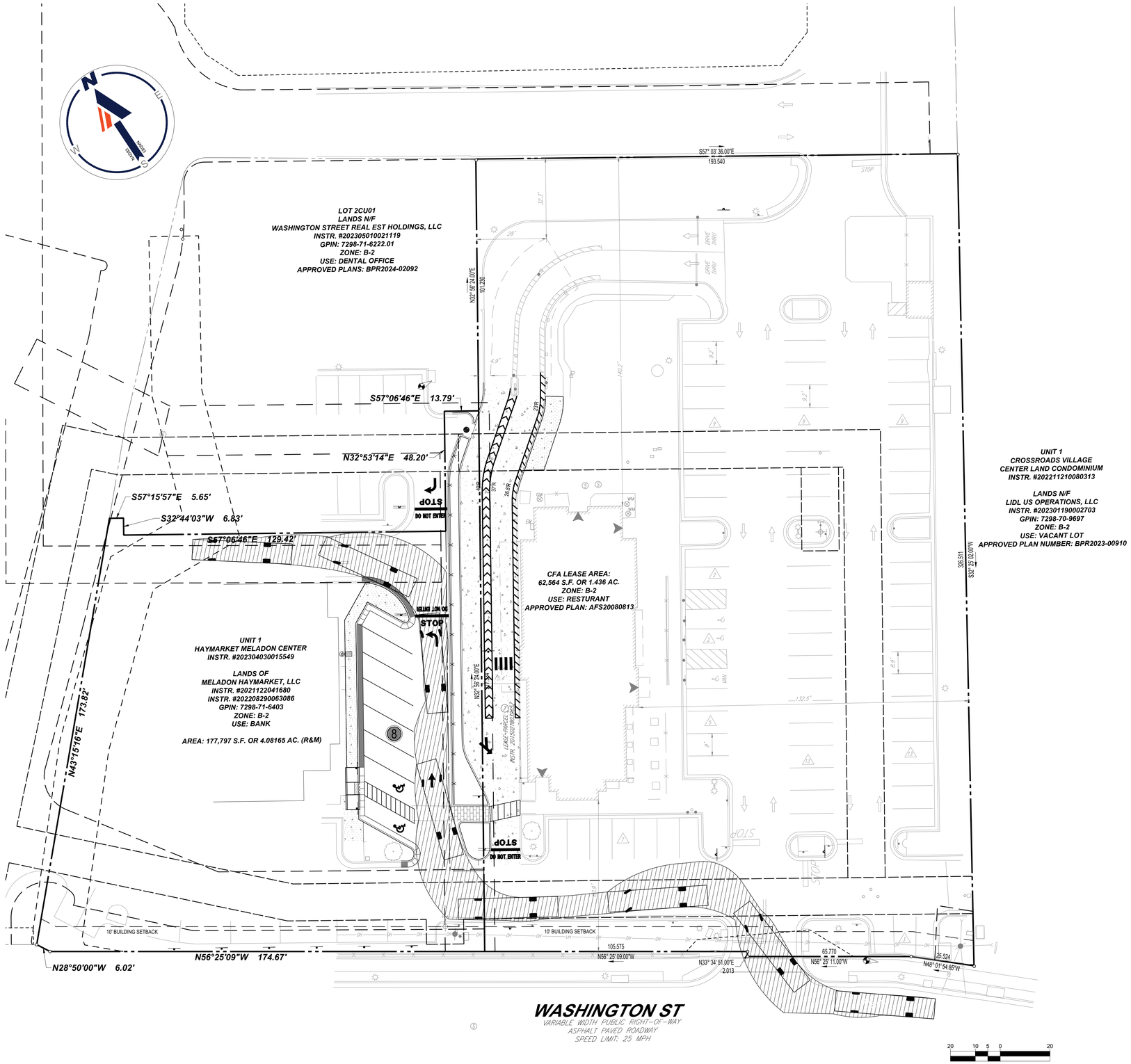
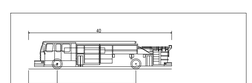



## FIRE ACCESS PLAN NOTES:

1. PER CORRESPONDENCE WITH PRINCE WILLIAM COUNTY FIRE MARSHAL, THE ONE-WAY DRIVE AISLE PROPOSED ADJACENT TO THE BANK IS NOT TO BE USED FOR FIRE ACCESS. TRUCK TURN INCLUDED TO SHOW CLEARANCE FOR A LARGE VEHICLE BASED ON THE SITE LAYOUT.



| 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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**TRUCK TURN PLAN**

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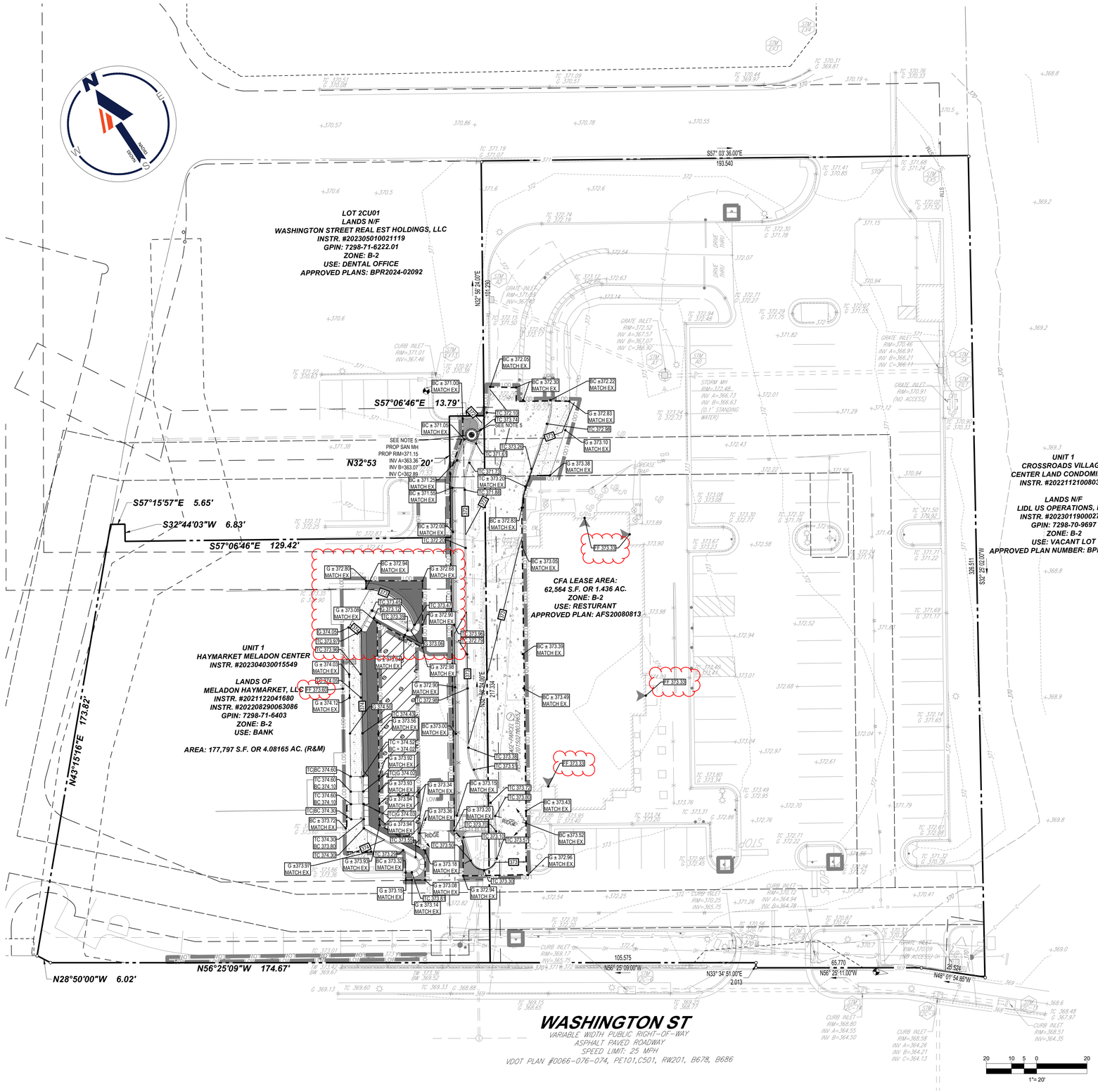


## GRADING PLAN NOTES:

1. EXISTING SITE INFORMATION IS BASED ON ALTA/NSPS LAND TITLE SURVEY ENTITLED, "ALTA/NSPS LAND TITLE SURVEY, CHICK-FIL-A, INC., 15180 WASHINGTON STREET, GAINESVILLE MAGISTERIAL DISTRICT, PRINCE WILLIAM COUNTY, VIRGINIA," PREPARED BY BOHLER ENGINEERING, DATED: 08/10/2023.
2. CONTRACTOR SHALL MATCH FLOWLINE OF EXISTING GRADE AND MATCH EXISTING CROSS-SLOPES IF ASPHALT PATCHING IS REQUIRED.
3. CONTRACTOR SHALL MATCH EXISTING GRADES WHEN TYING PROPOSED FEATURES INTO EXISTING FEATURES.
4. PRIOR TO ANY WORK OR ADJUSTMENT OF THE MANHOLE, THE CONTRACTOR SHALL CONTACT PWCSA FIELD INSPECTOR CHRIS SPENCER AT 571-200-2643.
5. EXISTING SANITARY MANHOLE TO BE VERTICALLY RELOCATED . THE USE OF EXISTING AND PROPOSED ADJUSTMENT RINGS IS LIMITED TO 12 INCHES IN TOTAL RELATIVE TO THE MANHOLE STRUCTURE. THE CONTRACTOR SHALL RECONSTRUCT THE MANHOLE WITH PRECAST MANHOLE SECTIONS IF ADJUSTMENT IS GREATER THAN 12 INCHES; REGARDLESS OF THE USE OR PROPOSED ADJUSTMENT RINGS. CONTRACTOR SHALL OBTAIN INSPECTION BY PRINCE WILLIAM WATER FOR THE MANHOLE ADJUSTMENT.

## ADA CONSTRUCTION NOTES TO CONTRACTOR

1. NO SIDEWALK AND/OR CROSSWALK IS TO EXCEED 2.00% CROSS SLOPE.
2. NO ADA PARKING SPACE IS TO EXCEED 2.00% SLOPE IN ANY DIRECTION.
3. NO ADA CURB RAMP IS TO EXCEED 8.33%.
4. THE CONTRACTOR IS RESPONSIBLE DURING THE FORMING OF SIDEWALKS, RAMPS, CROSSWALKS, AND ADA PARKING TO VERIFY THAT ADA COMPLIANCE IS ACHIEVED. PROPOSED ADA AREA TO BE CONSTRUCTED WITH STRIPING ONLY, AS EXISTING GRADES BELIEVED TO BE ADEQUATE. CONTRACTOR TO CHECK EXISTING CONDITIONS.
5. IF DURING THAT CHECK ANY NON-CONFORMANCE IS DETERMINED, THE ENGINEER IS TO BE IMMEDIATELY NOTIFIED PRIOR TO POURING CONCRETE AND/OR LAYING ASPHALT.

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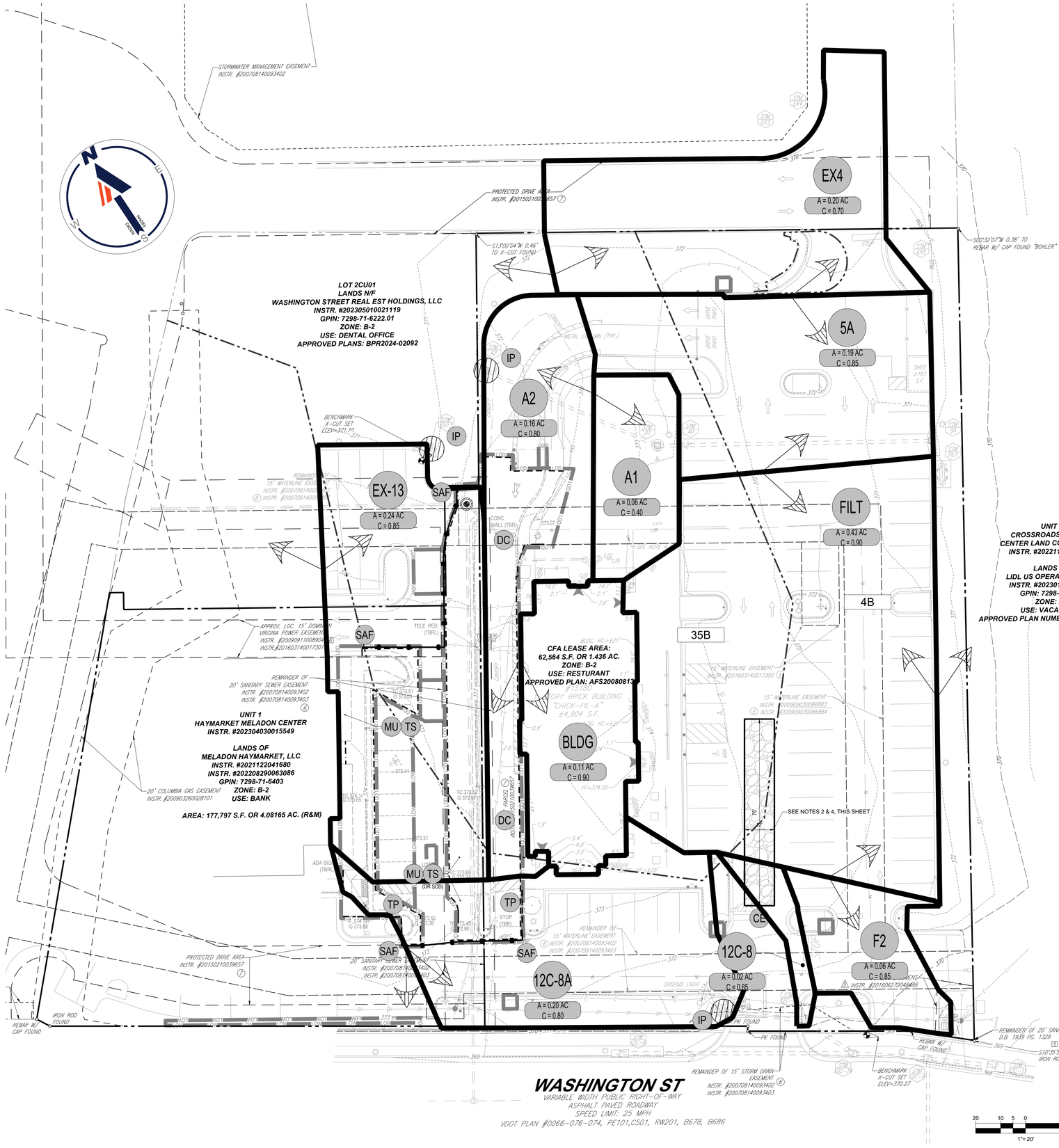


## LEGEND

| | |
|---|---|
| SOIL TYPE | |
| DRAINAGE DIVIDE | |

## SOILS TABLE

| SYMBOL | SOIL NAME | SLOPES |
|---|---|---|
| 4B | ARCOLA SILT LOAM | 2-7% |
| 35B | MANASSAS SILT LOAM | 2-7% |

## PERIMETER CONTROL MEASURES

| | | | |
|---|---|---|---|
| C-PCM-01 | SAFETY FENCE | SAF | |

## SEDIMENT CONTROL MEASURES

| | | | |
|---|---|---|---|
| C-SCM-01 | DUST CONTROL | DC | DC |
| C-SCM-03 | TEMP CONSTRUCTION ENTRANCE | CE | |
| C-SCM-04 | INLET PROTECTION | IP | |

## SURFACE STABILIZATION MEASURES

| | | | |
|---|---|---|---|
| C-SSM-01 | TREE PRESERVATION AND PROTECTION | TP | TP |
| C-SSM-09 | TEMPORARY SEEDING | TS | TS |
| C-SSM-11 | MULCHING | MU | MU |

## EROSION NOTES:

1. CONTRACTOR TO REPAIR AND/OR REPLACE ANY ASPHALT DAMAGED DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL PROVIDE ADEQUATE MEANS OF CLEANING MUD FROM TRUCKS AND/OR OTHER EQUIPMENT PRIOR TO ENTERING THE PUBLIC RIGHT-OF-WAY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CLEAR THE STREETS AND TAKE WHATEVER MEASURES NECESSARY TO ENSURE THAT THE STREETS ARE MAINTAINED IN A CLEAN AND DUST-FREE CONDITION AT ALL TIMES.
3. IF OFFSITE BORROW AND HAUL REQUIRED, IT MUST BE FROM AN APPROVED SOURCE.
4. GC TO USE EXISTING ASPHALT ENTRANCE IN LIEU OF TRADITIONAL CONSTRUCTION ENTRANCE.

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SHEET TITLE
**EROSION AND SEDIMENT CONTROL PLAN PHASE I**

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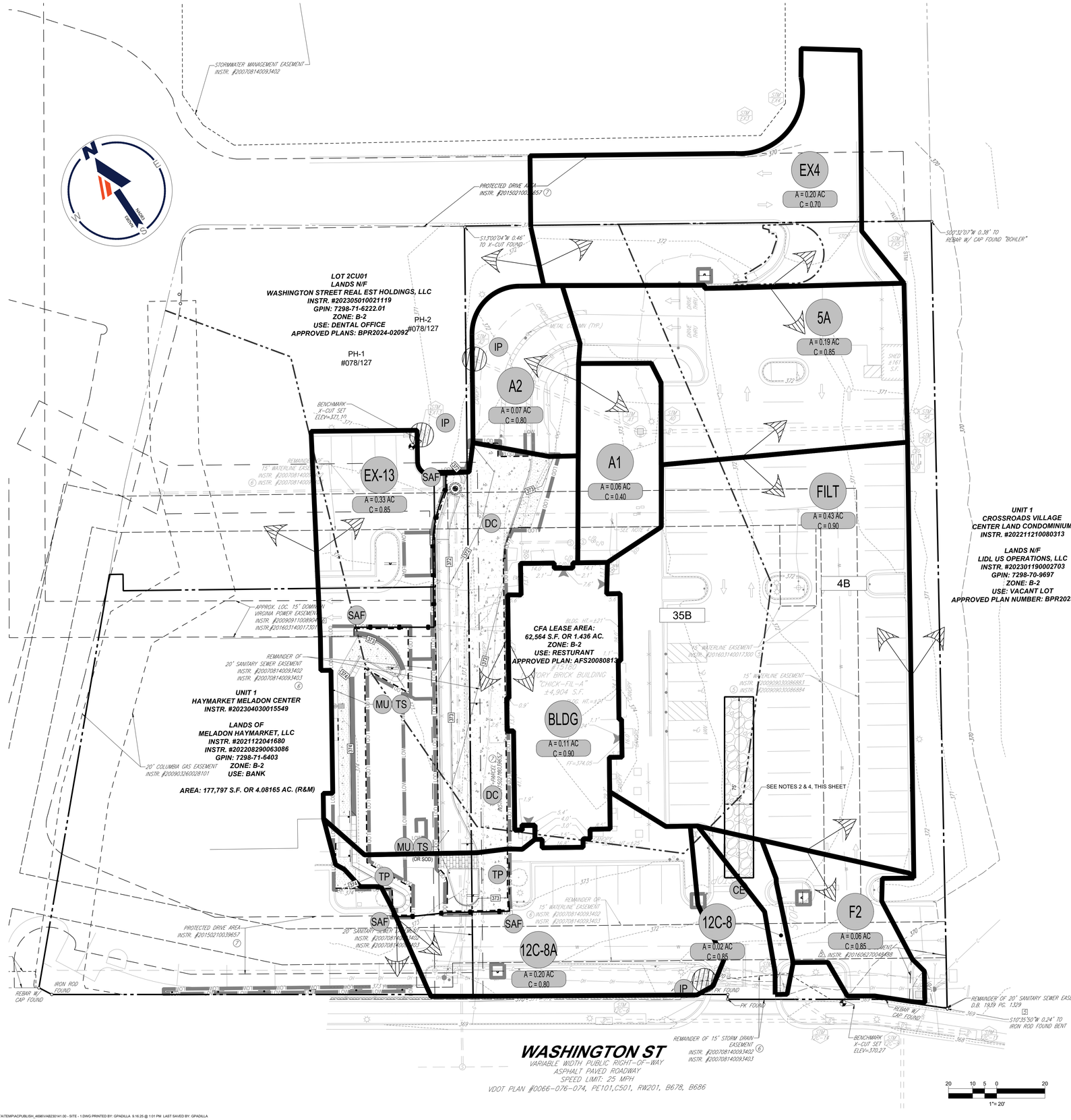


## LEGEND

| | |
|---|---|
| SOIL TYPE | |
| DRAINAGE DIVIDE | |

## PERIMETER CONTROL MEASURES

| | | | |
|---|---|---|---|
| C-PCM-01 | SAFETY FENCE | SAF | |

## SEDIMENT CONTROL MEASURES

| | | | |
|---|---|---|---|
| C-SCM-01 | DUST CONTROL | DC | DC |
| C-SCM-03 | TEMP CONSTRUCTION ENTRANCE | CE | |
| C-SCM-04 | INLET PROTECTION | IP | |

## SURFACE STABILIZATION MEASURES

| | | | |
|---|---|---|---|
| C-SSM-01 | TREE PRESERVATION AND PROTECTION | TP | TP |
| C-SSM-10 | PERMANENT SEEDING | PS | PS |
| C-SSM-11 | MULCHING | MU | MU |

## EROSION NOTES:

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3. IF OFFSITE BORROW AND HAUL REQUIRED, IT MUST BE FROM AN APPROVED SOURCE.
4. GC TO USE EXISTING ASPHALT ENTRANCE IN LIEU OF TRADITIONAL CONSTRUCTION ENTRANCE.

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**EROSION AND SEDIMENT CONTROL PLAN PHASE II**

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PWCSA PL #SA2024-0052

# EROSION AND SEDIMENT CONTROL NARRATIVE

I. PROJECT DESCRIPTION:
THE SUBJECT SITE CONTAINS AN EXISTING FAST FOOD RESTAURANT ALONG WASHINGTON STREET. THE PROPOSED DEVELOPMENT INVOLVES CONSTRUCTION OF AN ADDITIONAL DRIVE-THRU LANE AT THE PICK UP WINDOW AND ALTERATIONS TO THE ADJACENT BANK'S PARKING. DEMOLITION WILL INCLUDE EXISTING CURB, PAVEMENT, AND CONCRETE WITHIN THE LIMITS OF DISTURBANCE AS DEPICTED ON THE EXISTING CONDITIONS/DEMOLITION PLAN. THE REDEVELOPMENT INCLUDES THE CONSTRUCTION OF PROPOSED CURB, LANDSCAPING, AND ASSOCIATED SITE IMPROVEMENTS AS SHOWN ON THE SITE PLAN SET. THE AREA OF DISTURBANCE FOR THIS PROJECT IS APPROXIMATELY 0.20 ACRES.

II. EXISTING SITE CONDITIONS:
THE SITE PARCEL IS IDENTIFIED AS TAX MAP PARCEL 7298-71-6403. A RESTAURANT CURRENTLY EXISTS ON THE RIGHT HAND SIDE OF THE PARCEL, AND A BANK IS ON THE LEFT HAND SIDE. A LEASE LINES EXISTS DOWN THE MIDDLE OF THE SITE, DELINEATING THE CHICK-FIL-A LEASE AREA. DRAINAGE FLOWS AWAY FROM THE BUILDING INTO AN EXISTING STORMWATER CONVEYANCE SYSTEM. PART OF THE SITE DRAINS TO THE NORTH AND THE OTHER PORTION DRAINS TO THE SOUTH.

III. ADJACENT PROPERTIES:
THE SITE IS BORDERED ON THE NORTH BY A DENTIST OFFICE, TO THE EAST BY A VACANT PROPERTY, TO THE SOUTH BY WASHINGTON STREET, AND TO THE WEST A BANK.

IIJ. OFFSITE AREAS:
OFF-SITE LAND DISTURBANCE IS NOT ANTICIPATED. IF UNSUITABLE SOILS ARE ENCOUNTERED DURING CONSTRUCTION, IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE PROPER METHOD OF DISPOSAL AND SUBMIT ANY NECESSARY PLANS TO THE TOWN OF HAYMARKET. FURTHERMORE, IF ANY OFFSITE BORROW OR WASTE AREAS ARE NECESSARY, THE CONTRACTOR WILL BE RESPONSIBLE FOR THE FINAL STABILIZATION AND MAINTENANCE OF THOSE OFFSITE AREAS. NO ON-SITE STOCKPILE IS AN ANTICIPATED TO BE REQUIRED FOR CONSTRUCTION.

V. SOILS:
NO MARINE CLAYS OR OTHER PROBLEM SOILS ARE KNOWN TO EXIST ON THIS SITE. PER THE PRINCE WILLIAM COUNTY SOILS MAPS.

W. CRITICAL EROSION AREAS:
NO CRITICAL EROSION AREAS ARE KNOWN TO EXIST ON-SITE.

VII. EROSION AND SEDIMENT CONTROL MEASURES:
ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PROTECTION SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA STORMWATER MANAGEMENT HANDBOOK (VSMH). THE MINIMUM STANDARDS OF VESCH SHALL BE ADHERED TO UNLESS OTHERWISE WAIVED OR APPROVED BY A VARIANCE. SPECIFIC EROSION AND SEDIMENT CONTROL MEASURES UTILIZED IN THIS PROJECT INCLUDE THE FOLLOWING:

1. TREE PRESERVATION AND PROTECTION C-SSM-01
   PROTECTING EXISTING TREES AND THEIR ROOT ZONES FROM MECHANICAL AND OTHER INJURY DURING LAND-DISTURBING AND CONSTRUCTION ACTIVITY TO ENSURE THE SURVIVAL OF TREES WHERE THEY WILL BE EFFECTIVE FOR EROSION AND SEDIMENT CONTROL AND PROVIDE OTHER ENVIRONMENTAL AND AESTHETIC BENEFITS.
2. TEMPORARY SEEDING C-SSM-09
   ESTABLISHMENT OF TEMPORARY VEGETATIVE COVER ON DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR PERIODS OF 14 DAYS TO ONE YEAR BY SEEDING WITH APPROPRIATE RAPIDLY GROWING PLANTS.
3. PERMANENT SEEDING C-SSM-10
   ESTABLISHMENT OF PERENNIAL VEGETATIVE COVER BY PLANTING SEED ON ROUGH-GRADED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR A YEAR OR MORE OR WHERE PERMANENT, LONG- LIVED VEGETATIVE COVER IS NEEDED ON FINE-GRADED AREAS.
4. MULCHING C-SSM-11
   APPLICATION OF PLANT RESIDUES OR OTHER SUITABLE MATERIALS TO DISTURBED SURFACES TO PREVENT EROSION AND REDUCE OVERLAND FLOW VELOCITIES. FOSTERS PLANT GROWTH BY INCREASING AVAILABLE MOISTURE AND PROVIDING INSULATION AGAINST EXTREME HEAT OR COLD. SHOULD BE APPLIED TO ALL SEEDING OPERATIONS, OTHER PLANT MATERIALS WHICH DO NOT PROVIDE ADEQUATE SOIL PROTECTION BY THEMSELVES, AND BARE AREAS WHICH CANNOT BE SEEDED DUE TO THE SEASON, BUT WHICH STILL NEED PROTECTION TO PREVENT SOIL LOSS.
5. DUST CONTROL C-SCM-01
   REDUCING SURFACE AND AIR MOVEMENT OF DUST DURING LAND DISTURBANCE, DEMOLITION, OR CONSTRUCTION ACTIVITIES IN AREAS SUBJECT TO DUST PROBLEMS IN ORDER TO PREVENT SOIL LOSS AND REDUCE THE PRESENCE OF POTENTIALLY HARMFUL AIRBORNE SUBSTANCES
6. TEMPORARY STONE CONSTRUCTION ENTRANCE C-SCM-03
   A STONE PAD, LOCATED AT POINTS OF VEHICULAR INGRESS AND EGRESS ON A CONSTRUCTION SITE, TO REDUCE THE SOIL TRANSPORTED ONTO PUBLIC ROADS AND OTHER PAVED AREAS.
7. STORM DRAIN INLET PROTECTION C-SCM-04
   THE INSTALLATION OF VARIOUS KINDS OF SEDIMENT TRAPPING MEASURES AROUND DROP INLETS OR CURB INLET STRUCTURES PRIOR TO PERMANENT STABILIZATION OF THE DISTURBED AREA. NOT INTENDED TO CONTROL LARGE, CONCENTRATED FLOWS.
8. SAFETY FENCE C-PCM-01
   A PROTECTIVE BARRIER INSTALLED TO PROHIBIT UNDESIRABLE USE OF AN EROSION CONTROL MEASURE.

VIII. MANAGEMENT PROGRAM:

40. SILT FENCE SHALL BE INSPECTED AT THE END OF EACH DAY AND AFTER EACH RAINFALL. ANY REQUIRED REPAIRS OR REPLACEMENTS SHALL BE DONE IMMEDIATELY. SEDIMENT DEPOSITS SHALL BE REMOVED BY HAND AFTER EACH RAINFALL AND AT ANY TIME DEPOSITS REACH HALF THE HEIGHT OF THE BARRIER.
41. INLET PROTECTIONS SHALL BE INSPECTED AT THE END OF EACH DAY AND AFTER EACH RAINFALL. ANY REQUIRED REPAIRS SHALL BE DONE IMMEDIATELY.
42. ALL SEEDED AREAS SHALL BE CHECKED WEEKLY TO ENSURE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED AND RESEEDED AS NEEDED.
43. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN (7) DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN (7) DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR MORE THAN 30 DAYS.
44. NO UNPROTECTED, UNDISTURBED AREA SHALL DRAIN TO ROADWAY PAVEMENTS SUCH THAT THE SUBBASE, BASE OR WEARING SURFACES ARE CONTAMINATED BY SILT TRAPPED AT LOW POINTS OR INLETS.
45. ADJACENT ROADWAYS AND ENTRANCES WILL BE KEPT CLEAN FROM ACCUMULATED DEBRIS AT ALL TIMES.

IX. PERMANENT STABILIZATION:
TEMPORARY AND FINAL SEEDING WILL BE PROVIDED IN ACCORDANCE TO VESCH REQUIREMENTS THROUGHOUT CONSTRUCTION AS STATED ABOVE.

X. STORMWATER RUNOFF CONSIDERATIONS:CALCULATIONS:
1. SEE STORMWATER MANAGEMENT CALCULATIONS IN THIS SET.

A. GENERAL LAND CONSERVATION NOTES:

1. NO DISTURBED AREA WHICH IS NOT ACTIVELY BEING WORKED SHALL REMAIN DENUDED FOR MORE THAN 14 CALENDAR DAYS UNLESS OTHERWISE AUTHORIZED BY THE DIRECTOR.
2. ALL E&S CONTROL MEASURES APPROVED WITH THE PHASE ONE E&S CONTROL PLAN SHALL BE PLACED AS THE FIRST STEP IN GRADING.
3. ALL STORM AND SANITARY SEWER LINES NOT IN STREETS SHALL BE SEEDED AND MULCHED WITHIN 14 DAYS AFTER BACKFILL. NO MORE THAN 500 FEET SHALL BE OPEN AT ANY ONE TIME.
4. ELECTRIC POWER, TELEPHONE AND GAS SUPPLY TRENCHES SHALL BE COMPACTED, SEEDED AND MULCHED WITHIN 14 DAYS AFTER BACKFILL.
5. ALL TEMPORARY EARTH BERMS, DIVERSIONS AND SEDIMENT CONTROL DAMS SHALL BE SEEDED AND MULCHED FOR TEMPORARY VEGETATIVE COVER IMMEDIATELY (AS SOON AS POSSIBLE BUT NO LATER THAN 48 HOURS) AFTER COMPLETION OF GRADING. STRAW OR HAY MULCH IS REQUIRED. ALL SOIL STOCKPILES SHALL BE SEEDED AND MULCHED WITHIN 14 DAYS AFTER GRADING.
6. DURING CONSTRUCTION, ALL STORM SEWER INLETS SHALL BE PROTECTED BY SEDIMENT TRAPS, MAINTAINED AND MODIFIED DURING CONSTRUCTION PROGRESS AS REQUIRED.
7. ANY DISTURBED AREA NOT PAVED, SODDED OR BUILT UPON BY NOV. 1, OR DISTURBED AFTER THAT DATE, SHALL BE MULCHED IMMEDIATELY WITH HAY OR STRAW MULCH AT THE RATE OF 2 TONS/ACRE AND OVER-SEEDED BY APRIL 15.
8. AT THE COMPLETION OF ANY PROJECT CONSTRUCTION AND PRIOR TO BOND RELEASE, ALL TEMPORARY SEDIMENT CONTROLS SHALL BE REMOVED AND ALL DENUDED AREAS SHALL BE STABILIZED.

XIII. OTHER IMPORTANT NOTES:

1. ALL AREAS TO BE PAVED MAY BE STABILIZED BY INSTALLATION OF BASE AND SUBBASE MATERIALS INSTEAD OF TEMPORARY VEGETATION COVER.
2. THE CONTRACTOR SHALL PROVIDE ADEQUATE MEANS OF CLEANING MUD FROM TRUCKS AND/OR OTHER EQUIPMENT PRIOR TO ENTERING THE PUBLIC RIGHT-OF-WAY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CLEAR THE STREETS AND TAKE WHATEVER MEASURES NECESSARY TO ENSURE THAT THE STREETS ARE MAINTAINED IN A CLEAN AND DUST-FREE CONDITION AT ALL TIMES.
3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM THE WORK IN SUCH A MANNER AS TO PREVENT THE WASHING OF ANY TOPSOIL OR DEBRIS INTO ADJACENT PROPERTIES.
4. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO HAVE AND MAINTAIN A WATER TRUCK ON SITE AT ALL TIMES FOR THE PURPOSE OF WASHING CONSTRUCTION VEHICLES AT THE STONE CONSTRUCTION ENTRANCE PRIOR TO THEIR ENTERING THE RIGHT-OF-WAY. SEDIMENT LADEN RUNOFF SHALL BE DIRECTED AWAY FROM THE RIGHT-OF-WAY AND TOWARDS AN EROSION AND SEDIMENT CONTROL DEVICE PRIOR TO DISCHARGE INTO THE PUBLIC STORM SYSTEM.
5. BORROW OR HAUL (IF REQUIRED) SHALL BE FROM AN APPROVED OFFSITE LOCATION. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL RELATED PERMITS.
6. IF GROUNDWATER IS ENCOUNTERED DURING CONSTRUCTION, GROUNDWATER AND SOIL SHALL BE DISPOSED OF IN A MANNER WHICH DOES NOT SPILL ONTO EXISTING PAVEMENT AND CLOG EXISTING INLETS.
7. SOIL STOCKPILE IS NOT ANTICIPATED FOR THIS PROJECT. EXCESS SOIL WILL BE HAULED FROM THE SITE.

# EROSION AND SEDIMENT CONTROL MINIMUM STANDARDS

MS-1: STABILIZATION - PERMANENT OR TEMPORARY SOIL STABILIZATION WILL BE APPLIED TO DENUDED (BARE SOIL) AREAS WITHIN 7 DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION WILL BE APPLIED WITHIN 7 DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 14 DAYS. PERMANENT STABILIZATION WILL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN 1 YEAR. IF FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE, VEGETATION MUST BE ESTABLISHED TO PREVENT EROSION. BECAUSE SIMPLY MULCHING CAN REDUCE EROSION POTENTIAL BY MORE THAN 90%, TEMPORARY SEEDING MUST BE APPLIED IF ANY PORTION OF THE SITE WILL REMAIN DORMANT FOR MORE THAN 14 DAYS.

MS-2: STOCKPILES, WASTE AND BORROW AREAS - DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES AND BORROW AREAS WILL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ONSITE AS WELL AS BORROW AREAS AND SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE. LOCATIONS OF STOCKPILES AND BORROW PITS SHOULD BE IDENTIFIED ON SITE PLANS, AND STOCKPILES SHOULD HAVE PERIMETER EROSION AND SEDIMENT CONTROL MEASURES INSTALLED AS WELL AS LOCATED WITH ENOUGH SETBACK FROM SURFACE WATERS, DRAINAGEWAYS, STORM DRAINS, WATERWAYS, AND ENTRANCES/EXITS. SLOPES SHOULD NOT EXCEED 2:1 (HORIZONTAL:VERTICAL) PER MS-1, APPLY TEMPORARY SOIL STABILIZATION (I.E., MULCH, MATTING OR ANNUAL VEGETATION) TO A STOCKPILE WITHIN 7 DAYS IF IT WILL REMAIN DORMANT FOR MORE THAN 14 DAYS. IF THE STOCKPILE WILL REMAIN ONSITE FOR MORE THAN 1 YEAR, STABILIZE IT USING PERMANENT STABILIZATION (I.E., PERMANENT SEEDING MIXES, LANDSCAPING, ETC.). THIS MAY ALSO INCLUDE THE USE OF SILT FENCE AS A PERIMETER CONTROL. PURPOSE: MULCH PREVENTS EROSION BY PROTECTING THE SURFACE FROM RAINDROP IMPACT, AND SILT FENCE INTERCEPTS AND DETAINS SEDIMENT FROM DISTURBED AREAS.

MS-3: PERMANENT VEGETATION - A PERMANENT VEGETATIVE COVER WILL BE ESTABLISHED ON DENUDED AREAS THAT ARE NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION WILL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT IS UNIFORM, MATURE ENOUGH TO SURVIVE, AND WILL INHIBIT EROSION EQUIVALENT TO PREPARER AND VESCP AUTHORITY REQUIREMENTS TO CONSIDER THE SITE STABILIZED. VESCP AUTHORITIES SHOULD VERIFY COMPLIANCE WITH MS-3 BEFORE RELEASING A SITE'S BONDS OR SURETY. PURPOSE: REDUCE EROSION AND DECREASE SEDIMENT YIELD FROM DISTURBED AREAS.

MS-4: FIRST-STEP MEASURES - SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS, AND OTHER MEASURES INTENDED TO TRAP SEDIMENT WILL BE CONSTRUCTED AS A FIRST STEP IN ANY LDA AND WILL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE. THIS MS IS MEANT TO ENSURE THAT SEDIMENT DOES NOT LEAVE THE PERIMETER OF THE LDA ONCE SITE CLEARING, GRADING, AND CONSTRUCTION COMMENCES. A CERTAIN AMOUNT OF INITIAL LAND DISTURBANCE MAY BE REQUIRED TO PROVIDE ACCESS FOR EQUIPMENT TO INSTALL THE PERIMETER CONTROLS, BUT SITE CLEARING AND GRADING SHOULD BE KEPT TO A MINIMUM UNTIL THE PERIMETER CONTROLS ARE IN PLACE. PURPOSE: PERIMETER CONTROLS ARE INTENDED TO PREVENT SEDIMENT FROM DISTURBED AREAS DURING CONSTRUCTION TO PREVENT SEDIMENT FROM LEAVING THE SITE AND DECREASE VELOCITY OF SHEET FLOWS AND LOW-TO-MODERATE LEVEL CHANNEL FLOW.

MS-5: EARTHEN STRUCTURE STABILIZATION - STABILIZATION MEASURES WILL BE APPLIED TO EARTHEN STRUCTURES, SUCH AS DAMS, DIKES, CHANNELS, AND DIVERSIONS, IMMEDIATELY AFTER INSTALLATION IN THIS CASE. IMMEDIATE STABILIZATION IS REQUIRED SO THAT THE EARTHEN EROSION AND SEDIMENT CONTROL STRUCTURES THAT WERE INSTALLED DO NOT BECOME A LARGE SOURCE OF SEDIMENT THEMSELVES. IF SEDIMENT EARTHEN STRUCTURES ARE INTENDED TO IMPOUND, CONVEY, OR DIVERT WATER, IMMEDIATE STABILIZATION IS NEEDED TO PREVENT DAMAGE OR FAILURE OF THE STRUCTURE. PURPOSE: REDUCE EROSION AND SEDIMENTATION AND REDUCE DAMAGE FROM SEDIMENT AND RUNOFF TO DOWNSTREAM OR OFFSITE AREAS.

MS-6: TRAPS AND BASINS - SEDIMENT TRAPS AND SEDIMENT BASINS WILL BE DESIGNED AND CONSTRUCTED BASED ON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN. SEDIMENT TRAPS SHOULD BE NOT USED FOR MORE THAN 18 MONTHS UNLESS THEY ARE DESIGNED AS A PERMANENT IMPOUNDMENT. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT TRAP WILL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA (134 CUBIC YARDS PER ACRE IS EQUIVALENT TO 1 INCH OF RUNOFF), AND THE TRAP WILL PROVIDE CONTROL DRAINAGE AREAS LESS THAN 3 ACRES. PROVIDE A COMBINATION OF MAN-MADE STORMWATER CONVEYANCE IMPROVEMENT, STORMWATER DETENTION, OR OTHER MEASURES THAT IS SATISFACTORY TO THE VESMP OR VESCP AUTHORITY. SURFACE RUNOFF FROM DISTURBED AREAS THAT IS COMPUTED USING METHOD 2 IN ACCORDANCE WITH 9VAC25-870-66 OF THE VSMP REGULATIONS WILL BE CONTROLLED BY A SEDIMENT BASIN. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT BASIN WILL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA. TEMPORARY SEDIMENT BASINS SHOULD BE DESIGNED AND CONSTRUCTED BASED ON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE SEDIMENT BASIN. THE MAXIMUM TOTAL DRAINAGE AREA TO BE SERVED BY A TEMPORARY SEDIMENT BASIN SHOULD BE 100 ACRES. THE HYDROLOGIC OUTFALL SYSTEM WILL AT A MINIMUM, MAINTAIN THE STRUCTURAL INTEGRITY DURING A 25-YEAR STORM OF 24-HOUR DURATION. THE RUNOFF COEFFICIENTS USED IN RUNOFF CALCULATIONS WILL CORRESPOND TO A BARE EARTH CONDITION OR THOSE CONDITIONS EXPECTED TO EXIST WHILE THE SEDIMENT BASIN IS USED. THE MINIMUM SEDIMENT BASIN VOLUME FOR A TEMPORARY SEDIMENT TRAP SHOULD BE 134 CUBIC YARDS PER ACRE OF TOTAL DRAINAGE AREA, HALF OF WHICH SHOULD BE IN THE FORM OF A PERMANENT POOL OR WET STORAGE TO PROVIDE A STABLE SETTLING MEDIUM. THE REMAINING HALF SHOULD BE IN THE FORM OF A DRAWDOWN OR DRY STORAGE TO PROVIDE EXTENDED SETTLING TIME DURING LESS FREQUENT, LARGER STORM EVENTS. CONCENTRATED STORMWATER FLOW FROM A TEMPORARY SEDIMENT BASIN SHOULD BE RELEASED INTO AN ADEQUATE STORMWATER CONVEYANCE SYSTEM. DEMONSTRATE THAT THE TOTAL DRAINAGE AREA AT THE POINT OF DISCHARGE WITHIN THE STORMWATER CONVEYANCE SYSTEM IS AT LEAST 100 TIMES GREATER THAN THE DRAINAGE AREA SERVED BY THE TEMPORARY SEDIMENT BASIN IN QUESTION.

MS-7: CUT AND FILL SLOPES - CUT AND FILL SLOPES WILL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN 1 YEAR OF PERMANENT STABILIZATION WILL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZING MEASURES UNTIL THE PROBLEM IS CORRECTED. CUT AND FILL SLOPES ARE SUSCEPTIBLE TO EROSION DUE TO INCREASED RUNOFF FLOW VELOCITY, SO THEY MUST BE CONSTRUCTED IN THE BEST WAY POSSIBLE TO REDUCE THE POTENTIAL FOR EROSION. EROSION BY WILL RENDA SLOPE'S LENGTH AND GRADE. PLANS MUST CLEARLY SHOW SLOPE LENGTH AND GRADE. IT IS IMPORTANT THAT SLOPES ARE PROPERLY SEEDED AND MULCHED TO ESTABLISH PERMANENT VEGETATION SO EROSION BY CONCENTRATED FLOW DOES NOT OCCUR. ROUGHENING OF THE SURFACE ALONG THE CONTOUR CAN ALSO HELP TO ENSURE THAT THE VELOCITY OF FLOW AND INCREASE IN RUNOFF IS SLOWED DOWN, WHICH LEADS TO BETTER SEED GERMINATION. THIS PRACTICE SHOULD GENERALLY BE IMPLEMENTED UNLESS THE SLOPE WILL REQUIRE A HIGH DEGREE OF MAINTENANCE MOWING AFTER VEGETATIVE ESTABLISHMENT.

MS-8: CONCENTRATED RUNOFF - CONCENTRATED RUNOFF WILL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME, OR SLOPE DRAIN STRUCTURE. CONCENTRATED RUNOFF FLOWING DOWN A CUT OR FILL SLOPE WILL CAUSE EROSION. THEREFORE, CONCENTRATED FLOW MUST BE CONTROLLED AT THE OUTLET AND DOWN THE SLOPE THROUGH A TEMPORARY OR PERMANENT CHANNEL, FLUME, OR SLOPE DRAIN. THE ENDS OF TEMPORARY STRUCTURES WILL BE PROTECTED FROM EROSION BY HIGH VELOCITY FLOWS. CHECK DAMS IN STORMWATER CONVEYANCES ON CUT/FILL SLOPES SHOULD BE USED AT THE TOP AND BOTTOM OF THE SLOPE AND AS NEEDED ALONG THE LENGTH OF THE CHANNEL.

MS-9: WATER SEEPS - WHEN WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION WILL BE PROVIDED. CUT AND FILL OPERATIONS MAY EXPOSE SHALLOW AQUIFERS, PERCHED AQUIFERS, OR GROUNDWATER TABLES FROM WHICH WATER MAY SEEP THROUGH THE SIDE OF A SLOPE. THE WATER SEEPS CAN CAUSE SLOPES TO ERODE, OR SLOUGH. IT IS IMPORTANT THE SOILS WEIGHT INTERCEPTOR DRAINS SHOULD BE USED TO COLLECT AND SAFELY CONVEY GROUNDWATER AWAY FROM UNSTABLE SLOPES. RIPRAP REVETMENTS OR RETAINING WALL MAY BE USED ON STEEPER SLOPES. THESE AREAS SHOULD BE CLEARLY SHOWN ON THE PLANS AND THE SWPPP.

MS-10: INLET PROTECTION - ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION WILL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT. STORM INLETS WHICH HAVE BEEN DESIGNED TO EFFICIENTLY TRANSPORT STORMWATER. WHEN SEDIMENTS ENTER THE STORM SEWERS. THE FOLLOWING COULD OCCUR.

- WHEN THE VELOCITY OF FLOW IS HIGH, MUCH OF THE SEDIMENT WILL BE QUICKLY TRANSPORTED TO THE NEAREST RECEIVING CHANNEL OR
- WHEN THE VELOCITY OF FLOW IS LOW, THE SEDIMENT WILL DEPOSIT IN THE PIPES, RESULTING IN CLOGGING AND THE POTENTIAL FLOODING OF A SITE DURING STORM EVENTS.

EITHER OF THESE SCENARIOS CAN CAUSE DETRIMENTAL IMPACTS TO RECEIVING CHANNELS AND AREAS TRIBUTARY TO THE CHANNELS. PROPER INLET PROTECTION SHOULD BE PLACED AND MAINTAINED DURING ALL LDAS. INLET PROTECTION MAY BE THE OUTFALL FOR THE SITE, AND ADDITIONAL SEDIMENT TRAPPING MEASURES MAY BE NEEDED. INLET PROTECTION CAN BE PROVIDED IN SEVERAL DIFFERENT CONFIGURATIONS. THESE SHOULD BE CLEARLY SHOWN ON THE PLANS AND DESCRIBED IN THE SWPPP.

MS-11: OUTLET PROTECTION - BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS OR PIPES ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING WILL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL. OUTLET PROTECTION AND CHANNEL LINING IS A COMPONENT OF MS-5 AS WELL. THESE SHOULD BE CLEARLY SHOWN ON THE PLANS AND DESCRIBED IN THE SWPPP. OUTLET PROTECTION PROVIDES ENERGY DISSIPATION OF THE CONCENTRATED DISCHARGE FROM A PIPE OR CHANNEL TO PREVENT EROSION AND PROVIDE A STABLE TRANSITION. TEMPORARY OR PERMANENT CHANNEL LINING HELPS TO ENSURE THAT THE CHANNEL ITSELF WILL NOT ERODE ONCE WATER IS FLOWING THROUGH IT.

MS-12: WATERCOURSE CONSTRUCTION - WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS WILL BE TAKEN TO MINIMIZE ENCROACHMENT, CONTROL SEDIMENT TRANSPORT, AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. NON-ERODIBLE MATERIAL WILL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF THEY ARE ARMORED BY NON-ERODIBLE COVER MATERIALS. CHECK DAMS, SILT FENCE, AND OTHER PERIMETER CONTROLS SHOULD NOT BE PLACED ACROSS A LIVE WATERCOURSE. ENSURE THAT PROPER PERMITS (SEE MS-14) ARE INCLUDED IN THE SWPPP.

MS-13: TEMPORARY VEHICULAR STREAM CROSSING - WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ANY 6-MONTH PERIOD, A TEMPORARY VEHICULAR STREAM CROSSING CONSTRUCTED OF NON-ERODIBLE MATERIAL WILL BE PROVIDED. WHEN TWO DIFFERENT CONSTRUCTION VEHICLES CROSS A STREAM, ONE RIGHT AFTER THE OTHER, THE STREAM HAS NOW BEEN CROSSED TWICE AND CAN NO LONGER BE CROSSED WITHIN THE NEXT 6 MONTHS WITHOUT VIOLATING THIS MINIMUM STANDARD. THIS MINIMUM STANDARD ALLOWS ONE CONSTRUCTION VEHICLE TO CROSS A STREAM, THEN RETURN WITHIN ANY 6-MONTH PERIOD WITHOUT FURTHER TREATMENT; OTHERWISE, A TEMPORARY STREAM CROSSING MUST BE CONSTRUCTED. TEMPORARY VEHICLE CROSSINGS NEED TO BE PROPERLY PERMITTED PER MS-14. TEMPORARY CULVERTS NEED TO BE PROPERLY SIZED PER MS-19. PURPOSE: PROVIDE A MEANS FOR CONSTRUCTION TRAFFIC TO CROSS FLOWING STREAMS WITHOUT DAMAGING THE CHANNEL OR BANKS AND KEEP SEDIMENT GENERATED BY CONSTRUCTION TRAFFIC OUT OF THE STREAM.

MS-14: OTHER WATERCOURSE REGULATIONS - ALL APPLICABLE FEDERAL, STATE, AND LOCAL REQUIREMENTS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES WILL BE MET. ACTIVITIES IN LIVE WATERCOURSES USUALLY FALL UNDER THE JURISDICTION OF OTHER AGENCIES AND/OR REGULATIONS INCLUDING:

- U.S. ARMY CORPS OF ENGINEERS (404 PERMIT);
- VDEQ'S 401 PERMITTING REGULATIONS;
- VIRGINIA MARINE RESOURCES COMMISSION (VMRC); AND
- VIRGINIA DEPARTMENT OF GAME AND INLAND FISHERIES (DGIF) OR LOCAL WETLAND BOARD TIME OF YEAR RESTRICTIONS.

ALL APPLICABLE PERMITS NEED TO BE OBTAINED AND AVAILABLE ONSITE BEFORE CONSTRUCTION IN LIVE WATERCOURSES MAY START. WATER BODIES MAY BE IDENTIFIED THROUGH WETLAND DELINEATION FOLLOWED BY A JURISDICTIONAL DETERMINATION BY THE U.S. ARMY CORPS OF ENGINEERS. WETLANDS, STREAMS, AND OTHER WATER BODIES AND THE IMPACT ON THESE WATER BODIES ARE USUALLY INDICATED ON PLANS AND SOMETIMES INCLUDE PERMIT NUMBERS.

MS-15: BED AND BANK STABILIZATION - THE BED AND BANKS OF A WATERCOURSE WILL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED. STABILIZATION AT THE END OF EACH DAY OR IMMEDIATELY AFTER WORK IS COMPLETED WILL ENSURE THAT SEDIMENT IS NOT IMPACTING OTHER PARTS OF THE WATERCOURSE. PROTECTIVE MEASURES WILL BE NEEDED WHEN WORK CANNOT BE COMPLETED IN A DAY. WHEN WORKING IN WATER, THE SAFETY OF THE WORKERS AND EQUIPMENT IS IMPORTANT. THE WEATHER ALSO FACTORS IN HEAVILY WHEN DECIDING TO CONTINUE WORKING IN A WATERCOURSE DUE TO POTENTIALLY HIGH FLOWS OF WATER. STABILIZATION MATTING OR ROCK REVETMENT SHOULD BE USED FROM THE WATER LINE TO THE BANK FULL ELEVATION, AND ADDITIONAL MEASURES MAY BE NECESSARY UP TO THE 10-YEAR WATER SURFACE ELEVATION. ANY WORK WITHIN A RESOURCES PROTECTION AREA REQUIRES LOCAL APPROVAL.

MS-16: UTILITY CONSTRUCTION - UNDERGROUND UTILITY LINES WILL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:

1. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
2. EXCAVATED MATERIAL WILL BE PLACED ON THE UPHILL SIDES OF TRENCHES.
3. EFFLUENT FROM DEWATERING OPERATIONS WILL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE (OR BOTH) BEFORE BEING DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFFSITE PROPERTY.
4. MATERIAL USED FOR BACKFILLING TRENCHES WILL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
5. RE-STABILIZATION WILL BE ACCOMPLISHED IN ACCORDANCE WITH PART V OF THE REGULATION, 9VAC25-875-470 ET SEQ.
6. APPLICABLE SAFETY REQUIREMENTS WILL BE MET.

THE BASIC PRINCIPLE OF CONTROLLING EROSION AND SEDIMENTATION ON UTILITY PROJECTS IS TO HAVE THE TRENCH BACKFILLED AND STABILIZED AS SOON AS POSSIBLE. GREATER OPEN TRENCH LENGTHS ARE ALLOWED IF THE PROFESSIONAL ENGINEER SEALS THE DRAWINGS AND PROVIDES A WRITTEN NARRATIVE DESCRIPTION AND GRAPHICAL DEPICTION OF THE INSTALLATION PROCESS THAT EXPLAINS WHY A LARGER OPEN TRENCH LENGTH IS NECESSARY BASED UPON INSTALLATION PROCESS, PIPE MATERIAL, PIPE DIAMETER, AND SOIL AND SLOPE CHARACTERISTICS. THE PURPOSE IS TO DEMONSTRATE THE MAXIMUM PRACTICABLE OPEN TRENCH LENGTH PER INSTALLATION SPREAD (I.E., LENGTH OF A LINEAR UTILITY BEING INSTALLED BY ONE CREW). LAR

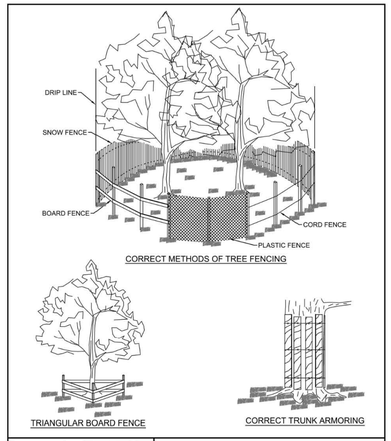
## 10 YEAR EXISTING STORM COMPUTATIONS

| From Point | To Point | Drain. Area (acres) | Runoff Coeff. C | CA Incr. | CA Σ | Inlet Time (min) | Rainfall Intensity (in/hr) | Q Incr. (cfs) | Q Known (cfs) | Q Σ (cfs) | Invert Elev. Upper (ft) | Invert Elev. Lower (ft) | Length (ft) | Slope ( % ) | Dia. (in) | n | Capacity (cfs) | Velocity (fps) | Flow Time Incr. (min) | Flow Time Σ (min) | Q / Qfull | V / Vfull | Vfull | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | rev9/10 |
| A2 | A1 | 0.16 | 0.80 | 0.13 | 0.13 | 5.00 | 6.41 | 0.83 | – | 0.83 | 367.43 | 367.07 | 76.09 | 0.47% | 12 | 0.013 | 2.46 | 2.82 | 0.45 | 5.45 | 0.34 | 0.90 | 3.13 | |
| A1 | A0 | 0.06 | 0.40 | 0.02 | 0.15 | 5.45 | 6.30 | 0.13 | 0.63 | 1.58 | 366.92 | 366.73 | 12.00 | 1.58% | 15 | 0.013 | 8.15 | 4.96 | 0.04 | 5.49 | 0.19 | 0.75 | 6.64 | |
| A0 | 5A | – | – | – | 0.15 | 5.49 | 6.29 | – | – | 1.58 | 366.63 | 366.21 | 97.00 | 0.43% | 15 | 0.013 | 4.26 | 3.21 | 0.50 | 5.99 | 0.37 | 0.92 | 3.47 | |
| 5A | EX5 | 0.19 | 0.85 | 0.16 | 0.70 | 5.99 | 6.17 | 0.99 | – | 4.95 | 366.11 | 364.75 | 80.25 | 1.69% | 15 | 0.013 | 8.43 | 7.09 | 0.19 | 6.18 | 0.59 | 1.03 | 6.87 | |
| EX5 | EX4 | – | – | – | 0.70 | 6.18 | 6.12 | – | – | 4.95 | 364.45 | 364.14 | 87.16 | 0.36% | 18 | 0.013 | 6.28 | 3.92 | 0.37 | 6.55 | 0.79 | 1.10 | 3.55 | |
| EX4 | EX3 | 0.20 | 0.70 | 0.14 | 0.84 | 6.55 | 6.03 | 0.84 | – | 5.69 | 364.00 | 363.82 | 11.91 | 1.51% | 21 | 0.013 | 19.53 | 6.94 | 0.03 | 6.58 | 0.29 | 0.86 | 8.12 | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| FILT | 5A | 0.43 | 0.90 | 0.39 | 0.39 | 5.00 | 6.41 | 2.50 | – | 2.50 | 366.43 | 366.15 | 8.45 | 3.31% | 6 | 0.013 | 1.02 | 5.22 | 0.03 | 5.03 | 2.44 | 1.00 | 5.22 | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| 12C-6 | 12C-14 | 0.28 | 0.75 | 0.21 | 0.21 | 5.00 | 6.41 | 1.35 | – | 1.35 | 364.98 | 364.55 | 92.37 | 0.47% | 15 | 0.013 | 4.42 | 3.08 | 0.50 | 5.50 | 0.31 | 0.86 | 3.60 | |
| 12C-8A | 12C-8 | 0.20 | 0.80 | 0.16 | 0.16 | 5.00 | 6.41 | 1.03 | – | 1.03 | 365.75 | 364.94 | 32.00 | 2.53% | 15 | 0.013 | 10.31 | 5.16 | 0.10 | 5.10 | 0.10 | 0.62 | 8.40 | |
| 12C-8 | 12C-14 | 0.02 | 0.85 | 0.02 | 0.18 | 5.10 | 6.39 | 0.13 | – | 1.15 | 364.78 | 364.55 | 22.62 | 1.02% | 15 | 0.013 | 6.53 | 3.98 | 0.09 | 5.19 | 0.18 | 0.75 | 5.32 | |
| 12C-14 | 12C-9 | 0.17 | 0.85 | 0.14 | 0.53 | 5.50 | 6.29 | 0.88 | – | 3.33 | 364.50 | 364.21 | 29.33 | 0.99% | 15 | 0.013 | 6.44 | 5.25 | 0.09 | 5.59 | 0.52 | 1.00 | 5.25 | |
| 12C-9 | 12C-10 | 0.04 | 0.85 | 0.03 | 0.56 | 5.59 | 6.26 | 0.19 | – | 3.51 | 364.13 | 363.47 | 90.00 | 0.73% | 15 | 0.013 | 5.55 | 4.73 | 0.32 | 5.91 | 0.63 | 1.05 | 4.52 | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| F2 | 12C-10 | 0.07 | 0.80 | 0.06 | 0.06 | 5.00 | 6.41 | 0.38 | – | 0.38 | 363.99 | 363.83 | 31.66 | 0.51% | 15 | 0.013 | 4.60 | 2.16 | 0.24 | 5.24 | 0.08 | 0.58 | 3.75 | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| EX13 | EX12 | 0.24 | 0.85 | 0.20 | 0.20 | 5.00 | 6.41 | 1.28 | – | 1.28 | 367.46 | 366.31 | 115.00 | 1.00% | 15 | 0.013 | 6.48 | 4.10 | 0.47 | 5.47 | 0.20 | 0.78 | 5.28 | |
| | | | | | | | | | | | | | | | | | | | | | | | | |

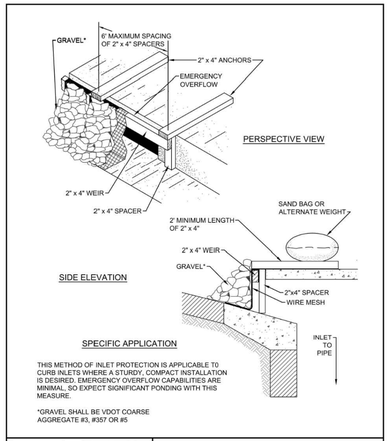
## 10 YEAR PROPOSED STORM COMPUTATIONS

| From Point | To Point | Drain. Area (acres) | Runoff Coeff. C | CA Incr. | CA Σ | Inlet Time (min) | Rainfall Intensity (in/hr) | Q Incr. (cfs) | Q Known (cfs) | Q Σ (cfs) | Invert Elev. Upper (ft) | Invert Elev. Lower (ft) | Length (ft) | Slope ( % ) | Dia. (in) | n | Capacity (cfs) | Velocity (fps) | Flow Time Incr. (min) | Flow Time Σ (min) | Q / Qfull | V / Vfull | Vfull | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | rev9/10 |
| A2 | A1 | 0.07 | 0.80 | 0.06 | 0.06 | 5.00 | 6.41 | 0.38 | – | 0.38 | 367.43 | 367.07 | 76.09 | 0.47% | 12 | 0.013 | 2.46 | 2.24 | 0.57 | 5.57 | 0.15 | 0.72 | 3.13 | |
| A1 | A0 | 0.06 | 0.40 | 0.02 | 0.08 | 5.57 | 6.27 | 0.13 | 0.63 | 1.14 | 366.92 | 366.73 | 12.00 | 1.58% | 15 | 0.013 | 8.15 | 4.54 | 0.04 | 5.61 | 0.14 | 0.68 | 6.64 | |
| A0 | 5A | – | – | – | 0.08 | 5.61 | 6.26 | – | – | 1.14 | 366.63 | 366.21 | 97.00 | 0.43% | 15 | 0.013 | 4.26 | 2.88 | 0.56 | 6.17 | 0.27 | 0.83 | 3.47 | |
| 5A | EX5 | 0.19 | 0.85 | 0.16 | 0.63 | 6.17 | 6.12 | 0.98 | – | 4.49 | 366.11 | 364.75 | 80.25 | 1.69% | 15 | 0.013 | 8.43 | 6.87 | 0.19 | 6.36 | 0.53 | 1.00 | 6.87 | |
| EX5 | EX4 | – | – | – | 0.63 | 6.36 | 6.08 | – | – | 4.49 | 364.45 | 364.14 | 87.16 | 0.36% | 18 | 0.013 | 6.28 | 3.85 | 0.38 | 6.74 | 0.71 | 1.08 | 3.55 | |
| EX4 | EX3 | 0.20 | 0.70 | 0.14 | 0.77 | 6.74 | 5.98 | 0.84 | – | 5.24 | 364.00 | 363.82 | 11.91 | 1.51% | 21 | 0.013 | 19.53 | 6.74 | 0.03 | 6.77 | 0.27 | 0.83 | 8.12 | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| FILT | 5A | 0.43 | 0.90 | 0.39 | 0.39 | 5.00 | 6.41 | 2.50 | – | 2.50 | 366.43 | 366.15 | 8.45 | 3.31% | 6 | 0.013 | 1.02 | 5.22 | 0.03 | 5.03 | 2.44 | 1.00 | 5.22 | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| 12C-6 | 12C-14 | 0.28 | 0.75 | 0.21 | 0.21 | 5.00 | 6.41 | 1.35 | – | 1.35 | 364.98 | 364.55 | 92.37 | 0.47% | 15 | 0.013 | 4.42 | 3.08 | 0.50 | 5.50 | 0.31 | 0.86 | 3.60 | |
| 12C-8A | 12C-8 | 0.20 | 0.80 | 0.16 | 0.16 | 5.00 | 6.41 | 1.03 | – | 1.03 | 365.75 | 364.94 | 32.00 | 2.53% | 15 | 0.013 | 10.31 | 5.16 | 0.10 | 5.10 | 0.10 | 0.62 | 8.40 | |
| 12C-8 | 12C-14 | 0.02 | 0.85 | 0.02 | 0.18 | 5.10 | 6.39 | 0.13 | – | 1.15 | 364.78 | 364.55 | 22.62 | 1.02% | 15 | 0.013 | 6.53 | 3.98 | 0.09 | 5.19 | 0.18 | 0.75 | 5.32 | |
| 12C-14 | 12C-9 | 0.17 | 0.85 | 0.14 | 0.53 | 5.50 | 6.29 | 0.88 | – | 3.33 | 364.50 | 364.21 | 29.33 | 0.99% | 15 | 0.013 | 6.44 | 5.25 | 0.09 | 5.59 | 0.52 | 1.00 | 5.25 | |
| 12C-9 | 12C-10 | 0.04 | 0.85 | 0.03 | 0.56 | 5.59 | 6.26 | 0.19 | – | 3.51 | 364.13 | 363.47 | 90.00 | 0.73% | 15 | 0.013 | 5.55 | 4.73 | 0.32 | 5.91 | 0.63 | 1.05 | 4.52 | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| F2 | 12C-10 | 0.07 | 0.80 | 0.06 | 0.06 | 5.00 | 6.41 | 0.38 | – | 0.38 | 363.99 | 363.83 | 31.66 | 0.51% | 15 | 0.013 | 4.60 | 2.16 | 0.24 | 5.24 | 0.08 | 0.58 | 3.75 | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| EX13 | EX12 | 0.33 | 0.85 | 0.28 | 0.28 | 5.00 | 6.41 | 1.79 | – | 1.79 | 367.46 | 366.31 | 115.00 | 1.00% | 15 | 0.013 | 6.48 | 4.38 | 0.44 | 5.44 | 0.28 | 0.83 | 5.28 | |
| | | | | | | | | | | | | | | | | | | | | | | | | |

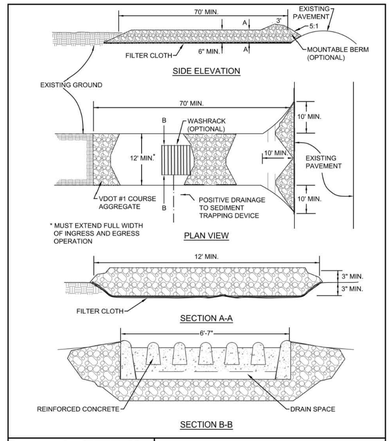
NOTE: THE PIPE SLOPE FROM EX12 TO EX13 IS ASSUMED TO BE 1.00%, SINCE THIS INFORMATION IS UNKNOWN.




DEQ VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY — v1.1 — FENCING AND ARMORING — SOURCE: VA. DSWC — C-SSM-01-2




DEQ VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY — v1.1 — CURB INLET PROTECTION WITH 2-INCH X 4-INCH WOODEN WEIR — SOURCE: USDA NRCS — C-SCM-04-6




DEQ VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY — v1.1 — STONE CONSTRUCTION ENTRANCE — SOURCE: VA. DSWC, MD ESC STDS — C-SCM-03-1

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| | COUNTY COMMENTS | |
| 2 | 9/16/2025 | AG |
| | COUNTY COMMENTS | |
| | | |

| MARK | DATE | BY |
|---|---|---|
| | | |

COMMONWEALTH OF VIRGINIA
KATHERINE ROBERTS
Lic. No. 0402060193
PROFESSIONAL ENGINEER
9/16/2025

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

STORE
SERIES 08C-R
#3197
15180 WASHINGTON ST
HAYMARKET,
VA, 20169

SHEET TITLE
**EROSION AND SEDIMENT CONTROL DETAILS**

DWG EDITION 02.4

☐ PRELIMINARY
☒ 80% SUBMITTAL
☐ FOR CONSTRUCTION

| | |
|---|---|
| JOB NO. | :VAB230141.00 |
| STORE | : #3197 |
| DATE | : 01/31/2024 |
| DRAWN BY | : GAP |
| CHECKED BY | : KBR |
| CAD ID | : SITE -0 |

SHEET
C-3.4

PWCSA PL #SA2024-0052



**CHECKLIST**

**FOR EROSION AND SEDIMENT CONTROL PLANS**

X Minimum Standards - All applicable Minimum Standards must be addressed.

**NARRATIVE**

X Project description - Briefly describes the nature and purpose of the land- disturbing activity, and the area (acres) to be disturbed.

X Existing site conditions - A description of the existing topography, vegetation and drainage.

X Adjacent areas - A description of neighboring areas such as streams, lakes, residential areas, roads, etc., which might be affected by the land disturbance.

X Off-site areas - Describe any off-site land-disturbing activities that will occur (including borrow sites, waste or surplus areas, etc.). Will any other areas be disturbed?

X Soils - A brief description of the soils on the site giving such information as soil name, mapping unit, erodibility, permeability, depth, texture and soil structure.

X Critical areas - A description of areas on the site which have potentially serious erosion problems (e.g., steep slopes, channels, wet weather/ underground springs, etc.).

X Erosion and sediment control measures - A description of the methods which will be used to control erosion and sedimentation on the site. (Controls should satisfy minimum standards in Chapter 3.)

X Permanent stabilization - A brief description, including specifications, of how the site will be stabilized after construction is completed.

X Stormwater runoff considerations - Will the development site cause an increase in peak runoff rates? Will the increase in runoff cause flooding or channel degradation downstream? Describe the strategy to control stormwater runoff.

X Calculations - Detailed calculations for the design of temporary sediment basins, permanent stormwater detention basins, diversions, channels, etc. Include calculations for pre- and post-development runoff.





**SITE PLAN**

X Vicinity map - A small map locating the site in relation to the surrounding area. Include any landmarks which might assist in locating the site.

X Indicate north - The direction of north in relation to the site.

X Limits of clearing and grading - Areas which to be cleared and graded.

X Existing contours - The existing contours of the site.

X Final contours - Changes to the existing contours, including final drainage patterns.

X Existing vegetation - The existing tree lines, grassed areas, or unique vegetation.

X Soils - The boundaries of different soil types.

X Existing drainage patterns - The dividing lines and the direction of flow for the different drainage areas. Include the size (acreage) of each drainage area,

X Critical erosion areas - Areas with potentially serious erosion problems. (See Chapter 6 for criteria.)

X Site Development - Show all improvements such as buildings, parking lots, access roads, utility construction, etc.

X Location of practices - The locations of erosion and sediment control and stormwater management practices used on the site. Use the standard symbols and abbreviations in Chapter 3 of the E&S Handbook.

X Off-site areas - Identify any off-site land-disturbing activities (e.g., borrow sites, waste areas, etc.). Show location of erosion controls. (Is there sufficient information to assure adequate protection and stabilization?)

X Detail drawings - Any structural practices used that are not referenced to the E&S Handbook or local handbooks should be explained and illustrated with detail drawings.

X Maintenance - A schedule of regular inspections and repair of erosion and sediment control structures should be set forth.





STD & SPEC 3.39

## DUST CONTROL

(DC)

Definition

Reducing surface and air movement of dust during land disturbing, demolition and construction activities.

Purpose

To prevent surface and air movement of dust from exposed soil surfaces and reduce the presence of airborne substances which may present health hazards, traffic safety problems or harm animal or plant life.

Conditions Where Practice Applies

In areas subject to surface and air movement of dust where on-site and off-site damage is likely to occur if preventive measures are not taken.

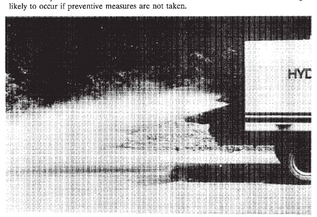




**TABLE 3.32-D**
(Revised June 2003)
**PERMANENT SEEDING SPECIFICATIONS FOR PIEDMONT AREA**

| LAND USE | SEED[1] SPECIES | APPLICATION PER ACRE |
|---|---|---|
| Minimum Care Lawn (Commercial or Residential) | Tall Fescue[1]<br>Perennial Ryegrass<br>Kentucky Bluegrass[1] | 95-100%<br>0-5%<br>0-5%<br>TOTAL: 175-200 lbs. |
| High-Maintenance Lawn | Tall Fescue[1] | TOTAL: 200-250 lbs. |
| General Slope (3:1 or less) | Tall Fescue[1]<br>Red Top Grass or Creeping Red Fescue<br>Seasonal Nurse Crop[2] | 128 lbs.<br>2 lbs.<br>20 lbs.<br>TOTAL: 150 lbs. |
| Low-Maintenance Slope (Steeper than 3:1) | Tall Fescue[1]<br>Red Top Grass or Creeping Red Fescue<br>Seasonal Nurse Crop[2]<br>Crownvetch[3] | 108 lbs.<br>2 lbs.<br>20 lbs.<br>20 lbs.<br>TOTAL: 150 lbs. |

1 - When selecting varieties of turfgrass, use the Virginia Crop Improvement Association (VCIA) recommended turfgrass variety list. Quality seed will bear a label indicating that they are approved by VCIA. A current turfgrass variety list is available at the local County Extension office or through VCIA at 804-746-4864 or at http://sudan.cses.vt.edu/html/Turf/turfpublications/publications2.html

2 - Use seasonal nurse crop in accordance with seeding dates as stated below:

| | |
|---|---|
| February 16th - April | Annual Rye |
| May 1st - August 15th | Foxtail Millet |
| August 16th - October | Annual Rye |
| November - February 15th | Winter Rye |

3 - Substitute Sericea lespedeza for Crownvetch east of Farmville, VA (May through September use hulled seed, all other periods, use unhulled Sericea). If Flatpea is used, increase rate to 30 lbs./acre. If Weeping Lovegrass is used, include in any slope or low maintenance mixture during warmer seeding periods, increase to 30 -40.

**FERTILIZER & LIME**

- Apply 10-20-10 **fertilizer** at a rate of **500** lbs. / acre (or 12 lbs. / 1,000 sq. ft.)
- Apply **Pulverized Agricultural Limestone** at a rate of 2 tons/acre (or 90 lbs. / 1,000 sq. ft.)

**NOTE:**
- A soil test is necessary to determine the actual amount of lime required to adjust the soil pH of site.
- Incorporate the lime and fertilizer into the top 4 – 6 inches of the soil by disking or by other means.
- When applying Slowly Available Nitrogen, use rates available in Erosion & Sediment Control Technical Bulletin # 4, 2003 Nutrient Management for Development Sites at http://www.dcr.state.va.us/sw/e&s.htm#pubs

**TABLE 3.31-B**
(Revised June 2003)
**TEMPORARY SEEDING SPECIFICATIONS**
**QUICK REFERENCE FOR ALL REGIONS**

| APPLICATION DATES | SEED SPECIES | APPLICATION RATES |
|---|---|---|
| Sept. 1 - Feb. 15 | 50/50 Mix of Annual Ryegrass (lolium multi-florum) & Cereal (Winter) Rye (Secale cereale) | 50 -100 (lbs/acre) |
| Feb. 16 - Apr. 30 | Annual Ryegrass (lolium multi-florum) | 60 - 100 (lbs/acre) |
| May 1 - Aug. 31 | German Millet | 50 (lbs/acre) |

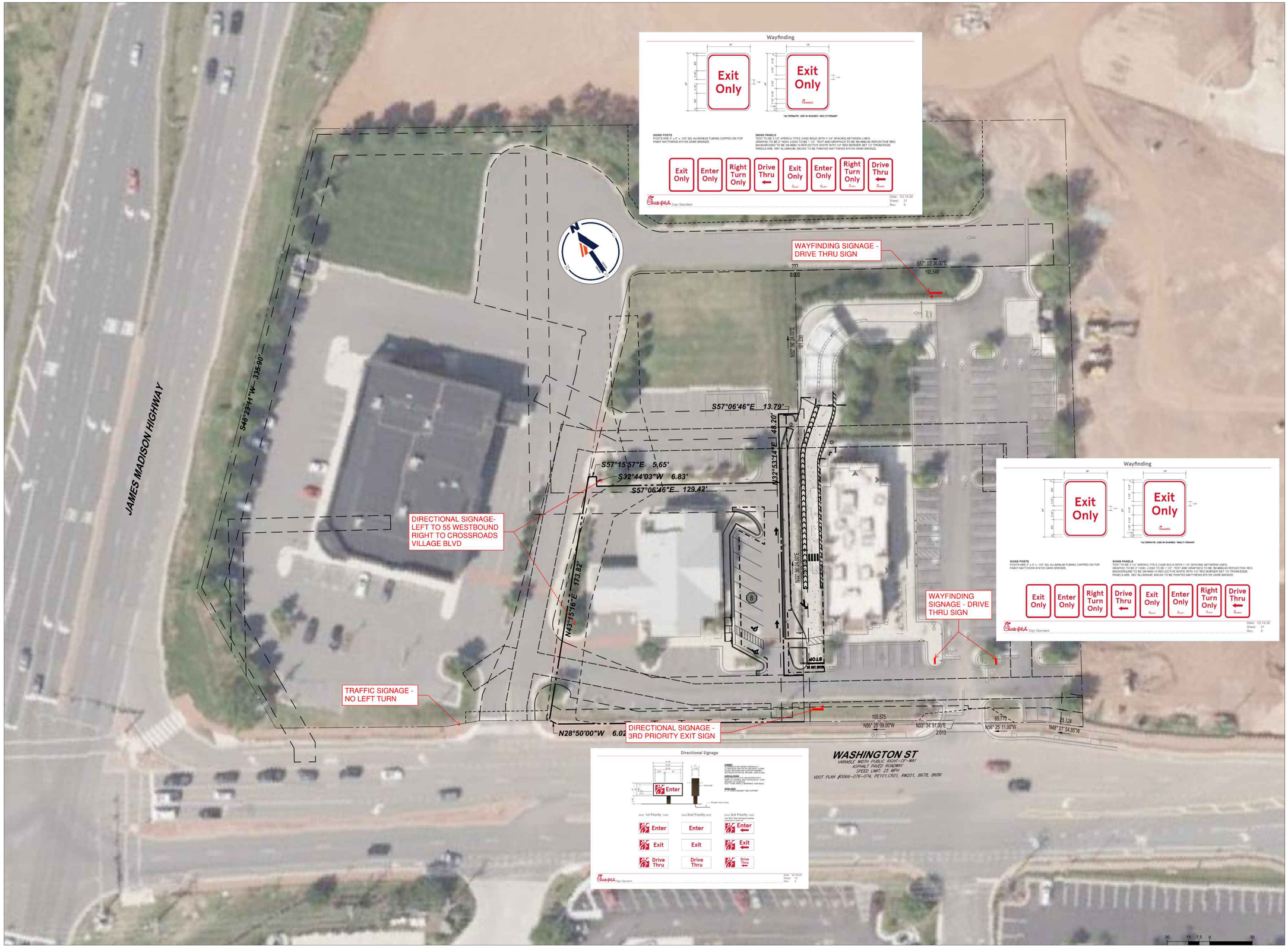
**FERTILIZER & LIME**

- Apply 10-10-10 **fertilizer** at a rate of 450 lbs. / acre (or 10 lbs. / 1,000 sq. ft.)
- Apply **Pulverized Agricultural Limestone** at a rate of 2 tons/acre (or 90 lbs. / 1,000 sq. ft.)

**NOTE:**
1 - A soil test is necessary to determine the actual amount of lime required to adjust the soil pH of site.
2 - Incorporate the lime and fertilizer into the top 4 – 6 inches of the soil by disking or by other means.
3 - When applying Slowly Available Nitrogen, use rates available in Erosion & Sediment Control Technical Bulletin # 4, 2003 Nutrient Management for Development Sites at http://www.dcr.state.va.us/sw/e&s.htm#pubs



C:\BOHLERCAD_USERDATA\TEMPAC\PUBLISH_4696\VAB230141.00 - SITE - 1.DWG PRINTED BY: GPADILLA 9:16:25 @ 1:01 PM LAST SAVED BY: GPADILLA













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| | COUNTY COMMENTS | |
| 2 | 9/16/2025 | AG |
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COMMONWEALTH OF VIRGINIA
KATHERINE ROBERTS
Lic. No. 0402060193
PROFESSIONAL ENGINEER
9/16/2025

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VA@BohlerEng.com

STORE
SERIES 08C-R
#3197
15180 WASHINGTON ST
HAYMARKET,
VA, 20169

SHEET TITLE
**SIGNAGE PLAN**

DWG EDITION 02.4

☐ PRELIMINARY
☒ 80% SUBMITTAL
☐ FOR CONSTRUCTION

| | |
|---|---|
| JOB NO. | :VAB230141.00 |
| STORE | : #3197 |
| DATE | : 01/31/2024 |
| DRAWN BY | : GAP |
| CHECKED BY | : KBR |
| CAD ID | : CNDS-0 |

SHEET
C-3.5

PWCSA PL #SA2024-0052

**PRINCE WILLIAM COUNTY**
**Department of Development Services - Land Development Division**

**UNIT PRICE LIST**
**(Performance Bonds, Landscape Escrows, Siltation & Erosion Control Escrows, and Floodplain Item Escrows)**

**Effective: March 1, 2022**

**Project Name:** **Chick-fil-a Haymarket**

**PWC File #:** **SA2024-0052** **Date Prepared: 7/7/2025**

NOTE: This form is to be used to estimate Performance Bond, Landscape Escrow, Siltation Erosion Escrow and Floodplain Items Escrow prices posted with Prince William County. These prices do not include items that are to be bonded separately with the Virginia Department of Transportation.

## 1. MOBILIZATION/DEMOBILIZATION OF CONSTRUCTION EQUIPMENT

| Quantity | Item | Price | Cost |
|---|---|---|---|
| 1 | Mobilization/Demobilization | @ Lump Sum $15,000 min. | $ 15,000.00 |

## 2. STORM DRAINAGE

A. Structures

| Quantity | Item | Price | Cost |
|---|---|---|---|
| | DI-1 | @ $6,900 EA | $ - |
| | DI-3 | @ $6,900 EA | $ - |
| | DI-4 | @ $6,900 EA | $ - |
| | MH-1 | @ $4,900 EA | $ - |
| | MH-2 | @ $4,500 EA | $ - |
| | JB-1 | @ $7,175 EA | $ - |
| | DI-7 | @ $6,800 EA | $ - |
| | DI-12 | @ $6,800 EA | $ - |
| | | **Subtotal for Structures:** | **$ -** |

B. Concrete Pipe

| Quantity | Item | Price | Cost |
|---|---|---|---|
| | 12"0 | @ $82 LF | $ - |
| | 15"0 | @ $82 LF | $ - |
| | 18"0 | @ $82 LF | $ - |
| | 21"0 | @ $82 LF | $ - |
| | 24"0 | @ $103 LF | $ - |
| | 27"0 | @ $103 LF | $ - |
| | 30"0 | @ $103 LF | $ - |
| | 33"0 | @ $207 LF | $ - |
| | 36"0 | @ $207 LF | $ - |
| | 42"0 | @ $207 LF | $ - |
| | 48"0 | @ $207 LF | $ - |
| | 54"0 | @ $365 LF | $ - |
| | 60"0 | @ $365 LF | $ - |
| | 66"0 | @ $365 LF | $ - |
| | 72"0 | @ $453 LF | $ - |
| | | **Subtotal for Concrete Pipe:** | **$ -** |

| | | **Subtotal for this page:** | **$ 15,000.00** |
|---|---|---|---|



C. End Walls

| Quantity | Item | Price | Cost |
|---|---|---|---|
| | 12"0 | @ $1,950 EA | $ - |
| | 15"0 | @ $1,950 EA | $ - |
| | 18"0 | @ $1,950 EA | $ - |
| | 21"0 | @ $1,950 EA | $ - |
| | 24"0 | @ $1,950 EA | $ - |
| | 27"0 | @ $1,950 EA | $ - |
| | 30"0 | @ $2,100 EA | $ - |
| | 33"0 | @ $2,300 EA | $ - |
| | 36"0 | @ $2,800 EA | $ - |
| | 42"0 | @ $7,236 EA | $ - |
| | 48"0 | @ $7,236 EA | $ - |
| | 54"0 | @ $7,236 EA | $ - |
| | 60"0 | @ $7,236 EA | $ - |
| | 66"0 | @ $7,236 EA | $ - |
| | 72"0 | @ $9,854 EA | $ - |
| | | **Subtotal for End Walls:** | **$ -** |

D. End Sections (ES-1)

| Quantity | Item | Price | Cost |
|---|---|---|---|
| | 12"0 | @ $1,048 EA | $ - |
| | 15"0 | @ $1,048 EA | $ - |
| | 18"0 | @ $1,048 EA | $ - |
| | 21"0 | @ $1,048 EA | $ - |
| | 24"0 | @ $1,048 EA | $ - |
| | 27"0 | @ $1,200 EA | $ - |
| | 30"0 | @ $1,300 EA | $ - |
| | 33"0 | @ $1,500 EA | $ - |
| | 36"0 | @ $1,900 EA | $ - |
| | 42"0 - 60" | @ $3,050 EA | $ - |
| | | **Subtotal for End Section ES-1:** | **$ -** |

E. Corrugated Metal Pipe

| Quantity | Item | Price | Cost |
|---|---|---|---|
| | 12"0 | @ $40 LF | $ - |
| | 15"0 | @ $60 LF | $ - |
| | 18"0 | @ $60 LF | $ - |
| | 24"0 | @ $80 LF | $ - |
| | 30"0 | @ $80 LF | $ - |
| | 36"0 | @ $140 LF | $ - |
| | 42"0 | @ $140 LF | $ - |
| | 48"0 | @ $140 LF | $ - |
| | 54"0 | @ $250 LF | $ - |
| | 60"0 | @ $250 LF | $ - |
| | | **Subtotal for CM Pipe:** | **$ -** |

| | | **Subtotal for this page:** | **$ -** |
|---|---|---|---|



F. End Section (ES-2)

| Quantity | Item | Price | Cost |
|---|---|---|---|
| | 15"0 | @ $870 EA | $ - |
| | 18"0 | @ $870 EA | $ - |
| | 24"0 | @ $870 EA | $ - |
| | 30"0 | @ $870 EA | $ - |
| | 36"0 | @ $1,100 EA | $ - |
| | 42"0 | @ $1,400 EA | $ - |
| | 48"0 | @ $1,800 EA | $ - |
| | | **Subtotal for End Sections (ES-2):** | **$ -** |

G. AD N-12 (HDPE)

| Quantity | Item | Price | Cost |
|---|---|---|---|
| | 12"0 | @ $45 LF | $ - |
| | 15"0 | @ $106 LF | $ - |
| | 18"0 | @ $106 LF | $ - |
| | 24"0 | @ $106 LF | $ - |
| | 30"0 | @ $106 LF | $ - |
| | 36"0 | @ $170 LF | $ - |
| | 42"0 | @ $170 LF | $ - |
| | 48"0 | @ $170 LF | $ - |
| | 60"0 | @ $250 LF | $ - |
| | | **Subtotal for AD N-12 (HDPE):** | **$ -** |

| | | **Subtotal for this page:** | **$ -** |
|---|---|---|---|



H. Stormwater Management/BMP Facilities Cost Estimates Per Impervious Acre Treated (See Note 3)

| Quantity | Item | Price | Cost |
|---|---|---|---|
| Non-Proprietary BMP(Engineer Estimate for all SWM) | | | |
| | Dry Retention Pond | By itemized cost | |
| | Dry Extended Detention Pond | By itemized cost | |
| | Wet Pond/Wetlands | By itemized cost | |
| | Bioswale | By itemized cost | |
| | Vegetated Grass Channel | By itemized cost | |
| | Micro-Bio-Retention (Raingarden) | By itemized cost | |
| | Infiltration Practices without Sand | By itemized cost | |
| | Infiltration Practices with Sand | By itemized cost | |
| | Filtering Practices with Sand Below Ground | By itemized cost | |
| | Filtering Practices with Sand Above Ground | By itemized cost | |
| | Permeable Pavement Level 2 Design | By itemized cost | |
| | Vegetated Roof Level 1 Design | By itemized cost | |
| | Vegetated Roof Level 2 Design | By itemized cost | |
| | Soil Compost Amendment | By itemized cost | |
| | Rooftop Impervious Surface Disconnection | By itemized cost | |
| | Sheet Flow to a Vegetated Filter Strip | By itemized cost | |
| Proprietary/Manufactured BMP-manufacturer's Certified Cost Plus Construction Cost | | | - |
| | Aqua-Swirl® Stormwater Treatment System | By itemized cost | |
| | BaySeparator™ | By itemized cost | |
| | Continuous Defective Separator® (CDS) | By itemized cost | |
| | Downstream Defender® | By itemized cost | |
| | Hydroguard | By itemized cost | |
| | Stormceptor® MAX | By itemized cost | |
| | Stormceptor® OSR | By itemized cost | |
| | Stormceptor® STC | By itemized cost | |
| | StormPro | By itemized cost | |
| | Storm Water Quality Unit | By itemized cost | |
| | V2B1 | By itemized cost | |
| | The Vortechs® System | By itemized cost | |
| | Aqua-Filter Stormwater™ Filtration System | By itemized cost | |
| | Storm Tech® Isolator Row™ | By itemized cost | |
| | Up-Flo Filter® with CPZ Media | By itemized cost | |
| | The Stormwater Management StormFilter® with ZPG Media | By itemized cost | |
| | BayFilter™ Stormwater Cartridge System | By itemized cost | |
| | Filterra Bioretention Systems | By itemized cost | |
| | Jellyfish® Filter | By itemized cost | |
| | Modular Wetland System Linear (MWS-Linear) | By itemized cost | |
| | Perk Filter | By itemized cost | |
| | The Stormwater Management StormFilter® with Phosphosorb Media | By itemized cost | |
| | | **Subtotal for Stormwater Management/BMP Facilities Cost Estimates Per Impervious Acre Treated:** | **$ -** |

| | | **Subtotal for this page:** | **$ -** |
|---|---|---|---|



I. Miscellaneous Stormwater Management

| Quantity | Item | Price | Cost |
|---|---|---|---|
| | Seed, Fertilizer & Mulch ($200 Min.) | @ $3.00 SY | $ - |
| | Sod | @ $8.00 SY | $ - |
| | Hydraulic Cem. Conc. - 4" depth | @ $8.00 SF | $ - |
| | Bituminous Concreate - 1" depth | @ $6.00 SY | $ - |
| | Rip-Rap | @ $7.75 SF | $ - |
| | Grouted Rip-Rap | @ $9.00 SF | $ - |
| | Erosion Control Stone (EC-1) | @ $130 TON | $ - |
| | #57 - Coarse Aggregate | @ $30 TON | $ - |
| | 4' High Chain Link Fence (#9 gauge or better, including braces, end posts and gate) | @ $45 LF | $ - |
| | 6' High Chain Link Fence (#9 gauge or better, including braces, end posts and gate) | @ $45 LF | $ - |
| | SWM Sign (WATER RISES RAPIDLY) (Minimum 3 signs per facility) | @ $390 EA | $ - |
| | Access Road | By Itemized Cost | |
| | | **Subtotal for Miscellaneous Stormwater Management:** | **$ -** |

J. Miscellaneous Drainage Items

| Quantity | Item | Price | Cost |
|---|---|---|---|
| | Box Culvert | @ $ 840 CY of conc. | $ - |
| | Energy Dissipater | @ $2,250 EA | $ - |
| | Wing Walls | @ $990 CY of conc. | $ - |
| Ditches: | | | |
| | Roadside Standard Ditches (Seed, Fertilize & Mulch) | @ $8.00 LF | $ - |
| | Sod Ditches | @ $10.50 LF | $ - |
| | Paved Ditches | @ $8.50 SF | $ - |
| | Filter Cloth Fabric & Gabion Stone | @ $22 SF | $ - |
| | Rip-Rap | @ $7.75 SF | $ - |
| | Grouted Rip-Rap | @ $9.00 SF | $ - |
| | Paved Flume | @ $10 SF | $ - |
| | Flush the Drainage System | $290/Hr. (Min 8 Hrs.) | $ - |
| | | **Subtotal for Miscellaneous Drainage Items:** | **$ -** |

| | | **Subtotal for this page:** | **$ -** |
|---|---|---|---|



## 3. CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF-WAY AND/OR PRIVATE INGRESS/EGRESS EASEMENTS

A. Site Work

| Quantity | Item | Price | Cost |
|---|---|---|---|
| 1 | Clear & Grub | @ $12,800 | $ 12,800.00 |
| | Excavation | @ $35 CY | $ - |
| | Embankment** (cut and fill) | @ $25 CY | $ - |
| | Embankment (haul off) | @ $36 CY | $ - |
| 0.09 | Final Grading | @ $5,000 AC | $ 450.00 |
| | Rock Excavation | @ $75 CY | $ - |
| | Slope Stabilization - Hydroseeding (3:1 or flatter) $1,000 Min. | @ $1.25 SY | $ - |
| | Slope Stab. - Jute Mesh, matting Blankets, etc. (Between 2:1 to 3:1) $200 Min | @ $6.00 SY | $ - |
| | Slope Stab. - Sod (Between 2:1 to 3:1) $200 Min | @ $8.00 SY | $ - |
| | Steep Slopes (Grading and Stabilization with Jute Mesh, Netting, Blankets, etc.) | @ $20 SY | $ - |
| | | **Subtotal for Site Work:** | **$ 13,250.00** |

B. Subgrade, Subbase, and Base Course Items

| Quantity | Item | Price | Cost |
|---|---|---|---|
| 64.47 | Subgrade preparation (Subbase and base course) | @ $3.50 SY | $ 225.65 |
| 10.745 | Aggregate (21A/21B) | @ $3 SY per Inch Depth | $ 32.24 |
| 42.98 | Bituminous Concrete | @ $6.25 SY per Inch Depth | $ 268.63 |
| | Reinforced Concrete Pavement | @ $18 SY per Inch Depth | $ - |
| | Gravel Shoulders (4" Depth) | @ $12 SY (4" Depth) | $ - |
| | Soil Cement Stabilization (4%) | @ $24 SY (6" Depth) | $ - |
| | Lime Stabilization (10%) | @ $16 SY (6" Depth) | $ - |
| | Cement Treated Aggregate | @ $11 per Inch Depth | $ - |
| Underdrains: | | | |
| | UD-1 | @ $21 LF | $ - |
| | UD-2 | @ $21 LF | $ - |
| | UD-3 | @ $21 LF | $ - |
| | UD-4 | @ $21 LF | $ - |
| | | **Subtotal for Subgrade, Subbase, Base Course Items & Underdrains (Public):** | **$ 526.51** |

| | | **Subtotal for this page:** | **$ 13,776.51** |
|---|---|---|---|



C. Entrances and Pipe Stems

| Quantity | Item | Price | Cost |
|---|---|---|---|
| | DE-1 | @ $1,800 EA | $ - |
| | DE-2 | @ $1,950 EA | $ - |
| | DE-3 | @ $2,000 EA | $ - |
| | DE-4 | @ $2,300 EA | $ - |
| | PP-1 (1 Lot) | @ $2,000 EA | $ - |
| | PP-1 (2-5 Lots) | @ $2,300 EA | $ - |
| | PP-2 (1 Lot) | @ $1,725 EA | $ - |
| | PP-2 (2-5 Lots) | @ $1,725 EA | $ - |
| | CG-9D or equal: 30' Width | @ $5,750 EA | $ - |
| | CG-9D or equal: 40' Width | @ $7,475 EA | $ - |
| | CG-10A or equal: 30' Width | @ $4,738 EA | $ - |
| | CG-10A or equal: 40' Width | @ $6,095 EA | $ - |
| | CG-11: Concrete Entrance | @ $3,450 EA | $ - |
| | Valley Gutter | @ $61 SY | $ - |
| | Pipestem Driveway - 10' (1 Lot) | @ $81 LF | $ - |
| | Pipestem Driveway - 18' (2-5 Lots) | @ $81 LF | $ - |
| | | **Subtotal for Entrance and Pipe Stems:** | **$ -** |

| | | **Subtotal for this page:** | **$ -** |
|---|---|---|---|



D. Miscellaneous Construction Items

| Quantity | Item | Price | Cost |
|---|---|---|---|
| 77 | Sidewalk (5' Width) | @ $40 LF | $ 3,080.00 |
| 397 | Header Curb (CG-2/CG-3) | @ $25 LF | $ 9,925.00 |
| 169 | Curb & Gutter | @ $28 LF | $ 4,732.00 |
| | CG-12 (Truncated Dome) | @ $2,000 EA | $ - |
| | Bicycle Trail/Walkway | 0 $11.00 SF | $ - |
| | Raised Concrete Median (MS-1A) | @ $81 SY | $ - |
| | Trail (Wood Chip) | @ $19 SY | $ - |
| | Trail (Stone Dust) | @ $19 SY | $ - |
| Retaining Walls: | | | |
| | Timber | @ $34 SF | $ - |
| | Crib | @ $44 SF | $ - |
| | MSE/Geogrid | @ $50 SF | $ - |
| | Gravity Wall | @ $72 SY | $ - |
| | Excavation for tiebacks in walls in cut areas | @ $29 CY | $ - |
| | Anti-Graffiti Paint (Concrete Retaining Walls only-treatment/sealant) | @ $18 SF (Min. 52,500) | $ - |
| | Guardrail | @ $45 LF | $ - |
| | GR-7 NCHRP 350 | @ $3,640 EA | $ - |
| | GR-9 | @ $3,640 EA | $ - |
| | Address Sign (Entrance to Pipesterms) | @ $460 EA | $ - |
| | Street Name Sign | @ $525 | $ - |
| | Traffic Control Sign | @ $450 | $ - |
| | Bus Stop Sign | @ $415 | $ - |
| | Bus Shelter | @ $24,000 | $ - |
| | Traffic Signal | @ (Lump Sum) | |
| | HC Parking Space Sign | @ $720 EA | $ - |
| | Bike Rack | @ $350 EA | $ - |
| | Roadside Delineators (ED-1) | @ $75 EA | $ - |
| | Hand Rail (HR-1) | @ $120 LF | $ - |
| | Pavement Marking (Paint) | @ $2.50 SF | $ - |
| | Pavement Marking (Thermoplastic) | @ $7.00 SF | $ - |
| | Traffic Barricade (TB-1) | @ $1,725 EA | $ - |
| | Street Lighting | @ $5,500 EA | $ - |
| | Utilities Relocation | (Min. $46,000) (Lump Sum or provide estimate from utility co.) | $ - |
| | VDOT Street Acceptance Package | @ $7,000 | $ - |
| | P.E. Certified "As-Built" Plans | Lump Sum (Min. $12,000) | $ - |
| | | **Subtotal for Miscellaneous Construction Items:** | **$ 17,737.00** |

| | | **Subtotal for this page:** | **$ 17,737.00** |
|---|---|---|---|



## 4. SANITARY SEWER & WATER LINE CONSTRUCTION

| Quantity | Item | Price | Cost |
|---|---|---|---|
| | Fire Hydrant Assembly | @ $9,200 EA | $ - |
| | Central Sewer Lift/Pump Station Construction | @ (Lump Sum) | |

Water Main (Exclusive of Fire Hydrants)

| Quantity | Item | Price | Cost |
|---|---|---|---|
| | 4"0 DIP | @ $60 LF | $ - |
| | 6"0 DIP | @ $75 LF | $ - |
| | 8"0 DIP | @ $90 LF | $ - |
| | 12"0 DIP | @ $125 LF | $ - |
| | 16"0 DIP | @ $165 LF | $ - |
| | 18'0 DIP | @ $185 LF | $ - |
| | 4"0 or 6"0 RW Valve (with accessories) | @ $1,200 EA | $ - |
| | 8"0 or 12"0 RW Valve (with accessories) | @ $3,000 EA | $ - |
| | 16"0 or 24"0 RW Valve (with accessories) | @ $7,000 EA | $ - |
| | Standard Meter Crock & Appurtenances (Angle valve, backflow preventer, yoke, frame & cover, and service line) | @ $2,500 EA | $ - |
| | Meter Vault & Appurtenances (3 meters & larger) | @ $40,000 EA | $ - |
| | Water Main Blow-off Assembly | @ $3,000 EA | $ - |
| | Air Release Assembly | @ $6,800 EA | $ - |
| | Dead End Anchor System | @ $10,000 EA | $ - |
| | | **Subtotal for Water Main:** | **$ -** |

| | | **Subtotal for this page:** | **$ -** |
|---|---|---|---|



Sanitary Sewer Pipe Line (Exclusive of Manhole Structures)

| Quantity | Item | Price | Cost |
|---|---|---|---|
| | 1.5"0 thru 4"0 LPFM (Low Pressure Force Main System) | @ $35 LF | $ - |
| | 8"0 PVC | @ $81 LF | $ - |
| | 8"0 DIP | @ $95 LF | $ - |
| | 10"0 PVC | @ $100 LF | $ - |
| | 10"0 DIP | @ $110 LF | $ - |
| | 12"0 PVC | @ $170 LF | $ - |
| | 12"0 DIP | @ $185 LF | $ - |
| | 15"0 PVC | @ $225 LF | $ - |
| 1 | 4' Dia. Sanitary Sewer Manhole | @ $11,000 EA | $ 11,000.00 |
| | 5' Dia. Sanitary Sewer Manhole | @ $11,000 EA | $ - |
| | Street Manhole Frame & Cover Assembly (Including rain bowl & chimney seal) | @ $1,200 EA | $ - |
| | Easement Manhole Frame & Cover Assembly (Including chimney seal) | @ $1,200 EA | $ - |
| | Abandonment of Manhole | @ $290 VF | $ - |
| | 4"0 PVC Lateral (including clean-out stack) | @ $50 LF | $ - |
| | 4"0 DIP Lateral (including clean-out stack) | @ $60 LF | $ - |
| | 6"0 PVC Lateral (including clean-out stack) | @ $70 LF | $ - |
| | 6'0 DIP Later (including clean-out stack) | @ $75 LF | $ - |
| | LPFM Flushing Station | @ $2,900 EA | $ - |
| | Sewenge Air Release/Vacuum Breaker Assembly | @ $4,050 EA | $ - |
| | Steel Casing | @ $600 LF | $ - |
| | Grease Trap (500 gal. minimum) | @ $5,200 EA | $ - |
| | | @ | $ - |
| | | @ | $ - |
| | | @ | $ - |
| | | **Subtotal for Sanitary Sewer Pipe:** | **$ 11,000.00** |

**Note: For sizes larger than 15"0, add $4.60 per inch increase in diameter.**

| | | **Subtotal for this page:** | **$ 11,000.00** |
|---|---|---|---|
| | | **TOTAL CONSTRUCTION COST:** | |
| | | **(Pages 1 through 10)** | **$ 57,513.51** |

## 5. MISCELLANEAOUS COSTS

| | | |
|---|---|---|
| A. Administrative Cost - 10% of the total construction cost, not to exceed $50,000 | $ | 5,751.35 |
| B. Inflation Cost - Compounded annually at 3.0% per year of the total Construction Cost | $ | 1,725.41 |
| **TOTAL PERFORMANCE BOND AMOUNT:** | **$** | **64,990.26** |

## 6. FLOODPLAIN ITEMS ESCROW

| Quantity | Item | Price | Cost |
|---|---|---|---|
| | LOMR | $18,000 | $ - |
| | Elevation Certificate | $1,000 | $ - |
| | LOMC (SF Detached) | $1,800 | $ - |
| | Stream Restoration (By Itemized Cost) | | |
| | **TOTAL FLOODPLAIN ITEMS ESCROW:** | | **$ -** |

## 7. LANDSCAPING ESCROW



A. Deciduous Trees

| Quantity | Item | Price | Cost |
|---|---|---|---|
| | 5'-0' | @ $300 EA | $ - |
| | 1" - 1.5" or 1.5"- 2" | @ $450 EA | $ - |
| | 2" - 2.5" or 2.5 - 3" | @ $600 EA | $ - |
| 1 | 3" - 3.5" or 3.5" - 4" | @ $959 EA | $ 959.00 |
| | **Subtotal for Deciduous Trees:** | | **$ 959.00** |

B. Evergreen Trees

| Quantity | Item | Price | Cost |
|---|---|---|---|
| | 5' - 6' | @ $250 EA | $ - |
| | 6' - 7' | @ $270 EA | $ - |
| | 7' - 8' | @ $450 EA | $ - |
| | 8' - 10' | @ $830 EA | $ - |
| | **Subtotal for Evergreen Trees:** | | **$ -** |

C. Shrubs

| Quantity | Item | Price | Cost |
|---|---|---|---|
| | 18" - 24" | @ $60 EA | $ - |
| 85 | 24" - 30" | @ $80 EA | $ 6,800.00 |
| | **Subtotal for Shrubs:** | | **$ 6,800.00** |

D. Ornamental

| Quantity | Item | Price | Cost |
|---|---|---|---|
| | 1 Gal. (#1) | @ $35 | $ - |
| | 2 Gal. (#2) | @ $45 | $ - |
| | 3 Gal. (#3) | @ $50 | $ - |
| | **Subtotal for Ornamentals:** | | **$ -** |

E. Perennial

| Quantity | Item | Price | Cost |
|---|---|---|---|
| | 18" - 24" | @ $15.00 | $ - |
| | **Subtotal for Perennial:** | | **$ -** |

F. Reforestation

| Quantity | Item | Price | Cost |
|---|---|---|---|
| | # of Acres | @ $11,700 AC | $ - |
| | **Subtotal for Reforestation** | | **$ -** |
| | **TOTAL LANDSCAPE ESCROW AMOUNT:** | | **$ 7,759.00** |

## 8. SILTATION AND EROSION CONTROL ESCROWS



| Quantity | Item | Price | Cost |
|---|---|---|---|
| | Diversion Dike | @ $7.00 LF | $ - |
| | Cleaning out SWM Facilities, Silt Traps and Silt Basins | $600/Hr. Lump Sum (Min. $20,000 or actual estimate provided by engineer to the satisfaction of the plan review) | $ - |
| | Silt Fence: 0' - 1000' (installation, maintenance for 1 year & removal) | @ $8.00 LF | $ - |
| | Silt Fence: 1001' - 1000' (installation, maintenance for 1 year & removal) | @ $6.00 LF | $ - |
| | Silt Fence: 10,000' + (installation, maintenance for 1 year & removal) | @ $4.00 LF | $ - |
| | Super Silt Fence: 0' - 1000' (installation, maintenance for 1 year & removal) | @ $20 LF | $ - |
| | Super Silt Fence: 1001' - 10000 (installation, maintenance for 1 year & removal) | @ $12 LF | $ - |
| | Super Silt Fence: 10,000' + (installation, maintenance for 1 year & removal) | @ $11.00 LF | $ - |
| | Sod | @ $8.00 SY | $ - |
| | Seed, Fertilizer & Mulch | @ $3.00 SY ($200 Min) | $ - |
| | Steep Slopes (Grading and Stabilization with jute mesh, netting, blankets, etc.) | @ $18 SY | $ - |
| | Coarse Aggregates (#1 or #57) | @ $35 TON | $ - |
| 3 | Inlet Protection | @ $190 EA | $ 570.00 |
| | Check Dam | @ $250 EA | $ - |
| | Temp. Construction Entrance | @ $2,300 EA | $ - |
| | Wash Rack | @ $2,000 EA | $ - |
| | Temp. Sediment Trap | @ $1,000 | $ - |
| | | @ $1,500 | $ - |
| | | @ $2,000 | $ - |
| | Temporary Sediment Basin | By itemized cost | |
| | Channel Diversion | By itemized cost | |
| | 6' Chain-link Safety Fence | @ $50 LF | $ - |
| | 4' Plastic Orange Safety Fence | @ $4.00 LF | $ - |
| | Yard utility refurbishment | @ $875 EA Single Family Lot | $ - |
| | Stockpile Removal (Quantity based on policy) | @ $30 CY | $ - |
| | Removal of Erosion Control Measures (SFDA, $1000 cost per acre | @ | $ - |
| | Level Spreader | By itemized cost | |
| | | | $ - |
| | | **Total Cost:** | **$ 570.00** |
| | | **Administrative Cost (10% of Total Cost):** | **$ 57.00** |
| | | **TOTAL SILTATION & EROSION CONTROL ESCROW AMOUNT:** | **$ 2,000.00** |

**Minimum acceptable amount for Siltation and Erosion Control is $2,500.00**

***I hereby certify that the above is my best estimate of the quantities and current cost of bondable improvements, landscaping items, Siltation & Erosion Control Escrow and floodplain items in this subdivision or site plan.***

| | |
|---|---|
| **Preparer's Signature** | 540-349-4500 **Telephone #** |
| Christina Hughes **Name (Print)** | Bohler Engineering **Company or Firm** |

**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. The excavation and embankment costs include necessary grading, spreading and/or compaction of soil in accordance with County and State Standards and Specifications
3. The unit cost for each of the items in the Unit Price Lists is the installation cost which includes factors such as materials, excavation, bedding backfilling, compaction, form work, etc.
4. Inflation has been calculated based on Northern Virginia Consumer Price Index of the Washington D.C. area provided by the Bureau of Labor and Statistics.
5. Whoever certifies the site development plans must also certify the total cost of the bonded items, landscaping escrow and siltation and erosion control escrow and must sign "Preparer's Signature" on page 10 of this form.
6. Floodplain Items Escrow not to be part of Bond/Escrow reduction.





Section V, Item2.

5200 Buffington Rd
Atlanta, Georgia 30349-2998

811 Know what's below. Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's the law.

REVISIONS:

| MARK | DATE | BY |
|---|---|---|
| 1 | 07/07/2025 | GAP |
| | COUNTY COMMENTS | |
| MARK | DATE | BY |
| 2 | 9/16/2025 | AG |
| | COUNTY COMMENTS | |
| MARK | DATE | BY |
| | | |

COMMONWEALTH OF VIRGINIA
KATHERINE ROBERTS
Lic. No. 0402060193
PROFESSIONAL ENGINEER
9/16/2025

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROJECT MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PLANNING & ENTITLEMENT
TRANSPORTATION SERVICES
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BOHLER
28 BLACKWELL PARK LANE, SUITE 201
WARRENTON, VIRGINIA 20186
Phone: (540) 349-4500
Fax: (540) 349-0321
VA@BohlerEng.com

STORE
SERIES 08C-R
#3197
15180 WASHINGTON ST
HAYMARKET,
VA, 20169

SHEET TITLE
UNIT PRICE LIST

DWG EDITION 02.4

☐ PRELIMINARY
☒ 80% SUBMITTAL
☐ FOR CONSTRUCTION

JOB NO. : VAB230141.00
STORE : #3197
DATE : 01/31/2024
DRAWN BY : GAP
CHECKED BY : KBR
CAD ID : CNDS-0

SHEET
C-3.6

PWCSA PL #SA2024-0052



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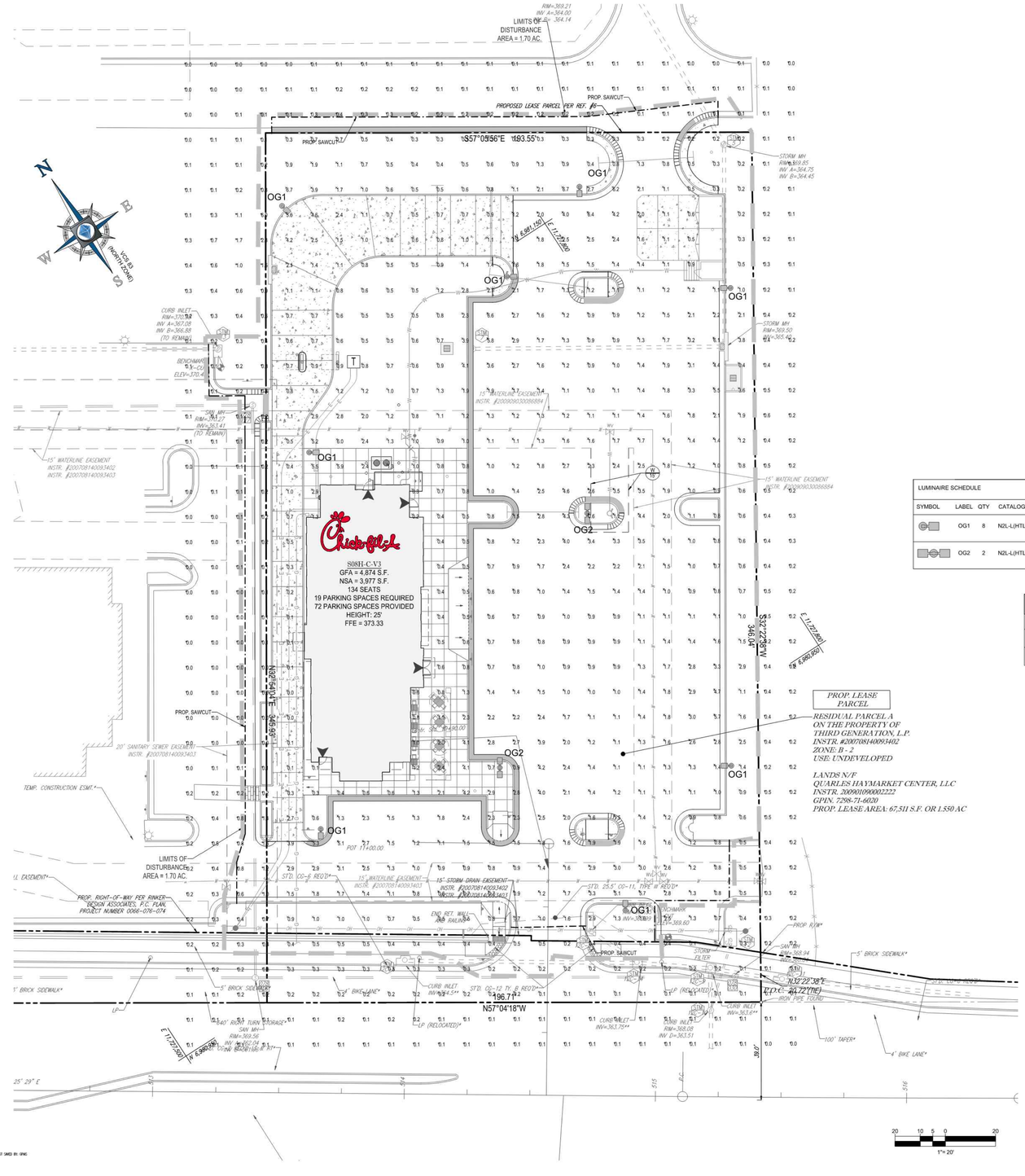


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## LIGHTING PLAN NOTES

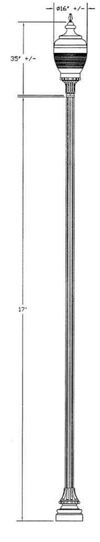
1. LIGHTS TO BE PLACED IN A MANNER WHICH ELIMINATES GLARE ONTO ADJACENT STREETS OR PROPERTIES AND ARE NOT TO EXCEED 16 FEET IN HEIGHT MEASURED FROM THE GRADE OR SURFACE ON WHICH THE LIGHT POLE IS MOUNTED TO THE BOTTOM OF THE LIGHTING FIXTURE.
2. LIGHTS MUST BE COMPATIBLE IN TERMS OF DESIGN AND HEIGHT WITH THE LIGHTING USED IN THE QUARLES CENTER.
3. THE EXISTING SITE LIGHTING OFF-SITE IS NOT INCORPORATED IN THE PROPOSED LIGHTING DESIGN.
4. CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS FOR LIGHTING CONDUIT SIZE AND SPECIFICATIONS.
5. CONTRACTOR TO ENSURE NO CONFLICTS BETWEEN LIGHT POLE FOUNDATIONS AND STRUCTURES OR PIPES.
6. THE DEVELOPER ACKNOWLEDGES THAT THE SITE LIGHTING WILL BE IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF ARTICLE 16 OF THE ZONING ORDINANCE AND EXISTING LIGHTING FOR QUARLES CENTER.
7. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT LIGHTING USED FOR CONSTRUCTION MEETS THE REQUIREMENTS OF ARTICLE 16 OF THE ZONING ORDINANCE AND EXISTING LIGHTING FOR QUARLES CENTER.
8. THIS PLAN IS BASED ON A PHOTOMETRIC PLAN ENTITLED: "CHICK-FIL-A DUMFRIES, VA" PREPARED BY KURZYNSKE & ASSOCIATES, DRAWING NO. CFA-3197, DATED 4/29/14, CAD FILE RECEIVED 4/29/14

LUMINAIRE SCHEDULE

| SYMBOL | LABEL | QTY | CATALOG NUMBER | DESCRIPTION | LAMP | Lumens | LLF | WATTS |
|---|---|---|---|---|---|---|---|---|
| | OG1 | 8 | N2L-L(HTL1CA)_T3_250_P-1-PT-3K-FIN2 | NEW ORLEANS DECO ACORN 16 1/4" X 23 1/4" X 16 3/8" HARD TOP REFLECTOR IN HAT SOCKET GLAZED PORCELAIN MEDIUM BASE WITH NICKEL- PLATED. POLE HEIGHT IS 16 FT. | | 22500 | 0.72 | 285 |
| | OG2 | 2 | N2L-L(HTL1CA)_T3_250_P-1-PT-3K-FIN2 | NEW ORLEANS DECO ACORN 16 1/4" X 23 1/4" X 16 3/8" HARD TOP REFLECTOR IN HAT SOCKET GLAZED PORCELAIN MEDIUM BASE WITH NICKEL- PLATED. POLE HEIGHT IS 16 FT. | | 22500 | 0.72 | 582 |

STATISTICS

| Description | AVG | MAX | MIN | MAX/MIN | MIN/AVG |
|---|---|---|---|---|---|
| PARKING LOT | 1.4 FC | 6.7 FC | 0.0 FC | N/A | N/A |
| LEASE AREA | 1.8 FC | 6.6 FC | 0.5 FC | 13.2 : 1 | 3.6 : 1 |




PRIMO
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FL3 10E-4-17-FLUTED-BK

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PROFESSIONAL ENGINEER
12/01/15

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SHEET TITLE
LIGHTING PLAN

DWG EDITION 2.4

☐ Preliminary
☐ 80% Submittal
☒ For Construction

Job No. : S116515
Store : 3197
Date : 06/06/14
Drawn By : PJC
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KATHERINE ROBERTS
Lic. No. 0402060193
PROFESSIONAL ENGINEER
9/16/2025

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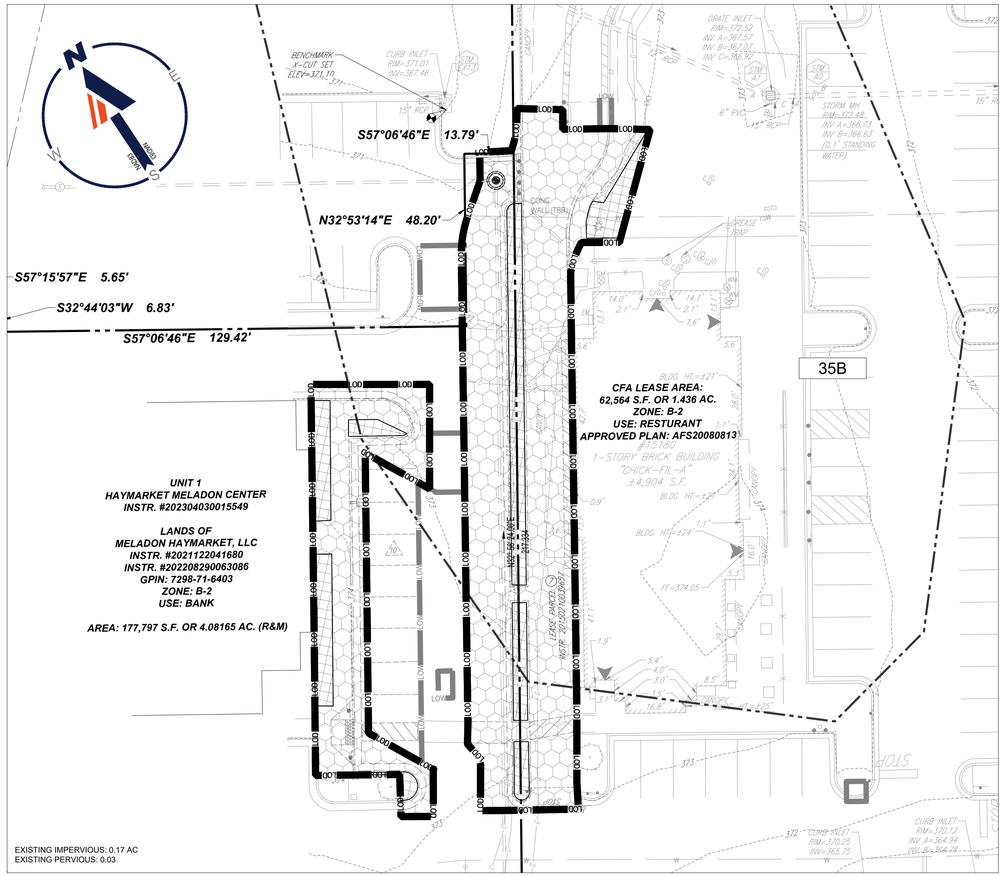
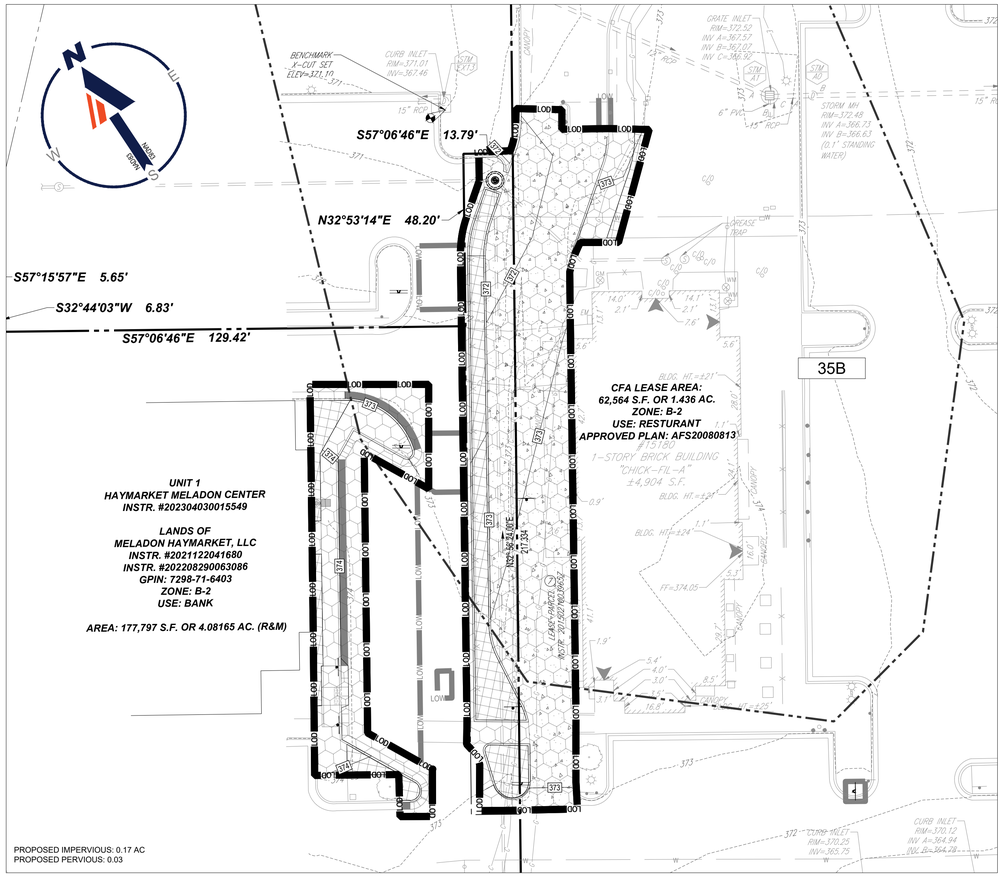



**PREDEVELOPED DRAINAGE MAP**

20 10 5 0 20
1"= 20'




**POST DEVELOPED DRAINAGE MAP**

20 10 5 0 20
1"= 20'

| LEGEND | |
|---|---|
| PERVIOUS | |
| IMPERVIOUS | |

## STORMWATER MANAGEMENT NARRATE

EXISTING CONDITIONS

THE EXISTING 4.08 ACRE SITE IS CURRENTLY DEVELOPED AND CONSISTS PRIMARILY OF A FAST FOOD RESTAURANT ON THE EAST SIDE OF THE SITE AND A BANK ON THE WEST SIDE. THE SITE IS MOSTLY IMPERVIOUS AREA INCLUDING PARKING LOTS AND SIDEWALKS WITH SOME PERVIOUS LANDSCAPE ISLANDS. ALL DRAINAGE ON SITE IS CAPTURED BY AN EXISTING STORMWATER CONVEYANCE SYSTEM WHICH ULTIMATELY OUTFALLS TO AN EXTENDED DETENTION STORMWATER MANAGEMENT POND AT THE NORTH OF THE SITE.

PROPOSED IMPROVEMENTS

THE PURPOSE OF THIS PROJECT IS TO EXTEND THE FAST FOOD RESTAURANT'S DRIVE THROUGH TO ADD A LANE ON THE PICK UP SIDE OF THE BUILDING. IT IS ALSO PROPOSED TO RECONFIGURE THE BANK'S PARKING ROW ON THE EAST SIDE OF THE BANK TO ANGLED PARKING, TO ACCOMMODATE THE EXTENDED DRIVE THROUGH. THE TOTAL DISTURBED AREA FOR THE CONSTRUCTION ACTIVITY IS ANTICIPATED TO BE 0.20 ACRES.

QUALITY AND QUANTITY

PER THE VRRM ADDED TO SHEET C-4.1, 0.01 LB/YR OF CREDITS ARE REQUIRED. SEE SHEET C-4.1 FOR NUTRIENT CREDIT AVAILABILITY LETTER.

CONCLUSION

IT IS THE OPINION OF THE ENGINEER THAT ALL STORMWATER MANAGEMENT REQUIREMENTS ARE MET. REFER TO THE REFERENCES INCLUDED IN THIS SET FOR ADEQUATE OUTFALL ANALYSIS.

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*DEQ Virginia Runoff Reduction Method Re-Development Compliance Spreadsheet - Version 4.1*

CLEAR ALL (Ctrl+Shift+R)

data input cells
constant values
calculation cells
final results

Project Name: Chick-Fil-A Haymarket (#3197) - Site Plan Amendment
Date: 9/16/2025
Linear Development Project? No

## Site Information

## Post-Development Project (Treatment Volume and Loads)

Enter Total Disturbed Area *(acres)* → 0.20

*Maximum reduction required:* 10%
*The site's net increase in impervious cover (acres) is:* 0
*Post-Development TP Load Reduction for Site (lb/yr):* 0.01

*Check:*
*BMP Design Specifications List:* 2024 Stds & Specs
*Linear project?* No
*Land cover areas entered correctly?* ✓
*Total disturbed area entered?* ✓

**Pre-ReDevelopment Land Cover (acres)**

| | A Soils | B Soils | C Soils | D Soils | Totals |
|---|---|---|---|---|---|
| **Forest (acres)** -- undisturbed, protected forest or reforested land | | | | | 0.00 |
| **Mixed Open (acres)** -- undisturbed/infrequently maintained grass or shrub land | | 0.02 | 0.01 | | 0.03 |
| **Managed Turf (acres)** -- disturbed, graded for yards or other turf to be mowed/managed | | 0.11 | 0.06 | | 0.17 |
| **Impervious Cover (acres)** | | | | | 0.00 |
| | | | | | 0.20 |

**Post-Development Land Cover (acres)**

| | A Soils | B Soils | C Soils | D Soils | Totals |
|---|---|---|---|---|---|
| **Forest/Open Space (acres)** -- undisturbed, protected forest or reforested land | | | | | 0.00 |
| **Mixed Open (acres)** -- undisturbed/infrequently maintained grass or shrub land | | 0.02 | 0.01 | | 0.03 * |
| **Managed Turf (acres)** -- disturbed, graded for yards or other turf to be mowed/managed | | 0.11 | 0.06 | | 0.17 |
| **Impervious Cover (acres)** | | | | | 0.00 |
| **Area Check** | OK. | OK. | OK. | OK. | 0.20 |

** Forest & Mixed Open areas must be protected in accordance with the Virginia Runoff Reduction Method or other applicable DEQ guidelines*

**Post-Development Requirement for Site Area**

| TP Load Reduction Required (lb/yr) | 0.01 |
|---|---|

## Site Results (Water Quality Compliance) VRRM 4.1, 2024

| Area Checks | D.A. A | D.A. B | D.A. C | D.A. D | D.A. E | AREA CHECK |
|---|---|---|---|---|---|---|
| FOREST (ac) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | OK. |
| MIXED OPEN (ac) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | OK. |
| MIXED OPEN AREA TREATED(ac) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | OK. |
| MANAGED TURF AREA (ac) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | OK. |
| MANAGED TURF AREA TREATED (ac) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | OK. |
| IMPERVIOUS COVER (ac) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | OK. |
| IMPERVIOUS COVER TREATED (ac) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | OK. |
| AREA CHECK | OK. | OK. | OK. | OK. | OK. | |

Site Treatment Volume ($ft^3$) 140

**Runoff Reduction Volume and TP By Drainage Area**

| | D.A. A | D.A. B | D.A. C | D.A. D | D.A. E | TOTAL |
|---|---|---|---|---|---|---|
| RUNOFF REDUCTION VOLUME ACHIEVED ($ft^3$) | 0 | 0 | 0 | 0 | 0 | 0 |
| TP LOAD AVAILABLE FOR REMOVAL (lb/yr) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TP LOAD REDUCTION ACHIEVED (lb/yr) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TP LOAD REMAINING (lb/yr) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NITROGEN LOAD REDUCTION ACHIEVED (lb/yr) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

**Total Phosphorus**

| | |
|---|---|
| FINAL POST-DEVELOPMENT TP LOAD (lb/yr) | 0.13 |
| TP LOAD REDUCTION REQUIRED (lb/yr) | 0.01 |
| TP LOAD REDUCTION ACHIEVED (lb/yr) | 0.00 |
| TP LOAD REMAINING (lb/yr): | 0.13 |
| REMAINING TP LOAD REDUCTION REQUIRED (lb/yr): | 0.01 |

**Total Nitrogen (For Information Purposes)**

| | |
|---|---|
| POST-DEVELOPMENT LOAD (lb/yr) | 1.32 |
| NITROGEN LOAD REDUCTION ACHIEVED (lb/yr) | 0.00 |
| REMAINING POST-DEVELOPMENT NITROGEN LOAD (lb/yr) | 1.32 |

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9/16/2025

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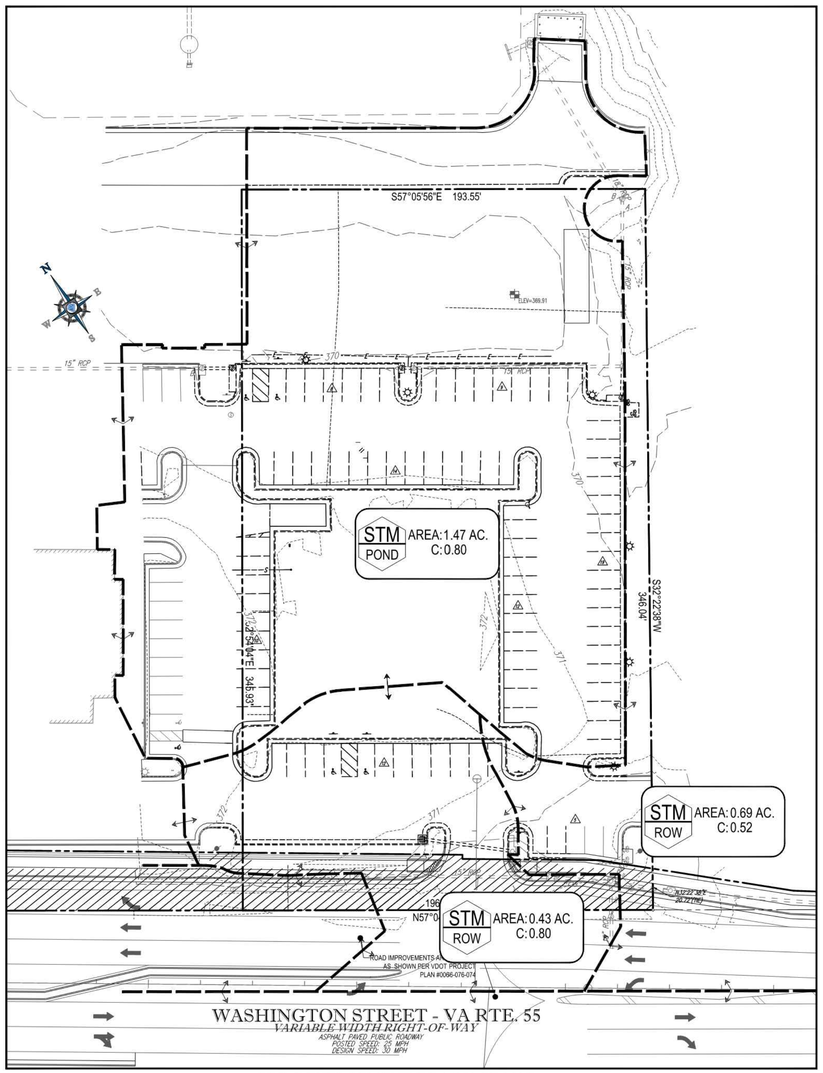
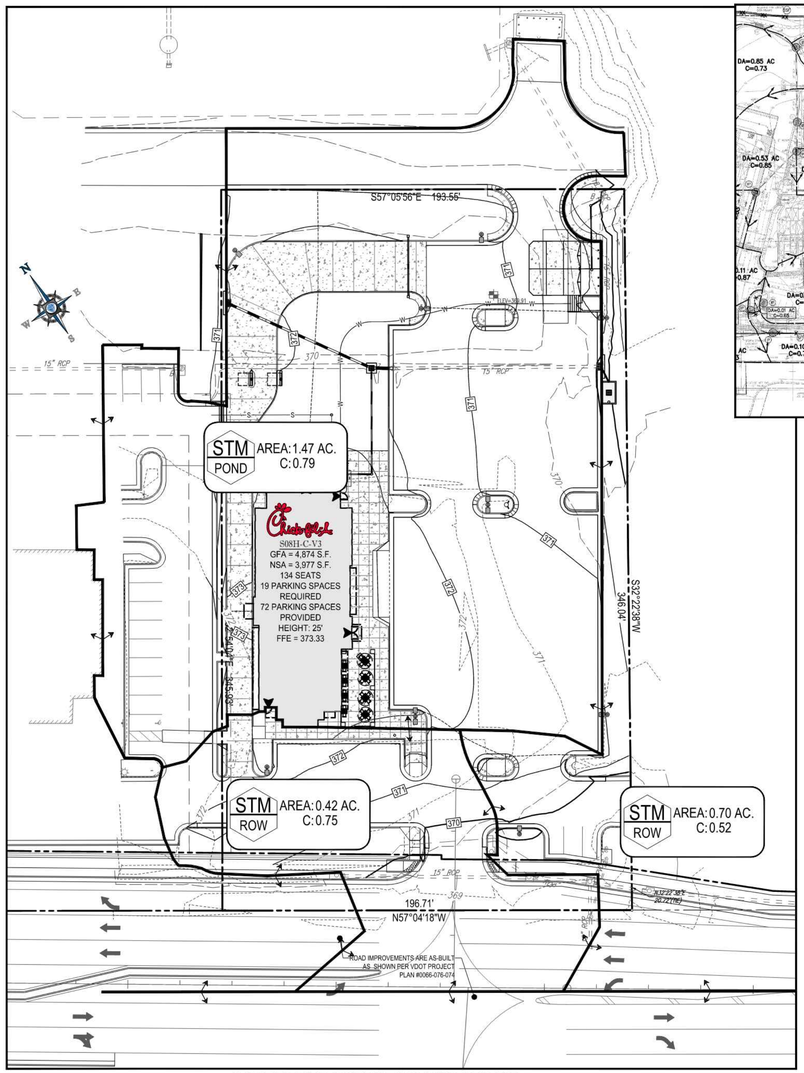
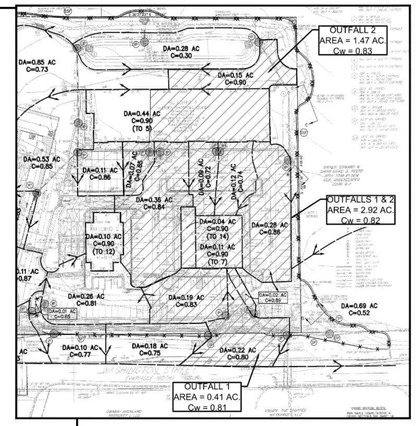



PRE-DEVELOPMENT DRAINAGE MAP
SCALE 1"=30'




POST DEVELOPMENT DRAINAGE MAP
SCALE 1"=30'




PARTIAL DRAINAGE MAP FROM QUARLES SITE PLAN
NOT TO SCALE

## SWM NARRATIVE

THE EXISTING QUARLES SHOPPING CENTER HAS AN EXTENDED DETENTION STORMWATER MANAGEMENT POND. THE POND WAS DESIGNED BY USING THE RATIONAL METHOD. THE POND HAS BEEN SIZED TO ADEQUATELY DETAIN THE 2 AND 10 YEAR STORM AND PASS THE 100 YEAR STORM THROUGH THE COMBINED SPILLWAY WHILE MAINTAINING 2' OF FREEBOARD. THE APPROVED RELEASE RATES FOR THE 2 YEAR AND 10 YEAR FLOWS ARE 4.29 CFS AND 6.40 CFS PER SITE PLAN NO. AFS20080813. SEE SHEET 25 FOR THE APPROVED RELEASE RATES AND DRAINAGE TO POND.

THE OVERALL C FACTOR (0.78) FOR THE PROPOSED PAD SITE IS BELOW THE APPROVED C FACTOR (0.83) FOR THE QUARLES CENTER SITE PLAN (PLAN NO. AFS20080813). THE FLOW TO THE EXISTING POND DOES NOT INCREASE. THE DRAINAGE MAPS ON THIS SHEET DEMONSTRATE THE DRAINAGE DIVIDES ARE IN SUBSTANTIAL CONFORMANCE WITH THE APPROVED QUARLES SITE PLAN. THE POST DEVELOPMENT IMPERVIOUS AREA TO THE EXISTING POND HAS BEEN REDUCED, AS SUCH THE APPROVED DISCHARGE RATES FROM THE POND HAVE NOT BEEN INCREASED.

IT IS THE OPINION OF THE ENGINEER THAT THE PROPOSED AND EXISTING STORM SYSTEMS ARE ADEQUATE AND THE SWM REQUIREMENTS HAVE BEEN MET, SINCE THE FLOW RATES FROM THE PROPOSED DEVELOPMENT DO NOT EXCEED APPROVED RELEASE RATES OR THE CAPACITY OF THE EXISTING STORM SYSTEM.

## BMP NARRATIVE

BEST MANAGEMENT PRACTICES FOR THIS SITE ARE BEING PROVIDED BY AN EXTENDED DETENTION DRY POND, A BIORETENTION FILTER (RAIN GARDEN), A VORTFILTER (STORMFILTER) AND FOUR (4) FILTERRA UNITS. A PHOSPHOROUS REMOVAL EFFICIENCY RATE OF 51.33% HAS BEEN PROVIDED FOR THE SITE PER THE APPROVED QUARLES CENTER SITE PLAN NO. AFS20080813.

THE DRAINAGE AREAS 4,6, AND 7 HAVE BEEN REVISED PER THE PROPOSED PAD SITE. THE BMP COMPUTATIONS HAVE BEEN UPDATED, AS SHOWN ON SHEET 25. THE TOTAL PHOSPHOROUS REMOVAL HAS BEEN INCREASED WITH THIS DEVELOPMENT FROM 51.33% TO 51.63%. FILTERRA (F3) IS PROPOSED TO BE REPLACE BY A LARGER FILTERRA.

IT IS THE OPINION OF THE ENGINEER THAT THE PROPOSED AND EXISTING STORM SYSTEMS ARE ADEQUATE AND THE BMP REQUIREMENTS HAVE BEEN MET.

## ADEQUATE OUTFALL NARRATIVE

THE SITE OUTFALLS IN TWO DIRECTIONS, TO AN EXISTING SWM POND AND TO WASHINGTON STREET. THE EXISTING STORM WATER MANAGEMENT FACILITY OUTFALLS AT THE NORTHERN PROPERTY LINE. THE OUTFALL CONSISTS OF A 24" STORM SEWER PIPE. THE FLOWS AT THE PIPE HAVE BEEN REDUCED TO BELOW THE PREDEVELOPMENT LEVELS FOR THE 2 AND 10 YEAR STORMS. THE SWM FACILITY OUTLET PIPE EMPTIES INTO RIP-RAP OUTLET PROTECTION THEN PASSES OVER A LEVEL SPREADER WHERE CONCENTRATED RUNOFF IS CONVERTED TO SHEET FLOW. THE SHEET FLOW THAN TRAVELS 440' THROUGH THE ADJOINING NORTHERN PROPERTY THEN CROSSING UNDER ROUTE #15 WITHIN AN EXISTING 36" CULVERT THEN ENTERING A BRANCH OF THE BED AND BANKS OF LITTLE BULL RUN. THE SOUTHERN OUTFALL CONSISTS OF TWO CLOSED STORM SEWER OUTFALL CONNECTIONS TO EXISTING 15" STORM SEWER PIPES. THE FLOWS AT THESE STORM SEWER CONNECTIONS HAVE BEEN REDUCED TO BELOW THE PREDEVELOPMENT LEVEL FOR THE 2 AND 10 YEAR STORMS.

PROPOSED RUNOFF DOES NOT EXCEED THE APPROVED RELEASE RATES FOR THE POND AND THE RUNOFF TO THE STRUCTURES IN THE RIGHT-OF-WAY HAVE NOT BEEN INCREASED. THE ADEQUACY OF THE OUTFALLS ARE MAINTAINED, IT IS THE OPINION OF THE ENGINEER THAT THE PROPOSED AND EXISTING STORM SYSTEMS ARE ADEQUATE AND THE SWM/BMP REQUIREMENTS HAVE BEEN MET. IN ADDITION, THERE WILL BE NO ADVERSE IMPACTS TO THE FLOW RATES TO THE ADJOINING PROPERTIES AND DOWNSTREAM FACILITIES. THERE ARE NO KNOWN DOWNSTREAM DRAINAGE PROBLEMS.

NOTE: THE STORMWATER MANAGEMENT, INLET COMPUTATIONS, AND PIPE COMPUTATIONS ARE PROVIDED ON SHEETS 24 AND 25 FOR REFERENCE TO DEMONSTRATE THE CAPACITY OF THE EXISTING SYSTEM AND PROVE THE RELEASE RATES FOR THE POND ARE BELOW THE ALLOWABLE RELEASE RATES.

30 15 7.5 0 30
1"= 30'

DETAIL REFERENCE:
INFORMATION PROVIDED/PREPARED BY OTHERS AND IS FROM THE PLAN NAMED AFS20080813, DATED 12/1/15.

Chick-fil-A
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## STORM INLET DESIGN COMPUTATIONS

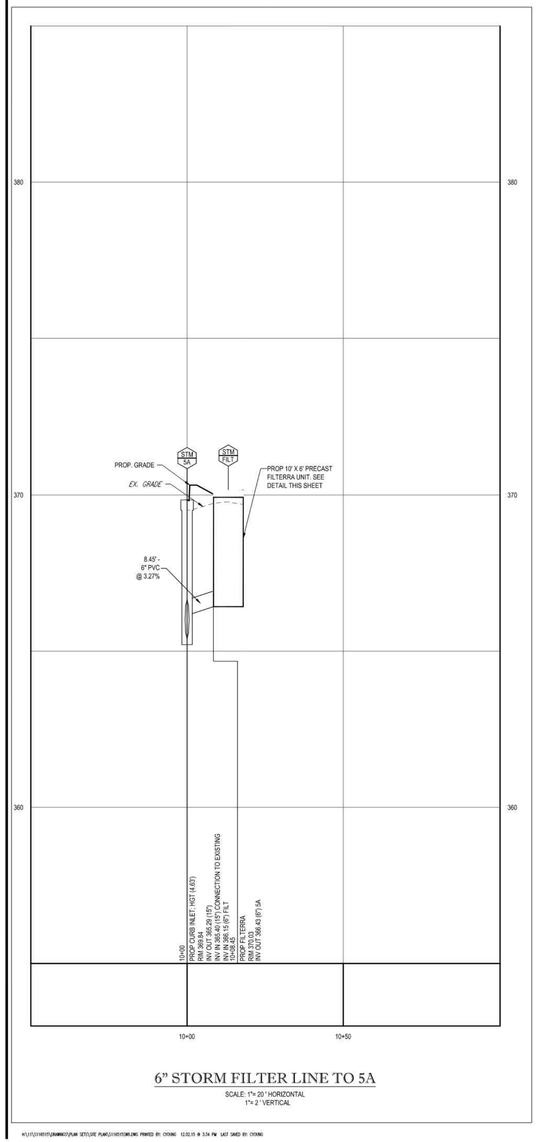
| Inlet | Type | L | A | Cw | I | Q | S | Sx | T | W | W/T | Sw | Sw/Sx | Eo | a | S'w | Se | Lt | P. EFF. LENGTH | L/Lt | d | E | h | Qint | d/h | Q(co) | T@sag | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | DI-1 | - | 0.08 | 0.40 | 7.27 | 0.23 | 0.02 | 0.02 | 3.17 | 2 | 0.63 | 0.02 | 1.00 | 1 | | | | | | | 0.06 | 1 | | 0.23 | | 0.00 | 3.34 | SUMP (50% CLOGGED) |
| A2 | DI-2C | 10 | 0.12 | 0.75 | 5.75 | 0.52 | 0.012 | 0.012 | 5.49 | 2 | 0.36 | 0.012 | 1.00 | 1 | | | | | | | 0.07 | 1 | 0.5 | 0.52 | 0.14 | 0.00 | 7.6 | SUMP |
| 5A | DI-3C | 10 | 0.10 | 0.85 | 5.75 | 0.49 | 0.012 | 0.012 | 6.61 | 2 | 0.3 | 0.083 | 6.94 | 1 | | | | | | | 0.08 | 1 | 0.5 | 0.49 | 0.16 | 0.00 | 1.93 | SUMP |
| 12C-8 | DI-3A | 8 | 0.17 | 0.80 | 5.75 | 0.78 | 0.02 | 0.02 | 1.57 | 2 | 1.27 | 0.083 | 4.17 | 1 | 3.5 | 0.146 | 0.16 | 6.1 | 100.00% | 1.31 | | | | 0.78 | | 0.00 | 3.31 | ON GRADE |
| EX4 | DI-3B | 4 | 0.34 | 0.80 | 5.75 | 1.56 | 0.015 | 0.027 | 6.88 | 2 | 0.29 | 0.083 | 3.09 | 1 | | | | | | | 0.19 | 1 | 0.5 | 1.56 | 0.38 | 0.00 | 3.18 | SUMP |
| EX13 | DI-3B | 4 | 0.27 | 0.75 | 5.75 | 1.16 | 0.018 | 0.018 | 9.66 | 2 | 0.21 | 0.083 | 4.61 | 1 | | | | | | | 0.17 | 1 | 0.5 | 1.16 | 0.34 | 0.00 | 5.59 | SUMP |

## STORM SEWER DESIGN COMPUTATIONS

| FROM | TO | DRAIN. | RUNOFF | CA | | INLET | RAINFALL | RUNOFF | INVERT | | LENGTH | SLOPE | DIA. | | CAPACITY | VELOCITY | FLOW | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STR | STR | AREA | COEFF. | INCREM. | ACCUM. | TIME | INTENSITY | Q | ELEVATIONS | | | | | n | | | TIME | |
| | | ACRES | C | | | MIN. | IN./HR. | C.F.S. | UPPER | LOWER | FT. | FT./FT. | IN. | | C.F.S. | F.P.S. | MIN. | |
| A2 | A1 | 0.12 | 0.75 | 0.09 | 0.09 | 5.00 | 7.27 | 0.65 | 366.67 | 366.29 | 76.09 | 0.0050 | 12 | 0.013 | 2.5 | 2.7 | 0.47 | |
| A1 | 5A | 0.08 | 0.40 | 0.03 | 0.23 | 5.00 | 7.27 | 1.69 | 366.04 | 365.40 | 110.16 | 0.0058 | 15 | 0.013 | 4.9 | 3.7 | 0.50 | A1 CA = 0.11 |
| 5A | EX5 | 0.10 | 0.85 | 0.09 | 0.70 | 5.00 | 7.27 | 5.09 | 365.40 | 364.75 | 80.25 | 0.0081 | 15 | 0.013 | 5.8 | 5.4 | 0.25 | *SEE NOTE BELOW |
| EX5 | EX4 | 0.00 | 0.00 | 0.00 | 0.70 | 5.00 | 7.27 | 5.09 | 364.45 | 364.14 | 87.16 | 0.0036 | 18 | 0.013 | 6.3 | 4.0 | 0.36 | |
| EX4 | EX3 | 0.34 | 0.80 | 0.27 | 0.97 | 5.00 | 7.27 | 7.06 | 363.80 | 363.75 | 11.91 | 0.0042 | 21 | 0.013 | 10.3 | 4.7 | 0.04 | |
| | | | | | | | | | | | | | | | | | | |
| FILT | 5A | 0.45 | 0.85 | WATER QUALITY FLOW | | | | 0.14 | 366.43 | 366.15 | 8.45 | 0.0331 | 6 | 0.012 | 1.1 | 3.9 | 0.04 | |
| | | | | | | | | | | | | | | | | | | |
| 12C-6 | 12C-14 | 0.28 | 0.75 | 0.21 | 0.21 | 5.00 | 7.27 | 1.53 | 364.50 | 363.75 | 92.37 | 0.0081 | 15 | 0.013 | 5.8 | 4.0 | 0.38 | |
| 12C-8 | 12C-14 | 0.17 | 0.80 | 0.14 | 0.35 | 5.00 | 7.27 | 2.52 | 363.99 | 363.75 | 22.62 | 0.0106 | 15 | 0.013 | 6.7 | 5.1 | 0.07 | |
| 12C-14 | 12C-9 | 0.17 | 0.85 | 0.14 | 0.49 | 5.00 | 7.27 | 3.57 | 363.75 | 363.60 | 29.33 | 0.0051 | 15 | 0.013 | 4.6 | 4.2 | 0.12 | |
| 12C-9 | 12C-10 | 0.04 | 0.85 | 0.03 | 0.52 | 5.00 | 7.27 | 3.81 | 363.60 | 363.51 | 17.00 | 0.0053 | 15 | 0.013 | 4.7 | 4.3 | 0.07 | |
| | | | | | | | | | | | | | | | | | | |
| F2 | 12C-10 | 0.07 | 0.80 | 0.06 | 0.58 | 5.00 | 7.27 | 4.22 | 363.99 | 363.83 | 31.66 | 0.0051 | 15 | 0.013 | 4.6 | 4.3 | 0.12 | |

NOTES:

1. THE CA VALUE FROM THE FILT TO 5A (0.45 X 0.85 = 0.3825) HAS BEEN ADDED TO THE ACCUMULATED CA QUANTITY FOR 5A TO EX5.
2. THE EXISTING STORM SYSTEM AND LINEWORK NEAR THE ENTRANCE WAS PROVIDED BY VDOT AND INTEGRATED INTO THIS PLAN AS AN EXISTING CONDITION THAT WILL BE CONSTRUCTED PRIOR TO CONSTRUCTION OF THIS DEVELOPMENT. ENGINEERING ASSUMPTIONS WERE MADE IN REGARDS TO THE VERTICAL DESIGN OF THE STORM SYSTEM IN ORDER TO RUN STORM COMPUTATIONS TO ADEQUATELY ASSESS HOW THE PROPOSED DEVELOPMENT WILL AFFECT THE EXISTING SYSTEM.




6" STORM FILTER LINE TO 5A

SCALE: 1"= 20' HORIZONTAL
1"= 2' VERTICAL

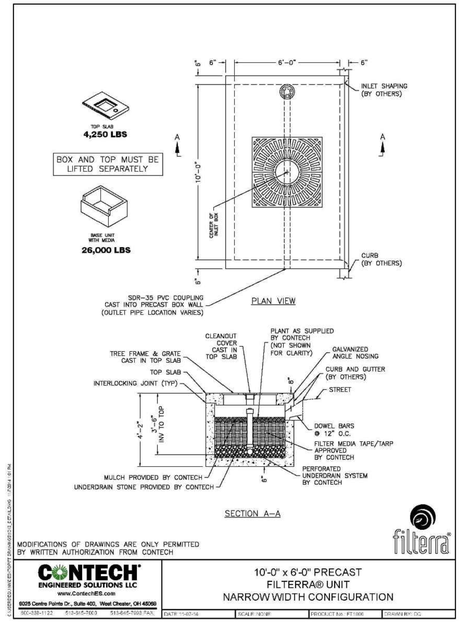
### Sizing and Flow Rate Spreadsheet

| | |
|---|---|
| FSA/DA | 0.3300% |
| C Factor | 0.80 |
| Approved Flow Rate | 100 in/hr |
| Event Duration | 24 hr |

| Available Filterra® Box Sizes (feet) | Filter Surface Area | Maximum Contributing Drainage Area (acres) | Street Tree (ac) | CFS |
|---|---|---|---|---|
| 4x4 | 16 sf | 0.14 | 0.07 | 0.037 |
| 4x6 or 6x4 or 8x3 | 24 sf | 0.21 | 0.12 | 0.056 |
| 4x8 or 8x4 | 32 sf | 0.28 | 0.17 | 0.074 |
| Standard 8x8 | 36 sf | 0.31 | 0.19 | 0.083 |
| 6x8 or 8x6 or 4x12 or 12x4 | 48 sf | 0.42 | 0.27 | 0.111 |
| 6x10 or 10x6 | 60 sf | 0.52 | 0.34 | 0.139 |
| 6x12 or 12x6 | 72 sf | 0.63 | 0.41 | 0.167 |
| 7x13 or 13x7 | 91 sf | 0.79 | 0.53 | 0.211 |
| Boxless | 126.5 sf | 1.10 | | |

| Approved FSA/DA | |
|---|---|
| Virginia = 0.33% | Sizing conforms to VA DCR Technical Bulletin 6 |
| Maryland = 0.441% | Sizing conforms to MDE Approval Letter 2006 |
| NC Piedmont = 0.2517% | Sizing is valid for treating 90% of annual runoff of 1" rainfall |
| Great Lakes = 0.31% | Sizing is valid for treating 90% of annual runoff |
| New Jersey = 0.42% | Sizing conforms to NJCAT Testing Results and Treatment of 1.25" in 2-hr Design Treatment |
| New York (P > 1) = 0.44% | |
| New York (P >= 1) = 0.32% | |
| North East = 0.202% | |
| South East = 0.32% | |
| Missouri = 0.4953% | |
| Orlando, Florida Retro = 0.33% | |
| Ohio = 0.463% | |
| Georgia = 0.59% | |

| GPM | Max Gal. Treated (Based on Event Duration) | Max CF Treated (Based on Event Duration) |
|---|---|---|
| 16.62 | 23937.65 | 3200.00 |
| 24.94 | 35906.48 | 4800.00 |
| 33.25 | 47875.31 | 6400.00 |
| 37.40 | 53859.72 | 7200.00 |
| 49.87 | 71812.96 | 9600.00 |
| 62.34 | 89766.20 | 12000.00 |
| 74.81 | 107719.44 | 14399.99 |
| 94.55 | 136145.40 | 18199.99 |

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DATE: 11-07-14 | SCALE: NTS | PRODUCT NO.: PT1006 | DRAWN BY: DC

NOTE: THE STORMWATER MANAGEMENT, INLET COMPUTATIONS, AND PIPE COMPUTATIONS ARE PROVIDED ON THIS SHEET TO DEMONSTRATE THE CAPACITY OF THE EXISTING SYSTEM AND PROVE THE RELEASE RATES FOR THE POND ARE BELOW THE ALLOWABLE RELEASE RATES. THESE COMPUTATIONS ARE FROM THE APPROVED QUARLES SITE PLAN NO. AFS20080813.

THIS PLAN TO BE UTILIZED FOR INFORMATIONAL PURPOSES ONLY

DETAIL REFERENCE:
INFORMATION PROVIDED/PREPARED BY OTHERS AND IS FROM THE PLAN NAMED AFS20080813, DATED 12/1/15.

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(MD 1-800-257-7777) (DE 1-800-282-8555)

Revisions:

| Mark | Date | By |
|---|---|---|
| 4 | 10/30/15 | CLY |
| | REV. PER TOWN | |
| | COMMENTS | |
| 5 | 11/23/15 | CLY |
| | REV. PER TOWN | |
| | COMMENTS | |
| 6 | 12/01/15 | CLY |
| | REV. PER TOWN | |
| | COMMENTS | |

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Lic. No. 0402 031693
PROFESSIONAL ENGINEER
12/01/15

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SHEET TITLE
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DWG EDITION 2.4

☐ Preliminary
☐ 80% Submittal
☒ For Construction

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| Date | : 06/06/14 |
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Sheet
PS-1.4
24 OF 37

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| | COUNTY COMMENTS | |
| 2 | 9/16/2025 | AG |
| | COUNTY COMMENTS | |
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| CHECKED BY | : KBR |
| CAD ID | : SITE -0 |

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PWCSA PL #SA2024-0052



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# REVISED QUARLES CENTER BMP COMPACTIONS

Northern Virginia BMP Handbook 11/5/92

## BMP Facility Design Calculations

Plan Name: QUARLES CENTER — Date: 05/01/06
Plan Number: — Engineer: B. THOMAS

I. Water Quality Narrative

(SEE SHEET 2)

FOR SWM & BMP PURPOSES, THE GRASS AREA BEHIND BUILDING 1 (DA5) IS PROPOSED AS AN IMPERVIOUS SURFACE TO PROVIDE ADEQUATE BMP & SWM REQUIREMENTS FOR ULTIMATE BUILDOUT OF THIS AREA.

II. Watershed Information

Part 1: List all of the Subareas and "C" Factors used in the BMP Computations

| Subarea Designation and Description (1) | "C" (2) | Acres (3) |
|---|---|---|
| DA1: ONSITE CONTROLLED | 0.83 | 0.57 |
| DA2: ONSITE CONTROLLED | 0.81 | 0.26 |
| DA3: ONSITE CONTROLLED | 0.86 | 0.07 |
| DA4: ONSITE CONTROLLED | 0.86 | 0.25 [0.45] |
| DA5: ONSITE CONTROLLED | 0.90 | 0.73 |
| DA6: ONSITE CONTROLLED | 0.86 | 1.59 [1.44] |
| DA7: ONSITE CONTROLLED | 0.73 | 1.38 [1.63] |
| DA8: ONSITE UNCONTROLLED | 0.53 | 1.15 |

NOTE: Rational formula "C" factors are taken from the general zoning values listed in Appendix A-1 or A-2 depending on the location of the BMP facility (Fairfax County Public Facilities Manual Chart A6-19 or Prince William County Design and Construction Standards Manual, Exhibit 1).

Part 2: Compute the Weighted Average "C" Factor for the Site

(A) Area of the site — (a) 6.00 acres

(B) Subareas Designation

| (1) | "C" (2) | | Acres (3) | | Product (4) |
|---|---|---|---|---|---|
| DA1 | 0.83 | X | 0.57 | = | 0.47 |
| DA2 | 0.81 | X | 0.26 | = | 0.21 |
| DA3 | 0.86 | X | 0.07 | = | 0.06 |
| DA4 | 0.86 [0.86] | X | 0.25 [0.45] | = | 0.22 [0.39] |
| DA5 | 0.90 | X | 0.73 | = | 0.66 |
| DA6 | 0.86 [0.86] | X | 1.59 [1.44] | = | 1.37 [1.24] |
| DA7 | 0.73 [0.73] | X | 1.38 [1.63] | = | 1.00 [1.19] |
| DA8 | 0.53 | X | 1.15 | = | 0.61 |
| | | X | | = | |

(b) Total = 4.60 [4.79]
(C) Weighted average "C" factor — (b) / (a) = (c) 0.76 [0.80]

Part 3: Compute the Total Phosphorus Removal for the Site

| Subarea Designation (1) | BMP Type (2) | Removal Eff. (%) (3) | | Area Ratio * (4) | | "C" Factor Ratio ** (5) | | Product (6) |
|---|---|---|---|---|---|---|---|---|
| DA1 | BIORETENTION | 65% | X | 0.095 | X | 1.09 | = | 6.73 |
| DA2 | FILTERRA (T1) | 65% | X | 0.043 | X | 1.07 | = | 2.99 |
| DA3 | FILTERRA (T2) | 65% | X | 0.012 | X | 1.13 | = | 0.88 |
| DA4 | FILTERRA (T3) | 65% | X | 0.042 [0.078] | X | 1.13 | = | 3.06 [5.42] |
| DA5 | FILTERRA (T4) | 65% | X | 0.122 | X | 1.18 | = | 9.36 |
| DA6 | WETPOND | 65% | X | 0.265 [0.243] | X | 1.08 [1.13] | = | 19.46 [18.80] |
| DA7 | DRY POND | 40% | X | 0.230 [0.253] | X | 0.95 [0.96] | = | 8.83 [9.7] |
| | | | X | | X | | = | |
| | | | X | | X | | = | |

(a) Total = 51.33 % [51.63%]

QUARLES CENTER POND APPROVED RELEASE RATES

QUARLES CENTER POND DRAINAGE INFORMATION.

## STORMWATER MANAGEMENT COMPUTATIONS:

**Site Area = 6.00 Acres**
**Q = CIA (Rational Equation)**
**Tc = 5 minutes**
**Cpre=0.41, Cpost=0.76**

REVISED INLET COMPUTATION

**Pre-Development Conditions:**

Q 2YR = (.41)(5.45)(6.00) = 13.41cfs
Q 10YR = (.41)(7.27)(6.00) = 17.88cfs
V 2YR = (.41)(2/12)(6.00) = 0.4100 ac-ft

**Post-Development Conditions:**

Q 2YR = (.76)(5.45)(6.00) = 24.85cfs
Q 10YR = (.76)(7.27)(6.00) = 33.15cfs
V 2YR = (.76)(2/12)(6.00) =0.7600 ac-ft

REVISED INLET COMPUTATION

**Net Increase/ Detention Required:**

Q = Qpost - Qpre

Q 2YR = 24.85 - 13.41 = 11.44cfs
Q 10YR = 33.15 - 17.88 = 15.27cfs
V 2YR = 0.7600 - 0.4100 = 0.3500 ac-ft

REVISED INLET COMPUTATION

**Detention Provided:**

ALLOWABLE RELEASE RATE:
Q 2YR INFLOW – INCREASE = 17.67 – 11.44 = 6.23
Q 10YR INFLOW – INCREASE = 23.58 – 15.27 = 8.31

ACTUAL REALEASE RATE:
Q 2YR = 4.29 CFS
Q 10YR = 6.40 CFS

THEREFORE DETENTION MEASURES ARE ADEQUATE
SEE SHEET 23 FOR STORMWATER MANAGEMENT NARRATIVE

QUARLES CENTER POND DRAINAGE INFORMATION.

## DRAINAGE TO POND

3.91 ACRES OF AREA DRAINS TO THE PROPOSED STORMWATER MANAGEMENT EXTENDED DETENTION DRY POND. THE C VALUE IS 0.83 AND THE TIME OF CONCENTRATION IS 5 MINUTES.

STOI CI

# REVISED QUARLES CENTER INLET COMPACTIONS

PROJECT: Quarles Center
DISTRICT: Town of Haymarket
I Inlet Structures

| Inlet | L | A | Cw | I | Q | S | Sx | T | W | W/T | Sw | Sw/Sx | Eo | a | S'w | Se | Lt | L/Lt | d | E | h | Qint | d/h | Q(co) | T@sag | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 DI-3B | 4 | [0.29] 0.15 | [0.44] 0.90 | 5.75 | [1.40] 0.78 | 0.0150 | 0.0270 | [0.88] 4.65 | 2 | [0.28] 0.43 | 0.0833 | 3.09 | n/a | n/a | n/a | n/a | n/a | n/a | 0.13 | 1.00 | n/a | 0.78 | n/a | 0.00 | [5.18] 1.79 | in sump |
| 6 DI-3B | 8 | 0.28 | 0.86 | 5.75 | 1.38 | 0.0200 | 0.0100 | 11.60 | 2 | 0.17 | 0.0833 | 6.33 | n/a | n/a | n/a | n/a | n/a | n/a | 0.14 | 1.00 | n/a | 1.38 | n/a | 0.00 | 2.73 | in sump |
| 7 DI-3B | 4 | 0.12 | 0.74 | 5.75 | 0.51 | 0.0180 | 0.0085 | 14.50 | 2 | 0.14 | 0.0833 | 12.82 | n/a | n/a | n/a | n/a | n/a | n/a | 0.09 | 1.00 | n/a | 0.51 | n/a | 0.00 | 1.47 | in sump |
| 8 DI-3B | 4 | 0.09 | 0.72 | 5.75 | 0.37 | 0.0180 | 0.0085 | 11.70 | 2 | 0.17 | 0.0833 | 12.82 | n/a | n/a | n/a | n/a | n/a | n/a | 0.08 | 1.00 | n/a | 0.37 | n/a | 0.00 | 1.30 | in sump |
| 10 DI-3C | 10 | 0.85 | 0.73 | 5.75 | 3.57 | 0.0056 | 0.0208 | 11.30 | 2 | 0.18 | 0.0833 | 4.00 | n/a | n/a | n/a | n/a | n/a | n/a | 0.24 | 1.00 | n/a | 3.57 | n/a | 0.00 | 9.95 | in sump |
| 11 DI-3C | 8 | 0.53 | 0.85 | 5.75 | 2.59 | 0.0100 | 0.0305 | 6.92 | 2 | 0.29 | 0.0833 | 2.73 | n/a | n/a | n/a | n/a | n/a | n/a | 0.21 | 1.00 | n/a | 2.59 | n/a | 0.00 | 6.18 | in sump |
| 12 DI-3B | 4 | 0.11 | 0.86 | 5.75 | 0.54 | 0.0080 | 0.0208 | 4.70 | 2 | 0.43 | 0.0833 | 4.00 | n/a | n/a | n/a | n/a | n/a | n/a | 0.10 | 1.00 | n/a | 0.54 | n/a | 0.00 | 1.75 | in sump |
| 13 DI-3B | 4 | [0.28] 0.07 | [0.79] 0.85 | 5.75 | [1.27] 0.34 | 0.0180 | [0.018] 0.0083 | [9.66] 11.50 | 2 | 0.17 | 0.0833 | [4.61] 13.22 | n/a | n/a | n/a | n/a | n/a | n/a | 0.07 | 1.00 | n/a | 0.34 | n/a | 0.00 | [5.59] 1.26 | in sump |
| 14 DI-3B | 12 | 0.36 | 0.84 | 5.75 | 1.74 | 0.0180 | 0.0065 | 15.60 | 2 | 0.13 | 0.0833 | 12.82 | n/a | n/a | n/a | n/a | n/a | n/a | 0.13 | 1.00 | n/a | 1.74 | n/a | 0.00 | 5.66 | in sump |
| 12A DI-3B | 12 | 0.38 | 0.89 | 5.75 | 1.94 | 0.0150 | 0.0493 | 4.66 | 2 | 0.43 | 0.0493 | 1.00 | 0.78 | 2 | 0.083 | 0.114 | 11.6 | 1.03 | 0.07 | 1.00 | 0.45 | 1.94 | 0.15 | 0.00 | n/a | on grade |
| 21 DI-3B | 6 | 0.09 | 0.9 | 5.75 | 0.47 | 0.0256 | 0.0275 | 1.73 | 2 | 1.16 | 0.0833 | 3.03 | 1.00 | 3.5 | 0.146 | 0.173 | 5.8 | 1.03 | 0.04 | 1.00 | 0.45 | 0.47 | 0.10 | 0.00 | n/a | on grade |
| 22 DI-3A | 2.5 | 0.01 | 0.65 | 5.75 | 0.04 | 0.0294 | 0.0833 | 0.60 | 2 | 3.33 | 0.0833 | 1.00 | 1.00 | 4.0 | 0.167 | 0.25 | 1.9 | 1.32 | 0.02 | 1.00 | 0.46 | 0.04 | 0.04 | 0.00 | n/a | on grade |
| 23 DI-3B | 6 | 0.26 | 0.81 | 5.75 | 1.21 | 0.0307 | 0.0092 | 15.60 | 2 | 0.13 | 0.0833 | 9.05 | n/a | n/a | n/a | n/a | n/a | n/a | 0.14 | 1.00 | 0.45 | 1.21 | n/a | 0.00 | 1.84 | in sump |
| 24 DI-3B | 4 | 0.10 | 0.77 | 4 | 0.31 | 0.0067 | 0.0208 | 3.40 | 2 | 0.59 | 0.0833 | 4.00 | n/a | n/a | n/a | n/a | n/a | n/a | 0.07 | 1.00 | 0.46 | 0.31 | n/a | 0.00 | 1.50 | in sump |
| 25 DI-3B | 6 | 0.17 | 0.83 | 4 | 0.56 | 0.0138 | 0.0208 | 4.15 | 2 | 0.48 | 0.0833 | 4.00 | n/a | n/a | n/a | n/a | n/a | n/a | 0.09 | 1.00 | 0.46 | 0.56 | n/a | 0.00 | 1.60 | in sump |
| 71 DI-3B | 4 | 0.22 | 0.8 | 4 | 0.70 | 0.0050 | 0.0208 | 4.67 | 2 | 0.43 | 0.0833 | 4.00 | 1.00 | 3.5 | 0.146 | 0.167 | 4.4 | 0.91 | 0.02 | 1.00 | 0.46 | 0.70 | 0.05 | 0.00 | n/a | on grade |
| [2C-8] 72 DI-3A | 3 2.5 | [0.17] 0.02 | [0.80] 0.89 | 5.75 | [0.78] 0.10 | 0.0200 | [0.0208] 0.0085 | [1.87] 0.89 | 2 | [1.27] 2.25 | 0.0833 | [4.17] 9.80 | 1.00 | 3.5 | 0.146 | 0.154 | [0.1] 2.4 | 1.04 | 0.02 | 1.00 | 0.46 | 0.10 | 0.04 | 0.00 | n/a | on grade |
| 73 DI-3B | 6 | 0.19 | 0.83 | 5.75 | 0.91 | 0.0182 | 0.0090 | 13.20 | 2 | 0.15 | 0.0833 | 9.26 | n/a | n/a | n/a | n/a | n/a | n/a | 0.12 | 1.00 | 0.46 | 0.91 | n/a | 0.00 | 1.82 | in sump |
| 74 DI-3B | 8 | 0.28 | 0.75 | 4 | 0.84 | 0.0050 | 0.0208 | 5.23 | 2 | 0.38 | 0.0833 | 4.00 | 1.00 | 3.5 | 0.146 | 0.167 | 4.9 | 1.63 | 0.03 | 1.00 | 0.46 | 0.84 | 0.06 | 0.00 | n/a | on grade |

NOTE: THE ABOVE COMPUTATIONS HAVE BEEN REVISED TO DEMONSTRATE ADEQUACY OF THE EXISTING SYSTEM. THE CHANGES IN DRAINAGE AREA AND C FACTORS IS ALMOST NEGLIGIBLE.

# REVISED QUARLES CENTER STORM SEWER COMPACTIONS

ROUTE: On-Site & Route 55 — PROJ: Quarles Center
COUNTY: Prince William — DIST: Town of Haymarket
DESCRIPTION: Storm Sewer Design
SHEET 1 OF 1

| FROM POINT | TO POINT | DRAIN. AREA (ACRES) | RUNOFF COEFF. C | CA INCREM. | CA ACCUM. | INLET TIME MIN. | RAINFALL INTENSITY IN./HR. | RUNOFF Q C.F.S. | INVERT ELEVATIONS UPPER | INVERT ELEVATIONS LOWER | LENGTH FT. | SLOPE FT./FT. | DIA. IN. | n | CAPACITY C.F.S. | VELOCITY F.P.S. | FLOW TIME SEC. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 20 | 0.17 | 0.83 | 0.14 | 0.14 | 5.0 | 7.27 | 1.0 | 366.12 | 365.96 | 32.0 | 0.0050 | 15 | 0.013 | 4.6 | 3.1 | 10.4 | DI-3B (modified) |
| 24 | 20 | 0.10 | 0.77 | 0.08 | 0.08 | 5.0 | 7.27 | 0.6 | 366.51 | 365.96 | 73.0 | 0.0075 | 15 | 0.013 | 5.6 | 3.0 | 24.5 | DI-3B (modified) |
| 23 | 22 | 0.26 | 0.81 | 0.21 | 0.21 | 5.0 | 7.27 | 1.5 | 366.98 | 366.58 | 20.0 | 0.0200 | 15 | 0.013 | 9.1 | 5.2 | 3.6 | |
| 22 | 21 | 0.01 | 0.65 | 0.01 | 0.29 | 5.0 | 7.27 | 2.1 | 366.48 | 366.26 | 44.0 | 0.0050 | 15 | 0.013 | 4.6 | 3.6 | 12.4 | |
| 21 | 20 | 0.11 | 0.87 | 0.10 | 0.39 | 5.0 | 7.27 | 2.8 | 366.16 | 365.96 | 39.0 | 0.0051 | 15 | 0.013 | 4.6 | 4.0 | 9.7 | DI-3B (shallow) |
| 20 | EX 1 | 0.00 | 0.00 | 0.00 | 0.53 | 5.0 | 7.27 | 3.9 | 365.86 | 365.55 | 61.0 | 0.0051 | 15 | 0.013 | 4.6 | 4.3 | 14.3 | |
| 75 | 71 | 0.69 | 0.52 | 0.36 | 0.36 | 5.0 | 7.27 | 2.6 | 366.20 | 364.04 | 60.0 | 0.0360 | 15 | 0.013 | 12.3 | 8.1 | 7.4 | |
| 74 | 73 | 0.28 | 0.75 | 0.21 | 0.21 | 5.0 | 7.27 | 1.5 | 365.12 | 364.93 | 38.0 | 0.0050 | 15 | 0.013 | 4.6 | 3.4 | 11.2 | DI-3B (shallow) |
| 73 | 72 | 0.19 | 0.83 | 0.16 | 0.37 | 5.0 | 7.27 | 2.7 | 364.73 | 364.53 | 40.0 | 0.0050 | 15 | 0.013 | 4.6 | 3.6 | 11.3 | |
| 72 | 71 | 0.02 | 0.89 | 0.02 | 0.39 | 5.0 | 7.27 | 2.8 | 364.33 | 364.04 | 57.0 | 0.0051 | 15 | 0.013 | 4.6 | 4.0 | 14.2 | |
| 71 | EX 8 | 0.22 | 0.80 | 0.18 | 0.92 | 5.0 | 7.27 | 6.7 | 363.84 | 362.67 | 71.0 | 0.0165 | 15 | 0.013 | 8.3 | 7.7 | 9.3 | |
| 8 | 7 | 0.09 | 0.72 | 0.06 | 0.09 | 5.0 | 7.27 | 0.5 | 366.29 | 366.19 | 5.0 | 0.0100 | 15 | 0.013 | 6.6 | 3.1 | 1.6 | |
| 7 | 5A | 0.12 | 0.74 | 0.09 | 0.29 | 5.0 | 7.27 | 2.1 | 365.90 | 365.49 | 96.0 | 0.0050 | 15 | 0.013 | 4.6 | 3.6 | 27.6 | |
| 6 | 5A | 0.28 | 0.86 | 0.24 | 0.53 | 5.0 | 7.27 | 3.9 | 365.59 | 365.49 | 13.0 | 0.0054 | 15 | 0.013 | 4.7 | 4.4 | 3.0 | |
| 5A | 5 | [0.15] 0.00 | [0.69] 0.00 | 0.00 | [0.24] 0.53 | 5.0 | 7.27 | [3.83] 3.7 | [365.49] 365.2 | [364.79] 364.80 | [80.2] 82.0 | [0.008] 0.008 | 15 | 0.013 | [4.5] 5.0 | [4.6] 4.6 | [18] 18.0 | |
| 5 | 4 | 0.00 | 0.00 | 0.00 | [0.24] 0.93 | 5.0 | 7.27 | [3.76] 3.7 | [364.49] 364.5 | [364.14] 364.05 | [87.19] 86.0 | [0.008] 0.008 | 18 | 0.013 | [5.2] 5.8 | [4.8] 5.2 | [29.2] 16.6 | |
| 4 | 3 | [0.28] 0.15 | [0.84] 0.90 | 0.24 | 0.14 | [0.88] 1.06 | 5.0 | 7.27 | [3.77] 4.0 | [363.89] 363.75 | [364.79] 363.75 | [11.91] 10.0 | [0.0042] 0.0042 | 21 | 0.013 | [10.3] 11.2 | [4.8] 5.1 | [2.4] 2.0 |
| | | | | | | | | | | | | | | | | | | |
| 12A | 12 | 0.38 | 0.89 | 0.34 | 0.34 | 5.0 | 7.27 | 2.5 | 367.18 | 365.73 | 84.0 | 0.0173 | 15 | 0.013 | 8.5 | 6.1 | 13.9 | |
| 14 | 13 | 0.36 | 0.84 | 0.30 | 0.64 | 5.0 | 7.27 | 4.7 | 367.15 | 367.01 | 14.0 | 0.0100 | 15 | 0.013 | 5.6 | 5.0 | 2.8 | DI-3C (shallow) |
| 13 | 12 | 0.07 | 0.85 | 0.06 | 0.40 | 5.0 | 7.27 | 2.9 | 366.81 | 366.30 | 103.0 | 0.0050 | 15 | 0.013 | 4.5 | 4.0 | 25.9 | DI-3C (shallow) |
| 12 | 11 | 0.11 | 0.86 | 0.09 | 0.92 | 5.0 | 7.27 | 6.7 | 365.48 | 365.03 | 40.0 | 0.0113 | 18 | 0.013 | 11.1 | 6.0 | 6.6 | |
| 11 | 10A | 0.53 | 0.85 | 0.45 | 1.37 | 5.0 | 7.27 | 10.0 | 364.78 | 364.53 | 46.0 | 0.0050 | 21 | 0.013 | 11.2 | 5.4 | 8.6 | |
| 10A | 10 | 0.00 | 0.00 | 0.00 | 1.37 | 5.0 | 7.27 | 10.0 | 364.35 | 364.04 | 61.0 | 0.0051 | 21 | 0.013 | 11.3 | 5.4 | 11.3 | MH-1 (modified) |
| 10 | 9 | 0.85 | 0.73 | 0.62 | 1.99 | 5.0 | 7.27 | 14.5 | 363.84 | 363.73 | 12.0 | 0.0092 | 21 | 0.013 | 15.5 | 7.4 | 1.6 | |

NOTE: THE ABOVE COMPUTATIONS HAVE BEEN REVISED TO DEMONSTRATE ADEQUACY OF THE EXISTING SYSTEM. THE CHANGES IN DRAINAGE AREA AND C FACTORS IS ALMOST NEGLIGIBLE.

NOTE: THE STORMWATER MANAGEMENT, INLET COMPUTATIONS, AND PIPE COMPUTATIONS ARE PROVIDED ON THIS SHEET TO DEMONSTRATE THE CAPACITY OF THE EXISTING SYSTEM AND PROVE THE RELEASE RATES FOR THE POND ARE BELOW THE ALLOWABLE RELEASE RATES. THESE COMPUTATIONS ARE FROM THE APPROVED QUARLES SITE PLAN NO. AFS20080813.

THIS PLAN TO BE UTILIZED FOR INFORMATIONAL PURPOSES ONLY

DETAIL REFERENCE:
INFORMATION PROVIDED/PREPARED BY OTHERS AND IS FROM THE PLAN NAMED AFS20080813, DATED 12/1/15.


Chick-fil-A
5200 Buffington Rd. Atlanta
Georgia, 30349-2998

THE FOLLOWING STATES REQUIRE NOTIFICATION BY CONTRACTORS, ENGINEERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811. (WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777) (VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

COMMONWEALTH OF VIRGINIA
MICHAEL J. BIRKLAND
Lic. No. 0402 031693
PROFESSIONAL ENGINEER
12/01/15

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STERLING, VIRGINIA 20164
Phone: (703) 709-9500
Fax: (703) 709-9501
www.BohlerEngineering.com


STORE# 3197
S08-CR-V8
CHICK-FIL-A
QUARLES CENTER
15250 WASHINGTON STREET
HAYMARKET, VA 20169

SHEET TITLE
STORMWATER MANAGEMENT

DWG EDITION 2.4

☐ Preliminary
☐ 80% Submittal
☒ For Construction

Job No. : S116515
Store : 3197
Date : 06/06/14
Drawn By : PJC
Checked By : KGS

Sheet
PS-1.5
25 OF 37


5200 Buffington Rd
Atlanta Georgia, 30349-2998


811 Know what's below. Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's the law.

REVISIONS:

| MARK | DATE | BY |
|---|---|---|
| 1 | 07/07/2025 | GAP |
| | COUNTY COMMENTS | |
| MARK | DATE | BY |
| 2 | 9/16/2025 | AG |
| | COUNTY COMMENTS | |
| MARK | DATE | BY |
| | | |

Revisions:

| Mark | Date | By |
|---|---|---|
| 4 | 10/30/15 | CLY |
| | REV. PER TOWN COMMENTS | |
| Mark | Date | By |
| 5 | 11/23/15 | CLY |
| | REV. PER TOWN COMMENTS | |
| Mark | Date | By |
| 6 | 12/01/15 | CLY |
| | REV. PER TOWN COMMENTS | |


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


STORE
SERIES 08C-R
#3197
15180 WASHINGTON ST
HAYMARKET,
VA, 20169

SHEET TITLE
***STORMWATER MANAGEMENT REFERENCE***

DWG EDITION 02.4

☐ PRELIMINARY
☒ 80% SUBMITTAL
☐ FOR CONSTRUCTION

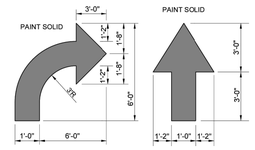
JOB NO. :VAB230141.00
STORE : #3197
DATE : 01/31/2024
DRAWN BY : GAP
CHECKED BY : KBR
CAD ID : SITE -0

SHEET
C-4.4

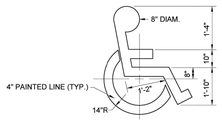
PWCSA PL #SA2024-0052



C:\BOHLERCAD_USERDATA\TEMPACPUBLISH_4696\VAB230141.00 - SITE - 1.DWG PRINTED BY: GPADILLA 9:16:25 @ 1:07 PM LAST SAVED BY: GPADILLA



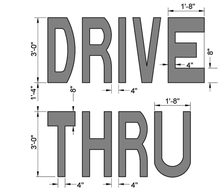

1A C-400 DIRECTIONAL ARROW
NOT TO SCALE




1B C-400 ACCESSIBILITY SYMBOL
NOT TO SCALE

NOTES:
1. GENERAL CONTRACTOR SHALL REFER TO PARKING LOT STRIPING SPECIFICATIONS (SEE DETAIL 5/C-400).
2. CONTRACTOR SHALL USE WHITE REFLECTIVE PAINT ON ASPHALT & YELLOW REFLECTIVE PAINT ON CONCRETE, UNLESS UPON VERIFICATION BY THE GENERAL CONTRACTOR IT IS DETERMINED THAT LOCAL, STATE, OR ADA CODES DIFFER, IN WHICH CASE THESE CODES SHALL GOVERN.

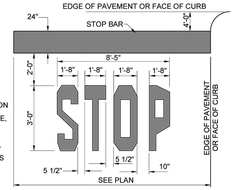
1 C-400 PAVEMENT MARKINGS - 1
NOT TO SCALE




2A C-400 DRIVE-THRU
NOT TO SCALE

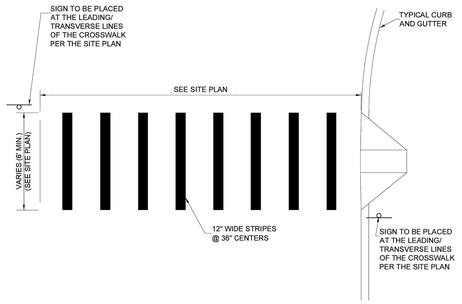
NOTES:
1. GENERAL CONTRACTOR SHALL REFER TO PARKING LOT STRIPING SPECIFICATIONS.
2. CONTRACTOR SHALL USE WHITE REFLECTIVE PAINT ON ASPHALT & YELLOW REFLECTIVE PAINT ON CONCRETE, UNLESS UPON VERIFICATION BY THE GENERAL CONTRACTOR IT IS DETERMINED THAT LOCAL, STATE, OR ADA CODES DIFFER, IN WHICH CASE THESE CODES SHALL GOVERN.

**NOTE:**
**IF STOP SIGN IS PROPOSED, "STOP" LETTERING GRAPHIC IS NOT REQUIRED.**



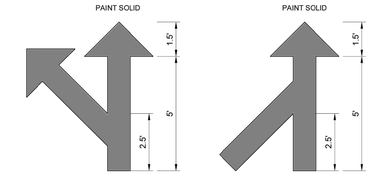

2B C-400 STOP BAR
NOT TO SCALE

2 C-400 PAVEMENT MARKINGS - 2
NOT TO SCALE




NOTES:
1. GENERAL CONTRACTOR SHALL REFER TO PARKING LOT STRIPING SPECIFICATIONS (SEE DETAIL 5/C-400).
2. CONTRACTOR SHALL USE WHITE REFLECTIVE PAINT ON ASPHALT AND YELLOW REFLECTIVE PAINT ON CONCRETE.

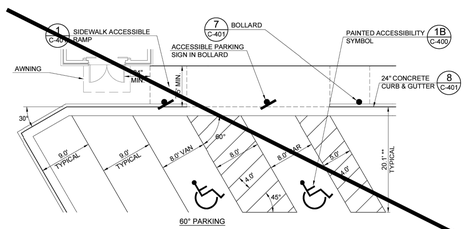
3 C-400 CROSSWALK MARKINGS
NOT TO SCALE




MULTI-LANE SPLIT MULTI-LANE MERGE

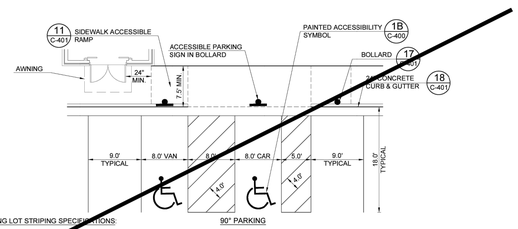
NOTES:
1. GENERAL CONTRACTOR SHALL REFER TO PARKING LOT STRIPING SPECIFICATIONS (SEE DETAIL 5/C-400).
2. CONTRACTOR SHALL USE WHITE REFLECTIVE PAINT ON ASPHALT & YELLOW REFLECTIVE PAINT ON CONCRETE.

4 C-400 MULTI-LANE DIRECTIONAL GRAPHICS
NOT TO SCALE




60° PARKING

** 60° PARKING STALL CAN BE REDUCED TO 18' MINIMUM IF SITE CONDITIONS REQUIRE IT.




90° PARKING

NOTES

1. ACCESSIBLE PARKING AND ACCESSIBLE AISLES SHALL NOT EXCEED 1.5% IN SLOPE IN ANY DIRECTION. IF ONLY ONE ACCESS AISLE IS INSTALLED, IT IS TO BE A VAN SIZE.
2. PARKING STALL DIMENSIONING SHALL BE IN ACCORDANCE WITH APPLICABLE GOVERNING AUTHORITY'S AND ADA STANDARDS. SEE SITE PLAN FOR COMPLETE STRIPING LAYOUT.
3. GENERAL CONTRACTOR SHALL REFER TO CHICK-FIL-A PARKING LOT STRIPING SPECIFICATIONS, THIS DETAIL.
4. CONTRACTOR SHALL USE 4" WIDE WHITE REFLECTIVE PAINT FOR STRIPING ON ASPHALT PARKING LOTS.
5. CONTRACTOR SHALL USE 4" WIDE YELLOW REFLECTIVE PAINT FOR STRIPING ON CONCRETE PARKING LOTS.
6. ACCESSIBLE PARKING AND ACCESSIBLE AISLE STRIPING COLOR SHALL BE IN ACCORDANCE WITH APPLICABLE GOVERNING AUTHORITY REQUIREMENTS.
7. NO WHEEL STOPS TO BE INSTALLED WHEN PARKING IS ADJACENT TO SIDEWALK.
8. ADA SIGNS IN BOLLARDS AND BOLLARDS SHALL BE INSTALLED WHEN PARKING IS ADJACENT TO FLUSH CURB OR A RAMP.
9. ALL DIMENSIONS ARE TO CENTER OF STRIPE UNLESS OTHERWISE NOTED.
10. STRIPING IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.

5 C-400 PARKING STALL LAYOUT AND STRIPING
NOT TO SCALE

PARKING LOT STRIPING SPECIFICATIONS:

STANDARDS:
1. ALWAYS FOLLOW ALL APPLICABLE GOVERNING AUTHORITY'S STANDARDS.
2. SURFACE SHOULD BE CLEAN, DRY, AND FREE FROM LOOSE OR PEELING PAINT. REMOVE ALL OIL, DUST, GREASE, DIRT, AND OTHER FOREIGN MATERIALS TO ENSURE ADEQUATE ADHESION. DO NOT APPLY WHEN AIR OR SURFACE TEMPERATURES ARE BELOW 40°F.
3. APPLY SHERWIN-WILLIAMS SETFAST PREMIUM ALKYD ZONE MARKING PAINT A300 WHITE OR A303 YELLOW USING EITHER AIRLESS OR CONVENTIONAL LINE STRIPING EQUIPMENT. USE THE FOLLOWING SETTINGS AS A GUIDE-ACTUAL SETTINGS DEPEND ON ATMOSPHERIC CONDITIONS AT THE TIME OF APPLICATION:

AIRLESS

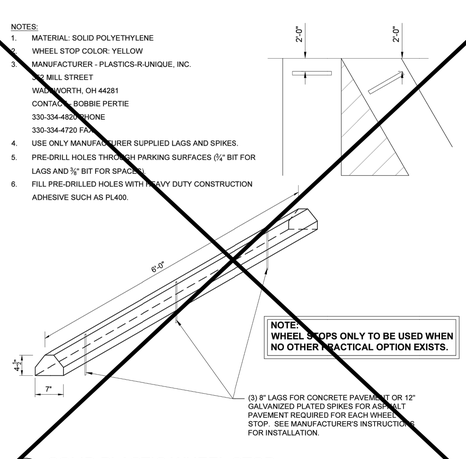
| | |
|---|---|
| • PRESSURE | 1800-2000 PSI |
| • HOSE | ¼"-3/8" ID |
| • TIP | 0.015"-0.017" |
| • FILTER | 60 MESH |
| • REDUCTION | ONLY IF NECESSARY, UP TO 1PT/GAL VM&P NAPTHA R1K3 |

CONVENTIONAL

| | |
|---|---|
| • GUN | BLINKS 21 (BLEEDER) OR EQUIVALENT |
| • FLUID NOZZLE | #68 |
| • AIR NOZZLE | INTERNAL MIX, #709 |
| • ATOMIZATION PRESSURE | 45-80 PSI |
| • FLUID PRESSURE | 40-70 PSI |
| • REDUCTION | ONLY IF NECESSARY, UP TO 1PT/GAL VM&P NAPTHA R1K3 |

- SHERWIN WILLIAMS, H&C SHARK GRIP SLIP RESISTANT ADDITIVE TO BE MEASURED AND ADDED TO ALL PAINT PER MANUFACTURER'S WRITTEN SPECIFICATIONS. MIX THOROUGHLY PER MANUFACTURER'S RECOMMENDATIONS SO THAT NO CLUMPING IS APPARENT AND UNTIL EVEN DISTRIBUTION IS ACHIEVED. MAINTAIN EVEN DISTRIBUTION OF ADDITIVE IN PAINT THROUGHOUT THE APPLICATION PROCESS.
- MIX PAINT THOROUGHLY BY BOXING, STIRRING, OR POWER AGITATION BEFORE USE. APPLY AT 15 MILS WET TO ACHIEVE A SPREAD RATE OF 400-500 LINEAL FEET OF STANDARD 4" STRIPE PER GALLON. APPLIED AT THIS RATE AT 70 DEGREES F AND 50% RELATIVE HUMIDITY, PAINT WILL DRY WITH NO TRAFFIC PICKUP AFTER 20 MINUTES.
- GENERAL CONTRACTOR TO RE-STRIPE THE LOT 45 DAYS AFTER OPENING.

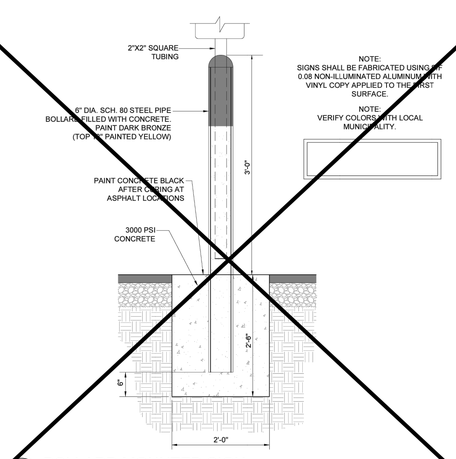
NOTES:
1. MATERIAL: SOLID POLYETHYLENE
2. WHEEL STOP COLOR: YELLOW
3. MANUFACTURER - PLASTICS-R-UNIQUE, INC.
   542 MILL STREET
   WAUSEON, OH 44281
   CONTACT: BOBBIE PERTIE
   330-334-4826 PHONE
   330-334-4720 FAX
4. USE ONLY MANUFACTURER SUPPLIED LAGS AND SPIKES.
5. PRE-DRILL HOLES THROUGH PARKING SURFACES (¾" BIT FOR LAGS AND ½" BIT FOR SPIKES).
6. FILL PRE-DRILLED HOLES WITH HEAVY DUTY CONSTRUCTION ADHESIVE SUCH AS PL400.




**NOTE:**
**WHEEL STOPS ONLY TO BE USED WHEN NO OTHER PRACTICAL OPTION EXISTS.**

(3) 8" LAGS FOR CONCRETE PAVEMENT OR 12" GALVANIZED PLATED SPIKES FOR ASPHALT PAVEMENT REQUIRED FOR EACH WHEEL STOP. SEE MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION.

6 C-400 SOLID PLASTIC WHEEL STOP
NOT TO SCALE

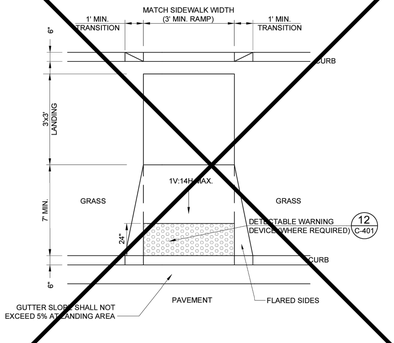



NOTE:
SIGNS SHALL BE FABRICATED USING 0.08 NON-ILLUMINATED ALUMINUM WITH VINYL COPY APPLIED TO THE FIRST SURFACE.

NOTE:
VERIFY COLORS WITH LOCAL MUNICIPALITY.

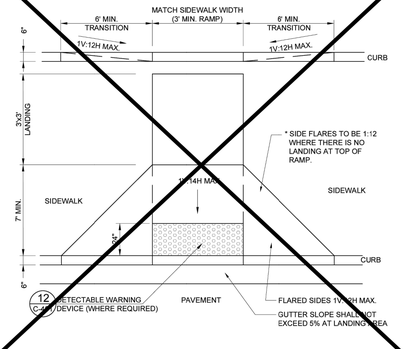
7 C-400 BOLLARD MOUNTED SIGN
NOT TO SCALE

CIVIL TO VERIFY RAMP REQUIREMENTS BY STATE.



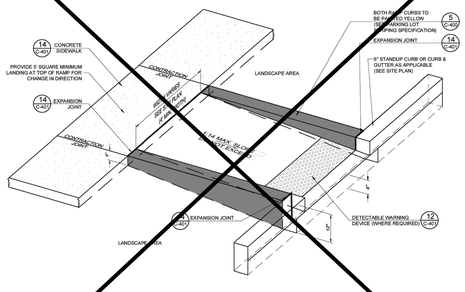

8 C-400 CURB RAMP w/ SHORT FLARED SIDES
NOT TO SCALE

CIVIL TO VERIFY RAMP REQUIREMENTS BY STATE.




9 C-400 CURB RAMP w/ FLARED SIDES
NOT TO SCALE

CIVIL TO VERIFY RAMP REQUIREMENTS BY STATE.




10 C-400 RETURNED CURB RAMP
NOT TO SCALE

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COMMONWEALTH OF VIRGINIA
KATHERINE ROBERTS
Lic. No. 0402060193
PROFESSIONAL ENGINEER
9/16/2025

BOHLER
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LAND SURVEYING
PROJECT MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
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STORE
SERIES 08C-R
#3197
15180 WASHINGTON ST
HAYMARKET,
VA, 20169

SHEET TITLE
**SITE DETAILS**

DWG EDITION 02.4

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☒ 80% SUBMITTAL
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| JOB NO. | :VAB230141.00 |
| STORE | : #3197 |
| DATE | : 01/31/2024 |
| DRAWN BY | : GAP |
| CHECKED BY | : KBR |
| CAD ID | : CNDS -0 |

SHEET
C-400

PWCSA PL #SA2024-0052



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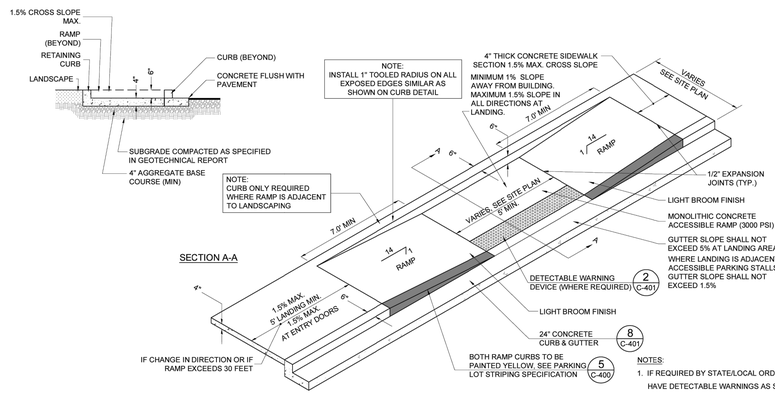
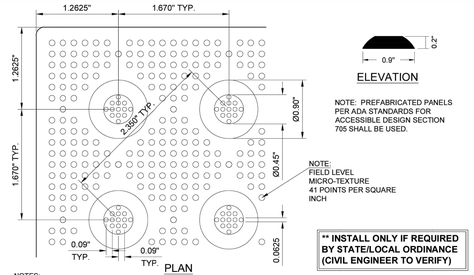



NOTES:
1. IF REQUIRED BY STATE/LOCAL ORDINANCE, THE SURFACE OF THE RAMP LANDING SHALL HAVE DETECTABLE WARNINGS AS SHOWN. DETECTABLE WARNINGS SHALL CONSIST OF RAISED TRUNCATED DOMES. SEE DETECTABLE WARNINGS DETAIL.
2. CONSTRUCT PER A.D.A. STANDARDS.
3. REFER TO PLANS FOR ADJACENT SLOPES.
4. THE CROSS SLOPE OF THE RAMP SURFACE SHALL BE NO GREATER THAN 1.5%.
5. CONSTRUCTION OF THE RAMP SHALL MATCH ADJOINING SIDEWALK DETAIL.
6. CONCRETE SHALL BE P.C.C. 3000 PSI.

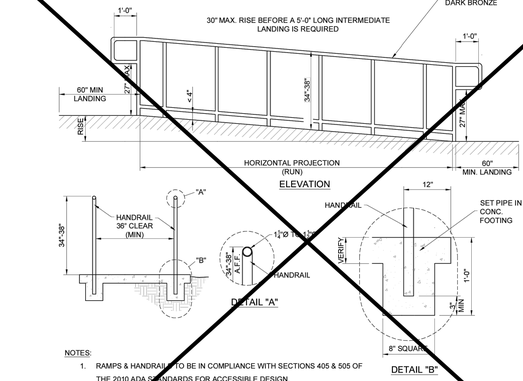
## 1 C-401 SIDEWALK ACCESSIBLE RAMP
NOT TO SCALE




** INSTALL ONLY IF REQUIRED BY STATE/LOCAL ORDINANCE (CIVIL ENGINEER TO VERIFY)**

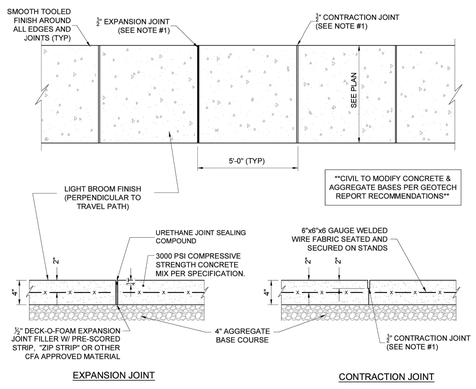
NOTES:
1. AT ADA CURB RAMPS, THE DETECTABLE WARNING DEVICE SHALL BE LOCATED ON THE SURFACE AT THE BOTTOM OF THE GRADE BREAK OR AT THE LOWER LANDING. FOR LANDINGS AND BLENDED TRANSITIONS, DETECTABLE WARNING DEVICES SHALL BE LOCATED ON THE LANDING OR BLENDED TRANSITION AT THE BACK OF CURB.
2. DETECTABLE WARNING DEVICE SHALL BE 24 INCHES IN THE DIRECTION OF TRAVEL AND EXTEND THE FULL WIDTH OF THE RAMP OR FLUSH SURFACE.
3. DETECTABLE WARNING SURFACES SHALL BE CONSTRUCTED BY TEXTURING PRODUCTS CONFORMING TO PROWAG R306. TRANSITION SLOPES ARE NOT TO HAVE DETECTABLE WARNINGS. CONTRACTOR SHALL CONFIRM LOCAL CODES ARE MET.
4. WHERE A CURB RAMP IS CONSTRUCTED WITHIN AN EXISTING CURB, CURB & GUTTER AND/OR SIDEWALK, THE EXISTING CURB & GUTTER SHALL BE REMOVED TO THE NEAREST JOINT BEYOND THE CURB TRANSITIONS OR TO THE EXTENT THAT NO REMAINING SECTION OF CURB OR CURB & GUTTER IS LESS THAN 5' LONG. THE EXISTING SIDEWALK SHALL BE REMOVED TO THE NEAREST JOINT BEYOND THE TRANSITION SLOPE WALK AROUND OR TO THE EXTENT THAT NO REMAINING SECTION OF SIDEWALK IS LESS THAN 5'.
5. THE PLAN MUST PROVIDE FOR DETECTABLE WARNING SURFACE COLORS OR MATERIALS THAT PROVIDE THE NECESSARY CONTRAST, EITHER DARK-ON-LIGHT, OR LIGHT-ON-DARK. STANDARD DOME COLOR IS BRICK RED.
6. TRUNCATED DOMES TO BE INSTALLED USING ARMOR TILE CAST IN PLACE DOME TACTILE TILE. PART NUMBER ADA-2424 OR OTHER EQUIVALENT APPROVED MATERIAL. PREFERRED MANUFACTURER ARMOR TILE TACTILE SYSTEMS LANCE MITCHELL(919)622-4615 UNLESS PAVERS ARE REQUIRED, CONTRACTOR TO VERIFY THAT CURB RAMPS MEET LOCAL CODES AND ADA REQUIREMENTS.

## 2 C-401 DETECTABLE WARNING DEVICE
NOT TO SCALE



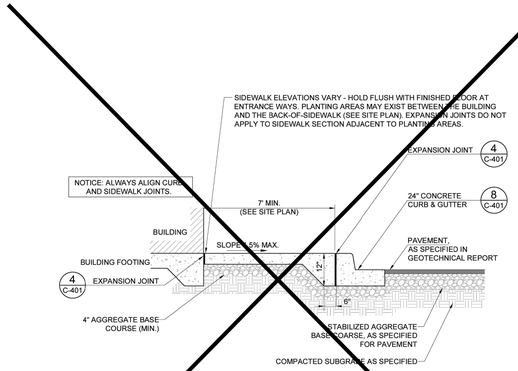

NOTES:
1. RAMPS & HANDRAILS TO BE IN COMPLIANCE WITH SECTIONS 405 & 505 OF THE 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN.
2. VERIFY ALL STATE & LOCAL REQUIREMENTS FOR RAMPS & HANDRAILS.
3. USE ONLY COMMERCIAL GRADE ALUMINUM FENCING WITH DARK BRONZE POWDER COAT FINISH.

## 3 C-401 TYPICAL ADA RAMP & HANDRAIL
NOT TO SCALE

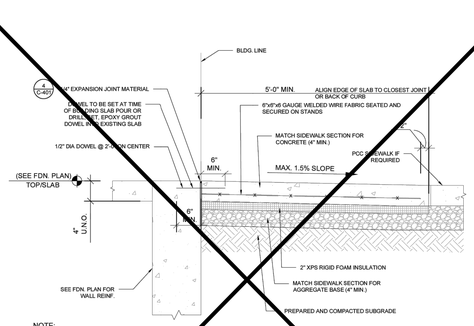



NOTES:
1. CONTRACTION JOINTS AT 5'-0" O.C. TOOLED ¾" WIDE, 1" DEEP OR MAX. ¼ DEEP, WHICHEVER IS GREATER. EXPANSION JOINTS AT 20' MAX. & ALL P.C.s, UNLESS APPROVED OR INDICATED OTHERWISE ON PLAN VIEW JOINT PATTERN.

## 4 C-401 CONCRETE SIDEWALK
NOT TO SCALE

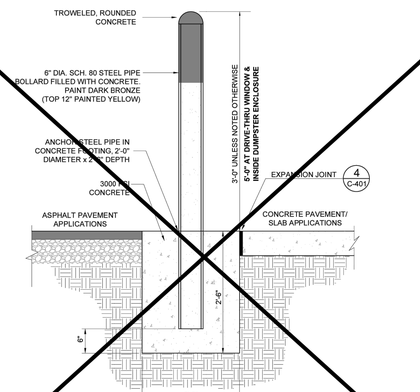



## 5 C-401 CONCRETE SIDEWALK w/ CURB & GUTTER
NOT TO SCALE



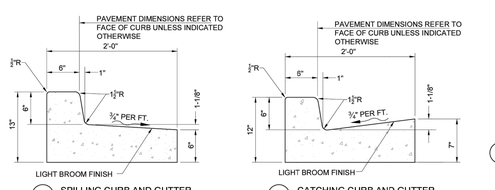

NOTE:
1. CONTRACTOR TO REFER TO STRUCTURAL PLANS FOR ADDITIONAL DETAILS. NOTIFY ENGINEER WITH ANY DISCREPANCIES FROM THIS DETAIL.
2. CONTRACTOR HAS THE OPTION TO DRILL, SET AND EPOXY GROUT DOWEL, IF NOT INSTALLED WHEN THE BUILDING SLAB WAS POURED.
3. REFER TO ARCHITECTURAL DRAWINGS FOR DOOR LOCATIONS. DOOR STOOP SHALL EXTEND 12" PAST EACH SIDE OF DOOR MIN. STOOP IS TO BE SEPARATED ON ALL SIDES WITH 1/4" EXPANSION JOINT MATERIAL, TOPPED WITH SEALANT.
4. USE A 10'X5' SLAB MINIMUM AT A DOUBLE DOOR ENTRY.
5. USE A 5'X5' SLAB MINIMUM AT A SINGLE DOOR ENTRY.
5. DOWELS TO BE INSTALLED INTO THE BUILDING FOUNDATION ONLY. THE REMAINING THREE SIDES OF THE SLAB DO NOT GET TIED TO THE SURROUNDING SIDEWALK.

## 6 C-401 ENTRY DOOR FROST SLAB DETAIL
NOT TO SCALE

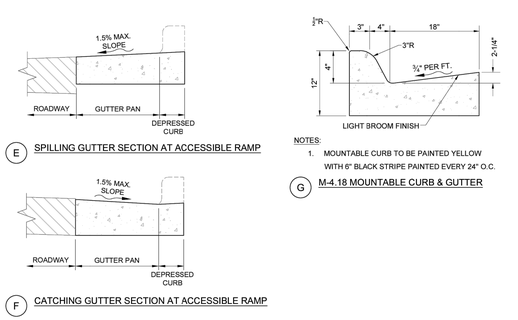



NOTE:
1. BOLLARD HEIGHT SHALL BE 5'-0" AT DRIVE-THRU WINDOW AND INSIDE DUMPSTER ENCLOSURE.

## 7 C-401 CONCRETE BOLLARD
NOT TO SCALE




## 8 C-401 CONCRETE CURB & GUTTER
NOT TO SCALE

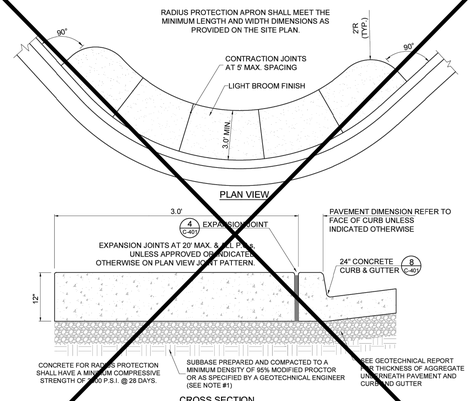



NOTES:
1. CONCRETE FOR CURBING SHALL HAVE A MIN. COMPRESSIVE STRENGTH OF 3,000 PSI @ 28 DAYS.
2. CONSTRUCTION STAKING FOR CURBING INSTALLATION SHALL BE REFERENCED (CUT OR FILL) TO THE TOP OF CURB.
3. AT CONTRACTOR'S OPTION THE GUTTER THICKNESS MAY BE INCREASED AT THE EDGE OF PAVEMENT TO MAKE BOTTOM OF GUTTER PARALLEL WITH PAVING OF BASE COURSE.
4. CONTRACTION JOINTS @ 10'-0" O.C. TOOLED ¼" (± ⅛", -0) WIDE, 1" OR MAX. D/4 DEPTH WHICHEVER IS GREATER. EXPANSION JOINTS @ 40'-0" MAX., AT ENDS OF RADIUS, AND A MINIMUM OF 5 FEET FROM INLET STRUCTURES, UNLESS APPROVED OR INDICATED OTHERWISE ON PLANS.
5. GUTTER SLOPE AT ACCESSIBLE SPACES TO MATCH ADJACENT PAVEMENT, TRAVERSE & LONGITUDINAL.
6. CONSTRUCTION STAKING FOR CURBING INSTALLATION SHALL BE REFERENCED (CUT OR FILL) TO THE TOP OF CURB.
7. LIGHT BROOM FINISH; PERPENDICULAR TO CURB.



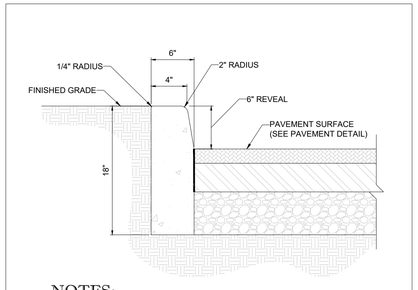

NOTES:
1. MOUNTABLE CURB TO BE PAINTED YELLOW WITH 6" BLACK STRIPE PAINTED EVERY 24" O.C.

G M-4.18 MOUNTABLE CURB & GUTTER




NOTE:
1. GENERAL CONTRACTOR SHALL REFERENCE GEOTECHNICAL REPORT FOR PAVEMENT SECTION REQUIREMENTS.

## 9 C-401 LANDSCAPE & IRRIGATION PROTECTOR
NOT TO SCALE




NOTES:
1. EXPANSION JOINTS TO BE INSTALLED AT 20' INTERVALS.
2. THIS ITEM MAY BE PRECAST OR CAST IN PLACE.
3. CONCRETE TO BE CLASS AS IF CAST IN PLACE OR 4000 P.S.I. IF PRECAST.

## 10 C-401 HEADER CURB DETAIL
NOT TO SCALE

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Lic. No. 0402060193
PROFESSIONAL ENGINEER
9/16/2025

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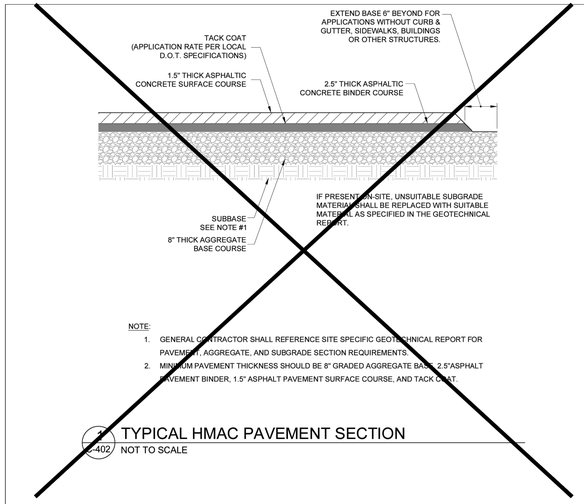
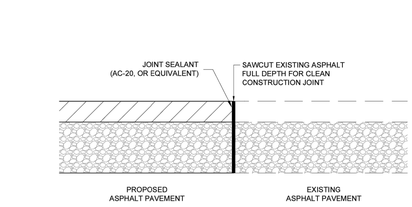
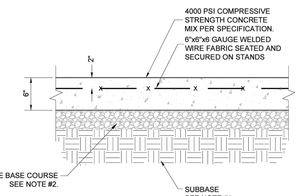



NOTE:
1. GENERAL CONTRACTOR SHALL REFERENCE SITE SPECIFIC GEOTECHNICAL REPORT FOR PAVEMENT, AGGREGATE, AND SUBGRADE SECTION REQUIREMENTS.
2. MINIMUM PAVEMENT THICKNESS SHOULD BE 8" GRADED AGGREGATE BASE, 2.5"ASPHALT PAVEMENT BINDER, 1.5" ASPHALT PAVEMENT SURFACE COURSE, AND TACK COAT.

1 C-402 TYPICAL HMAC PAVEMENT SECTION
NOT TO SCALE

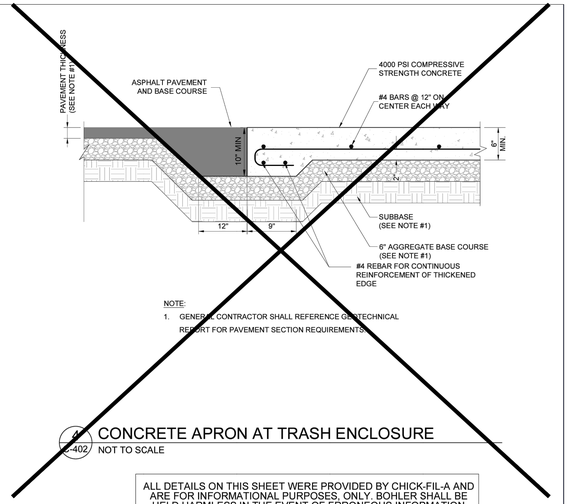



2 C-402 BUTT JOINT
NOT TO SCALE




NOTE:
1. GENERAL CONTRACTOR SHALL REFERENCE GEOTECHNICAL REPORT FOR PAVEMENT SECTION REQUIREMENTS.
2. MINIMUM PAVEMENT THICKNESS SHALL BE 6" CONCRETE, 4" AGGREGATE BASE.

3 C-402 CONCRETE PAVEMENT DRIVE-THRU LANE
NOT TO SCALE




NOTE:
1. GENERAL CONTRACTOR SHALL REFERENCE GEOTECHNICAL REPORT FOR PAVEMENT SECTION REQUIREMENTS.

4 C-402 CONCRETE APRON AT TRASH ENCLOSURE
NOT TO SCALE

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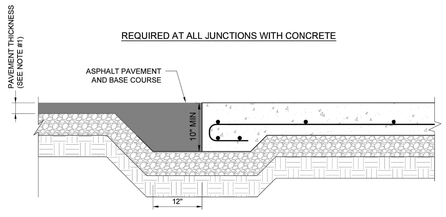
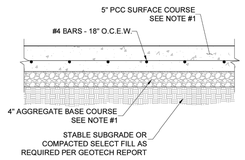



NOTE:
1. GENERAL CONTRACTOR SHALL REFERENCE GEOTECHNICAL REPORT FOR PAVEMENT SECTION REQUIREMENTS.

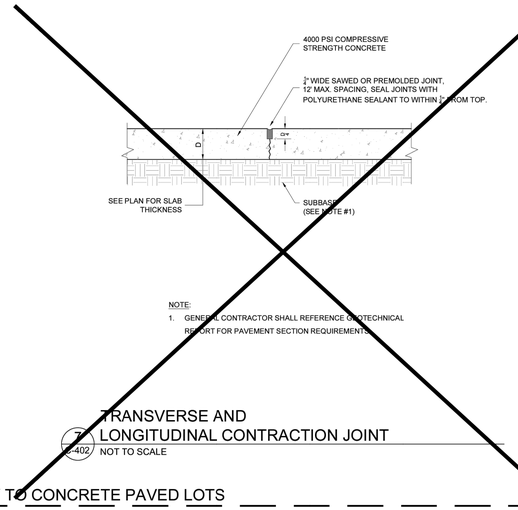
5 C-402 PAVEMENT EDGE DETAIL (START & END OF DRIVE-THRU LANES)
NOT TO SCALE

NOTES:
1. DESIGN PER GEOTECH REPORT PREPARED BY GILES ENGINEERING ASSOCIATES, INC., DATED 4/23/2015
2. PAVEMENTS & SUBGRADES INCLUDING MATERIALS & COMPACTION SHALL MEET STANDARDS & SPECIFICATIONS OF THE GOVERNING DEPARTMENT OF TRANSPORTATION.
3. JOINTING & SPACING SHALL BE PER CONCRETE JOINT DETAILS.
4. CONCRETE SHALL HAVE A MIN. COMPRESSIVE STRENGTH OF 4,000 PSI @ 28 DAYS.



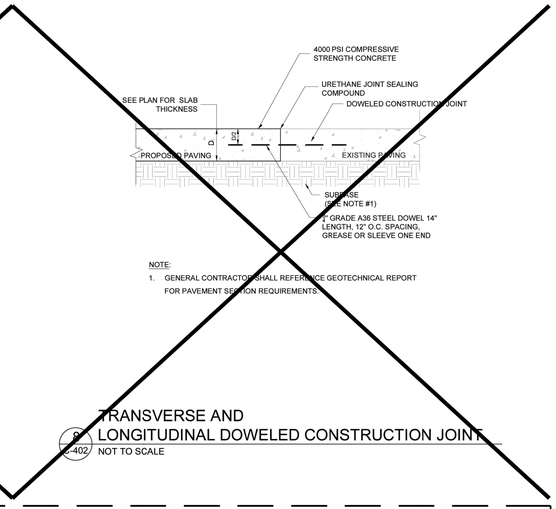

NOTE:
1. GENERAL CONTRACTOR SHALL REFERENCE GEOTECHNICAL REPORT FOR PAVEMENT SECTION REQUIREMENTS.
2. MINIMUM PAVEMENT THICKNESS SHALL BE 5" CONCRETE, 4" AGGREGATE BASE.

6 C-402 CONCRETE PAVEMENT
NOT TO SCALE




NOTE:
1. GENERAL CONTRACTOR SHALL REFERENCE GEOTECHNICAL REPORT FOR PAVEMENT SECTION REQUIREMENTS.

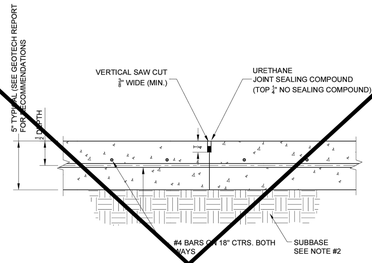
7 C-402 TRANSVERSE AND LONGITUDINAL CONTRACTION JOINT
NOT TO SCALE




NOTE:
1. GENERAL CONTRACTOR SHALL REFERENCE GEOTECHNICAL REPORT FOR PAVEMENT SECTION REQUIREMENTS.

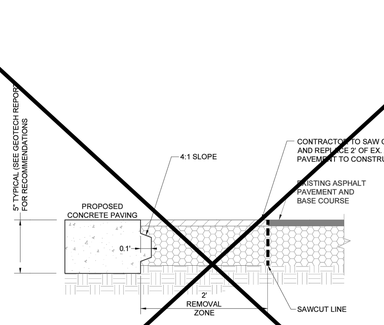
8 C-402 TRANSVERSE AND LONGITUDINAL DOWELED CONSTRUCTION JOINT
NOT TO SCALE

## THESE DETAILS APPLY TO CONCRETE PAVED LOTS



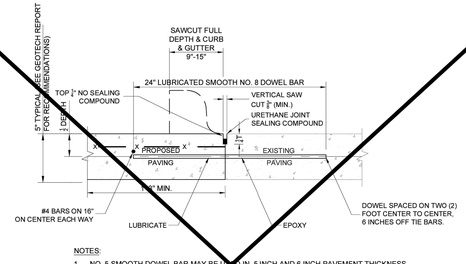

NOTES:
1. JOINT SPACING TO BE 12' x 12' WITH EVERY OTHER JOINT BEING AN EXPANSION JOINT.
2. GENERAL CONTRACTOR SHALL REFERENCE GEOTECHNICAL REPORT FOR PAVEMENT SECTION REQUIREMENTS.

9 C-402 CONTRACTION JOINT
NOT TO SCALE



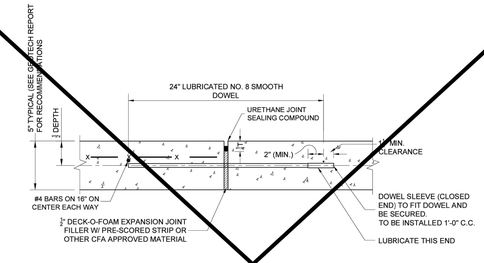

NOTES:
1. GENERAL CONTRACTOR SHALL REFERENCE GEOTECHNICAL REPORT FOR PAVEMENT SECTION REQUIREMENTS.

10 C-402 KEYED CONSTRUCTION JOINT
NOT TO SCALE




NOTES:
1. NO. 5 SMOOTH DOWEL BAR MAY BE USED IN 5 INCH AND 6 INCH PAVEMENT THICKNESS.
2. LONGITUDINAL BUTT CONSTRUCTION MAY BE UTILIZED IN PLACE OF LONGITUDINAL HINGED (KEYWAY) JOINT AT CONTRACTORS OPTION.
3. DOWEL BARS SHALL BE DRILLED & EPOXIED INTO PAVEMENT HORIZONTALLY BY USE OF MECHANICAL EQUIP.
4. PUSHING DOWEL BARS INTO WET CONCRETE NOT ACCEPTABLE.

11 C-402 LONGITUDINAL BUTT JOINT
NOT TO SCALE




NOTES:
1. NO. 5 SMOOTH DOWEL BAR MAY BE USED IN 5 INCH AND 6 INCH PAVEMENT THICKNESS.
2. LONGITUDINAL BUTT CONSTRUCTION MAY BE UTILIZED IN PLACE OF LONGITUDINAL HINGED (KEYWAY) JOINT AT CONTRACTORS OPTION.
3. DOWEL BARS SHALL BE DRILLED INTO PAVEMENT HORIZONTALLY BY USE OF A MECHANICAL EQUIPMENT.
4. DRILLING BY HAND IS NOT ACCEPTABLE, PUSHING DOWEL BARS INTO WET CONCRETE NOT ACCEPTABLE.
5. JOINT SPACING TO BE 24'X24' (EVERY OTHER JOINT).

12 C-402 EXPANSION JOINT
NOT TO SCALE

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Lic. No. 0402060193
PROFESSIONAL ENGINEER
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SHEET TITLE
**SITE DETAILS**

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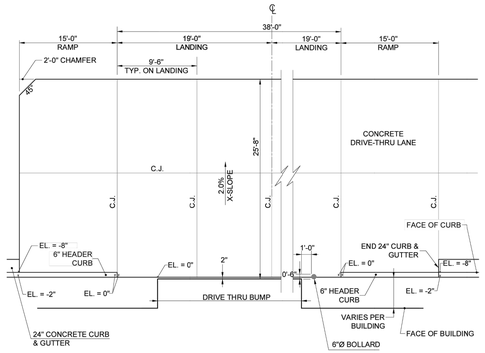
| CAD ID | : OCDS-0 |

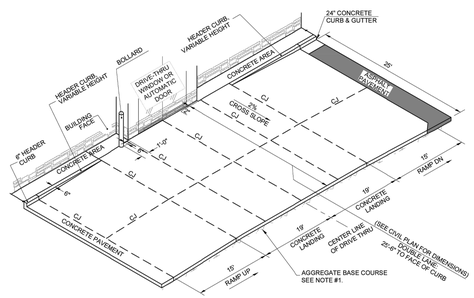
SHEET
C-402

PWCSA PL #SA2024-0052



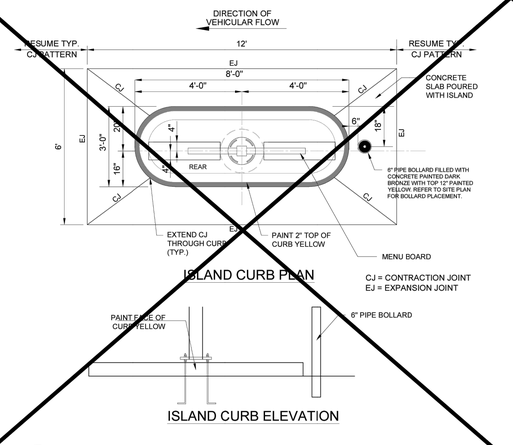

NOTE:
1. ALL ELEVATIONS ON THIS DETAIL ARE RELATIVE TO FFE = 0'.
2. FOR LC FOOTPRINT DECREASE LANDING FROM 38' TO 30'. LANDING SHOULD REMAIN CENTERED ON DRIVE-THRU WINDOW.

## 1 DRIVE-THRU PLAN - FLUSH WITH FFE
C-403 NOT TO SCALE

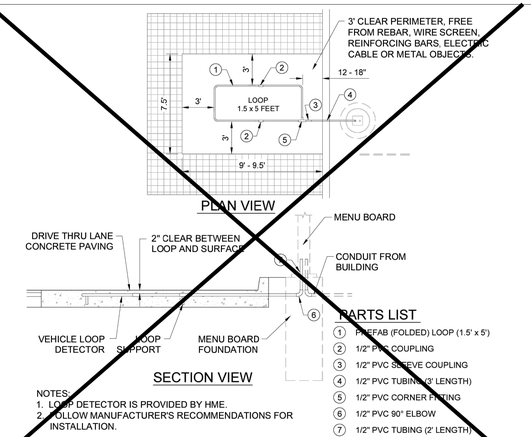



NOTE:
1. GENERAL CONTRACTOR SHALL REFERENCE GEOTECHNICAL REPORT FOR PAVEMENT SECTION REQUIREMENTS.
2. FOR LC FOOTPRINT DECREASE LANDING FROM 38' TO 30'. LANDING SHOULD REMAIN CENTERED ON DRIVE-THRU WINDOW.

## 2 DRIVE-THRU ISOMETRIC
C-403 NOT TO SCALE



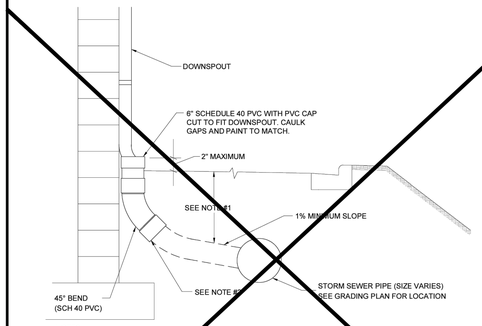

## 3 DRIVE-THRU ORDER POINT ISLAND
C-403 NOT TO SCALE




PARTS LIST
1. PREFAB (FOLDED) LOOP (1.5' x 5')
2. 1/2" PVC COUPLING
3. 1/2" PVC SLEEVE COUPLING
4. 1/2" PVC TUBING (9' LENGTH)
5. 1/2" PVC CORNER FITTING
6. 1/2" PVC 90° ELBOW
7. 1/2" PVC TUBING (2' LENGTH)

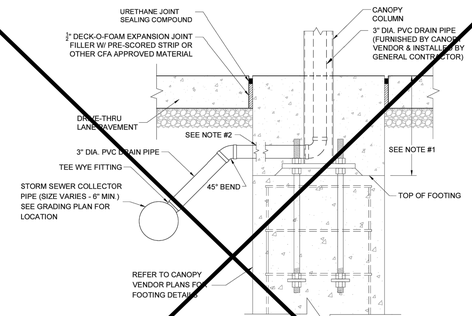
NOTES:
1. LOOP DETECTOR IS PROVIDED BY HME.
2. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION.

## 4 MENU BOARD LOOP DETECTION SYSTEM
C-403 NOT TO SCALE



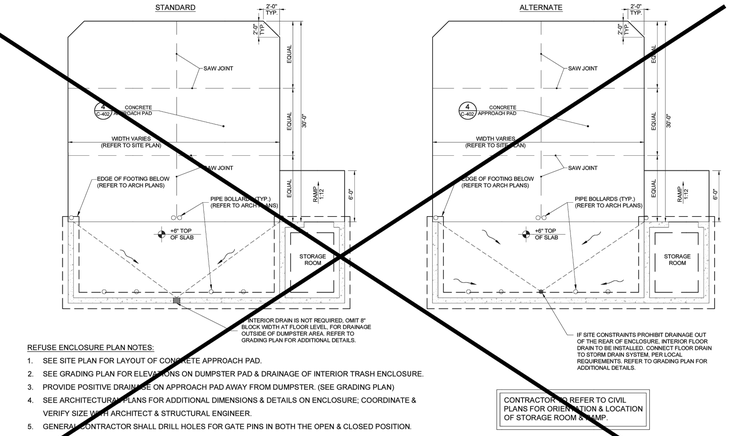

NOTES:
1. FOR ALL DEPTHS OF COVER LESS THAN TWO (2) FEET, PIPE MUST BE SCHEDULE 40 PVC. FOR DEPTHS OF COVER GREATER THAN TWO (2) FEET, FLEXIBLE PIPE MAY BE USED. REFER TO SPECIFICATIONS FOR ALLOWABLE PIPE TYPES.
2. A WATERTIGHT CONNECTION SHALL BE MAINTAINED WITH ANY TRANSITION FROM SCHEDULE 40 PVC PIPE TO ANY OTHER PIPE TYPE.
3. THE DOWNSPOUT COLLECTOR DRAIN SHALL BE INSTALLED BEFORE THE DOWNSPOUTS ARE INSTALLED ON THE BUILDING.
4. IF NECESSARY, ADJUST FOOTING TO ALLOW DOWNSPOUT TO BE INSTALLED TIGHT AGAINST BUILDING.

## 5 BUILDING DOWNSPOUT CONNECTION
C-403 NOT TO SCALE




NOTES:
1. CANOPY FOOTING SHALL BE A MINIMUM 2'-0" BELOW DRIVE-THRU LANE PAVEMENT SURFACE. REFER TO CIVIL PLANS FOR EXACT CANOPY FOOTING ELEVATIONS.
2. FLEXIBLE FITTING (NON-SHEAR FERNCO) TO BE UTILIZED BETWEEN PIPE TRANSITIONS AS NECESSARY.
3. CONTRACTOR TO COORDINATE COLUMN DOWNSPOUT ORIENTATION WITH CANOPY VENDOR. ADJUST DOWNSPOUT PIPING AS NECESSARY TO MAKE CONNECTION TO COLLECTOR PIPE.

## 6 CANOPY DOWNSPOUT CONNECTION
C-403 NOT TO SCALE




REFUSE ENCLOSURE PLAN NOTES:
1. SEE SITE PLAN FOR LAYOUT OF CONCRETE APPROACH PAD.
2. SEE GRADING PLAN FOR ELEVATIONS ON DUMPSTER PAD & DRAINAGE OF INTERIOR TRASH ENCLOSURE.
3. PROVIDE POSITIVE DRAINAGE ON APPROACH PAD AWAY FROM DUMPSTER. (SEE GRADING PLAN)
4. SEE ARCHITECTURAL PLANS FOR ADDITIONAL DIMENSIONS & DETAILS ON ENCLOSURE; COORDINATE & VERIFY SIZE WITH ARCHITECT & STRUCTURAL ENGINEER.
5. GENERAL CONTRACTOR SHALL DRILL HOLES FOR GATE PINS IN BOTH THE OPEN & CLOSED POSITION.

CONTRACTOR TO REFER TO CIVIL PLANS FOR ORIENTATION & LOCATION OF STORAGE ROOM RAMP.

## 7 SCREENED REFUSE ENCLOSURE
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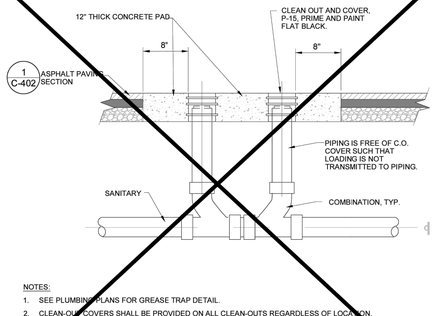


NOTES:
1. SEE PLUMBING PLANS FOR GREASE TRAP DETAIL.
2. CLEAN-OUT COVERS SHALL BE PROVIDED ON ALL CLEAN-OUTS REGARDLESS OF LOCATION.
3. CONCRETE COLLAR ALSO REQUIRED FOR SINGLE CLEAN-OUTS IN PAVEMENT.

## 8 CLEAN-OUT (OUTSIDE OF BUILDING)
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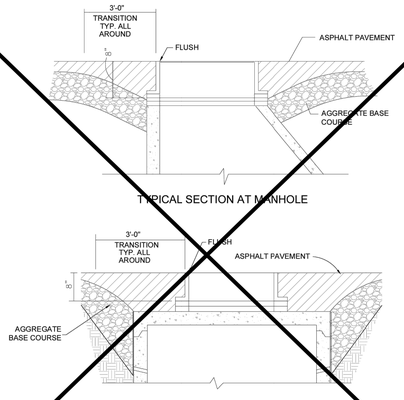
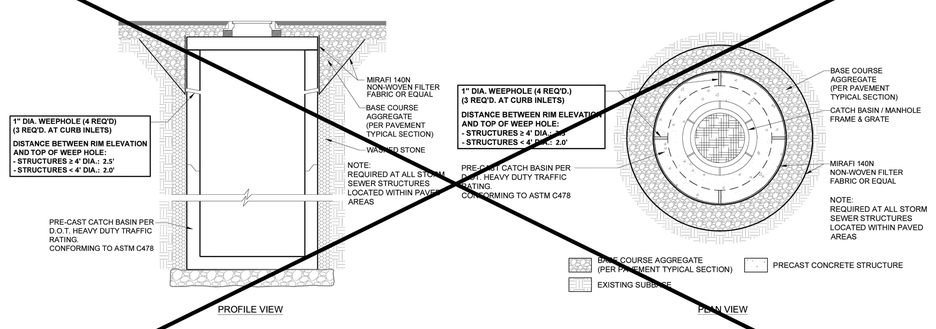
NOTE: SEE PLUMBING PLANS FOR GREASE TRAP DETAIL




## 9 THICKENED PAVEMENT @ STRUCTURES
C-403 NOT TO SCALE




## 10 STORM STRUCTURE WEEP HOLE DETAILS
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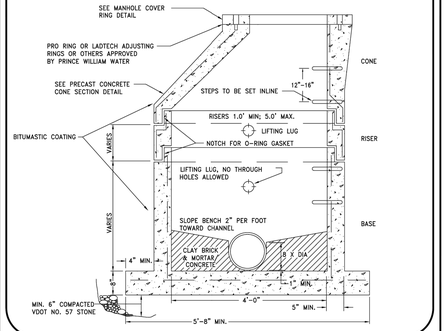
C-403

PWCSA PL #SA2024-0052

NOTES:
1. MANHOLE TO MEET CURRENT REQUIREMENTS OF ASTM SPEC. C-478.
2. ALL REINFORCING STEEL TO MEET CURRENT REQUIREMENTS OF ASTM SPEC. A-615.
3. CONCRETE TO BE 4000 PSI MINIMUM COMPRESSIVE STRENGTH.
4. TAPERED JOINT WITH O-RING GASKET TO MEET CURRENT REQUIREMENTS OF ASTM SPEC. C-361 & C-443.
5. 301 MASTIC OR APPROVED EQUAL SHALL BE USED IN ADDITION TO THE JOINT SPECIFIED.
6. APPROVED FLEXIBLE JOINT REQUIRED ON ALL PIPE CONNECTIONS TO MANHOLES. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. STUB MAY BE USED AT THE APPROVAL OF THE INSPECTOR.
7. MANUFACTURER'S NAME TO BE ON THE INSIDE FACE OF ALL SECTIONS.
8. SET COVER FRAME ON PIONEER 301 MASTIC OR APPROVED SUBSTITUTE.
9. FASTEN WATERTIGHT FRAME TO 3/4" ANCHOR BOLTS (SET ACCORDING TO CONE SECTION DETAIL) WITH NUT AND 2" WASHER. CUT ANCHOR BOLTS OFF 1" ABOVE NUT.
10. KEYWAYS MAY BE SUBSTITUTED FOR LIFTING LUGS.
11. SHOP DRAWINGS ARE REQUIRED FOR MANHOLES USED WITH SEWER MAINS GREATER THAN 24" AND MUST BE APPROVED BY PWW.
12. MASONRY UNITS MAY NOT BE USED FOR ADJUSTMENTS.
13. MANHOLE STEPS SHALL BE AMERICAN STEP COMPANY ML-10-TDS-SSR OR APPROVED SUBSTITUTE.

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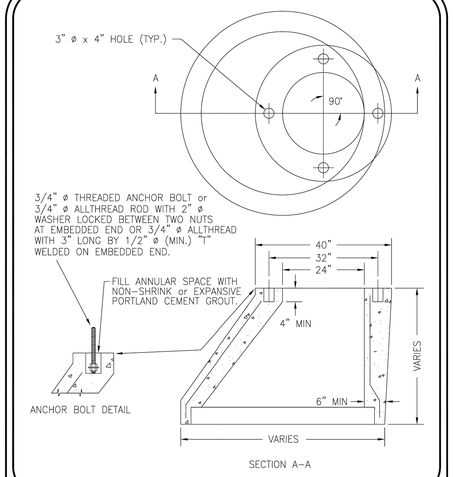
## PRECAST CONCRETE 4' DIAMETER MANHOLE

N.T.S.

S-9
REV-2024

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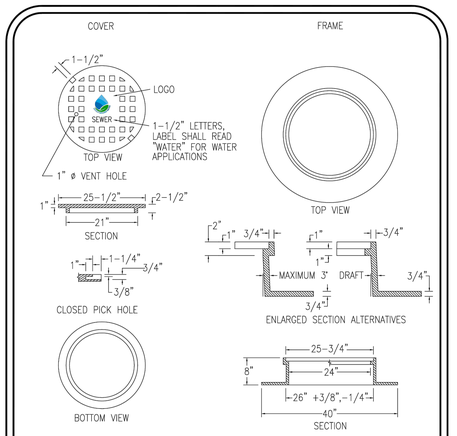
## PRECAST CONCRETE MANHOLE CONE SECTION

N.T.S.

S-14
REV-2024




NOTES:
1. MACHINE ALL BEARING SURFACES TO BE TRUE AND LEVEL.
2. MANHOLE FRAME MAY BE GUSSETTED.
3. USE ASTM A48 CLASS 30B GRAY IRON OR BETTER.
4. CERTIFY FRAME AND COVER FOR AASHTO H20 LOADING OR BETTER.
5. RECESS LABEL LETTERING AND LOGO.
6. ADJUSTABLE FRAME AND COVER AS PERMITTED BY PRINCE WILLIAM WATER.

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## STANDARD MANHOLE FRAME AND COVER

N.T.S.

S-15
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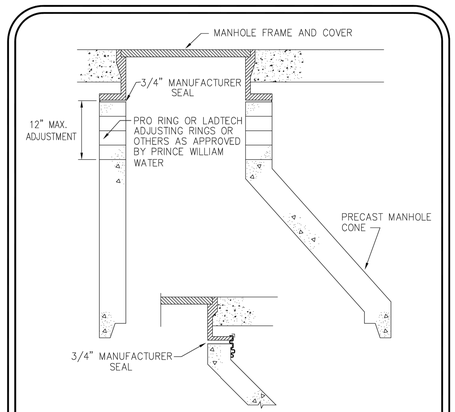


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## PRO RING, LADTECH RING OR OTHER

N.T.S.

S-17
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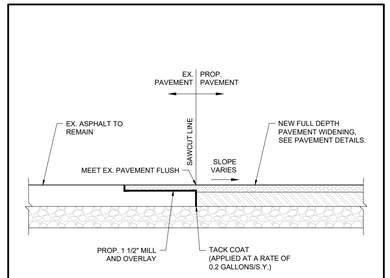


## PAVEMENT WIDENING

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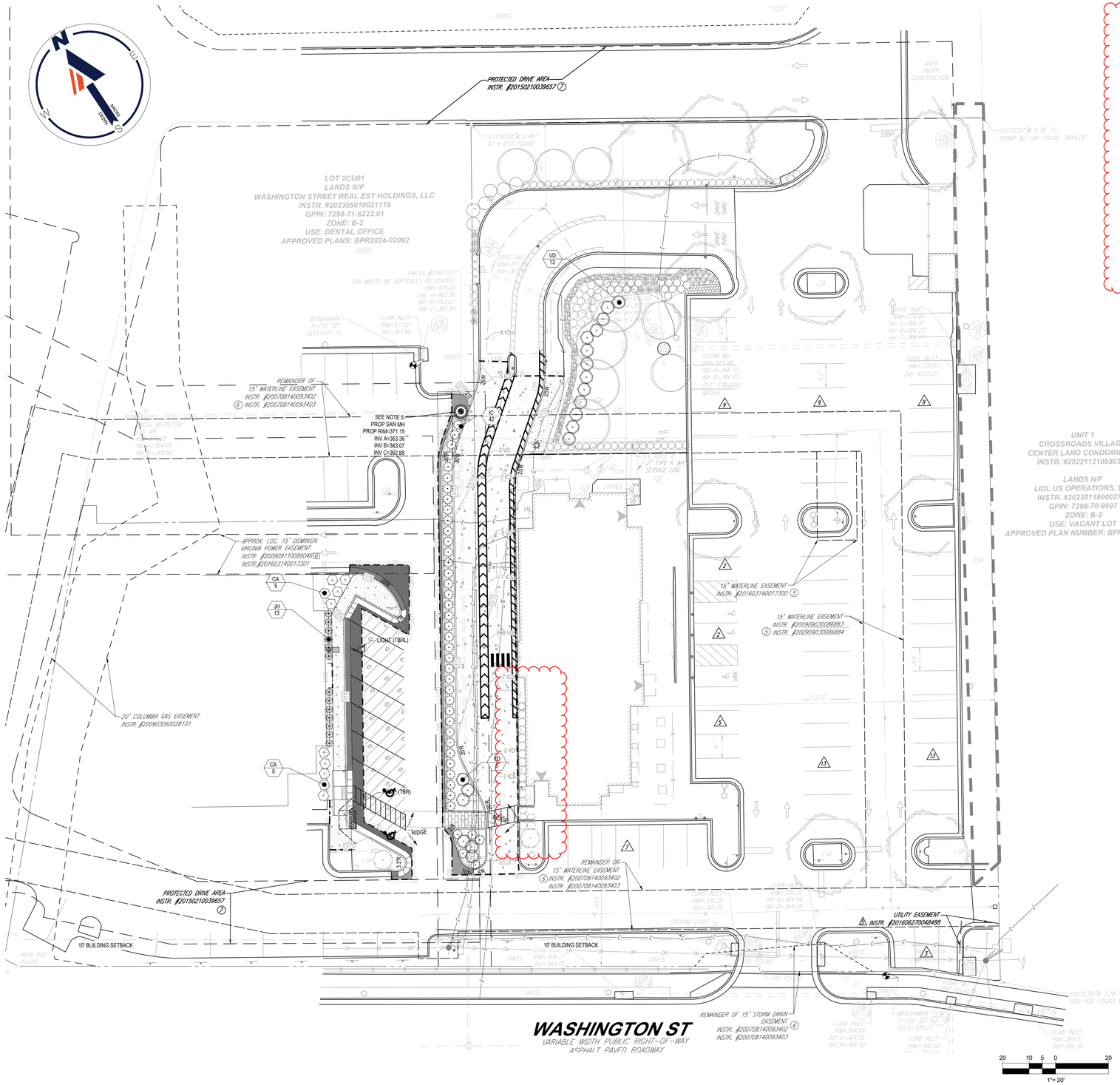


UNIT 1
CROSSROADS VILLAGE
CENTER LAND CONDOMINIUM
INSTR. #202211210080313

LANDS N/F
LIDL US OPERATIONS, LLC
INSTR. #202301190002703
GPIN: 7298-70-9697
ZONE: B-2
USE: VACANT LOT
APPROVED PLAN NUMBER: BPR2023-00910

**ONSITE LANDSCAPE SCHEDULE**

| KEY | QTY. | BOTANICAL NAME | COMMON NAME | CAL. / HT. | CONT. |
|---|---|---|---|---|---|
| | | **DECIDUOUS SHRUBS** | | | |
| VD | 19 | VIBURNUM DENTATUM | ARROWWOOD VIBURNUM | 24-30" | #3 CAN |
| **SUBTOTAL:** | **19** | | | | |
| | | **EVERGREEN SHRUBS** | | | |
| IC | 43 | ILEX CRENATA 'COMPACTA' | COMPACT JAPANESE HOLLY | 24-30" | #3 CAN |
| **SUBTOTAL:** | **43** | | | | |

**OFFSITE LANDSCAPE SCHEDULE**

| KEY | QTY. | BOTANICAL NAME | COMMON NAME | CAL. / HT. | CONT. |
|---|---|---|---|---|---|
| | | **LARGE DECIDUOUS TREES** | | | |
| AR | 1 | ACER RUBRUM | RED MAPLE | 3" | B+B |
| **SUBTOTAL:** | **1** | | | | |
| | | **DECIDUOUS SHRUBS** | | | |
| CA | 10 | VIBURNUM DENTATUM 'BLUE MUFFIN' | BLUE MUFFIN VIBURNUM | 24-30" | #3 CAN |
| **SUBTOTAL:** | **10** | | | | |
| | | **EVERGREEN SHRUBS** | | | |
| JH | 13 | JUNIPERUS HORIZONTALIS | CREEPING JUNIPER | 24-30" | #3 CAN |
| **SUBTOTAL:** | **13** | | | | |

## *LANDSCAPE NOTES:*

1. THIS PLAN PROPOSES THE REPLANTING OF LANDSCAPING THAT IS DIRECTLY AFFECTED OR TO BE REMOVED BY THE IMPROVEMENTS TO THE DRIVE THRU AREA. THE QUANTITY AND TYPE OF PLANTINGS SHALL ULTIMATELY MATCH THE QUANTITY AND TYPE OF PLANTINGS OF THE PREVIOUSLY APPROVED PLAN (AFS20080813), WHICH HAS BEEN INCLUDED WITH THIS SET FOR REFERENCE PURPOSES. THE LANDSCAPING SCHEDULE PRESENTED WITH THIS PLAN SERVES THE PURPOSE OF POINTING OUT THE LANDSCAPING THAT SHALL BE PROPOSED AND RELOCATED FROM THE PREVIOUS PLAN. ANY LANDSCAPING BEYOND THE SCOPE OF DRIVE THRU IMPROVEMENTS THAT IS EITHER DEAD, DAMAGED, OR NOT PRESENT FROM THE PREVIOUSLY APPROVED LANDSCAPE PLAN SHALL BE REPLACED IN KIND ALONG WITH THESE IMPROVEMENTS.

2. THE DRIVE THRU IMPROVEMENTS HAVE BEEN COORDINATED WITH THE ADJACENT BANK PROPERTY. ADDITIONAL LANDSCAPING HAS BEEN PROPOSED TO HONOR THE RELOCATION OF SITE FEATURES. SEE ADJACENT PROPERTY LANDSCAPE SCHEDULE FOR PROPOSED PLANTINGS.

3. LESSEE OF CFA PARCEL SHALL BE RESPONSIBLE FOR ENSURING LANDSCAPING ALONG THE EASTERN PROPERTY BOUNDARY OF THE CFA PARCEL IS IN CONFORMANCE WITH THE APPROVED LANDSCAPING PLAN SHOWN ON SHEET L-1.1 OF THE ORIGINAL APPROVED PLAN PRIOR TO ANY LANDSCAPE ESCROW RELEASE BY THE TOWN OF HAYMARKET FOR THE CFA PARCEL.

4.THE LANDSCAPING ESCROW WILL NOT BE RELEASED UNTIL ALL LANDSCAPING ON THE ENTIRE 6.0-ACRE PARCEL, PER THE APPROVED SITE PLAN AS SHOWN ON SHEET L1.1 OF THE APPROVED CFA PLAN SET, IS IN HEALTHY CONDITION.

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PROJECT MANAGEMENT
LANDSCAPE ARCHITECTURE
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SHEET TITLE
***LANDSCAPE PLAN***

DWG EDITION 02.4

☐ PRELIMINARY
☒ 80% SUBMITTAL
☐ FOR CONSTRUCTION

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| JOB NO. | :VAB230141.00 |
| STORE | : #3197 |
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PWCSA PL #SA2024-0052

# LANDSCAPE SPECIFICATIONS

**1. SCOPE OF WORK:**
THE LANDSCAPE CONTRACTOR SHALL BE REQUIRED TO PERFORM ALL CLEARING, FINISHED GRADING, SOIL PREPARATION, PERMANENT SEEDING OR SODDING, PLANTING AND MULCHING INCLUDING ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT NECESSARY FOR THE COMPLETION OF THIS PROJECT, UNLESS OTHERWISE CONTRACTED BY THE GENERAL CONTRACTOR.

**2. MATERIALS**

A. GENERAL - ALL HARDSCAPE MATERIALS SHALL MEET OR EXCEED SPECIFICATIONS AS OUTLINED IN THE STATE DEPARTMENT OF TRANSPORTATION'S SPECIFICATIONS.

B. TOPSOIL - NATURAL, FRIABLE, LOAMY SILT SOIL HAVING AN ORGANIC CONTENT NOT LESS THAN 5%, A PH RANGE BETWEEN 4.5-7.0. IT SHALL BE FREE OF DEBRIS, ROCKS LARGER THAN ONE INCH (1"), WOOD, ROOTS, VEGETABLE MATTER AND CLAY CLODS.

C. LAWN - ALL DISTURBED AREAS ARE TO BE TREATED WITH A MINIMUM SIX INCH (6") THICK LAYER OF TOPSOIL, OR AS DIRECTED BY THE LOCAL ORDINANCE OR CLIENT, AND SEEDED OR SODDED IN ACCORDANCE WITH THE PERMANENT STABILIZATION METHODS INDICATED WITHIN THE SOIL EROSION AND SEDIMENT CONTROL NOTES.
1.1. LAWN SEED MIXTURE SHALL BE FRESH, CLEAN NEW CROP SEED.
1.2. SOD SHALL BE STRONGLY ROOTED, WEED AND DISEASE/PEST FREE WITH A UNIFORM THICKNESS.
1.3. SOD INSTALLED ON SLOPES GREATER THAN 4:1 SHALL BE PEGGED TO HOLD SOD IN PLACE.

D. MULCH - THE MULCH AROUND THE PERIMETER OF THE BUILDING SHALL BE A 3" LAYER OF DOUBLE SHREDDED BLACK CEDAR MULCH ONLY. ALL OTHER AREAS SHALL BE MULCHED WITH A 3" LAYER OF DOUBLE SHREDDED DARK BROWN HARDWOOD BARK MULCH, UNLESS OTHERWISE STATED ON THE LANDSCAPE PLAN.

E. FERTILIZER
1.1. FERTILIZER SHALL BE DELIVERED TO THE SITE MIXED AS SPECIFIED IN THE ORIGINAL UNOPENED STANDARD BAGS SHOWING WEIGHT, ANALYSIS AND NAME OF MANUFACTURER. FERTILIZER SHALL BE STORED IN A WEATHERPROOF PLACE SO THAT IT CAN BE KEPT DRY PRIOR TO USE.
1.2. FOR THE PURPOSE OF BIDDING, ASSUME THAT FERTILIZER SHALL BE 10% NITROGEN, 6% PHOSPHORUS AND 4% POTASSIUM BY WEIGHT. A FERTILIZER SHOULD NOT BE SELECTED WITHOUT A SOIL TEST PERFORMED BY A CERTIFIED SOIL LABORATORY.

F. PLANT MATERIAL
1.1. ALL PLANTS SHALL IN ALL CASES CONFORM TO THE REQUIREMENTS OF THE "AMERICAN STANDARD FOR NURSERY STOCK" (ANSI Z60.1), LATEST EDITION, AS PUBLISHED BY THE AMERICAN NURSERY & LANDSCAPE ASSOCIATION.
1.2. IN ALL CASES, BOTANICAL NAMES SHALL TAKE PRECEDENCE OVER COMMON NAMES FOR ANY AND ALL PLANT MATERIAL.
1.3. PLANTS SHALL BE LEGIBLY TAGGED WITH THE PROPER NAME AND SIZE. TAGS ARE TO REMAIN ON AT LEAST ONE PLANT OF EACH SPECIES FOR VERIFICATION PURPOSES DURING THE FINAL INSPECTION.
1.4. TREES WITH ABRASION OF THE BARK, SUN SCALDS, DISFIGURATION OR FRESH CUTS OF LIMBS OVER 1½", WHICH HAVE NOT BEEN COMPLETELY CALLUSED, SHALL BE REJECTED.PLANTS SHALL NOT BE BOUND WITH WIRE OR ROPE AT ANY TIME SO AS TO DAMAGE THE BARK OR BREAK BRANCHES.
1.5. ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES OR VARIETY AND SHALL HAVE A NORMAL HABIT OF GROWTH: WELL DEVELOPED BRANCHES, DENSELY FOLIATED, VIGOROUS ROOT SYSTEMS AND BE FREE OF DISEASE, INSECTS, PESTS, EGGS OR LARVAE.
1.6. CALIPER MEASUREMENTS OF NURSERY GROWN TREES SHALL BE TAKEN AT A POINT ON THE TRUNK SIX INCHES (6") ABOVE THE NATURAL GRADE FOR TREES UP TO AND INCLUDING A FOUR INCH (4") CALIPER SIZE. IF THE CALIPER AT SIX INCHES (6") ABOVE THE GROUND EXCEEDS FOUR INCHES (4") IN CALIPER, THE CALIPER SHOULD BE MEASURED AT A POINT 12" ABOVE THE NATURAL GRADE.
1.7. SHRUBS SHALL BE MEASURED TO THE AVERAGE HEIGHT OR SPREAD OF THE SHRUB, AND NOT TO THE LONGEST BRANCH.
1.8. TREES AND SHRUBS SHALL BE HANDLED WITH CARE BY THE ROOT BALL.

**3. GENERAL WORK PROCEDURES**

A. CONTRACTOR TO UTILIZE WORKMANLIKE INDUSTRY STANDARDS IN PERFORMING ALL LANDSCAPE CONSTRUCTION. THE SITE IS TO BE LEFT IN A CLEAN STATE AT THE END OF EACH WORKDAY. ALL DEBRIS, MATERIALS AND TOOLS SHALL BE PROPERLY STORED, STOCKPILED OR DISPOSED OF.

B. WASTE MATERIALS AND DEBRIS SHALL BE COMPLETELY DISPOSED OF AT THE CONTRACTOR'S EXPENSE. DEBRIS SHALL NOT BE BURIED, INCLUDING ORGANIC MATERIALS, BUT SHALL BE REMOVED COMPLETELY FROM THE SITE.

**4. SITE PREPARATIONS**

A. BEFORE AND DURING PRELIMINARY GRADING AND FINISHED GRADING, ALL WEEDS AND GRASSES SHALL BE DUG OUT BY THE ROOTS AND DISPOSED OF IN ACCORDANCE WITH GENERAL WORK PROCEDURES OUTLINED HEREIN.

B. ALL EXISTING TREES TO REMAIN SHALL BE PRUNED TO REMOVE ANY DAMAGED BRANCHES. THE ENTIRE LIMB OF ANY DAMAGED BRANCH SHALL BE CUT OFF AT THE TRUNK. CONTRACTOR SHALL ENSURE THAT CUTS ARE SMOOTH AND STRAIGHT. ANY EXPOSED ROOTS SHALL BE CUT BACK WITH CLEAN, SHARP TOOLS AND TOPSOIL SHALL BE PLACED AROUND THE REMAINDER OF THE ROOTS. EXISTING TREES SHALL BE MONITORED ON A REGULAR BASIS FOR ADDITIONAL ROOT OR BRANCH DAMAGE AS A RESULT OF CONSTRUCTION. ROOTS SHALL NOT BE LEFT EXPOSED FOR MORE THAN ONE (1) DAY. CONTRACTOR SHALL WATER EXISTING TREES AS NEEDED TO PREVENT SHOCK OR DECLINE.

C. CONTRACTOR SHALL ARRANGE TO HAVE A UTILITY STAKE-OUT TO LOCATE ALL UNDERGROUND UTILITIES PRIOR TO INSTALLATION OF ANY LANDSCAPE MATERIAL. UTILITY COMPANIES SHALL BE CONTACTED THREE (3) DAYS PRIOR TO THE BEGINNING OF WORK.

**5. TREE PROTECTION**

A. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING TREES TO REMAIN. A TREE PROTECTION ZONE SHALL BE ESTABLISHED AT THE DRIP LINE OR 15 FEET FROM THE TRUNK OR AT THE LIMIT OF CONSTRUCTION DISTURBANCE, WHICHEVER IS GREATER. LOCAL STANDARDS THAT MAY REQUIRE A MORE STRICT TREE PROTECTION ZONE SHALL BE HONORED.

B. A FORTY-EIGHT INCH (48") HIGH WOODEN SNOW FENCE OR ORANGE COLORED HIGH-DENSITY VISI-FENCE', OR APPROVED EQUAL, MOUNTED ON STEEL POSTS SHALL BE PLACED ALONG THE BOUNDARY OF THE TREE PROTECTION ZONE. POSTS SHALL BE LOCATED AT A MAXIMUM OF EIGHT FEET (8') ON CENTER OR AS INDICATED WITHIN THE TREE PROTECTION DETAIL.

C. WHEN THE TREE PROTECTION FENCING HAS BEEN INSTALLED, IT SHALL BE INSPECTED BY THE APPROVING AGENCY PRIOR TO DEMOLITION, GRADING, TREE CLEARING OR ANY OTHER CONSTRUCTION. THE FENCING ALONG THE TREE PROTECTION ZONE SHALL BE REGULARLY INSPECTED BY THE LANDSCAPE CONTRACTOR AND MAINTAINED UNTIL ALL CONSTRUCTION ACTIVITY HAS BEEN COMPLETED.

D. AT NO TIME SHALL MACHINERY, DEBRIS, FALLEN TREES OR OTHER MATERIALS BE PLACED, STOCKPILED OR LEFT STANDING IN THE TREE PROTECTION ZONE.

**6. SOIL MODIFICATIONS**

A. CONTRACTOR SHALL ATTAIN A SOIL TEST FOR ALL AREAS OF THE SITE PRIOR TO CONDUCTING ANY PLANTING. SOIL TESTS SHALL BE PERFORMED BY A CERTIFIED SOIL LABORATORY.

B. LANDSCAPE CONTRACTOR SHALL REPORT ANY SOIL OR DRAINAGE CONDITIONS CONSIDERED DETRIMENTAL TO THE GROWTH OF PLANT MATERIAL. SOIL MODIFICATIONS, AS SPECIFIED HEREIN, MAY NEED TO BE CONDUCTED BY THE LANDSCAPE CONTRACTOR DEPENDING ON SITE CONDITIONS.

C. THE FOLLOWING AMENDMENTS AND QUANTITIES ARE APPROXIMATE AND ARE FOR BIDDING PURPOSES ONLY. COMPOSITION OF AMENDMENTS SHOULD BE REVISED DEPENDING ON THE OUTCOME OF A TOPSOIL ANALYSIS PERFORMED BY A CERTIFIED SOIL LABORATORY.
1.1. TO INCREASE A SANDY SOIL'S ABILITY TO RETAIN WATER AND NUTRIENTS, THOROUGHLY TILL ORGANIC MATTER INTO THE TOP 6-12". USE COMPOSTED BARK, COMPOSTED LEAF MULCH OR PEAT MOSS. ALL PRODUCTS SHOULD BE COMPOSTED TO A DARK COLOR AND BE FREE OF PIECES WITH IDENTIFIABLE LEAF OR WOOD STRUCTURE. AVOID MATERIAL WITH A PH HIGHER THAN 7.5.
1.2. TO INCREASE DRAINAGE, MODIFY HEAVY CLAY OR SILT (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) AND/OR AGRICULTURAL GYPSUM. COARSE SAND MAY BE USED IF ENOUGH IS ADDED TO BRING THE SAND CONTENT TO MORE THAN 60% OF THE TOTAL MIX. SUBSURFACE DRAINAGE LINES MAY NEED TO BE ADDED TO INCREASE DRAINAGE.
1.3. MODIFY EXTREMELY SANDY SOILS (MORE THAN 85%) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX.

**7. FINISHED GRADING**

A. UNLESS OTHERWISE CONTRACTED, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF TOPSOIL AND THE ESTABLISHMENT OF FINE-GRADING WITHIN THE DISTURBANCE AREA OF THE SITE.

B. LANDSCAPE CONTRACTOR SHALL VERIFY THAT SUBGRADE FOR INSTALLATION OF TOPSOIL HAS BEEN ESTABLISHED. THE SUBGRADE OF THE SITE MUST MEET THE FINISHED GRADE LESS THE REQUIRED TOPSOIL THICKNESS (1"±).

C. ALL LAWN AND PLANTING AREAS SHALL BE GRADED TO A SMOOTH, EVEN AND UNIFORM PLANE WITH NO ABRUPT CHANGE OF SURFACE AS DEPICTED WITHIN THIS SET OF CONSTRUCTION PLANS, UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER OR LANDSCAPE ARCHITECT.

D. ALL PLANTING AREAS SHALL BE GRADED AND MAINTAINED TO ALLOW FREE FLOW OF SURFACE WATER IN AND AROUND THE PLANTING BEDS. STANDING WATER SHALL NOT BE PERMITTED IN PLANTING BEDS.

**8. TOPSOILING**

A. CONTRACTOR SHALL PROVIDE A SIX INCH (6") THICK MINIMUM LAYER OF TOPSOIL, OR AS DIRECTED BY THE LOCAL ORDINANCE OR CLIENT, IN ALL PLANTING AREAS. TOPSOIL SHOULD BE SPREAD OVER A PREPARED SURFACE IN A UNIFORM LAYER TO ACHIEVE THE DESIRED COMPACTED THICKNESS.

B. ON-SITE TOPSOIL MAY BE USED TO SUPPLEMENT THE TOTAL AMOUNT REQUIRED. TOPSOIL FROM THE SITE MAY BE REJECTED IF IT HAS NOT BEEN PROPERLY REMOVED, STORED AND PROTECTED PRIOR TO CONSTRUCTION.

C. CONTRACTOR SHALL FURNISH TO THE APPROVING AGENCY AN ANALYSIS OF BOTH IMPORTED AND ON-SITE TOPSOIL TO BE UTILIZED IN ALL PLANTING AREAS. THE PH AND NUTRIENT LEVELS MAY NEED TO BE ADJUSTED THROUGH SOIL MODIFICATIONS AS NEEDED TO ACHIEVE THE REQUIRED LEVELS AS SPECIFIED IN THE MATERIALS SECTION ABOVE.

D. ALL PLANTING AND LAWN AREAS ARE TO BE CULTIVATED TO A DEPTH OF SIX INCHES (6"). ALL DEBRIS EXPOSED FROM EXCAVATION AND CULTIVATION SHALL BE DISPOSED OF IN ACCORDANCE WITH GENERAL WORK PROCEDURES SECTION ABOVE. THE FOLLOWING SHALL BE TILLED INTO THE TOP FOUR INCHES (4") IN TWO DIRECTIONS (QUANTITIES BASED ON A 1,000 SQUARE FOOT AREA):
1.1. 20 POUNDS 'GROW POWER' OR APPROVED EQUAL
1.2. 20 POUNDS NITRO-FORM (COURSE) 38-0-0 BLUE CHIP

E. THE SPREADING OF TOPSOIL SHALL NOT BE CONDUCTED UNDER MUDDY OR FROZEN CONDITIONS.

**9. PLANTING**

A. INSOFAR THAT IT IS FEASIBLE, PLANT MATERIAL SHALL BE PLANTED ON THE DAY OF DELIVERY. IN THE EVENT THAT THIS IS NOT POSSIBLE, LANDSCAPE CONTRACTOR SHALL PROTECT UNINSTALLED PLANT MATERIAL. PLANTS SHALL NOT REMAIN UNPLANTED FOR LONGER THAN A THREE DAY PERIOD AFTER DELIVERY. PLANTS THAT WILL NOT BE PLANTED FOR A PERIOD OF TIME GREATER THAN THREE DAYS SHALL BE HEALED IN WITH TOPSOIL OR MULCH TO HELP PRESERVE ROOT MOISTURE.

B. PLANTING OPERATIONS SHALL BE PERFORMED DURING PERIODS WITHIN THE PLANTING SEASON WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE AND IN ACCORDANCE WITH ACCEPTED LOCAL PRACTICE. PLANTS SHALL NOT BE INSTALLED IN TOPSOIL THAT IS IN A MUDDY OR FROZEN CONDITION.

C. ANY INJURED ROOTS OR BRANCHES SHALL BE PRUNED TO MAKE CLEAN-CUT ENDS PRIOR TO PLANTING UTILIZING CLEAN, SHARP TOOLS. ONLY INJURED OR DISEASED BRANCHING SHALL BE REMOVED.

D. ALL PLANTING CONTAINERS AND NON-BIODEGRADABLE MATERIALS SHALL BE REMOVED FROM ROOT BALLS DURING PLANTING. NATURAL FIBER BURLAP MUST BE CUT FROM AROUND THE TRUNK OF THE TREE AND FOLDED DOWN AGAINST THE ROOT BALL PRIOR TO BACKFILLING.

E. POSITION TREES AND SHRUBS AT THEIR INTENDED LOCATIONS AS PER THE PLANS AND SECURE THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO EXCAVATING PITS, MAKING NECESSARY ADJUSTMENTS AS DIRECTED.

F. PRIOR TO THE ISSUANCE OF ANY CERTIFICATE OF OCCUPANCY, THE PROPOSED LANDSCAPE, AS SHOWN ON THE APPROVED LANDSCAPE PLAN, MUST BE INSTALLED, INSPECTED AND APPROVED BY THE APPROVING AGENCY. THE APPROVING AGENCY SHALL TAKE INTO ACCOUNT SEASONAL CONSIDERATIONS IN THIS REGARD AS FOLLOWS. THE PLANTING OF TREES, SHRUBS, VINES OR GROUND COVER SHALL OCCUR ONLY DURING THE FOLLOWING PLANTING SEASONS:
1.1. PLANTS: MARCH 15 TO DECEMBER 15
1.2. LAWN: MARCH 15 TO JUNE 15 OR SEPT. 1 TO DECEMBER 1

G. PLANTINGS REQUIRED FOR A CERTIFICATE OF OCCUPANCY SHALL BE PROVIDED DURING THE NEXT APPROPRIATE SEASON AT THE MUNICIPALITY'S DISCRETION. CONTRACTOR SHOULD CONTACT APPROVING AGENCY FOR POTENTIAL SUBSTITUTIONS.

H. FURTHERMORE, THE FOLLOWING TREE VARIETIES ARE UNUSUALLY SUSCEPTIBLE TO WINTER DAMAGE. WITH TRANSPLANT SHOCK AND THE SEASONAL LACK OF NITROGEN AVAILABILITY, THE RISK OF PLANT DEATH IS GREATLY INCREASED. IT IS NOT RECOMMENDED THAT THESE SPECIES BE PLANTED DURING THE FALL PLANTING SEASON;

| | |
|---|---|
| ACER RUBRUM | PLATANUS X ACERIFOLIA |
| BETULA VARIETIES | POPULOUS VARIETIES |
| CARPINUS VARIETIES | PRUNUS VARIETIES |
| CRATAEGUS VARIETIES | PYRUS VARIETIES |
| KOELREUTERIA | QUERCUS VARIETIES |
| LIQUIDAMBER STYRACIFLUA | TILIA TOMENTOSA |
| LIRIODENDRON TULIPIFERA | ZELKOVA VARIETIES |

I. PLANTING PITS SHALL BE DUG WITH LEVEL BOTTOMS, WITH THE WIDTH TWICE THE DIAMETER OF ROOT BALL. THE ROOT BALL SHALL REST ON UNDISTURBED GRADE. EACH PLANT PIT SHALL BE BACKFILLED IN LAYERS WITH THE FOLLOWING PREPARED SOIL MIXED THOROUGHLY:
- 1 PART PEAT MOSS
- 1 PART COMPOSTED COW MANURE BY VOLUME
- 3 PARTS TOPSOIL BY VOLUME
- 21 GRAMS 'AGRIFORM' PLANTING TABLETS (OR APPROVED EQUAL) AS FOLLOWS:
  - A) 2 TABLETS PER 1 GALLON PLANT
  - B) 3 TABLETS PER 5 GALLON PLANT
  - C) 4 TABLETS PER 15 GALLON PLANT
  - D) LARGER PLANTS: 2 TABLETS PER ½" CALIPER OF TRUNK

J. FILL PREPARED SOIL AROUND BALL OF PLANT HALF-WAY AND INSERT PLANT TABLETS. COMPLETE BACKFILL AND WATER THOROUGHLY.

K. ALL PLANTS SHALL BE PLANTED SO THAT THE TOP OF THE ROOT BALL, THE POINT AT WHICH THE ROOT FLARE BEGINS, IS SET AT GROUND LEVEL AND IN THE CENTER OF THE PIT. NO SOIL IS TO BE PLACED DIRECTLY ON TOP OF THE ROOT BALL.

L. ALL PROPOSED TREES DIRECTLY ADJACENT TO WALKWAYS OR DRIVEWAYS SHALL BE PRUNED AND MAINTAINED TO A MINIMUM BRANCHING HEIGHT OF 7' FROM GRADE.

M. GROUND COVER AREAS SHALL RECEIVE A ¼" LAYER OF HUMUS RAKED INTO THE TOP 1" OF PREPARED SOIL PRIOR TO PLANTING. ALL GROUND COVER AREAS SHALL BE WEEDED AND TREATED WITH A PRE-EMERGENT CHEMICAL AS PER MANUFACTURER'S RECOMMENDATION.

N. NO PLANT, EXCEPT GROUND COVERS, GRASSES OR VINES, SHALL BE PLANTED LESS THAN TWO FEET (2') FROM EXISTING STRUCTURES AND SIDEWALKS.

O. ALL PLANTING AREAS AND PLANTING PITS SHALL BE MULCHED AS SPECIFIED HEREIN TO FILL THE ENTIRE BED AREA OR SAUCER. NO MULCH IS TO TOUCH THE TRUNK OF THE TREE OR SHRUB.

P. ALL PLANTING AREAS SHALL BE WATERED IMMEDIATELY UPON INSTALLATION IN ACCORDANCE WITH THE WATERING SPECIFICATIONS AS LISTED HEREIN.

**10. TRANSPLANTING (WHEN REQUIRED)**

A. ALL TRANSPLANTS SHALL BE DUG WITH INTACT ROOT BALLS CAPABLE OF SUSTAINING THE PLANT.

B. IF PLANTS ARE TO BE STOCKPILED BEFORE REPLANTING, THEY SHALL BE HEALED IN WITH MULCH OR SOIL, ADEQUATELY WATERED AND PROTECTED FROM EXTREME HEAT, SUN AND WIND.

C. PLANTS SHALL NOT BE DUG FOR TRANSPLANTING BETWEEN APRIL 10 AND JUNE 30.

D. UPON REPLANTING, BACKFILL SOIL SHALL BE AMENDED WITH FERTILIZER AND ROOT GROWTH HORMONE.

E. TRANSPLANTS SHALL BE GUARANTEED FOR THE LENGTH OF THE GUARANTEE PERIOD SPECIFIED HEREIN.

F. IF TRANSPLANTS DIE, SHRUBS AND TREES LESS THAN SIX INCHES (6") DBH SHALL BE REPLACED IN KIND. TREES GREATER THAN SIX INCHES (6") DBH MAY BE REQUIRED TO BE REPLACED IN ACCORDANCE WITH THE MUNICIPALITY'S TREE REPLACEMENT GUIDELINES.

**11. WATERING**

A. NEW PLANTINGS OR LAWN AREAS SHALL BE ADEQUATELY IRRIGATED BEGINNING IMMEDIATELY AFTER PLANTING. WATER SHALL BE APPLIED TO EACH TREE AND SHRUB IN SUCH MANNER AS NOT TO DISTURB BACKFILL AND TO THE EXTENT THAT ALL MATERIALS IN THE PLANTING HOLE ARE THOROUGHLY SATURATED. WATERING SHALL CONTINUE AT LEAST UNTIL PLANTS ARE ESTABLISHED.

B. SITE OWNER SHALL PROVIDE WATER IF AVAILABLE ON SITE AT TIME OF PLANTING. IF WATER IS NOT AVAILABLE ON SITE, CONTRACTOR SHALL SUPPLY ALL NECESSARY WATER. THE USE OF WATERING BAGS IS RECOMMENDED FOR ALL NEWLY PLANTED TREES.

C. IF AN IRRIGATION SYSTEM HAS BEEN INSTALLED ON THE SITE, IT SHALL BE USED TO WATER PROPOSED PLANT MATERIAL, BUT ANY FAILURE OF THE SYSTEM DOES NOT ELIMINATE THE CONTRACTOR'S RESPONSIBILITY OF MAINTAINING THE DESIRED MOISTURE LEVEL FOR VIGOROUS, HEALTHY GROWTH.

**12. GUARANTEE**

A. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANTS FOR A PERIOD OF ONE (1) YEAR FROM APPROVAL OF LANDSCAPE INSTALLATION BY THE APPROVING AGENCY. CONTRACTOR SHALL SUPPLY THE OWNER WITH A MAINTENANCE BOND FOR TEN PERCENT (10%) OF THE VALUE OF THE LANDSCAPE INSTALLATION WHICH WILL BE RELEASED AT THE CONCLUSION OF THE GUARANTEE PERIOD AND WHEN A FINAL INSPECTION HAS BEEN COMPLETED AND APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.

B. ANY DEAD OR DYING PLANT MATERIAL SHALL BE REPLACED FOR THE LENGTH OF THE GUARANTEE PERIOD. REPLACEMENT OF PLANT MATERIAL SHALL BE CONDUCTED AT THE FIRST SUCCEEDING PLANTING SEASON. ANY DEBRIS SHALL BE DISPOSED OF OFF-SITE, WITHOUT EXCEPTION.

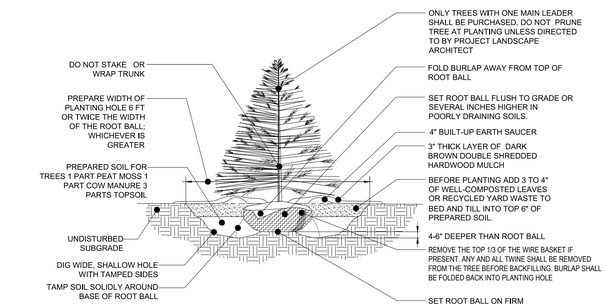
C. TREES AND SHRUBS SHALL BE MAINTAINED BY THE CONTRACTOR DURING CONSTRUCTION AND THROUGHOUT THE 90 DAY MAINTENANCE PERIOD AS SPECIFIED HEREIN. CULTIVATION, WEEDING, WATERING AND THE PREVENTATIVE TREATMENTS SHALL BE PERFORMED AS NECESSARY TO KEEP PLANT MATERIAL IN GOOD CONDITION AND FREE OF INSECTS AND DISEASE.

D. LAWNS SHALL BE MAINTAINED THROUGH WATERING, FERTILIZING, WEEDING, MOWING, TRIMMING AND OTHER OPERATIONS SUCH AS ROLLING, REGARDING AND REPLANTING AS REQUIRED TO ESTABLISH A SMOOTH, ACCEPTABLE LAWN, FREE OF ERODED OR BARE AREAS.

**13. CLEANUP**

A. UPON THE COMPLETION OF ALL LANDSCAPE INSTALLATION AND BEFORE THE FINAL ACCEPTANCE, THE CONTRACTOR SHALL REMOVE ALL UNUSED MATERIALS, EQUIPMENT AND DEBRIS FROM THE SITE. ALL PAVED AREAS ARE TO BE CLEANED.

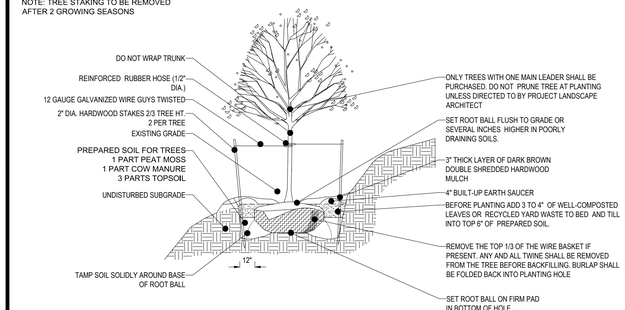
B. THE SITE SHALL BE CLEANED AND LEFT IN A NEAT AND ACCEPTABLE CONDITION AS APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.




REFERENCE: ARCHITECTURAL GRAPHIC STANDARDS 1998 CUMULATIVE SUPPLEMENT.

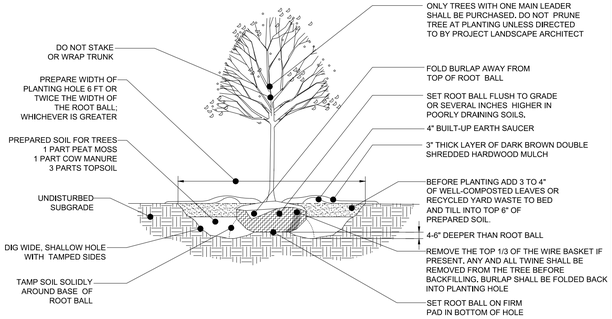
## EVERGREEN TREE PLANTING DETAIL

NOT TO SCALE




## TREE PLANTING ON SLOPE DETAIL

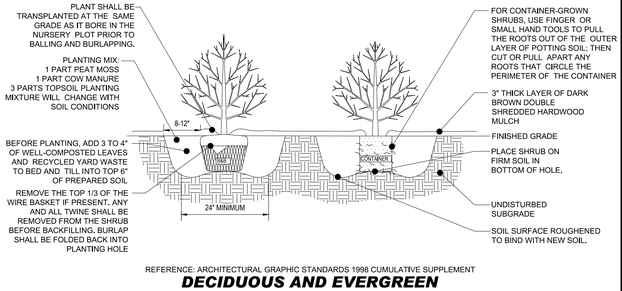
NOT TO SCALE




REFERENCE: ARCHITECTURAL GRAPHIC STANDARDS 1998 CUMULATIVE SUPPLEMENT.

## DECIDUOUS TREE PLANTING DETAIL

NOT TO SCALE




REFERENCE: ARCHITECTURAL GRAPHIC STANDARDS 1998 CUMULATIVE SUPPLEMENT

## DECIDUOUS AND EVERGREEN SHRUB PLANTING DETAIL

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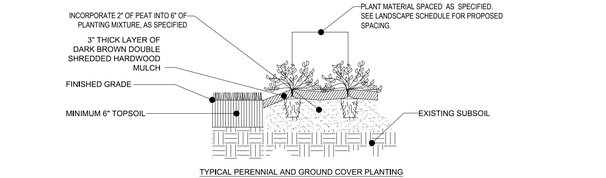
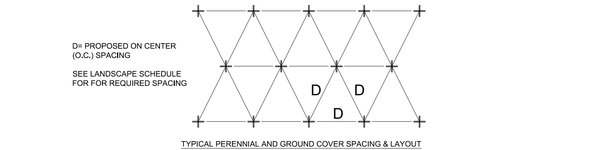



TYPICAL PERENNIAL AND GROUND COVER PLANTING




TYPICAL PERENNIAL AND GROUND COVER SPACING & LAYOUT

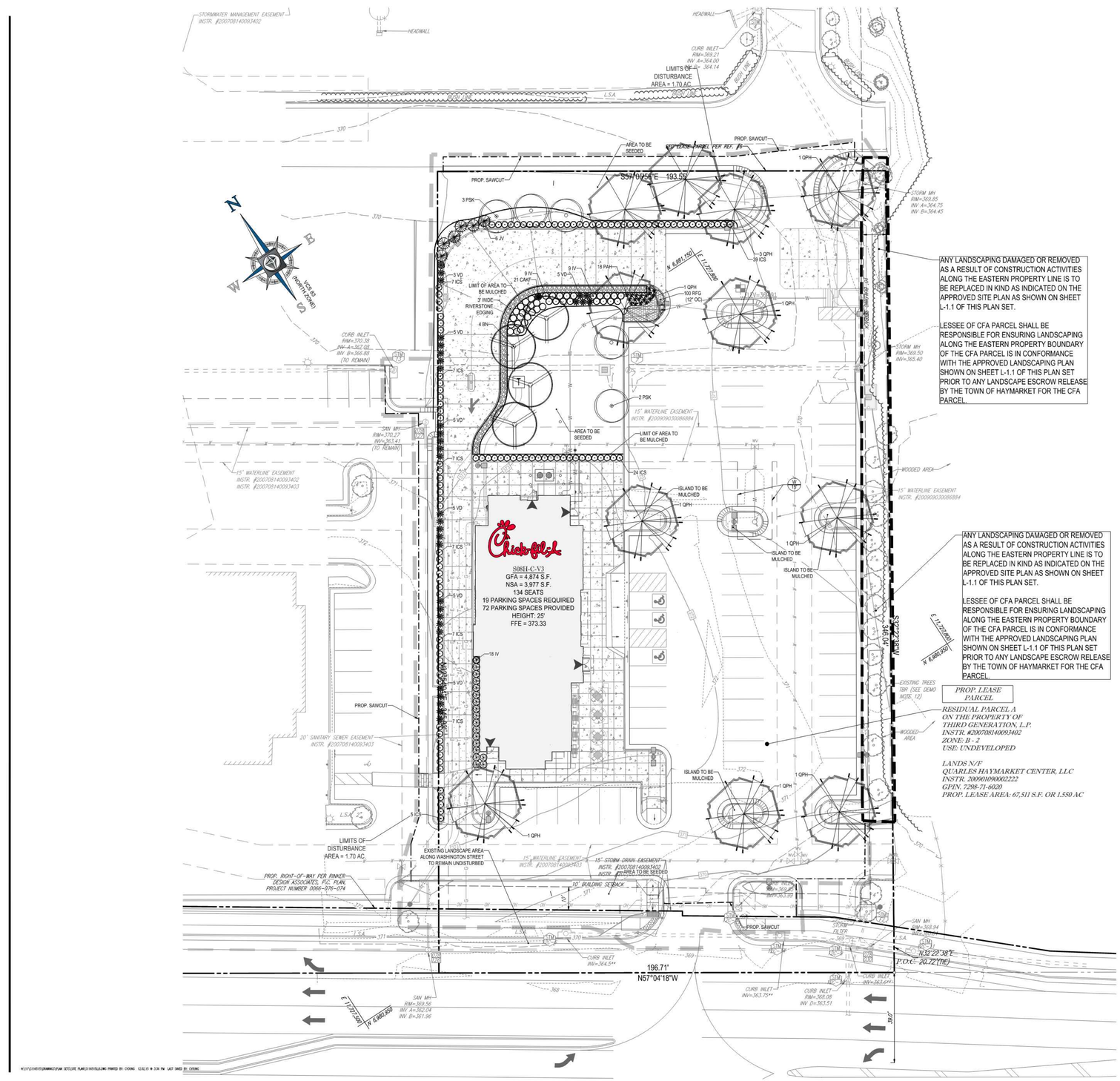
## PERENNIAL/GROUND COVER PLANTING DETAIL

NOT TO SCALE

## SEEDING SPECIFICATIONS

1. MATERIAL:

1.1. SEED MIXTURE MUST BE COMPRISED OF THE FOLLOWING VARIETIES AND AT THE SPECIFIED COMPOSITION:
1.1.1. 80% - TURF TYPE TALL FESCUE SEED
1.1.2. 10% - KENTUCKY BLUEGRASS SEED
1.1.3. 10% - ANNUAL RYE GRASS SEED
1.2. INSTALLATION RATES:
1.2.1. SEED: LAWN SEED SHOULD BE APPLIED AT A RATE OF 7 LBS/1,000 SF
1.2.2. LIME: AGRICULTURAL OR PELLETIZED LIME SHOULD BE APPLIED AT SPECIFIED RATE ACCORDING TO SOIL ANALYSIS OR 2,000 LBS PER ACRE (46 LBS/1,000 SF) IF NO SOIL ANALYSIS IS PERFORMED.
1.2.3. FERTILIZER: COMMERCIAL GRADE 12-20-12 SHOULD BE APPLIED AT A RATE OF 250 LBS PER PER ACRE (5.8 LBS/ 1,000 SF)
1.2.4. LIQUID OR DRY LIME: LIQUID LIME SHOULD BE APPLIED AT A RATE OF 2.5 GALLONS PER ACRE OR NEUTRA LIME DRY APPLIED AT A RATE OF 80LBS PER ACRE IN AREAS OF ACIDIC SOILS TO ASSURE GERMINATION AND INITIAL ESTABLISHMENT
1.2.5. MUL




# LANDSCAPE SCHEDULE - CFA PARCEL

| KEY | QTY. | BOTANICAL NAME | COMMON NAME |
|---|---|---|---|
| SHADE TREE(S) | | | |
| BN | 4 | BETULA NIGRA | RIVER BIRCH |
| QPH | 11 | QUERCUS PHELLOS | WILLOW OAK |
| SUBTOTAL: | 7 | | |
| ORNAMENTAL TREE(S) | | | |
| PSK | 5 | PRUNUS SERRULATA 'KWANZAN' | KWANZAN CHERRY |
| SUBTOTAL: | 5 | | |
| EVERGREEN TREE(S) | | | |
| JV | 6 | JUNIPERUS VIRGINIANA | EASTERN RED CEDAR |
| SUBTOTAL: | 6 | | |
| DECIDUOUS SHRUB(S) | | | |
| VD | 33 | VIBURNUM DENTATUM 'BLUE MUFFIN' | BLUE MUFFIN VIBURNUM |
| IV | 36 | ITEA VIRGINICA | SWEETSPIRE |
| SUBTOTAL: | 69 | | |
| EVERGREEN SHRUB(S) | | | |
| ICS | 110 | ILEX CRENATA 'STEEDS' | STEEDS JAPANESE HOLLY |
| SUBTOTAL: | 110 | | |
| PERENNIAL(S) | | | |
| RFG | 100 | RUDBECKIA FULGIDA 'GOLDSTURM' | GOLDSTURM/BLACK-EYED SUSAN |
| SUBTOTAL: | 100 | | |
| ORNAMENTAL GRASS(ES) | | | |
| CAKF | 21 | CALAMAGROSTIS ARUNDINACEA 'KARL FOERSTER' | FEATHER REED GRASS |
| PAH | 18 | PENNISETUM ALOPECUROIDES 'HAMELN' | DWARF FOUNTAIN GRASS |
| SUBTOTAL: | 39 | | |

1. FOR OVERALL LANDSCAPE PLAN AND COMPLIANCE CHARTS FOR QUARLES CENTER PLEASE SEE APPROVED SITE PLAN# A75 2008 0813. THIS PLAN IS PROVIDED ON SHEET L-1.2 AND L1.3.
2. SEE SHEET L 1.2 FOR FULL LANDSCAPE SCHEDULE INCLUDING SIZES AND STOCK TYPE
3. THE FEE TITLE PROPERTY OWNER IS RESPONSIBLE FOR MAINTAINING THE LANDSCAPING OUTSIDE THE CFA PARCEL. LESSEE OF CFA PARCEL IS RESPONSIBLE FOR MAINTAINING LANDSCAPING WITHIN THE CFA PARCEL.
4. LANDSCAPING ESCROW WILL NOT BE RELEASED UNTIL ALL LANDSCAPING ON THE ENTIRE 6.0 ACRE PARCEL, PER THE APPROVED SITE PLAN AS SHOWN ON SHEET L1.1 OF THIS PLAN SET, IS IN HEALTHY CONDITION.
5. THE FEE TITLE PROPERTY OWNER SHALL BE RESPONSIBLE FOR ENSURING THE FINAL OVERALL SITE LANDSCAPING OUTSIDE THE CFA PARCEL IS IN CONFORMANCE WITH THE APPROVED LANDSCAPE PLAN SHOWN ON SHEET L-1.1 OF THIS PLAN SET PRIOR TO ANY LANDSCAPE ESCROW RELEASE BY THE TOWN OF HAYMARKET FOR THE CFA PARCEL.

20' 10' 5' 0' 20'
1"= 20'

DETAIL REFERENCE:
INFORMATION PROVIDED/PREPARED BY OTHERS AND IS FROM THE PLAN NAMED AFS20080813, DATED 12/1/15.

5200 Buffington Rd. Atlanta Georgia, 30349-2998

BOHLER ENGINEERING
22634 DAVIS DRIVE, SUITE 250
STERLING, VIRGINIA 20164
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Fax: (703) 709-9501
www.BohlerEngineering.com

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS OR BEHOVERS OF ANY PERSON BY EXCAVATING OR DISTURBING THE EARTH'S SURFACE ANYWHERE IN THE STATE: IN VIRGINIA, MARYLAND; THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV: 1-800-245-4848) (PA: 1-800-242-1776)
(DC: 1-800-257-7777) (VA 1-800-552-7001)
(MD: 1-800-257-7777) (DE: 1-800-282-8555)

Revisions:

| Mark | Date | By |
|---|---|---|
| 4 | 10/30/15 | CLY |
| | REV. PER TOWN | |
| | COMMENTS | |
| 5 | 11/23/15 | CLY |
| | REV. PER TOWN | |
| | COMMENTS | |
| 6 | 12/01/15 | CLY |
| | REV. PER TOWN | |
| | COMMENTS | |

COMMONWEALTH OF VIRGINIA
MICHAEL J. KIRKLAND
Lic. No. 0402.031693
PROFESSIONAL ENGINEER
12/01/15

STORE# 3197
S08-CR-V8
CHICK-FIL-A
QUARLES CENTER
15250 WASHINGTON STREET
HAYMARKET, VA 20169

SHEET TITLE
LANDSCAPE PLAN

DWG EDITION 2.4

☐ Preliminary
☐ 80% Submittal
☒ For Construction

| | |
|---|---|
| Job No. | S116515 |
| Store | 3197 |
| Date | 06/06/14 |
| Drawn By | PJC |
| Checked By | KGS |

Sheet
L-1.0
28 OF 37

BOHLER ENGINEERING
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROJECT MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
RESILIENCY SERVICES
TRANSPORTATION SERVICES

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

STORE
SERIES 08C-R
#3197
15180 WASHINGTON ST
HAYMARKET,
VA, 20169

SHEET TITLE
LANDSCAPE REFERENCE

DWG EDITION 02.4

☐ PRELIMINARY
☒ 80% SUBMITTAL
☐ FOR CONSTRUCTION

| | |
|---|---|
| JOB NO. | VAB230141.00 |
| STORE | #3197 |
| DATE | 01/31/2024 |
| DRAWN BY | GAP |
| CHECKED BY | KBR |
| CAD ID | LSCP -0 |

SHEET
L-1.2

PWCSA PL #SA2024-0052

811 Know what's below. Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's the law.

REVISIONS:

| MARK | DATE | BY |
|---|---|---|
| 1 | 07/07/2025 | GAP |
| | COUNTY COMMENTS | |
| 2 | 9/16/2025 | AG |
| | COUNTY COMMENTS | |
| | | |



H:\2023\VAB230141.00\CAD\DRAWINGS\PLAN SETS\SITE PLAN\VAB230141.00 - LSCP - 1.DWG PRINTED BY: GPADILLA 9:16:25 @ 1:08 PM LAST SAVED BY: GPADILLA

# Town of Haymarket, Virginia
# Strategic Plan

## Mission:

The Town of Haymarket is a diverse, welcoming community where residents and businesses thrive through transparent governance, fiscal responsibility, and public safety to achieve a vibrant quality of life.

## Vision:

Our vision is to be a forward-looking small town that preserves our unique character and traditions, while fostering a safe, pedestrian-friendly, and inclusive community where residents, businesses, and visitors can flourish for generations.

## Values:

| | |
|---|---|
| Transparency | Accountability |
| Fiscal Responsibility | Community |
| Inclusive | Collaborative |
| Integrity | Effective |

**Goals:**

Improve Transportation and Infrastructure to Enrich Quality of Life and Maintain Small Town Feel

Promote Fiscal Responsibility and Organizational Excellence

Enhance Public Safety and Community Policing

Foster Economic Development, Tourism, and Support Town Businesses

Preserve Haymarket History

Enhance Community Engagement

Adopted December 2, 2024
Amended November 3, 2025

# Town of Haymarket, Virginia
# Strategic Plan

## Goals and Strategies

1. **Improve Transportation and Infrastructure to Enrich Quality of Life and Maintain Small Town Feel**
   - 1.1. Complete the implementation of the town park; to include the park pavilion and public restrooms
   - 1.2. Complete, expand, and maintain the town streetscape
   - 1.3. Investigate, evaluate and assess the feasibility of a municipal parking lot
   - 1.4. Investigate the feasibility of a secure parking lot for Police Department and Utility Workshop for the Town
   - 1.5. Collaborate with County Supervisor, Council Members, Town Manager, Chief of Police, Partners at State level, VDOT to improve traffic flow and safety including bike, rail and pedestrian
   - 1.6. Investigate the feasibility and implementation of the Traffic Safety Plan initiative - Prince William County Safe Streets for All Grant, VDOT
   - 1.7. Fund and implement the Town Hall site plan to include improved security and safety measures for the Town Hall Complex
2. **Promote Fiscal Responsibility and Organizational Excellence**
   - 2.1. Volunteer Assistance/Internship to create asset inventory
   - 2.2. Investigate 2, 5, 10, 20-year capital improvement plan
   - 2.3. Procure a consultant to conduct the Update to the Town's Comprehensive Plan
   - 2.4. Create and distribute a Town Services "one-pager"
   - 2.5. Enhance cybersecurity measures within Town Hall and Police Department, to include routine audits and training and implementation of cybersecurity strategy and policy

DRAFT

Adopted December 2, 2024
Amended November 3, 2025

# Town of Haymarket, Virginia
# Strategic Plan

**3. Enhance Public Safety and Community Policing**

3.1. Investigate the feasibility and implementation of maximum speed limits throughout the Town of Haymarket

3.2. Continue community engagement for community policing initiative including daily interactions, community events, bicycle patrol, school bus stops, etc.

3.3. Investigate technological advancements to enhance public safety and make recommendations and collaborate with Council

3.4. Achieve initial VLEPSC certification and maintain certification every four years

3.5. Town Manager, Haymarket Policy Department and Security Contractor discuss options for phased implementation of immediate security upgrades that would benefit current security for staff and future Town Hall renovations

**4. Foster Economic Development, Tourism, and Support Town Businesses**

4.1. Expand the advertising campaign for the business community - funding and personnel

4.1.1. Investigate ways to continue the use of economic development funds and increase participation at the Business Round Table

4.1.2. Develop a plan to highlight the business community: add Business Spotlight through weekly videos, spotlight types of businesses, social media pages, Restaurant Week

4.2. Benchmark other towns and how they provide funding for start-up small businesses and promote businesses

4.3. Continue to engage face to face with existing businesses

**5. Preserve Haymarket History**

5.1. Update the contributing resources list to encompass all historic structures, and previous structures

5.1.1. Document and archive historical assets

5.2. Develop a plan of recognition of historical sites through a walking program and signage program

5.3. Investigate and define a Historic Preservation program

5.4. Develop a museum plan

Adopted December 2, 2024
Amended November 3, 2025

DRAFT

## 6. Enhance Community Engagement and Placemaking

6.1. Track community engagement enhancements: for example, provide list of events, purpose, costs/revenue on an annual basis for Council feedback and input

6.2. Encourage murals and community art in partnership with the Town

6.3. Town design and install a LOVE sign

6.4. Modify ordinance to allow community artwork

6.5. Partner with businesses to encourage art in the community

6.6. Establish the annual Town Government Day

6.7. Define programming for youth government education

DRAFT

# Town of Haymarket, Virginia
# Strategic Plan

**November 3rd, 2025, Annual Strategic Plan Review**

Successfully Completed Strategic Plan Strategies:

- Defined rules of engagement and clarified roles and responsibilities for liaisons and council members
- Explored networking opportunities with small-town jurisdictions and the Virginia Municipal League (VML) to provide council updates on state legislation and local zoning regulations
- Researched, developed, and implemented a comprehensive Compensation Study for all Town employees
- Conducted an annual assessment of departmental resource needs in relation to service demands, legislative changes, and evolving police practices
- Strengthened partnerships with Prince William County Economic Development and Tourism to support regional growth
- Finalized and executed the Town's Communications Plan to enhance outreach and transparency

DRAFT

# Strategic Plan Goals and Priority of Strategies
# Town of Haymarket
# Strategic Plan

| Top 10 Priorities for the Town Council, as set by the Council Survey | | |
|---|---|---|
| Priority | Strategy | Response Average |
| | | |
| 1 | Council has decided this is priority 1. Fund and implement the Town Hall site plan to include improved security and safety measures for the Town Hall Complex | 1.50 |
| 2 | Council/Staff has decided this is priority 2. Complete the implementation of the Town Park Plan; to include the Park Pavilion and Public Restrooms | 1.50 |
| 3 | Procure a consultant to conduct the Update to the Town's Comprehensive Plan | 7.50 |
| 4 | Collaborate with County Supervisor, Council Members, Town Manager, Chief of Police, Partners at State level, VDOT to improve traffic flow and safety including bike, rail and pedestrian | 8.00 |
| 5 | Enhance cybersecurity measures within Town Hall and Police Department, to include routine audits and training and implementation of cybersecurity strategy and policy | 8.83 |
| 6 | Complete, expand, and maintain the town streetscape | 9.33 |
| 7 | Volunteer Assistance/Internship to create asset inventory | 9.50 |
| 8 | Town Manager, Haymarket Police Chief and Security Contractor discussion options for phased implementation of immediate security upgrades that would benefit current security for staff and future Town Hall renovations | 9.50 |
| 9 | Investigate the feasibility and implementation of maximum speed limits throughout the Town of Haymarket. | 10.50 |
| 10 | Investigate 2, 5, 10, 20-year capital improvement plan | 11.33 |