A G E N D A
JAMES CITY COUNTY BOARD OF SUPERVISORS
REGULAR MEETING
County Government Center Board Room
101 Mounts Bay Road, Williamsburg, VA 23185
April 12, 2022
5:00 PM

A. CALL TO ORDER

B. ROLL CALL

C. MOMENT OF SILENCE

D. PLEDGE OF ALLEGIANCE

1. Pledge Leader - Charlotte Walker, a 4th grade student at J. Blaine Blayton Elementary and a resident of the Stonehouse District

E. PUBLIC COMMENT

F. CONSENT CALENDAR

1. Initiation of Consideration of Amendments to the Zoning Ordinance to Consider Possible Amendments Regarding How Density is Calculated for Residential Developments
2. Initiation of Consideration of Amendments to the Zoning Ordinance to Consider Possible Amendments Regarding Community Recreation Facilities in Residential Districts
3. Initiation of Consideration of Amendments to the Zoning Ordinance to Consider Possible Amendments Regarding the Use List of the General Business District, B-1

G. PUBLIC HEARING(S)

1. Proposed Real Property Tax Increase
2. Fiscal Year 2023-2024 County Biennial Budget
3. Proposed Fiscal Year 2023-2028 Secondary Six-Year Plan
4. LU-20-0002. Eastern State - New Town Addition and LU-20-0003. Eastern State - Mixed Use Community Land Use Designation Changes
5. Z-21-0012 and MP-21-0003. Proffer and Master Plan Amendment for the Continuing Care Retirement Facility at Ford's Colony (Ford's Village)
6. HW-22-0001. Busch Gardens Height Waiver Extension

H. BOARD CONSIDERATION(S)

1. S-21-0072. 7751 Newman Road Family Subdivision

I. BOARD REQUESTS AND DIRECTIVES

J. REPORTS OF THE COUNTY ADMINISTRATOR

K. CLOSED SESSION

1. Appointment - Colonial Behavioral Health Board

L. ADJOURNMENT

1. Adjourn until 1 pm on April 26, 2022 for the Budget Business Meeting

AGENDA ITEM NO. D.1.

ITEM SUMMARY

DATE: 4/12/2022

TO: The Board of Supervisors

FROM: Teresa J. Saeed, Deputy Clerk

SUBJECT: Pledge Leader - Charlotte Walker, a 4th grade student at J. Blaine Blayton Elementary and a resident of the Stonehouse District

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REVIEWERS:

Department	Reviewer	Action	Date
Board Secretary	Saeed, Teresa	Approved	3/30/2022 - 8:25 AM

AGENDA ITEM NO. F.1.

ITEM SUMMARY

DATE:	4/12/2022
TO:	The Board of Supervisors
FROM:	Paul D. Holt, III, Director of Community Development and Planning
SUBJECT:	Initiation of Consideration of Amendments to the Zoning Ordinance to Consider Possible Amendments Regarding How Density is Calculated for Residential Developments

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ATTACHMENTS:

	Description	Type
🗋	Memorandum	Cover Memo
🗋	Resolution	Resolution

REVIEWERS:

Department	Reviewer	Action	Date
Development Management	Holt, Paul	Approved	3/25/2022 - 11:02 AM
Publication Management	Pobiak, Amanda	Approved	3/25/2022 - 11:12 AM
Legal Review	Kinsman, Adam	Approved	3/31/2022 - 11:59 AM
Board Secretary	Saeed, Teresa	Approved	3/31/2022 - 3:41 PM
Board Secretary	Purse, Jason	Approved	4/4/2022 - 2:16 PM
Board Secretary	Saeed, Teresa	Approved	4/5/2022 - 7:43 AM

M E M O R A N D U M

DATE: April 12, 2022

TO: The Board of Supervisors

FROM: Paul D. Holt, III, Director of Community Development and Planning

SUBJECT: Initiation of Consideration of Amendments to the Zoning Ordinance to Consider Possible Amendments Regarding How Density is Calculated for Residential Developments

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At the request of a supervisor, staff has prepared the attached Initiating Resolution to consider possible amendments to the Zoning Ordinance regarding how density is calculated for residential developments.

Staff recommends approval of the attached resolution.

PDH/md
InitConsGrossDensRD-mem

Attachment:
1. Resolution

R E S O L U T I O N

INITIATION OF CONSIDERATION OF AMENDMENTS TO THE ZONING ORDINANCE

TO CONSIDER POSSIBLE AMENDMENTS REGARDING HOW DENSITY IS

CALCULATED FOR RESIDENTIAL DEVELOPMENTS

WHEREAS, section 15.2-2286(A)(7) of the Code of Virginia, 1950, as amended (the "Virginia Code"), and County Code Section 24-13 authorize the Board of Supervisors of James City County, Virginia (the "Board"), to, by resolution, initiate amendments to the regulations of the Zoning Ordinance that the Board finds to be prudent and required by public necessity, convenience, general welfare, or good zoning practice; and

WHEREAS, the Board is of the opinion that the public necessity, general welfare, and good zoning practice warrant the consideration of amendments to the Zoning Ordinance.

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of James City County, Virginia, does hereby initiate amendment of the James City County Code, Chapter 24, Zoning, in order to consider possible amendments regarding how density is calculated for residential developments. The Planning Commission shall hold at least one public hearing on the consideration of amendments to said Zoning Ordinances and shall forward its recommendation to the Board of Supervisors in accordance with the law.

_____
John J. McGlennon
Chairman, Board of Supervisors

ATTEST:

_____
Teresa J. Saeed
Deputy Clerk to the Board

	VOTES			
	AYE	NAY	ABSTAIN	ABSENT
ICENHOUR	____	____	____	____
HIPPLE	____	____	____	____
LARSON	____	____	____	____
SADLER	____	____	____	____
MCGLENNON	____	____	____	____

Adopted by the Board of Supervisors of James City County, Virginia, this 12th day of April, 2022.

InitConsGrossDensRD-res

AGENDA ITEM NO. F.2.

ITEM SUMMARY

DATE:	4/12/2022
TO:	The Board of Supervisors
FROM:	Paul D. Holt, III, Director of Community Development and Planning
SUBJECT:	Initiation of Consideration of Amendments to the Zoning Ordinance to Consider Possible Amendments Regarding Community Recreation Facilities in Residential Districts

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ATTACHMENTS:

	Description	Type
🗋	Memorandum	Cover Memo
🗋	Resolution	Resolution

REVIEWERS:

Department	Reviewer	Action	Date
Development Management	Holt, Paul	Approved	3/25/2022 - 11:02 AM
Publication Management	Pobiak, Amanda	Approved	3/25/2022 - 11:16 AM
Legal Review	Kinsman, Adam	Approved	3/31/2022 - 11:58 AM
Board Secretary	Saeed, Teresa	Approved	3/31/2022 - 3:41 PM
Board Secretary	Purse, Jason	Approved	4/4/2022 - 2:15 PM
Board Secretary	Saeed, Teresa	Approved	4/5/2022 - 7:43 AM

M E M O R A N D U M

DATE: April 12, 2022

TO: The Board of Supervisors

FROM: Paul D. Holt, III, Director of Community Development and Planning

SUBJECT: Initiation of Consideration of Amendments to the Zoning Ordinance to Consider Possible Amendments Regarding Community Recreation Facilities in Residential Districts

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At the request of a supervisor, staff has prepared the attached Initiating Resolution to consider possible amendments to the Zoning Ordinance regarding community recreation facilities in residential districts.

Staff recommends approval of the attached resolution.

PDH/ap
InitConsCommRecFac-mem

Attachment:
1. Resolution

R E S O L U T I O N

INITIATION OF CONSIDERATION OF AMENDMENTS TO THE ZONING ORDINANCE

TO CONSIDER POSSIBLE AMENDMENTS REGARDING COMMUNITY

RECREATION FACILITIES IN RESIDENTIAL DISTRICTS

WHEREAS, section 15.2-2286(A)(7) of the Code of Virginia, 1950, as amended (the "Virginia Code"), and County Code Section 24-13 authorize the Board of Supervisors of James City County, Virginia (the "Board"), to, by resolution, initiate amendments to the regulations of the Zoning Ordinance that the Board finds to be prudent and required by public necessity, convenience, general welfare, or good zoning practice; and

WHEREAS, the Board is of the opinion that the public necessity, general welfare, and good zoning practice warrant the consideration of amendments to the Zoning Ordinance.

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of James City County, Virginia, does hereby initiate amendment of the James City County Code, Chapter 24, Zoning in order to consider possible amendments regarding community recreation facilities in residential districts. The Planning Commission shall hold at least one public hearing on the consideration of amendments to said Zoning Ordinances and shall forward its recommendation to the Board of Supervisors in accordance with the law.

_____
John J. McGlennon
Chairman, Board of Supervisors

ATTEST:

_____
Teresa J. Saeed
Deputy Clerk to the Board

	VOTES			
	AYE	NAY	ABSTAIN	ABSENT
ICENHOUR	____	____	____	____
HIPPLE	____	____	____	____
LARSON	____	____	____	____
SADLER	____	____	____	____
MCGLENNON	____	____	____	____

Adopted by the Board of Supervisors of James City County, Virginia, this 12th day of April, 2022.

InitConsCommRecFac-res

AGENDA ITEM NO. F.3.

ITEM SUMMARY

DATE: 4/12/2022

TO: The Board of Supervisors

FROM: Paul D. Holt, III, Director of Community Development and Planning

SUBJECT: Initiation of Consideration of Amendments to the Zoning Ordinance to Consider Possible Amendments Regarding the Use List of the General Business District, B-1

ATTACHMENTS:

	Description	Type
	Memorandum	Cover Memo
	Resolution	Resolution

REVIEWERS:

Department	Reviewer	Action	Date
Development Management	Holt, Paul	Approved	3/25/2022 - 11:03 AM
Publication Management	Pobiak, Amanda	Approved	3/25/2022 - 11:20 AM
Legal Review	Kinsman, Adam	Approved	3/31/2022 - 11:59 AM
Board Secretary	Saeed, Teresa	Approved	3/31/2022 - 3:46 PM
Board Secretary	Purse, Jason	Approved	4/4/2022 - 2:16 PM
Board Secretary	Saeed, Teresa	Approved	4/5/2022 - 7:43 AM

M E M O R A N D U M

DATE: April 12, 2022

TO: The Board of Supervisors

FROM: Paul D. Holt, III, Director of Community Development and Planning

SUBJECT: Initiation of Consideration of Amendments to the Zoning Ordinance to Consider Possible Amendments Regarding the Use List of the General Business District, B-1

At the request of a supervisor, staff has prepared the attached Initiating Resolution to consider possible amendments to the Zoning Ordinance regarding the Use List of the General Business District, B-1.

Staff recommends approval of the attached resolution.

PDH/md
InitConsGenBusUse-mem

Attachment:
1. Resolution

R E S O L U T I O N

INITIATION OF CONSIDERATION OF AMENDMENTS TO THE ZONING ORDINANCE

TO CONSIDER POSSIBLE AMENDMENTS REGARDING THE USE LIST

OF THE GENERAL BUSINESS DISTRICT, B-1

WHEREAS, section 15.2-2286(A)(7) of the Code of Virginia, 1950, as amended (the "Virginia Code"), and County Code Section 24-13 authorize the Board of Supervisors of James City County, Virginia (the "Board"), to, by resolution, initiate amendments to the regulations of the Zoning Ordinance that the Board finds to be prudent and required by public necessity, convenience, general welfare, or good zoning practice; and

WHEREAS, the Board is of the opinion that the public necessity, general welfare, and good zoning practice warrant the consideration of amendments to the Zoning Ordinance.

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of James City County, Virginia, does hereby initiate amendment of the James City County Code, Chapter 24, Zoning, in order to consider possible amendments regarding the Use List of the General Business District, B-1. The Planning Commission shall hold at least one public hearing on the consideration of amendments to said Zoning Ordinances and shall forward its recommendation to the Board of Supervisors in accordance with the law.

_____
John J. McGlennon
Chairman, Board of Supervisors

ATTEST:

_____
Teresa J. Saeed
Deputy Clerk to the Board

	VOTES			
	AYE	NAY	ABSTAIN	ABSENT
ICENHOUR	____	____	____	____
HIPPLE	____	____	____	____
LARSON	____	____	____	____
SADLER	____	____	____	____
MCGLENNON	____	____	____	____

Adopted by the Board of Supervisors of James City County, Virginia, this 12th day of April, 2022.

InitConsGenBusUse-res

AGENDA ITEM NO. G.1.

ITEM SUMMARY

DATE: 4/12/2022

TO: The Board of Supervisors

FROM: Sharon B. Day, Director of Financial and Management Services

SUBJECT: Proposed Real Property Tax Increase

ATTACHMENTS:

	Description	Type
🗋	Memorandum	Cover Memo

REVIEWERS:

Department	Reviewer	Action	Date
Financial Management	Cochet, Cheryl	Approved	3/31/2022 - 11:33 AM
Publication Management	Pobiak, Amanda	Approved	3/31/2022 - 11:35 AM
Legal Review	Kinsman, Adam	Approved	3/31/2022 - 12:01 PM
Board Secretary	Saeed, Teresa	Approved	3/31/2022 - 3:40 PM
Board Secretary	Rinehimer, Bradley	Approved	4/1/2022 - 1:13 PM
Board Secretary	Saeed, Teresa	Approved	4/5/2022 - 7:44 AM

M E M O R A N D U M

DATE: April 12, 2022

TO: The Board of Supervisors

FROM: Sharon B. Day, Director of Financial and Management Services

SUBJECT: Proposed Real Property Tax Increase

The purpose of the Public Hearing is to invite public comment on an increase in property tax levies based upon the recent general reassessment.

The total assessed value of real property, excluding additional assessments due to new construction or improvements to property, exceeds last year's total assessed value of real property by 8.16%.

The tax rate which would levy the same amount of real estate tax as last year, when multiplied by the new total assessed value of real estate with the exclusions mentioned above, would be $.7715 per $100 of assessed value. This rate will be known as the "lowered tax rate."

James City County proposes to adopt a tax rate of $.84 per $100 of assessed value. The difference between the lowered tax rate and the proposed rate would be $.0685 per $100, or 8.16%. This difference will be known as the "effective tax rate increase."

Individual property taxes may, however, increase at a percentage greater than or less than the above percentage.

No action is required of the Board at this meeting. The budget business meeting is scheduled for Tuesday, April 26, 2022, at 1 p.m. The Board is scheduled to adopt the budget as amended, at its meeting on Tuesday, May 10, 2022.

SBD/md
FY23PropRPTaxIncr-mem

AGENDA ITEM NO. G.2.

ITEM SUMMARY

DATE: 4/12/2022

TO: The Board of Supervisors

FROM: Sharon B. Day, Director of Financial and Management Services

SUBJECT: Fiscal Year 2023-2024 County Biennial Budget

ATTACHMENTS:

	Description	Type
	Memorandum	Cover Memo
	Presentation	Presentation

REVIEWERS:

Department	Reviewer	Action	Date
Financial Management	Cochet, Cheryl	Approved	3/31/2022 - 11:24 AM
Publication Management	Pobiak, Amanda	Approved	3/31/2022 - 11:27 AM
Legal Review	Kinsman, Adam	Approved	3/31/2022 - 12:01 PM
Board Secretary	Saeed, Teresa	Approved	3/31/2022 - 3:39 PM
Board Secretary	Rinehimer, Bradley	Approved	4/1/2022 - 1:14 PM
Board Secretary	Saeed, Teresa	Approved	4/5/2022 - 7:42 AM

M E M O R A N D U M

DATE: April 12, 2022

TO: The Board of Supervisors

FROM: Sharon B. Day, Director of Financial and Management Services

SUBJECT: Fiscal Year 2023-2024 County Biennial Budget

The purpose of the Public Hearing is to invite public comment on any aspect of the proposed Fiscal Year 2023-2024 Biennial Budget, with the expectation that those public comments would become part of the agenda for the upcoming budget business meeting.

No action is required of the Board at this meeting; however, any questions would be helpful as we prepare for the budget business meeting. The budget business meeting is scheduled for Tuesday, April 26, 2022, at 1 p.m. The Board is scheduled to adopt the budget as amended, at its meeting on Tuesday, May 10, 2022.

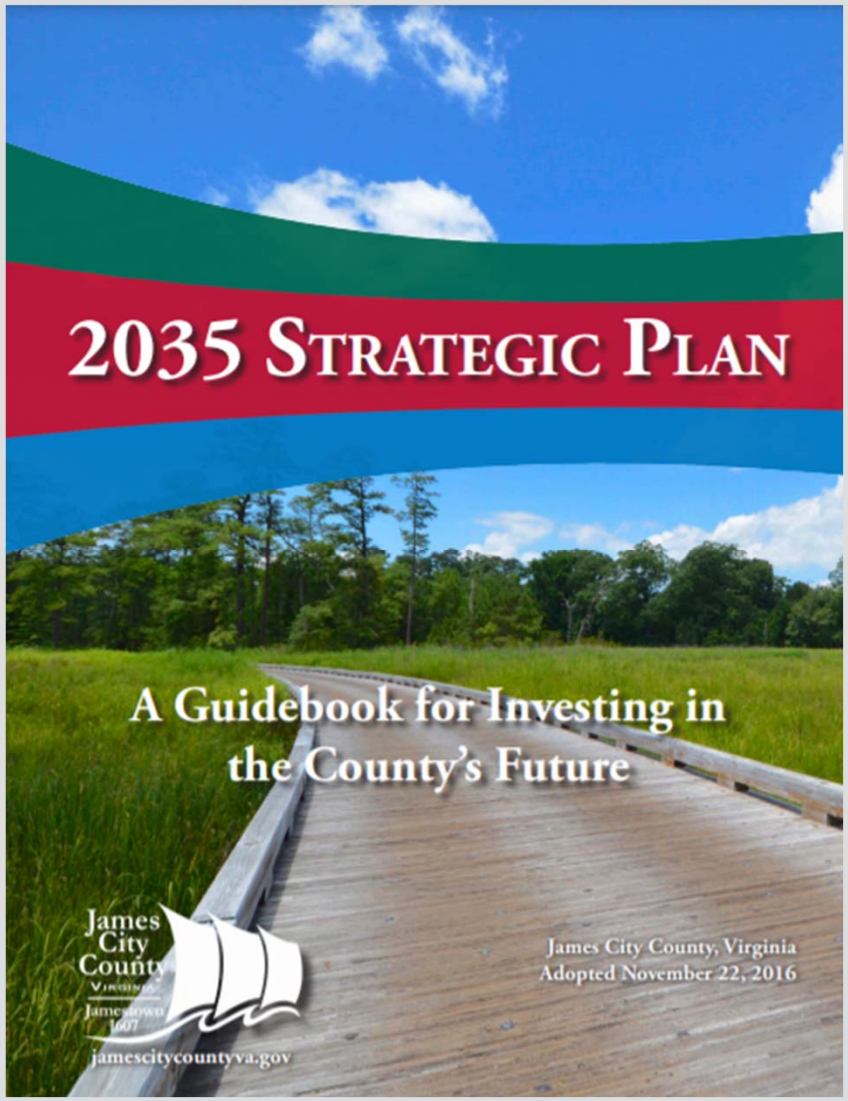
SBD
FY2023-2024BienBudget-mem

FY2023-FY2024 Proposed Budget/Plan and Tax Rates

Public Hearings: April 12, 2022

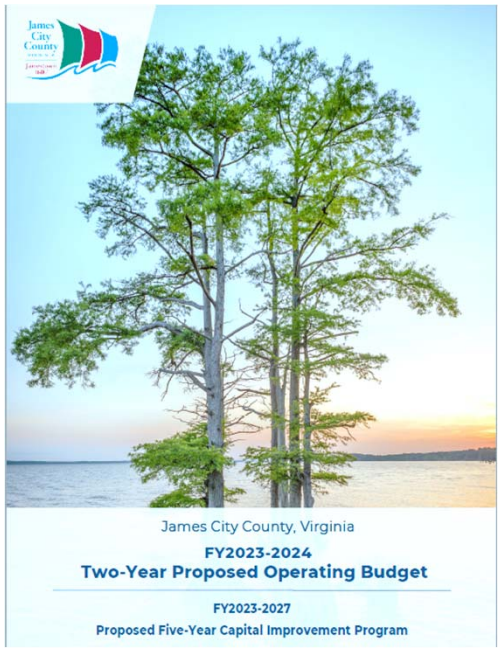
Overview

- County has a two-year budget
- FY2023 is the first year of the biennial budget and the only year to be appropriated for spending
- FY2024 is the second year and serves as a plan
- Continues to incorporate Strategic Plan goals and initiatives



FY2023 Proposed Budget Highlights

- **FY2023 Proposed Budget = $233.4M** ($8.9M, 4.0% > FY2022 Budget)
- **Focus on:**
  - Exceptional service to the community
  - Staff retention and recruitment
  - Community appearance and capital needs
- **Personnel:**
  - Raising minimum wage from $9.64 to $13.36
  - Funding for the $1,500 and 5% wage increase implemented in April 2022
  - 8 new full-time positions, 4 conversions of part-time to full-time positions, and 35 reclassifications of existing positions and career ladders
- **Capital:**
  - Restoration of pay-as-you-go funding, including fund balance appropriations for one-time costs
  - Space Needs/Master Facility Plan ($85M in CIP and anticipate $100M of other needs not yet funded)



Proposed Budget – All Funds Summary*

Fund	FY2022 Adopted	FY2023 Budget	FY2024 Plan
General Fund	$202.2	$218.2	$223.2
Capital Projects Fund	19.5	18.1	70.5
Debt Service Fund	18.6	17.2	20.7
VA Public Assistance Fund	6.2	6.6	6.7
Housing & Neighborhood Development Fund	2.8	3.2	3.2
Colonial Community Corrections Fund	1.2	1.3	1.3
Special Projects/Grants Fund	3.4	3.5	3.7
Tourism Investment Fund	1.9	2.5	2.7
Less: Interfund Transfers	(31.3)	(37.2)	(38.3)
Total	**$224.5**	**$233.4**	**$293.7**

**Amounts shown above are in millions*

FY2023 Proposed Budget – General Fund Highlights

- FY2023 Proposed Budget = $218.2M
  - $16M or 7.9% > FY2022 Budget
- Proposes no change in the real estate tax rate
- Only fee change is Medic Transport Recovery Fees (to align with Medicare reimbursement rates)
- Addition of 6 full-time positions, 4 conversions from part-time to full-time, and various reclassifications and career ladders
- Estimated Costs to Provide Services > Revenue Projection
  - Requests totaling $3.4M are not funded (primarily personnel)

FY2023 Proposed Budget – General Fund Highlights

Description	Amount
Restoration of pay-as-you-go funding for County and School capital projects	$5.1M
Funding for the $1,500 and 5% general wage increase implemented in April 2022	$3.8M
Funding for initiatives started in FY2022 (new firefighters/Deputy Director of Real Estate, road crew, courthouse properties maintenance)	$1.5M
Retirement benefit rate increase, health insurance avg. 3% increase (shared with employees), and other fringe benefits	$1.4M
New full-time positions, conversions of part-time to full-time, reclassifications/career ladders	$1.2M
Increase in operating contribution to WJCC School Division	$1.2M
Increase in Tourism Investment for lodging tax revenue increase (mandate) and rising fuel costs	$750K
Increase to WRL and other outside agencies	$600K
Minimum wage increase from $9.64 to $12.00/hr. (*cost to move from $12.00/hr. to $13.36 is included in the second row of this chart*)	$220K

General Fund Personnel Requests vs. Proposed

Department	# of FTE Requested	# of FTEs Proposed	Proposed Positions
General Administration	3.50	1.50	Human Resources Specialist and Absentee Voting Coordinator (part-time)
Court Services	1.00	1.00	Deputy Clerk – Circuit Court
Public Safety	1.00	-	Conversion of existing position to Director of Emergency Communications Center
Financial Administration	4.50	2.00	Risk Manager and Financial Reporting Supervisor
Information Resources Mgmt.	1.00	1.00	Web and Graphics Specialist
Community Development	1.00	1.00	Permit Technician
General Services	3.25	1.25	Admin. Assistant, Fleet Admin. Asst., and Stormwater Admin. Coordinator (all conversations from part-time to full-time)
Parks & Recreation	1.00	-	
Grand Total	**16.25**	**7.75**	6 full-time positions and 4 part-time conversions

General Fund – Revenue

FY2023 Proposed Budget

General Fund – Revenue Summary*

Source	FY2022 Adopted	FY2023 Proposed	FY2024 Plan
General Property Taxes	$143.5	$153.3	$156.3
Other Local Taxes	26.7	32.4	33.6
Licenses, Permits and Fees	8.7	8.7	8.9
State and Federal	15.6	15.7	15.8
Other	7.7	8.1	8.6
Total	**$202.2**	**$218.2**	**$223.2**

**Amounts shown above are in millions*

General Fund Revenue

General Property Taxes

- Real estate reassessment resulted in 8.2% overall increase to total assessed value of real property
- National Automobile Dealers Association (NADA) Appraisal Guide for 2022 used to assess the value of personal property reflected significant increases in vehicle values
  - Board of Supervisors (BOS) opted to provide tax relief to those impacted by applying an assessment ratio of 75% to the NADA values
  - <u>This BOS action reduced the assessment value by > $200M on 65,000+ vehicles and resulted in a $9M savings to our residents</u>
- New construction / growth / development also provided additional revenue in this area

Other Local Taxes

- Increases in sales, meals and lodging taxes as economy recovers from the financial impacts of the pandemic
- Historic Triangle 1% Sales Tax and Cigarette Tax are both allocated entirely to capital (CIP)

General Fund Revenue, Continued

Licenses, Permits, and Fees

- Projected to remain level given a stabilization of these revenues and no new fees proposed

State (Commonwealth)

- Includes reimbursement from the Compensation Board for 5% raise to Constitutional Offices based on most recent state budget

Other

- Includes charges for services, fines, rent, sale of assets and misc. revenue
- Anticipate returning to more normal operations in parks and recreation programs and consequently higher revenue (and costs)
- Only change in fees is in the Medic Recovery program for ambulance services, to align with the Medicare reimbursement rates

General Fund - Expenditures

FY2023 Proposed Budget

General Fund – Expenditure Summary*

Function	FY2022 Adopted	FY2023 Proposed	FY2024 Plan
General Administration	$3.9	$4.4	$4.4
Financial Administration	5.0	5.9	6.0
Court Services	4.4	5.2	5.1
Public Safety	29.9	32.4	32.8
Information Resources Management	4.9	5.5	5.6
Community Development	3.3	3.6	3.6
General Services	13.5	15.8	16.0
Parks & Recreation	7.5	8.1	8.1
Contribution to WJCC Schools	100.9	102.1	103.3
Contributions to Outside Agencies	12.4	13.0	13.3
Non-dept./Transfers to Other Funds	16.5	22.2	25.0
Total	**$202.2**	**$218.2**	**$223.2**

**Amounts shown above are in millions*

Where Does Your Money Go?

What the Average Homeowner Pays

Description	Yearly	Monthly
Contribution to WJCC Schools	$1,454	$121
Public Safety	$462	$39
Contributions to Outside Agencies	$185	$15
Transfers to Other Funds	$310	$26
County Departments	$580	$48
Nondepartmental	$6	$1
Constitutional Officers	$111	$9
Total	$3,108	$259

To demonstrate the budget another way, the annual James City County real estate tax on the average assessed home value of $370,000 is $3,108, or roughly $259 per month.

This chart shows the expenditure breakdown of those funds, with the largest portion, $121 (47%) going to fund WJCC Schools.

Cost to Average Homeowner Example

Average Home Value $370,000

$370,000 x $.84* / $100 per assessed value = $3,108 annual real estate tax

$370,000 x .7715 / $100 per assessed value = $2,855 annual real estate tax**

Difference = $3,108 - $2,855 = $253 annual ($21/month)

One cent on the tax rate = $37 annual ($3.08/month)

Current tax rate* * Equalized tax rate*

Real Estate Reassessment Process

Time Period	Description
May - June 2021	Requests for income and expense reports are mailed to income producing properties (Commercial)
July - December 2021	Appraisers collect, review, and analyze permits for new construction/home additions, sales studies, market data, trends, etc. Site inspections are conducted and land records and aerial photos are reviewed
January 2022	Appraisers' preliminary assessments are reviewed, discussed, and finalized
February 2022	Reassessment information is sent to the vendor for printing and notices are mailed
March 2022	Real Estate staff engages with property owners and others to respond to questions, explain methodology, and review documentation for their specific property reassessments
April 2022	Deadline (30th) to appeal an assessment with the Board of Equalization
June 2022	Board of Equalization conducts the hearings

*** Real Estate Office Phone Number: 757-253-6650 ***

Upcoming Budget Meetings

- **Business Meeting - April 26 at 1 p.m.**
- **Regular Meeting/Budget Adoption - May 10 at 5 p.m.**

Location for all meetings:

James City County Government Center, 101-F Mounts Bay Road

Available Resources on County's Website

jamescitycountyva.gov

- **Proposed Budget Document**
  - Includes summary level and detailed account information
  - Supplemental section contains historical information and demographics
  - Appendices include the County's tax rates and fees
  - Prior year budgets available (back to 1975)

- **Annual Comprehensive Financial Report**
  - Includes audited, actual revenue and expenditure results
  - Prior year financial statements available (back to 2005)

- **Disbursement Register**

FY2023-FY2024 Proposed Budget/Plan and Tax Rates

Public Hearings: April 12, 2022

AGENDA ITEM NO. G.3.

ITEM SUMMARY

DATE: 4/12/2022

TO: The Board of Supervisors

FROM: Tom Leininger, Principal Planner

SUBJECT: Proposed Fiscal Year 2023-2028 Secondary Six-Year Plan

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ATTACHMENTS:

	Description	Type
🗋	Memorandum	Cover Memo
🗋	Resolution	Resolution
🗋	Map of FY23-28 SSYP Projects	Backup Material
🗋	Aerial Map - Croaker Road	Backup Material
🗋	Aerial Map - Longhill Road	Backup Material
🗋	Aerial Map - Peach Street	Backup Material
🗋	Aerial Map - Old Stage Road	Backup Material
🗋	Aerial Map - Centerville Road	Backup Material

REVIEWERS:

Department	Reviewer	Action	Date
Planning	Holt, Paul	Approved	3/25/2022 - 9:34 AM
Development Management	Holt, Paul	Approved	3/25/2022 - 9:34 AM
Publication Management	Pobiak, Amanda	Approved	3/25/2022 - 9:55 AM
Legal Review	Kinsman, Adam	Approved	3/31/2022 - 12:00 PM
Board Secretary	Saeed, Teresa	Approved	3/31/2022 - 3:46 PM
Board Secretary	Purse, Jason	Approved	4/4/2022 - 2:20 PM
Board Secretary	Saeed, Teresa	Approved	4/5/2022 - 7:44 AM

M E M O R A N D U M

DATE: April 12, 2022

TO: The Board of Supervisors

FROM: Tom Leininger, Principal Planner

SUBJECT: Proposed Fiscal Year 2023-2028 Secondary Six-Year Plan

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Each year the Virginia Department of Transportation (VDOT) works with the James City County Board of Supervisors to develop a list of project priorities for the Secondary Six-Year Plan (SSYP). The SSYP is a priority-funding plan for the improvement and construction of secondary roads (roads with route numbers of 600 or greater). As part of the review process, a public hearing has been advertised for the April 12, 2022, meeting to provide an opportunity for public comment.

Allocations

Through the SSYP, the County receives yearly state and federal allocations to fund proposed secondary improvements. Funding is primarily derived from state and federal gasoline taxes, vehicle title fees, vehicle sales tax, and state sales tax. The predictability of funding amounts is greatly dictated by the financial climate of the times and changes of funding levels by the federal and state government. For Fiscal Year (FY) 2023-2028, the proposed SSYP allocation for James City County totals $1,373,994, with an FY23 allocation of $229,269 compared to the FY22 allocation of $213,946.

Throughout the 2045 Comprehensive Plan update, the citizen responses to the surveys focused on prioritizing walking and biking amenities in locations that increase connectivity between neighborhoods and shopping, schools, employment areas, and greenways. Comments from the open-ended questions included that the County should encourage more walking and biking paths, increased public transportation and reduce congestion while improving roadways. Public input demonstrates that biking and walking accessibility is important to our community for both recreation and essential transportation needs. Respondents supported prioritizing County resources for enhancing quality of life amenities. Applying these funds to create complete streets and multimodal corridors, will help achieve the goals of the citizens.

Secondary allocations are not the only funding source for transportation projects. The County has applied and received or been recommended for competitive grants from the Construction District Grant Program and High Priority Projects Program via the SmartScale process, the Regional Surface Transportation Program (RSTP), and the Congestion Mitigation and Air Quality (CMAQ) program for Longhill Road and Croaker Road. County staff will continue to apply for more SmartScale, RSTP, CMAQ, and Revenue Sharing funds to help fund projects in future fiscal years.

Listed below is a brief summary of current and special funding projects for the priority list for the FY23-28 SSYP.

Current Projects

<u>Croaker Road (Route 607)</u>

This project will widen the section of roadway between Richmond Road and the James City County Library from two to four lanes (Attachment No. 3). The project will include preliminary engineering, right-of-way acquisition and construction of a new two-lane bridge parallel to the existing bridge over the CSX lines,

two additional travel lanes, and a shared use path. Staff recommends keeping this project as the top priority on the SSYP. VDOT's current cost estimate for this project is now $21.2 million. Staff has identified $21.2 million in funding through FY27 and will continue to work through the regional Transportation Planning and Organization process to identify and secure the additional needed funding.

Longhill Road (Route 612) - Phases II and III

Widening Longhill Road from Route 199 to Olde Towne Road/Devon Road from two to four lanes (Attachment No. 4) with a variable width median and accommodations has been the County's highest priority for secondary roads for a number of years. The 2014 Longhill Road Corridor Study examined the entire corridor from Route 199 to Centerville Road and identified short-term recommendations (Phase I widening and "quick-hitter" items) as well as mid-term (Phase II) and long-term recommendations (Phase III).

Specific recommendations and a preferred typical section from the study were used to guide the Phase I widening through completion of the project.

With Phase I complete, VDOT and the County have been investigating opportunities to fund and implement improvements in the vicinity of Phases II and III (Attachment No. 4). These include quick-hitter items such as school zone safety improvements, signal timing/traffic operation improvements and pedestrian accommodations, as well as longer-term items such as select intersection improvements (especially in the vicinity of the Lafayette High School/Season's Trace entrances) and widening. Due to the uncertainty as to when opportunities will become available to fund and implement various projects associated with Phase II and III areas, staff recommends keeping them on the SSYP as the second and third priorities, respectively, to allow funds to accumulate. Planning-level estimates from 2014 for Phase II were approximately $38,515,000 for full improvements and $3,000 for quick-hitter items. Estimates for Phase III from 2014 were approximately $27,000,000 for full improvements and $151,000 for quick-hitter items. No funding has been allocated at this time.

Intersection Safety Improvements

Over the past year, VDOT has been studying two intersections. In March of 2021, VDOT placed temporary bollards at the intersections of Old Stage Road and Route 30 and Centerville Road and Route 5. These temporary improvements were done after VDOT completed Roadway Safety Assessments. In coordination with VDOT, the next step for these two intersections will be to develop permanent safety improvements. Staff recommends including the following two projects in this year's priority rankings as the fourth and fifth priorities, respectfully:

A. Old Stage Road and Route 30 Intersection Improvements
B. Centerville Road and Route 5 Intersection Improvements

By including these two projects as a priority, VDOT is able to begin allocating SSYP funds to the project to begin funding the improvements for future funding cycles.

Special Funding Projects

VDOT utilizes a special funding mechanism, which provides annual allocations to localities for unpaved roads and bridge projects. Due to reductions in transportation funding over the past years, new funds have rarely been allocated to these special funding projects as part of the SSYP. For FY23-28 SSYP, $0 of unpaved road state funds are available; however, VDOT staff have identified an eligible project as noted below. Staff recommends keeping eligible projects on the SSYP so that the County can continue to receive allocations as funds become available. The funds would be utilized when needed.

Unpaved Road Funding Program

Racefield Drive was the most recent road paved using the Unpaved Roads Funding Program. In October 2017, VDOT staff identified Peach Street as meeting the criteria of the Rural Rustic Road Program, making it eligible for unpaved road state funds. Based upon this information, the Board of Supervisors adopted a resolution adding Peach Street to James City County's SSYP. Of the $198,872 in estimated costs, $198,833 has been previously allocated.

Hicks Island Road Bridge (Route 601)

VDOT identified replacing Hicks Island Road Bridge over Diascund Creek as a candidate project in 2012. This structure has a sufficiency rating less than 50, making it VDOT's first priority for bridge replacement on the County's secondary road system. The County concurred, identifying it as the County's priority for bridge funds in past SSYPs. In April 2017, the Board of Supervisors approved a resolution reducing the design scope of the project to a one-lane, 16-foot-wide bridge. Staff recommends keeping Hicks Island Road Bridge as the specific project for the bridge funds.

Recommendation

Given the funding levels expected in the next six years and the current projects that are underway, staff recommends the following priorities:

1. Croaker Road
2. Longhill Road - Phase II
3. Longhill Road - Phase III
4. Old Stage Road and Route 30 Intersection Improvements
5. Centerville Road and Route 5 Intersection Improvements

In addition, staff recommends keeping Peach Street and Hicks Island Road Bridge as the specific projects for the County's unpaved road and bridge funds, respectively, until the projects are completed.

Staff recommends adoption of the attached resolution, which endorses the secondary road priority list as set forth in this memorandum for the FY23-28 SSYP.

TL/md
PropFY23-28SSYP-mem

Attachments:
1. Resolution
2. Map of FY23-28 SSYP Projects
3. Aerial Map - Croaker Road
4. Aerial Map - Longhill Road
5. Aerial Map - Peach Street
6. Aerial Map - Old Stage Road
7. Aerial Map - Centerville Road

R E S O L U T I O N

PROPOSED FISCAL YEAR 2023-2028 SECONDARY STATE HIGHWAY SIX-YEAR PLAN

WHEREAS, Section 33.2-331 of the Code of Virginia, 1950, as amended, provides the opportunity for each county to work with the Virginia Department of Transportation (VDOT) in developing a Secondary State Highway Six-Year Plan; and

WHEREAS, James City County, Virginia (the "County") has consulted with the VDOT District Project Manager to set priorities for improvements to the County's secondary state highways; and

WHEREAS, a public hearing was advertised for the regularly scheduled Board of Supervisors meeting on April 12, 2022, so citizens of the County would have the opportunity to participate in the hearing and to make comments and recommendations concerning the proposed list of priorities for improvement.

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of James City County, Virginia, hereby approves of the list of priorities for improvements to the Secondary State Highway System as presented at the public hearing and the County Administrator is hereby authorized to sign and execute all such documents as are necessary to evidence the Board's approval of the Six-Year Plan.

_____
John J. McGlennon
Chairman, Board of Supervisors

ATTEST:

_____
Teresa J. Saeed
Deputy Clerk to the Board

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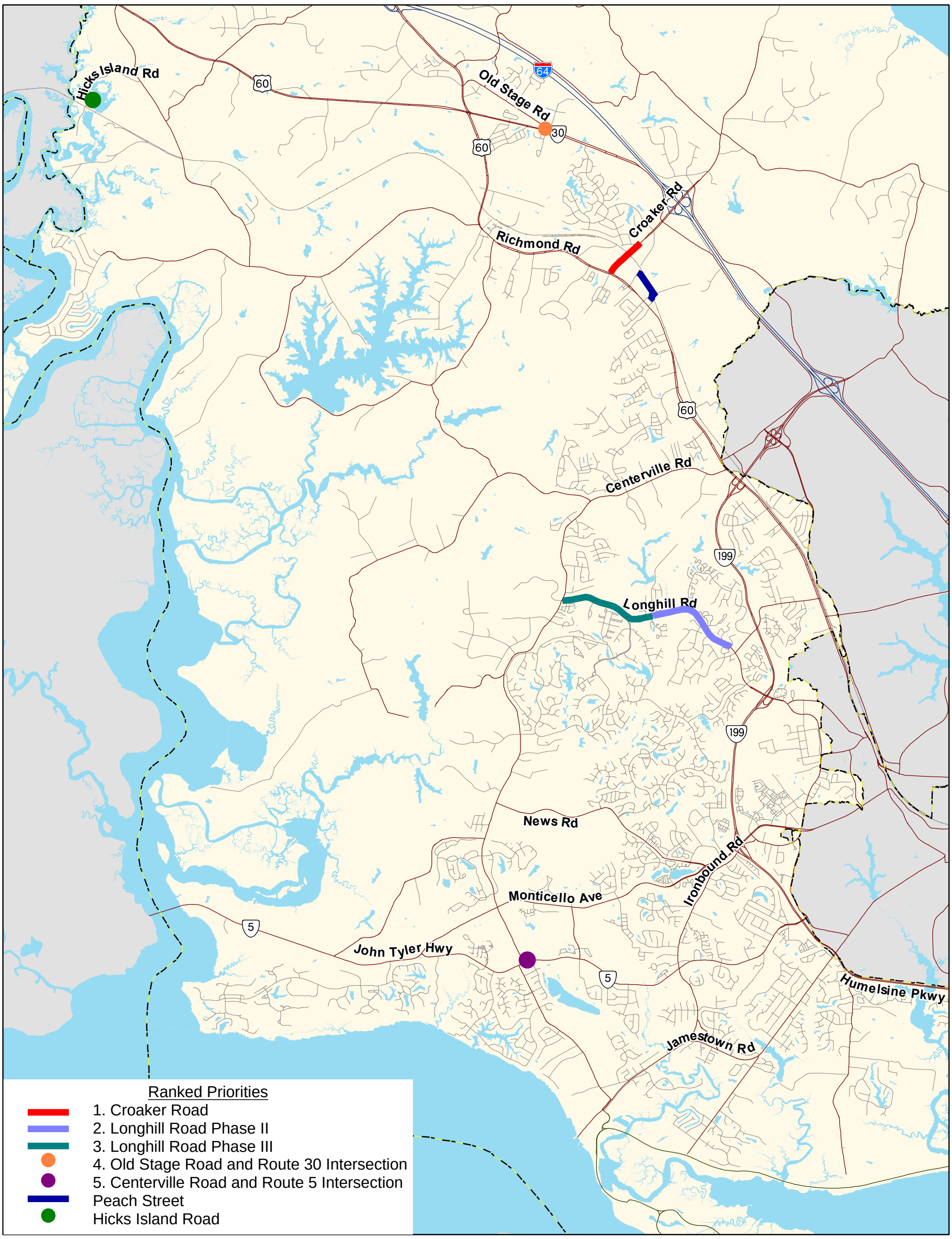
SADLER	____	____	____	____
MCGLENNON	____	____	____	____

Adopted by the Board of Supervisors of James City County, Virginia, this 12th day of April, 2022.

PropFY23-28SSYP-res

James City County
FY 22-27 SSYP Projects



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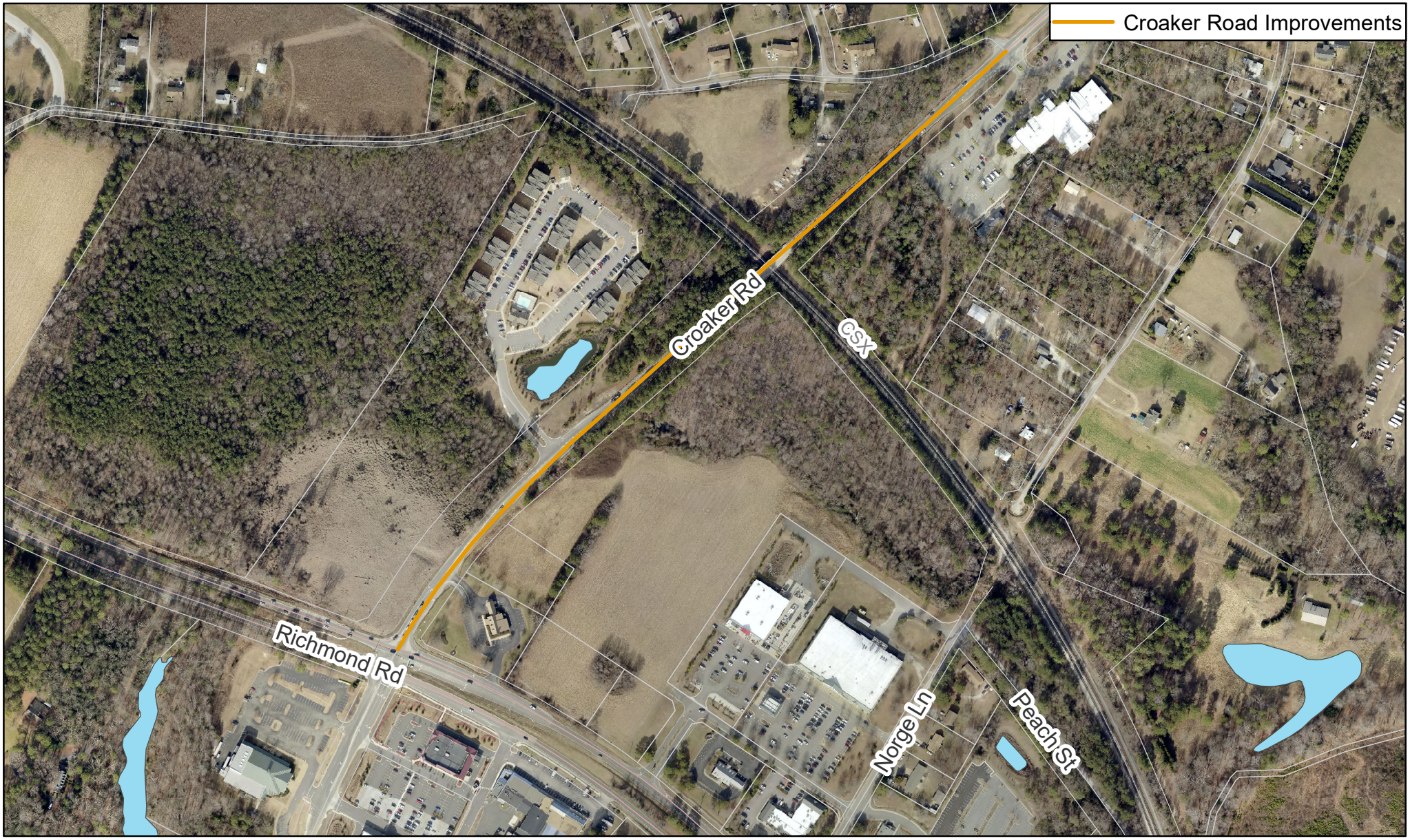
Croaker Road (Route 607) Improvements



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Longhill Rd (Route 612)

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Peach Street Improvements

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Old Stage Road and Route 30 Intersection Improvements

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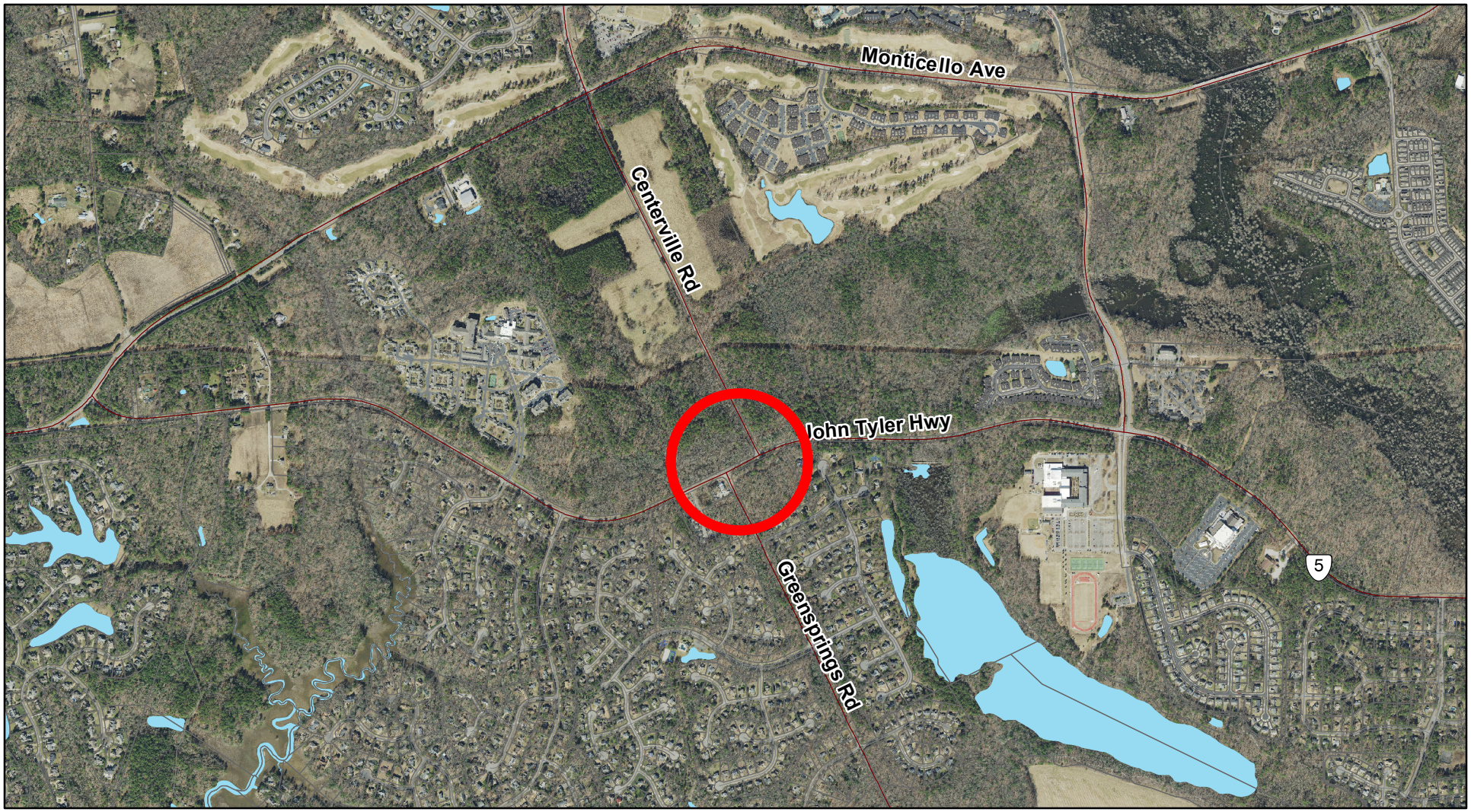
Centerville Road, Greensprings Road and Route 5 Intersection Improvements



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AGENDA ITEM NO. G.4.

ITEM SUMMARY

DATE:	4/12/2022
TO:	The Board of Supervisors
FROM:	Thomas Wysong, Senior Planner II and Ellen Cook, Principal Planner
SUBJECT:	LU-20-0002. Eastern State - New Town Addition and LU-20-0003. Eastern State - Mixed Use Community Land Use Designation Changes

ATTACHMENTS:

	Description	Type
	Staff Memo	Staff Report
	1. Resolution to Approve	Resolution
	2. Resolution to Remand	Resolution
	3. LU-20-0002 Eastern State - New Town Addition, Staff Report (April 27, 2021)	Backup Material
	4. LU-20-0002 Eastern State - Mixed Use Community, Staff Report (April 27, 2021)	Backup Material
	5. Public Comments and Applicant Correspondence	Backup Material
	6. Land Use Applications Road Congestion Maps	Backup Material

REVIEWERS:

Department	Reviewer	Action	Date
Planning	Holt, Paul	Approved	3/25/2022 - 9:54 AM
Development Management	Holt, Paul	Approved	3/25/2022 - 9:54 AM
Publication Management	Pobiak, Amanda	Approved	3/25/2022 - 10:14 AM
Legal Review	Kinsman, Adam	Approved	3/31/2022 - 11:59 AM
Board Secretary	Saeed, Teresa	Approved	3/31/2022 - 3:46 PM
Board Secretary	Purse, Jason	Approved	4/4/2022 - 2:17 PM
Board Secretary	Saeed, Teresa	Approved	4/5/2022 - 7:43 AM

M E M O R A N D U M

DATE: April 12, 2022

TO: The Board of Supervisors

FROM: Thomas Wysong, Senior Planner II,
Ellen Cook, Principal Planner

SUBJECT: Case No. LU-20-0002 Eastern State - New Town Addition and Case No. LU-20-0003 Eastern State - Mixed Use Community Land Use Designation Changes

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At the Board of Supervisors meetings on July 13, 2021, September 28, 2021, and October 26, 2021, the Board considered the 2045 Comprehensive Plan, and adopted the Plan on October 26, 2021. As part of its consideration of the Plan, the Board voted to postpone the Eastern State land use designation change applications for six months or until such time as rezoning applications for the properties involved have been submitted. Since the Plan adoption in October, the Planning Division has not received any conceptual plan, rezoning, or other development application for the property encompassed by these two applications.

Since no rezoning application has been received to date, staff recommends postponing these applications; however, should the Board wish to approve a land use designation change to Mixed Use for one or both of these applications at this time, staff recommends the Board consider the following amendments to the 2045 Comprehensive Plan:

1. Inclusion of the following Mixed Use designation description language. The descriptions below show the adopted 2045 Comprehensive Plan language in plain text and the possible additional language in grey and italic text. The possible additional language (grey/italic) was previously included in the draft 2045 Comprehensive Plan document reviewed by Planning Commission and Board of Supervisors.

<u>For LU-20-0002: "Mixed Use Area No. 7 New Town. UDA: Medium Town or Suburban Center</u>"

"The principal suggested uses are a mixture of commercial, office, residential, and limited industrial.

Most of this area is governed by a detailed master plan and design guidelines for each distinct area within the New Town development, which provides guidelines for street, building, open space design, and construction similar to the scale, architecture, and urban pattern found in the City of Williamsburg. New development or redevelopment in this area*, including any portion of the Eastern State Hospital property to be brought into the New Town development,* should follow consistent design guidelines and strive to integrate uses. *For the Eastern state property to be brought into the New Town development, it is of critical importance that environmentally sensitive features such as topography, RPA features and wooded areas be protected and permanently preserved, where possible. The portion of this parcel located west of Route 199 will be conserved as open space, meaning no development is recommended for this portion. Furthermore, no vehicular access is recommended for the portion of the parcel located west of Route 199.*

A portion of this area is not governed by New Town Development Master Plan and design guidelines, including areas along the west side of Ironbound Road and areas south of Monticello Avenue. These areas should have design, scale and development pattern that is consistent with the New Town development. For the area along the west side of the Ironbound Road corridor, the expansion of existing businesses, or similar uses, is encouraged, with the added opportunity for mixed use structures that incorporate housing as a clearly secondary use in upper stories."

For LU-20-0003: "Mixed Use Area No. 15 Eastern State. UDA: Medium Town or Suburban Center"

"The portion of this site designated for this use is to be developed as a master planned community that harmoniously blends the Eastern State Hospital campus with the adjacent New Town community, though this development is expected to have its own mixture of uses and design expectations. This community should employ careful site orientation, landscaping and buffering and transportation network connectivity to connect these areas, while also allowing for proper land use separation where appropriate.

The two guiding principles for mitigating impacts regarding the redevelopment of this site are: a) the preservation and protection of environmentally sensitive features and b) the protection and expected enhancement of the immediate transportation network. Natural ravines, topography, RPA features and wooded areas are to provide enveloped buffering of the site and be protected from disturbance and stormwater facilities are to be integrated seamlessly as low-impact, "green infrastructure" within the site. The portion of this parcel located west of Route 199 will be conserved as open space, meaning no development is recommended for this portion. Furthermore, no vehicular access is recommended for the portion of the parcel located west of Route 199. Controlled ingress/egress points will direct traffic solely to intersections with suitable capacity and traffic calming infrastructure.

The master planned community is to be centered on passive and active open spaces and associated amenities. These open spaces are to be interconnected via pedestrian, bicycling, and vehicular travel networks and are to serve as the central and perimeter congregational and buffer areas for the development. This development is to be clustered and strategically situated adjacent to natural conservation areas and topographic features.

This community is to be integrated into the existing transportation networks. Sidewalks, bike paths, and vehicular connections are to be designed to facilitate community residents' enjoyment of parks and amenities internal to the development, but to permit residents to walk, bike, or drive to nearby schools, recreational areas, restaurants, and shops.

In combination with the Eastern State Hospital complex and employment center, this community is to provide a mixed-use area consisting of residential, institutional, medical, office, and civic uses. Each of these uses are to be appropriately interconnected to blend and support one another. The residential development will provide housing opportunities for the adjacent employment centers and will be located in close proximity to the civic uses, allowing convenient pedestrian mobility."

2. Update the New Town Community Character Area to include the portion of the property covered by LU-20-0002.

During the Comprehensive Plan update process, the Planning Commission reviewed both the Mixed-Use designation description language shown above and the New Town Community Character Area change. Should the Board provide guidance at this time to substantially revise the designation description language or to consider an alternative approach to the Mixed-Use designation, the Board may wish to consider remanding this case to the Planning Commission for review.

Staff Recommendation

The Board's motion on these applications previously was to postpone them for six months or until such time as staff receives a rezoning application for the properties involved. Since no rezoning application has been received to date, staff recommends postponing these applications. Staff recommends postponing these applications for 12 months or until such time as rezoning applications for the properties involved have been submitted.

TW/EC/ap
LU20-2-3EstrnState-mem

Attachments:
1. Resolution to Approve
2. Resolution to Remand
3. LU-20-0002 Eastern State - New Town Addition, Staff Report (April 27, 2021)
4. LU-20-0003 Eastern State - Mixed Use Community, Staff Report (April 27, 2021)
5. Public Comments and Applicant Correspondence
6. Road Congestion Maps

R E S O L U T I O N

CASE NO. LU-0020-0002. EASTERN STATE - NEW TOWN ADDITION AND

CASE NO. LU-20-0003. EASTERN STATE - MIXED USE COMMUNITY

LAND USE DESIGNATION CHANGES

WHEREAS, at its October 26, 2021, meeting the Board of Supervisors of James City County adopted the James City County Comprehensive Plan *Our County, Our Shared Future: James City County 2045 Comprehensive Plan*; and

WHEREAS, at the September 28, 2021, and October 26, 2021, meetings the Board of Supervisors postponed two components of the Comprehensive Plan, which were land use designation change requests submitted as Case No. LU-20-0002 Eastern State - New Town Addition and Case No. LU-20-0003 Eastern State - Mixed Use Community (James City County Real Estate Tax Map Parcel No. 3910100152); and

WHEREAS, the requests were to change the property from the Federal, State, or County Land use designation to the Mixed Use land use designation; and

WHEREAS, at its March 22, 2021, meeting the Planning Commission Working Group voted 6-1 to recommend approval of Case No. LU-20-0002 Eastern State - New Town Addition; and

WHEREAS, at its March 22, 2021, meeting the Planning Commission Working Group voted 5-2 to recommend approval of Case No. LU-20-0003 Eastern State - Mixed Use Community; and

WHEREAS, at its June 24, 2021, meeting the Planning Commission voted 5-2 to adopt the Comprehensive Plan, including accepting the recommendations of approval of the Planning Commission Working Group for these cases.

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of James City County, Virginia, hereby approves Case No. LU-20-0002 Eastern State - New Town Addition and associated Mixed Use description language and directs that the James City County Comprehensive Plan Future Land Use Map and Land Use Chapter description be updated accordingly.

NOW, THEREFORE, BE IT FURTHER RESOLVED that the Board of Supervisors of James City County, Virginia, hereby approves Case No. LU-20-0003 Eastern State - Mixed Use Community and associated Mixed Use description language and directs that the James City County Comprehensive Plan Future Land Use Map and Land Use Chapter description be updated accordingly.

_____
John J. McGlennon
Chairman, Board of Supervisors

ATTEST:

_____
Teresa J. Saeed
Deputy Clerk to the Board

	VOTES			
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Adopted by the Board of Supervisors of James City County, Virginia, this 12th day of April, 2022.

LU20-2-3EstrnStApp-res

R E S O L U T I O N

CASE NO. LU-0020-0002. EASTERN STATE - NEW TOWN ADDITION AND

CASE NO. LU-20-0003. EASTERN STATE - MIXED USE COMMUNITY LAND USE

DESIGNATION CHANGES

WHEREAS, at its October 26, 2021, meeting the Board of Supervisors of James City County adopted the James City County Comprehensive Plan *Our County, Our Shared Future: James City County 2045 Comprehensive Plan*; and

WHEREAS, at the September 28, 2021, and October 26, 2021, meetings the Board of Supervisors postponed two components of the Comprehensive Plan, which were land use designation change requests submitted as Case No. LU-20-0002 Eastern State - New Town Addition and Case No. LU-20-0003 Eastern State - Mixed Use Community (James City County Real Estate Tax Map Parcel No. 3910100152, the Property); and

WHEREAS, the requests were to change the Property from the Federal, State, or County Land Use designation to the Mixed Use Land Use designation; and

WHEREAS, at its March 22, 2021, meeting the Planning Commission Working Group voted 6-1 to recommend approval of Case No. LU-20-0002 Eastern State - New Town Addition; and

WHEREAS, at its March 22, 2021, meeting the Planning Commission Working Group voted 5-2 to recommend approval of Case No. LU-20-0003 Eastern State - Mixed Use Community; and

WHEREAS, at its June 24, 2021, meeting the Planning Commission voted 5-2 to adopt the Comprehensive Plan, including accepting the recommendations of approval of the Planning Commission Working Group for these cases; and

WHEREAS, the Board of Supervisors requests the Planning Commission to review approaches to the land use designation(s) for the Property, including considering revised Mixed Use designation description language for these cases.

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of James City County, Virginia, hereby remands Case No. LU-20-0002 and Case No. LU-20-0003 to the Planning Commission.

_____
John J. McGlennon
Chairman, Board of Supervisors

ATTEST:

_____
Teresa J. Saeed
Deputy Clerk to the Board

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Adopted by the Board of Supervisors of James City County, Virginia, this 12th day of April, 2022.

LU20-2-3EstrnStRmnds-res

SUMMARY FACTS

Case Number:	LU-20-0002
Case Description:	Eastern State-New Town Addition
Source:	Property owner-initiated
Property Address:	4601 Ironbound Rd
Tax Map/Parcel No.:	3910100152
Acreage:	± 540.65
Property Owner:	Commonwealth of Virginia Eastern State Hospital
Zoning:	PL Public Lands
Primary Service Area: (PSA)	Inside
Current Land Use Designation:	Federal, State, and County Land
Proposed Land Use Designation:	Mixed Use-New Town
PSA Change:	No

Proposal Rationale

See applicant narrative on PermitLink: https://comdev.jamescitycountyva.gov/EnerGov_Prod/SelfService/#/plan/62d37899-9ee4-482e-9f29-2e2d2a7207bf?tab=attachments

Parcel Background

This parcel is located between Route 199 and Depue Rd and is located north of the New Town development. The Commonwealth of Virginia has utilized this property as a psychiatric hospital and intends to continue this use in the portion of the parcel not subject to this proposal.

Agency Comments

VDOT recommended the County be aware that in the case of Olive Drive and Rollison Drive, a large increase in traffic through narrow residential streets with on-street parking may be problematic.

JCSA noted that upgrades to the existing sewer main will be required if the developer intends to connect to it. If the developer intends to use the private sewer mains outside of the site, the private infrastructure will have to be transferred to JCSA. JCSA raised no issues with extending water mains to serve the site, on the condition that capacity analyses be submitted and required upgrades be provided by the developer.

SRP noted the location of these properties within the Powhatan Creek watershed and the requirement for this proposal to adhere to the Special Stormwater Criteria (where appropriate),

the approved Powhatan Creek watershed management plan, and other administrative requirements. SRP also noted the need for Olive Drive and Rollison Drive to be upgraded.

Fire, OED, Parks and Rec, & Neighborhood Development raised no comments regarding this proposal.

Key Land Use Policy Ideas Analysis

Key Land Use Policy Idea #3: Encouraging the majority of new growth as Complete Communities by redesignating land as Mixed Residential/Commercial (e.g. some existing Low Density Residential areas) or Mixed Commercial/Industrial (e.g. the existing Economic Opportunity areas)

Key Land Use Policy Idea #4 : Directing some new growth as feasible into redevelopment and infill development rather than into vacant rural areas.

Key Land Use Policy Idea #6: Directing new commercial growth into Mixed Use areas, as part of Complete Communities by redesignating existing commercial areas and/or revising zoning to encourage mixed use in these areas.

Transportation Considerations

This parcel is surrounded by Community Character Corridors to the west (Route 199) north (Longhill Road) and east (Depue Rd, and Ironbound Road). For Longhill Road, Phase 1 of the widening is under way to include bicycle and pedestrian facilities. The proposed access to this property is through the extension of Olive Drive and Discovery Park Boulevard, meaning no additional entrances are proposed on Route 199 or Longhill Rd. The conceptual plan for this proposal shows Community Character buffering adjacent to Route 199, in accordance with County policy.

Transportation Road Networks

Per the traffic congestion mapping provided by EPR, the immediate surrounding transportation network (Longhill Road, Depue Drive and Ironbound Road) is currently experiencing low levels of congestion, with some congestion already at the Longhill Road & Depue Drive intersection.

In the Virtual Future Scenario A map, some congestion is expected to continue at the Longhill Road & Depue Drive intersection.

In the Alternative Future Scenario B map, there is less congestion at some of the Route 199 & Monticello Avenue ramps. The immediate surrounding roads continue to operate with low levels of congestion.

Land Use Designation Description Language

Proposed Revised Draft Language for Mixed Use New Town: “New development or redevelopment in this area, including any portion of the Eastern State Hospital property to be brought into the New Town development, should follow consistent design guidelines and strive to integrate uses." Please see the Land Use Designation Descriptions and Development Standards for the full description of the New Town Mixed Use designation.

Staff Recommendation

Approval

Recommendation Rationale

This application aligns with the key land use policy ideas recommended as a result of the public input provided during the Engage 2045 process. Specifically, this proposal supports the redevelopment/infill development of an existing site within the Primary Service Area (PSA) by the redesignation of land to Mixed Use, which also supports future growth in the form of the Complete Communities concept. The projected traffic congestion for this area is not expected to be severe, nor are the transportation linkages required for the development expected to hinder the County's Corridor vision for Longhill Road and Route 199. Finally, the proposed Land Use designation description language contains development standards and clear expectations regarding design that will guide any future legislative applications to ensure the preservation of the established community character of the area.

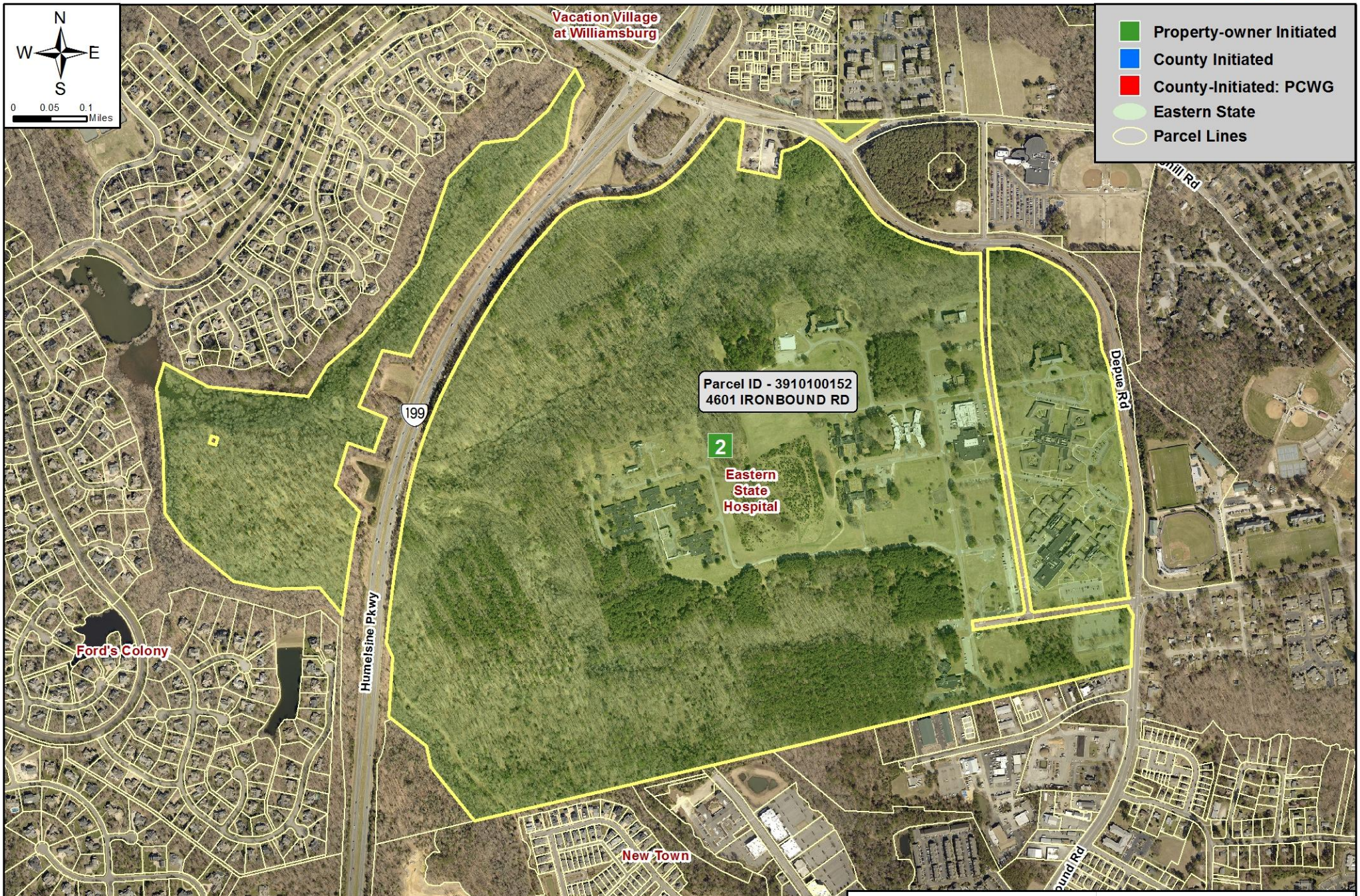
PCWG Recommendation

The PCWG recommended approval of this proposal by a vote of 6-1 at its March 22, 2021 meeting.

Attachments

1. Location Map

JCC LU-20-0002: Eastern State - New Town Addition



Acres	540.65
Current Land Use Designation	Federal, State and County Land
Proposed Land Use Designation	Mixed Use

For additional information, please contact the Planning Division at (757) 253-6685 or planning@jamescitycountyva.gov

SUMMARY FACTS

Case Number:	LU-20-0003
Case Description:	Eastern State-New Town Addition
Source:	Property owner-initiated
Property Address:	4601 Ironbound Rd
Tax Map/Parcel No.:	3910100152
Acreage:	± 540.65
Property Owner:	Commonwealth of Virginia Eastern State Hospital
Zoning:	PL Public Lands
Primary Service Area: (PSA)	Inside
Current Land Use Designation:	Federal, State, and County Land
Proposed Land Use Designation:	Mixed Use-Eastern State (new)
PSA Change:	No

Proposal Rationale

See applicant narrative on PermitLink: https://comdev.jamescitycountyva.gov/EnerGov_Prod/SelfService/#/plan/380a9a62-4555-4798-a087-85253a9ad25c

Parcel Background

This parcel is located between Route 199 and Depue Rd and is located north of the New Town development. The Commonwealth of Virginia has utilized this property as a psychiatric hospital and intends to continue this use in the portion of the parcel not subject to this proposal.

Agency Comments

VDOT noted that a mixed use development on this property will have significant impact on Depue Drive and Ironbound Rd and surrounding intersection. VDOT recommended a traffic study be conducted for this proposal prior to development.

JCSA noted that if the developer intends to use the private water or sewer mains outside of the site, the private infrastructure will have to be transferred to JCSA after completion of a capacity analysis and required upgrades. JCSA raised no issues with portions of the site connecting to water mains to serve the site, on the condition that capacity analyses be submitted and required upgrades be provided by the developer.

SRP noted the location of these properties within the Powhatan Creek watershed and the requirement for this proposal to adhere to the Special Stormwater Criteria (where appropriate), the approved Powhatan Creek watershed management plan, and

other administrative requirements.

Fire, OED, Parks and Rec, & Neighborhood Development raised no comments regarding this proposal.

Key Land Use Policy Ideas Analysis

Key Land Use Policy Idea #3: Encouraging the majority of new growth as Complete Communities by redesignating land as Mixed Residential/Commercial (e.g. some existing Low Density Residential areas) or Mixed Commercial/Industrial (e.g. the existing Economic Opportunity areas)

Key Land Use Policy Idea #4 : Directing some new growth as feasible into redevelopment and infill development rather than into vacant rural areas.

Key Land Use Policy Idea #6: Directing new commercial growth into Mixed Use areas, as part of Complete Communities by redesignating existing commercial
areas and/or revising zoning to encourage mixed use in these areas.

Transportation Considerations

This parcel is surrounded by Community Character Corridors to the west (Route 199) north (Longhill Road) and east (Depue Rd, and Ironbound Road.) For Longhill Road, Phase 1 of the widening is under way to include bicycle and pedestrian facilities. The conceptual master plan for this proposal shows the site layout utilizing Ashbury Lane and Galt Lane to reach these corridors. Per VDOT's recommendation, a traffic study prior to development would be helpful in assessing the required improvements for these roads and the potential impact on other roadways.

Transportation Road Networks

Per the traffic congestion mapping provided by EPR, the immediate surrounding transportation network (Longhill Road, Depue Drive and Ironbound Road) is currently experiencing low levels of congestion, with some congestion already at the Longhill Road & Depue Drive intersection.

In the Virtual Future Scenario A map, some congestion is expected to continue at the Longhill Road & Depue Drive intersection.

In the Alternative Future Scenario B map, there is less congestion at some of the Route 199 & Monticello Avenue ramps. The immediate surrounding roads continue to operate with low levels of congestion.

Land Use Designation Description Language

Proposed Draft Language: The portion of this site designated for this use is to be developed as a master planned community that harmoniously blends the Eastern State Hospital campus with the adjacent New Town community. This community should employ careful site orientation, landscaping and buffering and transportation network connectivity to connect these areas, while also allowing for proper land use separation where appropriate. Natural ravines, topography, RPA features and

wooded areas are to provide enveloped buffering of the site and be protected from disturbance. Controlled ingress/egress points will direct traffic to intersections with suitable capacity and traffic calming infrastructure.

The master planned community is to be centered on passive and active open spaces and associated amenities. These open spaces are to be interconnected via pedestrian, bicycling and vehicular travel networks and are to serve as the central and perimeter congregational and buffer areas for the development. This development is to be clustered and strategically situated adjacent to natural conservation areas and topographic features.

This community is to be integrated into the existing transportation networks. Sidewalks, bike paths and vehicular connections are to be designed to facilitate community residents' enjoyment of parks and amenities internal to the development, but to permit residents to walk, bike or drive to nearby schools, recreational areas, restaurants and shops.

In combination with the Eastern State Hospital complex and employment center, this community is to provide a mixed-use area consisting of residential, institutional, medical, office and civic uses. Each of these uses are to be appropriately interconnected to blend and support one another. The residential development will provide housing opportunities for the adjacent employment centers and will be located in close proximity to the civic uses, allowing convenient pedestrian mobility.

Staff Recommendation

Approval

Recommendation Rationale

This application aligns with the key land use policy ideas recommended as a result of the public input provided during the Engage 2045 process. Specifically, this proposal supports the redevelopment/infill development of an existing site within the Primary Service Area (PSA) by the redesignation of land to Mixed Use, which also supports future growth being in the form of the Complete Communities concept. The projected traffic congestion for this area is not expected to be severe, nor are the transportation linkages required for the development expected to hinder the County's Corridor vision for Longhill Road and Route 199. Finally, the proposed Land Use designation description language contains development standards and clear expectations regarding design that will guide any future legislative applications to ensure the preservation of the established community character of the area.

PCWG Recommendation

The PCWG recommended approval of this proposal by a vote of 5-2 at its March 22, 2021 meeting.

Attachments

1. Location Map

JCC LU-20-0003: Eastern State - Mixed Use Community

Acres	540.65
Current Land Use Designation	Federal, State and County Land
Proposed Land Use Designation	Mixed Use

For additional information, please contact the Planning Division at (757) 253-6685 or planning@jamescitycountyva.gov

Round 3 Public Engagement: **Future Land Use Map Questionnaire Results & Comments**

Building off the preferences for place types and future land patterns from prior rounds of engagement, the Future Land Use Map Questionnaire sought public input on specific applications for Land Use designation changes. The County's Board of Supervisors, Planning Commission Working Group (PCWG), and staff are reviewing this community feedback, as well as feedback from previous rounds, as they consider these applications for Land Use designation changes. Through Engage 2045, the County is reviewing 27 applications for land use designation changes. Of these 27, three were initiated by property owners and the remaining 24 were initiated by the County (either by staff or by the PCWG).

Questionnaire respondents were asked to review the 27 proposed changes to the Future Land Use Map (FLUM) and respond to the following question for individual applications: "Do you think this application is in keeping with your vision for the County?" Three answers were allowed: Yes, No, and Maybe. Respondents were also given the opportunity to provide general comments on the land use application.

The following tables include those results and comments provided by respondents completing the Future Land Use Map questionnaire. Questionnaire respondents indicated their support for FLUM changes (Yes/No/Maybe) and also provided comments. These comments are provided verbatim and have not been edited. For each table, the statistics represent all who responded to the survey. Not all respondents provided a written comment, so for each table there are fewer comments than the total number of votes. The table only includes responses and comments received as part of the questionnaire before February 21, 2021.

	LU-20-0001: Marston Parcels From Rural Lands, Outside PSA to LD Residential, Inside PSA Y = 26 (31%); N = 48 (58%); M = 9 (11%)
Support	**Comments**
Yes	limit one house per acre
Yes	Low density inside or outside is good as long as later request for medium denisty is not made once PSA inclusion is approved. Landowners intent should be stated upfront as to future building density, i.e. single family or higher density.
Yes	Low density is appropriate for this area.
Yes	low density, protecting watershed
Yes	Please keep as current designation
Yes	Property owner initiated
Yes	This is a good location for Low density residential. Fronts on 4 lane Richmond Road. Close to interstate exit. This would support Community Commercial designation at intersection of Croaker and Richmond Road
Yes	We need a lot more housing in James City County
Yes	Will provide additional housing opportunities.

	LU-20-0001: Marston Parcels From Rural Lands, Outside PSA to LD Residential, Inside PSA Y = 26 (31%); N = 48 (58%); M = 9 (11%)
Support	**Comments**
No	A large portion is outside the PSA. If the county permits this application as filed, it should trade water and sewer for open space on what would have been the septic fields, smaller lawns, and wider RPA buffers.
No	Approving this change in LU would be in conflict with the County's LU-20-=0006. Again, it is imperative to retain the rural character of the upper county, expecailly since these parcels are near a community character corridor.
No	DO NOT EXPAND THE PSA, especially in this area of sensitive water quality resources. This parcel should stay RURAL. It is NOT APPROPRIATE for more dense residential sprawl.
No	Doesn't appear to be affordable housing.
No	I believe that already designated rural lands should be protected. I do not believe we should ADD TOO the number of rural lands. However, I do believe the property rights of this landowner are being regulated and the landowner should be compensated.
No	i don't think high density is apprioate use for this rual land, the man who bought it knew what it was when he bought it and the county should not change its policies at their own disgresion , fees or not
No	I object to the re-designaton of this application. the uppper county is our last pportunity to preserve our RLs for their economic and historic value.
No	Is this in the watershed of the reservoir? If so, then zoning should remain the same. Efforts should be maintained to protect forested lands.
No	It is not desirable to begin chipping away at the rural areas that are outside the PSA. It could set a bad precedent that would unravel rural preservation objectives.
No	It is outside of the PSA. It borders wetlands. Construction will affect the creek. There are uncommon plants and other wildlife that will be affected.
No	It should not be moved into the PSA.
No	Make this public accessor park land used for hunting. Not enough deer hunting areas in county.
No	no building on green space, it should be protected
No	No extensions of the PSA!
No	No more residential areas. Do not over populate the area.
No	No parcel should be included in the PSA without requiring cluster development with a MINIMUM of 70% OPEN SPACE
No	not in walking distance to Toano Village, continue rural land designation outside of PSA, does not meet development criterion
No	Outside PSA. No easy access to parcel; will require roads.
No	Please preserve the rural character of Upper JCC! There are already too many developments here!
No	Prefer no residential or business. Stay undeveloped
No	retain as is
No	should be kept open for nature and environment

	LU-20-0001: Marston Parcels From Rural Lands, Outside PSA to LD Residential, Inside PSA Y = 26 (31%); N = 48 (58%); M = 9 (11%)
Support	**Comments**
No	The goal is to keep the lands outside of the PSA rural. The goal is to keep lands even in the PSA from becoming another Denbigh. If another goal is to provide low income housing, then look closer to the retail outlets, New Town, High Street, etc.
No	There are already too many developments in Upper JCC
No	There is no public benefit to allowing additional land in this area to be converted to residential development. Furthermore, the watershed of Yarmouth Creek is already stressed with the impacts of already approved developments such as Colonial Heritagee
No	These parcels' location adjacent to the edge of the PSA would inevitably expect the PSA to be expanded to include these parcels when developed into a neighborhood. The Candle Station, nearly adjacent, was enough new residential in this area.
No	This area should be kept rural. Traffic is already to high in this area and there are other places more suitable for apartments.
No	This land is outside the PSA, near the 130 Crescent parcel that the county purchased to protect the Chicahominy watershed. So why would the county allow this parcel to be developed as low-density residential inside the PSA.
No	This parcel is too far away from proper infrastructure to make it viable for development at this time. Road access would need to be improved to accomadate developement.
No	This type of use on that property has been objected to in the past. That area is already over developed and this will make it worse and it's proposed use is most unwelcome. You invite input, such as this, and then, typically, you ignore it.
No	Toano should remain as rural lands and not close to services.
No	We have something special in this part of James City County that should be preserved...not exploited!
Maybe	Are schools and emergency services able to absorb this furture increase in population?
Maybe	As a resident of Upper JCC and for what it's worth, this proposal would create more traffic, schools, county services & public transportation. Higher taxes; more congestion and urbanization. Developer friend's profits before your community's future.
Maybe	Low density should be linked to sewage and water capability, or will become a long term and unsustainable liability.
Maybe	my concern is for supporting infrastructure and roads to/from this location for the number of units potentially impacting other residents in this area

	LU-20-0002: Eastern State- New Town Addition From Federal, State and County Land to Mixed Use Y = 32 (44%); N = 35 (48%); M = 4 (8%)
Support	**Comments**
Yes	Excellent location and opportunity for further development/redevelopment
Yes	Gives JCC a good location to focus growth within the PSA
Yes	Inside PSA. Not pristine or valuable ecological value
Yes	Mixed Use makes good sense across from JCC recreation center and located on Longhill corridor.
Yes	This application makes sense to me. It is on a higher density corridor, near the current NewTown. It has easy access to the rest of the county through 199-Longhill Road.
Yes	This is a logical extension of New Town into an area that is otherwise landlocked. 190,000 sf of commercial development seems a bit high.
Yes	This parcel is appropriate for development due to its proximity to transportation networks and utilities.
Yes	This property has tremendous potential for community betterment
No	a pretty area to keep green
No	Enough housing and commercial. Stop the overgrowth
No	How will this improve community life? Do we need more stores in such close proximity?
No	I am very concerned about adding still more mixed use land in this area, which already has too much mixed use development and is suffering from serious traffic problems. I question whether the demand is there in the long term for this kind of development
No	I definitely cannot support a further expansion of New Town. It's entirely too congested around that area now.
No	I would appreciate more affordable housing. However, in destroying green space to do it it also goes against my desire for a more environmentally friendly community.
No	Keep as greenspace.
No	Maintain as open or recreational area
No	Make it park land. Create more recreational trails and park land.
No	No more commercial space in this area! I would like to preserve the green space on 199. We already have so many issues with deer on the highway.
No	Overpopulation and loss of a green belt off route 199 would destroy the small town and historical feel of the greater James City County/Williamsburg area. Bot this location and eastern state being used for mixed residential/commercial should be limited.
No	Please retain as current land designation
No	should be kept open for nature and environment
No	Stay as public lands
No	There is a significant number of under utilized developments that can meet future demands

	LU-20-0002: Eastern State- New Town Addition From Federal, State and County Land to Mixed Use Y = 32 (44%); N = 35 (48%); M = 4 (8%)
Support	**Comments**
No	This area is already crowded and developed. If anything, add new recreation space here.
No	This has always been a county gem, I should be a green space to enhance the development all around it
No	This is a lot of land having the potential for too large of a development. We already have too much growth in JCC & it will be too much for what's already nearby in Newtown.
No	This risks squeezing Eastern State and hampers their ability to grow along with the population of Virginia.
No	This seems to add beyond what the current land can handle in terms of stormwater run off - an issue that already significantly impact residents in these areas... It does not seem that there is a place for additional runoff and related sewage/water-use
No	We absolutely do not need any more commercial space in this area. New Town is already half empty. This would also increase traffic on that road which isn't ideal.
No	We could use more public, county resources and not more commercial space. new town has so many empty stores.
No	We do not need additional mixed use if that includes retail big box stores, convenience stores, or like Mainstreet Newtown or Settlers Market. The current commercial spaces are mostly empty and have yet to be reimagined.
Maybe	Affordable supported permanent housing for behavioral health clients
Maybe	The roads and traffic would be my first worry - in changing from a rather low traffic to potentially high traffic - the current road system surrounding the Eastern State property is awkward at best, debilitating if there is an emergency (rescue/evacuation
Maybe	Traffic congestion in the area and the large number of commercial businesses that have left New Town and created long-term vacancies suggests more consideration be given to the scope of expansion in this area.
Maybe	What are they going to build?

	LU-20-0003: Eastern State- Mixed Use Community From Federal, State and County Land to Mixed Use Y = 23 (37%); N = 35 (56%); M = 5 (8%)
Support	**Comments**
Yes	Excellent opportunity for development/redevelopment
Yes	I believe this property has tremendous utility for community services such as parks and recs
Yes	Inside PSA; would want assurances for protection of the water body shown if it is not a B MP.
Yes	This makes sense for this area.
Yes	this would be a wonderful park and outdoor recreation area

	LU-20-0003: Eastern State- Mixed Use Community From Federal, State and County Land to Mixed Use Y = 23 (37%); N = 35 (56%); M = 5 (8%)
Support	**Comments**
No	Access to this land is limited, without harsh impact on surrounding neighborhoods and traffic on Longhill Rd. We need the trees, and the natural habitats for wildlife.
No	Access to this parcel is problematic and it also contains wetlands. It should be left undeveloped.
No	Do not over develop the area. Keep as is. People come to the area for limited population and limited traffic, etc. Don't ruin this!
No	Get it right... Overpopulation and more NEWTOWN means empty retail space and crowded/over packed residential space. Who wants to have blocks of cookie cutter condos/townhomes with empty retail? This area should be reserved and amended as green space.
No	Keep as greenspace.
No	Maintain a large undeveloped area along Humelsine Pkwy
No	Mixed use in that area seems strange and I would like to preserve the green space on 199. We already have so many issues with deer on the highway.
No	Mixed use that includes retail is not appropriate for this setting. We already have Mainstreet and Settlers Market which are underutilized. "Luxury" Townhouses with green space would be more preferable similar to New Town's SF and TH developments nearby.
No	Rte 199 is not able to handle the increase traffic requirements.
No	should be kept open for nature and environment
No	Stay as public lands
No	The scope of this development is too large for the vehicle access points to accommodate successfully, and the sewer/water needs of this development will have an impact on existing resources.
No	This area is already crowded and overdeveloped
No	This is a lot of land having the potential for too large of a development. We already have too much growth in JCC & it will be too much for what's already nearby in Newtown.
No	This parcel should be kept as undeveloped buffer along Rt. 199
No	This random wedge on the other side of 199 does not make sense to try to develop similarly or as part of New Town, and again, too much congestion around there already.
No	This would add significant density to an area already seemingly 'overflowing' - particularly related to stormwater runoff and related sewage/water usage without adequate resources to absorb such impacts
No	Too close to existing neighborhood. Limited space to put mixed use into. Disruption to natural wildlife areas.
No	wonderful scenic area that should be maximum for citizen use, bike paths, walking trails and park, so close for people to walk to, preserve this green space

Thomas Wysong

From: Thomas Wysong
Sent: Monday, March 1, 2021 1:53 PM
To: Thomas Wysong
Subject: FW: [External] Re: Eastern State Information

From: Tim Kinkead <trek57@gmail.com>
Sent: Thursday, January 14, 2021 2:46 PM
To: Thomas Wysong <Thomas.Wysong@jamescitycountyva.gov>
Subject: [External] Re: Eastern State Information

Mr Wysong - Sincere thanks for responding so promptly to my inquiry, as well as suggested means for expressing my input. The property is one of the last remaining intact mature stands of forest in the county, and headwaters of Powhatan creek with its connection to the James River. The land is also unique in that this is public property, not private .
Best wishes to you and your staff . Whoever answered the phone when I first called your office was very courteous and cheerful , sorry I did not catch her name. We are all struggling with the pandemic and a happy voice is welcome these days !
Tim Kinkead 5198 Rollison Drive Wburg 23188

Sent from my iPad

> On Jan 14, 2021, at 10:28 AM, Thomas Wysong wrote:
>
> Good morning Mr. Kinkead,
> It was a pleasure speaking with you yesterday. As I mentioned on the phone, the County is considering applications to change the Land Use designation for the Eastern State property to allow for Mixed Use development in the future. One of these applications would be to essentially add a section to Newtown and the other would be for a mixed us development near that section addition. Please see the attached for the information for the Newtown Addition, which is behind your property.
> This project is still in the land use consideration stage, meaning no development is imminent for this project. If you are interested in participating in the public input process, I encourage you to go on the county's Comp Plan website at the following link and share your thoughts:
> https://jamescitycountyva.gov/engage2045
> Thanks!
> **Thomas Wysong**
> **Senior Planner, AICP**
> **101-A Mounts Bay Road**
> **Williamsburg, VA 23185**
> **P: 757-253-6771**
> **Thomas.Wysong@jamescitycountyva.gov**

Excerpt from "Round 4 Input Summary" for Eastern State Applications, full document at:
https://jamescitycountyva.gov/3833/Public-Engagement-Summaries

Public Comment

Correspondences received February 21, 2021 through November 17, 2021 via online comment, email, letter, or other means are attached to this report below.

LAND USE APPLICATION COMMENT FORM, ENGAGE 2045 WEBSITE

Application	Name	Date	Comment
LU-20-0018	David Kleppinger	03/06/21	This single parcel of land is currently designated for low density residential and is located within the primary service area boundary. It is also less than 1/4 mile from Richmond Rd and the hoped for revitalization of the Toano downtown district. The viability of a revitalized small business-centered downtown Toano would be enhanced by higher density housing within walking distance such as that which could occur on the subject property you're now proposing to "down designate." This seems incongruent to me. I would like to receive a copy of the staff rationale for proposing this single parcel's redesignation to rural lands.
LU-20-0023	Oana Vasiliu	03/06/21	News Road cannot support the added traffic brought by a high density residential area. Leave the woods alone. We moved to this community to enjoy clean air and the trees all around. It's so sad to see everything leveled and paved without a single thought to the consequences for future generations.

LAND USE APPLICATION COMMENTS

Comments that addressed specific land use applications are attached and organized by application number, then by date submitted.

LU-20-0001 – Marston Parcels

1. Epstein 06/24/21

LU-20-0002 – Eastern State, New Town Addition

2. Kinkead 01/14/21
3. Casey 06/17/21
4. Saumier 06/20/21
5. Wilde 06/20/21
6. Cheston 06/21/21
7. Ducibella 06/21/21
8. Hancock 06/21/21
9. Kirouac 06/21/21
10. Mulnix 06/21/21
11. Singletary 06/21/21
12. Gareffa 06/22/21
13. Kuperstock 06/22/21
14. LePage 06/23/21
15. New Town Petition 06/24/21
16. New Town Residential Association 06/24/21
17. Kuperstock 07/11/21
18. Grimes 07/13/21

LU-20-0003 – Eastern State, Mixed Use Community: none

LU-20-0004 – 7341 Richmond Road: none

Thomas Wysong

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https://jamescitycountyva.gov/engage2045
Thanks!
Thomas Wysong
Senior Planner, AICP
101-A Mounts Bay Road
Williamsburg, VA 23185
P: 757-253-6771
Thomas.Wysong@jamescitycountyva.gov

From: Thomas Wysong
Sent: Thursday, June 17, 2021 4:16 PM
To: Barbara Null; Frank Polster; John Haldeman; Julia Leverenz; Paul Holt; Richard Krapf; Rob Rose; Tim OConnor
Cc: Ellen Cook; Tori Haynes; Tammy Rosario; Brett Meadows
Subject: FW: [External] Land Use Redesignation LU-20-0002

Good afternoon Commissioners,

Please see below for an email staff received this morning regarding LU 20-0002.

Respectfully,

Thomas Wysong
Senior Planner II, AICP

101-A Mounts Bay Road
Williamsburg, VA 23185
P: 757-253-6771
Thomas.Wysong@jamescitycountyva.gov

From: Kathy Casey <k.casey4404@gmail.com>
Sent: Thursday, June 17, 2021 11:33 AM
To: Planning <planning@jamescitycountyva.gov>
Subject: [External] Land Use Redesignation LU-20-0002

It has recently come to my attention that the James City County Planning Commission is planning to discuss on June 24 the expansion of Newtown into property currently owned by Eastern State. This development will be at least 85 single family homes and multiple family units. There is planned access to this development from Olive Drive as well as Discovery.

Development of this property would be detrimental to Charlotte Park. It would bring more traffic and noise to this quiet community. The streets in Charlotte park are only 28 feet wide, and it is already difficult for two cars to pass at the same time, especially when a car is parked on the side of the road. I worry about the safety of our residents with the increase in traffic. We have children playing in the park and pool at the corner of Olive and Center. More traffic at this intersection is an accident waiting to happen. The neighbors selected Charlotte Park for their homes in part due to the lack of traffic.

If this project is to move forward, I think the access to it should be only through Discovery Blvd.

Sincerely,
Kathy Casey

LU-20-0002

Thomas Wysong

From: Paxton Condon
Sent: Monday, June 21, 2021 8:14 AM
To: Thomas Wysong
Subject: FW: [External] Expansion in of 85 acres in to New Town

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From: Tim Saumier <Tim.Saumier@tyges.com>
Sent: Sunday, June 20, 2021 1:58 PM
To: Planning <planning@jamescitycountyva.gov>
Subject: [External] Expansion in of 85 acres in to New Town

Hello -

I'm writing to the planning commission to comment on the pending rezoning of acreage adjacent to New Town. My family are heavily involved & invested in New Town and Williamsburg –

1) We are a resident of NT – 5202 Rollison Drive.
2) I own and operate a company – TYGES International at 5425 Discovery Park Blvd
3) I own part of an office building and rent to Ryan Homes / NVR – 5400 Discovery Park Blvd
4) I've bought & sold two other spots in NT.

We have been residents since 1999 of the Williamsburg are and are raising our 2 children here.

While I understand that the county needs tax revenue, instead of taking more of the beauty away from Williamsburg, VA, shouldn't we be looking at redevelopment opportunities or better yet looking for ways to redevelop some underperforming areas (i.e. main street of New Town). New Town has done very well with the exception of main street. Instead of tearing up another 100 acres of nature, why not do something different? The compounding effect of this is beyond what any of us can comprehend – traffic, owls and many other animals that reside in the woods will be disturbed and displaced, etc.

Over the past twenty years, I've watched JCC/Williamsburg grow up, but at some point, it will begin to lose its charm and its appeal. Clearly it is on that fringe now with all the new buildings going up (residential & commercial) while there is idle buildings in NT, along Richmond Road, etc. If you look at the macro economy, major changes have and will continue to occur with retail as consumers/businesses buy more of their products online. With this, we will see stores shrink in footprint or close altogether. And yes the housing market is hot now, but what's going to happen when there's another bust which will happen in the next 2-3 years. Developers and builders will come to a halt, and buyers will stop buying. Think Liberty Ridge – how long did that stay empty out there? Do we really need another 85 acres chopped up for houses or do we need to do something with what we already have? Look at the long term economics – Williamsburg is not going to continue to grow (hockey stick effect) – it will take a hit at some point.

The Planning Commission needs to take a stance at some point and protect this community and ensure that the history is protected for the generations to come (both locals & tourists). Focus on redevelopment.

Sincerely

Tim Saumier
President / Founder
T: (757) 208-7037 W: www.tyges.com

TYGES

We're here to make good things happen for other people

Thomas Wysong

From: Paxton Condon
Sent: Monday, June 21, 2021 8:13 AM
To: Thomas Wysong
Subject: FW: [External] Land Use Redesignation LU-20-0002

From: Tim Wilde <tim@krellis.org>
Sent: Sunday, June 20, 2021 11:24 AM
To: Planning <planning@jamescitycountyva.gov>
Subject: [External] Land Use Redesignation LU-20-0002

Good morning,

As an owner of property in New Town (4310 Candace Lane), along the access route to the proposed parcel C-1 in the LU-20-0002 land use redesignation application, I would like to request that the board consider requiring the developer to choose a safer and less invasive option for access to this parcel.

On the maps submitted by ABVA there is also a projected entry point into the proposed area which is outside of New Town/Charlotte Park. An extension of (or a new road) off the north end of Discovery Park Boulevard is shown. It includes the construction of a bridge that is currently labeled "possible vehicle access" to access the proposed location of the new single-family homes from the Discovery Park entry point. If the "possible" bridge is built initially, all traffic could continue down Discovery Park Blvd (47' wide) and into the proposed development. This will stop construction traffic and other future vehicular traffic from using the 28' residential roads that impact Federal Townhomes, Roper Park, Charlotte Park, and other townhomes that front on Casey Blvd. This is a more expensive solution for the developer but is a much safer and less invasive option for all residents.

Thank you for your consideration in this matter.

Regards,
Tim Wilde

Thomas Wysong

From: Paxton Condon
Sent: Monday, June 21, 2021 2:51 PM
To: Thomas Wysong
Subject: FW: [External] Comment Form for Draft James City County Comprehensive Plan - Mary and Richard Cheston

From: atmcheston@aol.com <notifications@cognitoforms.com>
Sent: Monday, June 21, 2021 2:47 PM
To: Planning <planning@jamescitycountyva.gov>
Subject: [External] Comment Form for Draft James City County Comprehensive Plan - Mary and Richard Cheston

James City County, Virginia

Comment Form for Draft James City County Comprehensive Plan

Entry Details

NAME	Mary and Richard Cheston
EMAIL	atmcheston@aol.com
PHONE	(757) 707-3185
SELECT THE CHAPTER(S) FOR COMMENT	Land Use & Future Land Use Map
COMMENTS ON CHAPTER 6: LAND USE AND FUTURE LAND USE MAP	We oppose the redesignation of parcel LU-20-0002 proposed as “Mixed Use – New Town” in this draft plan. After enduring 15 years of construction, New Town’s vision is nearly realized. That vision is repeatedly violated by this proposal which was not created in alliance with the NTRA community and should be

withdrawn or redefined.

We are providing detailed comments via separate email with our full rationale - including the 4 strategies in this chapter of the plan that are contradicted by this proposed change. The draft Master Plan for 2045 encompasses many competing needs including developments that "maintain or enhance community character." The plan's community engagement process revealed that citizens are keenly interested in protecting the natural environment. Neither of these goals are met by accepting a land use designation that could bring 230 housing units into the area next to New Town.

We therefore ask the Planning Commission to either 1) remove these Eastern State Hospital proposals from the plan; or 2) change the land use redesignation of LU-20-0002 proposed as "Mixed Use – New Town". Instead, Application LU-20-0002 should be retitled as "Mixed Use-Eastern State" as is shown for LU-20-0003.

June 21,2021

Planning Division - James City County
101 Mounts Bay Road
Williamsburg, VA 23185

Subject: Comments on Land Use Proposal LU-20-0002 in Draft Comprehensive Plan - *Our County, Our Shared Future*

We oppose the redesignation of parcel LU-20-0002 proposed as "Mixed Use – New Town" in this draft plan. After enduring 15 years of construction, New Town's vision is nearly realized. That vision is repeatedly violated by this proposal which was not created in alliance with the NTRA community and should be withdrawn or redefined.

History

New Town, Williamsburg is the fulfillment of the vision of the Casey Family and James City County to build "a new town center" for the area. It was among the first Mixed Use communities in the County, serving as a model for others. Upon full buildout we will be about 580 homes. Current construction of 50 remaining homes (in Shirley Park) will complete the vision approved in 1995 for a kind of new urbanism – a community that responds to its surrounding natural and cultural environment.

Why are we so concerned with this draft Master Plan? The New Town Residential Association (NTRA) has already borne the unplanned impact of absorbing 96 homes originally approved by James City County as a separate community (Section IX of New Town, now called Village Walk.) This addition was done in 2011 with no resident input because our community was under Developer control (in response to the foreclosure of the original Settlers Market developer (AGM)). The difference today is that as of 2020 the NTRA is now under homeowner control. The developer can no longer legally determine what additional areas may or may not be added to New Town.

Flaws in the JCC Process

I serve as a Director on the NTRA Board of Directors and spotted a tiny line item in the County's public hearing notice published in the Virginia Gazette on Saturday, June 12. That is how our Association first learned of developers' intent to stretch New Town beyond its previously approved boundaries. Even though ABVA Development's application (LU 20-0002) seeks to subject any new homes to our covenants and homeowner's association, their concept was never presented to or coordinated with our community. <u>ABVA's application has no official connection to the NTRA and is misleading</u>.

Our first Board briefing on the plan was on June 16th. During that discussion, several new points came to light:

- Parcel C-2 is a request for Residential, not Mixed-Use, rezoning. However, it has been lumped together with a Mixed Use parcel, C-1. The JCC plan description should be relabeled to show both uses, or the parcels separated. Alternatively, both parcels could be redesignated as Residential in light of the likely negative financial impact to New Town if competing commercial activity is approved on Eastern State Hospital's property.
- The State of Virginia required ABVA to sign nondisclosure agreements. Therefore, there had been no sharing of the details of this proposal with any affected parties, including adjoining property owners. Information has been intentionally withheld from our community about the Eastern State proposals.
- ABVA advised us that the State has preferential access to the cut-through lot for Olive Drive's extension. Upon investigation, there is no evidence of any State government easements or rights of way on James City County's recorded plats. When applicant information is being withheld from the affected community and unconfirmed statements are being made, who are we to believe?

- There are other options for connectivity to these parcels via Tewning Road or a northern route – via Eastern State Parcels A or B. It is not necessary to go through Charlotte Park. Because other routes were deemed expensive or difficult, they were not seriously pursued. The ABVA proposal is clearly driven by profit-maximization at the cost of our neighboring community who were not consulted in the process.

Lack of Public Support

In the 10 days since receiving the newspaper notice of your hearing, I have researched the Plan's development. JCC's own documents show limited public support for both of the Eastern State Hospital proposals. Members of the public who participated in Round 3 of the Engage 2045 Public Engagement process (winter 2021) responded to a survey where 27 land use proposals were presented. The questionnaire asked: "Do you think this application is in keeping with your vision for the County?" For the LU 20-0002 Eastern State proposal, only 45% said "yes" to this question, of the 73 James City County survey respondents. For the LU 20-0003 Eastern State proposal, even fewer responded positively, at 37 percent.

Attached to this letter are the actual comments submitted by these responders. You will see common concerns about overgrowth, reducing green space, and environmental impacts. I will highlight just one comment from someone who answered "maybe" to the LU 20-0002 proposal.

> *"Traffic congestion in the area and the large number of commercial businesses that have left New Town and created long-term vacancies suggests more consideration be given to the scope of expansion in this area."*

If the public and residents of New Town do not support these proposals, why are they being considered by the Planning Commission? Moreover, if the land use proposals were shared in a James City County forum, why were they not provided to the NTRA Board of Directors?

Proposed Change Conflicts with Master Plan's Strategies

We find that the designation of "Mixed Use – New Town" for Parcel LU20-0002 conflicts with the following four Plan strategies:

- *LU 1 - Promote the use of land in a manner harmonious with other land uses and the environment.*

The plan states that a goal is to create more mixed-use "complete communities" that include "connected open spaces and natural areas." New Town is already a complete community. Forcing new connections through New Town to create more development is contrary to the plan's harmony strategy.

- *LU 2 - Promote pedestrian, bicycle, and automotive linkages between adjacent land uses where practical.*

New Town has a complete system of trails but fully connecting them was not supported by its developer in the past (See Z-0004-20016/MP-0001-2016 New Town Proffer Master Plan Amendment). We cannot expect that walking trails will be a priority with this addition. A cut-through road will also disrupt our trail loop.

The automobile access proposed via an extension of Olive Drive has already been questioned by VDOT and the Stormwater Protection Office as not supportable without reinforcement of our roads. The County's own Mixed Use Development Standards (LU-48) state that Mixed Use developments must have "high capacity road access." These streets are narrow and not designed for heavy vehicles. This route is not a practical automotive linkage.

- *LU 4 - Direct growth into designated growth areas in an efficient and low-impact manner.*

The proposal is not low-impact: adding up to 230 housing units as outlined by ABVA would destroy the "vibrant urban/small town environment" of New Town. Among the consequential impacts already identified are:

- Negative impact on infrastructure – our residential roads (Olive Drive and Rollison Drive) cannot support traffic especially during the construction period. Continued cut-through traffic will change the dynamic of the Charlotte Park neighborhood.
- Stormwater management will be and is already a problem within our current system designed by ABVA and its affiliates.
- Adding retail opportunities will directly compete with the abundant available retail space in New Town that is vacant.

- *LU 6 - Enhance and preserve the agricultural and forestal economy and retain the character of Rural Lands and the predominantly wooded, natural, and small-town character of the County.*

The proposed Land Use redesignation will reduce the natural environment which has served as a buffer around New Town including protective areas for the whorled begonia species and wildlife habitat. It would redefine and expand what is already a complete community with connected open spaces and natural areas. This expansion will not enhance the community character of New Town; rather, it would detract from its small-town success.

Conclusion

We are realists – when the State of Virginia wants something, there is little hope that citizens will prevail. But burying a change of this magnitude in a Comprehensive Master Plan is not the correct approach. There should be dialogue between the State and affected parties before any proposal is aired publicly.

We therefore ask the Planning Commission to either 1) remove these proposals from the plan; or 2) change the land use redesignation of LU-20-0002 proposed as "Mixed Use – New Town". Instead, Application LU-20-0002 should be retitled as "Mixed Use-Eastern State" as is shown for LU-20-0003. Then, Developers of the Eastern Hospital property should build their own complete community, with full public consultation and proper consideration for road entry and recreational spaces. A new, complete community, named "Discovery Park" (or even "State Town" or "Eastern Estates" in honor of the site's past ownership history), properly vetted, would receive more support but this proposal, withheld from the NTRA, is not creating that community.

This redesignation must be changed now since once it is approved, the land use map and plan are "intended to be relatively rigid guidelines for development over the next five years." (Engage 2045, page LU-28).

Application LU-20-0002 should not be a candidate for absorption into New Town. The last section of New Town is already being built. The Plan's proposed change will not "Achieve a pattern of land use and development that *reinforces and improves the quality of life* for the citizens" of New Town. (*Our County, Our Shared Future,* Land Use Chapter 10 goal.)

Sincerely,

Mary Cheston

Mary (and Richard) Cheston
5178 Rollison Drive
Williamsburg, VA 23188

cc: Jim Icenhour, Jamestown District Supervisor

Attachment: Excerpts from ENGAGE 2045, ROUND 3 PUBLIC INPUT SUMMARY

.

Attachment

EXCERPTS FROM ENGAGE 2045, ROUND 3 PUBLIC INPUT SUMMARY

	LU-20-0002: Eastern State- New Town Addition From Federal, State and County Land to Mixed Use Y = 32 (44%); N = 35 (48%); M = 4 (8%)
Support	**Comments**
Yes	Excellent location and opportunity for further development/redevelopment
Yes	Gives JCC a good location to focus growth within the PSA
Yes	Inside PSA. Not pristine or valuable ecological value
Yes	Mixed Use makes good sense across from JCC recreation center and located on Longhill corridor.
Yes	This application makes sense to me. It is on a higher density corridor, near the current NewTown. It has easy access to the rest of the county through 199-Longhill Road.
Yes	This is a logical extension of New Town into an area that is otherwise landlocked. 190,000 sf of commercial development seems a bit high.
Yes	This parcel is appropriate for development due to its proximity to transportation networks and utilities.
Yes	This property has tremendous potential for community betterment
No	a pretty area to keep green
No	Enough housing and commercial. Stop the overgrowth
No	How will this improve community life? Do we need more stores in such close proximity?
No	I am very concerned about adding still more mixed use land in this area, which already has too much mixed use development and is suffering from serious traffic problems. I question whether the demand is there in the long term for this kind of development
No	I definitely cannot support a further expansion of New Town. It's entirely too congested around that area now.
No	I would appreciate more affordable housing. However, in destroying green space to do it it also goes against my desire for a more environmentally friendly community.
No	Keep as greenspace.
No	Maintain as open or recreational area
No	Make it park land. Create more recreational trails and park land.
No	No more commercial space in this area! I would like to preserve the green space on 199. We already have so many issues with deer on the highway.
No	Overpopulation and loss of a green belt off route 199 would destroy the small town and historical feel of the greater James City County/Williamsburg area. Bot this location and eastern state being used for mixed residential/commercial should be limited.
No	Please retain as current land designation
No	should be kept open for nature and environment
No	Stay as public lands
No	There is a significant number of under utilized developments that can meet future demands

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	LU-20-0002: Eastern State- New Town Addition From Federal, State and County Land to Mixed Use Y = 32 (44%); N = 35 (48%); M = 4 (8%)
Support	**Comments**
No	This area is already crowded and developed. If anything, add new recreation space here.
No	This has always been a county gem, I should be a green space to enhance the development all around it
No	This is a lot of land having the potential for too large of a development. We already have too much growth in JCC & it will be too much for what's already nearby in Newtown.
No	This risks squeezing Eastern State and hampers their ability to grow along with the population of Virginia.
No	This seems to add beyond what the current land can handle in terms of stormwater run off - an issue that already significantly impact residents in these areas... It does not seem that there is a place for additional runoff and related sewage/water-use
No	We absolutely do not need any more commercial space in this area. New Town is already half empty. This would also increase traffic on that road which isn't ideal.
No	We could use more public, county resources and not more commercial space. new town has so many empty stores.
No	We do not need additional mixed use if that includes retail big box stores, convenience stores, or like Mainstreet Newtown or Settlers Market. The current commercial spaces are mostly empty and have yet to be reimagined.
Maybe	Affordable supported permanent housing for behavioral health clients
Maybe	The roads and traffic would be my first worry - in changing from a rather low traffic to potentially high traffic - the current road system surrounding the Eastern State property is awkward at best, debilitating if there is an emergency (rescue/evacuation
Maybe	Traffic congestion in the area and the large number of commercial businesses that have left New Town and created long-term vacancies suggests more consideration be given to the scope of expansion in this area.
Maybe	What are they going to build?

	LU-20-0003: Eastern State- Mixed Use Community From Federal, State and County Land to Mixed Use Y = 23 (37%); N = 35 (56%); M = 5 (8%)
Support	**Comments**
Yes	Excellent opportunity for development/redevelopment
Yes	I believe this property has tremendous utility for community services such as parks and recs
Yes	Inside PSA; would want assurances for protection of the water body shown if it is not a B MP.
Yes	This makes sense for this area.

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	LU-20-0003: Eastern State- Mixed Use Community From Federal, State and County Land to Mixed Use Y = 23 (37%); N = 35 (56%); M = 5 (8%)
Support	**Comments**
Yes	this would be a wonderful park and outdoor recreation area
No	Access to this land is limited, without harsh impact on surrounding neighborhoods and traffic on Longhill Rd. We need the trees, and the natural habitats for wildlife.
No	Access to this parcel is problematic and it also contains wetlands. It should be left undeveloped.
No	Do not over develop the area. Keep as is. People come to the area for limited population and limited traffic, etc. Don't ruin this!
No	Get it right... Overpopulation and more NEWTOWN means empty retail space and crowded/over packed residential space. Who wants to have blocks of cookie cutter condos/townhomes with empty retail? This area should be reserved and amended as green space.
No	Keep as greenspace.
No	Maintain a large undeveloped area along Humelsine Pkwy
No	Mixed use in that area seems strange and I would like to preserve the green space on 199. We already have so many issues with deer on the highway.
No	Mixed use that includes retail is not appropriate for this setting. We already have Mainstreet and Settlers Market which are underutilized. "Luxury" Townhouses with green space would be more preferable similar to New Town's SF and TH developments nearby.
No	Rte 199 is not able to handle the increase traffic requirements.
No	should be kept open for nature and environment
No	Stay as public lands
No	The scope of this development is too large for the vehicle access points to accommodate successfully, and the sewer/water needs of this development will have an impact on existing resources.
No	This area is already crowded and overdeveloped
No	This is a lot of land having the potential for too large of a development. We already have too much growth in JCC & it will be too much for what's already nearby in Newtown.
No	This parcel should be kept as undeveloped buffer along Rt. 199
No	This random wedge on the other side of 199 does not make sense to try to develop similarly or as part of New Town, and again, too much congestion around there already.
No	This would add significant density to an area already seemingly 'overflowing' - particularly related to stormwater runoff and related sewage/water usage without adequate resources to absorb such impacts
No	Too close to existing neighborhood. Limited space to put mixed use into. Disruption to natural wildlife areas.

6

Thomas Wysong

From: Paxton Condon
Sent: Monday, June 21, 2021 8:13 AM
To: Thomas Wysong
Subject: FW: [External] Land Use Redesignation LU-20-0002

From: Jim Ducibella <jducibel@gmail.com>
Sent: Sunday, June 20, 2021 10:59 AM
To: Planning <planning@jamescitycountyva.gov>
Subject: [External] Land Use Redesignation LU-20-0002

My name is Jim Ducibella. My wife and I are residents of Charlotte Park, 4400 Julies Way, where that alley intersects with Rollison Drive. We have lived here for approximately 11 years, and consider ourselves "plank holders" of a sort because when we built, the entire area had just 4 homes. None of the larger homes running down Rollison even existed.

It has come to our attention that you are faced with a decision regarding the possibility of the expansion of New Town into the surplus Eastern State land. The sale of the land is dependent on James City County changing the Land Use designation from Public Land to Mixed Use.

We, and many others in this community, are dead set against this proposal for a few of the following reasons:

1. The expansion of New Town was **not** part of the Master Plan that was in effect when our homes were built. This is calling for a new inclusion to the County Comprehensive Plan revision although at no time were the various neighborhoods or the Board of Directors of New Town Residential Association asked for input or suggestions.

2. According to the proposal submitted, construction vehicles will either access Olive Dr. from Rollison Dr. off Casey Blvd or by Center Street down to Olive Drive (two sharp turns past the pool and playground). The Olive Dr. access to the new development would pose a potential risk of injury to users of the pool and children's playground. Tight corners at Center/Elizabeth Davis and Olive, narrow 28' roads, and street parking, combined with increased car traffic and large construction vehicles is a dangerous mix.

3. The length of time of construction and its effect on Charlotte Park will be significant. Charlotte Park had ongoing construction for 83 homes for about 6+ years. Shirley Park isn't finished after 3+ years. Roper Park, just completed, took at least 5+ years. There will be construction vehicles in our neighborhood for a long time if Olive is the entry

way. Over time new resident traffic will also impact traffic on Rollison, Olive, Center and to some extent Elizabeth Davis.

4. Amenities that we have will be used by more households if the development is approved as part of New Town. Total proposed additional housing units is 235. More people will use the pool, playground, and trails. Access through Olive Dr will also affect our trail system and the abundant green space that currently serves as a buffer between New Town and Eastern State Hospital. The trail adjacent to Rollison Dr. will change if a through road is built. Required modifications and future use of that trail is unclear at this time. On the maps submitted by ABVA there is also a projected entry point into the proposed area which is outside of New Town/Charlotte Park. An extension of (or a new road) off the north end of Discovery Park Boulevard is shown. Frankly, we're not crazy about any aspect of this -- especially the total lack of consideration shown to current residents.

Speaking only for one resident of Charlotte Park, people have spent hundreds of thousands of dollars building these homes, paid thousands more in taxes to the County, never with a hint that there might be a "thoroughfare for construction" running through the neighborhood for years on end. It's time for you to do the right thing and stand up for those of us who clearly don't matter to these developers.

Sincerely,

Jim & Sue Ducibella

Thomas Wysong

From: Katie Pelletier
Sent: Monday, June 21, 2021 5:44 PM
To: Thomas Wysong
Subject: FW: Eastern State Hospital Land

From: Terry <tjhancock1@cox.net>
Sent: Monday, June 21, 2021 5:26 PM
To: Planning <planning@jamescitycountyva.gov>
Cc: Terry <tjhancock1@cox.net>
Subject: [External] Eastern State Hospital Land

Dear Members of the James City County Planning Commission:

I'm writing to express my grave concern for LU-20-0002. None of us residing in New Town had any idea that property behind us, that was never a part of the original New Town Master Plan, might annexed one day. I assure you Olive Drive and Rollison Drive will not be able to properly and safely support the extra flow of traffic that 80+ acres and 80+ new homes sites would bring.

I would encourage each of you to walk the subject property to fully appreciate what a gem it is. Clear cutting it would be a crime but that is what the developers of New Town have historically done. The idea seems to be to get as many houses on as much of the land as possible. This parcel would be better served by having large lots (1-2 acres), and no more than 35-40 homes. This area would also need their own pool, playground etc., as the one pool and playground New Town has will not support any new sections properly. This parcel should be a stand-alone development with no connections to New Town and access via Discovery Blvd. only.

I'm not suggesting that this parcel should not be developed just that it be done so correctly. However what I see currently suggests otherwise. Please consider walking this property to appreciate the true potential it has to enhance James City County. I'm sure a number of us that live here would be happy to join you in such an endeavor.

Respectfully,

Terry Hancock
5194 Rollison Drive
Williamsburg, VA 23188
757-645-4450 Home 240-447-9955 Cell

LU-20-0002

Members of the Planning Committee

Thank you in advance for listening to our concerns relating to the Eastern States development.

Per JCC website, "*ABVA has put forth a plan which includes a request to re-designate 81 acres of Eastern State Hospital land as "Mixed Use-New Town" to add to New Town in the future. A Land Use application request from ABVA Development would include the development of both detached and multiunit homes on this site with access through Discovery Park Boulevard and an extension of Olive Drive*."

This is a large scale development that greatly exceeds the scope of the current New Town Master Plan. The increase in traffic would not be trivial considering 85 single family homes, 100 single attached or 150 multi-family dwellings, and 190,000 Sq Feet of commercial space. Our expectation as Charlotte Park residents was that the completion of Shirley Park marked the completion of New Town. Now we're bracing for a significant new development that would negatively impact our quality of life, safety, and property investment.

The ABVA proposal lists Olive Drive as an entrance to Parcel C-1 and possibly C-2. This would affect Olive Dr, Center St, and Rollison Dr, which are narrow roads (approx. 28 feet wide with parallel parking on both sides). Additionally, there is little buffer between many houses and these roads so it's a bit "more in your face". The original street layout does not appear to have taken into account the resulting additional traffic and is perhaps ill-suited.

New Town is known as a "walking community" with residents of all ages walking their dogs, walking for exercise, cycling, and jogging. So, pedestrian safety is a concern, particularly on the corner of Olive Dr and Center St where the community pool and playground are located. The intersection is a pinch point where vehicular and pedestrian conflicts are already worrisome. The situation becomes exacerbated during the summer season as many families walk or drive to the pool and playground area. Although increased residential traffic is troublesome, construction traffic poses a major risk to pedestrians. And, construction traffic is not a short term event, but would be ongoing for a number years.

Shown below is the intersection of Olive Dr and Center St. with the community pool and playground in the background (6/15/2021). The adult and child standing by the white SUV along with parked cars exemplifies the safety concern.

The ABVA proposal also lists a Discovery Park Boulevard as an entrance to Parcel C. This is a much wider road than Olive or Rollison, making a better candidate for increased traffic and construction vehicles. However, Discovery would also be impacted by traffic as vehicles cue up at the Iron Bound stop light or travel along Casey Blvd and other New Town roads.

Perhaps a comprehensive development plan should be considered for Eastern States. A plan that would include connectors to DePue Dr, Longhill Rd and Rt 199. This would result in more optimal traffic flow as New Town could access Rt 199 via Monticello and Eastern States would have a conduit to Rt 199 via Longhill Rd.

This scenario is certainly challenging and costly as it requires a bridge and connectors to existing Eastern State roads. However, the end result would be more optimal traffic flow.

Perhaps another possibility is a connector from Parcel C to Tewning Rd, leading to Iron Bound Rd.

Thank you for listening and we trust that the County will be a good steward regarding economic growth, and the health and quality of life of its New Town residents.

Sincerely,

Jean-Marc (John) and Helen Kirouac
4914 Lucretia Way
Charlotte Park
(757) 876 6331

LU-20-0002

To: James City County Supervisors
Re: Proposed "Additions to New Town"

June 21, 2021

I moved into Charlotte Park in late December 2011. My house was the second one built on Elizabeth Davis Blvd. I moved to New Town because of the lovely Charlotte Park houses and the ability to walk to stores and restaurants. I hoped for a peaceful, quiet, small neighborhood.

For the first five years or so the continued building of Charlotte Park meant heavy trucks and construction vehicles routinely passed my house. Construction noise and dust and dirt permeated the air. I understood and accepted this because I knew these were required to build out Charlotte Park. I do not look forward to experiencing this again.

I have loved living in Charlotte Park. Even during the pandemic restrictions neighbors could talk to each other from porch to porch. My neighbors and I are committed to the governance of our New Town community and are active in the greater community of James City County. We also vote.

I find the ABVA idea to build a new, unplanned section dismaying. I envisage my quiet community transformed into a building site with machinery and supply trucks chugging through the neighborhood, spewing the dust, dirt, and noise involved in building.

The ABVA plan has presented a plan which would greatly increase the responsibilities of the NTRA without seeking an opinion from the Association. The NTRA is a volunteer association, still coping with updating the paper work prompted by the change of ownership.

There are no indications on the Master Plan that there would be further building in New Town.

ABVA suggests that this new development would "direct growth into designated growth areas in an efficient and low-impact manner." But using Olive Drive and Rollison Drive not only for large construction vehicles, but also for vehicle access for an additional 200 or more homes and businesses would have a lasting effect on this quiet community.

Glen Brooks, VDOT Area Land Use Engineer, points this out in his letter of 30 June 2020: "In the case of Olive Drive and Rollison Drive, a large increase in traffic through narrow residential streets with on-street parking may be problematic."

Geddy, Harris, Franck & Hickman, in their 14 July 2020 letter, also report that the design of Olive and Rollison Drives "may not support the traffic flows generated by an additional development of this size. The report also states that "this parcel was not included in the current New Town stormwater management master plan".

This new project was never planned to be part of New Town. I urge you all to reject this plan which would have a deeply negative impact on living conditions throughout Charlotte Park and entail changes to roadways and stormwater systems.

Sincerely,

Susan Mulnix
4304 Elizabeth Davis Blvd

Thomas Wysong

From: Paxton Condon
Sent: Monday, June 21, 2021 9:29 AM
To: Thomas Wysong
Subject: FW: [External] Land Use Redesignation LU-20-0002

From: Marissa Singletary <family4uall@gmail.com>
Sent: Monday, June 21, 2021 9:15 AM
To: Planning <planning@jamescitycountyva.gov>
Subject: [External] Land Use Redesignation LU-20-0002

Good Morning,

Hope this email finds you well!
In reference to the above land use proposal. I believe it is in the best interest of all New Town residents that the developers use Discovery Blvd. to enter the new homesites not Center Street nor Rollison Drive to develop the new area. Please take the residents wishes and concerns into consideration when making your decision on the future and direction of this new development.

Best Regards,
Marissa Singletary
Federal Townes

Thomas Wysong

From: Paxton Condon
Sent: Tuesday, June 22, 2021 8:03 AM
To: Thomas Wysong
Subject: FW: [External] Comments Re: Proposed Expansion of New Town Through Eastern State Parcel Application LU-20-0002

From: Alison Gareffa <akgareffa@gmail.com>
Sent: Tuesday, June 22, 2021 1:53 AM
To: Planning <planning@jamescitycountyva.gov>
Subject: [External] Comments Re: Proposed Expansion of New Town Through Eastern State Parcel Application LU-20-0002

Dear James City County Planning Commission,

I am writing to you as a homeowner in Charlotte Park to share my concerns over the purchase by ABVA of approximately 85 acres of land owned by Eastern State. The proposed master plan has significant flaws which should be carefully considered by the James City County Planning Commission. Although I cannot attend the meeting in-person, I fully support those residents from our neighborhood who will be present to share their opposition to the current proposal and who come to offer some alternatives.

As homeowners in Charlotte Park for the last five years, my husband and I have been quite concerned with the amount of traffic that comes through Center Street to Elizabeth Davis and Olive Drive. The roads are narrow given the volume of traffic, the cars parked on those roads (often on both sides of the street by the pool), and the activity related to the pool and playground areas. In addition, the way in which these streets are configured, with a hard left turn around the pool and then a sharp right turn onto Olive, cars often swing wide (into the oncoming traffic lane on Olive) to navigate the turn. Quite often, drivers do not stop at the stop sign before turning right onto Olive and people are often walking, riding bikes, or scooters in the streets in these areas which makes it even more hazardous. Today, the volume of traffic is much less than it will be if the Planning Commission approves the master plan as-is (which would route traffic down Olive and into the new section of Eastern State land). As the original master plan did NOT include this expansion, it also did not account for the volume of traffic that would result. It is not a practical, feasible or safe option to route traffic into the new residential section of Eastern State via Olive Drive. VDOT has also shared similar concerns in their letter of June 2020. There is liability associated with the amount of traffic given the way these streets are configured, the designated pool and park areas, as well as the increased volume.

There are other concerns about the proposed plan and the fact that the original master plan did not take this new land purchase into account. The New Town Residents' Association just recently took over from the developer and is struggling with the number of homes and residents who are part of the current Association. To add 235 additional units to that mix seems an undue burden, especially given that the turnover has already taken place or is in process. While ABVA's new land purchase may be connected to New Town, serious consideration should be given to annexing it to the existing New Town Residents' Association. The existing pool and playground were built for the current master plan; adding 235 units to these amenities was never part of the design and will make the already small pool and playground areas infinitely more crowded.

While it would be convenient for ABVA to tag onto its existing master plan, the proposal being submitted to the James City County Planning Commission is truly a new, standalone master plan for a separate development. Growth and development are not a bad thing if done with intentionality and with thoughtful consideration given to the amount of development being proposed.

The better alternative would be to create a different entry point to this new development (LU-20-0002) off of the North end of Discovery Park Boulevard, as shown in the maps submitted by ABVA. This would solve the VDOT and residents' concerns about traffic flow on Center Street/Elizabeth Davis and Olive Drive. An equally important discussion point should be for ABVA to create a separate and distinct development with its own association, amenities (green space, playgrounds, etc.). If we follow the current logic and ABVA's current plan is approved, it would mean that they could continue to develop under the "New Town" umbrella and annex this and any future new developments onto the New Town Residents' Association and amenities. It is simply wrong. It is not in the spirit of smart development.

Please also consider that the existing green space around New Town (some of which is currently owned by ABVA) is an important component of the community plan and should not be compromised for the sake of expansion. New Town was advertised as a place where people could live, work, play, etc. Part of the appeal is the natural surroundings and if further expansion means reducing what is currently available to residents, then this is something that the James City County Planning Commission should also factor in to the overall implications of how ABVA wishes to grow, expand and profit.

I ask that the James City County Planning Commission carefully consider the real-world impact of these proposals. There are ways that James City County can continue to grow in the spirit of good growth, intentional expansion, planned and done in such a way that the developer benefits, the area flourishes for both residents and businesses, and the current plan is also honored.

Thank you for your time and consideration.

Alison Gareffa (Anthony Gareffa)
4906 Lucretia Way
Williamsburg, VA 23188

Thomas Wysong

From: Paxton Condon
Sent: Tuesday, June 22, 2021 3:27 PM
To: Thomas Wysong
Subject: FW: [External] Comments on Land Use Application LU 20-002 - 6/24/2021 Meeting of Planning Commission

From: Jeff Kuperstock <kuperstockj@gmail.com>
Sent: Tuesday, June 22, 2021 3:23 PM
To: Planning <planning@jamescitycountyva.gov>
Subject: [External] Comments on Land Use Application LU 20-002 - 6/24/2021 Meeting of Planning Commission

To the Members of the Planning Commission:

1. Subject of this Writing. I am writing in regards to Application LU 20-002 (the "Application") of ABVA Development, LP (the "Applicant") with respect to Parcels C-1 and C-2 of the Eastern State Hospital property.

2. Purpose of this Writing. I oppose the aforesaid Application as to its requested rezoning of Parcel C-1. In particular, I oppose the Application's requiring an access road into Parcel C-1 via an extension of Olive Drive located in New Town. Accordingly, I oppose the incorporation of the rezoning and development of Parcel C-1, as set forth in the Application, into the draft Comprehensive Plan and the Future Land Use Map.

3. Reasoning for Opposition to Application. While the draft Comprehensive Plan and Future Land Use Map, both of which (I understand) currently include the Application as an element, are not legislative/zoning actions, they are nonetheless significant actions that carry great weight and will pave the way for the legislative/zoning actions required by the Application. Consequently, the approval of the Application, as reflected in the Comprehensive Plan and Future Land Use Map, is not a "placeholder" or a mere "guideline," but rather an action that will likely seal the downgrading of a significant neighborhood in New Town. Moreover, the gravitas given to this process by the presence of the Commonwealth of Virginia, as the owner of Parcel C-1 and co-applicant, greatly increases my concerns.

My opposition to the Application is based on the harm that it would do to my residential neighborhood in New Town, known as Charlotte Park (the "Charlotte Park Neighborhood"). I am a homeowner on Ercil Way, which is a private road in New Town owned by the New Town Residential Association that connects Olive Drive and Rollison Drive. Both Olive Drive and Rollison Drive are in the Charlotte Park Neighborhood. The request in the aforesaid Application to extend Olive Drive into Parcel C-1 to serve as the sole means of entering and exiting that landlocked parcel would have serious negative consequences for the Charlotte Park Neighborhood. I outline those negative consequences below in paragraphs 5 through 10. These negative consequences are not addressed by the Applicant in its Application.

I would briefly note that those negative consequences are plainly observable if the geography were visited either by staff or members of the Planning Commission. One does not need a study to see just how impractical the proposed extension of Olive Drive is. I will elaborate below.

4. Parcel C-1 Not Eligible to join NTRA. I would also note that the Applicant's assertion in its Application that the single home residential area of Parcel C-1 would become part of the New Town Residential Association ("NTRA") is misplaced and that assertion should not, in any case, justify the damage that would be done to the Charlotte Park Neighborhood by the plans of the Applicant. It is my understanding that the public (recorded) governing documents of the NTRA do not

provide for its extension into "Eastern State Hospital" property. See Section 2.2 and Exhibit B of Instrument No. 050014430 and Section 2.8 of Instrument No. 200015447. To add single-home lots in Parcel C-1 to the NTRA would require an amendment to its governing documents and the concomitant 2/3's vote of its members as well as affirmative action by its Board of Directors, which is no longer controlled by the developer. A strong negative vote by residents of the Charlotte Park Neighborhood (the largest neighborhood in the NTRA) would virtually assure the defeat of any such proposal.

5. Overview of Olive Drive. Olive Drive is a 50' public right of way (see Plat recorded as Instrument No. 140000709). The paved portion of it is approximately 26'-28'. It is a Type R-C Street under the Design Guidelines for Sections 7 and 8 – Residential of the Planning Department of James City County. Parking is permitted on both sides and there is a green buffer on both sides (other than with respect to the BMP) as well as sidewalks (all of which is common in residential New Town). The southern side of Olive Drive ends at the pool/playground complex (5495 Center Street; Common Area 9 of NTRA) with a left turn onto Center Street. The western side of Olive Drive is dominated by the main BMP for the Charlotte Park Neighborhood which falls sharply away from the right-of-way. As noted by the VDOT letter of June 30, 2020 from Mr. Glenn Brooks and by the JCC General Services letter of July 14, 2020 from Ms. Deidre P. Wells and Mr. Michael D. Woolson, Olive Drive is/may be problematic and is not/may not be appropriate for the sole entrance and exit of Parcel C-1. Although not mentioned in either letter, Olive Drive is particularly not appropriate to support the extensive heavy construction traffic that would be needed to clear, provide infrastructure and build out Parcel C-1, as described in the Application. Interestingly, nobody in the County or the Commonwealth addresses in detail why Olive Drive is/may be problematic and inappropriate in its use as envisioned in the Application or how, as referred to in Ms. Wells/Mr. Woolson's letter, Olive Drive should be "upgraded."

6. The problem with Olive Drive. The reason that Olive Drive is problematic and inappropriate is that it is too narrow. It is only 50' wide of which only 26'-28' is paved. Even the lot at 5214 Rollison Drive (Common Area 6A of the NTRA), which would provide for the extension of Olive Drive through the Charlotte Park Neighborhood into Parcel C-1, is only 50' wide. The "upgrading" of Olive Drive that is referred to in the JCC General Services letter of Ms. Wells/Mr. Woolson would require widening that right-of-way. That widening would convert Olive Drive into either an R-B or R-A Type of Street under the Design Guidelines for Sections 7 and 8 – Residential with rights-of-way between 58'-74'. That could only be done in the current "tight quarters" of Olive Drive by effectively taking private property. In the case of extending Olive Drive across the lot at 5214 Rollison Drive, a widened 5214 Rollison Drive would require the taking of private property on bordering Lots 58 (5210 Rollison Drive) and 59 (5218 Rollison Drive). Depending on the width by which the extended Olive Drive was widened, that taking could include the structures on those Lots. Even if the structures were not taken, the sidewalks would be within 1-3 feet of those structures.

Moreover, Olive Drive would also have to be widened along its entire existing length as part of the aforesaid "upgrading." Since the BMP on the western side of Olive Drive prohibits widening there, all widening would have to occur on the eastern side. That means property would have to be taken as to Lots 65 (5211 Rollison Drive), 106 (4914 Lucretia Way), 89 (4919 Ercil Way), and 88 (5516 Center Street) as well as property from Common Area 8 (Christine Court) and parts of Ercil Way and Lucretia Way. Again, this property taking could well result in the taking of structures.

The above taking of Lots would completely change the structure and complexion of the west/northwest end of the Charlotte Park Neighborhood. I do not believe that the Design Guidelines for Sections 7 and 8 – Residential could be maintained for the affected lots or areas of the Charlotte Park Neighborhood. Moreover, those takings would also be quite expensive since those lots/structures have market values between $500,000-$600,000@.

7. Overview and Problems with Center Street. Because Olive Drive flows into the extension of Center Street (the extension of Center Street is sandwiched by the pool complex and Lots 84 (5516 Center Street) through 88 (5500 Center Street); this portion of extended Center Street is referred to herein as the "Center Street Extension") and because that extension is also only a 50' right of way (a Type R-C street), that extension too must be widened. Of course, this is not addressed by either the Applicant, the VDOT letter or the JCC General Services letter.

Again private property from Lots 84 (5516 Center Street) through 88 (5500 Center Street) and/or from the pool complex would have to be taken. The Center Street Extension has provided for parking for residents of the NTRA to use the pool as well as for residents of Lots 84 through 88. That would have to be discontinued unless the Center Street Extension was very significantly widened. It is likely that the pool complex will be so negatively impacted by the above that it would not be able to continue operations safely. Likewise, accessing the playground by parents with small children would become more difficult and dangerous. Frankly, the pool complex and playground were placed where they are in the Charlotte Park Neighborhood in part because they are removed from traffic and are in a relatively safe place. The pool and playground are requirements of Proffers New Town – Sections 7 & 8 (Instrument No. 070005134) and of Design Guidelines for Sections 7 and 8 – Residential. The effects of the implementation of the Application of the Applicant will essentially override the Proffers and the Design Guidelines. The Charlotte Park Neighborhood will be changed into something very different from what was earlier approved by the Planning Commission and the Board of Supervisors of James City County and upon which more than a hundred-fifty families depended when they purchased their homes in the Charlotte Park Neighborhood.

8. Center Street Intersection by Pool. The Center Street Extension flows into a complex asymmetrical intersection of Center Street, Elizabeth Davis Boulevard and Samantha Lane. This intersection is probably insufficient for either the construction traffic for Parcel C-1 or the increased flow of traffic along Olive Drive based on the Application. Frankly, a busy intersection like that has no comparison in the Charlotte Park Neighborhood nor in residential New Town. It would probably need a traffic light and pedestrian signals to allow safe passage across the intersection. This is anathema to the Charlotte Park Neighborhood.

9. Center Street from Intersection by Pool to Casey Boulevard. Center Street, after the Intersection by the pool and up to Casey Boulevard, is a 58' right of way (a Type R-B street). Parking is allowed on both sides and is readily utilized by the residents thereof. It is unclear how increased traffic from the Application could be handled since Center Street probably already (directly or indirectly) serves 75-125 homes. While parking could be eliminated from one or both sides of Center Street, this would likely be violative of design principles in the Design Guidelines for Sections 7 and 8 – Residential and create serious parking issues for the townhome residents on Center Street. Again, those residents made their purchases (some as recently as this year) based on the availability of street parking allowed by the Design Guidelines.

10. Rollison Drive Overview and Problems. If traffic from Parcel C-1 were directed up/down Rollison Drive, similar problems arise as with Olive Drive. I would note that this is acknowledged in the VDOT letter and the JCC General Services letter, as referred to above. Two-thirds of Rollison Drive is a 50' right-of-way up (Type R-C street) until Elizabeth Davis Boulevard, which, I believe, would be inadequate for the construction as well as residential traffic from Parcel C-1. Arguably, that portion of Rollison would have to be widened and private property taken (including a portion of Ercil Way). Street parking would have to be banned (or allowed assuming an even greater widening of the paved road portion of Rollison). Additionally, the Goddard School is located at the intersection of Rollison Drive and Casey Boulevard. The school has considerable traffic that drops-off and picks-up very small children. The additional traffic on Rollison Drive at the intersection with Casey Boulevard (right at the school) would create safety concerns.

The above taking of Lots along Rollison Drive would completely change the iconic structure and complexion of the drive as contemplated in the Design Guidelines. The elimination or limiting of parking on Rollison Drive would likewise violate the Design Guidelines. Any taking of property on Rollison Drive would also be quite expensive since lots/structures along Rollison Drive have market values between $600,000-$700,000@.

11. Summary. My advocacy for a rejection of the Application as to Parcel C-1 is based on the following: (a) the apparent misstatement by the Applicant in its Application as to the future incorporation of Parcel C-1 lots into the NTRA, (b) small and narrow Olive Drive, which currently serves (directly or indirectly) approximately 40 homes, likely having its traffic doubled or tripled (not to mention heavy construction traffic), and (c) that increased traffic and any resulting "upgrading" to Olive Drive, the Center Street Extension and/or Rollison Drive dramatically changing the fabric of the Charlotte Park Neighborhood. Those changes could include houses being lost, lots being taken, the pool/playground complex being seriously changed or put "out-of-business" and street parking being a "thing-of-the-past."

All of the above is because Parcel C-1 is landlocked and Applicant (including the Commonwealth of Virginia, as owner) is not willing to seek other solutions (e.g., ingress and egress through Eastern State Hospital property).

I urge the Planning Commission (and ultimately the Board of Supervisors) to respect the existing Proffers and Design Guidelines and to ensure that those Proffers and Design Guidelines are not contradicted by the draft Comprehensive Plan and Future Land Use Map. In short, the draft Comprehensive Plan and Future Land Use Map (as to the Eastern State Hospital property) should take pains to preserve the character of the Charlotte Park Neighborhood and not to (intentionally or unintentionally) degrade it.

If the Planning Commission (and the Board of Supervisors) ignores the above and approves the Application as part of the Comprehensive Plan and Future Land Use Map, I do not see how any legislative/zoning process can adequately address the issues that I have raised above without effectively negativing the Comprehensive Plan. We all know that that is not going to happen. Indeed, any legislative/zoning process must re-affirm the Comprehensive Plan. Once that is done, it is but a short jump from upgrading roads to downgrading a neighborhood. Please reject Application LU 20-002 as to Parcel C-1.

Jeffery Kuperstock
4891 Ercil Way

LU-20-0002

Paxton Condon

From: Peter LePage <plepage1128@gmail.com>
Sent: Wednesday, June 23, 2021 2:23 PM
To: Planning
Subject: [External] ABVA Proposed Development-Mixed Use-New Town

As residents of the Charlotte Park community of New Town we wanted to provide our comments with respect to the proposed Mixed Use-New Town Development Project. Please note that we do support ongoing development in the area that is well thought out, respectful of the environment and of its impact on the current residents.

As noted in both the Virginia Commonwealth Dept of Transportation and the James City County General Services comments, the design of Olive and Rollinson would be problematic as they were designed to support the local neighborhood traffic, not the additional traffic generated as access roads to a new development, especially one of the size proposed by ABVA. Not only is the increased traffic a concern but the risk of speeding on these roadways would be heightened given the added traffic. To that end we would submit that Discovery Parkway be the primary access point to the planned development. Discovery Parkway was constructed to manage a higher traffic flow consistent with the needs of the proposed development.

Additionally, if not traveling Rollinson Drive, to access Olive, traffic would need to travel on Center Street from Casey to Elizabeth Davis. This area is already congested as parking is permitted for residents and guests on both sides of the street. This additional traffic will only make the current situation even more difficult to navigate but will create safety concerns as these roads are adjacent to the pool and playground areas where children are present.

Finally, making Olive a through street that links the neighborhoods will create more than incremental residential traffic as it will serve as an alternate route to retail locations off Casey and to downtown New Town. These issues reinforce the need for an alternative access to the planned development area. To that end we would ask that an evaluation be undertaken to determine if access can be provided off Iron Bound Road in addition to the proposed Discovery Blvd. access allowing Olive and Rollinson to remain limited to the existing neighborhood.

The ABVA proposal notes that they would incorporate the Property into the adjacent New Town development and Master Plan and that owners would be members of applicable HOA. While we appreciate ABVA wanting to expand the New Town brand, of great concern is the impact this may have on the existing homeowners' associations. As HOA members, we are not aware of any dialog or discussion with respect to these issues and how it may impact on us. The unknown is always a concern. In addition, we are concerned with the pressure the additional residential units would place on existing amenities. We do not believe that the existing amenities were sized to support an additional 100 single family units and 150 multifamily units. To that end, we would submit that the plan needs to incorporate additional facilities, such as a swimming pool, park, etc. to support this new area without adding burden to the current facilities.

Again, we want to emphasize that we do support smart development and would hope that every effort will be made to understand fully the impact this new project may have on the environment as well as on the existing community. Often the route to meeting these objectives is not the easiest nor is it the lowest cost alternative as appears to have been proposed in the initial work up.

Peter & Maria LePage
4907 Ercil Way
Williamsburg, VA 23188

LU-20-0002

JCC Planning Commission June 23, 2021

101 Mounts Bay, Bldg A

Williamsburg, VA 23185

Enclosed is a letter containing 160 signatures from New Town residents objecting to the redesignation and application of LU 20-0002. These signatures were collected June 21, 2021 and June 22, 2021.

We appreciate your attention and oversight in matters concerning this county.

Many thanks,

Susan Carter

5211 Rollison Dr

Williamsburg, VA 23188

LU-20-0002

James City Planning Commission

101 Mounts Bay, Bldg A

Williamsburg, VA 23185

June 24, 2021

Commissioners,

We have concerns and objections to the Land Use application **LU 20 0002** currently titled as "**Mixed Use – New Town.**" We acknowledge that this meeting is concerned with changes to land use functions and is not offering any resolution or answer to questions beyond the scope of this meeting. Our questions are the result of viewing the supporting documents in the application provided by ABVA.

We question why this application is labeled Mixed Use – "New Town." New Town currently exists in the Master Plan within well-established boundaries. This application appears as an attempt to extend New Town into Eastern State Hospital land. That extension has never been presented to the residents of New Town and reviewed in a public forum with Board of Directors of the New Town Residential Association. This is a significant change that will affect all of New Town. We appreciate that much of that land is attractive for development but why add that descriptive title (New Town) to the application? Is this an attempt to represent that the land use redesignation means that it can only be developed as part of New Town?

ABVA's maps and descriptive comments for this land use application have raised significant questions regarding the future use and safety of existing New Town infrastructure and amenities. These changes will affect our green spaces and trails and most certainly change our small town feel with its wooded areas and trails that were promised to us as benefits of our home purchase.

We object to the expansion of New Town into Eastern State land without public review and commentary. Labeling the application "New Town" and using New Town amenities and infrastructure as a part of the narrative provided by ABVA is premature.

We object to this land use redesignation and application.

The undersigned are residents of New Town

C. BRIAN DONOHUE 5436 CENTER STREET C. Brian D
DANIEL L. DOPP 5182 ROLLISON DR Daniel L. Dopp
Susan L. Barnett 6031 Settlers Market Blvd Susan L Barnett
Ilse Deel 5210 Rollison DR. Ilse S. Deel

Rick Barnett 6031 Settlers Market Rick Barnett
Jeffrey A. Deel 5210 Rollison Dr.
Virginia Stuart Dopp 5182 Rollison Dr V.S. Dopp

Additional signatures on reverse

LU-20-0002

Paula Olander	5328 Beverly Ln	Paula Olander
Dave Holtgrieve	4412 Julies Way	Dave Holtgrieve
Susan Mulnix	4304 Elizabeth Davis Blvd	Susan Mulnix
Rebecca Kinkead	5198 Rollison Drive	Rebecca Kinkead
Tim Kinkead	5198 Rollison Drive	Tim Kinkead
Tim Weidman	4605 Town Creek	Tim Weidman
Ellen Weidman	" "	Ellen Weidman
Lisa Johnson	4890 Lucretia Way	[illegible]
Paulette Holtgrieve	4412 Julies Way	Paulette Holtgrieve
Theresa A Schultz	5207 Rollison Dr.	Theresa A Schultz
VICK LICASTRO	5190 ROLLISON DR	[illegible]
PHIL CASEY	4404 Olive Dr	Phil Casey
Kathryn Casey	4404 Olive Dr	Kathryn Casey
Laura Loda	6023 Settlers Market	[illegible]
Richard Loda	6023 Settlers Market Blvd	Richard T. Loda
William Collier	4887 ERCIL WAY	William J Collier
CAROL COLLIER	4887 ERCIL WAY	Carol P. Collier
John Marston	5150 Rollison Dr	John R Marston
Margaret Kosted	5306 Beverly Lane	Margaret C Kosted
Deborah Hagl	4324 Candace Lane	Deborah Hagl
JUDE MARSTON	5150 Rollison Dr.	Jude Marston
Ken Fones-Wolf	4327 Audrey Lane	[illegible]
Elizabeth Fones-Wolf	4327 Audrey Lane	[illegible]
Bill Haas	4400 OLIVE DR	[illegible]
Dallas Henna	5500 Center St.	Dal Henna
Daisy Henna	5500 Center St.	Daisy Henna

James City Planning Commission

101 Mounts Bay, Bldg A

Williamsburg, VA 23185

June 24, 2021

Commissioners,

We have concerns and objections to the Land Use application **LU 20 0002** currently titled as **"Mixed Use – New Town."** We acknowledge that this meeting is concerned with changes to land use functions and is not offering any resolution or answer to questions beyond the scope of this meeting. Our questions are the result of viewing the supporting documents in the application provided by ABVA.

We question why this application is labeled Mixed Use – "New Town." New Town currently exists in the Master Plan within well-established boundaries. This application appears as an attempt to extend New Town into Eastern State Hospital land. That extension has never been presented to the residents of New Town and reviewed in a public forum with Board of Directors of the New Town Residential Association. This is a significant change that will affect all of New Town. We appreciate that much of that land is attractive for development but why add that descriptive title (New Town) to the application? Is this an attempt to represent that the land use redesignation means that it can only be developed as part of New Town?

ABVA's maps and descriptive comments for this land use application have raised significant questions regarding the future use and safety of existing New Town infrastructure and amenities. These changes will affect our green spaces and trails and most certainly change our small town feel with its wooded areas and trails that were promised to us as benefits of our home purchase.

We object to the expansion of New Town into Eastern State land without public review and commentary. Labeling the application "New Town" and using New Town amenities and infrastructure as a part of the narrative provided by ABVA is premature.

We object to this land use redesignation and application.

The undersigned are residents of New Town

Thomas M. Carter
Susan H Carter
5211 Rollison Dr
Williamsburg VA
23188

Irene Helwig
Wayne B. Helwig
5186 Rollison Dr
Williamsburg Va
23188

Joan Newcomb
4412 Olive Dr
Wmsbg VA 23188

Daryl Carey
Jane Carey
5195 Rollison Dr.
Williamsburg Va
23188

Helen R Kirouac
4914 Lucretia Way
Williamsburg Va 23188

Kathy Lesnevich
4327 Elizabeth Davis
Williamsburg, VA 23188

Theresa Browne
Theresa Browne
4325 Audrey Ln
Williamsburg, VA 23188

Roy Stalling
Linda Stallings
5222 Rollison Dr
23188

Diana Ryan
5218 Rollison Dr.
Williamsburg, 23188

Marissa Singletary
5420 Center Street
Williamsburg, VA 23188

Roswitha Goossens-Winter
4301 Audrey Lane
Williamsburg, VA 23188

Additional signatures on reverse

LU-20-0002

Diana McLaughlin	5206 Rollison Dr.	Diana L. McLaughlin
Timothy Saumier	5202 Rollison Dr.	[illegible]
Leilani Boyle	4911 Ercil Way	Leilani J. Boyle
MARIE THELL	5508 CENTER ST.	Marie J. Thell
Robert Jeremiah	5431 Center St	[illegible]
Mark J. Thomas	2170 Rollison Dr.	[illegible]
James Madden	6011 Settlers	[illegible]
Ricci Madden	Mkt Blvd	[illegible]
Barbara Murphy	5214 Foundation ST.	Barbara J. Murphy
Anne Koren	5212 Foundation St.	Anne Koren
Michael J. Reilly	4902 Lucretia Way	[illegible]
Eileen T. Reilly	4902 Lucretia Way	Eileen T. Reilly
Cynthia Frezek	4608 Town Creek Dr	Cynthia Frezek
Sally Fisk	4608 Town Creek Dr.	[illegible]
Joyce Brown Chandler	4910 Lucretia Way	Joyce B. Chandler
Maria LePage	4907 Ercil Way	Maria LePage
Peter J LePage	4907 Ercil Way	[illegible]
DAWN ALLEMAN	4400 OLIVE DR.	[illegible]
Catherine Forestell	4321 Audrey Ln	[illegible]
Shaun Strippel	4321 Audrey Ln	[illegible]
Lee Murphy	5203 Rollison Dr.	Lee Murphy
Rachel Corliss	4317 Audrey Ln.	Rachel Corliss
Sara Benolkin	4883 Ercil Way	[illegible]
Adam Liebler	4267 Carey Blvd	Adam Liebler

22

LU-20-0002

James City Planning Commission

101 Mounts Bay, Bldg A

Williamsburg, VA 23185

June 24, 2021

Commissioners,

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We object to the expansion of New Town into Eastern State land without public review and commentary. Labeling the application "New Town" and using New Town amenities and infrastructure as a part of the narrative provided by ABVA is premature.

We object to this land use redesignation and application.

The undersigned are residents of New Town

Everett V Lunsford
4203 GREENVIEW

Blanche Scharf
4320 Annamary Way

Leonard R. Scharf, Jr
4320 Annamary Way

R. [illegible]
4894 LUCREHA WAY

Evelyn T. Graham
Evelyn T. Graham
5191 Rollison Dr.
evelyntgraham@yahoo.com

DAVID T. GAYDOS
David T. Gaydos
4305 ELIZABETH DAVIS BLVD
WILLIAMSBURG VA 23188

Marie F. Gaydos
Marie F. Gaydos
4305 Elizabeth Davis Blvd

Beryl J. Sanders
Beryl J Sanders
5183 Rollison Drive

Additional signatures on reverse

3a

LU-20-0002

June Dawkins 5179 Rollesou Dr 23188 June Dawkins
Caitlin Wingfield 4322 Candace Ln Cait Wingfield
JEN SETIAN 5322 BEVERLY LANE Jen Setian

Sharon Dye 5316 Beverly Ln, Wmsbg VA. 23188 Sharon Dye
ROLAND WOLLESEN 5402 BEVERLY Ln, 23188 R Wollesen
Ronald DePue 5404 Beverly Ln, 23188 Ron DePue
MARK CALDWELL 5406 BEVERLY LN. 23188 Mark Caldwell
[illegible] 5405 Beverly Ln 23188 [illegible]
Kristal Browne 4325 Audrey Ln. 23188 [illegible]

LU-20-0002

James City Planning Commission

101 Mounts Bay, Bldg A

Williamsburg, VA 23185

June 24, 2021

Commissioners,

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We object to this land use redesignation and application.

The undersigned are residents of New Town

Paul Ruehrmund
4315 ELIZABETH DAVIS BLVD
Paul Ruehrmund

Mary Ruehrmund
4315 Eliz. Davis Blvd.
Mary Ruehrmund

Nancy Burket
4309 Elizabeth Davis Blvd.
Nancy F. Burket

THOMAS MILLER
5508 Center Street
T Miller

Mike Zikes
5512 Center Street
[signature]

Ed Elmore
4915 Ercil Way
Edwin J. Elmore III

Jeff & Nancy Kuperstock
4891 Ercil Way
[signature]
Nancy W. Kuperstock

Additional signatures on reverse

4a

LU-20-0002

Virginia Barch 4316 Elizabett Davis Blvd. Wlmsbg, VA Virginia Barch

Dorothy Rakhra 5318 Beverly Ln Williamsburg, VA Dorothy Rakhra

Gursharn Rakhra 5318 Beverly lane, Williamsburg VA

LU-20-0002

James City Planning Commission

101 Mounts Bay, Bldg A

Williamsburg, VA 23185

June 24, 2021

Commissioners,

We have concerns and objections to the Land Use application **LU 20 0002** currently titled as **"Mixed Use – New Town."** We acknowledge that this meeting is concerned with changes to land use functions and is not offering any resolution or answer to questions beyond the scope of this meeting. Our questions are the result of viewing the supporting documents in the application provided by ABVA.

We question why this application is labeled Mixed Use – "New Town." New Town currently exists in the Master Plan within well-established boundaries. This application appears as an attempt to extend New Town into Eastern State Hospital land. That extension has never been presented to the residents of New Town and reviewed in a public forum with Board of Directors of the New Town Residential Association. This is a significant change that will affect all of New Town. We appreciate that much of that land is attractive for development but why add that descriptive title (New Town) to the application? Is this an attempt to represent that the land use redesignation means that it can only be developed as part of New Town?

ABVA's maps and descriptive comments for this land use application have raised significant questions regarding the future use and safety of existing New Town infrastructure and amenities. These changes will affect our green spaces and trails and most certainly change our small town feel with its wooded areas and trails that were promised to us as benefits of our home purchase.

We object to the expansion of New Town into Eastern State land without public review and commentary. Labeling the application "New Town" and using New Town amenities and infrastructure as a part of the narrative provided by ABVA is premature.

We object to this land use redesignation and application.

The undersigned are residents of New Town

Printed Name	Address	Signature
Richard Castello	4898 Lucretia Way	[signature]
Dorothy Enslein	4320 Elizabeth Davis Blvd	Dorothy S Enslein
Jean Gerard Enslein	4320 Elizabeth Davis Blvd	[signature]
Richard G. Basch	4316 Elizabeth Davis Blvd	[signature]
Thomas Nichols / Thomas Nichols	4312 Elizabeth Davis Blvd	Thomas Nichols
Tara Stratton	4404 Julies Way	[signature]
Alex Pardue	3412 Annamary Way	Alex Pardue
Jennifer German	4308 Annamary Way	[signature]

Additional signatures on reverse

5a

LU-20-0002

PRINTED NAME	ADDRESS	SIGNATURE
TOM JAWKINS	5179 ROBINSON	[illegible]
Laura Robinson	5449 Center St.	[illegible]
Susan Ames	5447 Center St	[illegible]
Margaret Jarrett	5443 Center St.	Margaret A Jarrett
Jon Meek	5433 Center St	[illegible]
Sean Walker	4303 Audrey Ln	[illegible]
Nicole Walker	4303 Audrey Ln	[illegible]
Paul Wells	4315 Audrey Ln	Paul Wells
Olivia Lanctot	4331 Audrey Ln	Olivia Lanctot

LU-20-0002

James City Planning Commission

101 Mounts Bay, Bldg A

Williamsburg, VA 23185

June 24, 2021

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MIRANDA SAUMIER 5202 ROLLISON DR. WILLIAMSBURG VA 23188 Miranda Saumier

Charlotte Lorentson, Jim Henion / 5167 Rollison Dr. Charlotte Lorentson Jamas T. Henion

TERRY HANCOCK 5194 ROLLISON DR. WILLIAMSBURG VA 23188 Terry Hancock

Patty HANCOCK 5194 ROLLISON DR. Williamsburg 23180 Patty Hancock

JAMES TURBISH 5174 ROLLISON DR. WILLIAMSBURG, VA 23188 James Turbish

SUE TURBISH 5174 ROLLISON DR, WILLIAMSBURG, VA 23188 Sue Turbish

Jennie Hogge 4013 Stettinius Tr, Wmbg, VA 23188 Jennie Hogge

Additional signatures on reverse

LU-20-0002

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PRINTED NAME	ADDRESS	SIGNATURE
CONNIE LONG	4300 ELIZABETH DAVIS BLVD	Connie Long
Jim Ducibella	4400 JULIES WAY	Jim Ducibella
Sue Ducibella	4400 Julies Way	Sue L Ducibella
NEVA Smith	4304 Casey Bluff	Neva Smith
MAX HENSLEY	4334 CASEY BLVD.	[illegible]
Shui He	4334 Casey Blvd	[illegible]
JON WASHKO	4376 Casey Blvd	[illegible]
ANDREW OKES	5415 Beverly DR	Andrew Okes

Additional signatures on reverse

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Printed Name	Address	Signature
MARK EVERT	4304 ANNAMARY WAY	Mark Evert
ANDREW DAMICO	4300 ANNAMARY WAY	[illegible]
Andrew Vannatta	4400 Betty Lane	[illegible]
Olivia Kohler	4416 Betty Lane	Olivia Kohler
*Madeline Lindfors	4420 Betty Lane	Madeline Lippamp Lindfors
NORMAN BAFFER	4316 CASEY	Norman B. Baffer
Phyllis Sizoo	4895 Ercil Way	[illegible]
Charles Anderson	4320 Audrey Lane	Charles F. Anderson

Additional signatures on reverse

LU-20-0002

James City Planning Commission

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NEIL J BRIGHT
PATRICIA A BRIGHT
5438 Center Street

KAY C. GRADY 5434 CENTER ST.

CARY A GARNET 5434 Center St

DR. George W. BORDEN PHD 5432 CENTER ST.

S. M. NORDIN 5418 CENTER ST

Kathleen Lacy 5410 Center St

EDWARD LACY 5410 CENTER ST

Andrew Dunleavy
5406 Center Street

Additional signatures on reverse

James City Planning Commission

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Printed Name	Address	Signature
ROBERTA FALQUET	5199 ROLLISON DR WILLIAMSBURG VA	
R. ALAN FALQUET	5199 WILLIAMSBURG VA ROLLISON	
Cheryl Voliva	5191 Rollison Dr	Cheryl Voliva
Elizabeth Dennis	4894 Lucretia Way	
Susan Rexrode	5504 Center St.	
	4331 ELIZABETH DAVIS BLVD	Neal Witherspoon
LENA Witherspoon	4331 ELIZABETH DAVIS BLVD	
Dolores A. Zoller	4324 Elizabeth Davis Blvd	
Myron Douglas Zoller	4324 Elizabeth Davis Blvd	

Additional signatures on reverse

Ellen Cook

From: Paxton Condon
Sent: Friday, June 25, 2021 8:13 AM
To: Ellen Cook
Subject: FW: [External] New Town Residential Association Board of Directors Resolution on Land Use Designation "Mixed Use - New Town."
Attachments: RESOLUTION ON ABVA LAND USE APPLICATION .pdf

Hi Ellen,

This came into the Planning inbox last night – they sent it directly to Thomas as well.

Thank you,
Paxton

From: Mary Cheston <atmcheston@aol.com>
Sent: Thursday, June 24, 2021 10:51 PM
To: Planning <planning@jamescitycountyva.gov>; Thomas Wysong <Thomas.Wysong@jamescitycountyva.gov>
Cc: Jim Icenhour <Jim.Icenhour@jamescitycountyva.gov>
Subject: [External] New Town Residential Association Board of Directors Resolution on Land Use Designation "Mixed Use - New Town."

As promised in tonight's Planning Commission hearing, attached please find a copy of the resolution passed by the New Town Residential Board of Directors on June 24, 2021.

To further clarify this statement, the NTRA Board is requesting removal of the terminology "Mixed Use - New Town" from the Comprehensive Plan 2045 and any references that assume the Eastern State LU-20-0002 parcel will be brought into New Town. The Board is requesting that the Eastern State Hospital land use change be disassociated from any language that would predispose readers to believe the land will become part of the existing New Town community. Such decisions should be part of a zoning process and homeowner association decisionmaking.

These terms are found on the following pages of the draft Plan:

Chart 4 - Mixed Use Designation Descriptions
page LU-51 - 7 New Town: lines 5 and 6 "including any portion of the Eastern State Hospital property **to be brought into the New Town development**, should follow consistent design guidelines and strive to integrate uses. **For the Eastern state property to be brought into the New Town development**, it...

Land Use Application Chart/Listing that includes LU-20-0002
Case description - "Eastern State - New Town Addition"
Proposed land Use - "Mixed Use - New Town" (also in PCWG Recommendation column)

Spreadsheet of Land Use Applications

Mary Cheston, Director
New Town Residential Association

RESOLUTION ON ABVA LAND USE APPLICATION

Whereas ABVA has submitted a land use application to James City County to add additional area to New Town from Eastern State Hospital land being sold by the State of Virginia,

Whereas the New Town Residential Association was not consulted on this application and has not concurred in adding any future housing to our homeowner association,

Whereas the details of this application have not been publicly shared or briefed to the residents of New Town,

Whereas the impacts of the application are likely to be substantial and the benefits to New Town are undetermined,

> The Board of Directors of the New Town Residential Association request that the Planning Commission modify the proposed land use change "Mixed Use - New Town" and eliminate "New Town" from this description or table this proposal until further consultation can be held with the State of Virginia, the applicant, and the property owners in the New Town Residential Association.

Adopted by the Board of Directors on June 24, 2021 at a duly called Board Meeting.

Richard W. Durst, President

Thomas Wysong

From: Katie Pelletier
Sent: Monday, July 12, 2021 8:45 AM
To: Thomas Wysong
Cc: Ellen Cook
Subject: FW: Supplement to Requested Specific Language Changes to Draft 2045 Comprehensive Plan
Attachments: Revised Requested Changes.pdf

From: Jeff Kuperstock <kuperstockj@gmail.com>
Sent: Sunday, July 11, 2021 2:24 PM
To: JCC Board <JCCBoard@jamescitycountyva.gov>
Subject: [External] Supplement to Requested Specific Language Changes to Draft 2045 Comprehensive Plan

To: Mr. Jim Icenhour, Ms. Ruth Larson, Mr. John McGlennon, Mr. Michael Hipple and Ms. Sue Sadler, Supervisors of the Board of Supervisors of James City County

I am a resident of the Charlotte Park neighborhood in New Town.

I wish to address a part of the draft 2045 Comprehensive Plan: Land Use Applications 20-0002 and 20-0003. These applications request a change of land use for several parcels of the Eastern State Hospital property. I understand that one of the applicants under Land Use Application 20-0002 (ABVA Development, LP) may have requested the Board, on July 9, 2021, to make changes to said Land Use Application 20-0002 (including a change regarding not using Olive Drive in New Town to access Parcels C-1/C-2 of the Eastern State Hospital property and a change in not requiring Parcels C-1/C-2 of the Eastern State Hospital Property to become part of New Town or its residential/commercial associations), but that the other applicant and co-signer of Land Use Application 20-0002 (the Commonwealth of Virginia) has not joined in that request. Consequently, I do not know if those requested changes are legally effective. The County Attorney should be requested to opine on the effectiveness of such proferred amendment. On July 8, 2021, I forwarded to the Board via e-mail my detailed comments and specific language-change requests. I include in the attachment to this e-mail my specific language-change requests from my July 8, 2021 e-mail, as modified to reflect the possible changes to Land Use Application 20-0002, as I understand them.

I wish to make it clear that I still oppose the Board's approving Land Use Applications 20-0002 and 20-0003 and Rows 7 and 15 in the "Specific Mixed Use Area" table of the Land Use Chapter of the draft 2045 Comprehensive Plan and the "mixed-used zoning" shown on the draft Land Use Map for the Eastern State Hospital property (Parcels A, B-1, B-2, C-1 and C-2).

However, if this Board is going to approve those Applications and the draft Land Use Map and establish policy and guidelines for the development of the Eastern State Hospital property, then I ask the Board to please consider my proposed drafting changes to the draft 2045 Comprehensive Plan as to Rows 7 and 15 of the "Specific Mixed Use Area" table of the Land Use Chapter and as to CC 2.3 on page 47 of the Implementation Chapter.

Those changes are designed to level the policy playing field.

Allow me to give the Board some specifics: If the Board refers to page 51 of the Land Use Chapter and looks at Row 7 of the "Specific Mixed Use Area" table, the Board will see that it refers to a portion of the Eastern State Hospital property west of Route 199. This is so-called Parcel D, as so identified on a topographical survey of the property provided under Land Use Application 20-0002. As to Parcel D, Row 7 states that it will be conserved as open space with no development

recommended. A further Parcel D recommendation in Row 7 is that there be no vehicular access to that Parcel. All of this is specific and clear as to "guidelines" and "policy." Now, look at the same Row and try to figure out what is being established as guidelines and policy for Parcels C-1 and C-2 of the Eastern State Hospital property. Those references are not even used in Row 7. The draft Land Use Map does not help much either in locating those Parcels. The reader needs to refer to Land Use Application 20-0002 to figure out what and where those Parcels are. In fact, Row 7 parrots parts of the narrative in the original Land Use Application 20-0002 and provides that Parcels C-1 and C-2 are to be brought into New Town, although arguably one of the changes referred to above in that Application could remove this reference/recommendation. If this reference/recommendation is not so removed, Parcels C-1 and C-2 would be recommended, as a matter of County policy, for "mixed use" zoning plus becoming a physical and legal part of New Town. But, what about vehicular access to Parcels C-1 and C-2? Row 7 says nothing. If the requested change as to Olive Drive referred to above is effective, the Board ought to recommend as a policy guideline no vehicular access through Olive Drive to Parcels C-1/C-2 (just as it recommended no vehicular access for Parcel D). But, I further argue that the Board should not concede access to Parcels C-1/C-2 through Discovery Park Boulevard. There are still significant policy issues with that. My recommended language attached to this e-mail would still be effective to address those issues.

Approval of Land Use Application 20-0002 (as unamended) and adoption of Row 7 on page 51 of the draft Land Use Chapter arguably make policy guidelines under the Comprehensive Plan for the "mixed use" zoning of Parcels C-1 and C-2, for the legal and other joinder of Parcels C-1 and C-2 to New Town and for the extensions of Olive Drive and Discovery Park Boulevard into Parcels C-1 and C-2. If Land Use Application 20-0002 has been effectively amended, my requested language-changes are still important to seal those conceded changes into County policy and guidelines.

Similar arguments can be made regarding the approval of Land Use Application 20-0003 and Row 15 on page 53 of the Land Use Chapter. That Application has not been purportedly amended.

Sure, my neighbors and I can argue against all of the pro-developer/pro-Commonwealth policy and guidelines in the original Rows 7 and 15 when it comes time for the re-zoning hearings. And, we may be able to convince the Planning Commission and this Board as to our objections. But, we will be behind the policy "eight-ball" as we try to do that. My requested changes level that playing field and give us a chance down the road to protect the fabric and community character of New Town and our neighborhoods. They also cement the concessions from the developer under Land Use Application 20-0002 if those concessions/amendments are legally effective.

Again, I prefer you to reject Land Use Applications 20-0002 and 20-0003 and to delete all references to Eastern State Hospital property from Row 7 and to delete Row 15 from the draft Land Use Chapter and not designate Eastern State Hospital property as mixed-used on the draft Land Use Map. But, if that is not going to happen, please accept my drafting changes to the draft 2045 Comprehensive Plan and grant us the policy tools to protect our neighborhoods and community.

Thank you.

Jeffery Kuperstock

Kuperstock Proposed Revisions Attached to Email Above

Requested Changes to 2045 James City County Comprehensive Plan

I. Change to "Specific Mixed Use Area" Table on pages LU-51 and 53 of the Land Use Chapter of the 2045 James City County Comprehensive Plan (additions are underlined and deletions are shown as struck-through):

7. New Town UDA: Medium Town or Suburban Center	The principal suggested uses are a mixture of commercial, office, residential, and limited industrial. Most of this area is governed by a detailed master plan and design guidelines for each distinct area within the New Town development, which provides guidelines for street, building, open space design, and construction similar to the scale, architecture, and urban pattern found in the City of Williamsburg. New development or redevelopment in this area, including any portion of the Eastern State Hospital property to be brought into New Town Community Character Area ~~development~~, should follow consistent design guidelines and strive to integrate uses (subject to the criteria and guidelines set forth below in this Row 7 for the Eastern State Hospital property). For the portion of the Eastern state property to be brought into New Town Community Character Area ~~development~~, it is of critical importance that environmentally sensitive features such as topography, RPA features and wooded areas be protected and permanently preserved, where possible. The portion of the Eastern State Hospital property ~~this parcel~~ located west of Route 199 will be conserved as open space, meaning no development is recommended for this portion. Furthermore, no vehicular access is recommended for the portion of the parcel located west of Route 199. Any development in the Eastern State Hospital property for which vehicular access through the New Town development is requested or approved should not (as a minimum standard) result in: (i) any impairment of the existing community character of the New Town development or of any of its affected neighborhood(s), (ii) any violation of any existing Design Guidelines and/or proffers applicable to the New Town development or any of its affected neighborhood(s), (iii) any taking of private property in the New Town development or any of its affected neighborhood(s) and/or (iv) any disturbing or making unsafe of the pool/playground complex of the New Town development, any school or pre-school located in the New Town development or any assisted/senior living/dementia care facilities located in the New Town development. Given the foregoing, it is recommended that no access to the Eastern State Hospital property be through or via Olive Drive and/or Rollison Drive. It is not a requirement that the Eastern State Hospital property (or its lot users/owners) become subject to the declarations of (or members of) either of the residential or commercial associations of the New Town development. A portion of this area is not governed by New Town development master plan and design guidelines, including areas along the west side of Ironbound Road and areas south of Monticello Avenue. These areas (as well as the portions of the Eastern State Hospital property to be within the New Town Community Character Area) should have design, scale and development pattern that is consistent with the New Town development. For the area along the west side of the Ironbound Road corridor, the expansion of existing businesses, or similar uses, is encouraged, with the added opportunity for mixed use structures that incorporate housing as a clearly secondary use in upper stories.

	The addition of a portion of the Eastern State Hospital property to the New Town Community Character Area is not to result in any impairment of the existing community character of the New Town development and its neighborhoods.
15. Eastern State Proposed Inclusion as UDA: Medium Town or Suburban Center	The portion of this site designated for this use is to be developed as a master planned community that harmoniously blends the design, scale and development pattern of the Eastern State Hospital campus with the design, scale and development pattern of the adjacent New Town community, though this development is expected to have its own mixture of uses and design expectations (and, consequently, its own community character), is to be its own UDA and is not to negatively impact the community character of the New Town community or its residential neighborhoods. This community should employ careful site orientation, landscaping and buffering and transportation network connectivity to connect these areas, while also allowing for proper land use separation where appropriate. Any development ingress/egress points through the New Town community or its neighborhoods as a result of such transportation network connectivity are subject to the criteria and guidelines set forth in Row 7 above. The two guiding principles for mitigating impacts regarding the redevelopment of this site are a) the preservation and protection of environmentally sensitive features and b) the protection and expected enhancement of the immediate transportation network. Natural ravines, topography, RPA features and wooded areas are to provide enveloped buffering of the site and be protected from disturbance and stormwater facilities are to be integrated seamlessly as low-impact, "green infrastructure" within the site. The portion of this parcel located west of Route 199 will be conserved as open space, meaning no development is recommended for this portion. Furthermore, no vehicular access is recommended for the portion of the parcel located west of Route 199. Controlled ingress/egress points will direct traffic solely to intersections with suitable capacity and traffic calming infrastructure. The master planned community is to be centered on passive and active open spaces and associated amenities. These open spaces are to be interconnected via pedestrian, bicycling and vehicular travel networks and are to serve as the central and perimeter congregational and buffer areas for the development. This development is to be clustered and strategically situated adjacent to natural conservation areas and topographic features. This community is to be integrated into the existing transportation networks. Sidewalks, bike paths and vehicular connections are to be designed to facilitate community residents' enjoyment of parks and amenities internal to the development, but to permit residents to walk, bike or drive to nearby schools, recreational areas, restaurants and shops. In combination with the Eastern State Hospital complex and employment center, this community is to provide a mixed-use area consisting of residential, institutional, medical, office and civic uses. Each of these uses are to be appropriately interconnected to blend and support one another. The residential development will provide housing opportunities for the adjacent employment centers and will be located in close proximity to the civic uses, allowing convenient pedestrian mobility.

II. Change to "Community Character Chapter | Guidance for Development Approvals and Enforcement" Table on page 47 of the Implementation Chapter of the 2045 James City County Comprehensive Plan (additions are underlined):

Community Character Chapter | Guidance for Development Approvals and Enforcement		
Action	Related Public Input Priorities	Prioritization
CC 2.3 - In New Town, continue to support the design review process by working closely with the New Town Design Review Board and supporting the implementation of New Town's design guidelines. <u>Development of Eastern State Hospital property is not to negatively affect New Town design guidelines or community character</u>.	• Preserve Community Character • Expand Economic Development	Used daily in making land use related decisions.

Ellen Cook

From: Alex Baruch
Sent: Tuesday, July 13, 2021 4:40 PM
To: Ellen Cook; Josh Crump; Paul Holt; Tammy Rosario
Cc: Thomas Wysong
Subject: Fw: [External] Eastern State/Discovery Park Extension
Attachments: DISCOVERY BLVD-Conceptual Master Plan.pdf

FYI

Alex Baruch
Senior Planner
Community Development
101-A Mounts Bay Road
Williamsburg, VA 23185
P: 757-253-6689
F: 757-253-6822
jamescitycountyva.gov
Most permit requests and inquiries can now be handled online
Visit JCC **Permit**link: http://www.jamescitycountyva.gov/permitlink

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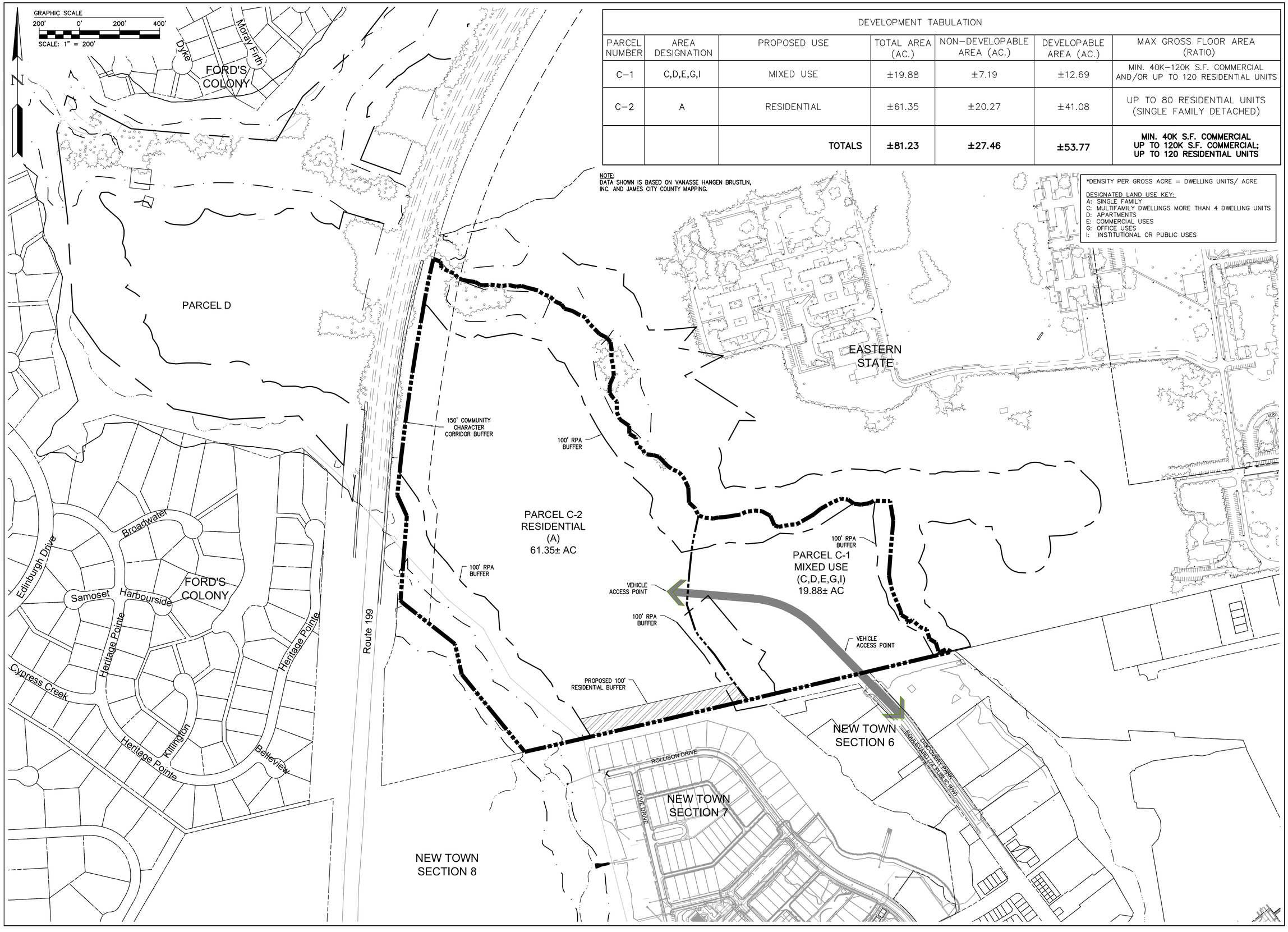
From: Grimes, Jason <jason.grimes@aesva.com>
Sent: Tuesday, July 13, 2021 4:37 PM
To: Alex Baruch; Thomas Wysong
Cc: vgeddy@ghfhlaw.com; 'Mike Youngblood Sr'
Subject: [External] Eastern State/Discovery Park Extension
I know this is last minute but we wanted to share with JCC staff some commitments that ABVA as the contract purchaser is discussing with the New Town HOA. They are committed to utilize Discovery Park as the sole access from New Town, providing a minimum 100-ft buffer off the residential boundary and reducing the density from what we had on our initial Comp plan submission. We understand that this will be fully flushed out with staff as part of a zoning application but wanted to make you aware with what has been shared with the HOA.
Thanks
Jason Grimes, P.E.
Vice President, Principal
AES Consulting Engineers

AES
CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
Office (757) 253-0040
Cell (757) 561-0589
aesva.com
AES Consulting Engineers Confidentiality Note: This e-mail and any attachments are confidential and may be protected by legal privilege. If you are not the intended recipient, be aware that any disclosure, copying, distribution or use of this

e-mail or any attachment is prohibited. If you have received this e-mail in error, please notify us immediately by returning it to the sender and deleting this copy from your system. Thank you for your cooperation.
Please consider the environment before printing this email.

LU-20-0002



DEVELOPMENT TABULATION						
PARCEL NUMBER	AREA DESIGNATION	PROPOSED USE	TOTAL AREA (AC.)	NON-DEVELOPABLE AREA (AC.)	DEVELOPABLE AREA (AC.)	MAX GROSS FLOOR AREA (RATIO)
C-1	C,D,E,G,I	MIXED USE	±19.88	±7.19	±12.69	MIN. 40K-120K S.F. COMMERCIAL AND/OR UP TO 120 RESIDENTIAL UNITS
C-2	A	RESIDENTIAL	±61.35	±20.27	±41.08	UP TO 80 RESIDENTIAL UNITS (SINGLE FAMILY DETACHED)
		TOTALS	**±81.23**	**±27.46**	**±53.77**	**MIN. 40K S.F. COMMERCIAL UP TO 120K S.F. COMMERCIAL; UP TO 120 RESIDENTIAL UNITS**

NOTE:
DATA SHOWN IS BASED ON VANASSE HANGEN BRUSTLIN, INC. AND JAMES CITY COUNTY MAPPING.

*DENSITY PER GROSS ACRE = DWELLING UNITS/ ACRE

DESIGNATED LAND USE KEY:
A: SINGLE FAMILY
C: MULTIFAMILY DWELLINGS MORE THAN 4 DWELLING UNITS
D: APARTMENTS
E: COMMERCIAL USES
G: OFFICE USES
I: INSTITUTIONAL OR PUBLIC USES

Rev.	Date	Description	Revised By

CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
Phone: (757) 253-0040
Fax: (757) 220-8994
www.aesva.com
Hampton Roads | Central Virginia | Middle Peninsula

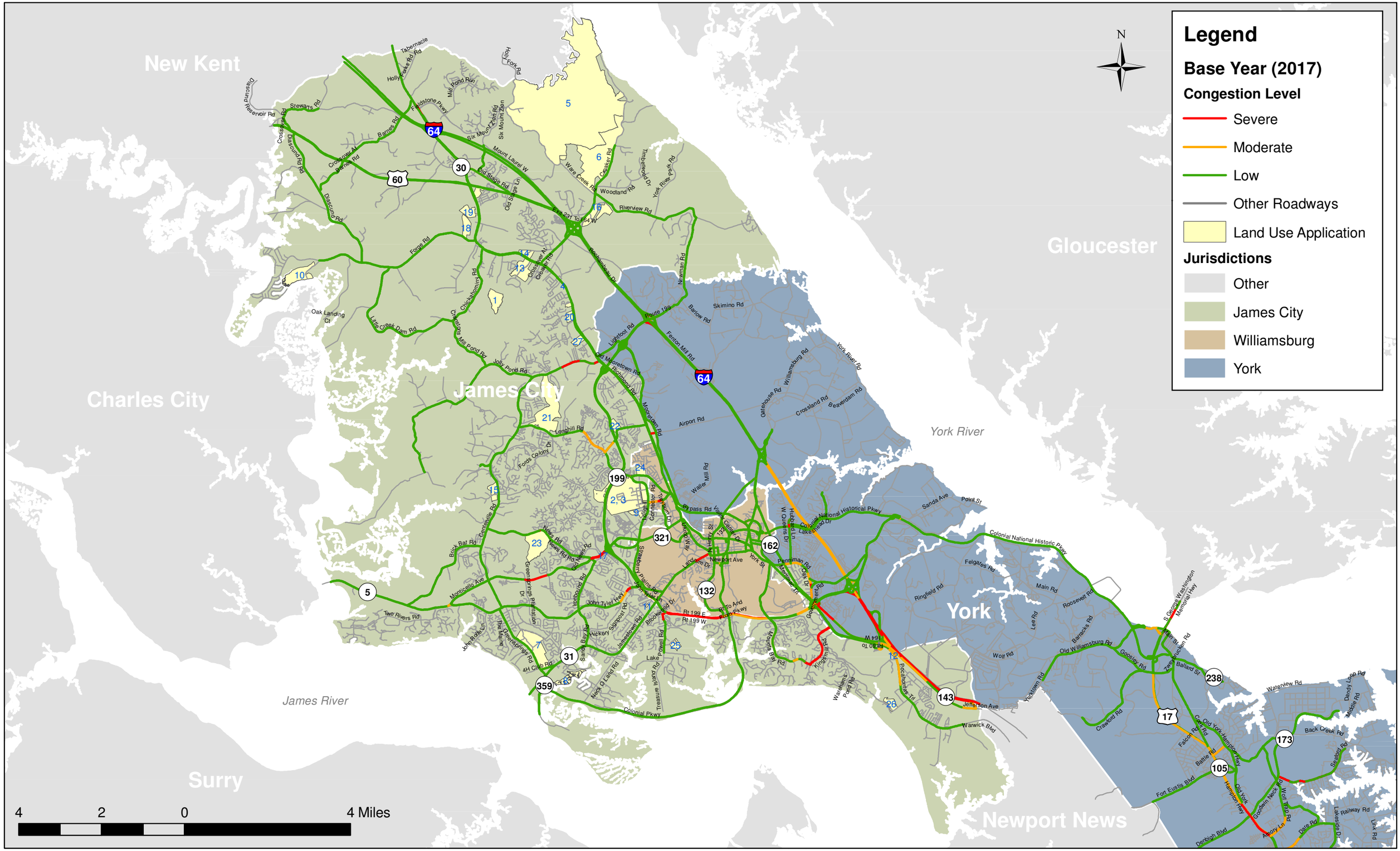
MASTER PLAN FOR
DISCOVERY PARK EXTENSION
JAMESTOWN DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	JAG
Project Number:	20140314
Scale: 1"=200'	Date: 06/04/2020

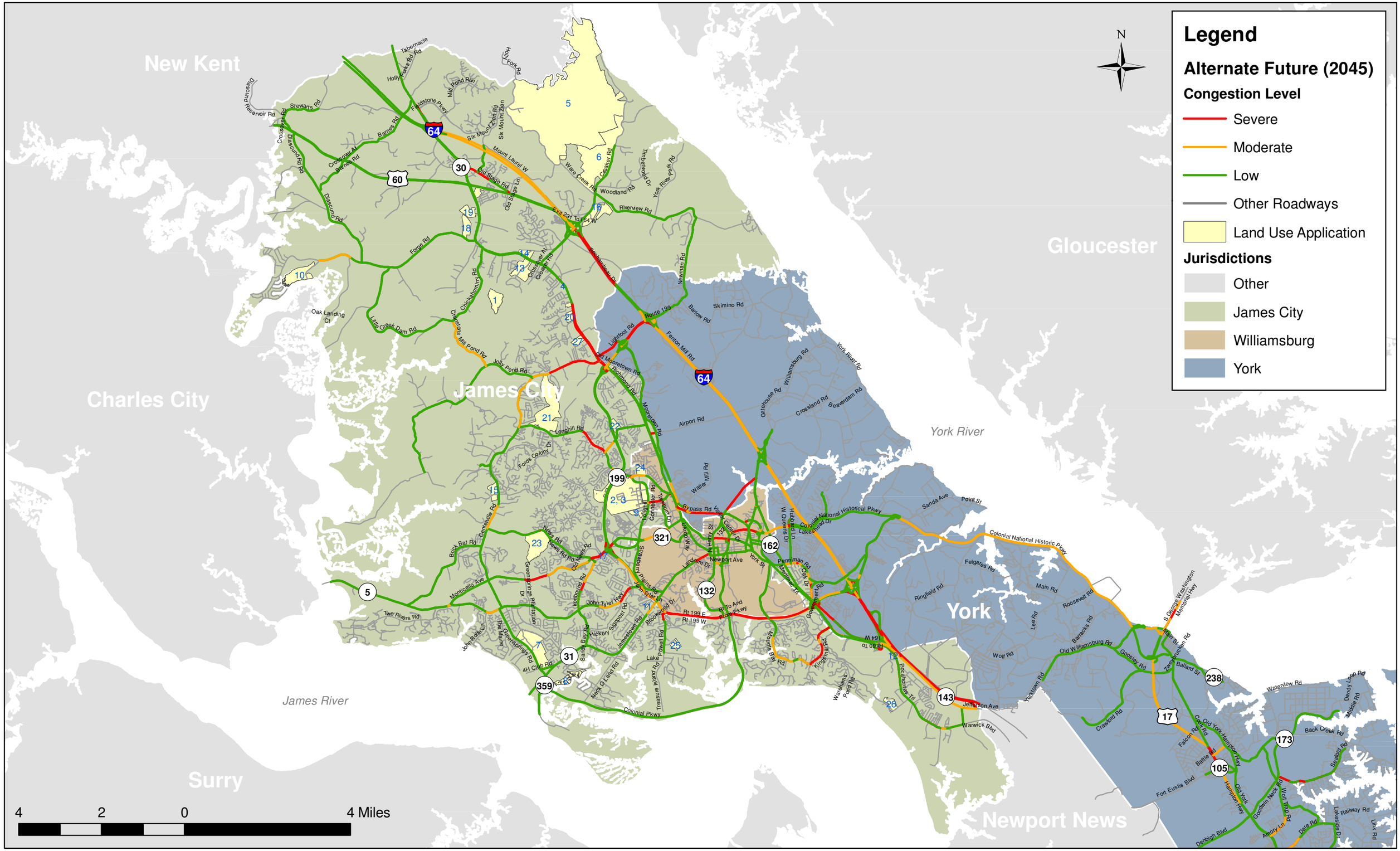
Sheet Title:
CONCEPTUAL MASTER PLAN

Sheet Number
2 OF 2

Identification of Congested Locations (Freeways & Arterials)
PM Peak Period (3 - 6 PM)



Identification of Congested Locations (Freeways & Arterials)
PM Peak Period (3 - 6 PM)



Identification of Congested Locations (Freeways & Arterials)
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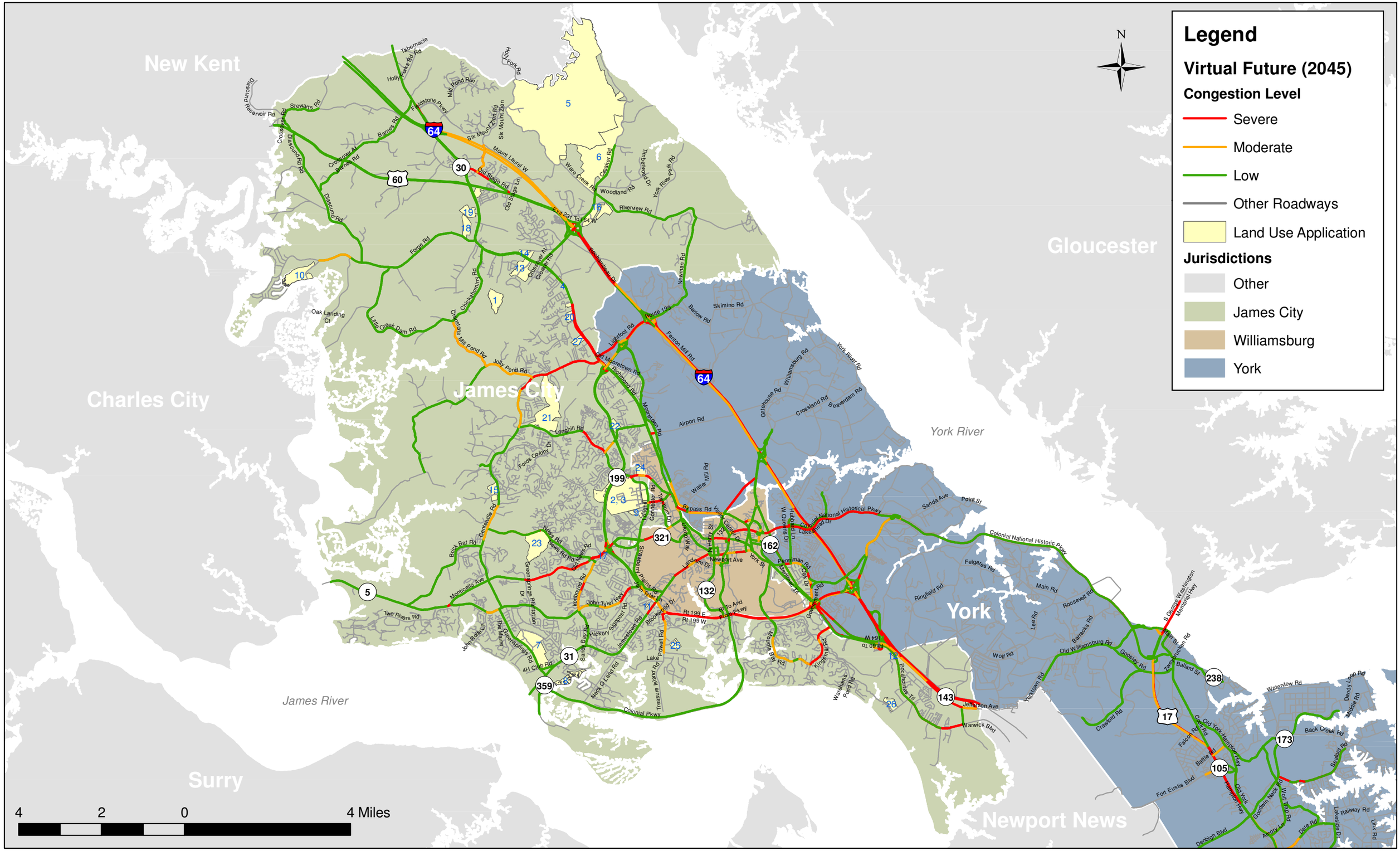
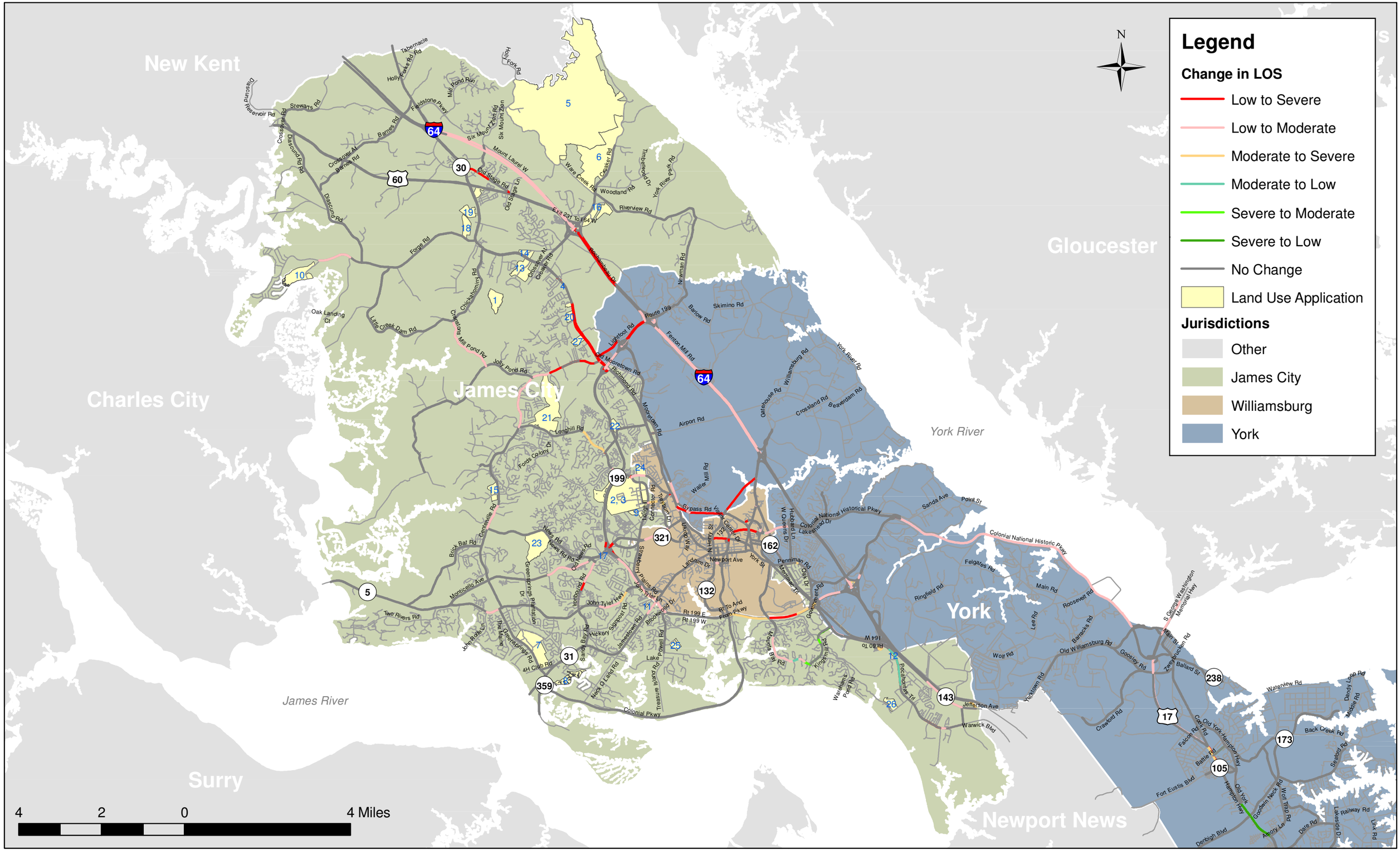
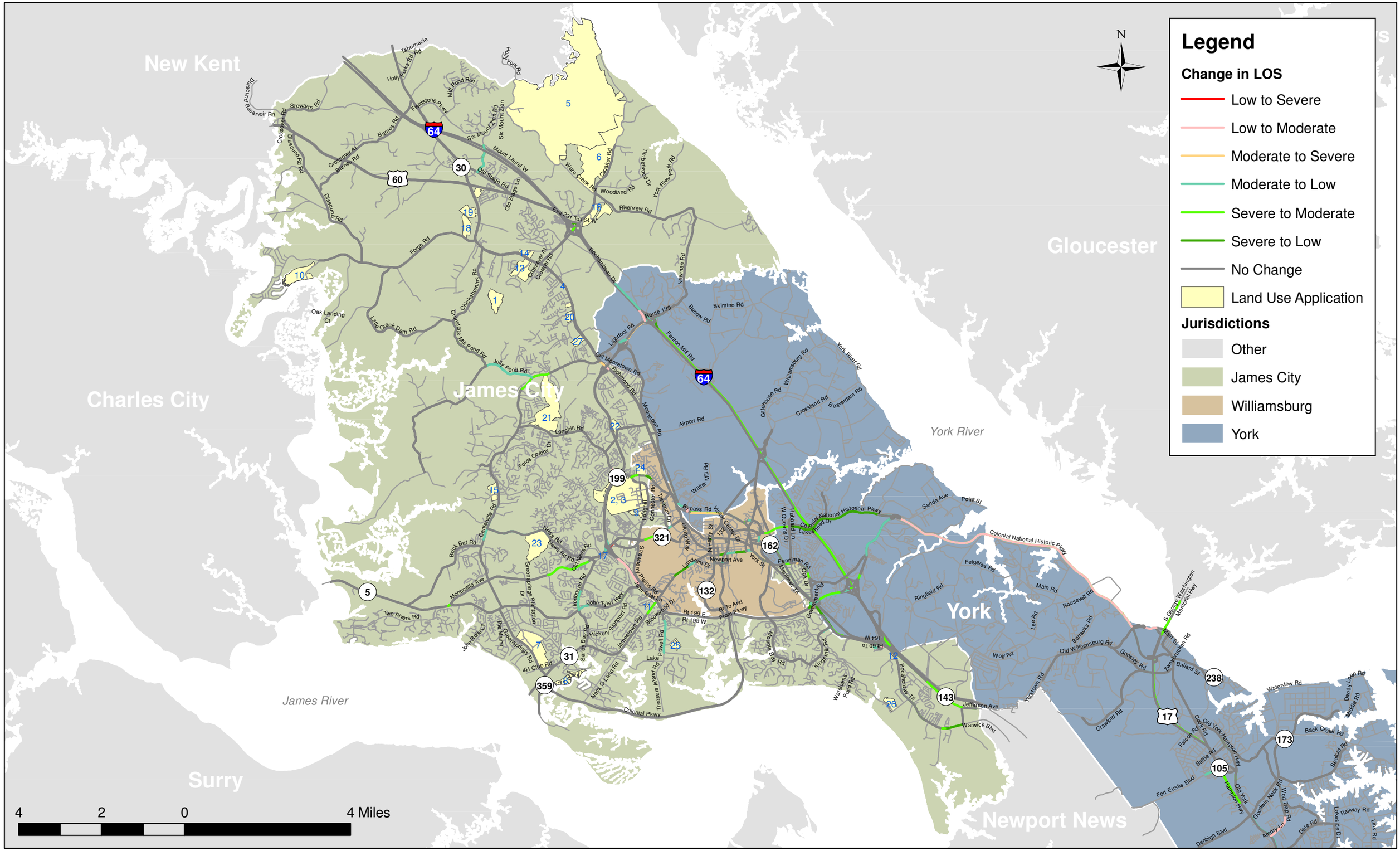


Change in Congestion from 2017 to 2045 Alternate Future
PM Peak Period (3 - 6 PM)



Change in Congestion from 2045 Virtual Future to 2045 Alternate Future
PM Peak Period (3 - 6 PM)



AGENDA ITEM NO. G.5.

ITEM SUMMARY

DATE: 4/12/2022

TO: The Board of Supervisors

FROM: Thomas Wysong, Senior Planner II

SUBJECT: Z-21-0012 and MP-21-0003. Proffer and Master Plan Amendment for the Continuing Care Retirement Facility at Ford's Colony (Ford's Village)

ATTACHMENTS:

	Description	Type
	Staff Report	Staff Report
	1. Ordinance	Ordinance
	2. Location Map	Exhibit
	3. Community Impact Statement	Backup Material
	4. Proposed Proffers	Backup Material
	5. Proposed Master Plan	Exhibit
	6. Existing Proffers	Backup Material
	7. Existing Master Plan	Backup Material
	8. Fiscal Impact Analysis	Backup Material
	9. Housing Types Example	Backup Material
	10. DRW Memo	Backup Material
	11. Parks and Recreation Exception Request	Backup Material
	12. Public Input	Backup Material
	13. Approved minutes from the December 1, 2021, Planning Commission Meeting	Backup Material

REVIEWERS:

Department	Reviewer	Action	Date
Planning	Holt, Paul	Approved	3/25/2022 - 12:25 PM
Development Management	Holt, Paul	Approved	3/25/2022 - 12:25 PM
Publication Management	Daniel, Martha	Approved	3/25/2022 - 12:58 PM
Legal Review	Kinsman, Adam	Approved	3/31/2022 - 12:00 PM
Board Secretary	Saeed, Teresa	Approved	3/31/2022 - 3:47 PM
Board Secretary	Purse, Jason	Approved	4/4/2022 - 2:21 PM
Board Secretary	Saeed, Teresa	Approved	4/5/2022 - 7:48 AM

SUMMARY FACTS

Applicant:	Mr. Vernon Geddy, III, on behalf of Frye Development, LLC
Land Owners:	SWR-HOCKADAY, LLC & MCMURRAN, MARTHA
Proposal:	A request to amend the adopted proffers and master plan for the Continuing Care Retirement Facility at Ford's Colony. The proposal would permit up to 286 age-restricted residential units consisting of single-family dwellings and multifamily dwellings, as well as a facility containing a total of no more than 230 age-restricted assisted living/memory care rooms/skilled nursing beds, with no more than 75 apartments, no more than 155 assisted living rooms/memory care rooms, and no more than 40 skilled nursing beds. This development would include accessory amenities intended for the residents and employees of the development and not the general public.
Location:	3889 News Road
Tax Map/Parcel No.:	3730100004
Current Zoning:	R-4, Residential Planned Community District with proffers
Project Acreage:	+/- 179.2 acres
Comprehensive Plan:	Low Density Residential
Primary Service Area: (PSA)	Inside
Staff Contact:	Thomas Wysong, Senior Planner II

PUBLIC HEARING DATES

Planning Commission:	November 3, 2021, 6:00 p.m. (Postponed) December 1, 2021, 6:00 p.m.
Board of Supervisors:	January 11, 2022 (Postponed) March 8, 2022 (Postponed) April 12, 2022

FACTORS FAVORABLE

1. Staff finds the proposal to be consistent with the adopted 2045 Comprehensive Plan.

2. Pursuant to the Fiscal Impact Analysis (FIA) submitted for this application, the proposal is expected to have a positive fiscal impact.

3. Due to the proffered age restriction, the proposal is not anticipated to generate any schoolchildren.

4. The applicant has proffered cash contributions that are intended to mitigate the impacts of this proposal.

5. The applicant has proffered transportation improvements that adequately mitigate impacts to News Road and the surrounding transportation network.

6. The applicant has proffered for the 286 single-family and multifamily units to be constructed to Energy Star (or equivalent independent) residential certification.

7. The applicant has proffered for the submittal of a Nutrient Management Plan for all landscaped areas within the development.

8. The applicant has proffered the installation of a bus stop and shelter on News Road adjacent to the main entrance into the Property, upon request of Williamsburg Area Transit Authority (WATA) or any successor agencies.

9. The applicant has proffered to reserve two assisted living beds for Medicaid-qualified individuals under the Auxiliary Grant Program administered by the Virginia Department of Social Services.

10. The applicant has proffered the submittal of a Traffic Management Plan (TMP) for construction of the project in order to mitigate the traffic impacts on News Road related to construction.

11. Impacts: See Impact Analysis on Pages 10-12.

FACTORS UNFAVORABLE

1. Impacts: See Impact Analysis on Pages 10-12.

2. See Affordable/Workforce Analysis on Page 8.

SUMMARY STAFF RECOMMENDATION

Staff recommends that the Board of Supervisors approve the Master Plan and proffer amendment application.

PLANNING COMMISSION RECOMMENDATION

At its December 1, 2021, Regular Meeting, the Planning Commission recommended approval of the application with the proposed conditions by a vote of 5-1.

CHANGES SINCE THE PLANNING COMMISSION MEETING

In response to public input, the applicant has included an additional proffer requiring the submittal of a TMP for construction of the project prior to site development. The applicant has also revised the proffer and master plan for the emergency access to ensure an updated traffic study will be provided and improvements installed in the event this entrance is proposed for conversion to a full entrance.

CHANGES SINCE THE JANUARY 11, 2022, BOARD OF SUPERVISORS MEETING

The applicant has provided a proffer for project phasing, as well as a proffer detailing the establishment of a homeowners association for the single-family and multifamily units (see Page 4 of the staff report and updated Attachment No. 4).

PROJECT DESCRIPTION

This application proposes to amend the currently adopted Ford's Colony Master Plan and related proffers for the Continuing Care Retirement Community (CCRC) proposed on the property. This previously approved CCRC, which has not commenced development, is known as Ford's Village and is identified as Section 37 on the approved Ford's Colony Master Plan. The use of the property for continuing care is not proposed to change, though this amendment does significantly change the proposed unit mixture and internal site layout for Ford's Village.

Master Plan Amendment

Under the currently approved Master Plan (MP-0008-2007), the access to Ford's Village is proposed to be provided via an entrance on News Road, located across from the Firestone residential entrance to Ford's Colony. The streets internal to Ford's Village are proposed to be privately maintained and the project is shown connecting to public water and sewer provided by James City Service Authority (JCSA).

In terms of internal layout, the currently approved 2007 Plan shows a total of 36 principal buildings, along with several smaller accessory structures. Nineteen of the buildings are two-unit townhouses (duplexes), which account for 38 units. The remaining 17 buildings and accessory structures are intended to house the various independent living units, assisted living rooms, and skilled nursing beds planned for the CCRC, which account for a total of 703 units/rooms/beds. There are also a wide variety of support uses including a health center, community meeting facility, parking and storage functions, maintenance and support functions, dining halls and kitchens, and on-site services (such as a barbershop, beauty parlor, post office, etc.).

The proposed Master Plan amendment would change the proposed unit mixture by significantly increasing the amount of single-family and multifamily units and significantly decreasing the amount of proposed apartments, resulting in a more balanced mix within the development. In this proposal, the land use would be divided into two categories: the single-family and multifamily units would account for 286 units and be dispersed along the private road network proposed in Land Areas designated A, B, or C. The proposed apartments, memory care/assisted living, and skilled nursing beds would account for a maximum of 230 units and be located within Land Area D, which is the hub of apartments, medical, and institutional uses.

Both categories of development would be part of the same continuing care facility, with residents and employees able to access the shared amenities within the parcel. These amenities include recreational amenities and limited commercial uses intended for the residents and employees of the development (not the general public) and including a café/coffee shop; education room; spa and wellness center; physical therapy and/or physician's office(s), and pharmacy.

As detailed in the following table, the unit mixture within the proposed Master Plan amendment would significantly increase the amount of single-family and multifamily units on-site, while also significantly reducing the amount of apartments. In terms of medical and institutional uses, the potential development for assisted living/memory care is increased, while the potential development of skilled nursing beds decreases.

Table 1: Master Plan Unit Mix Comparison

Unit/Bed Type	Adopted 2007 Master Plan	Proposed 2021 Amendment	Difference
Single-Family and Multifamily Units	38	286	+248
Apartments	558	75	-483
Assisted Living/Memory Care	85	155	+72
Skilled Nursing	60	40	-20
Total Max	741	516*	-225

**Per the amended proffers, the total amount of apartments, assisted living/memory care rooms/skilled nursing beds within the institutional facility (Land Use "D" on the Master Plan) shall not exceed 230 (see rows shaded blue in the Table), which is why this number is capped at 516.*

Proffer Amendment

In conjunction with the proposed Master Plan amendment, the applicant is proposing to amend and restate the proffers for the parcel. This proposal includes revisions to the existing proffer language as well as the proposed removal of certain proffers as follows:

- Revision to the proffered unit max and type to match what is proposed on the amended Master Plan (see Table 1 on Page 3 for details).
- Revisions to the details of the proffered Stormwater Plan to reflect the amended approach to stormwater management on the Master Plan.
- Revisions to the recreational amenities proffers to clarify that the proposed amenities are not open to the general public and are intended for residents of Ford's Village.
- Inclusion of a proffer requiring the submittal and approval of an updated traffic signal warrant analysis for the News Road/Firestone Drive/project entrance intersection prior to site plan or subdivision plan approval.
- Inclusion of a proffer requiring the submittal of a TMP for construction of the project in order to mitigate the traffic impacts on News Road related to construction.
- Inclusion of a proffer requiring an updated traffic study and installation of required road improvements to the emergency entrance, in the event it is proposed to be converted to a full entrance.
- Inclusion of a phasing proffer stipulating that the County will not issue building permits for more than 50 dwelling units in the single-family and multifamily unit neighborhoods until construction on the institutional uses has commenced.
- Inclusion of a proffer detailing the establishment of a homeowners association for the single-family and multifamily component of the residential development.
- Revisions to the build-out trigger point for when traffic counts need to be submitted to the County (current approved number is at 247 units, then at 494 units; the proposed trigger point is at 400 units, roughly halfway between the two). The purpose of the trigger points is to determine the traffic impacts at certain points during project build-out such that any additional needed transportation improvements (such as entrance or turn lane improvements) can be installed prior to continued build-out.
- Removal of the Greenway Trail proffer, which proposes the construction and dedication to the public of this trail portion, on account of the lack of an interconnecting easement being made available from the Monticello Woods property (See Impact Analysis Table on Page 10 for further analysis).
- Removal of redundant proffers that establish standards already required by the Zoning Ordinance, including the proffer regulating lighting, archaeology study, natural resource study, etc.
- Removal of proffers limiting heights for buildings no longer shown on the Master Plan.
- Removal of the proffer requiring the submittal of the Cold Spring Swamp Drainage Analysis, on account of an analysis being completed for the swamp since the original rezoning and master plan approval for this property.

Per the Planning Commission's recommendation, Planning staff held a follow-up meeting with Stormwater and Resource Protection (SRP) to discuss the potential for upstream flooding on the property and the impact of removing Proffer No. 19 and Proffer No. 10(b) on flooding and erosion control. SRP confirmed that the Powhatan Creek Floodplain Study (which analyzes the full build-out of the Powhatan Creek watershed) eliminates the need for Proffer No. 19, which would require a drainage analysis of Cold Spring Swamp (part of the Powhatan Creek Study) at full build-out.

SRP also confirmed that the removal of Proffer No. 10(b), which requires the submittal of a stream monitoring plan on the subject property and annual monitoring of erosion for a period of 10 years, would not prevent the Stormwater Division from adequately addressing erosion concerns on the parcel during the development plan process.

The stream monitoring plan required by this proffer requires a baseline assessment and monitoring of stream segments delineated on Sheet No. 7 of the Master Plan. Furthermore, this proffer requires the property owner to install additional upstream run-off control measures, as approved by SRP, to prevent further erosion if the stream monitoring indicates the presence of new erosion not shown in the baseline assessment. These additional upstream runoff control measures would include measures on the other side of News Road on parcels not included with this application, which would make enforcement of this proffer impractical for the County. Finally, mitigating any potential impacts of this development on the Powhatan Creek watershed and the Cold Spring Swamp would be accomplished at the site plan stage, should this project be approved, and the development would be held to the current standards and requirements of the Erosion and Sediment Control, Stormwater Management, and Chesapeake Bay Preservation Ordinances.

As detailed within Table 2, the proposed proffers also include revisions and updates to the cash commitments associated with this project. Specifically, the applicant is proposing to update and increase the per unit/room/bed commitment for the 2021 amendment to account for the Marshall & Swift Building Cost Index. The proposed proffers also remove the cash commitments to specific improvements from the 2007 rezoning related to infrastructure development, namely sewer and road improvements. The $60,000 cash commitment to sewer infrastructure has been proposed for removal, as has the $36,000 cash commitment to road improvements for the Monticello Avenue/News Road Intersection and Monticello Avenue Corridor. The $60,000 proffered for off-site sewer improvements is proposed for removal by the applicant. JCSA has raised no concerns with this proposed removal.

The $36,000 proffered for off-site transportation improvements to the News Road/Monticello Avenue intersection and the Monticello Avenue Corridor is proposed for removal by the applicant due to the completion of these improvements since the original rezoning.

Overall, the total development amount of cash contribution for the project is expected to decrease by approximately 25% from $1,757,475 to $1,326,095.15, depending on final unit mix. This is largely attributed to the overall proposed reduction in dwelling units resulting from the amended Master Plan and proffers, in which the current proffered amount of 596 residential units is being decreased by 40% to 361 dwelling units.

Table 2: The Village at Ford's Colony: Cash Contribution Proffer Comparison

Cash Contribution Proffer Summary	Approved 2007 Proffers (in 2008 dollars)	2021 Proffer Amendment
Proffer Use:	Amount:	Amount:
Fire, Police, Emergency Services, Library, Public Facilities:	$1,000 per Dwelling Unit (x 596 Dwelling Units = $596,000	$1,277.61 per Dwelling Unit (x 361 Dwelling Units) = $461,217.21
Fire, Police, Emergency Services, Library, Public Facilities:	$250 per Room/Bed (x 83 Rooms) + (x 60 Beds) = $35,750	$319.40 per Room/Skilled Nursing Unit* (x 115 Rooms) + (20 Skilled Nursing Units) = $43,119
Water Infrastructure Development:	$870 per Dwelling Unit (x 596 Dwelling Units) = $518,520	$1,111.52 per Dwelling Unit (x 361 Dwelling Units) = $401,258.72
Water Infrastructure Development:	$435 per Room/Bed (x 83 Rooms) + (x 60 Beds) = $62,205	$555.76 per Room/Skilled Nursing Unit x (115 Rooms +20 Skilled Nursing Units) = $75,027.60
Sewer Infrastructure Development:	$60,000 (one-time payment)	$0
Monticello Avenue/News Road Intersection and Monticello Avenue Corridor Improvements:	$36,000 (one-time payment)	$0
Road Improvements:	$750 per Dwelling Unit (x 596 Dwelling Units = $447,000)	$958.20 per Dwelling Unit (x 361) = $345,910.20
Total Cash Contribution Per Dwelling Unit:	Up to: $2,620 per Dwelling Unit (x 596 Dwelling Units = $1,561,520)	Up to $3,347.33 per Dwelling Unit (x 361 Dwelling Units) = $1,208,386.13
Total Cash Contribution Per Room/Bed:	$685 per Room/Bed (x 143 Rooms/Beds) = $97,955	$875.16 per Room/Skilled Nursing Unit (x 135 Rooms/Unit) = $118,146.60
Total Development Cash Contribution:**	Up to: $1,757,475	Up to $1,326,095.15***

**Per the proffers, one skilled nursing unit is equal to two beds.*
***Cash amount is stated as "up to" on account of the different unit mix possibilities, per the proffers in both proposals.*
****Per the proffers, two of the four beds within one of the assisted living rooms will be reserved for Medicaid qualified individuals and are exempt from the proffered cash contribution, which is why half a unit's worth of cash contributions (2 beds = $437.58) has been subtracted from the estimated total.*

Transportation Analysis

Separate from the cash contributions, the applicant has proffered the same on-site transportation improvements included within the 2007 rezoning, with the exception of the shoulder bike lane on News Road, which is not recommended by the County's bicycle/pedestrian maps and has been removed from the proffers. These on-site improvements include the following:

- A signal at the intersection of News Road, Firestone Drive, and the project entrance (if warranted by updated traffic signal warrant analysis that is proffered to be completed prior to development plan approval).
- An exclusive left-turn lane from westbound News Road into the Property.
- An exclusive right-turn lane from eastbound News Road into the Property at the main entrance into the Property at the intersection of News Road and Firestone Drive.
- The restriping of the existing southbound left-turn lane on Firestone Drive at News Road to be a shared left and through lane.
- The installation of an exclusive left-turn on westbound News Road at the intersection with Powhatan Secondary.
- The installation or payment for a traffic signal at the intersection of News Road and Powhatan Secondary at the time such signal is warranted.

The applicant has submitted a trip generation calculation memorandum (see Attachment No. 10) for this proposal that compares the proposed unit mix to information within the previously approved traffic studies for Ford's Colony, including the study performed for the rezoning of this parcel in 2007 and the 2020 Kimley-Horn and Associates Inc. traffic study. The traffic study from the 2007 rezoning showed a daily trip generation of 2,697, while the proposed generation for this amendment shows a total of 1,916 trips, a reduction of 781 daily trips.

The County adopted the Adequate Transportation Facilities Test by resolution on August 14, 2018. This policy requires for a proposed Special Use Permit (SUP) or rezoning to be tested during the application process to ensure that transportation facilities are adequate to mitigate traffic impacts. Per the adopted policy, a proposed rezoning or SUP application will pass the test if:

i. No off-site improvements are required by the Traffic Impact Analysis (TIA) that is approved by both the Planning Director and the Virginia Department of Transportation (VDOT); or

ii. All off-site improvements recommended by a TIA that are approved by both the Planning Director and the VDOT are guaranteed in a form approved by the Planning Director and County Attorney.

The transportation improvements proffered with this application ensure that this proposal passes the Adequate Transportation Facilities Test.

Parks and Recreation Analysis

This project is required to meet the R-4 Zoning Ordinance requirements, which requires 40% of the overall planned development of Ford's Colony to be open space. If approved, this proposal would result in no change in the overall open space for Ford's Colony, which is 52.3%. The R-4 District also requires one acre of recreational open space per 350 dwelling units. This proposal exceeds this requirement by proposing a minimum of four acres of dedicated recreation area.

The R-4 requirements do not encompass all aspects of the Parks and Recreation Development Guidelines, which include trails, courts/pools, and fields. Please see below for the proposal analysis.

- Requirement: Park land (0.83 acres minimum).
- Applicant Proposal: The Master Plan guarantees a minimum of four acres of recreational land and facility, which substantially exceeds the recommended amount.

- Requirement: Playground (minimum of five activities) or other age-appropriate alternative facility.
- Applicant Proposal: The Master Plan shows eight pocket parks, in which playgrounds can be located; however, the Master Plan and proffers do not commit to facilities in the pocket parks.

- Requirement: Hard surface sport court or pool.
- Applicant Proposal: The applicant has proffered pickleball courts, to be located within the Land Use areas designated for single-family and multifamily development.

- Requirement: Graded athletic field.
- Applicant Proposal: The applicant is not proposing a graded athletic field as part of this proposal.

- Requirement: Paved multiuse trail.
- Applicant Proposal: The applicant is proposing the Greenway Trail to serve the site, as well as a multiuse path along News Road.

The Parks and Recreation Development Guidelines state that the Board of Supervisors may approve alternatives to the recommended facility categories listed above. The applicant has submitted an exception request (see Attachment No. 11). While playgrounds/age-appropriate alternative facilities and a graded athletic field are not included in this proposal, other recreational amenities proposed for the site include a spa and wellness center, an outdoor pool, and walking/biking paths.

The County's *2002 Greenway Master Plan* proposed a Greenway Trail traversing this property from News Road to Monticello Avenue. The currently adopted Master Plan shows the proposed Greenway Trail connecting from News Road to the southern portion of the property. The proposed Master Plan shows the Greenway Trail traversing the southern portion of the property and connecting to the "Park" and "Clubhouse/Recreation" area, but offering no connection to the southern property line.

Housing Affordability Analysis

The Comprehensive Plan encourages inclusion of affordable and workforce units within new residential development. The 361 proposed units are planned to be a mix of single-family, multifamily, or apartments, all to be offered at market rate within the context of the Continuing Care development. At this time, it is undetermined what the exact unit mix will be. The tables below and on the next page provide the sales and rental prices affordable at distinct percentages of Area Median Income (AMI) level, which is $84,500 for 2021.

Affordable Sales Price by AMI %

% AMI	Upper limit of the sales price affordable to this AMI level (2021 prices)
30%	$129,750
60%	$257,250
80%	$341,950
100%	$427,125
120%	$512,000

Affordable Rental Price by AMI %

% AMI	Upper limit of the rental price affordable to this AMI level (2021 prices)
30%	$ 634
60%	$1,268
80%	$1,689
100%	$2,113
120%	$2,535

PLANNING AND ZONING HISTORY

The subject property is currently an undeveloped parcel of land (formerly known as the "Warburton Tract") which is largely in a natural, undisturbed state. The land has previously been timbered, and remnants of several logging roads cross it in various locations. The parcel is heavily vegetated with a mixture of pines, hardwoods, and dense underbrush. The ground is higher in the center of the property, and slopes away steeply toward the eastern, southern, and western edges. Cold Spring Swamp runs along the eastern boundary of the property, and the main stem of Powhatan Creek runs along the western property boundary. The property is approximately 179.20 acres in size.

This parcel was rezoned in 2008 from the R-8, Rural Residential Zoning District to the R-4, Residential Planned Community with proffers and incorporated into the Ford's Colony Master Plan. The proposed use for the property on the approved Master Plan is a CCRC consisting of 38 townhomes, 558 independent living units, 83 assisted living rooms, and 60 skilled nursing beds. In conjunction with this rezoning and master plan, the parcel was removed from the Gordon Creek Agricultural and Forestal District. No development has commenced within the property and no cash proffers have been collected.

SURROUNDING ZONING AND DEVELOPMENT

North: R-2, General Residential (Springhill Subdivision); R-4, Residential Planned Community District (Ford's Colony).

West: A-1, General Agricultural.

South: PUD-R, Planned Unit Development Residential Community District (Monticello Woods).

East: R-4, Residential Planned Community District (Powhatan Secondary.

IMPACT ANALYSIS

Impacts/Potentially Unfavorable Conditions	**Status** *(No Mitigation Required/Mitigated/Not Fully Mitigated)*	**Considerations/Proposed Mitigation of Potentially Unfavorable Conditions**
Please note the information in the Status column indicated below does not include information from the Financial Impacts of Residential Units section of this staff report.		
Public Transportation: Vehicular	Mitigated	- Please see the Transportation Analysis on Page 7. - Per the proffers, upon the request of the WATA, the Owner shall install a bus stop, and shelter on News Road adjacent to the main entrance into the Property, with the exact location being subject to the approval of WATA.
Public Transportation: Pedestrian/Bicycle	Not Fully Mitigated	- The County's *Pedestrian Accommodation Master Plan* and *Regional Bikeways Map* shows the need for a multiuse path along the property frontage on News Road. - The proposed Master Plan shows a multiuse path abutting the News Road frontage in between the primary entrance and emergency access entrance for the property, but not the entirety of the property as recommended on the maps. - Pursuant to Section 24-35 of the Zoning Ordinance, the proposed improvements shown on these maps are required to be shown on the site plan and installed at development. - The County's *2002 Greenway Master Plan* proposed a Greenway Trail traversing this property from News Road to Monticello Avenue. - The currently adopted Master Plan shows the proposed Greenway Trail connecting from News Road to the southern portion of the property. The proposed Master Plan shows the Greenway Trail traversing the southern portion of the property and connecting to the "Park" and "Clubhouse/Recreation" areas, but offering no connection to the southern property line.
Public Safety	Mitigated	- Located within a six-minute radius of Fire Station 5. - The proposal is expected to generate impacts that are mitigated by the proffered cash contributions (see Table 2 on Page 6 for details).
Public Schools	No Mitigation Required	- Ford's Village is proposed as a CCRC. Per the proffers, all proposed units are age-restricted and are not expected to generate schoolchildren.

Impacts/Potentially Unfavorable Conditions	**Status** *(No Mitigation Required/Mitigated/Not Fully Mitigated)*	**Considerations/Proposed Mitigation of Potentially Unfavorable Conditions**
Please note the information in the Status column indicated below does not include information from the Financial Impacts of Residential Units section of this staff report.		
Public Parks and Recreation	No Mitigation Required	- See Analysis on Pages 7 and 8.
Public Libraries and Cultural Centers	Mitigated	- Per the proposed proffers, the applicant is contributing a portion of the $1,277.61 to mitigate impacts to the library.
Groundwater and Drinking Water Resources	Mitigated	- The Master Plan proposes to connect to the existing water and sewer facilities currently located within News Road. JCSA has reviewed and approved the water and sewer flows within the CIS, as well as the proposed utility layout within the Master Plan. - Per the proposed proffers, the property will be developed with water conservation standards approved by JCSA.
Watersheds, Streams, and Reservoirs The property is located within the Powhatan Creek Watershed.	Mitigated	- The Master Plan shows a conceptual layout for stormwater management facilities. - The proposed proffers require the Master Stormwater Management Plan (MSWMP) for the Property be approved prior to the first site plan submittal and comply with the standards within the adopted Watershed Management Plan in place at time of submittal.
Cultural/Historic	No Mitigation Required	- This property is identified as a Moderate sensitive area on the James City County Archaeological Assessment, meaning no archaeological study is required for this application as part of the legislative submittal. - Per Section 24-145 of the Zoning Ordinance, a Phase 1 Archaeological Study will be required for submittal and review as part of the initial site plan submittal.
Nearby and Surrounding Properties	No Mitigation Required	- The proposed area to be developed as Ford's Village will be residential in nature and age-restricted throughout, per the proposed proffers. The impacts related to nuisances such as noise and light are not anticipated to impact neighboring and surrounding proffers due to adequate buffering and Ordinance requirements regarding lighting.

Impacts/Potentially Unfavorable Conditions	**Status** *(No Mitigation Required/Mitigated/Not Fully Mitigated)*	**Considerations/Proposed Mitigation of Potentially Unfavorable Conditions**
Please note the information in the Status column indicated below does not include information from the Financial Impacts of Residential Units section of this staff report.		
Community Character	Mitigated	- News Road is identified as a Wooded Community Character Corridor (CCC). - The Master Plan shows a 150-foot wide CCC buffer along the entire frontage of News Road on the property. This property is heavily wooded and consists of mature trees that provide substantial screening from the News Road right-of-way.

FINANCIAL IMPACTS OF RESIDENTIAL UNITS

On September 10, 2019, the Board of Supervisors adopted a resolution directing staff to produce a fact sheet that outlines general financial impacts of residential dwellings based on the Adopted Budget, the Capital Improvements Program, the Comprehensive Plan, the Strategic Plan, and any other relevant data. The resolution further directs that the fact sheet should address the immediate and long-range fiscal impacts related to increased use and demand on the following public facilities and resources. The per unit Residential Impacts are based on the Fiscal Year (FY) 2022 data provided by the Department of Financial and Management Services (FMS) and JCSA, as well as the projected number of annual residential unit data through 2034 (the Comprehensive Plan horizon year). The per unit impacts are detailed in Table 1 below.

Table 1-Per Unit Fiscal Residential Impacts Information

Category	Residential Impact	Proffered with current application*
Public Transportation	$ 299.21	$958.20
Public Safety	-	$1,277.61
Public Schools	$1,417.63	$0**
Public Parks & Recreation	$4,156.19	$0
Public Libraries and Cultural Centers	$ 170.88	$1,277.61 (portion of Public Safety)
Groundwater and Drinking Water Resources	$3,542.69	$1,111.52
Watersheds, Streams & Reservoirs	$1,954.03	$0

**The rooms/beds are excluded from this analysis, per the CCRC analysis guidance in the Comprehensive Plan.*
***All units are age-restricted and not expected to generate school children.*

The general financial impacts of dwelling units described above are for the County and residential development as a whole. Submission of a development-specific FIA is required for all rezonings that include a residential component. The FIA takes into account all development components, including both residential and non-residential uses and the results are also affected by types of residential units and projected assessed values.

- The County's FIA worksheet was submitted per the FY 2021 calculations provided by the Department of FMS (see Attachment No. 8).

- Per that analysis, the development would result in a $727,922 annual positive fiscal impact to the County. When not accounting for schoolchildren generation (which is not anticipated as a result of this age-restricted development), the impact is $1,887,000.

Comprehensive Plan

The 2045 Comprehensive Plan states that the use of land should be consistent with the capacity of existing and planned public facilities and services and the County's ability to provide such facilities and services. The Plan also states "expect developments subject to zoning or SUP review to mitigate their impacts." Information on impacts and the mitigation provided by this application are included in this staff report.

The property is designated Low Density Residential (LDR) on the adopted 2045 Comprehensive Plan Land Use Map and is located inside the PSA. The following general guidance is stated for the LDR designation in the Comprehensive Plan:

Single-family homes, multifamily units, and retirement and care facilities/communities are all recommended uses in LDR areas provided that development:

- Complements the residential character of the surrounding area;
- Has traffic, noise, and lighting impacts similar to surrounding uses;
- Is generally located on collector or arterial roads at intersections;
- Provides adequate screening and buffering to protect the character of nearby residential areas; and
- Act as a transitional use between residential and commercial areas or, if located within a residential community, be integrated with the residential character of the area rather than altering its nature.

Staff finds this proposal meets all of these criteria. Additionally, the Comprehensive Plan recommends a gross density of one to four units per acre in LDR areas. When describing the review process for a CCRC, the Comprehensive Plan recommends the density be based on the number of independent living units (361 units), with the assisted living rooms and/or skilled nursing beds excluded from this calculation as these are considered institutional uses.

As such, this application would result in a significant decrease in the density on the subject parcel from the 4.77 units per acre to 2.89 dwelling units per acre. This proposal would also result in a marginal decrease within the overall density of Ford's Colony from 1.36 unit per acre to 1.28 units per acre.

STAFF RECOMMENDATION

Staff recommends that the Board of Supervisors approve the Master Plan and proffer amendment application.

TW/md
RZ21-12MP21-3PMPAFdsColVill

Attachments:
1. Ordinance
2. Location Map
3. Community Impact Statement
4. Proposed Proffers
5. Proposed Master Plan
6. Existing Proffers
7. Existing Master Plan
8. Fiscal Impact Analysis
9. Housing Examples
10. DRW Memorandum
11. Parks and Recreation Exception Request
12. Public Input
13. Approved minutes from the December 1, 2021, Planning Commission Meeting

ORDINANCE NO. _____

AN ORDINANCE TO AMEND EXISTING PROFFERS RECORDED AS INSTRUMENT NUMBER 080017656, APPROVED AS PART OF Z-08-07 TO PERMIT A DIFFERENT MIX OF UNIT TYPES AND REVISED DEVELOPMENT STANDARDS AND AS DESCRIBED IN CASE NOS. Z-21-0012 AND MP 21-0003

WHEREAS, on July 8, 2008, the Board of Supervisors approved Case No. Z-08-07 which included proffers regulating the development of a proposed Community Care Retirement Facility, including but not limited to the number of units, unit type, cash contributions for impact mitigation, and stormwater management, on the parcel located at 3889 News Road, James City County, Virginia, further identified as James City Tax ID Parcel No. 3730100004 (the "Property"); and

WHEREAS, Mr. Vernon Geddy has applied for an amendment to the existing proffers on behalf of the owners, SWR-Hockaday LLC & Martha McMurran, to permit a different unit mixture, site design, and development approach; and

WHEREAS, the Planning Commission, following its public hearing on December 1, 2021, recommended approval of Case Nos. Z-21-0012 and MP 21-0003 by a vote of 5-1; and

WHEREAS, the Board of Supervisors of James City County, Virginia, finds Case Nos. Z-21-0012 and MP 21-0003 to be required by public necessity, convenience, general welfare, and good zoning practice.

NOW, THEREFORE, BE IT ORDAINED by the Board of Supervisors of James City County, Virginia, that Case Nos. Z-21-0012 and MP 21-0003 is hereby approved as described therein and the amended voluntary proffers are accepted.

_____
John J. McGlennon
Chairman, Board of Supervisors

ATTEST:

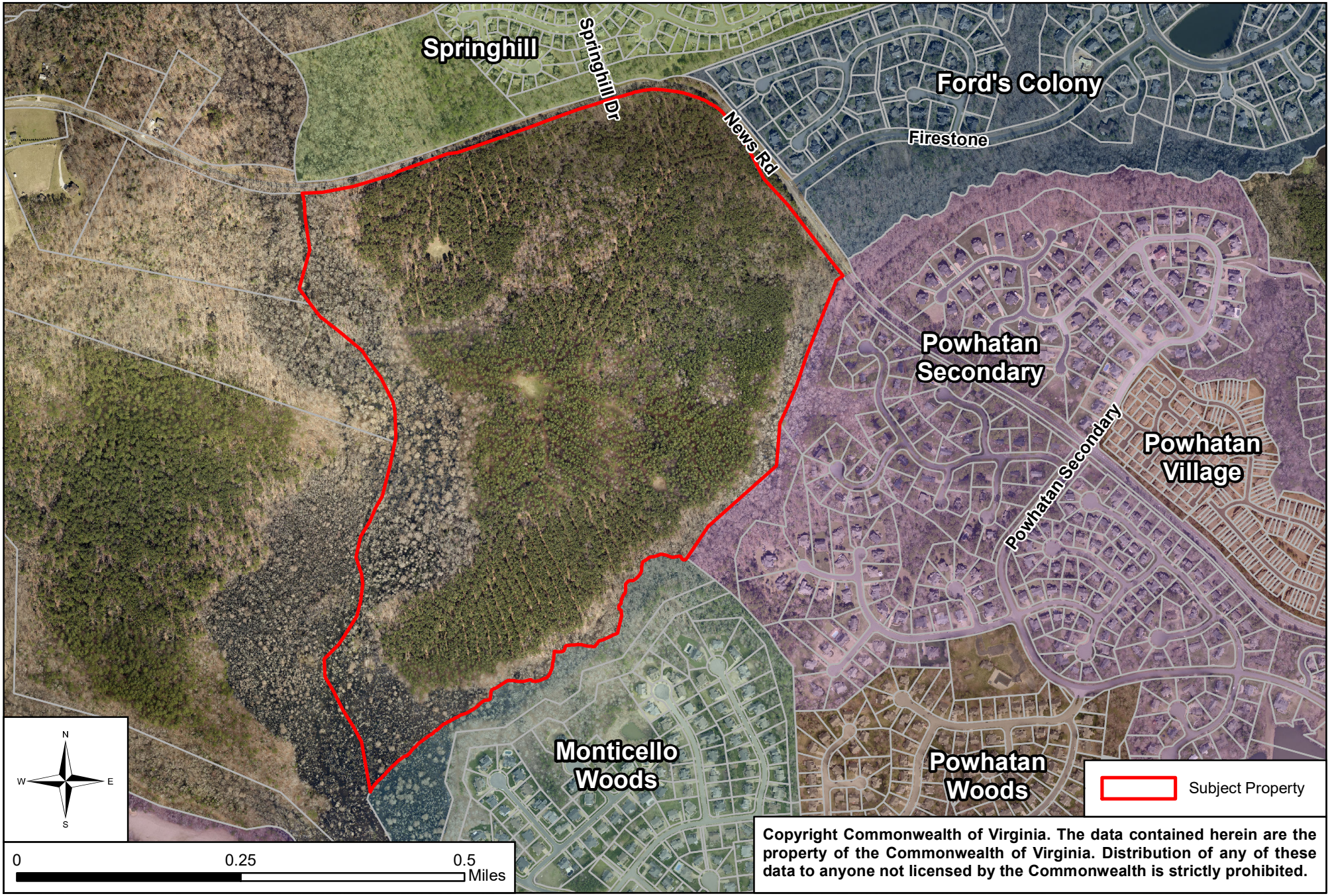
_____
Teresa J. Saeed
Deputy Clerk to the Board

	VOTES			
	AYE	NAY	ABSTAIN	ABSENT
ICENHOUR	____	____	____	____
HIPPLE	____	____	____	____
LARSON	____	____	____	____
SADLER	____	____	____	____
MCGLENNON	____	____	____	____

Adopted by the Board of Supervisors of James City County, Virginia, this 12th day of April, 2022.

RZ21-12MP21-3PMPAFdsColVill-ord

Z-21-0012 & MP 21-0003. Proffer and Master Plan Amendment for Ford's Colony (Ford's Village)



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Community Impact Statement

For

Ford's Village

Prepared For

Frye Development, LLC
Norfolk, VA 23510

Revised October 2021
AES Project Number W10514

Prepared by:

AES CONSULTING ENGINEERS

5248 Olde Towne Road Suite 1
Williamsburg, Virginia 23188
Phone: 757-253-0040
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I. INTRODUCTION

Frye Development, LLC, proposes to amend the previously approved master plan for Ford's Colony at Williamsburg to create a revised mix of senior residential housing and skilled care units. The amended master plan covers 180.79 acres located along News Road located directly across from Firestone Drive.

II. THE PROJECT TEAM

The organizations that participated in the preparation of the information provided with this rezoning submission are as follows:

- Developer - Frye Development, LLC
- Senior Living Operator - Retirement Unlimited, Inc.
- Civil Engineering - AES Consulting Engineers
- Environmental/Wetlands - Wetlands Solutions, Inc./Kerr Environmental
- Traffic - DRW & Associates
- Land Planning - Michael Watkins Architect
- Attorney - Geddy, Harris, Franck & Hickman, LLP

Frye Development, LLC, a wholly owned subsidiary of Frye Properties, Inc.. Frye Properties, Inc. Headquartered in Norfolk, Virginia, Frye provides real estate development, property management, construction, and full-service real estate brokerage services. The recipient of multiple regional and national awards for its developments, Frye Properties, Inc. has earned the respect of government officials, residents and clients. Frye is a trusted and highly experienced design, development, build group that specializes in creating traditional, walkable neighborhoods that seamlessly integrate into the special communities where they build. Frye's dedicated team represents a collection of experience that ranges from master planning, land development, architecture and building, to historic rehabilitation and management of a large portfolio of residential and commercial properties. Frye's extensive experience in developing quality residential projects, including East Beach in Norfolk and The Cavalier Residences in Virginia Beach, demonstrates its long-standing commitment to the highest level of design standards within the urban context. Frye believes its philosophy of respecting the land and its natural assets, its surroundings, and community history leads to the creation of vibrant, memorable communities which will compliment James City County's development goals and standards. Frye is excited about the chance to make that vision a reality.

Frye Development has partnered with Retirement Unlimited, Incorporated (RUI) to operate the senior living building on the property. RUI is a family run business, focused on senior living throughout the state of Virginia. RUI honors the values and traditions set forth by their founders and strives to take the senior living experience to the next level by offering diverse enrichment programs, social experiences, and levels of care in a comfortable and elegant setting. RUI operates multiple properties across the state Virginia including sites in Newport News, Virginia Beach and Richmond.

III. EXISTING CONDITIONS

Site Location:

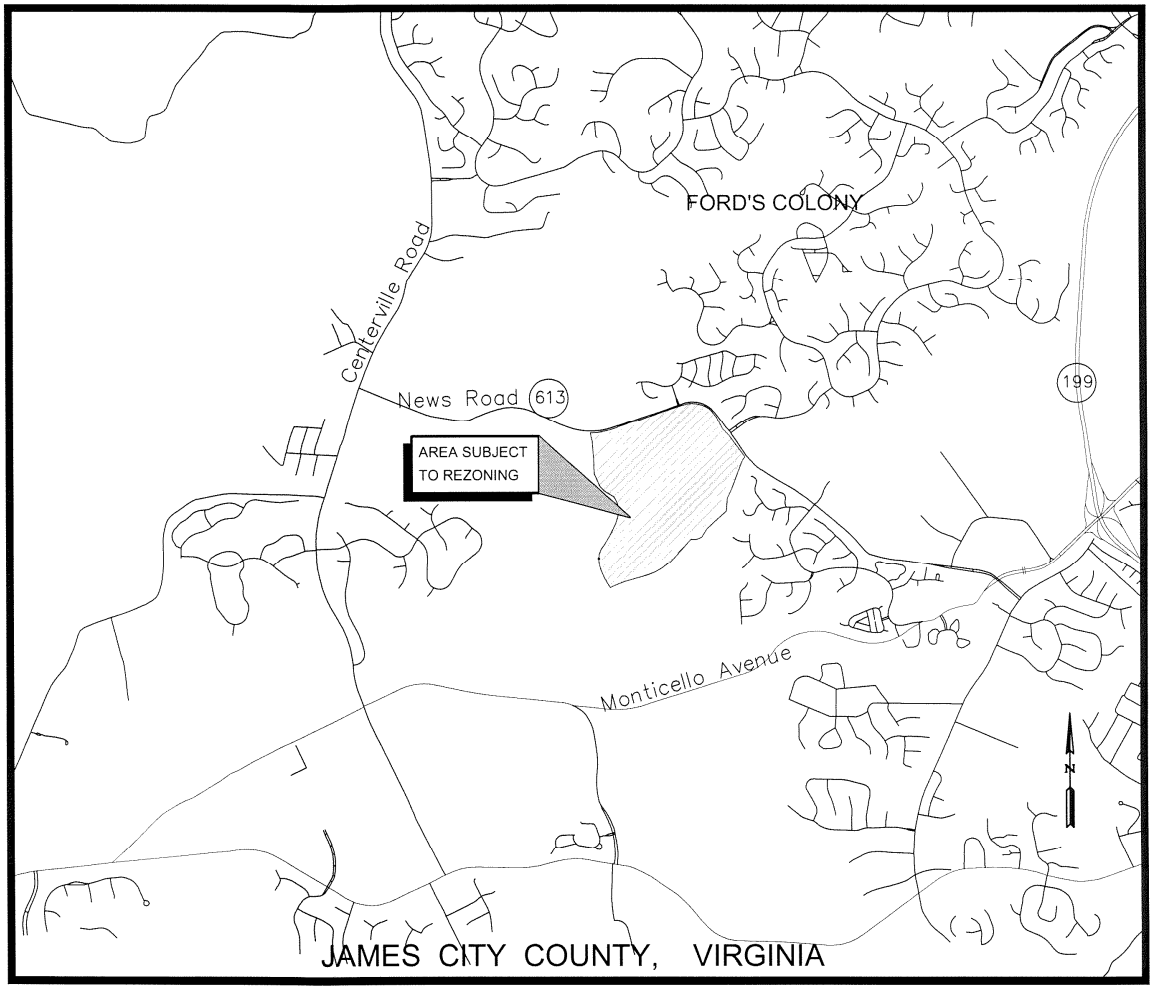

Figure 1

Master Plan Sheet 3 and 4 contain detailed information on wetlands, buffers, soils, and slopes. A pre-development site analysis revealed the following results:

Wetland areas:	*47.42 acres*
Buffers:	*58.81 acres*
Subtotal	***106.23 acres***
Uplands	*74.56 acres*
Total	***180.79 acres***

IV. PROJECT DESCRIPTION

The Village is approximately 181 acres in area and located across from the Firestone Entrance to Ford's Colony on News Road in James City County. The Village is envisioned as a full-service Continuing Care Retirement Community (CCRC) with 286 age restricted single family, townhome and condominium units; and a senior living building housing a combination of 230 independent-living apartment units, assisted-living units, and skilled/memory care beds. The CCRC development will provide on-site shared amenities available for those living in the senior living ("big house") and those living in the independent homes. The 286 age restricted units are envisioned as for sale product with a small reservation of 5 units available for short term rentals for guests of community residences. The model of this development differs from similar existing CCRC developments in James City as the senior living operator intends to offer their units on a rental model rather than the upfront buy-in model and the housing units are to be fee simple. Additionally, the property while part of the overall Ford's Colony master plan is intended to be autonomous, having its own internal homeowner's association. Approximately 70% of the total site is preserved in open space; much of that open space is to remain natural through the preservation of wetlands, streams, and associated buffers in compliance with James City County ordinances and policies. Other developable lands have been provided as common open space either in the form of buffer areas or recreation open space (as noted on Sheet 4 of the Master Plan set, *The Village Land-Use Master Plan*).

V. PLANNING CONSIDERATIONS

A. Land Use

The proposed land use for The Village is consistent with the current property zoning and designation of CCRC on the Ford's Colony at Williamsburg Master Plan and the surrounding land uses in the vicinity; Ford's Colony and Springhill to the north, Powhatan Secondary to the east, Monticello Woods to the south, and Greensprings Plantation to the west. The Village property is designated Low-Density Residential on the current James City County Comprehensive Plan, with a gross density of 1 to 4 units per acre. The revised mix of residential age restricted units reduces the previously approved density on the property (from 10 units/acre to 7 units/acre) and is shown in the residential count of the Ford's Colony Master Plan which produces an overall density of approximately 1.2 DUA. The maximum residential density in the R-4 District (which is also generally consistent with surrounding zoning districts) is 2.0 Dwelling Units per Acre.

B. Environmental

A detailed environmental site analysis was conducted on this property. The Warburton Tract was subjected to thorough soft and hardwood timbering less than twenty years ago. Thick undergrowth is prevalent on the property. Recent work performed by the Environmental Services Division of Wetlands Solutions identified 47 acres of wetlands and streams or 26% of the site. Wetland Solutions has also conducted a perennial stream analysis on the property and is in the process of coordinating a review with the James City County Environmental Department. The Warburton Tract Preliminary Layout and Grading plan sheet found in the environmental studies report at page 4 shows both the Resource Protection Area (RPA) buffers; based on changes in the perennial scoring system areas previously covered by 50' non-RPA buffers have been revised to have full 100-ft RPA buffers. Additional areas containing slopes of 25% or greater have been mapped but account for limited portions of the developable area of the site (outside

RPA buffers). Updated research and field verification also indicated that habitat for the Small Whorled Pogonia and Virginia Least Trillium are not present on this site.

C. Parks and Recreation

Frye Development, LLC, proposes to provide both active and passive recreational amenities designed to meet the needs of the anticipated residents while exceeding James City County policy standards. There are two sets of amenities for the project; those within the CCRC building and those scattered throughout the development in the form of pocket parks, soft and hard surface trails and passive open space. Frye proposes to dedicate a minimum of 4 acres of park/recreation space within Land Uses A,B&C; including a pool and community center building, walking trails a series of parks, several passive open space areas, nature trails and sidewalks. The project envisions the potential to provide existing Ford's Colony residents the ability to share in the development amenities.

VI. ANALYSIS OF IMPACTS TO PUBLIC FACILITIES AND SERVICES

The subject property is located within the Primary Service Area of James City County. Parcels and subsequent land development activities within the Primary Service Area are required to connect to public water and sanitary sewer service provided by the James City Service Authority (JCSA). Sheet 5 of the Master Plan, *The Master Utility Plan* is intended to supplement this report for information on public water and public sanitary sewer.

A. Public Water Facilities

The subject property will be served with public drinking water by the existing JCSA water distribution system in the area. JCSA currently maintains an existing 12-inch water main along News Road. This line is supported by loops through existing Ford's Colony as well as a loop from Monticello Avenue. The system facilities in this area are anticipated to be adequate for this development based upon previous flow data taken at a hydrant at the entrance to the adjacent Spring Hill subdivision. This would indicate adequate pressures and flows will be present throughout the proposed development. While our projected flows anticipate water and sewage demands based on residential housing as outlined by JCSA and the State Health Department, it is significant to note, that case studies and previous projects within JCC demonstrate reduced water consumption in age restricted communities.

A detailed water distribution system model will be completed and submitted as part of the subdivision review process. The model will examine flow rates and pressures throughout the immediate water system area to ensure adequate flow and pressure to accommodate the required fire flows.

B. Public Sewer Facilities

Sanitary sewer service is provided to the subject property via the adjacent Powhatan Secondary interceptor sewer. This pipeline is a 21-inch gravity interceptor which flows to JCSA Lift Station 1-2. Lift Station 1-2 pumps directly into a HRSD Force Main. All flows from the project are to be

collected by onsite gravity sewers and connected to the existing 21-inch interceptor line. The connection point will be in the vicinity of manhole on News Road as indicated on the Utility Master Plan. Capacity in the existing gravity sewer and receiving Lift Station was evaluated by JCSA as part of the original application. The current application represents a 42% reduction in total daily anticipated sewer flows from the project. Additionally, JCSA made improvements to the Powhattan Sewer main since the 2008 rezoning which we anticipate would have improved the current sewer capacity.

Table 1 – Projected Wastewater Flows from *The Village*

Type of Development	No. of Units	Flow (GPD/ Unit)	Average Daily Flow (GPD)	Duration (hrs)	Avg. Flow (GPM)	Peak Flow (GPM)
RESIDENTIAL						
Single-family/Multi Family	286	310	88,660	24	46.3	115.7
IL Apartments	75	310	23,250	24	25.8	64.5
Subtotal	361		111,910		77.7	194.3
NON-RESIDENTIAL						
Nursing/Skilled	155 Beds	160	24,800	24	17.2	42.5
Subtotal			24,800		17.2	42.5
Total (Amendment)			**136,710**		**94.9**	**237.3**
Total (Original)			*219,420*		*152.4*	*381.0*

C. Fire Protection and Emergency Services

There are currently five fire stations providing fire protection and Emergency Medical Services (EMS) to James City County. The closest fire station to the subject site is Station #5 located at 3201 Monticello Avenue, approximately 3.25 miles southwest of this project. According to the James City County Deputy Fire Marshal, the official response time is based on the arrival of both fire and EMS personnel. Currently, EMS services are only available from Station #4 on Olde Towne Road. From this station, an estimated response time will be less than eight minutes. However, EMS is planned for Station #5 in the near future. The CCRC will have medical first responders, as well as CPR and First Aid certified personnel, on staff. Limited medical facilities are onsite in the main CCRC and the Assisted Living buildings.

The next closest fire station to the subject site is station number 3 at 5077 John Tyler Highway. Only slightly more distant than the Monticello station (approximately 3.9 miles), response time to the site is reasonable if an emergency event occurs requiring additional fire and life safety support. These two fire stations, and the emergency medical staff available at these stations, will provide a more than adequate response to potential emergencies. In

addition, through cooperative agreements between Williamsburg, James City County, and York County, the site may also be served by the York County station at Lightfoot.

D. Solid Waste

The proposed development on the subject property will generate solid wastes that will require collection and disposal to promote a safe and healthy environment. Reputable, private contractors, hired by the Homeowners Association will handle the collection of solid waste. Both trash and recyclable material will be removed from this site to a solid waste transfer station.

E. Utility Service Providers

Virginia Natural Gas, Dominion Virginia Power, and Cox Communications provide, respectively, natural gas, electricity, cable TV service, and telephone service to this area. The current policy of these utility service providers is to extend service to the development at no cost to the developer when positive revenue is identified; plus, with new land development, these utility service providers are required to place all new utility service underground.

F. Schools

The Village is located within the Matoka Elementary School, James Blair Middle School, and Lafayette High School districts. However, under the proposed Master Plan, the CCRC facility and all residential units will be age-restricted removing the residency potential for school age children. Thus, the proposed development, consistent with the previously approved zoning for the property will not generate any school children.

VII. ANALYSIS OF ENVIRONMENTAL IMPACTS

A. Preliminary Wetland Determination

Investigations were conducted by Wetland Solutions (WSSI/Kerr Environmental Services Corp in the fall of 2016 and were reinvestigated in 2020 for the property. The extent of wetland features is shown on Master Conceptual Plan Sheet 3. The U.S. Army Corps of Engineers confirmation of delineated wetlands is currently underway.

Based on the investigation by WSSI, approximately 47 acres of wetlands are present on the property. In the Master Plan for the proposed development, we have attempted to avoid all impacts to the wetlands, however it may be necessary to provide minor impacts to the wetlands for utility crossings and stormwater outfalls. In addition, there may be some temporary disturbances of some steep slopes associated with the construction of the sanitary sewer pump station and the stormwater management facilities. All of the above-described items may require proper state and federal permitting prior to the issuance of James City County Land Disturbance Permits.

B. Resource Protection Areas

The property contains Resource Protection Areas (RPA) and associated buffers which are shown on Master Plan Sheet 2- Existing Conditions. Also illustrated is an expanded Powhatan Creek buffer as previously coordinated with James City County.

C. Soils

The Soil Survey of James City and York Counties and the City of Williamsburg, Virginia (USDA 1985) shows several soil types within the property boundary. This property is predominantly situated on well-drained soils of Craven-Uchee, Emporia Complex, Emporia, and Slagle soil types. Detailed soils breakdown are noted on sheet 3 of the master plan.

VIII. ANALYSIS OF STORMWATER MANAGEMENT

As the property falls within the Powhatan Creek Watershed, additional measures of watershed management are suggested by James City County policy to protect the natural resource of the watershed, and prevent further degradation of the watershed's water quality. These measures, in the form of Special Stormwater Criteria (SSC), further enhance the quality of stormwater runoff from the development site and assist in the preservation of pre-development hydrology. In addition to the main structural BMP, seven (7) SSC measures are required to meet minimum requirements set forth by the James City County policy. Furthermore, five (5) additional measures will be provided to improve the water quality of the Powhatan Creek Watershed "over and above" the state stormwater requirements. Water quality measures to be implemented include: bioretention facilities; dry swales at locations not draining to a BMP; enhanced outlet protection at all piped outfalls of BMP; enhanced cut/fill slope stabilization measure applied site-wide. Please refer to the Stormwater Plan for the water quality calculation work sheet as well as the preliminary list of measures to be implemented.

A preliminary stormwater management analysis and design has been performed as a component of the planning for this proposed project. The purpose of the stormwater management plan is to address the Department of Environmental Quality (DEQ) requirements for water quality and quantity control of flow generated by the proposed development. AES performed initial design BMP sizing and determined that the proposed wet ponds and bioretention cells will satisfy a significant amount of the water quality and quantity requirements as outlined in the Virginia Runoff Reduction Method. Preliminary estimates suggest the development will need to remove a proposed 30 lbs. of phosphorus a year with our current envisioned design removing as much as 38 lbs. per year. In evaluating stormwater management solutions on the subject site, unique site characteristics were considered. Preliminary site investigation identified the following site characteristics to be considered in stormwater management planning:

- The entire project is situated within the Powhatan Creek Watershed of the James River. The property nearly equally drains to the Powhatan Creek mainstem and to Cold Spring Swamp (Powhatan Creek Subwatershed 209).
- The property is currently young forest and overall unimproved. Extensive landscaping will be used within the developed areas of the site and large perimeter area buffers will be left in the current natural state.

In summary, with the preliminary analysis of *The Village*, the stormwater management plan proposed will protect overall downstream water quality, help preserve the natural hydrology of the watershed, and reduce the tendency of development to cause downstream erosion to receiving channels.

IX. ANALYSIS OF IMPACTS TO TRAFFIC

A traffic study memo has been prepared by DRW & Associates to supplement previously prepared studies of the News Road Corridor and Ford's Colony Firestone entrances. In summary of that memo, the impacts associated with the amendment represent a roughly 14% reduction in the Total Daily traffic from the currently proposed development over the previously approved rezoning application (7% less traffic volume than anticipated in the recent 2020 Kimley Horn Study). The developer is still pledging to address the remaining traffic proffers as proposed under the original development.

X. FISCAL IMPACT STUDY

A fiscal impact analysis was completed utilizing the James City County provided worksheet. The worksheet demonstrates that the proposed community will generate a positive fiscal contribution of roughly $505,000 annually however it should be noted that this worksheet considers school children for all the residential units within the community. Not wanting to modify the JCC forms we have submitted them as required, however as this project is proffered to be age restricted, we feel that this fiscal analysis provides for an overly conservative evaluation of the benefit this community will provide James City County. If we were to remove the school children from the worksheets calculation this development is anticipated to positively contribute $1,887,000 annually to James City County's tax base.

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XI. CONCLUSIONS

In summary, the Community Impact Statement for the rezoning and subsequent development of *The Village* highlights the following conclusions and public benefits:

- This project will provide a significant financial benefit to James City County; with a net positive contribution of approximately $1.9 million per year.
- The rezoning is consistent with the intended land use designated on the current Comprehensive Plan for this area. Further, the proposed residential development is consistent with adjacent neighborhoods and represents reduced impacts from the current master plan.
- There is adequate capacity in the system of roads serving this project and developer is maintaining the previously proffered traffic improvements with the project.
- Adequate public services (water and sewer, fire) and utility services (gas, electricity, cable television, and telephone) are available for development.
- James City County's stormwater requirements, including the incorporation of SSC associated with the Powhatan Creek are being met. Additional use of Low-Impact Design (LID) techniques ensures those requirements are exceeded.

Tax Parcel: 3730100004
Prepared by: Vernon M. Geddy, III (VSB#21902)
Geddy, Harris, Franck & Hickman, LLP
1177 Jamestown Road
Williamsburg, Virginia 23185

AMENDMENT TO AMENDED AND RESTATED FORD'S COLONY PROFFERS

This AMENDMENT TO AMENDED AND RESTATED FORD'S COLONY PROFFERS are made this 17th day of February, 2022 by **SWR-HOCKADAY, LLC**, a Georgia limited liability company, and **MARTHA WARBURTON MCMURRAN** (collectively, together with their successors in title to the Property, the "Owner") and **FRYE DEVELOPMENT, LLC**, a Virginia limited liability company ("Developer"), each to be indexed as Grantor, and **JAMES CITY COUNTY, VIRGINIA**, a political subdivision of the Commonwealth of Virginia (the "County), to be indexed as Grantee.

RECITALS

A. Owner is the owner of the real property with an address of 3889 News Road, Parcel ID# 3730100004, containing approximately 180 acres, which property is more particularly described on Exhibit A (the "Property"). Developer is the contract purchaser of the Property.

B. Upon application in 2008 by Realtec, Incorporated, the then owner of the Property and developer of the Ford's Colony at Williamsburg development, the County approved an amendment of the Ford's Colony Master Plan to include the Property as Section 37 of Ford's Colony (the "Approved Master Plan") and the rezoning of the Property from R-8 to R-4, subject to Amended and Restated Ford's Colony Proffers made by Realtec, Incorporated dated June 10, 2008 and recorded in the Clerk's Office of the Circuit Court for the City of Williamsburg and County of James City as Instrument

No. 080017656 (the "2008 Proffers"). The 2008 Proffers restated the prior proffers applicable to the Ford's Colony development not including the Property (defined as the "Existing Property" in the 2008 Proffers) and added new proffers applicable only to the Property. Realtec no longer owns the Property and is no longer involved in the development of Ford's Colony. The proffers applicable to the Existing Property were amended by Amendment to Ford's Colony Proffers dated March 11, 2020 and recorded in the aforesaid Clerk's Office as Instrument No. 200008078 (the "2020 Amendment"). The 2008 Proffers, as amended by the 2020 Amendment, are hereinafter called the "Existing Proffers."

C. Owner and Developer have submitted to the County an application to (i) amend the Approved Master Plan and in connection therewith have submitted a master plan entitled "Master Plan Amendment for Ford's Village" prepared by AES Consulting Engineers dated June 2021 (the "Amended Master Plan") in accordance with the County Zoning Ordinance and (ii) amend the Existing Proffers applicable to the Property to offer to the County certain revised conditions on the development of the Property not generally applicable to land zoned R-4.

D. In consideration of the approval of the amendment of the Approved Master Plan, Owner desires to amend the Existing Proffers as set forth below. If the requested rezoning and amendment of the Approved Master Plan is not approved by James City County, this Amendment to Amended and Restated Ford's Colony Proffers shall be void and the Existing Proffers applicable to the Property shall remain unchanged, in full force and effect. Owner shall have no obligation under this Amendment to Amended and Restated Ford's Colony Proffers unless and until the Property is developed pursuant to

the Amended Master Plan.

AMENDMENT OF PROFFERS APPLICABLE TO THE PROPERTY

Sections 2 through 22 of the Existing Proffers are hereby deleted and replaced by the following:

2. **Master Plan**. The Property shall be developed generally as shown and set out on sheets 4 through 6 of the Amended Master Plan. Final plans (as defined in Section 24-276(b)(1) of the Zoning Ordinance) may vary from the Amended Master Plan to the extent permitted by Section 24-276(b)(1) of the Zoning Ordinance.

3. **Density**. (a) There shall be no more than 230 dwelling units comprised of independent living units, assisted living/memory care units consisting of up to four beds, and skilled nursing units consisting of up to two beds (each a "dwelling unit") on the portion of the Property designated on the Master Plan as CCRC-D, of which no more than 75 shall be independent dwelling units, no more than 155 shall be AL units (defined below) and no more than 40 shall be skilled nursing beds. The term "assisted living/memory care unit" (an "AL Unit") shall mean a non-medical residential dwelling unit in the assisted living facility area or memory care area of the independent and assisted living community licensed in accordance with Sections 63.2-1800 et seq. of the Virginia Code and Sections 22 VAC 40-73 et seq. of the Virginia Administrative Code where adults who are aged, infirm or disabled are provided personal and health care services and 24-hour supervision and assistance. An AL Unit must meet the standards set forth in 22 VAC 40-73-750 and 900.

(b) There shall be no more than a total of 286 independent living dwelling units on the portion of the Property designated on the Master Plan as CCRC-A, CCRC-B or

CCRC-C.

(c) All dwelling units developed on the Property shall be occupied by persons eighteen (18) years of age or older in accordance with applicable federal and state laws and regulations, including but not limited to: the Fair Housing Act, 42 U.S.C. 3601 et seq. and the exemption therefrom provided by 42 U.S.C. 3607(b)(2)(C) regarding discrimination based on familial status; the Housing for Older Persons Act of 1995, 46 U.S.C. 3601 et seq.; the Virginia Fair Housing Law Va. Code 36-96.1 et seq.; any regulations adopted pursuant to the foregoing; any judicial decisions arising thereunder; any exemptions and/or qualifications thereunder; and any amendments to the foregoing as now or may hereafter exist. Specific provisions of the age restriction described above and provisions for enforcement of same shall be set forth in a recorded document which shall be subject to the review and approval of the County Attorney prior to issuance of the first building permit for dwelling units on the Property.

(d) Any accessory commercial uses located on the Property, such as bank offices, beauty salons and barbershops, shall be located and designed to serve residents of the Property as verified by the Director of Planning.

4. **Water Conservation.** The Owner shall be responsible for developing water conservation standards to be submitted to and approved by the James City Service Authority ("JCSA") and subsequently for enforcing these standards. The standards shall address such water conservation measures as limitations on the installation and use of irrigation systems and irrigation wells, the use of drought resistant native and other adopted low water use landscaping materials and warm season turf on common areas in areas with appropriate growing conditions for such turf and the use of

water conserving fixtures and appliances to promote water conservation and minimize the use of public water resources. The standards shall be approved by the JCSA prior to final subdivision or site plan approval.

5. **Contributions for Community Impacts**. (a) A contribution of $1,277.61 for each independent living dwelling unit ("IL Dwelling Unit") on the Property shall be made to the County for fire, police or emergency services, library uses, and other public facilities, uses or infrastructure.

(b) A contribution of $319.40 for each AL Unit and skilled nursing dwelling unit (each an "AL/MC/SN Dwelling Unit") on the Property shall be made to the County for fire, police or emergency services uses.

(c) A contribution of $1,111.52 for each IL Dwelling Unit and $555.76 for each AL/MC/SN Dwelling Unit on the Property shall be made to the JCSA for water system improvements.

(d) A contribution of $958.20 for each IL Dwelling Unit on the Property, subject to a credit for the costs of engineering and construction related to the improvements proffered by Owner in Section 6(b) calculated as set forth below, shall be made to the County for improvements to the News Road/Powhatan Secondary intersection, flood control measures where News Road crosses Cold Spring swamp, improvements at the News Road/Centerville Road intersection and other off-site road improvements in the News Road corridor. Owner shall receive a credit in an amount equal to its actual costs of the engineering and construction of the improvements proffered by Owner in Section 6(b) against the initial per unit contributions proffered under paragraph (d) of this Section (the "Credit Amount"). If construction of such

improvements is not complete at the time the initial per unit contributions are due under paragraph (e) of this Section, the Credit Amount shall equal an engineer's estimate of such costs submitted by the Owner and approved by the Director of Planning, The Credit Amount divided by $958.20 is the number of IL Dwelling Units for which the Credit Amount offsets the cash contribution otherwise due and payable. After application of the Credit Amount, the $958.20 per IL Dwelling Unit cash contribution shall be payable on all subsequent IL Dwelling Units on the Property. Owner shall provide the County with copies of invoices and other supporting documentation of the costs of the improvements. If the Credit Amount is based on an agreed upon costs estimate, it shall be adjusted to equal the final actual costs of engineering and construction ("Actual Costs"). If the Credit Amount is more than the Actual Costs, Owner shall pay to the County an amount equal to the difference. If the Credit Amount is less than the Actual Costs, Owner shall receive a credit equal to the difference between the Actual Costs and the Credit Amount at the time the next cash contributions are due this paragraph.

(e) The contributions described above in paragraphs (a), (b), (c) and (d) shall be paid to the County for each dwelling unit on the Property after completion of the final inspection and prior to the time of the issuance of any certificate of occupancy for the dwelling unit in question.

(f) The per dwelling unit contribution amounts shall consist of the amounts set forth in the above paragraphs plus any adjustments included in the Marshall and Swift Building Costs Index (the "Index") from 2021 to the year a payment is made if payments are made after on or after January 1, 2022. In no event shall the per dwelling unit

contribution be adjusted to a sum less than the amounts set forth in the preceding paragraphs of this Section. In the event that the Index is not available, a reliable government or other independent publication evaluating information heretofore used in determining the Index (approved in advance by the County Manager of Financial Management Services) shall be relied upon in establishing an inflationary factor for purposes of increasing the per dwelling unit contribution to approximate the rate of annual inflation in the County.

(g) The Subsidized Beds defined in Paragraph 15 shall not be included in the number of dwelling units contemplated in this Paragraph 5 and therefore shall not be subject to the contribution amounts described in subparagraphs (a), (b), (c) and (d).

6. **Entrances; Traffic Improvements**. (a) Prior to approval of any site or subdivision plans for development on the Property there shall be an updated traffic signal warrant analysis for the News Road/Firestone Drive/project entrance intersection submitted to and approved by VDOT and the County. If the updated analysis shows a signal is warranted and the installation of the signal is approved by VDOT, Owner shall install or pay for the installation of the traffic signal as a part of the construction of the project entrance. At the main entrance into the Property at the intersection of News Road and Firestone Drive, an exclusive left-turn lane from westbound News Road into the Property and an exclusive right-turn lane from eastbound News Road into the Property shall be constructed. The existing southbound left turn lane on Firestone Drive at News Road will be restriped to a shared left and through lane.

(b) Prior to the County issuing final approval on any site or subdivision plan for any dwelling units on the Property, Owner shall submit plans to the County and Virginia

Department of Transportation ("VDOT") for the installation of an exclusive left-turn lane on westbound News Road at the intersection with Powhatan Secondary. Owner will complete construction of the left-turn lane within twelve months of County and VDOT approvals to construct this exclusive left-turn lane. Owner is not responsible for road right of way acquisition or landscape/screening other than stabilization of disturbed soils. The County may elect to accept the cash equivalent contribution outlined in Proffer 5(d), (with any adjustments as may be appropriate as provided for in Proffer 5(g)), in lieu of construction of the turn lane by the Owner, in the event that acquisition of any needed right-of-way proves to be prohibitive. In the event that VDOT constructs this turn lane as part of its Six Year Secondary Road Plan, the County may elect to divert some or all of the cash equivalent contribution to other road projects in the News Road Corridor, at the News Road/Monticello Avenue intersection, or in the western Monticello Avenue Corridor. If VDOT traffic signal warrants are met and VDOT has approved the installation of a traffic signal at the intersection of News Road with Powhatan Secondary on or before the date that control of the homeowners' association created for the areas designated in the Master Plan as CCRC-A, CCRC-B or CCRC-C has transitioned from developer to homeowner control, Owner shall install or pay for the installation of the traffic signal.

(c) The improvements proffered hereby shall be constructed in accordance with VDOT standards. The improvements listed in paragraph (a) shall be completed or all required permits and plans for such approvals shall have been approved by all necessary governmental agencies and their completion guaranteed in form satisfactory to the County Attorney prior to the issuance of any certificates of occupancy for any

building on the Property.

(d) The second entrance to the Property shall be located in the general location shown on the Master Plan and shall be limited by gate to emergency access only unless and until an updated traffic study identifying the impacts of a full entrance is submitted to and reviewed and approved by VDOT and the County. This updated study shall be approved prior to the submission of any site plan for the full entrance and shall document required turn lane and other roadway improvements for the full entrance which improvements shall be shown on the submitted site plan. The entrance shall be limited to emergency access only until such improvements have been constructed and, to the extent necessary, accepted by VDOT.

(e) Owner shall convey free of charge to VDOT or the County any right of way from the Property necessary for the widening or realignment of News Road or the improvements proffered herein within 60 days of a written request for such conveyance together with final plans for the widening or realignment.

(f) Owner shall conduct traffic counts at its entrance prior to the County being obligated to issue certificates of occupancy for more than 400 dwelling units on the Additional Property. If these counts show a trip generation from the Additional Property more than 10% higher than the trip generation projected by the TIS Update for Ford's Colony Master Plan – Phased Development, Kimley-Horn and Associates., Inc. January 2020 on file with the Planning Division, Owner shall submit an updated traffic impact study, including a listing of any entrance or turn lane improvements necessary to accommodate the increased traffic and the appropriate trigger for their construction, for review and approval by the County and VDOT. Owner shall install the necessary

improvements, including any warranted traffic signal, as approved by the County and VDOT at the time recommended in the updated approved traffic study.

7. **Sustainable Building**. (a) Independent living dwelling units in the areas designated in the Master Plan as CCRC-A, CCRC-B or CCRC-C shall be built to an Energy Star (or equivalent independent) residential certification.

(b) The development in the area designated on the Master Plan as CCRC-D shall contain the following elements: (i) Carpool or Vanpool parking; (ii) Hybrid or Low-Emissions Vehicle Parking; (iii) Low Flow Plumbing Fixtures; (iv) Green Label Carpet and Carpet Padding; and (v) Energy Star Appliances.

8. **Master Stormwater Management Plan**. The Master Stormwater Management Plan (MSWMP) for the Property shall be approved prior to the first site plan submittal. The MSWMP shall comply with the standards within the adopted watershed management plan in place at time of submittal and all outside agency permits shall be issued prior to the third submittal of the MSWMP. The approved master stormwater management plan, as revised and/or updated, shall be implemented in all development plans for the Property.

9. **Nutrient Management Plan**. The Owner shall be responsible for contacting an agent of the Colonial Soil and Water Conservation District ("CSWCD") or, if a CSWCD agent is unavailable, a soil scientist licensed in the Commonwealth of Virginia, or other qualified professional to conduct soil tests and to develop, based upon the results of the soil tests, customized nutrient management plans (the "Plans") for all landscaped common areas within the Property shown on site plans for the Property. The Plans shall be submitted to the County's Director of Stormwater and Resource

Protection for his review and approval prior to the issuance of building permits for more than 50% of the dwelling units shown on the Master Plan. Upon approval, the Owner, until such time as the homeowners association is established and thereafter the association, shall be responsible for ensuring that any nutrients applied to common areas be applied in strict accordance with the Plan.

10. **Private Streets**. All streets and alleys on the Property shall be private and shall be maintained by the Owner.

11. **Ford's Colony at Williamsburg Homeowners Association**. The Additional Property shall not be subjected to the Declaration of Protective Covenants, Section II, Ford's Colony at Williamsburg, dated April 2, 1985, as the same may have been amended and/or restated ("DPC") or the Bylaws of the Ford's Colony Homeowners Association ("FCHOA"), as amended from time to time ("Bylaws") nor shall owners or residents of units, lots or parcels on the Additional Property be "Owner(s)" as such term is defined in the DPC or the Bylaws or be Members (as defined in the DPC) of the FCHOA.

12. **Public Transit**. Upon the request of the Williamsburg Area Transit Authority ("WATA") or any successor entity to WATA as may become appropriate on or before the date that control of the homeowners' association created for the areas designated in the Master Plan as CCRC-A, CCRC-B or CCRC-C has transitioned from developer to homeowner control and after such time as WATA provides bus service along News Road to the Property, Owner shall install a bus stop and shelter on News Road adjacent to the main entrance into the Property, with the exact location being subject to the approval of WATA.

13. **Recreation**. The portion of the Property designated as CCRC-D on the Master Plan shall include, but shall not be limited to, the following amenities: main lobby and living room; dining room; activities/card room; fitness center; beauty/barber salon; library; multipurpose room and landscaped grounds and courtyards generally as shown on the Master Plan. CCRC-D may also include, but shall not be limited to, the following additional amenities: a bar/lounge; café/coffee shop; education room, spa and wellness center; physical therapy and/or physician's office(s), home health, and pharmacy. The amenities listed above are intended for residents and employees of Ford's Village and their guests and not the general public. The portions of the Property designated as CCRC-A, CCRC-B and CCRC-C on the Master Plan shall include the following amenities: a clubhouse with studio room for classes, and a recreation room; an outdoor pool; pocket parks; pickleball courts and walking and biking paths all generally as shown on the Master Plan. The exact recreational facilities provided in portions of the Property designated as CCRC-A, CCRC-B and CCRC-C on the Master Plan and their location may be changed with the prior approval of the Development Review Committee.

14. **Off-Site Sewer Easements**. Upon the request of JCSA and at no costs to JCSA, Owner shall grant JCSA utility easements over, across and under the portion of the Additional Property along Powhatan Creek to permit future connections from the gravity sewer on the Additional Property to Tax Parcel 3640100007. The location of the easement shall be determined during the site plan approval process. The easements shall be recorded prior to JCSA issuing a Certificate to Construct.

15. **Social Services**. Owner shall reserve two assisted living beds ("Subsidized

Beds") for Medicaid qualified individuals at a rate that is no greater than what such individuals' out-of-pocket expense would be under the Auxiliary Grant Program administered by the Virginia Department of Social Services. Such individuals shall be subject to all admission and discharge criteria of the facility and all other generally applicable rules and regulations of the facility.

16. **Construction Traffic Management Plan.** Owner shall prepare and submit to the County a construction traffic management plan which seeks to minimize impacts from construction traffic entering and exiting the Property to the extent reasonably practical. The plan will be submitted with the initial site plan for development on the Property and shall be subject to review and approval by the Planning Director. A copy of the approved plan shall be provided to all contractors working on the Property and all construction contracts entered into by Owner shall require compliance with the plan by the contractor.

17. **Project Phasing.** The County shall not be obligated to issue building permits for more than a total of 50 dwelling units in the portions of the Property designated on the Master Plan as CCRC-A, CCRC-B or CCRC-C until the County has issued a building permit for construction of the facility on the portion of the Property designated on the Master Plan as CCRC-D and construction has commenced. Construction having commenced shall mean foundations have been poured.

18. **Homeowners Association.** There shall be organized an owner's association or associations (the "Association") in accordance with Virginia law in which all property owners in the portion of the Property designated on the Master Plan as CCRC-A, CCRC-B or CCRC-C, by virtue of their property ownership, shall be members.

The articles of incorporation, bylaws and restrictive covenants (together, the "Governing Documents") creating and governing each Association shall be submitted to and reviewed by the County Attorney for consistency with this Proffer. The Governing Documents shall require that the Association adopt an annual maintenance budget, which shall include a reserve for capital components, and all other common areas (including open spaces) under the jurisdiction of the Association, shall require each purchaser of a lot to make a capital contribution to the Association for reserves and shall require that the Association (i) assess all members for the maintenance of all properties owned or maintained by the Association and (ii) file liens on members' properties for non-payment of such assessments. The Governing Documents shall provide that at such time as 75% of the Lots permitted on the portion of the Property designated on the Master Plan as CCRC-A, CCRC-B or CCRC-C have been conveyed to purchasers other than builders, the declarant's right to unilaterally appoint and remove members of the Board of Directors of the Association shall terminate and the Board shall thereafter be elected by the lot owners (including the declarant). The Governing Documents shall not include a provision granting the declarant any veto rights over actions of the Board of the Association once the Board is elected by the lot owners.

[*signatures appear on following pages*]

WITNESS the following signatures and seals:

OWNER:

SWR-HOCKADAY, LLC, a Georgia Limited liability company

A.M. REDD, JR., INC., a Georgia corporation, Its Manager

By: Margaret P. Staats
Title: President

STATE OF Georgia
CITY/COUNTY OF Fulton, to-wit:

The foregoing instrument was acknowledged before me this 17th day of February, 2022 by Margaret P. Staats, President of A.M. REDD, JR., INC., a Georgia corporation, as Manager of SWR-HOCKADAY, LLC, a Georgia Limited liability company on behalf of the company.

Sarah Ann Staats
NOTARY PUBLIC

My commission expires: 1/14/2023
Registration No.: N/A

SARAH ANN STAATS
MY COMMISSION EXPIRES
NOTARY PUBLIC
JANUARY 14, 2023
DEKALB COUNTY, GEORGIA

OWNER:

MARTHA WARBURTON MCMURRAN

By: _____
Channing M. Hall, III, Her Attorney-in-Fact
Under Limited Power of Attorney recorded
as James City County Instrument No.
180010230

COMMONWEALTH OF VIRGINIA

COUNTY OF JAMES CITY, to-wit:

The foregoing instrument was acknowledged before me this 17th day of February, 2022, by CHANNING M. HALL, III, Attorney-in-Fact for MARTHA WARBURTON MCMURRAN.

_____
NOTARY PUBLIC

My commission expires: 03/31/2024
Registration No.: 7515065

PAULA A. DAZLEY
NOTARY PUBLIC
REGISTRATION # 7515065
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES
MARCH 31, 2024

19950310v6

DEVELOPER:

FRYE DEVELOPMENT, LLC, a Virginia limited liability company

By: _____
D. B. Frye, Jr., Manager

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

The foregoing instrument was acknowledged before me this 17th day of February, 2022 by D. B. Frye, Jr., Manager of FRYE DEVELOPMENT, LLC, a Virginia limited liability company, on behalf of the company.

_____
NOTARY PUBLIC

My commission expires: 7/31/2025
Registration No.: 7315880

APRIL ALBRIGHT NOLAN
NOTARY PUBLIC
REGISTRATION # 7315880
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES
7.31.2025

Exhibit A

Property Description

PARCEL A

All of that certain piece or parcel of land, lying and being in Jamestown District, James City County, Virginia, known as Hockaday, containing one hundred flirty-seven and one-half (147-1/2) acres, more or less, bounded on the East; South and West.by the land of the Shaw Land & Timber Co., known as the Pyle tract, the land of J. A. Barnes and Powhatan Swamp, and on the North by the land of New Brothers.

PARCEL B

All of that certain piece or parcel of land situate in Jamestown District, James City County, Virginia, containing fifty-five and two fifths (55-2/5) acres, more or less, and known as Cypress Swamp, and adjoining the lands of William Martin' s estate on the East, Greenspring on the South and Thomas N. Ratcliffe on the West and D. S. Jones on the North.

LESS AND EXCEPT that property conveyed to the Commonwealth of Virginia by Order Confirming Commissioner's Report, entered February 20, 1974, in the Circuit Court for the City of Williamsburg and County of James City, Virginia, and recorded in the Office of the Clerk of Court of such Court in James City County Deed Book 150, at Page 420, containing 3.74 acres, more or less, confirming that certain Certificate Number C-21570, filed by State Highway Commissioner of Virginia against the Heirs at Law of John G. Warburton, dated May 24, 1972, and recorded June 12, 1972, in the aforesaid Clerk's Office in James City County Deed Book 137, at Page 213, and SUBJECT TO the easements conveyed to the Commonwealth of Virginia in such Order and such Certificate.

The property herein conveyed, commonly known as the "Hockaday-Cypress Tract," is further described in its entirety on that certain plat of survey, entitled "BOUNDARY SURVEY OF A PORTION OF THE JOHN G. WARBURTON ESTATE, KNOWN AS THE HOCKADAY-CYPRESS TRACT," made by V. Monroe Mallory, of Dillard & Mallory, P.C., Certified Land Surveyors, Tappahanock, Virginia, dated October 25, 2001, recorded November 7, 2001, in the aforesaid Clerk's Office in James City County Plat Book 83, at Page 82, to which plat reference is made for a more complete description of such property.

Being the same property conveyed to Martha Warburton McMurran, and SWR-Hockaday, LLC, a Georgia limited liability company, by Deed from Peter G. Zemanian, Substitute Trustee, dated February 12, 2010, and recorded February 22, 2010, in the aforesaid Clerk's Office, as James County Instrument No. 100003372.

MASTER PLAN AMENDMENT FOR FORD'S VILLAGE

AT

FORD'S COLONY · WILLIAMSBURG ·

FOR

FRYE DEVELOPMENT, LLC

PROJECT TEAM

DEVELOPER: FRYE DEVELOPMENT, LLC

CCRC OPERATOR: RETIREMENT UNLIMITED, INC

LAND PLANNING: MICHAEL WATKINS ARCHITECT, LLC

ENVIRONMENTAL: WETLANDS SOLUTIONS, INC.

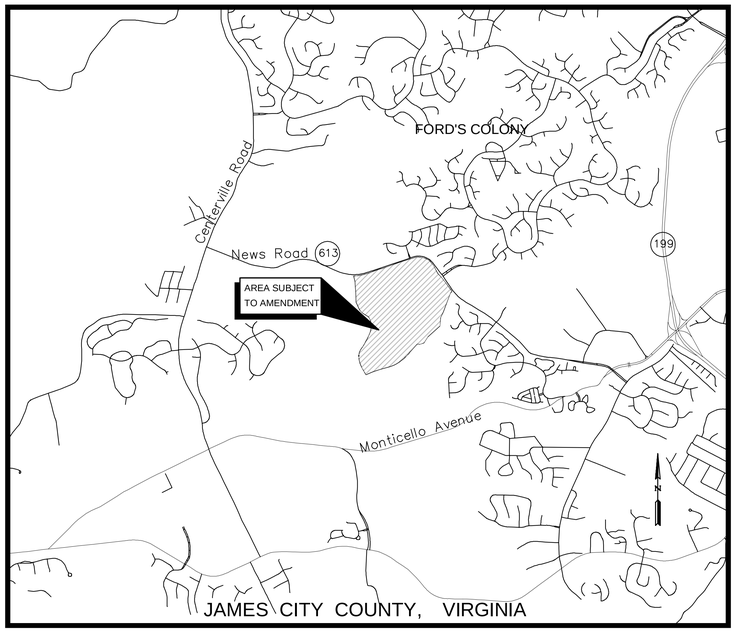
TRAFFIC: DRW & ASSOCIATES

CIVIL CONSULTING: AES CONSULTING ENGINEERS

LEGAL COUNSEL: GEDDY, HARRIS, FRANK & HICKMAN, LLP

SITE DATA:

PARCEL ID:	3730100004
PROPERTY OWNERS:	SWR-HOCKADAY, LLC & MARTHA WARBURTON McMURRAN
PROPERTY ADDRESS:	3889 NEWS ROAD
CURRENT ZONING:	R-4 W/PROFFERS
PROPERTY ACREAGE:	180.7 AC. ±



VICINITY MAP

(APROX. SCALE 1"=2000')

ORIGINALLY SUBMITTED: JUNE 2021

INDEX OF SHEETS

1	COVER SHEET
2	FORD'S COLONY LAND USE MASTER PLAN
3	ENVIRONMENTAL INVENTORY
4	BINDING MASTER PLAN
5	MASTER UTILITY PLAN
6	MASTER STORMWATER MANAGEMENT PLAN

NOTE: THIS PROJECT LIES WITHIN THE POWHATAN CREEK WATERSHED OF THE JAMES RIVER. THE EASTERN HALF OF THE PROPERTY IS PART OF POWHATAN CREEK SUBWATERSHED 209 (COLD SPRING SWAMP) AND THE WESTERN HALF IS PART OF THE NON-TIDAL POWHATAN CREEK MAINSTEM.

AES

CONSULTING ENGINEERS

WILLIAMSBURG • RICHMOND • GLOUCESTER

5248 Olde Towne Road, Suite 1 • Williamsburg, Virginia 23188

(757) 253-0040 • Fax (757) 220-8994

Master Plan Amendment - Ford's Village
JCC CASE # Z-21-0012 / MP-21-0003
AES Project # W10514-01

FORD'S COLONY · WILLIAMSBURG ·

NON RESIDENTIAL AMENITY AND SERVICE SITES

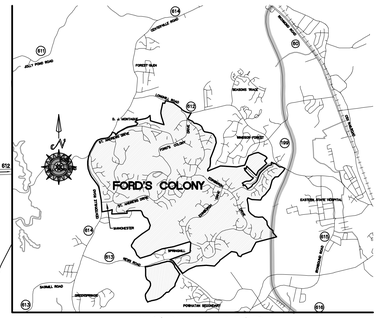
1	100 HOTEL CONDOMINIUMS, EXECUTIVE MEETING FACILITIES AND GOLF ACADEMY	4.71 AC.
2	GOLF CLUB AND PRO SHOP	5.05 AC.
3	INFORMATION AND SALES CENTER	1.81 AC.
4	ADMINISTRATIVE BUILDING	3.50 AC.
5	PUBLIC SERVICE AREA *	28.05 AC.
6	GOLF MAINTENANCE	3.90 AC.
7	COMMUNITY CLUB	7.72 AC.
8	PROJECT MAINTENANCE	10.59 AC.
9	DRIVING RANGE/CART STORAGE	10.34 AC.
10	ADDITIONAL RECREATION AREA	6.36 AC.
11	ADDITIONAL PUBLIC SERVICE AREA	6.76 AC.
12	CONTINUING CARE RETIREMENT COMMUNITY (CCRC)	180.8 AC.
	TOTAL	269.49 AC.

* NOTE: 1.21 AC. PORTION OF ORIGINAL 30.0 AC. P.S.A. SOLD TO FORD'S COLONY

LEGEND

- RESIDENTIAL "A"
- RESIDENTIAL "B"
- RESIDENTIAL "D"
- OPEN SPACE
- WILLIAMSBURG WEST SUBDIVISION AND APARTMENTS NOT A PORTION OF MASTER PLAN

NOTE:
VARIABLE WIDTH (25' MIN) BUFFER ALONG THE FORD'S COLONY TRACT WHERE IT ADJOINS CENTERVILLE ROAD SHALL BE RESERVED FOR FUTURE WIDENING AND REALIGNMENT OF S.R. 614



VICINITY MAP
SCALE 1"= 4000'

GENERAL NOTES:

1. RECORDATION OF THIS PLAN IS SOLELY FOR THE PURPOSE OF IDENTIFYING THE LAND COVERED BY THE PROFFERS RECORDED HEREWITH AND DOES NOT CONSTITUTE A PLAT OF SUBDIVISION NOR DOES IT DEDICATE TO PUBLIC OR PRIVATE USE ANY ROADS, COMMON AREAS, GREEN AREAS, OR RECREATION AREAS.
2. THE PROPERTY SHOWN ON THIS PLAN IS COVERED BY PROTECTIVE COVENANTS OF RECORD IN THE CLERK'S OFFICE IN THE COURTHOUSE OF JAMES CITY COUNTY, VIRGINIA, WHICH PROVIDE FOR THE MAINTENANCE OF COMMON OPEN SPACE, RECREATION AREAS, SIDEWALKS, PARKING, PRIVATE STREETS AND OTHER PRIVATELY OWNED, BUT COMMON FACILITIES SERVING THIS PROJECT.
3. LOTS NUMBERED REPRESENT RECORDED SECTIONS OR SECTIONS THAT HAVE RECEIVED PRELIMINARY APPROVAL.
4. THE 2008 MASTER PLAN AMENDMENT WILL BE CONSIDERED A STAND ALONE PROJECT FOR THE PURPOSES OF STORMWATER MANAGEMENT POINTS AND CREDITS.

LAND USE TABULATION

	2021	2008
RESIDENTIAL "A"		
TOTAL NUMBER OF UNITS	2,856 UNITS	2,856 UNITS
GROSS AREA OF RESIDENTIAL "A"	1,868.77± AC.=(63.09%)	1,868.77± AC.=(63.09%)
PERMITTED DESTINY	4.00 UNITS/ ACRE	4.00 UNITS/ ACRE
UNIT DENSITY	1.53 UNITS/ ACRE	1.53 UNITS/ ACRE
RESIDENTIAL "B"		
TOTAL NUMBER OF UNITS	80 UNITS	80 UNITS
GROSS AREA OF RESIDENTIAL "B"	22.9± AC.=(0.77%)	22.9± AC.=(0.77%)
PERMITTED DENSITY	9.60 UNITS/ ACRE	9.60 UNITS/ ACRE
UNIT DENSITY	3.49 UNITS/ ACRE	3.49 UNITS/ ACRE
RESIDENTIAL "D"		
TOTAL NUMBER OF UNITS	314 UNITS	314 UNITS
GROSS AREA OF RESIDENTIAL "D"	31.82 AC.=(1.07%)	31.82 AC.=(1.07%)
PERMITTED DENSITY	18.00 UNITS/ ACRE	18.00 UNITS/ ACRE
UNIT DENSITY	9.67 UNITS/ ACRE	9.87 UNITS/ ACRE
C.C.R.C. "A","B" & "C"		
TOTAL NUMBER OF UNITS	286 UNITS	38 UNITS
C.C.R.C. "D"		
TOTAL NUMBER OF UNITS	75 UNITS	558 UNITS
TOTAL NUMBER OF BEDS	155 BEDS	145 BEDS
ACREAGE FOR DENSITY* *SEE SHT 4	125.03 AC.	125.03 AC.
OVERALL C.C.R.C. DENSITY (SEE SHT 4)	2.89 UNITS/ AC.	4.77 UNITS/ AC.
NOTE: BEDS ARE NOT INCLUDED IN DENSITY CALCULATIONS		
OPEN SPACE		
WITHIN NON-RESIDENTIAL AMENITY AND SERVICE SITES	150.27 AC.	150.27 AC.
* GOLF COURSE, LAKES AND BUFFERS, MARSH RESERVE	844.71 AC.	844.71 AC.
OPEN SPACE WITHIN RESIDENTIAL "A"	514.12 AC.	514.12 AC.
OPEN SPACE WITHIN RESIDENTIAL "B" & "D"	38.77 AC.	38.77 AC.
TOTAL AREA OF OPEN SPACE	1,547.87 AC.	1,547.87 AC.
TOTAL AREA OF PROJECT	2,962.24 AC.	2,962.24 AC.
% OF OPEN AREA	52.3%	52.3%
OVERALL DENSITY		
TOTAL PROJECT AREA	2,962.28 AC.	2,962.28 AC.
GROSS AREA (FOR DENSITY CALCULATION ONLY)	2,830.6 AC.	2,830.6 AC.
TOTAL NUMBER OF RESIDENTIAL UNITS	3,340 UNITS	3,701 UNITS
OVERALL PROJECT DENSITY	1.28 UNITS/ AC.	1.36 UNITS/ AC.

* NOTES

MARSH RESERVES, LAKES AND BUFFERS	278.12 AC.
GOLF COURSE (INCLUDES LAKES IN PLAY)	491.09 AC.
RESERVED FOR ROUTE 199	20.0 AC.
ASSOCIATED GREENBELTS NATURAL OPEN SPACE IN 1993 ADDITION	3.30 AC.
OPEN SPACE IN 1995 ADDITION	5.00 AC.
OPEN SPACE IN 1998 ADDITION	47.20 AC.
OPEN SPACE IN 2008 ADDITION	112.49 AC.

No.	DATE	REVISION / COMMENT / NOTE	REVISED BY	REVIEWED BY
2	5/20/08	REVISIONS PER RELOCATION OF BUILDINGS	AES	JAG
1	4/14/08	REVISIONS PER JCC COMMENTS DATED MARCH 25, 2008	AES	JAG

5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(757) 253-0040
Fax (757) 220-8994

AES CONSULTING ENGINEERS

LAND USE MASTER PLAN
FORD'S COLONY
AT WILLIAMSBURG
OWNER / DEVELOPER : REALTEC, INCORPORATED

POWHATAN DISTRICT — JAMES CITY COUNTY — VIRGINIA

Designed	Drawn
AES	AES
Scale	Date
1"= 600'	6/2021
Project No.	
W10514-01	
Drawing No.	
2	

SOIL CHARACTERISTICS

SOIL #	SOIL NAME	TYPICAL SLOPES	EROSION FACTOR (K)	EROSION FACTOR (T)
5	BETHERA	0–2%	0.28–0.32	5
10B	CRAVEN	2–6%	0.32–0.37	3
10C	CRAVEN	6–10%	0.32–0.37	3
11C	CRAVEN–UCHEE COMPLEX	6–10%	0.32–0.37	3
14B	EMPORIA	2–6%	0.20–0.28	4
15D	EMPORIA COMPLEX	10–15%	0.20–0.28	4
15E	EMPORIA COMPLEX	15–25%	0.20–0.28	4
19B	KEMPSVILLE EMPORIA	2–6%	0.20–0.32	3
26B	PAMUNKEY	2–6%	0.28	4
27	PEAWICK	RELATIVELY FLAT	0.24–0.37	4
29A	SLAGLE	0–2%	0.24	3

INFORMATION TAKEN FROM "SOIL SURVEY OF JAMES CITY AND YORK COUNTIES AND THE CITY OF WILLIAMSBURG, VIRGINIA" ISSUED IN APRIL, 1985 BY THE UNITED STATES DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE IN COOPERATION WITH VIRGINIA POLYTECHNIC INSTITUTE AND STATE

SOIL SUSCEPTIBILITY TO EROSION CLASSIFICATION (K)
0.23 AND LOWER – LOW ERODIBILITY
0.23–0.36 – MODERATE ERODIBILITY
0.36 AND UP – HIGH ERODIBILITY

THE MAP SHOWN IS A "BEST FIT MODEL" OF THE SCS MAPS WITH EXISTING BASE INFORMATION.

ENVIRONMENTAL IMPACTS

TIDAL WETLANDS:	NONE
TIDAL SHORES:	NONE
100 FT RPA BUFFER:	5,685 S.F.; 0.13 AC.
NON-TIDAL WETLANDS IN RMA:	17,055 S.F.; 0.39 AC.
NON-TIDAL WETLANDS IN RPA:	8,050 S.F.; 0.18 AC.
HYDRIC SOILS:	NOT MODIFIED
25% OR GREATER SLOPES:	8,000± S.F.; 0.18 AC.
NON-RPA BUFFERS:	52,383 S.F.; 1.20 AC.

SITE DATA:
TOTAL SITE AREA=
7,871,302 S.F.; 180.7 AC±
DISTURBED AREA=
2,981,056 S.F.; 68.43 AC±
(37.8% OF TOTAL SITE)
SITE IMPERVIOUS COVER=
1,178,353 S.F.; 27.05 AC±
(15.0% OF TOTAL SITE)
CCRC BUILDING IMPERVIOUS COVER=
370,200 S.F.; 8.50 AC±
SINGLE FAMILY IMPERVIOUS COVER=
808,153 S.F.; 18.55 AC±
OPEN SITE AREA =
5,480,470 S.F.; 125.8 AC±
(69.6% OF TOTAL SITE)

STEEP SLOPE IMPACT=
7,998 S.F.; 0.18 AC.

WETLAND IMPACT 2=
3,736 S.F.; 0.08 AC.
ROAD CROSSING
100 LF OF STREAM IMPACT
RPA BUFFER IMPACT=
18,336 S.F.; 0.42 AC.

PILE SEWER BRIDGE
RPA BUFFER IMPACT=
7,069 S.F.; 0.16 AC.

POWHATAN SECONDARY SUBDIVISION

SPRINGHILL SUBDIVISION

COLD SPRING SWAMP

APPROX. LOCATION OF 100 YR. FLOOD PLAIN VARIABLE ELEV. 23–21 FT.

LIMITS OF RPA WETLANDS

100' RPA BUFFER

EXISTING ACCESS/LOGGING ROAD TO REMAIN WITHIN THE RPA AS PEDESTRIAN PATH

APPROX. LOCATION OF 100–YR. FLOOD PLAIN VARIABLE ELEVATION 23–21

ZONE 2 BUFFER

ZONE 3 BUFFER

LIMITS OF NON–RPA WETLANDS

NOTE: SITE CONTAINS SOILS CLASSIFIED AS C AND D HYDROLOGIC GROUP. (11C SOILS HAVE BEEN CONSIDERED GROUP C FOR THE PURPOSES OF CALCULATIONS) SOILS TESTING IS BEING PERFORMED TO DETERMINE INFILTRATION RATES ON SITE.

RPA WETLAND
NON-RPA WETLAND
RPA BUFFER (100')
ZONE 2 RIPARIAN BUFFER (VARIABLE WIDTH)
ZONE 3 IMPERVIOUS COVER SETBACK (25')
NON-RPA BUFFER (50')
WETLAND (STORMWATER) IMPACTS
ROAD WETLAND IMPACTS
WETLAND IMPACTS (PILE CONSTRUCTION)
STEEP SLOPE IMPACTS

GRAPHIC SCALE
100' 0' 100' 200'
SCALE: 1" = 100'

Rev.	Date	Description	Revised By
2	5/20/08	REVISIONS PER RELOCATION OF BUILDINGS	JAG
1	4/14/08	REVISIONS PER JCC COMMENTS DATED MARCH 25, 2008	JAG

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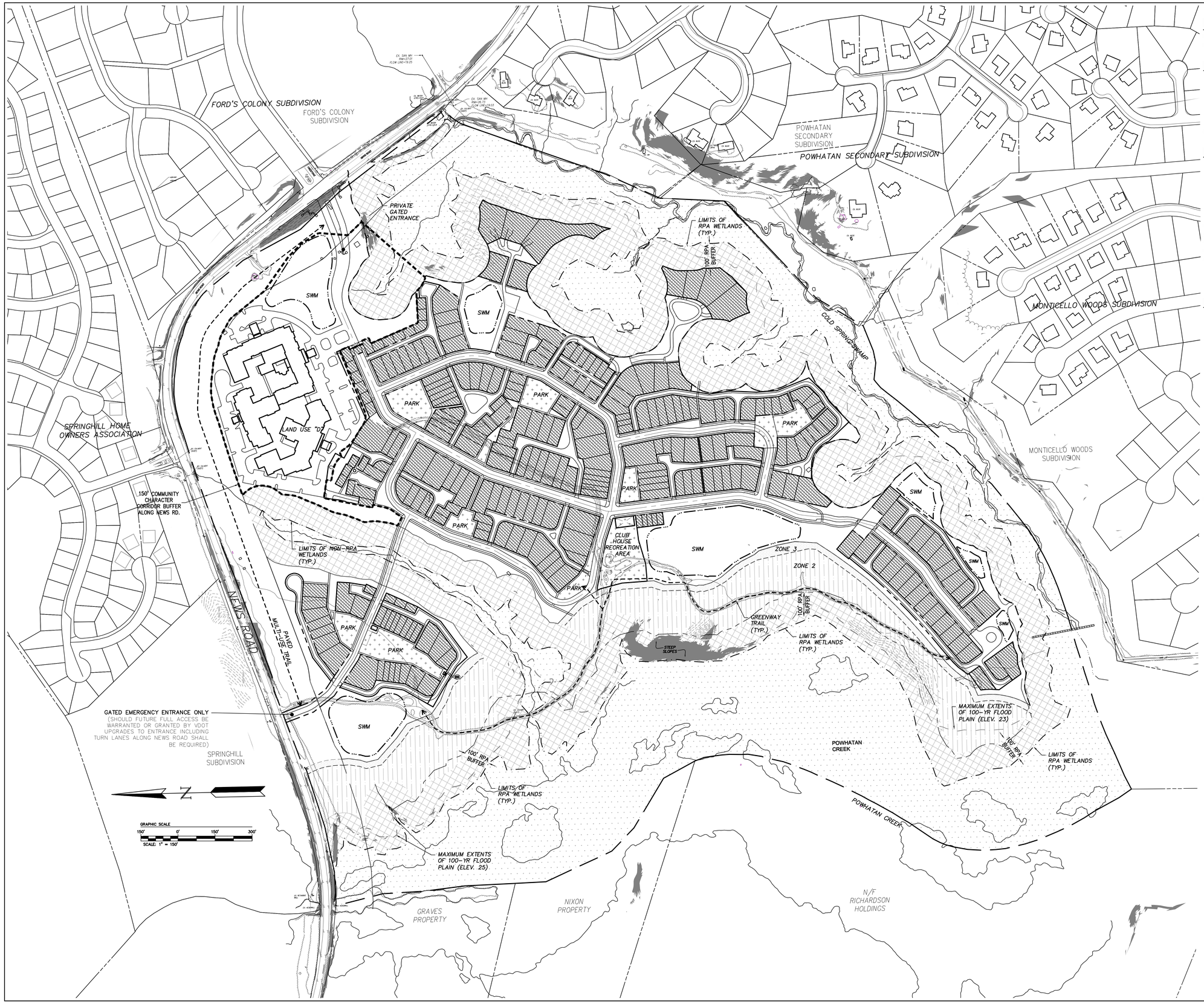
ENVIRONMENTAL INVENTORY AT
FORDS' VILLAGE
AT
FORD'S COLONY OF WILLIAMSBURG
FOR
FRYE DEVELOPMENT, LLC
POWHATAN DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	JAG
Project Number:	W10514-01
Scale: 1"=100'	Date: 6/2021
Sheet Number	3



DEVELOPMENT TABULATIONS:

EXISTING ZONING (AND LAND USE DESIGNATION)	R-4 (B & D)
PROPOSED LAND USE DESIGNATION:	R-4 (A, B, C, & D)

DENSITY TABULATIONS:

TOTAL ACREAGE:	180.79 AC. +/-
LESS RPA WETLANDS:	47.42 AC. +/-
LESS RPA BUFFERS:	35.35 AC. +/-
LESS 25% SLOPES:	0.0 AC. +/- (OUTSIDE WETLANDS/BUFFER AREAS)
LESS FLOOD PLAIN (1):	0.01 AC. +/- (OUTSIDE WETLANDS/BUFFER AREAS)
TOTAL NON-DEVELOPABLE AREA:	82.78 AC. +/- (45% OF TOTAL PARCEL)
GROSS ACREAGE FOR PARCEL DENSITY:	125.03 AC. +/-

LAND-USE TABULATIONS:

TOTAL PARCEL:	**180.79 AC. +/-**
LANDUSES A, B, C, & D (2):	74.56 AC. +/-
OPEN SPACE:	
RPA WETLANDS:	47.42 AC. +/-
BUFFER AREAS (3) :	58.81 AC. +/-
TOTAL OPEN SPACE:	106.23 AC. +/-

(1) FLOOD PLAIN IS DELINEATED ON THE PLANS AND GENERALLY LOCATES THE LIMITS OF THE FLOOD PLAIN BASED UPON FIELD SURVEYED ELEVATIONS.
(2) INCLUDES (±4 AC.) RECREATIONAL-AMENITY OPEN SPACE AREA.
(3) BUFFER AREAS INCLUDE RPA BUFFER (35.36 AC.), ZONE 2 RIPARIAN BUFFER (11.17 AC.), ZONE 3 RIPARIAN BUFFER (1.37 AC.), COMMUNITY CHARACTER CORRIDOR BUFFER (10.91 AC.).

LEGEND:

- RPA WETLAND (47.42 AC. ±)
- RPA BUFFER (100') (35.35 AC. ±)
- ZONE 2 RIPARIAN BUFFER (7.10 AC. ±) (VARIABLE WIDTH)
- ZONE 3 RIPARIAN BUFFER (25') (1.38 AC. ±)
- LAND USE "B" — LANDUSE BOUNDARIES (61.59 AC. ± "A, B, & C"; 12.90 AC.± "D")
- APPROX. LOCATIONS OF RECREATIONAL-AMENITY OPEN SPACE (4 AC. ±)
- SLOPES 25% OR GREATER
- PEDESTRIAN CIRCULATION
- STORMWATER FEATURE

NOTE: 15 FT. BUILIDNG SETBACK TO RPA BUFFER ALONG COLD SPRING SWAMP.

Land Use Density Chart	Max. # Units	Max. Non-Residential Floor Space	Land Use Pod Size
Land Use A, B, & C A - Single Family B - Multifamily (2-4 unit buildings) C- Multifamily (2 over 4 unit buildings) TOTAL	286 (1) UNITS	N/A	±61 Acres
D - Independent Living Apartments D - Commom Areas Dining Areas Administration Offices Other Amenities Other Limited Commercial Uses (2) D - Health Care Center Assisted Living/Memory Care Skilled Nursing	75 Units 155 Rooms 40 Beds	UP TO 150,000 S.F.	±13 Acres
MAXIMUMS:	361 UNITS(3)	150,000 gsf	±74 Acres

NOTES
(1) MASTERPLAN WILL CONSIST OF A MIX OF SINGLE FAMILY, TOWNHOME, AND CONDOMINIUM, STYLE UNITS . MASTER PLAN LAYOUT SHOWN FOR DENSITY PURPOSES; FINAL CONFIGURATION TO BE REVIEWED AND APPROVED AT SITE PLAN.
(2) LIMITED COMMERCIAL USES SHALL BE PERMITTED FOR USE BY RESIDENTS, GUEST OF THE COMMUNITY, & EMPLOYEES.
(3) TOTAL NUMBER OF UNITS, ROOMS & BEDS SHALL NOT EXCEED 516 AS DESCRIBED IN PROFFERS.

ADDITIONAL MASTER PLAN NOTES

- NO STRUCTURES WITHIN THE "D" PORTION OF THE SITE SHALL EXCEED 60-FT IN HEIGHT AS DEFINED BY JCC ORDINANCE.
- ALL STREETS, ALLEYS AND DRIVEWAYS SHALL BE PRIVATELY MAINTAINED. ALL ENTRANCES TO THE VDOT RIGHT OF WAY SHALL BE DESIGNED IN ACCORDANCE WITH VDOT COMMERCIAL ENTRANCE DESIGN STANDARDS.
- A MINIMUM OF 4 ACRES OF DEDICATED RECREATION AREAS SHALL BE PROVIDED. THESE AREAS SHALL BE GENERALLY AS SHOWN ON THE MASTER PLAN AND PROVIDE BASIC AMMENITIES SUCH AS A POOL, CLUBHOUSE, PARK BENCHES AND LANDSCAPED AREAS. ADDITIONALLY PASSIVE OPEN SPACES AND WALKING TRAILS SHALL BE PROVIDED.

Rev.	Date	Description	Revised By

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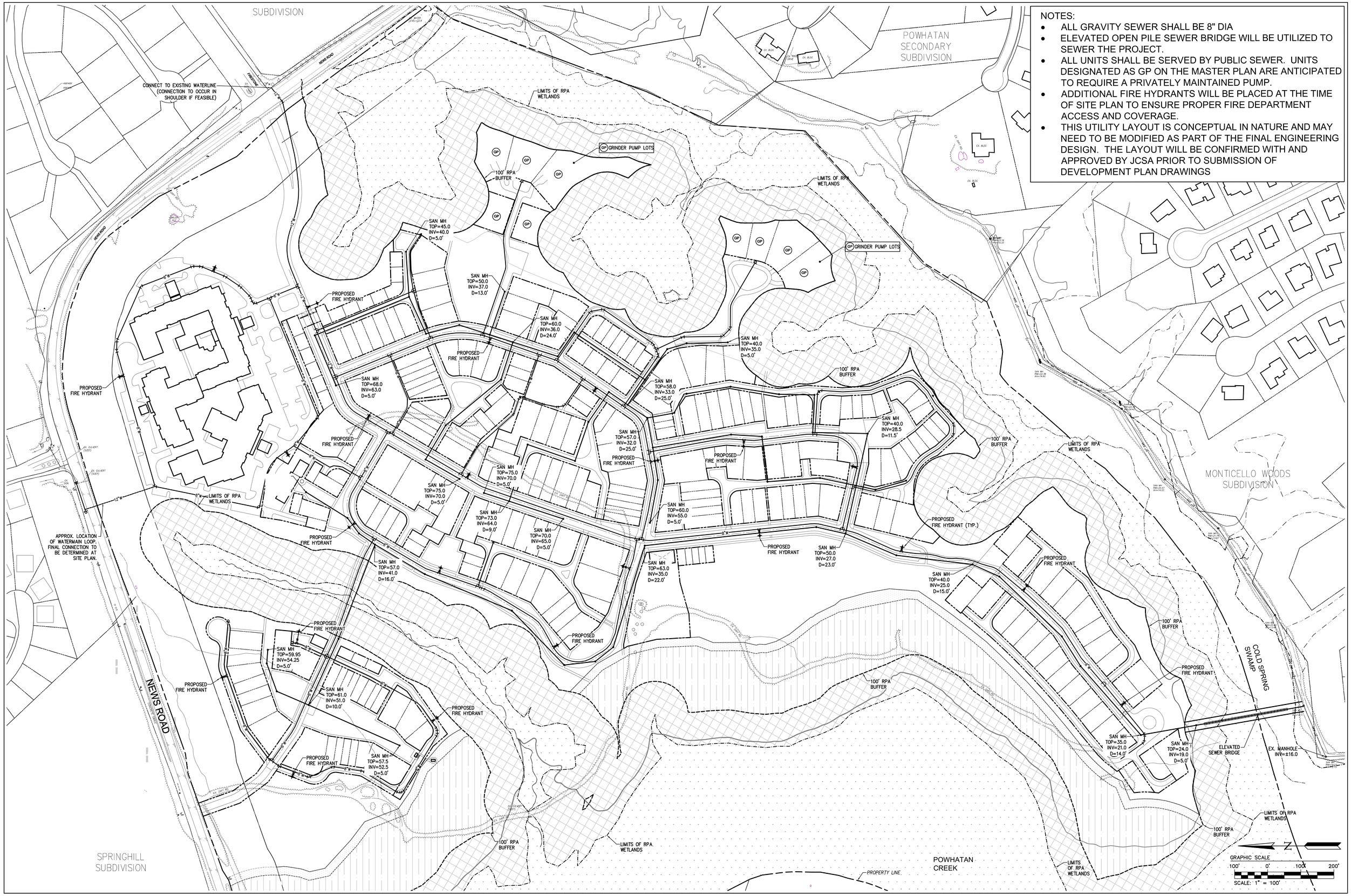
AMENDED LAND-USE MASTER PLAN
FORDS' VILLAGE
AT
FORD'S COLONY OF WILLIAMSBURG
FOR
FRYE DEVELOPMENT, LLC
POWHATAN DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	JAG
Project Number:	W10514-01
Scale: 1"=100'	Date: 6/2021
Sheet Number	4

NOTES:

- ALL GRAVITY SEWER SHALL BE 8" DIA
- ELEVATED OPEN PILE SEWER BRIDGE WILL BE UTILIZED TO SEWER THE PROJECT.
- ALL UNITS SHALL BE SERVED BY PUBLIC SEWER. UNITS DESIGNATED AS GP ON THE MASTER PLAN ARE ANTICIPATED TO REQUIRE A PRIVATELY MAINTAINED PUMP.
- ADDITIONAL FIRE HYDRANTS WILL BE PLACED AT THE TIME OF SITE PLAN TO ENSURE PROPER FIRE DEPARTMENT ACCESS AND COVERAGE.
- THIS UTILITY LAYOUT IS CONCEPTUAL IN NATURE AND MAY NEED TO BE MODIFIED AS PART OF THE FINAL ENGINEERING DESIGN. THE LAYOUT WILL BE CONFIRMED WITH AND APPROVED BY JCSA PRIOR TO SUBMISSION OF DEVELOPMENT PLAN DRAWINGS



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CONCEPTUAL UTILITY PLAN OF

FORDS' VILLAGE

AT

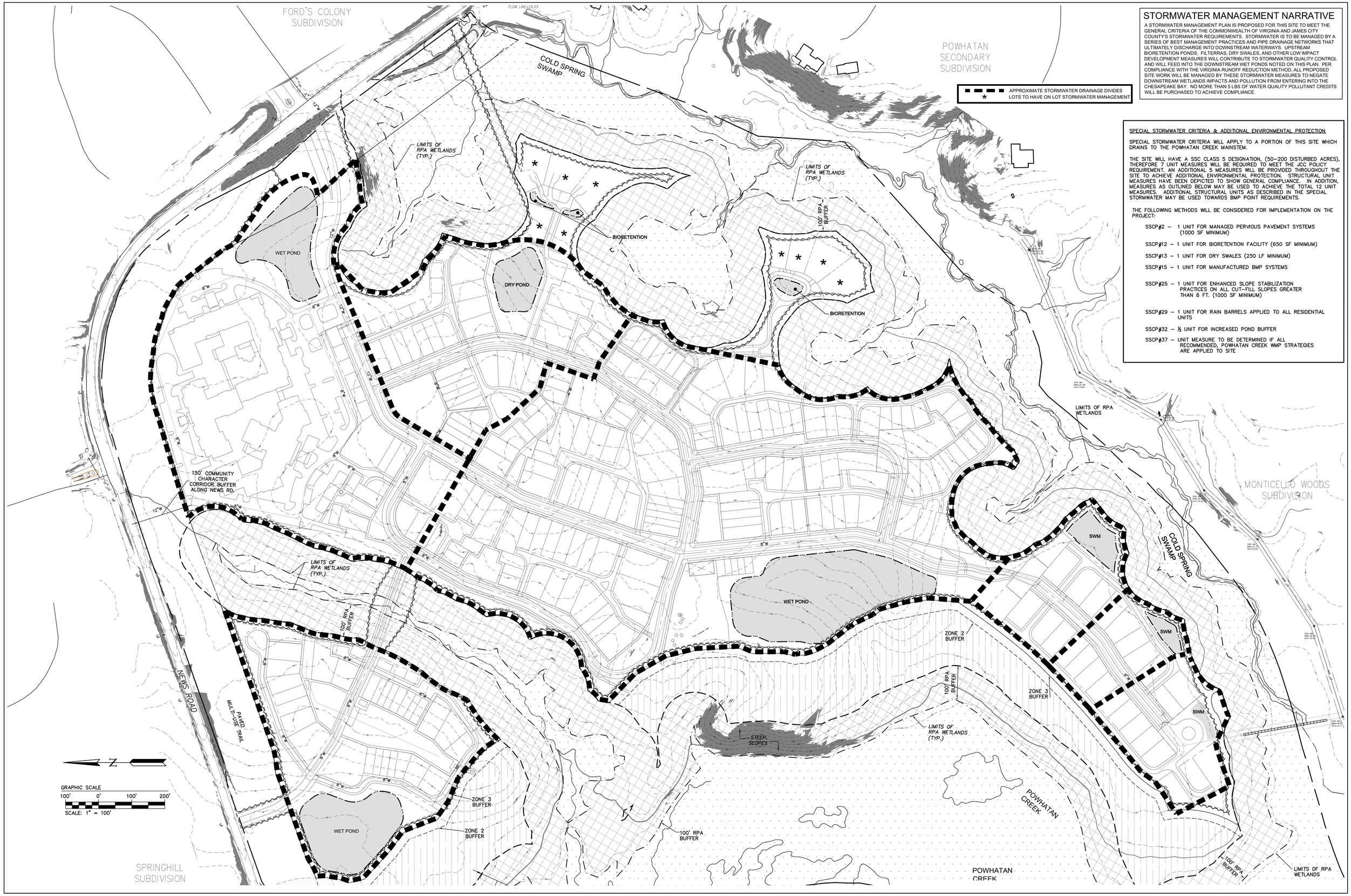
FORD'S COLONY OF WILLIAMSBURG

FOR

FRYE DEVELOPMENT, LLC

POWHATAN DISTRICT | JAMES CITY COUNTY | VIRGINIA

Project Contacts:	JAG
Project Number:	W10514-01
Scale: 1"=100'	Date: 6/2021
Sheet Number	5



STORMWATER MANAGEMENT NARRATIVE

A STORMWATER MANAGEMENT PLAN IS PROPOSED FOR THIS SITE TO MEET THE GENERAL CRITERIA OF THE COMMONWEALTH OF VIRGINIA AND JAMES CITY COUNTY'S STORMWATER REQUIREMENTS. STORMWATER IS TO BE MANAGED BY A SERIES OF BEST MANAGEMENT PRACTICES AND PIPE DRAINAGE NETWORKS THAT ULTIMATELY DISCHARGE INTO DOWNSTREAM WATERWAYS. UPSTREAM BIORETENTION PONDS, FILTERRAS, DRY SWALES, AND OTHER LOW IMPACT DEVELOPMENT MEASURES WILL CONTRIBUTE TO STORMWATER QUALITY CONTROL AND WILL FEED INTO THE DOWNSTREAM WET PONDS NOTED ON THIS PLAN. PER COMPLIANCE WITH THE VIRGINIA RUNOFF REDUCTION METHOD, ALL PROPOSED SITE WORK WILL BE MANAGED BY THESE STORMWATER MEASURES TO NEGATE DOWNSTREAM WETLANDS IMPACTS AND POLLUTION FROM ENTERING INTO THE CHESAPEAKE BAY. NO MORE THAN 5 LBS OF WATER QUALITY POLLUTANT CREDITS WILL BE PURCHASED TO ACHIEVE COMPLIANCE.

SPECIAL STORMWATER CRITERIA & ADDITIONAL ENVIRONMENTAL PROTECTION

SPECIAL STORMWATER CRITERIA WILL APPLY TO A PORTION OF THIS SITE WHICH DRAINS TO THE POWHATAN CREEK MAINSTEM.

THE SITE WILL HAVE A SSC CLASS 5 DESIGNATION, (50–200 DISTURBED ACRES), THEREFORE 7 UNIT MEASURES WILL BE REQUIRED TO MEET THE JCC POLICY REQUIREMENT. AN ADDITIONAL 5 MEASURES WILL BE PROVIDED THROUGHOUT THE SITE TO ACHIEVE ADDITIONAL ENVIRONMENTAL PROTECTION. STRUCTURAL UNIT MEASURES HAVE BEEN DEPICTED TO SHOW GENERAL COMPLIANCE. IN ADDITION, MEASURES AS OUTLINED BELOW MAY BE USED TO ACHIEVE THE TOTAL 12 UNIT MEASURES. ADDITIONAL STRUCTURAL UNITS AS DESCRIBED IN THE SPECIAL STORMWATER MAY BE USED TOWARDS BMP POINT REQUIREMENTS.

THE FOLLOWING METHODS WILL BE CONSIDERED FOR IMPLEMENTATION ON THE PROJECT:

- SSCP#2 – 1 UNIT FOR MANAGED PERVIOUS PAVEMENT SYSTEMS (1000 SF MINIMUM)
- SSCP#12 – 1 UNIT FOR BIORETENTION FACILITY (650 SF MINIMUM)
- SSCP#13 – 1 UNIT FOR DRY SWALES (250 LF MINIMUM)
- SSCP#15 – 1 UNIT FOR MANUFACTURED BMP SYSTEMS
- SSCP#25 – 1 UNIT FOR ENHANCED SLOPE STABILIZATION PRACTICES ON ALL CUT–FILL SLOPES GREATER THAN 6 FT. (1000 SF MINIMUM)
- SSCP#29 – 1 UNIT FOR RAIN BARRELS APPLIED TO ALL RESIDENTIAL UNITS
- SSCP#32 – ½ UNIT FOR INCREASED POND BUFFER
- SSCP#37 – UNIT MEASURE TO BE DETERMINED IF ALL RECOMMENDED, POWHATAN CREEK WMP STRATEGIES ARE APPLIED TO SITE

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CONCEPTUAL STORMWATER MANAGEMENT PLAN OF
FORDS' VILLAGE
AT
FORD'S COLONY OF WILLIAMSBURG
FOR
FRYE DEVELOPMENT, LLC
POWHATAN DISTRICT | JAMES CITY COUNTY | VIRGINIA

Project Contacts:	JAG
Project Number:	W10514-01
Scale: 1"=100'	Date: 6/2021
Sheet Number	6

080017656

AMENDED AND RESTATED FORD'S

COLONY PROFFERS

These AMENDED and RESTATED FORD'S COLONY PROFFERS are made this 10th day of June, 2008 by REALTEC INCORPORATED, a North Carolina corporation (together with its successors in title, the "Owner").

RECITALS

A. Owner is the developer of the Ford's Colony at Williamsburg development containing approximately 2,962 acres and which is zoned R-4, Residential Planned Community, with proffers, and subject to a Master Plan heretofore approved by James City County (the "Existing Master Plan").

B. In connection with prior Master Plan amendments, Owner has entered into and James City County has accepted Amended and Restated Ford's Colony Proffers dated as of January 6, 2005 and recorded in the Clerk's Office of the Circuit Court for the City of Williamsburg and County of James City as Instrument No. 050001465 and Richard J. Ford has entered into and James City County has accepted Richard J. Ford/Ford's Colony Proffers dated as of September 29, 1995 and recorded in the Clerk's Office of the Circuit Court for the City of Williamsburg and County of James City in James City Deed Book 757 at page 529 (together, the "Existing Proffers"). The property now subject to the Existing Proffers and Existing Master Plan is hereinafter called the "Existing Property".

C. Owner has applied to amend its Existing Master Plan to include as Section 37 of Ford's Colony a tract of land with an address of 3889 News Road, Parcel ID# 3730100004, containing approximately 180 acres, which property is more particularly described on Exhibit A (the "Additional Property") and to rezone the Additional Property from R-8 to R-4, with proffers.

Prepared by: Vernon M. Geddy, III, Esq., 1177 Jamestown Rd., Williamsburg, VA 23185 (757- 220-6500)

Return to: Adam R. Kinsman, Deputy County Attorney, 101-C Mounts Bay Rd., Williamsburg, VA 23185 (757-253-6612)

19

D. Owner has submitted to the County a master plan entitled "Master Plan for Rezoning of The Village at Ford's Colony at Williamsburg for Realtec Incorporated" prepared by AES Consulting Engineers dated July 20, 2007, last revised May 20, 2008 (the "Amended Master Plan") in accordance with the County Zoning Ordinance.

E. Owner desires to offer to the County certain conditions on the development of the Property not generally applicable to land zoned R-4.

F. In consideration of the approval of the amendment of its Amended Master Plan and the rezoning, Owner desires to amend and restate the Existing Proffers as set forth below. If the requested rezoning and amendment of Owner's Existing Master Plan is not approved by James City County, these Amended and Restated Ford's Colony Proffers shall be void and the Existing Proffers shall remain unchanged, in full force and effect.

RESTATEMENT

1. **Restatement**. The Existing Proffers are hereby restated and incorporated herein by reference and shall continue to apply only to the Existing Property.

PROFFERS APPLICABLE TO THE ADDITIONAL PROPERTY

The following proffers apply only to the Additional Property:

2. **Master Plan**. The Additional Property shall be developed generally as shown and set out on sheets 4 through 8 of the Amended Master Plan. Final plans (as defined in Section 24-279 of the Zoning Ordinance) may vary from the Amended Master Plan to the extent permitted by Section 24-279 of the Zoning Ordinance.

3. **Density**. (a) There shall be no more than 596 independent living dwelling units ("dwelling units"), 83 assisted living/memory care rooms and 60 skilled nursing beds (together, the "rooms/beds") and two AG Beds (as defined in Proffer 22) on the Additional Property. The

terms "assisted living room" or "room" shall mean a non-medical residential room in the assisted living facility area of the continuing care retirement community licensed in accordance with Sections 63.2-1800 et seq. of the Virginia Code and Sections 22 VAC 40-72 et seq. of the Virginia Administrative Code where adults who are aged, infirm or disabled are provided personal and health care services and 24-hour supervision and assistance. Rooms must meet the standards set forth in 22 VAC 40-72-730 and 880. Typically rooms are occupied by one person. No more than two persons may occupy a room and only persons directly related by blood or marriage may occupy the same room.

(b) All dwelling units developed on the Additional Property shall be occupied by persons eighteen (18) years of age or older in accordance with applicable federal and state laws and regulations, including but not limited to: the Fair Housing Act, 42 U.S.C. 3601 et seq. and the exemption therefrom provided by 42 U.S.C. 3607(b)(2)(C) regarding discrimination based on familial status; the Housing for Older Persons Act of 1995, 46 U.S.C. 3601 et seq.; the Virginia Fair Housing Law Va. Code 36-96.1 et seq.; any regulations adopted pursuant to the foregoing; any judicial decisions arising thereunder; any exemptions and/or qualifications thereunder; and any amendments to the foregoing as now or may hereafter exist. Specific provisions of the age restriction described above and provisions for enforcement of same shall be set forth in a recorded document which shall be subject to the review and approval of the County Attorney prior to issuance of the first building permit for dwelling units on the Additional Property.

(c) Any accessory commercial uses located on the Additional Property, such as bank offices, beauty salons and barbershops, shall be located and designed to serve residents of the Additional Property as verified by the Director of Planning.

4. **Water Conservation.** (a) The Owner shall be responsible for developing water

conservation standards to be submitted to and approved by the James City Service Authority ("JCSA") and subsequently for enforcing these standards. The standards shall address such water conservation measures as limitations on the installation and use of irrigation systems and irrigation wells, the use of drought resistant native and other adopted low water use landscaping materials and warm season turf on common areas in areas with appropriate growing conditions for such turf and the use of water conserving fixtures and appliances to promote water conservation and minimize the use of public water resources. The standards shall be approved by the JCSA prior to final subdivision or site plan approval.

(b) If the Owner desires to have outdoor watering of the Additional Property it shall provide water for irrigation utilizing surface water collection from the surface water ponds ("Impoundments") or other collection devices such as cisterns or rain barrels ("Collection Devices"). In the design phase, the Owner and design engineer shall take into consideration the design of stormwater systems that can be used to collect stormwater for outdoor water use for the development. In no circumstance shall the JCSA public water supply be used for irrigation purposes, except as otherwise provided by this condition. If the Owner demonstrates to the satisfaction and approval of the General Manager of JCSA through drainage area studies and irrigation water budgets that the Impoundments and Collection Devices cannot provide sufficient water for all irrigation, the General Manager of the JCSA may, in writing, approve a shallow (less than 100 feet) irrigation well to supplement the water provided by the Impoundments and the Collection Devices.

5. **Contributions for Community Impacts**. (a) A contribution of $1,000 for each dwelling unit on the Additional Property shall be made to the County for fire, police or emergency services, library uses, and other public facilities, uses or infrastructure.

(b) A contribution of $250.00 for each room/bed (excluding the AG Beds) on the Additional Property shall be made to the County for fire, police or emergency services uses.

(c) A contribution of $870.00 for each dwelling unit and $435.00 for each room/bed on the Additional Property shall be made to the JCSA for water system improvements.

(d) A one-time cash contribution in the amount of $36,000.00 shall be made to the County prior to the County being obligated to issue any certificates of occupancy for dwelling units/rooms/beds on the Additional Property for off-site improvements at the News Road/Monticello Avenue intersection and in the Monticello Avenue corridor.

(e) A contribution of $750.00 for each dwelling unit on the Additional Property, subject to a credit for the costs of engineering and construction related to the improvements proffered by Owner in Section 6(b) calculated as set forth below, shall be made to the County for improvements to the News Road/Powhatan Secondary intersection, flood control measures where News Road crosses Cold Spring swamp, improvements at the News Road/Centerville Road intersection and other off-site road improvements in the News Road corridor. Owner shall receive a credit in an amount equal to its actual costs of the engineering and construction of the improvements proffered by Owner in Section 6(b) against the initial per unit contributions proffered under paragraph (d) of this Section (the "Credit Amount"). If construction of such improvements is not complete at the time the initial per unit contributions are due under paragraph (e) of this Section, the Credit Amount shall equal an engineer's estimate of such costs submitted by the Owner and approved by the Director of Planning, The Credit Amount divided by $750.00 is the number of dwelling units for which the Credit Amount offsets the cash contribution otherwise due and payable. After application of the Credit Amount, the $750.00 per dwelling unit cash contribution shall be payable on all subsequent dwelling units on the

Additional Property. Owner shall provide the County with copies of invoices and other supporting documentation of the costs of the improvements. If the Credit Amount is based on an agreed upon costs estimate, it shall be adjusted to equal the final actual costs of engineering and construction ("Actual Costs"). If the Credit Amount is more than the Actual Costs, Owner shall pay to the County an amount equal to the difference. If the Credit Amount is less than the Actual Costs, Owner shall receive an additional credit equal to the difference between the Actual Costs and the Credit Amount at the time the next cash contributions are due this paragraph.

(f) The contributions described above in paragraphs (a), (b), (c) and (e) shall be payable for each dwelling unit or room/bed, as applicable, on the Additional Property at the time of final subdivision or site plan approval for the residential unit or non-residential building unless the County adopts a policy calling for the payment of cash proffers at a later time in the development process, in which case the contributions described in paragraphs (a), (b), (c) and (e) above shall be payable at the time specified in the policy. In the event dwelling units, such as townhouse units, require both a site plan and subdivision plat, the contributions described above shall be paid at the time of final subdivision plat approval.

(g) A one-time cash contribution shall be made to JCSA in the amount of $60,000.00 prior to the County being obligated to issue any certificates of occupancy for dwelling units/rooms/beds on the Additional Property for use by JCSA for off-site sewer improvements.

(h) The per unit/room/bed contribution amounts shall consist of the amounts set forth in the above paragraphs plus any adjustments included in the Marshall and Swift Building Costs Index (the "Index") from 2008 to the year a payment is made if payments are made after on or after January 1, 2009. In no event shall the per unit/room/bed contribution be adjusted to a sum less than the amounts set forth in the preceding paragraphs of this Section. In the event that the

Index is not available, a reliable government or other independent publication evaluating information heretofore used in determining the Index (approved in advance by the County Manager of Financial Management Services) shall be relied upon in establishing an inflationary factor for purposes of increasing the per unit/room/bed contribution to approximate the rate of annual inflation in the County.

6. **Entrances; Traffic Improvements**. (a) At the main entrance into the Additional Property at the intersection of News Road and Firestone Drive, an exclusive left-turn lane from westbound News Road into the Additional Property and an exclusive right-turn lane, including a shoulder bike lane, from eastbound News Road into the Additional Property shall be constructed. A shoulder bike lane along the Additional Property's News Road frontage shall be constructed. The existing southbound left turn lane on Firestone Drive at News Road will be restriped to a shared left and through lane.

(b) Prior to the County issuing final approval on any site or subdivision plan for any dwelling units/rooms/beds on the Additional Property, Owner shall submit plans to the County and Virginia Department of Transportation ("VDOT") for the installation of an exclusive left-turn lane on westbound News Road at the intersection with Powhatan Secondary. Owner will complete construction of the left-turn lane within twelve months of County and VDOT approvals to construct this exclusive left-turn lane. Owner is not responsible for road right of way acquisition or landscape/screening other than stabilization of disturbed soils. The County may elect to accept the cash equivalent contribution outlined in Proffer 5(d), (with any adjustments as may be appropriate as provided for in Proffer 5(g)), in lieu of construction of the turn lane by the Owner, in the event that acquisition of any needed right-of-way proves to be prohibitive. In the event that VDOT constructs this turn lane as part of its Six Year Secondary Road Plan, the

County may elect to divert some or all of the cash equivalent contribution to other road projects in the News Road Corridor, at the News Road/Monticello Avenue intersection, or in the western Monticello Avenue Corridor. Owner shall install or pay for the installation of a traffic signal at the intersection of News Road with Powhatan Secondary at such time as VDOT traffic signal warrants are met and VDOT has approved the installation of such a traffic signal.

(c) The improvements proffered hereby shall be constructed in accordance with VDOT standards. The improvements listed in paragraph (a) shall be completed or all required permits and plans for such approvals shall have been approved by all necessary governmental agencies and their completion bonded in form satisfactory to the County Attorney prior to the issuance of any certificates of occupancy for any building on the Additional Property.

(d) The second entrance to the Additional Property shall be located in the general location shown on the Master Plan and shall be limited by gate to emergency access only unless and until turn lanes approved by VDOT at this entrance have been installed.

(e) Owner shall convey free of charge to VDOT any right of way from the Additional Property necessary for the widening or realignment of News Road within 60 days of a written request for such conveyance together with final plans for the widening or realignment.

(f) Owner shall conduct traffic counts at its entrances prior to the County being obligated to issue certificates of occupancy for more than 247 dwelling units/rooms/beds on the Additional Property and again prior to the County being obligated to issue certificates of occupancy for more than 494 dwelling units/rooms/beds on the Additional Property. If these counts show a trip generation from the Additional Property more than 10% higher than the trip generation projected by the News Road Corridor Traffic Forecast and Analysis dated April 4, 2008 prepared by DRW Consultants, LLC filed with the rezoning application and on file with the Planning Division,

Owner shall submit an updated traffic impact study, including a listing of any entrance or turn lane improvements necessary to accommodate the increased traffic and the appropriate trigger for their construction, for review and approval by the County and VDOT. Owner shall install the necessary improvements, including any warranted traffic signal, as approved by the County and VDOT at the time recommended in the updated approved traffic study.

7. **Archaeology**. A Phase I Archaeological Study for the entire Additional Property shall be submitted to the Director of Planning for review and approval prior to land disturbance. A treatment plan shall be submitted and approved by the Director of Planning for all sites in the Phase I study that are recommended for a Phase II evaluation and/or identified as eligible for inclusion on the National Register of Historic Places. If a Phase II study is undertaken, such a study shall be approved by the Director of Planning and a treatment plan for said sites shall be submitted to, and approved by, the Director of Planning for sites that are determined to be eligible for inclusion on the National Register of Historic Places and/or those sites that require a Phase III study. If in the Phase III study, a site is determined eligible for nomination to the National Register of Historic Places and said site is to be preserved in place, the treatment plan shall include nomination of the site to the National Register of Historic Places. If a Phase III study is undertaken for said sites, such studies shall be approved by the Director of Planning prior to land disturbance within the study areas. All Phase I, Phase II, and Phase III studies shall meet the Virginia Department of Historic Resources' *Guidelines for Preparing Archaeological Resource Management Reports* and the Secretary of the Interior's *Standards and Guidelines for Archaeological Documentation*, as applicable, and shall be conducted under the supervision of a qualified archaeologist who meets the qualifications set forth in the Secretary of the Interior's *Professional Qualification Standards*. All approved treatment plans shall be incorporated into

the plan of development for the Additional Property and the clearing, grading or construction activities thereon.

8. Off-Site Sewer Easements. Upon the request of JCSA, Owner shall grant JCSA utility easements over, across and under the portion of the Additional Property along Powhatan Creek to permit future connections from the gravity sewer on the Additional Property to Tax Parcel 3640100007. The location of the easement shall be determined during the site plan approval process. The easements shall be recorded prior to JCSA issuing a Certificate to Construct.

9. Sustainable Building. The project shall be designed and constructed to obtain at least 200 points under the EarthCraft House Virginia, EarthCraft Multi-Family program certification process and a copy of the project worksheet shall be provided to the Director of Planning prior to the issuance of a certificate of occupancy for buildings in the phase in question.

10. Master Stormwater Management Plan. (a) Owner shall submit to the County a master stormwater management plan for the Additional Property consistent with the Master Stormwater Conceptual Plan prepared by AES Consulting Engineers dated July 20, 2007, last revised April 14, 2008 ("Stormwater Plan") and included in the Master Plan set submitted herewith and on file with the County, including facilities and measures necessary to meet the County's general stormwater management system requirements and the special stormwater criteria applicable in the Powhatan Creek watershed ("SSC") and, in addition, including features and measures over and above those necessary to meet the general requirements and SSC requirements and which will provide at least an additional five SSC credits, which shall include, without limitation, the features and measures listed on the Stormwater Plan subject to the criteria and conditions set forth on the Stormwater Plan. The master stormwater plan shall be approved

by the Environmental Director or his designee prior to the submission of any development plans for the Additional Property. The master stormwater management plan may be revised and/or updated during the development of the Additional Property based on on-site conditions discovered in the field with the prior approval of the Environmental Division. The approved master stormwater management plan, as revised and/or updated, shall be implemented in all development plans for the Additional Property.

(b) Prior to final site plan approval of the first site plan on the Additional Property, Owner shall submit a stream monitoring plan to the Environmental Division for their review and approval including a baseline assessment of the existing condition of the stream segments delineated on sheet 7 of the Master Plan and providing for annual monitoring beginning upon the date of the issuance of the first certificate of occupancy for a building on the Additional Property and continuing for a period of ten years from that date of the geomorphology of such stream segments. If such monitoring indicates the presence of new erosion not shown in the baseline assessment, Owner shall install additional upstream run-off control measures to prevent further erosion as approved by the Environmental Division.

(c) The warehouse building constructed in the area shown on the Master Plan as "Maintenance Area" shall be constructed using "green roof" technology. "Green roof" is defined as a roof which includes vegetation planted in soil or another growing medium spread over a waterproof membrane and may include drainage and/or irrigation systems.

11. **Nutrient Management Plan**. The Owner shall be responsible for contacting an agent of the Virginia Cooperative Extension Office ("VCEO") or, if a VCEO agent is unavailable, a soil scientist licensed in the Commonwealth of Virginia, an agent of the Soil and Water Conservation District or other qualified professional to conduct soil tests and to develop,

based upon the results of the soil tests, customized nutrient management plans (the "Plans") for all common areas within the Additional Property shown on site plans for the Additional Property. The Plans shall be submitted to the County's Environmental Director for his review and approval prior to the issuance of the any certificates of occupancy for units/rooms/beds shown on the site plan. Upon approval, the Owner shall be responsible for ensuring that any nutrients applied to common areas be applied in strict accordance with the Plan.

12. **Private Streets**. All streets and alleys on the Additional Property shall be private and shall be maintained by the Owner.

13. **Lighting**. All light poles on the Additional Property shall not exceed 30 feet in height. All external lights on the Additional Property shall be recessed fixtures with no globe, bulb or lens extending below the casing or otherwise unshielded by the case so that the light source is visible from the side of the fixture. No light spillage defined as 0.1 footcandle or higher shall extend outside the property lines of the Additional Property unless otherwise approved by the Director of Planning. Owner shall submit a lighting plan to the Director of Planning for review and approval for consistency with this Proffer prior to final site plan approval.

14. **Greenway Trail**. Subject to the issuance of all required permits by the County and other agencies as may be needed, Owner shall construct a trail with a minimum eight foot wide travel path with a mulch or other natural surface (which will be open to the general public during daylight hours only), including necessary bridges, if any, generally in the location shown on the Master Plan. In addition, Owner shall grant the County an easement eight feet in width from the centerline of the trail as constructed for public access as described above and the maintenance and improvement of the trail by the County. The exact location of the trail and

greenway easement may be varied with the prior written approval of the Environmental Division. The trail shall be constructed within twelve months of the issuance of necessary permits by the County and other agencies as may be needed.

15. **Natural Resources.** A natural resource inventory of suitable habitats for S1, S2, S3, G1, G2, or G3 resources as defined in the County's Natural Resources Policy on the Additional Property shall be submitted to the Director of Planning for his/her review and approval prior to the submittal of any development plans for the Additional Property. If the inventory confirms that a natural heritage resource exists, a conservation management plan shall be submitted to and approved by the Director of Planning for the affected area. All inventories and conservation management plans shall meet the Virginia Department of Conservation and Recreation's Division of Natural Resources ("DCR/DNH") standards for preparing such plans, and shall be conducted under the supervision of a qualified biologist as determined by the DCR/DNH or the United States Fish and Wildlife Service. All approved conservation management plans shall be incorporated into the plan of development for the site, and the clearing, grading or construction activities thereon, to the maximum extent possible. Upon approval by the Director of Planning, a mitigation plan may substitute for the incorporation of the conservation management plan into the plan of development for the site. This proffer shall be interpreted in accordance with the County's Natural Resources Policy adopted by the County on July 27, 1999.

16. **Public Transit.** Owner shall install a bus stop and shelter on News Road adjacent to the main entrance into the Additional Property, with the exact location being subject to the approval of Williamsburg Area Transit ("WAT"), or any successor entity to WAT as may become appropriate. The bus stop shall be installed upon the request of WAT at such time as

WAT provides bus service along News Road to the Additional Property.

17. **Ford's Colony at Williamsburg Homeowners Association.** Owner shall not subject the Additional Property to the Declaration of Protective Covenants, Section II, Ford's Colony at Williamsburg, dated April 2, 1985 ("DPC") or the Bylaws of the Ford's Colony Homeowners Association ("FCHOA"), as amended from time to time ("Bylaws") nor shall owners or residents of units, lots or parcels on the Additional Property be "Owner(s)" as such term is defined in the DPC or the Bylaws or be Members (as defined in the DPC) of the FCHOA.

18. **Recreation**. Owner will provide recreational and social facilities and programs appropriate for residents of a continuing care retirement community, which includes senior adult housing, assisted living beds, and nursing beds, as determined by Owner and generally as described below and in the general locations shown on the Master Plan. Facilities will be both indoor and outdoor and will be managed and maintained on a year round basis by Owner. Hard surface and soft surface trails and sidewalks will be installed for walking and bicycling and shown on the site plan for each phase of the development. The phase one construction shall include an outdoor pool and areas designated for lawn games, and accessible gardens. The phase one main CCRC building will contain terraces and covered porch areas that will be programmed for community social events such as cookouts and concerts and will have benches and chairs to be used during non-programmed time. The phase one main CCRC building will contain a comprehensive wellness center and pool for aerobic and strength conditioning, physical therapy, swimming and water aerobics, rooms for dining, formal lounges and bar, activities such as arts and crafts and woodworking, convenience shopping, health, beauty and other spa features, and a chapel. A multi-purpose facility will be built in conjunction with phase one for social and educational programming with a capacity of approximately 400 people. A private transportation

system will be employed to transport groups to Williamsburg area entertainment venues and shopping. All residents shall have full access to all indoor and outdoor facilities and programming. The dedicated assisted living buildings and skilled nursing care building will feature health care-related exercise areas and indoor and outdoor respite areas.

Associated Functions:

Building A: Lobby, Main Hall, Front Desk, Work Room, Mail Room, Administration, Sales, Security, Living Room, Community Center/Chapel, Library, Card Room, Terrace Room, Deli, Dining Room, Kitchen, Game Room, Crafts, Shop, Movie Auditorium, Bank, Toilets, Beauty/Barber, Business, Wellness/Spa, Pool, Staff Support, Maintenance, Housekeeping, Mechanical, Loading Dock, Receiving and Training

Building B: Lobby, Main Hall, Front Desk, Work Room, Mail Room, Administration, Sales, Security, Living Room, Community Center/Chapel, Library, Card Room, Terrace Room, Deli, Dining Room, Kitchen, Game Room, Crafts, Shop, Movie Auditorium, Bank, Toilets, Beauty/Barber, Business, Wellness/Spa, Pool, Staff Support, Maintenance, Housekeeping, Mechanical, Loading Dock, Receiving and Training, Service

Building C: main community meeting & multi-purpose, terrace, parking

Building D: spa, beauty/barber, arts/crafts, & chapel

19. **Cold Spring Swamp Drainage Analysis**. Prior to the County being obligated to grant final approval of the first site plan for development on the Additional Property, Owner shall cause a duly licensed professional engineer to prepare and submit to the County an analysis of the Cold Spring swamp drainage basin assuming full development in the drainage basin, subject to the review and approval of the County's Environmental Division Director, evaluating the adequacy of the existing culverts under News Road for use by the County in determining whether or not improvements to the culverts are necessary for flood control purposes.

20. **Height Restrictions**. No building on the Additional Property shall exceed 60 feet in height (with building height as defined in Section 24-2 of the County Zoning Ordinance) nor have more than four stories above grade. Building P as designated on the Master Plan shall not

exceed 106 feet above sea level (or 38 feet above finished grade) in height (with building height as defined in Section 24-2 of the County Zoning Ordinance). The buildings shown on the Master Plan as Duplexes shall not contain more than one and one-half stories. Building A shall not contain more than three stories or exceed 50 feet above finished grade in height (with building height as defined in Section 24-2 of the County Zoning Ordinance). Building Q shall not contain more than two stories. The buildings shown on the Master Plan as Maintenance, Transportation and Warehouse shall not contain more than two stories.

21. **Building P.** All mechanical equipment and vehicular entrances to underground parking for Building P shall be located on the sides of the building. All mechanical equipment serving Building P shall be screened for sound attenuation purposes by solid walls approved by the Director of Planning. Owner shall install evergreen trees behind Building P pursuant to a landscape plan approved by the Development Review Committee in the site plan review process in order to provide additional screening of the basement level of Building P from the Monticello Woods subdivision.

22. **Social Services.** Owner shall reserve two assisted living beds ("AG Beds") in Phase 2 of the project for individuals receiving auxiliary grants under the Auxiliary Grant Program (the "Program") administered by the Virginia Department of Social Services and shall participate in the Program with respect to the AG Beds. Such individuals must meet applicable Program eligibility criteria as determined by the County Department of Social Services and are subject to all admission and discharge criteria of the facility other than ability to pay for services and all other generally applicable rules and regulations of the facility.

WITNESS the following signatures and seals:

REALTEC INCORPORATED

By: _____

Title: VICE PRESIDENT

STATE OF VIRGINIA
~~CITY~~/COUNTY OF James City to-wit:

The foregoing instrument was acknowledged before me this 30th day of June, 2008 by Drew Mulhare, Vice President of REALTEC INCORPORATED, a North Carolina corporation, on behalf of the corporation.

_____
NOTARY PUBLIC

My commission expires: _____
Registration No.: _____

LYNN D. COMBS
Notary Public
Commonwealth of Virginia
185766
My Commission Expires Nov 30, 2011

Additional Property Description

EXHIBIT A

PARCEL A

All of that certain piece or parcel of land, lying and being in Jamestown District, James City County, Virginia, known as Hockaday, containing one hundred forty-seven and one-half (147-1/2) acres, more or less, bounded on the East, South and West by the land of the Shaw Land & Timber Co., known as the Pyle tract, the land of J. A. Barnes and Powhatan Swamp, and on the North by the land of Now Brothers.

PARCEL B

All of that certain piece or parcel of land situate in Jamestown District, James City County, Virginia, containing fifty five and two fifths (55-2/5) acres, more or less, and known as Cypress Swamp, and adjoining the lands of William Martin's estate on the East, Greenspring on the South and Thomas N. Ratcliffe on the West and D. S. Jones on the North.

LESS AND EXCEPT that property conveyed to the Commonwealth of Virginia by Order Confirming Commissioner's Report, entered February 20, 1974, in the Circuit Court for the City of Williamsburg and County of James City, Virginia, and recorded in the Office of the Clerk of Court of such Court in James City County Deed Book 150, at Page 420, containing 3.74 acres, more or less, confirming that certain Certificate Number C-21570, filed by State Highway Commissioner of Virginia against the Heirs at Law of John G. Warburton, dated May 24, 1972, and recorded June 12, 1972, in the aforesaid Clerk's Office in James City County Deed Book 137, at Page 213, and SUBJECT TO the easements conveyed to the Commonwealth of Virginia in such Order and such Certificate.

The property herein conveyed, commonly known as the "Hockaday-Cypress Tract," is further described in its entirety on that certain plat of survey, entitled "BOUNDARY SURVEY OF A PORTION OF THE JOHN G. WARBURTON ESTATE, KNOWN AS THE HOCKADAY-CYPRESS TRACT," made by V. Monroe Mallory, of Dillard & Mallory, P.C., Certified Land Surveyors, Tappahannock, Virginia, dated October 25, 2001, recorded November 7, 2001, in the aforesaid Clerk's Office in James City County Plat Book 83, at Page 82, to which plat reference is made for a more complete description of such property.

Being a portion of the same property conveyed to John G. Warburton by Deed from C. H. Matthews and Mary Matthews, his wife, dated April 22, 1925, and recorded April 27, 1925, in the aforesaid Clerk's Office in James City County Deed Book 22, at Page 76, and by Deed from C. C. Hall and Beulah B. Hall, his wife, and T. C. Hall and Elsie G. Hall, his wife, dated March 18, 1952, and recorded April 3, 1952, in the aforesaid Clerk's Office in James City County Deed Book 47, at Page 183, the aforesaid John G. Warburton, having departed this life on October 15, 1966, and by his Last Will and Testament, dated February 3, 1964, and duly probated and recorded in the aforesaid Clerk's Office in City of Williamsburg Will Book 11, at Page 393, and duly recorded in the James City County probate records in Will File Number 374, devised such property to his daughters, Martha W. McMurran, and Sue Gregory Warburton Redd, subject to a life estate devised to Sarah Warburton, widow of John G. Warburton, who thereafter departed this life on September 25, 1991 (and whose Last Will and Testament, dated July 30, 1984, was duly probated and duly recorded in the aforesaid Clerk's Office in City of Williamsburg Will Book 45, at Page 18, and duly recorded in the James City County probate records in Will File Number 3234), leaving Martha W. McMurran and Sue Gregory Warburton Redd as the sole fee simple owners of such property, the said Sue Gregory Warburton Redd having conveyed her undivided one-half interest in and to such property to SWR-Hockaday, LLC, by Deed of Gift, dated February 24, 2003, and recorded March 3, 2003, in the aforesaid Clerk's Office as James City County Instrument Number 030006334, and by Deed of Correction, dated February 15, 2005, and recorded March 2, 2005, in the aforesaid Clerk's Office as James City County Instrument Number 050004430 and being the same property conveyed to Realtec, Incorporated, a North Carolina corporation, by Deed dated August 6, 2007, from Martha Warburton McMurran, widow and SWR-Hockaday, LLC, a Georgia limited liability company, and recorded in the said Clerk's Office as Instrument Number 070024542.

VIRGINIA: CITY OF WILLIAMSBURG & COUNTY OF JAMES CITY
This document was admitted to record on 16 July 08
at 2:47 AM/PM. The taxes imposed by Virginia Code
Section 58.1-801, 58.1-802 & 58.1-814 have been paid.

STATE TAX	LOCAL TAX	ADDITIONAL TAX
$ —	$ —	$ —

TESTE: BETSY B. WOOLRIDGE, CLERK

BY: Betsy B. Woolridge Clerk

MASTER PLAN FOR REZONING OF THE VILLAGE

AT

FORD'S COLONY · WILLIAMSBURG ·

FOR

REALTEC INCORPORATED

PROJECT TEAM

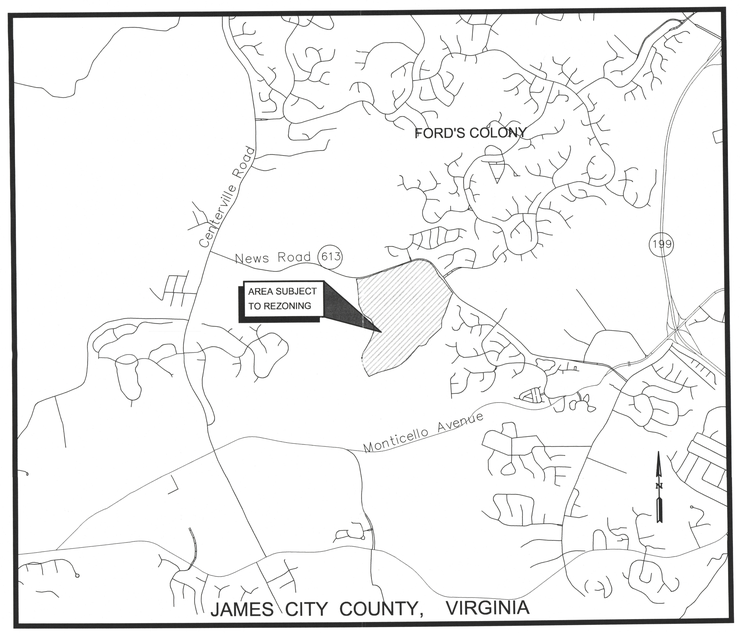
DEVELOPER: REALTEC INCORPORATED

LAND PLANNING: EDWARDS ASSOCIATES ARCHITECTS
MCBRIDE HESS DESIGN GROUP P.A.

ENVIRONMENTAL: CAHILL ASSOCIATES
KOONTZ-BRYANT, P.C.
KERR ENVIRONMENTAL SERVICES CORPORATION

TRAFFIC: DRW & ASSOCIATES

CIVIL CONSULTING: AES CONSULTING ENGINEERS



VICINITY MAP

(APROX. SCALE 1"=2000')

ORIGINALLY SUBMITTED: JULY 20, 2007
RESUBMITTED: APRIL 14, 2008
RESUBMITTED: MAY 20, 2008

JCC CASE # Z-0008-2007 / MP-0006-2007

INDEX OF SHEETS

1	COVER SHEET
2	2008 FORD'S COLONY MASTER PLAN
3	ENVIRONMENTAL INVENTORY
4	SECTION 37 LAND-USE MASTER PLAN
5	BINDING MASTER PLAN
6	MASTER UTILITY PLAN
7	MASTER STORMWATER MANAGEMENT PLAN
8	GRADING PLAN

NOTE: THIS PROJECT LIES WITHIN THE POWHATAN CREEK WATERSHED OF THE JAMES RIVER. THE EASTERN HALF OF THE PROPERTY IS PART OF POWHATAN CREEK SUBWATERSHED 209 (COLD SPRING SWAMP) AND THE WESTERN HALF IS PART OF THE NON-TIDAL POWHATAN CREEK MAINSTEM.

FINAL VERSION OF CCRC MASTER PLAN
10/9/08

RECEIVED JUN 2008 Planning Department

MP-0006-2007 | Z-0008-2007

Edwards Associates architects

AES CONSULTING ENGINEERS
WILLIAMSBURG • RICHMOND • GLOUCESTER
5248 Olde Towne Road, Suite 1 • Williamsburg, Virginia 23188
(757) 253-0040 • Fax (757) 220-8994

Cahill Associates
ENVIRONMENTAL CONSULTANTS

Master Plan for Rezoning - The Village at Ford's Colony
JCC CASE # Z-0008-2007 / MP-0006-2007
AES Project # 5652-22

FORD'S COLONY · WILLIAMSBURG ·

NON RESIDENTIAL AMENITY AND SERVICE SITES

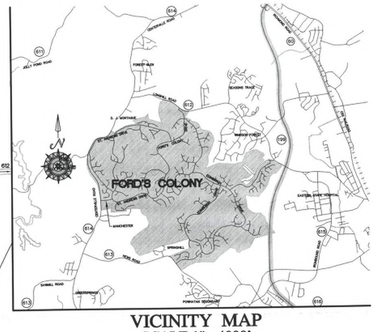
1	100 HOTEL CONDOMINIUMS, EXECUTIVE MEETING FACILITIES AND GOLF ACADEMY	4.71 AC.
2	GOLF CLUB AND PRO SHOP	5.05 AC.
3	INFORMATION AND SALES CENTER	1.81 AC.
4	ADMINISTRATIVE BUILDING	3.50 AC.
5	PUBLIC SERVICE AREA *	28.05 AC.
6	GOLF MAINTENANCE	3.90 AC.
7	COMMUNITY CLUB	7.72 AC.
8	PROJECT MAINTENANCE	10.59 AC.
9	DRIVING RANGE/CART STORAGE	10.34 AC.
10	ADDITIONAL RECREATION AREA	6.36 AC.
11	ADDITIONAL PUBLIC SERVICE AREA	6.76 AC.
12	CONTINUING CARE RETIREMENT COMMUNITY (CCRC)	180.7 AC.
	TOTAL	269.49 AC.

* NOTE: 1.21 AC. PORTION OF ORIGINAL 30.0 AC. P.S.A. SOLD TO FORD'S COLONY

LEGEND

- RESIDENTIAL "A"
- RESIDENTIAL "B"
- RESIDENTIAL "D"
- OPEN SPACE
- WILLIAMSBURG WEST SUBDIVISION AND APARTMENTS NOT A PORTION OF MASTER PLAN

NOTE:
VARIABLE WIDTH (25' MIN) BUFFER ALONG THE FORD'S COLONY TRACT WHERE IT ADJOINS CENTERVILLE ROAD SHALL BE RESERVED FOR FUTURE WIDENING AND REALIGNMENT OF S.R. 614



VICINITY MAP
SCALE 1"= 4000'

GENERAL NOTES:

1. RECORDATION OF THIS PLAN IS SOLELY FOR THE PURPOSE OF IDENTIFYING THE LAND COVERED BY THE PROFFERS RECORDED HEREWITH AND DOES NOT CONSTITUTE A PLAT OF SUBDIVISION NOR DOES IT DEDICATE TO PUBLIC OR PRIVATE USE ANY ROADS, COMMON AREAS, GREEN AREAS, OR RECREATION AREAS.
2. THE PROPERTY SHOWN ON THIS PLAN IS COVERED BY PROTECTIVE COVENANTS OF RECORD IN THE CLERK'S OFFICE IN THE COURTHOUSE OF JAMES CITY COUNTY, VIRGINIA, WHICH PROVIDE FOR THE MAINTENANCE OF COMMON OPEN SPACE, RECREATION AREAS, SIDEWALKS, PARKING, PRIVATE STREETS AND OTHER PRIVATELY OWNED, BUT COMMON FACILITIES SERVING THIS PROJECT.
3. LOTS NUMBERED REPRESENT RECORDED SECTIONS OR SECTIONS THAT HAVE RECEIVED PRELIMINARY APPROVAL.
4. THE 2008 MASTER PLAN AMENDMENT WILL BE CONSIDERED A STAND ALONE PROJECT FOR THE PURPOSES OF STORMWATER MANAGEMENT POINTS AND CREDITS.

LAND USE TABULATION

	2008	2004
RESIDENTIAL "A"		
TOTAL NUMBER OF UNITS	2,856 UNITS	2,856 UNITS
GROSS AREA OF RESIDENTIAL "A"	1,868.77± AC.=(63.09%)	1,868.77± AC.=(67.19%)
PERMITTED DESTINY	4.00 UNITS/ ACRE	4.00 UNITS/ ACRE
UNIT DENSITY	1.53 UNITS/ ACRE	1.53 UNITS/ ACRE
RESIDENTIAL "B"		
TOTAL NUMBER OF UNITS	80 UNITS	80 UNITS
GROSS AREA OF RESIDENTIAL "B"	22.9± AC.=(0.77%)	22.9± AC.=(0.79%)
PERMITTED DENSITY	9.60 UNITS/ ACRE	9.60 UNITS/ ACRE
UNIT DENSITY	3.49 UNITS/ ACRE	3.49 UNITS/ ACRE
RESIDENTIAL "D"		
TOTAL NUMBER OF UNITS	314 UNITS	314 UNITS
GROSS AREA OF RESIDENTIAL "D"	31.82 AC.=(1.07%)	31.82 AC.=(1.14%)
PERMITTED DENSITY	18.00 UNITS/ ACRE	18.00 UNITS/ ACRE
UNIT DENSITY	9.87 UNITS/ ACRE	9.87 UNITS/ ACRE
C.C.R.C. "B"		
TOTAL NUMBER OF UNITS	38 UNITS	N/A
GROSS AREA OF C.C.R.C. "B"	10.97± AC.=(0.37%)	N/A
PERMITTED DENSITY	9.60 UNITS/ ACRE	N/A
UNIT DENSITY	3.46 UNITS/ ACRE	N/A
C.C.R.C. "D"		
TOTAL NUMBER OF UNITS	558 UNITS	N/A
GROSS AREA OF C.C.R.C. "D"	57.33 AC. =(1.94%)	N/A
PERMITTED DENSITY	18.00 UNITS/ ACRE	N/A
UNIT DENSITY	9.73 UNITS/ ACRE	N/A
OPEN SPACE		
WITHIN NON-RESIDENTIAL AMENITY AND SERVICE SITES	150.27 AC.	39.27 AC.
* GOLF COURSE, LAKES AND BUFFERS, MARSH RESERVE	844.71 AC.	844.71 AC.
OPEN SPACE WITHIN RESIDENTIAL "A"	514.12 AC.	514.12 AC.
OPEN SPACE WITHIN RESIDENTIAL "B" & "D"	38.77 AC.	38.77 AC.
TOTAL AREA OF OPEN SPACE	1,547.87 AC.	1,436.87 AC.
TOTAL AREA OF PROJECT	2,962.24 AC.	2,781.49 AC.
% OF OPEN AREA	52.3%	51.7%
OVERALL DENSITY		
TOTAL PROJECT AREA	2,962.28 AC.	2,781.49 AC.
TOTAL NUMBER OF RESIDENTIAL UNITS	3846 UNITS	3,250 UNITS
OVERALL PROJECT DENSITY	1.30 UNITS/ AC.	1.17 UNITS/ AC.

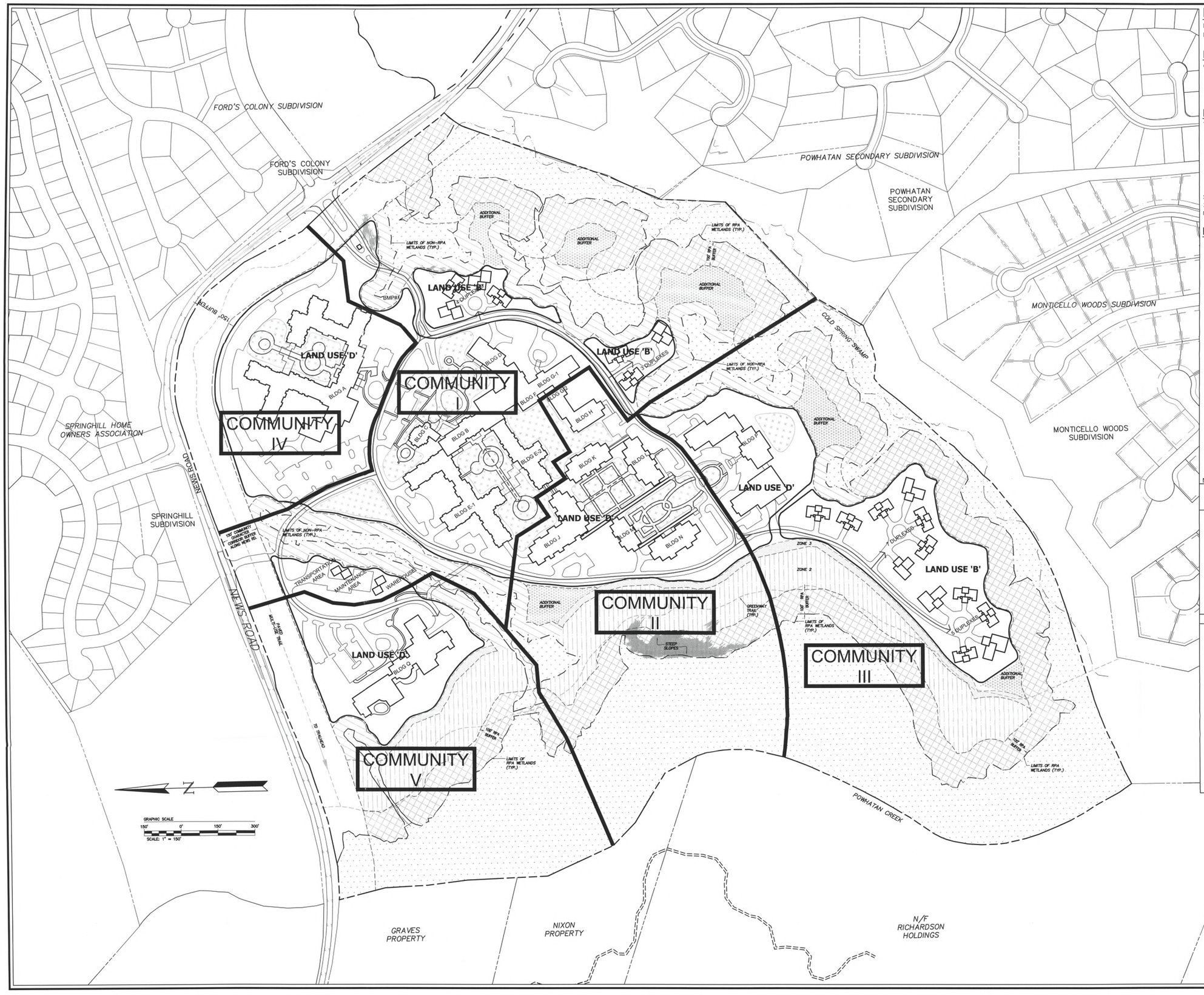
* NOTES	
MARSH RESERVES, LAKES AND BUFFERS	278.12 AC.
GOLF COURSE (INCLUDES LAKES IN PLAY)	491.09 AC
RESERVED FOR ROUTE 199	20.0 AC
ASSOCIATED GREENBELTS NATURAL OPEN SPACE IN 1993 ADDITION	3.30 AC.
OPEN SPACE IN 1995 ADDITION	5.00 AC.
OPEN SPACE IN 1998 ADDITION	47.20 AC.
OPEN SPACE IN 2008 ADDITION	111.0 AC.

No.	DATE	REVISION / COMMENT / NOTE	BY
2	5/20/08	REVISIONS PER RELOCATION OF BUILDINGS	AES
1	4/14/08	REVISIONS PER JCC COMMENTS DATED MARCH 25, 2008	AES

5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(757) 253-0040
Fax (757) 220-8994
CONSULTING ENGINEERS
WILLIAMSBURG • RICHMOND • GLOUCESTER

2008 LAND USE MASTER PLAN
FORD'S COLONY
AT WILLIAMSBURG
OWNER / DEVELOPER : REALTEC, INCORPORATED
VIRGINIA
JAMES CITY COUNTY
POWHATAN DISTRICT

Designed	Drawn
AES	AES
Scale	Date
1"= 600'	2/4/08
Project No.	
5652-70	
Drawing No.	
2	



DEVELOPMENT TABULATIONS:

PROPOSED ZONING (AND LAND USE DESIGNATION)	R-4 (B & D)
EXISTING ZONING:	R-8

DENSITY TABULATIONS:

GROSS ACREAGE:	180.79 AC. +/-
LESS RPA WETLANDS:	42.20 AC. +/-
LESS 25% SLOPES:	1.4 AC. +/-
TOTAL NON-DEVELOPABLE AREA:	43.60 AC. +/- (24.1% OF TOTAL PARCEL)

LAND-USE TABULATIONS:

TOTAL PARCEL:	**180.79 AC. +/-**
LANDUSES B & D (1):	68.30 AC. +/-
OPEN SPACE:	112.49 AC. +/-
RPA WETLANDS:	42.20 AC. +/-
NON-RPA WETLANDS	9.23 AC. +/-
BUFFER AREAS (2):	61.06 AC. +/-

1. INCLUDES (±9 AC.) RECREATIONAL-AMENITY OPEN SPACE AREA.
2. BUFFER AREAS INCLUDE RPA BUFFER (22.00 AC.), ZONE 2 RIPARIAN BUFFER (11.87 AC.), ZONE 3 RIPARIAN BUFFER (1.77 AC.), NON-RPA BUFFER (9.96 AC.), COMMUNITY CHARACTER COORIDOR BUFFER (10.91 AC.) & ADDITIONAL BUFFERS (4.55 AC.).

LEGEND:

- RPA WETLAND (42.20 AC. ±)
- NON-RPA WETLAND (9.23 AC. ±)
- RPA BUFFER (100') (22.00 AC. ±)
- ZONE 2 RIPARIAN BUFFER (11.87 AC. ±) (VARIABLE WIDTH)
- ZONE 3 RIPARIAN BUFFER (25') (1.77 AC. ±)
- NON-RPA BUFFER (50') (9.96 AC. ±)
- LAND USE "B" — LANDUSE BOUNDARIES (68.30 AC. ±)
- ADDITIONAL BUFFER (4.55 AC. ±)
- APPROX. LOCATIONS OF RECREATIONAL-AMENITY OPEN SPACE (9 AC. ±)
- SLOPES 25% OR GREATER
- VEHICULAR CIRCULATION
- PEDESTRIAN CIRCULATION

NOTE: 15 FT. BUILIDNG SETBACK TO RPA BUFFER ALONG COLD SPRING SWAMP.

Land Use Density Chart	Max. # Units	Area Density	Max. Non-Residential Floor Space	Maximum Acreage
B - Townhomes	38	0.17 Dwelling Units (du) per Acre	N/A	180.8 Acres
D - Independent Living Units	558	3.44	N/A	
D - Commom Areas (1) Dining Areas Administration Service/Loading Dock Wellness Center Other Amenities Other Limited Commercial Uses (3)			297,800 gsf	
D - Health Care Center (2) Assisted Living Skilled Nursing Auxiliary Grant Program	83 Rooms 60 Beds 2 Beds	N/A	N/A	
TOTALS:	596	3.30 du / ac.	297,800 gsf	180.8 Acres

Note (1): Exclusive of "Community Buildings" (identified as Building "C" on the Illustrative Masterplan).
Note (2): Health Care Center units not part of Land Use Density Tabulation.
Note (3): Limited commercial uses to include but not be limited to doctor's office, book store, pharmacy, deli, farmers market, craft store for use by residents only

COMMUNITY BREAKDOWN

COMMUNITY 1:	BUILDINGS B, C, D, E-1/E-2, F, G-1, 14 DUPLEXES, WAREHOUSE, STORAGE & EMPLOYEE PARKING TOTAL INDEPENDENT LIVING UNITS = 230; TOTAL BEDS/ROOMS = 54
COMMUNITY 2:	BUILDINGS G-2, H, J, K, L, M & N TOTAL INDEPENDENT LIVING UNITS = 168; TOTAL BEDS/ROOMS = 54
COMMUNITY 3:	BUILDING P, 24 DUPLEXES TOTAL INDEPENDENT LIVING UNITS = 60; TOTAL BEDS/ROOMS = 0
COMMUNITY 4:	BUILDING A TOTAL INDEPENDENT LIVING UNITS = 138; TOTAL BEDS/ROOMS = 0
COMMUNITY 5:	BUILDING Q TOTAL INDEPENDENT LIVING UNITS = 0; TOTAL BEDS/ROOMS = 35

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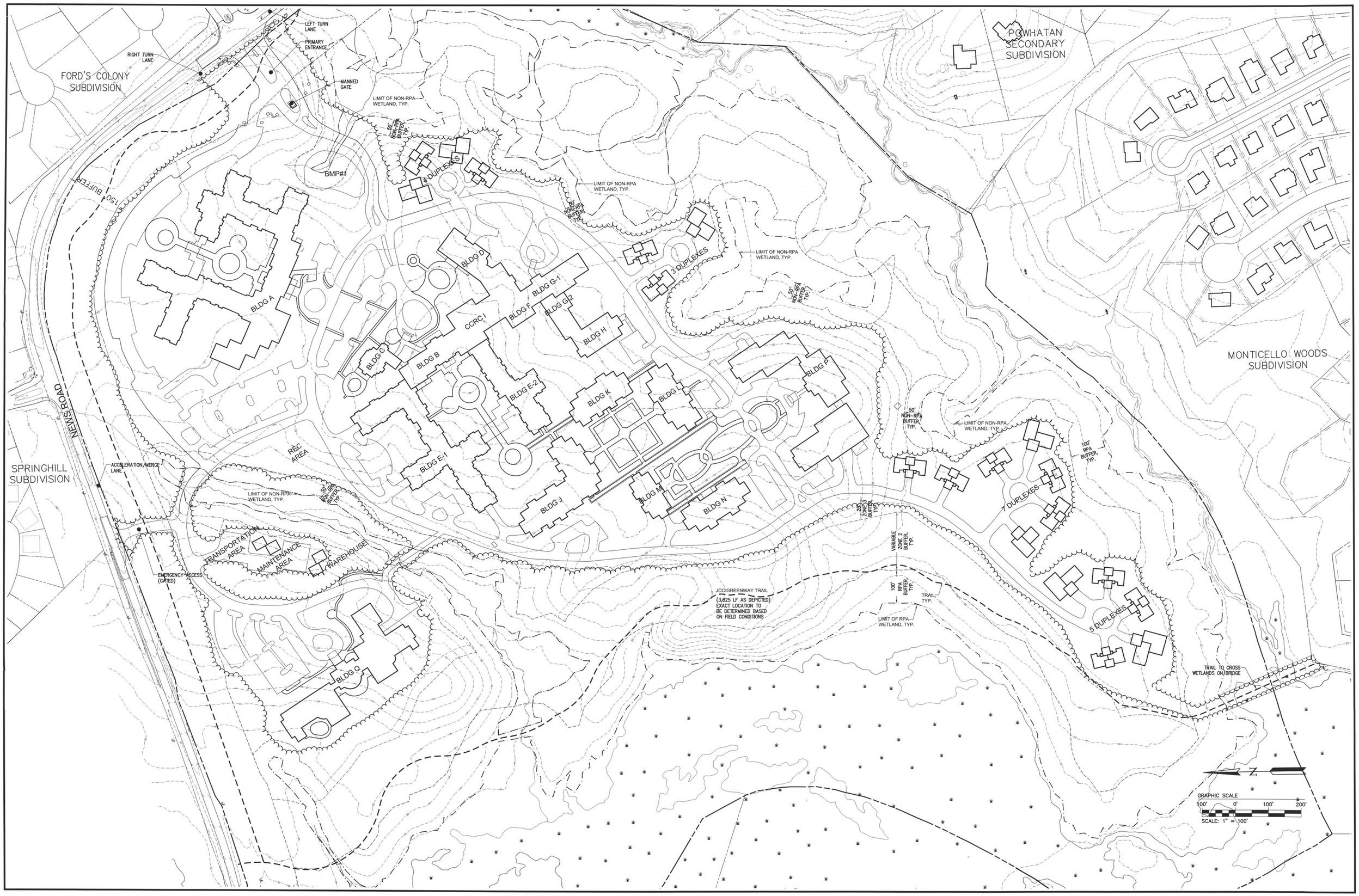
BINDING LAND-USE MASTER PLAN FOR REZONING of
THE VILLAGE
at
FORD'S COLONY OF WILLIAMSBURG
for
REALTEC INCORPORATED

POWHATAN DISTRICT JAMES CITY COUNTY VIRGINIA

Designed AES	Drawn AES
Scale 1"=150'	Date 2/4/08
Project No. 5652-22	
Drawing No. 4	



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POWHATAN DISTRICT | JAMES CITY COUNTY | VIRGINIA

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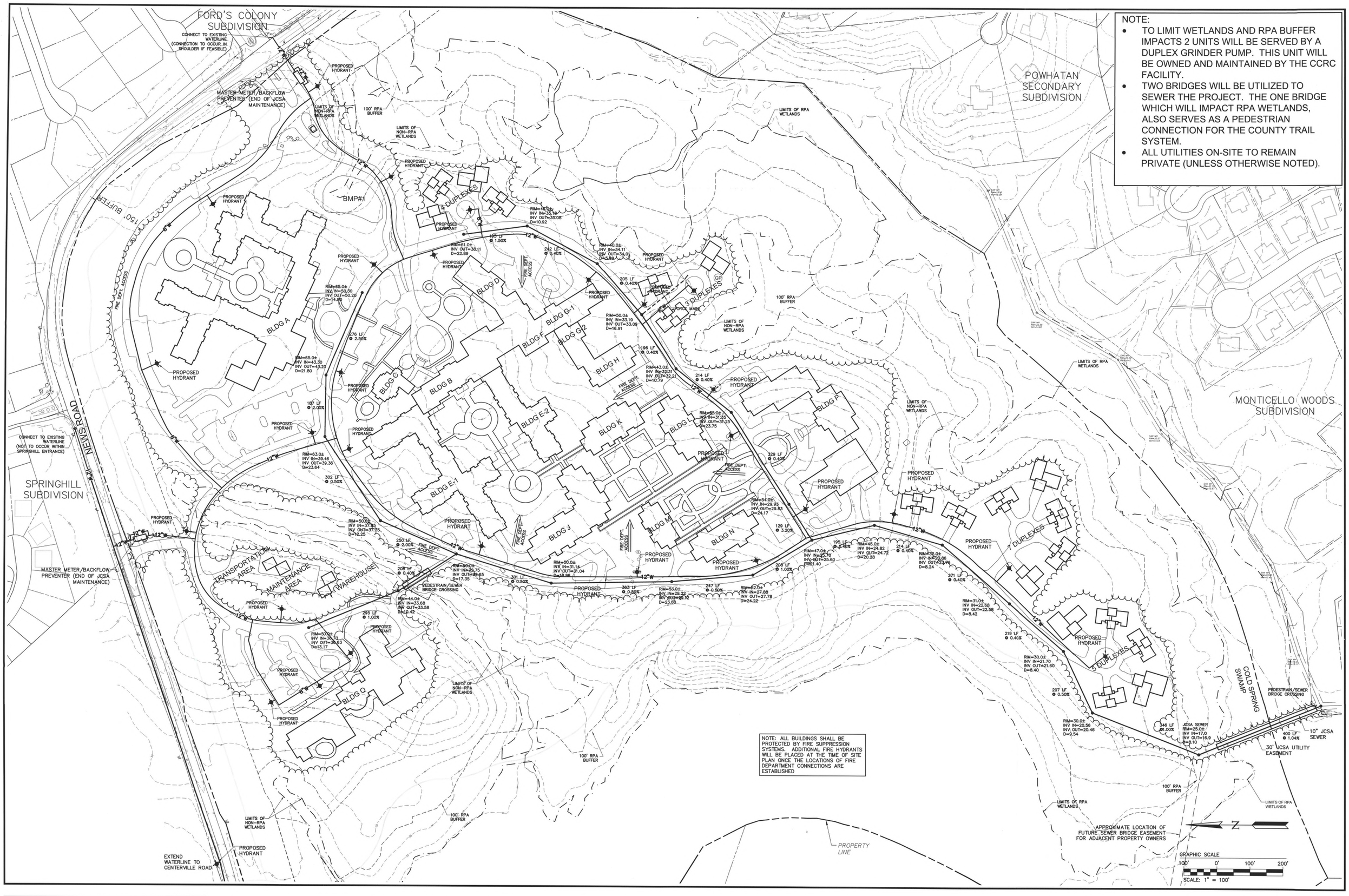
AES	AES
Scale	Date
1"=100'	2/4/08
Project No.	
5652-22	
Drawing No.	
5	

NOTE:

- TO LIMIT WETLANDS AND RPA BUFFER IMPACTS 2 UNITS WILL BE SERVED BY A DUPLEX GRINDER PUMP. THIS UNIT WILL BE OWNED AND MAINTAINED BY THE CCRC FACILITY.
- TWO BRIDGES WILL BE UTILIZED TO SEWER THE PROJECT. THE ONE BRIDGE WHICH WILL IMPACT RPA WETLANDS, ALSO SERVES AS A PEDESTRIAN CONNECTION FOR THE COUNTY TRAIL SYSTEM.
- ALL UTILITIES ON-SITE TO REMAIN PRIVATE (UNLESS OTHERWISE NOTED).



NOTE: ALL BUILDINGS SHALL BE PROTECTED BY FIRE SUPPRESSION SYSTEMS. ADDITIONAL FIRE HYDRANTS WILL BE PLACED AT THE TIME OF SITE PLAN ONCE THE LOCATIONS OF FIRE DEPARTMENT CONNECTIONS ARE ESTABLISHED

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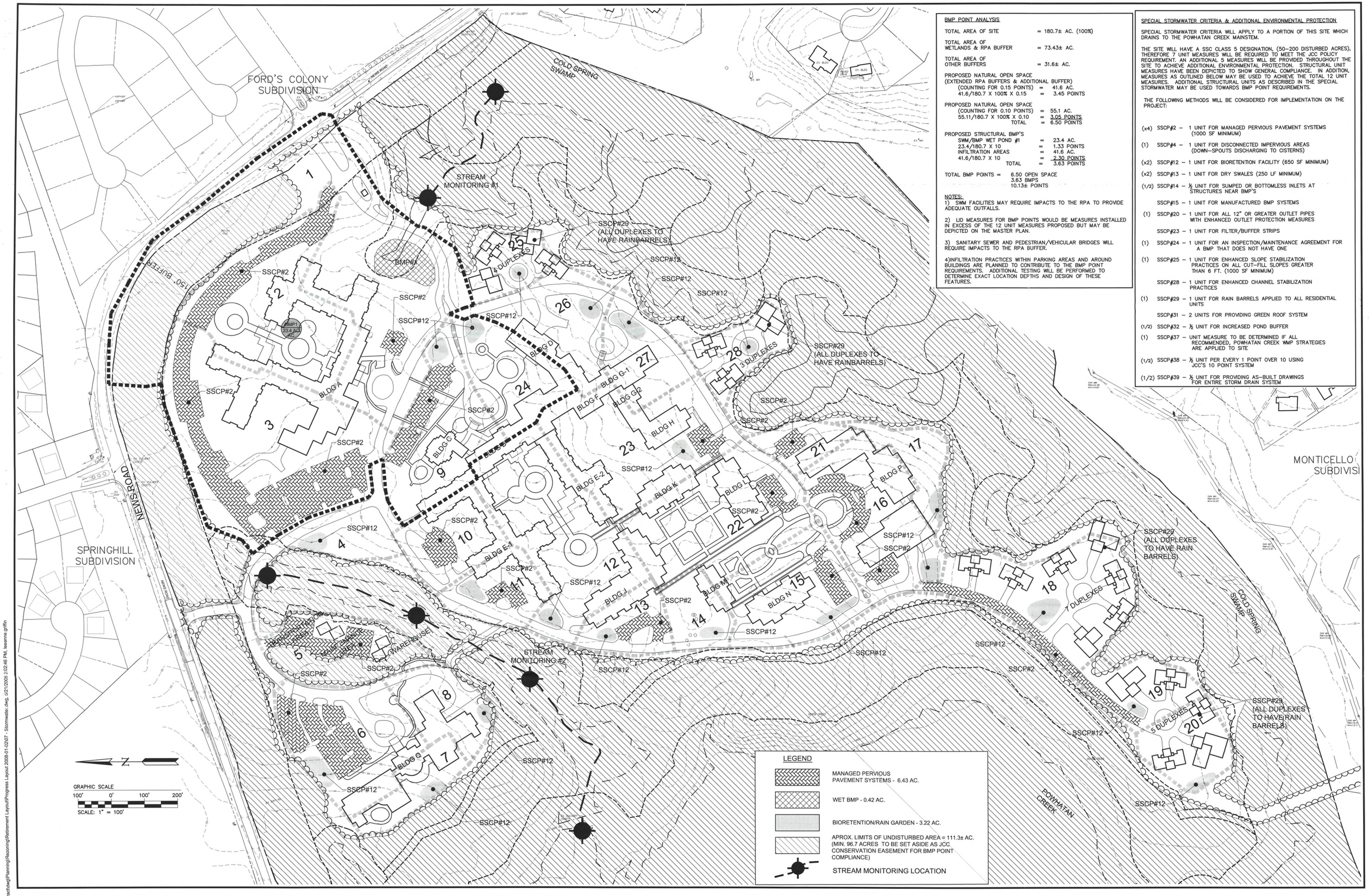
POWHATAN DISTRICT | JAMES CITY COUNTY | VIRGINIA

Designed	Drawn
AES	AES
Scale	Date
1"=100'	2/4/08

Project No. 5652-22

Drawing No. 6



BMP POINT ANALYSIS

TOTAL AREA OF SITE = 180.7± AC. (100%)

TOTAL AREA OF WETLANDS & RPA BUFFER = 73.43± AC.

TOTAL AREA OF OTHER BUFFERS = 31.6± AC.

PROPOSED NATURAL OPEN SPACE (EXTENDED RPA BUFFERS & ADDITIONAL BUFFER)
(COUNTING FOR 0.15 POINTS) = 41.6 AC.
41.6/180.7 X 100% X 0.15 = 3.45 POINTS

PROPOSED NATURAL OPEN SPACE
(COUNTING FOR 0.10 POINTS) = 55.1 AC.
55.11/180.7 X 100% X 0.10 = 3.05 POINTS
TOTAL = 6.50 POINTS

PROPOSED STRUCTURAL BMP'S
SWM/BMP WET POND #1 = 23.4 AC.
23.4/180.7 X 10 = 1.33 POINTS
INFILTRATION AREAS = 41.6 AC.
41.6/180.7 X 10 = 2.30 POINTS
TOTAL = 3.63 POINTS

TOTAL BMP POINTS = 6.50 OPEN SPACE
3.63 BMPS
10.13± POINTS

NOTES:
1) SWM FACILITIES MAY REQUIRE IMPACTS TO THE RPA TO PROVIDE ADEQUATE OUTFALLS.

2) LID MEASURES FOR BMP POINTS WOULD BE MEASURES INSTALLED IN EXCESS OF THE 12 UNIT MEASURES PROPOSED BUT MAY BE DEPICTED ON THE MASTER PLAN.

3) SANITARY SEWER AND PEDESTRIAN/VEHICULAR BRIDGES WILL REQUIRE IMPACTS TO THE RPA BUFFER.

4)INFILTRATION PRACTICES WITHIN PARKING AREAS AND AROUND BUILDINGS ARE PLANNED TO CONTRIBUTE TO THE BMP POINT REQUIREMENTS. ADDITIONAL TESTING WILL BE PERFORMED TO DETERMINE EXACT LOCATION DEPTHS AND DESIGN OF THESE FEATURES.

SPECIAL STORMWATER CRITERIA & ADDITIONAL ENVIRONMENTAL PROTECTION

SPECIAL STORMWATER CRITERIA WILL APPLY TO A PORTION OF THIS SITE WHICH DRAINS TO THE POWHATAN CREEK MAINSTEM.

THE SITE WILL HAVE A SSC CLASS 5 DESIGNATION, (50–200 DISTURBED ACRES), THEREFORE 7 UNIT MEASURES WILL BE REQUIRED TO MEET THE JCC POLICY REQUIREMENT. AN ADDITIONAL 5 MEASURES WILL BE PROVIDED THROUGHOUT THE SITE TO ACHIEVE ADDITIONAL ENVIRONMENTAL PROTECTION. STRUCTURAL UNIT MEASURES HAVE BEEN DEPICTED TO SHOW GENERAL COMPLIANCE. IN ADDITION, MEASURES AS OUTLINED BELOW MAY BE USED TO ACHIEVE THE TOTAL 12 UNIT MEASURES. ADDITIONAL STRUCTURAL UNITS AS DESCRIBED IN THE SPECIAL STORMWATER MAY BE USED TOWARDS BMP POINT REQUIREMENTS.

THE FOLLOWING METHODS WILL BE CONSIDERED FOR IMPLEMENTATION ON THE PROJECT:

(x4) SSCP#2 – 1 UNIT FOR MANAGED PERVIOUS PAVEMENT SYSTEMS (1000 SF MINIMUM)

(1) SSCP#4 – 1 UNIT FOR DISCONNECTED IMPERVIOUS AREAS (DOWN–SPOUTS DISCHARGING TO CISTERNS)

(x2) SSCP#12 – 1 UNIT FOR BIORETENTION FACILITY (650 SF MINIMUM)

(x2) SSCP#13 – 1 UNIT FOR DRY SWALES (250 LF MINIMUM)

(1/2) SSCP#14 – ½ UNIT FOR SUMPED OR BOTTOMLESS INLETS AT STRUCTURES NEAR BMP'S

SSCP#15 – 1 UNIT FOR MANUFACTURED BMP SYSTEMS

(1) SSCP#20 – 1 UNIT FOR ALL 12" OR GREATER OUTLET PIPES WITH ENHANCED OUTLET PROTECTION MEASURES

SSCP#23 – 1 UNIT FOR FILTER/BUFFER STRIPS

(1) SSCP#24 – 1 UNIT FOR AN INSPECTION/MAINTENANCE AGREEMENT FOR A BMP THAT DOES NOT HAVE ONE

(1) SSCP#25 – 1 UNIT FOR ENHANCED SLOPE STABILIZATION PRACTICES ON ALL CUT–FILL SLOPES GREATER THAN 6 FT. (1000 SF MINIMUM)

SSCP#28 – 1 UNIT FOR ENHANCED CHANNEL STABILIZATION PRACTICES

(1) SSCP#29 – 1 UNIT FOR RAIN BARRELS APPLIED TO ALL RESIDENTIAL UNITS

SSCP#31 – 2 UNITS FOR PROVIDING GREEN ROOF SYSTEM

(1/2) SSCP#32 – ½ UNIT FOR INCREASED POND BUFFER

(1) SSCP#37 – UNIT MEASURE TO BE DETERMINED IF ALL RECOMMENDED, POWHATAN CREEK WMP STRATEGIES ARE APPLIED TO SITE

(1/2) SSCP#38 – ½ UNIT PER EVERY 1 POINT OVER 10 USING JCC'S 10 POINT SYSTEM

(1/2) SSCP#39 – ½ UNIT FOR PROVIDING AS–BUILT DRAWINGS FOR ENTIRE STORM DRAIN SYSTEM

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Scale	Date
1"=100'	2/4/08

Project No. 5652–22
Drawing No. 7

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FORD'S COLONY SUBDIVISION

POWHATAN SECONDARY SUBDIVISION

MONTICELLO WOODS SUBDIVISION

SPRINGHILL SUBDIVISION

NEWS ROAD

150' BUFFER

BMP#1

BLDG A

BLDG B

BLDG C

BLDG D

BLDG E

BLDG E-2

BLDG F

BLDG G

BLDG G-2

BLDG H

BLDG J

BLDG K

BLDG L

BLDG M

BLDG N

BLDG P

BLDG Q

4 DUPLEXES

3 DUPLEXES

7 DUPLEXES

5 DUPLEXES

RETAINING WALL

RETAINING WALL

TRANSPORTATION AREA

MAINTENANCE AREA

WAREHOUSE

GRAPHIC SCALE

100' 0' 100' 200'

SCALE: 1" = 100'

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No.	DATE	REVISION / COMMENT / NOTE	REVISED BY	REVIEWED BY
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1"=100'	2/4/08

Project No. 5652-22

Drawing No. 8

Version FY2022
(Last Updated 7/19/2021)

Please use the accompanying Excel spreadsheet to calculate the numbers below.

FISCAL IMPACT WORKSHEET AND ASSUMPTIONS

Please complete all *applicable* sections. Please use the provided spreadsheet to perform calculations. If space provided is insufficient, please feel free to include additional pages. If you have any questions please contact the Planning Office at 757-253-6685 or planning@jamescitycountyva.gov

1a) PROPOSAL NAME: Ford's Village

1b) Does this project propose residential units? Yes x☐ No☐ (if no, skip Sec. 2)

1c) Does this project include commercial or industrial uses? Yes ☒ No☐ (If no skip Sec. 3)

Fiscal Impact Worksheet Section 2: Residential Developments

2a) TOTAL NEW DWELLING UNITS. Please indicate the total number of each type of proposed dwelling unit. Then, *add* the total number of new dwelling units.

Single-Family Detached	158	Apartment	75
Townhome/Condominium/Single-Family	128	Manufactured Home	0
Total Dwelling Units	361		

Are any units affordable? Yes ☐ No ☐ (If yes, how many?)_____

Residential Expenses – School Expenses

2b) TOTAL NEW STUDENTS GENERATED. *Multiply* the number of each type of proposed unit from (2a) its corresponding Student Generation Rate below. Then, *add* the total number of students generated by the proposal.

Unit Type	Number of Proposed Units (from 2a)	Student Generation Rate	Students Generated
Single-Family Detached	184	0.4	73.6
Townhome/Condo/Attached	102	0.17	17.34
Apartment	75	0.31	23.25

Manufactured Home		0.46	
Total			114.19

2c) TOTAL SCHOOL EXPENSES. *Multiply* the total number of students generated from (2b) by the Per-Student Total Expenses below.

Total Students Generated	Per-Student Operating Expenses	Per-Student Capital Expenses	**Per-Student Total Expenses**	**Total School Expenses**
114.19	*$8,762.38*	*$1,948.32*	***$10,710.70***	$1,223,054

Residential Expenses - Non-School Expenses

2d) TOTAL POPULATION GENERATED. *Multiply* the number of proposed units from (2a) and multiply by the Average Household Size number below.

Total Units Proposed	**Average Household Size**	**Total Population Generated**
361	**2.49**	612.5

2e) TOTAL NON-SCHOOL EXPENSES. *Multiply* the population generated from (2d) by the Per Capita Non-School Expenses below.

Total Population Generated	**Per-Capita Non-School Expenses**	**Total Non-School Expenses**
612.5	***$680.24***	$ 416,647.00

2f) TOTAL RESIDENTIAL EXPENSES. *Add* school expenses from (2c) and non-school expenses (2e) to determine total residential expenses.

Total School Expenses	**Non-School Expenses**	**Total Residential Expenses**
$ 1,223,055	$ 416,647.00	$ 1,639,701.83

Residential Revenues

2g) TOTAL REAL ESTATE EXPECTED MARKET VALUE. Write the number of each type of units proposed from (2a). Then *determine the average* expected market value for each type of unit. Then, *multiply* the number of unit proposed by their average expected market value. Finally, *add* the total expected market value of the proposed units.

Unit Type:	**Number of Units:**	**Average Expected Market Value:**	**Total Expected Market Value:**
Single-Family Detached	158	$ 730,000	$ 115,340,000
Townhome/Condo/Multi-family	128	$ 568,164	$ 72,725,000

Apartments	75	$ 200,000	$ 15,000,000
Total:	0	N/A	$ 203,065,000

2h) TOTAL REAL ESTATE TAXES PAID. *Multiply* the total market value from (2g) by the real estate tax rate blow.

Total Market Value	Real Estate Tax Rate	Total Real Estate Taxes Paid
$ 203,065,000	**.0084**	$ 1,705,746

2i) TOTAL PERSONAL PROPERTY TAXES PAID. *Multiply* the total real estate taxes paid (2h) by the property tax average below.

Real Estate Tax Paid	Personal Property Tax Average	Personal Property Taxes Paid
$ 1,705,746	**0.15**	$ 255,862

2j) TOTAL SALES & MEALS TAXES PAID. *Multiply* the total real estate taxes paid (2h) by the sales and meals tax average below:

Real Estate Tax Paid	Sales and Meals Tax Average	Total Sales & Meals Taxes Paid
$ 1,705,746	**.09**	$ 153,517

2k) TOTAL CONSERVATION EASEMENT TAXES PAID. If the proposal contains a conservation easement, *multiply* the size of the proposed conservation easement by the conservation easement assessment rate.

Proposed Conservation Easement Size	Assessment Rate	Conservation Easement Taxes Paid
0	**$2000/acre** (prorated)	0

2l) TOTAL HOA TAXES PAID. If the HOA will own any property that will be rented to non- HOA members, *multiply* the expected assessed value of those rentable facilities by the real estate tax rate below.

HOA Property Type	Total Assessed Value	Real Estate Tax Rate	Total HOA Taxes Paid
0	0	**.0084**	$ 0

2m) TOTAL RESIDENTIAL REVENUES. *Add* all residential taxes paid to the County from (2h) through (2l).

Total Residential Revenues	**$2,115,125**

2n) RESIDENTIAL FISCAL IMPACT. Subtract total residential revenues (2m) from total residential expenses (2f).

Total Residential Ex	Total Residential Revenues	Total Residential Fiscal Impact
$ 1,575,652	$ 2,115,125	$ 539,473

Fiscal Impact Analysis Worksheet Section 3: Commercial and Industrial Developments

Commercial and Industrial Expenses

3a) TOTAL NEW BUSINESSES. How many new businesses are proposed? _____
(Include all businesses that will rent or lease space at the location as part of the proposal, including probable tenants of an office park or strip mall).

3b) TOTAL COMMERCIAL EXPENSES. *Multiply* the total business real estate expected assessment value from (3c) below by the Commercial Expenses Rate below.

Total Expected Assessment Value	Commercial Expense Rate	Total Commercial Expenses
$30,000,000	**0.00468**	**$** 140,400

Commercial & Industrial Revenues

3c) TOTAL REAL ESTATE EXPECTED ASSESSMENT VALUE. E*stimate* the expected real estate assessment value, at buildout, of all proposed commercial element properties below.

Proposed Business Properties (by use and location)	Expected Assessment Value
Elder Care	$ 30,000,000
Total:	$ 30,000,000

3d) TOTAL REAL ESTATE TAXES PAID. *Multiply* the total expected market property value from (3c) by the real estate tax rate below.

Expected Market Value	Real Estate Tax Rate	Real Estate Taxes Paid
30,000,000	**.0084**	$ 252,000

3e) TOTAL BUSINESS PERSONAL PROPERTY TAXES PAID. *Multiply* the total business capitalization for each proposed commercial element by the business personal property tax rate below. Then *add* the total personal property taxes paid.

Proposed Business Name	Total Business Capitalization	Personal Property Tax Rate	Total Business Property Taxes Paid
Elder Care	$2,500,000	.001	$25,000.00
Total:			$25,000

3f) TOTAL BUSINESS MACHINERY AND TOOLS TAXES PAID. If any manufacturing is proposed, *multiply* the total business capitalization for each proposed manufacturing element by the business machinery and tools tax rate below. Then, *add* the machinery and tools tax paid.

Proposed Business Name	Total Business Capitalization	Machinery and Tools Tax Rate	Total Business Property Taxes Paid
		0.01	
		0.01	
Total:		N/A	

3g) TOTAL SALES TAXES PAID. *Estimate* the applicable total gross retail sales, prepared meals sales, and hotel/motel room sales for proposal's commercial elements below. Then, *multiply* the projected commercial gross sales by the applicable sales tax rates. Then, *add* the total sales taxes paid.

Tax Type	Projected Gross Sales	Sales Tax Rates	Sales Taxes Paid
		0.015 of Gross Retail Sales	
Food Services	500,000	**0.04 of Prepared Sales**	$22,000.00
		0.02 of Gross Sales*	
Total:	**N/A**	**N/A**	$ 22,000.00

*Actual Occupancy Tax is 5% of Gross Sales; however, 60% of those funds are targeted to tourism.

3h) TOTAL BUSINESS LICENSES FEES PAID. Estimate each business element's total gross sales. Multiply each business element's projected gross sales by the Annual Business License rate to determine annual business licenses fee paid.

Proposed Business Name(s)	Business Type* (see exhibit sheet)	Projected Total Gross Sales	Business License Rate	Annual Business License Fees Paid
	Professional Services	10,500,000	**0.0058**	$ 60,900

	Retail Services	0	**0.0020**	
	Other Services	500,000.00	**0.0036**	$1,800.00
	Total	N/A	N/A	$ 62,700.00

3i) TOTAL COMMERCIAL AND INDUSTRIAL REVENUES. *Add* the total taxes and fees paid by all of the business elements from (3d) through (3h).

Total Commercial and Industrial Revenues	$ 361,700.00

3j) COMMERCIAL FISCAL IMPACT. *Subtract* total commercial and industrial revenues (3i) from total commercial and industrial expenses (3b).

Total Commercial	Total Commercial Revenues	Total Commercial Fiscal Impact
		221,300.00

3k) TOTAL PROPOSED FISCAL IMPACT. *Add* residential fiscal impacts (2n) and commercial fiscal impacts (3j).

Residential Fiscal Impact	Commercial Fiscal Impact	Total Proposed Fiscal Impact
$ 539,473	$ 221,300	$ 727,922

Fiscal Impact Analysis Worksheet Section 4: Current Land Use

Current Residential Use (If there are no existing residential units, skip to (4g)).

4a) TOTAL CURRENT DWELLING UNITS. Please indicate the total number of each type of existing dwelling unit. Then, *add* the total number of existing dwelling units.

Single-Family Detached	1	Apartment	
Townhome/Condominium/Single-Family Attached		Manufactured Home	
Total Dwelling Units	1		

Residential Expenses - School Expenses

4b) TOTAL CURRENT STUDENTS. *Multiply* the number of existing units from (4a) by its corresponding Student Generation Rate below. Then, *add* the total number of existing students.

Unit Type	Number of Existing Units	Student Generation Rate	Existing Students
Single-Family Detached	0.4	0.4	0.4
Townhome/Condo/Attached	0	0.17	
Apartment	0	0.31	
Manufactured Home	0	0.46	

Total		**N/A**	0.4

4c) TOTAL CURRENT SCHOOL EXPENSES. *Multiply* the total number of current students from (4b) by the per-student school cost below.

Number of Existing Students	Per-Student School Cost	Current School Expenses
0.4	***$11,828***	$ 4,731.20

Residential Expenses - Non-School Expenses

4d) TOTAL CURRENT POPULATION. *Multiply* the total number of existing units from (4a) by average household size below.

Total Existing Units	Average Household Size	Total Current Population
0	**2.45**	

4e) TOTAL CURRENT NON-SCHOOL EXPENSES. *Multiply* the current population from (4d) by per-capita non-school expenses below.

Total Current Population	Per-Capita Non-School Expenses	Current Non-School Expenses
	$1,284.00	

4f) TOTAL RESIDENTIAL EXPENSES. *Add* school expenses from (4c) and non-school expenses from (4e).

School Expenses	Non-School Expenses	Residential Expenses
$	$ 3145.80	

Residential Revenues

4g) TOTAL CURRENT ASSESSMENT VALUE. *Search* for each residential property included in the proposal on the Parcel Viewer at http://property.jccegov.com/parcelviewer/Search.aspx . *Indicate* each property's total assessment value below. Then, *add* total assessment values.

Property Address and Description	Assessment Value
3889 News Road	$ 3,153,900.00
Total:	$ 3,153,900.00

4h) TOTAL CURRENT REAL ESTATE TAXES PAID. *Multiply* the total assessment value from (4g) by the real estate tax rate below.

Total Assessment Value	Real Estate Tax Rate	Real Estate Taxes Paid
3,153,900.00	**.0084**	$ 26,493

4i) TOTAL CURRENT PERSONAL PROPERTY TAXES PAID. *Multiply* total real estate taxes paid from (4h) by the personal property tax average below.

Real Estate Tax Paid	Personal Property Tax Average	Personal Property Paid
$26,492	**0.15**	$3,974

4j) TOTAL CURRENT SALES AND MEALS TAXES PAID. *Multiply* the total real estate taxes paid from (4h) by the sales and meals tax average below.

Real Estate Tax Paid	Sales and Meals Tax Average	Average Excise Tax Paid
$26,492	**.09**	$ 2,384

4k) TOTAL CURRENT RESIDENTIAL REVENUES. *Add* all current residential taxes paid to the County from (4h) through (4j).

Total Current Residential Revenues	$ 32,851

4l) CURRENT RESIDENTIAL FISCAL IMPACT. *Subtract* total residential revenues (4k) from total residential expenses (4f).

Total Residential	Total Residential Revenues	Total Residential Fiscal Impact
$32,851		$32,851

4m) FINAL RESIDENTIAL FISCAL IMPACT. *Subtract* current residential fiscal impact from (4l) from proposed residential fiscal impact from (2n).

Proposed Residential Impact	Current Residential Impact	Final Residential Fiscal Impact
$539,473	$32,851	$ 506,622

Current Commercial Use

Current Commercial Expenses (if there are no current businesses or commercial properties, skip to (5k).

5a) TOTAL CURRENT BUSINESSES. How many businesses exist on the proposal properties? 0 (Include all businesses that rent or lease space at the location).

5b) TOTAL CURRENT COMMERCIAL EXPENSES. *Multiply* the current number of businesses operating on the proposal properties by the per-business expense rate below.

Total Expected Assessment Value	Commercial Expense Rate	Total Commercial Expenses
	0.00468	$

Current Commercial Revenues

5c) TOTAL CURRENT ASSESSMENT VALUE. *Search* for each commercial property included in the proposal on the Parcel Viewer at http://property.jccegov.com/parcelviewer/Search.aspx . *Indicate* each property's total assessment value below. Then, *add* total assessment values.

Addresses	Assessment Value	Real Estate Tax Rate	Real Estate Tax Paid
		.0084	
		.0084	
Total:			$

5d) TOTAL CURRENT BUSINESS PERSONAL PROPERTY TAXES PAID. *Multiply* the total business capitalization for each current commercial element by the business personal property tax rate below. Then *add* the total personal property taxes paid.

Current Business	Total Business	Personal Property Tax Rate	Business Property Taxes Paid
		0.01	
		0.01	
		0.01	
Total:		N/A	$

5e) TOTAL CURRENT MACHINERY AND TOOLS TAX PAID. If any manufacturing exists, *multiply* the total capitalization for manufacturing equipment by the business machinery and tools tax rate below.

Current Business	Total Business Capitalization	Personal Property Tax Rate	Machinery and Tools Tax Paid
0		**0.01**	$ 0

5f) TOTAL CURRENT SALES TAXES PAID. *Estimate* the applicable total gross retail sales, prepared meals sales, and hotel/motel sales for existing commercial elements below. Then, *multiply* the projected commercial gross sales by the applicable sales tax rates. Then, *add* the total sales taxes paid.

Activity	Projected Gross Sales	Tax Rate	Sales Taxes Paid
Retail Sales	0	**0.01 of Gross Retail Sales**	0
Prepared Meals	0	**0.04 of Prepared Sales**	0
Hotel, Motel	0	**0.02 of Gross Sales***	0
Total:	**N/A**	**N/A**	$ 0

*Actual Occupancy Tax is 5% of Gross Sales; however, 60% of those funds are targeted to tourism.

5g) TOTAL CURRENT BUSINESS LICENSES FEES PAID. *Estimate* each current business element's total gross sales. Then, *multiply* each business element's projected gross sales by the Annual Business License rate to determine annual business licenses fee paid. Then, *add* the total business license fees paid.

Business Type	Gross Sales	Business License Rate	Annual Business License Fees Paid
Professional Services	0	**$0.0058**	
Retail Sales	0	**$0.0020**	
Contractors	0	**$0.0016**	
Wholesalers	0	**$0.0005**	
Manufacturers	0	**No tax**	
Other Services	0	**$0.0036**	

5h) TOTAL CURRENT COMMERCIAL REVENUES. *Add* all current commercial revenues paid by existing businesses from (5c) through (5g).

Total Current Commercial Revenues	$ 0.00

5i) CURRENT COMMERCIAL FISCAL IMPACT. *Subtract* total commercial revenues (5h) from total residential expenses (5b).

Total Commercial Expenses	Total Commercial Revenues	Total Commercial Fiscal Impact
		$ 0.00

5j) FINAL COMMERCIAL FISCAL IMPACT. *Subtract* current commercial fiscal impact from (5i) from proposed commercial fiscal impact from (3j).

Proposed Commercial Impact	Current Commercial Impact	Final Commercial Fiscal Impact
$221,300	0	$221,300

5k) FINAL FISCAL IMPACT. *Subtract* the final commercial fiscal impact from (5i) from final residential fiscal impact from (4m).

Final Residential Impact	Final Commercial Impact	Final Fiscal Impact
$ 506,622	$221,300	$ 727,922

Fiscal Impact Worksheet Section 6: Phasing

Residential Phasing

6a) Copy *and paste* the residential phasing template from the accompanying Excel sheet to the page below.

Commercial Phasing

6b) *Copy* and *paste* the commercial phasing template from the accompanying Excel sheet to the page below.

Final Phasing Projections

6c) *Copy* and *paste* the final phasing projection from the accompanying Excel sheet to the page below.

Fiscal Impact Worksheet Section 7: Employment

7a) *Copy and paste* the employment projections from the accompanying Excel sheet to the page below.

DEFINITIONS AND ASSUMPTIONS

Apartment – A building used, or intended to be used as the residence of three or more families living independently of each other. Tenants have no equity in the dwelling.

Assessment Value – Assessment value is assumed to be within 1% of market value. Market value drives assessment value.

Buildout – All data and assumptions reflect the fiscal impact of the proposal at buildout.

Commercial Expense Rate – The commercial expense rate uses the proportional valuation method to determine individual business expenses. Under that method businesses are collectively responsible for impact related to the commercial property valuation.

This rate assumes that the costs of providing County services to a business are directly correlated with that business's property assessment. This assumes more valuable properties have generally more intense uses incurring greater County expenses.

Condominium – A building, or group of buildings, in which units are owned individually and the structure, common areas and common facilities are owned by all the owners on a proportional, undivided basis.

Contractor – Any person, firm or corporation accepting or offering to accept orders or contracts for doing any work on or in any building or structure, any paving, curbing or other work on sidewalks, streets, alleys or highways, any excavation of earth, rock or other materials, any construction of sewers and any installation of interior building components.

Direct Impact – The worksheet only calculates direct financial impacts on the County budget. The worksheet is only one of many development management tools and as such, does not make a determination whether any type of development "should" happen based solely on that proposal's fiscal impact. The tool is not designed to measure non-budget impacts, such as increased traffic or nonbudget benefits, such as forwarding the goals of the Comprehensive Plan. Costs incurred by other entities, such as other localities or the state, remain uncounted.

Dwelling – Any structure which is designed for use for residential purposes, except hotels, motels, boardinghouses, lodging houses and tourist cabins.

Exempt – Certain types of business activities or products are exempted from annual County business licenses. These include manufacturers, insurance agencies, apartment complexes and gasoline sales.

Fees & Licenses – All fees collected by the County, including business and professional licenses, planning fees, building permit fees, stormwater fees, environmental inspection fees, septic tank fees, dog licenses and motor vehicle licenses, are deducted from the per-capita and per-business budgetary costs of each department that collects them.

Fiscal Impact Analysis – The County has created a set of standardized data and assumptions to streamline both the creation and review of fiscal impact studies. The County had no itemized list of questions for fiscal impact study creators to answer, resulting in portions of fiscal impact studies with no bearing on the County's budgetary bottom line. The guesswork is removed from the creation of these documents. The data used by fiscal impact study authors also came from myriad sources, often within the County, which were difficult to verify. The fiscal impact worksheet allows consistency across multiple fiscal impact studies.

Fiscal Impact Worksheet – The worksheet helps the applicant present relevant data to the County, using data verified by the County. The worksheet provides consistency across all fiscal impact analyses.

Non-School Expenses – Non-school expenses include all non-school budget spending. Non-school expenses are calculated using the Proportional Variation method. Using the Proportional Variation method, residents and businesses are assumed to be responsible for differing percentages of the County's non-school spending.

Manufacturing – Assembly of components, pieces, or subassemblies, or the process of converting raw, unfinished materials into different products, substances or purposes.

Market Value – Market value is assumed to be within 1% of assessment value. Market value drives assessment value.

Manufactured Home – A manufactured home is a structure not meeting the specifications or requirements or a manufactured home, designed for transportation after fabrication. The only manufactured homes counted in the Student Generation figure are those in designated manufactured home parks. Manufactured homes on individual lots are indistinguishable from single-family detached dwellings for the purposes of the worksheet.

Phasing – All residential developments are assumed to have an absorption rate of 20% per annum. All commercial development are assumed to have an absorption rate of 20% per annum. The date stamp Year 1 in the phasing template represents 365 days after the Board of Supervisors approval.

Professional Services – Work performed by an independent contractor within the scope of the practice of accounting, actuarial services, architecture, land surveying, landscape architecture, law, dentistry, medicine, optometry, pharmacy or professional engineering. Professional services shall also include the services of an economist procured by the State Corporation Commission.

Proportional Valuation Impact – Proportional valuation impact assumes that a proposed residential or commercial project's fiscal impact is proportional to the percentage of the total tax base that is either residential or commercial. James City's proportional valuation is calculated using the County's Real Estate Mapping GIS program.

Furthermore, individual business expenses to the County are calculated using the proportional valuation impact method. (See Commercial Expense Rate)

Per-Business Expense Rate – The per-business expense rate assumes that the County incurs non-school expenses equal to 0.04% of the commercial real estate assessment of any given business.

Per Capita Evaluation Method – This worksheet uses the Per Capita Evaluation method to assign per-capita and per-business costs to non-school expenses. This method assumes that current per-capita and per-business expenditures and service levels are consistent with future per-capita and per-business expenditures and service levels.

Per Capita – Per capita calculations divide each department's spending, minus fees and state contributions, by the current County population. This number excludes institutional residents in detention at correctional facilities and mental institutions. Total population is determined from James City County Planning Division figures.

Per Student – Per student calculations divide County contributions to WJCC Schools by the total number of K-12 students living in James City and also attending WJCC Schools. Total students are determined from Williamsburg-James City County Schools enrollment reports.

Per Business – Per business calculations divide each departments spending, minus fees and state contributions, by the total number of County businesses. Total businesses are determined by the number of business licenses issued.

Total Number of JCC Businesses	**5490***
Percentage of Property Tax Assessments	**13%****

*James City County Commissioner of the Revenue

**Commercial impacts are calculated on a proportional variation process

Proffer – Proffers paid for schools can only be applied toward the capital expense portion of per-student school expenses. (See Board of Supervisors' Proffer Policy.)

Retail Services – Display and sale of merchandise at retail or the rendering of personal services, such as food, drugs, clothing, furniture, hardware, appliances, barber and beauty, antiques, and household uses and other uses.

Single-Family Detached Dwelling – A detached structure arranged or designed to be occupied by one family, the structure only having one dwelling unit.

State Contributions – The state contributes both targeted and unspecified funds to the James City County budget.

Student Generation Rate – The student generation rate the number of students produced by an individual dwelling unit per year. Different domestic units produce students are different rates. Using WJCC enrollment figures, an address was found for WJCC students residing in James City County. Using the James City County Real Estate Division's Property Information map on the James City County website, the number of students from each subdivision was determined. Using the Real Estate Division's Real Estate Parcel Count, the number of improved lots in each neighborhood was determined. Total students from each neighborhood were divided by the total number of units from that neighborhood to determine the average number of students per housing unit. The student generation numbers for 256 subdivisions were determined this way, along with the same method for counting students from apartments and manufactured home parks.

Townhome –In a structure containing three or more dwelling units, a dwelling unit for single-family occupancy, not more than three stories in height, attached by one or more vertical party walls extending to the roof sheathing without passageway openings to one or more additional such dwelling units, each of which is served by an individual exterior entrance or entrances.

Fiscal Impact Analysis Worksheet - Version 2021- Proposed Land Use Last updated on 7/19

This Excel file will assist you with most of the Fiscal Impact Worksheet's calculations. Please skip inapplicable questions.
Use the numbers in this program to fill in the identical section on the worksheet.

Please enter the information requested in the relevant yellow highlighted cells

2a) How many residential units are proposed? What types?

Single Family Detached	158
Townhome/Condominium/Multifamily	128
Apartment	75
Manufactured Home Park Unit	0
Total	361
Are any units affordable? If yes, how many?	0

Residential Expenses - School Expenses

2b) How many students are generated?

	Student Generation Rate	Students Generated
Single Family Detached	0.4	63.2
Townhome/Condominium/Multifamily	0.17	21.76
Apartment	0.31	23.25
Manufactured Home Park Unit	0.46	0
Total		108.21

2c) What is the schools expenses?

Total Students	108.21
Per Student Operating Costs	$8,762.38
Per Student Capital Costs	$1,948.32
Per Student School Costs	$10,710.70
Total School Fiscal Impact	$ 1,159,004.85

Residential Expenses - Non-School Expenses

2d) What is the total population generated?

Total Units	361
Average Household Size	2.49
Total Population Generated	612.5

2e) What are the total non-school expenses?

Total Population Generated	612.5
Per-Capita Non School Costs	$ 680.24
Total Non-School Costs	$ 416,647.00

2f) What is the total residential expenses?

Total School Expenses	$	1,159,004.85
Total Non-School Expenses	$	416,647.00
Total Residential Expenses	$	1,575,651.85

Residential Revenues

2g) What is the average expected market value for each type of unit sold?

	Unit Type	Number of Type	Price for Each Unit Type
Single Family Detached		158	$ 730,000.00
Bungalows		26	$ 400,000.00
		0	$ -
Townhomes		69	$ 700,000.00
Condos		33	$ 425,000.00
		0	$ -
		0	$ -
		0	$ -
Apartment (Value of Apartment Complex (Total))			15,000,000
Manufactured Home Park Unit (Value of Park Property (Total))		0	
Total Expected Real Estate Sales Amount			$ 203,065,000.00

2h) What are the total real estate taxes paid?

Total Expected Real Estate Sales Amount		203065000
Real Estate Tax Rate		0.0084
Total Real Estate Tax Revenue	$	1,705,746.00

2i) What is are total personal property taxes paid?

Total Real Estate Tax Revenue		1705746
Personal property Tax Revenue (as % of Real Estate Taxes Paid)		0.15
Total Personal Property Tax Revenue	$	255,861.90

2j) What are the total sales and meals taxes paid?

Total Real Estate Tax Revenue		1705746
Sales and Meals Tax Revenue (as % of real estate taxes paid)		0.09
Total Personal Property Tax Revenue	$	153,517.14

2k) What are total conservation easement taxes paid? (If any)

Total Acreage in Conservation Easement		0
Conservation Easement Real Estate Tax Rate		2000
Total Conservation Easement Tax Revenue	$	-

2l) What are the total HOA taxes paid (for property rentable to non-HOA members, if any)?

Total Market Value of any HOA Property Rentable to non-HOA Members	0
Real Estate Tax Rate	0.0084
Total Rentable HOA Property Tax Revenue	$ -

2m) What is the total residential tax revenue? $ 2,115,125.04

Residential Fiscal Impact

2n) What is the residential fiscal impact? $ 539,473.19

Commercial Expenses

3a) How many new businesses are proposed? (Include all businesses that will rent or lease space)

Total Number of New Businesses	1

3b) What is the expected real estate market value for each business property (at buildout)?

	Business Property	Expected Market Value
1	Elderly Care	$ 30,000,000.00
2		
3		
4		
5		
6		
Total Commercial Real Estate Expected Market Value		$ 30,000,000.00

3c) What are the commercial expenses?

Total Commercial Real Estate Taxes Paid	252000
Per-Business Commercial Expense Rate	0.00468
Total Commercial Expenses	$ 140,400.00

Commercial Revenues

3d) What are the commercial real estate taxes paid?

Total Commercial Real Estate Assessment Value	30000000
Real Estate Tax Rate	0.0084
Total Commercial Real Estate Taxes Paid	$ 252,000.00

3e) What are the business personal property taxes paid?

	Proposed Businesses Name (s)	Initial Capital Investment		
1	Elderly Care	$ 2,500,000.00	$	25,000.00
2			$	-
3			$	-
4		$ -	$	-
5		$ -	$	-
6		$ -	$	-
	Total Business Personal Property Taxes Paid		$	25,000.00

3f) What are the business machinery and tools taxes paid (for manufacturers only)? -

	Proposed Businesses Name(s)	Initial Capital Investment		
1			$	-
2		$ -	$	-
3		$ -	$	-
4		$ -	$	-
5		$ -	$	-
6		$ -	$	-
	Total Business Personal Property Taxes Paid		$	-

3g) What are retail sales-based taxes paid? (if any)

	Proposed Business Name(s)	Estimated Retail Sales	Estimated Prepared Meals Sales	Estimated Hotel/Motel/Condo Room Sales		
1	Elderly Care	$ 200,000.00	$ 500,000.00	$ -	$	22,000.00
2			$ -	$ -	$	-
3			$ -	$ -	$	-
4			$ -	$ -	$	-
5		$ -	$ -	$ -	$	-
6		$ -	$ -	$ -	$	-
	Total Sales-Based Tax Paid	$ 200,000.00	$ 500,000.00	$ -	$	22,000.00
	Total Business Sales Tax Revenue				$	22,000.00

3h) What are the proposed annual business license fees paid?

	Proposed Business Name(s)	Business Type	Estimated Sales	License Fee Rate		
1		Contractors	$ -	0.0016	$	-
2		Manufacturers		0	$	-
3		Other Services	$ 500,000.00	0.0036	$	1,800.00
4		Professional Services	$ 10,500,000.00	0.0058	$	60,900.00
5		Retail Sales		0.002	$	-
6		Wholesalers		0.0005	$	-

Total Business License Revenue	$	62,700.00
3i) What are the total commercial revenues?	$	361,700.00

Commercial Fiscal Impact

3j) What is the net commercial fiscal impact?	$	221,300.00
3k) What is the proposed fiscal impact?	$	760,773.19

You will now estimate the current conditions of the proposal property. Please click on worksheet tab labeled "Current" below and follow the instructions.

What is the final fiscal impact?	$	727,922.17

Phasing - Residential Phasing

6a) When will proposed residential units be built?

Total Units Proposed 361

	Year 1	Year 2	Year 3	Year 4	Year 5	Buildout
Homes Built	61	75	75	75	75	361
Total Res Exp	$ 1,575,651.85	$ 1,575,651.85	$ 1,575,651.85	$ 1,575,651.85	$ 1,575,651.85	
Per Unit Exp	$ 4,364.69	$ 4,364.69	$ 4,364.69	$ 4,364.69	$ 4,364.69	$ 4,364.69
Total Res Exp	$ 266,245.88	$ 327,351.49	$ 327,351.49	$ 327,351.49	$ 327,351.49	$ 1,575,651.85
Total Res Rev	$ 2,115,125.04	$ 2,115,125.04	$ 2,115,125.04	$ 2,115,125.04	$ 2,115,125.04	
Per Unit Rev	$ 5,859.07	$ 5,859.07	$ 5,859.07	$ 5,859.07	$ 5,859.07	$ 5,859.07
Total Res Rev	$ 357,403.40	$ 357,403.40	$ 357,403.40	$ 357,403.40	$ 357,403.40	$ 1,787,017.00
Per Unit Impact	$ (1,494.39)	$ (1,494.39)	$ (1,494.39)	$ (1,494.39)	$ (1,494.39)	$ (1,494.39)
Res Impact	$ (85,606.52)	$ (190,860.43)	$ (296,114.34)	$ (401,368.26)	$ (506,622.17)	$ 506,622.17

Phasing - Commercial Phasing

6b) When will proposed commercial units be built?

Total New Businesses 1

	Year 1	Year 2	Buildout
Bus Built	0.5	0.5	1
Bus Exp	$ 140,400.00	$ 140,400.00	
Per Bus Exp	$ 140,400.00	$ 140,400.00	
Year Bus Exp	$ 70,200.00	$ 70,200.00	
Bus Rev	$ 361,700.00	$ 361,700.00	
Per Bus Rev	$ 361,700.00	$ 361,700.00	
Year Bus Rev	$ 180,850.00	$ 180,850.00	

Bus Impact	$	110,650.00	$	221,300.00

6c) What is the final phasing projection?

	Year 1	Year 2	Year 3	Year 4	Year 5	Buildout
Res Impact	$ (85,606.52)	$ (190,860.43)	$ (296,114.34)	$ (401,368.26)	$ (506,622.17)	$ (506,622.17)
Bus Impact	$ 110,650.00	$ 221,300.00	$ 221,300.00	$ 221,300.00	$ 221,300.00	
Final Impact	$ 25,043.48	$ 30,439.57	$ (74,814.34)	$ (180,068.26)	$ (285,322.17)	

Employment

7a) How many fill-time equivalent jobs (FTE)will be generated from the proposal? What will be the average payroll?

	Business	FTE Jobs Generated	Average Payroll
1	Nursing	50	$ 1,650,000.00
2	Professional	11	$ 600,000.00
3	Administrative	5	$ 300,000.00
4	Support Services	22	$ 650,000.00
5			$ -
6			$ -

Proposed Home Types

Note: these are photos of our projects in Hampton Roads. The architecture of Ford's Village will be less coastal, and more in keeping with the historic vernacular of the Peninsula and Williamsburg area.

Drive Under Gateway Apartment

Manor Home
4 units per building

Single Family Homes
2200-3000+ sf

Cottage detached Garage
1800-2400 sf

Village House- 2 Story Bungalows
1400-1900 sf

Detached Townhomes
(blank wall one side)
2200-2400 sf

Images are taken from downtown Norfolk Virginia,
and Savannah, Georgia.

Townhomes
2600-2900 sf

Mews Large (Typically face a park or courtyard)
1300-1700 SF

Mews Small
1250-1350 sf Attached and Detached Examples

Bungalows
800-1000 sf

DRW Consultants, LLC
Traffic Impact Studies
Development Access
Condemnation Damages

TO: Jason Grimes, P. E.
FROM: Dexter R. Williams, P. E.
SUBJECT: Response To 22 July, 2021 VDOT Letter:
RE: Ford's Village (a.k.a Ford's Bluff, Village at Ford's Colony)
3889 News Rd. (Rt. 613)
James City County plan Z-21-0012, MP-21-003
DATE: September 7, 2021

This memo and enclosed documents are provided to inform VDOT and any other interested parties on the extensive history of traffic analysis at the Rt. 613 News Road/Firestone Drive as well as respond to points in the July 22, 2021 letter from VDOT. As reference documents, enclosed are the most recent and relevant traffic studies to date:

1. TIS Update for Ford's Colony Master Plan – Phased Development, Kimley-Horn and Assc., Inc. January 2020
2. Traffic Analysis For Ford's Colony CRC, DRW Consultants, LLC, July 12, 2007
3. News Road Corridor Traffic Forecast And Analysis, DRW Consultants, LLC, April 22, 2008

Exhibit 1b in the 2008 DRW study has a useful reference map identifying various development properties around Ford's Colony and News Road.

Following is a history of traffic analysis at Rt. 613 News Road/Firestone Drive intersection:

1. The intersection is part of the Ford's Colony development approval in 1988 with proffered road improvements and a requirement for traffic study update every five years to determine if unbuilt proffered improvements are warranted.
2. The first study update in 1993 by DRW included the intersection and the other three points of access to Ford's Colony. At that time, the Rt. 613 News Road/Firestone Drive intersection has been constructed in its current state by the Ford's Colony development company with proffered left and right turn lanes on News Road at Firestone Drive serving Ford's Colony traffic. The only remaining proffered item at that time and now is signalization when warranted.
3. DRW provided subsequent traffic study updates in 1998 and 2003.
4. In 2006, DRW provided a traffic study for what is now called Ford's Village (a.k.a Ford's Bluff, Village at Ford's Colony) for proposed single family use (then called the Warburton Tract). Sole access to this tract of land is aligned at the Rt. 613 News Road/Firestone Drive intersection.
5. In 2007, DRW provided at TIA dated 07-12-07 for The Village At Ford's Colony (CRCC

2319 Latham Place
Midlothian, VA 23113
phone 804-794-7312

style development) that focused only on the News Road/Firestone Drive intersection as the sole access to The Village.

6. In 2008, DRW provided a traffic study of the News Road corridor that was triggered by the Village At Ford's Colony zoning proposal for CCRC senior housing and care development.
7. Beginning in 2019, DRW provided a series of memos to JCC documenting the degree of change in trip generation between the evolving CCRC development plans (Ford's Bluff to Ford's Village) and the original The Village At Ford's Colony.
8. In early 2020, KHA included the Rt. 613 News Road/Firestone Drive intersection in a study for a Ford's Colony master plan update on behalf of Ford's Colony Home Owners Association. This work included a signal warrant analysis at Rt. 613 News Road/Firestone Drive.
9. DRW provided a memo dated January 21, 2021 that documented changes in proposed trip generation from 2008 study (updated July 9, 2021) and changes in traffic counts at the Rt. 613 News Road/Firestone Drive intersection between 2007 (2008 study) and 2017 (2020 study).
10. DRW has provided an updated memo dated Aug. 31, 2021 that addresses comments from JCC regarding the changes in proposed trip generation from 2008 and the 2020 KHA study and changes in traffic counts at the Rt. 613 News Road/Firestone Drive intersection between 2007 and 2017.

At the time of the 2008 DRW study, the Village At Ford's Colony (now Ford's Village) was under the control of the developer of Ford's Colony (Realtec, Inc). Realtec, Inc. is no longer active, and Ford's Village is proposed for development by different developers and the proffer from 2008 can no longer be guaranteed. It may be a consideration for the current rezoning proposal going forward but there may be no way to guarantee action by the developers of Ford's Village on other privately owned land in Ford's Colony. A review of Google Earth indicates that Firestone Drive has been resurfaced several times over the years and a stop bar has been replaced after each resurfacing, but it does not appear that the two lanes of pavement on the Firestone Drive exit have ever been striped.

The Aug. 31, 2021 DRW memo documented that:

1. PM peak hour counts are higher than AM counts (2007 and 2017).
2. Trip generation for Ford's Village as proposed is less than that for The Village At Ford's Colony in the 2008 study and the 2020 Kimley Horn study in the PM peak hour and for daily traffic, and not appreciably greater in the AM peak hour.
3. Traffic hasn't grown much from 2007 to 2017: 1.8% per year in the AM and 0.5% in the PM. Buildout forecast in the 2008 study is 58% and 46% greater than 2017 counts in the AM and PM peak hours, respectively. The 2027 forecast in the 2020 KHA study is 42% and 39% greater than 2017 counts in the AM and PM peak hours, respectively.
4. In summary, the August 31, 2021 memo demonstrates that there is nothing new about foreseeable traffic forecasts with Ford's Village that wasn't addressed in the 2008 study

for The Village at Ford's Colony and the 2020 KHA study and there is no justification for a new study: traffic generation for Ford's Village has been deliberately kept at or below previous levels, increases in traffic volumes over the last ten years are meager, and previous traffic forecasts are well in excess of existing conditions.

Regarding any commitment for signalization at the Rt. 613 News Road/Firestone Drive intersection, Ford's Colony proffered signalization in 1988 and the most recent 2020 KHA study addressed that issue and concluded that signalization is not warranted. If VDOT needs to see native files for the 2020 KHA study, then VDOT needs to contact KHA.

There has never been any analysis for a signal warranted by The Village At Ford's Colony/Ford's Village because traffic forecast are far below signal warrant thresholds as follows:

1. For exiting left turn traffic on site entrance at News Road/Firestone Drive to meet minor warrants, it must meet/exceed 53 vehicles per hour for eight hours for Warrant 1, 60 vehicles per hour for four hours for Warrant 2 and 75 vehicles per hour for the peak hour.
2. Exiting left turn traffic forecasts are as follows:
    a. 2008 Study: 7 vehicles per hour AM, 16 vehicles per hour PM
    b. 2020 KHA Study: 14 vehicles per hour AM, 23 vehicles per hour PM
3. For entering left turn traffic on site entrance at News Road/Firestone Drive to meet minor warrants, it must meet the thresholds cited above for exiting left turns.
4. Entering left turn traffic forecasts are as follows:
    a. 2008 Study: 44 vehicles per hour AM, 77 vehicles per hour PM
    b. 2020 KHA Study: 31 vehicles per hour AM, 59 vehicles per hour PM
5. Use of entering left turns requires the westbound approach on News Road at Firestone Drive to meet/exceed 420 vehicles per hour for eight hours and generally more for Warrants 2 and 3.
6. Westbound through traffic forecasts are as follows:
    a. 2008 Study: 300 vehicles per hour AM, 243 vehicles per hour PM
    b. 2020 KHA Study: 269 vehicles per hour AM, 218 vehicles per hour PM

There is no possibility for Ford's Village traffic to warrant a signal at News Road/Firestone Drive:

- Forecast exiting left turns, peak hour volumes are nowhere near minimum thresholds for minor streets
- For entering left turns, forecast westbound through traffic peak hour volumes are nowhere near minimum thresholds for major streets.

Regarding access to Ford's Village at News Road/Firestone Drive, the anticipated design includes previous proffers: "a left turn lane from westbound News Road into the Additional Property and a right turn radius from eastbound News Road into the Additional Property shall be constructed". Left turn lane warrants were addressed in the 2007 study, and right turn warrants were addressed in the 2007 and 2008 studies.

DRW Consultants, LLC
Traffic Impact Studies
Development Access
Condemnation Damages

TO: Jason Grimes, P. E., AES
FROM: Dexter R. Williams, P. E.
SUBJECT: Ford's Bluff Trip Generation And Traffic Forecasts: Relative Need For Peak Hour Traffic Study Update
DATE: August 31, 2021

This memo and enclosed exhibits present a summary of peak hour trip generation for proposed and prior development inventories for Ford's Bluff and a comparison of peak hour traffic counts and background traffic forecasts presented in previous studies. There are two previous studies of relevance:

1. News Road Corridor Traffic Forecast And Analysis, DRW Consultants, April 22, 2008. This study was the culmination of JCC review of the original Village At Fords' Colony traffic impact study. The original study was expanded to include the News Road corridor and ten other developments in addition to the News Road/Firestone Drive intersection which is to provide access to previous and proposed Ford's Bluff.
2. Ford's Colony Master Plan – Phased Development, Kimley-Horn & Associates, January 2020. This study primarily focused on points of access to Ford's Colony. It includes trip generation for the Village At Ford's Colony based on zoned units which differed from the units assumed in the 2008 study.

Enclosed Exhibit A shows trip generation for Ford's Bluff (formerly Village At Ford's Colony) as follows:

1. Table One shows the Trip Generation, 7th Edition (TG7) land uses, and units used for the Village At Ford's Colony traffic studies in 2008. There are five different land uses with separate trip generation by beds and units, 952 beds and units total.
2. Table Two shows the current proposal for Ford's Bluff five land uses and the translation to TGM10 trip generation uses.
3. Table Three shows the currently proposed Ford's Bluff lots translated to detached and attached single family housing units.
4. Table Four shows Trip Generation Manual, 10th Edition (TGM10) trip generation for five land uses in proposed Ford's Bluff, 516 beds and units total. The KHA 2020 trip generation used equations for congregate care AM and PM peak hour trip generation. My previous work used rates for congregate care AM and PM peak hour. I think rates are the appropriate source vs. equations, but the guidelines for choosing equations vs. rates are murky and the differences are trivial (equations are slightly higher for 75 units). Therefore, I used congregate care AM and PM equations on enclosed Exhibit A for consistency with previous KHA work.

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phone 804-794-7312

5. Table Five presents a comparison of proposed Ford's Bluff units and trip generation relative to previous values as follows:
    a. Row 1 is trip generation in the 2008 traffic studies for The Village At Ford's Colony using TG7.
    b. Row 2 is trip generation for the units defined in the 2008 proffers and presented in the 2020 KHA study using TGM10. 2008 proffers cited development limits of 596 independent living units, 83 assisted living/memory care rooms and 60 skilled nursing beds.
    c. The 2008 proffers allow up to 2 persons per room in the AL rooms. Row 3 assumes 2 beds in each assisted living rooms with 166 maximum beds. TGM10 is used for trip generation.
    d. In all cases, proposed development units, PM trip generation and daily trip generation are reduced from the previous prior units and trip generation values. Proposed development AM trip generation is higher than the previous benchmarks.

Regarding other traffic growth on News Road, enclosed Exhibit B shows April 2007 counts from the 2008 study and June 2017 counts from the 2020 KHA study at the News Road/Firestone Drive/future Ford's Bluff intersection. For 2007 counts shown on top row, PM peak hour counts (570 vehicles per hour [vph]) are 35% higher than AM counts (421 vph). For 2017 counts shown on middle row, PM peak hour counts (599 vehicles per hour [vph]) are 20% higher than AM counts (498 vph). In the ten years between 2007 and 2017 counts, traffic increased at an overall rate of 1.8% per year in the AM peak hour (18% over 10 years) and 0.5% per year in the PM peak hour (5% over ten years). These comparative results are summarized below:

TABLE ONE: NEWS ROAD/FIRESTONE DRIVE
2007/2017 PEAK HOUR COUNT COMPARISON (TOTAL ALL APPROACHES)

	AM PEAK HOUR	PM PEAK HOUR
2007 COUNTS	421	570
2017 COUNTS	498	599
10 YEAR % INCREASE	18%	5%
ANNUAL % INCREASE	1.8%	0.5%

Regarding forecast background traffic (i.e., without Ford's Bluff site), Exhibit C shows the 2008 traffic study build out forecast at the News Road/Firestone Drive/future Ford's Bluff intersection on the top row. The second row on Exhibit C shows the increase in the 2008 build out forecast over 2017 counts: overall increase of 23% in the AM peak hour and 38% in the PM peak hour. Even on a percentage basis, the build out forecast in the 2008 study is appreciably higher than the actual increases from 2007 to 2017. The following table illustrates the relative size of the 2008 study peak hour forecast to the 2017 counts:

TABLE TWO: NEWS ROAD/FIRESTONE DRIVE
2008 STUDY FORECAST VS. 2017 COUNTS (TOTAL ALL APPROACHES)

	AM PEAK HOUR	PM PEAK HOUR
2017 COUNTS	498	599
2008 STUDY FORECAST	614	827
INCREASE	116	228
% INCREASE	23%	38%

The buildout forecast for the 2027 KHA forecast shown on the third row of Exhibit C. The fourth row on Exhibit C shows the increase in the 2027 KHA forecast over 2017 counts: overall increase of 17% in the AM peak hour and 24% in the PM peak hour.

TABLE THREE: NEWS ROAD/FIRESTONE DRIVE
2020 STUDY FORECAST VS. 2017 COUNTS (TOTAL ALL APPROACHES)

	AM PEAK HOUR	PM PEAK HOUR
2017 COUNTS	498	599
2020 STUDY FORECAST	583	745
INCREASE	85	146
% INCREASE	17%	24%

In summary, trip generation for the proposed development plan has adequately been addressed in previous studies because the critical PM peak hour is lower than previous studies and overall daily traffic is lower. In addition, the 2008 and the 2020 study has overall background forecast that is well in excess of 2017 counts. There is nothing in terms of known traffic sources (both proposed site, other site development and general background growth) that has not been addressed in previous studies. There is no justification for additional peak hour traffic study because any reasonable order of magnitude for known traffic increase sources has been addressed.

VALUE	LAND USE	LAND USE CODE	SQ.FT., OTHER UNITS	WEEKDAY TRIP GENERATION AM PEAK HOUR Enter	Exit	Total	PM PEAK HOUR Enter	Exit	Total	DAILY
TABLE ONE - THE VILLAGE AT FORD'S COLONY TRIP GENERATION - 2008 TG7										
eq./adj. st.	Elderly Detached	251	32 units	4	6	10	13	9	22	206
rate/adj. st.	Elderly Attached	252	332 units	12	15	27	23	14	37	1155
rate/adj. st.	Congregate Care	253	290 units	10	7	17	27	22	49	586
rate/adj. st.	Assisted Living	254	118 occ.bed	15	5	20	18	16	34	323
rate/adj. st.	Nursing Home	620	180 beds	21	10	31	13	27	40	427
		TOTAL	952 bed/unit	62	43	105	94	88	182	2697

TABLE TWO: 2021 FORD'S BLUFF UNITS IN ITE TERMS

2020 Updated Units		TGM10
Independent Living Apts	75	Congregate Care
Assisted Living/ Memory Care Beds	125	Assisted Living
Skilled Nursing Facility Beds	30	Nursing Home
Independent Living Homes - Attached	102	Sr. Adult Attached
Independent Living Homes - Detached	184	Sr. Adult Detached
Total	516	

TABLE THREE: 2020 FORD'S BLUFF LOTS IN DETACHED AND ATTACHED UNITS

Lot Type Description	Detached	Attached
Single Family - general	67	
Village House 2-story Bungalow	46	
Cottage	27	
Bungalow	31	
Detached Townhouse	13	
Townhouse		37
Mews Large		9
Mews Small		23
Manor House Multi Family		32
Drive-Through Apartment		1
Total	184	102

TABLE FOUR: FORD'S BLUFF FIVE LAND USES - 2020 TGM10

eq.-adj. st.	Sr. Adult Detached	251	184 units	21	44	65	47	30	77	962
eq.-adj. st.	Sr. Adult Attached	252	102 units	7	13	20	15	12	27	385
eq/rate-adj. st.	Congregate Care	253	75 units	4	2	6	8	8	16	152
rate-adj. st.	Assisted Living	254	125 beds	15	9	24	13	20	33	325
rate/adj. st.	Nursing Home	620	30 beds	4	1	5	2	5	7	92
			516 bed/unit	51	69	120	85	75	160	1916

TABLE FIVE: PROPOSED DEVELOPMENT CHANGE FROM PRIOR VALUES

PRIOR TRIP GENERATION VALUES		UNITS	AM PEAK	PM PEAK	TOTAL
1	April 2008 Study (TG7)	952	105	182	2697
	Change With Proposed Plan	-436	15	-22	-781
2	KHA 2020 (TGM10) 83 AL Beds	739	101	161	2078
	Change With Proposed Plan	-223	19	-1	-162
3	2008 Proffer Limits (TGM10) 166 AL Beds	822	117	182	2294
	Change With Proposed Plan	-306	3	-22	-378

FORD'S BLUFF
TRIP GENERATION AUG. 31, 2021

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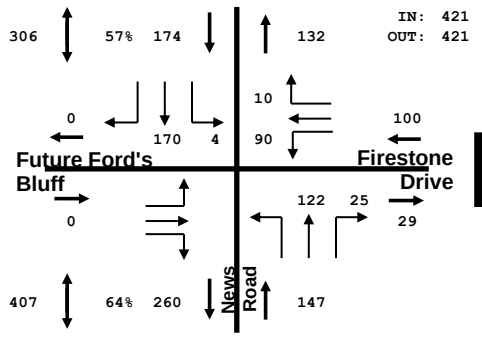
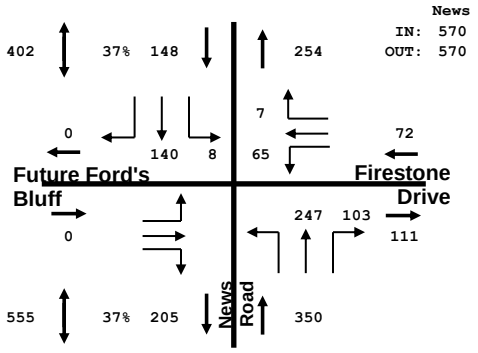
Trip generation rates from Trip Generation, 7th Edition (TG7) and Trip Generation Manual, 10th Edition (TGM10) by the Institute of Transportation Engineers (ITE) Unless Otherwise Noted

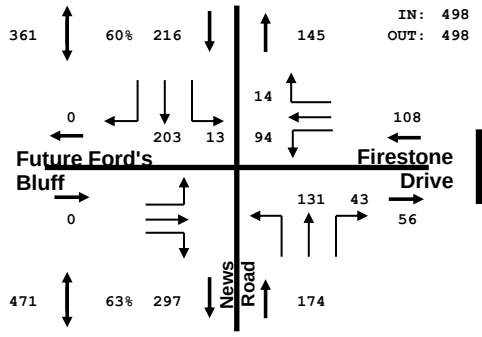
Exhibit A

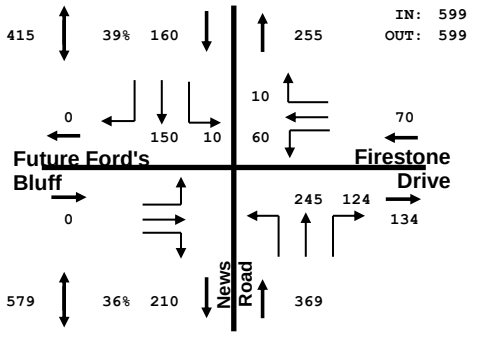
April 2007 Counts



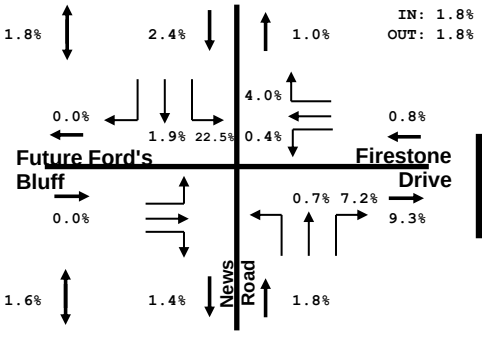


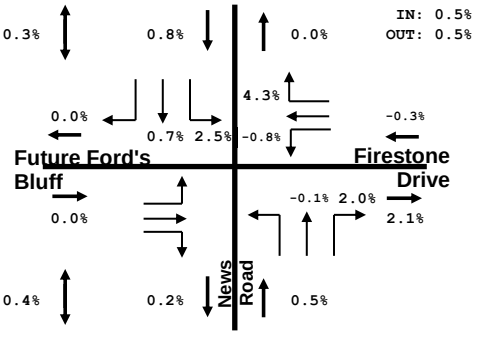
June 2017 Counts





% Increase/Year 2007 To 2017





AM PEAK HOUR

Exhibit Reference

PM PEAK HOUR

NEWS ROAD 2007/2017 PEAK HOUR COUNT COMPARISON

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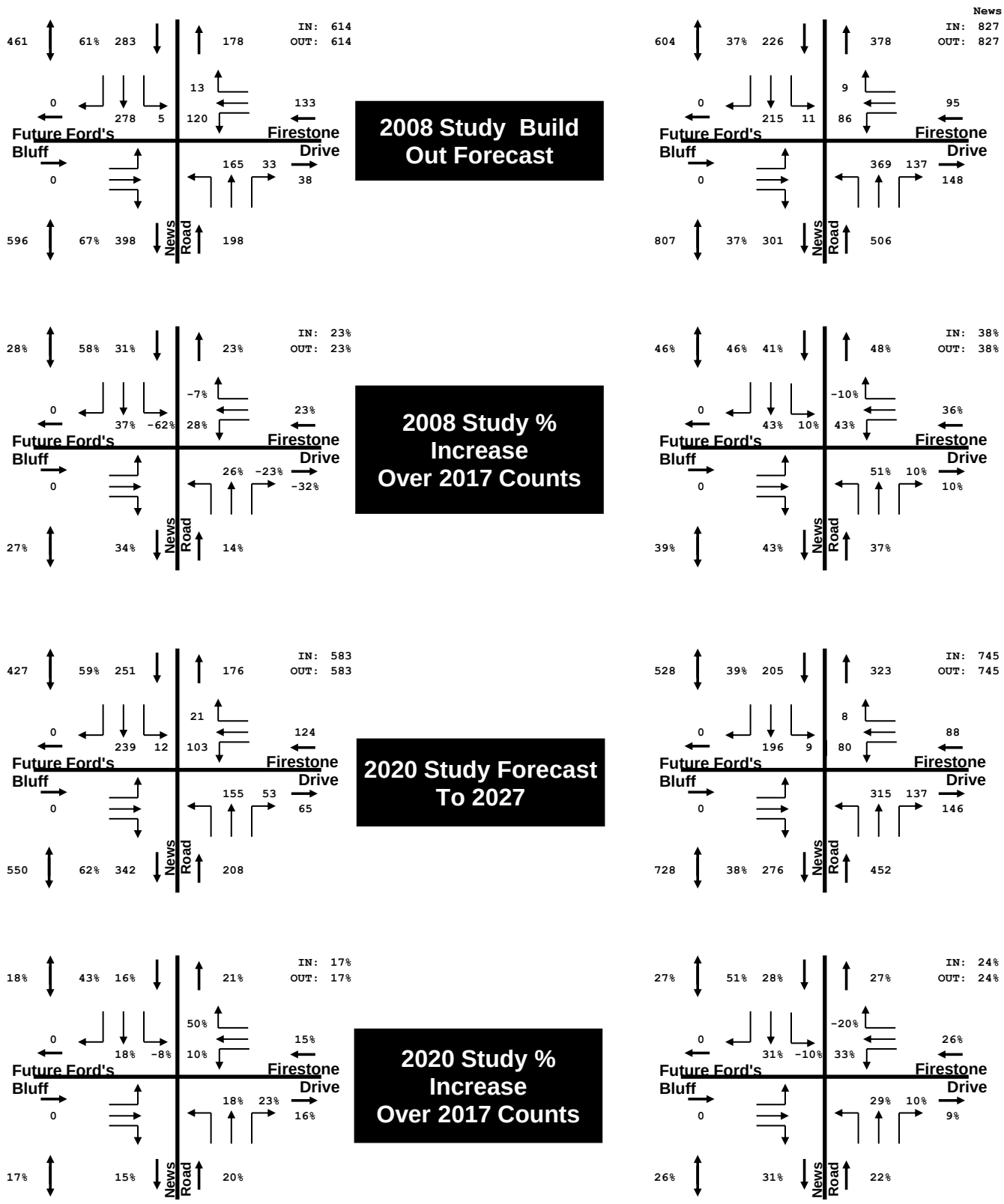
Exhibit B



NEWS ROAD TRAFFIC FORECASTS WITHOUT FORD'S BLUFF AND PERCENT INCREASE OVER 2017 COUNTS

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Exhibit C

TRAFFIC IMPACT STUDY (TIS) UPDATE

Ford's Colony Master Plan – Phased Development

James City County, Virginia

Prepared for:

Ford's Colony Home Owners Association (FCHOA)

Prepared by:

Kimley»Horn

January 2020

Traffic Impact Study (TIS) Update
for
Ford's Colony Master Plan – Phased Development
James City County, Virginia

Prepared for:
Ford's Colony Home Owners Association (FCHOA)

Prepared by:
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January 2020

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1 EXECUTIVE SUMMARY

Ford's Colony Homeowners Association (FCHOA), with support of REDUS VA Housing, LLC (REDUS) is pursuing a Master Plan and Proffer Amendment which includes proposing the construction of 60 residential condominium/townhouse units (Eaglescliff) within the Ford's Colony development (i.e., Ford's Colony) in James City County, Virginia. Ford's Colony is a master planned community bounded by Longhill Road (State Route 612) to the north, Centerville Road (State Route 614) to the west, News Road (State Route 613) to the south, and a combination of retail/commercial land uses, residential areas, and Humelsine Parkway (State Route 199) to the east.

Through conversations with FCHOA, REDUS, and James City County staff as well as our review of the Ford's Colony Proffers (MP-2-87) dated June 20, 1988 and the Amended and Restated Ford's Colony Proffers (Z-04-98/MP-3-98) dated January 24, 1999, it was determined that a traffic impact study (TIS) must be prepared every five (5) years and/or prior to any proposed expansion or development within the Ford's Colony Master Planned residential development. The previous update was the *Ford's Colony Traffic Impact Study 2003-2004 Update*, completed in February 2004.

The purpose of this report is to satisfy the TIS requirement of the aforementioned proffers by summarizing existing and projected future traffic volumes as well as the associated operational conditions to determine if any of the identified off-site roadway, intersection, or traffic control (i.e., intersection signalization) improvements have been triggered for construction and/or may require accelerated implementation. In addition to the 60 residential condominium/townhouse units, the following units were included in this TIS as part of the background traffic to represent the totality of the Ford's Colony Master Plan.

- 295 platted, unbuilt lots
- 30 un-platted Windsor development lots
- 14 un-platted Brian Ford's property lots

This study will identify the potential impacts to the intersections and roadway network as a result of the proposed development.

Based on the analysis of the existing traffic volumes and operation findings provided in this traffic study, the following recommendations were identified and are summarized below for the Existing conditions:

- **Longhill Road at Williamsburg W. Drive/Lane Place Drive**
  - Maintain the existing geometric configuration and traffic control measures
  - Continue to monitor and implement new timing and coordination plans as part of regular VDOT operations and maintenance
  - It is noted that the Longhill Road Phase 1 Widening Project (VDOT UPC – 100921) includes improvements that will enhance the capacity at this intersection, is fully funded, and currently under construction
- **Longhill Road at Fords Colony Drive**
  - Relocate and restripe the northbound approach STOP bar so driver sight distance is not impeded by the Ford's Colony monument sign and/or vegetation located in the median
  - Restripe the 24-foot wide northbound approach to consist of a 12-foot shared through/left-turn lane and a 12-foot exclusive right-turn lane with 150 feet of storage

- Continue to monitor traffic volumes to identify when/if the full turn-lane warrant for the eastbound right-turn movement is satisfied
- Existing traffic volumes and the associated operational conditions (i.e., level of service (LOS)/side street delay) do not warrant or justify the installation of the traffic signal at this time.
- Although the installation of a traffic signal is specifically referenced in the Ford's Colony proffers, per VDOT policy and roadway design manual guidelines, should volumes warrant the consideration of a traffic signal the intersection will also need to be analyzed for the consideration of a roundabout.

- **Centerville Road at Manchester Drive**
  - Maintain the existing geometric configuration and traffic control measures
- **News Road at Firestone Drive**
  - Maintain the existing geometric configuration and traffic control measures

From the analysis of the Build conditions which included the background traffic growth and approved developments, the following recommendations were identified and are summarized below for the Build conditions:

- **Longhill Road at Williamsburg W. Drive/Lane Place Drive**
  - Continue to monitor and implement new timing and coordination plans as part of regular VDOT operations and maintenance
  - The Longhill Road Phase 1 Widening Project (UPC – 100921) is currently under construction. The widening project includes the following improvements to this intersection:
    - Widen Longhill Road to a four-lane divided typical section
    - Upgrade the traffic signal equipment to accommodate the additional through lanes
    - Pedestrian accommodations such as crosswalks, ADA ramps, and pedestrian signal displays for the crossing of select legs of the intersection

      <u>Eastbound Longhill Road</u>
      - Widen and construct an additional approach and receiving through lane

      <u>Westbound Longhill Road</u>
      - Widen and construct an additional approach and receiving through lane
  - Improvements associated with Longhill Road Phase 1 Widening Project (UPC – 100921) address several of the proffered improvements associated with the Ford's Colony Master Plan. Proffers should be updated/modified to account for/recognize these changes in responsibility.

- **Longhill Road at Fords Colony Drive**
  - Based on future traffic volume projections, construct a full width right-turn lane consisting of 200-feet of storage and a 200-foot taper for the eastbound approach.

- Future traffic volumes and the associated future operational conditions (i.e., level of service (LOS)/side street delay) continue to reflect that a traffic signal is not warranted and do not justify the installation of a traffic signal at this intersection.
- It is noted that the installation of a traffic signal is specifically referenced in the Ford's Colony proffers. However, per VDOT policy and roadway design manual guidelines, if volumes warrant the consideration of a traffic signal then the intersection will also need to be analyzed for the consideration of a roundabout.
- Additionally, it is noted that the Longhill Road Corridor Study, completed in October 2014, did not recommended the installation of a traffic signal at this intersection as part of the long term (horizon year 2034) improvements. Therefore, it is recommended that a traffic signal should no longer be proffered as a means of traffic control for this intersection.

- **Centerville Road at Manchester Drive**
  - Maintain the existing geometric configuration and traffic control measures.
- **News Road at Firestone Drive**
  - Maintain the existing geometric configuration and traffic control measures.

Given the minimal residual development potential in Ford's Colony, no additional or proffered improvements are triggered beyond those that were identified under the Existing or Build operational conditions.

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2 INTRODUCTION

Ford's Colony Homeowners Association (FCHOA), with support of REDUS VA Housing, LLC (REDUS) is pursuing a Master Plan and Proffer Amendment which includes proposing the construction of 60 residential condominium/townhouse units within the Ford's Colony development (i.e., Ford's Colony) in James City County, Virginia. Ford's Colony is a master planned community bounded by Longhill Road (State Route 612) to the north, Centerville Road (State Route 614) to the west, News Road (State Route 613) to the south, and a combination of retail/commercial land uses, residential areas, and Humelsine Parkway (State Route 199) to the east.

Through conversations with FCHOA, REDUS, and James City County staff as well as our review of the Ford's Colony Proffers (MP-2-87) dated June 20, 1988 and the Amended and Restated Ford's Colony Proffers (Z-04-98/MP-3-98) dated January 24, 1999, it was determined that a traffic impact study (TIS) must be prepared every five (5) years and/or prior to any proposed expansion or development within the Ford's Colony Master Planned residential development. The previous update was the *Ford's Colony Traffic Impact Study 2003-2004 Update*, completed in February 2004.

The purpose of this report is to satisfy the TIS requirement of the aforementioned proffers by summarizing existing and projected future traffic volumes as well as the associated operational conditions to determine if any of the identified off-site roadway, intersection, or traffic control (i.e., intersection signalization) improvements have been triggered for construction and/or may require acceleration. In addition, this study will identify the impacts to the intersections and roadway network due to the proposed development.

The proposed development will be located south of the roundabout intersection of Fords Colony Drive at St. Andrews Drive and is bounded by Eaglescliffe Condominiums to the west, single family units to the south, and the Marriott Manor Club at Ford's Colony to the east. **Figure 1** illustrates the proposed development's location. It is anticipated that the construction of the 60 residential condominium/townhouse units will be completed and operational for business by 2021. In addition to the 60 residential condominium/townhouse units, the following units were included in this TIS as part of the background traffic to represent the totality of the Ford's Colony Master Plan.

- 295 platted, unbuilt lots
- 30 un-platted Windsor development lots
- 14 un-platted Ford's property lots

Kimley-Horn has been retained to prepare a report that meets the requirements of updating the Ford's Colony TIS per the proffers as well as provides an assessment of the traffic impacts associated with the proposed development of the site. This report has been prepared for submittal to James City County and the Virginia Department of Transportation (VDOT) to evaluate existing conditions as well as future traffic conditions that include development related traffic volumes. Assumptions regarding the study area, access, and trip distribution were discussed with and approved by James City County staff prior to the completion of this analysis. The assumptions document is provided in **Appendix A**.

3 PROJECT BACKGROUND

3.1 STUDY AREA

Consistent with the previously completed TIS, the study area for this analysis, as illustrated in **Figure 1**, includes the following intersections:

Intersections

- Longhill Road at Williamsburg W. Drive/Lane Place Drive (signalized)
- Longhill Road at Fords Colony Drive (unsignalized)
- Centerville Road at Manchester Drive (unsignalized)
- News Road at Firestone Drive (unsignalized)

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Kimley»Horn	Ford's Colony TIS Update James City County, VA	Study Area	FIGURE 1

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3.2 PREVIOUS STUDIES

As mentioned in **Chapter 2**, the previous *Ford's Colony Traffic Impact Study 2003-2004 Update*, was completed in February 2004. This study was conducted pursuant to the proffer requirements and included a schedule of roadway improvements at the four (4) intersections that provide access to/from the Ford's Colony development, as shown in **Table 1**.

Table 1: Ford's Colony Traffic Impact Study 2003-2004 Update Recommendations

Proffered Improvement Description		Recommended Action
(a)	**Installation of Traffic Signals**	
(i)	Longhill Road at Williamsburg W. Drive	Monitor traffic volumes in future to determine signal warrant justification
(ii)	News Road at Firestone Drive	Not warranted
(iii)	Longhill Road at Fords Colony Drive	Not warranted
(d)	**Construction of Longhill Road at Williamsburg W. Drive Intersection**	
(ii)	Add two through lanes on Longhill Road	Operational analysis determined improvement was not required
(iii)	Add second westbound left-turn lane on Longhill Road	Operational analysis determined improvement was not required
(iv)	Add second northbound right-turn lane on Williamsburg W. Drive	Operational analysis determined improvement was not required
(e)	**Construct eastbound right-turn lane on Longhill road at Fords Colony Drive**	**Continue to monitor traffic volumes in future to determine turn lane warrant justification.**
(f)	**Dedication of a 15-foot strip of land and construction of four lanes on Longhill Road from Williamsburg W. to Route 199**	**Operational analysis determined improvement was not required**

3.3 EXISTING ZONING

The project site for the proposed development is located within the Ford's Colony Master Planned development. This parcel is currently unoccupied and is zoned as Residential Planned Community (R4). **Figure 2** illustrates the existing zoning adjacent to the site.

Zoning in this area primarily consists of the following districts: General Residential (R2), Residential Planned Community (R4), Rural Residential (R8), and General Agriculture (A1). The Marriott's Manor Club at Ford's Colony is located to the east of the proposed site and the Ford's Colony Country Club is located to the north of the proposed site, which contains hotel accommodations, restaurants, services, and various recreational golf uses. To the south and west of the proposed residential condominium/townhouse site are additional residential areas.

3.4 EXISTING CONDITIONS

Longhill Road, Centerville Road, and News Road are the primary thoroughfares within the study area that provide connections to Williamsburg W. Drive, Ford's Colony Drive, Manchester Drive, and Firestone Drive, which provide access to/from the Ford's Colony community. **Figure 3** depicts existing roadway geometry, lane assignments, and conditions for study area roadways and intersections. The following provides a brief description of existing roadway characteristics for each facility:

Longhill Road (State Route 612) is a two-lane, undivided minor arterial that runs in an approximate east/west direction between Centerville Road to the west and the Humelsine Parkway (Route 199) interchange to the east. Traffic counts collected by VDOT in 2018 indicate that Longhill Road carried approximately 7,600 vehicles per day (vpd) between Centerville Road and Season's Trace and approximately 16,000 vpd between Season's Trace and Humelsine Parkway. The posted speed limit along this segment of roadway within the study area is 45 miles per hour (mph).

Centerville Road (State Route 614) is a two-lane, undivided minor arterial in James City County. Centerville Road runs in an approximate north/south direction in the study area between Longhill Road to the north and News Road to the south. Traffic counts collected by VDOT in 2018 indicate that Centerville Road carried approximately 4,900 vpd between News Road and Jolly Pond Road. The posted speed limit along this segment of Centerville Road is 45 mph.

News Road (State Route 613) is a two-lane, undivided major collector road that runs in an approximate east/west direction that extends from Centerville Road in the west to Ironbound Road in the east. Traffic counts collected by VDOT in 2018 indicate that News Road carried approximately 3,900 vpd within the study area. The posted speed limit is 45 mph.

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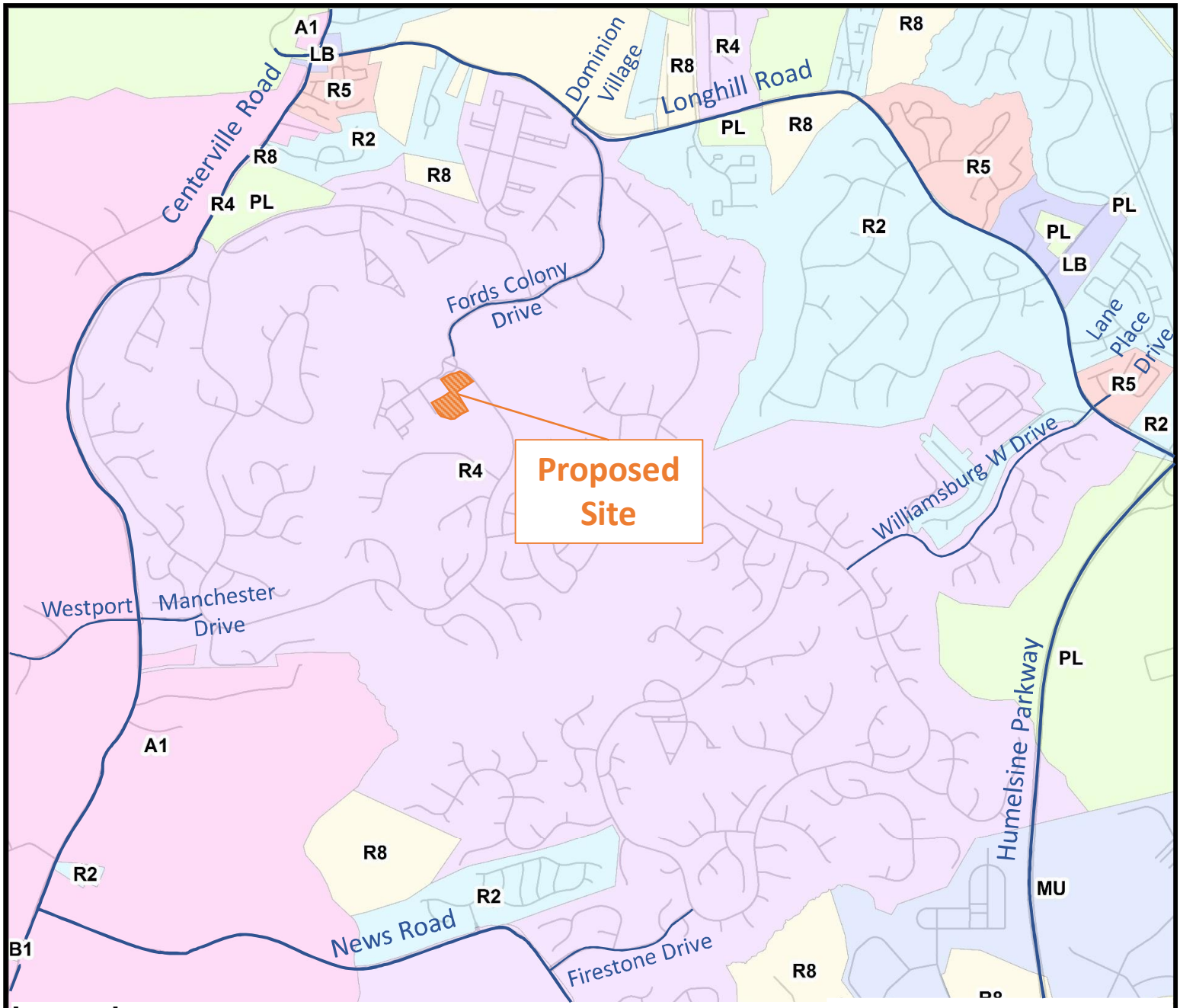

Legend

- General Agriculture (A1)
- General Business (B1)
- General Industrial (M2)
- General Residential (R2)
- Limited Business (LB)
- Limited Business/Industrial (M1)
- Limited Residential (R1)
- Low-Density Residential (R6)
- Mixed Use (MU)
- Multi-Family Residential (R5)
- Planned Unit Development Commercial (PUD-C)
- Planned Unit Development Residential (PUD-R)
- Public Lands (PL)
- Residential Planned Community (R4)
- Rural Residential (R8)

Source: James City County GIS Zoning Layer

Kimley»Horn	Ford's Colony TIS Update James City County, VA	Existing Zoning	FIGURE 2

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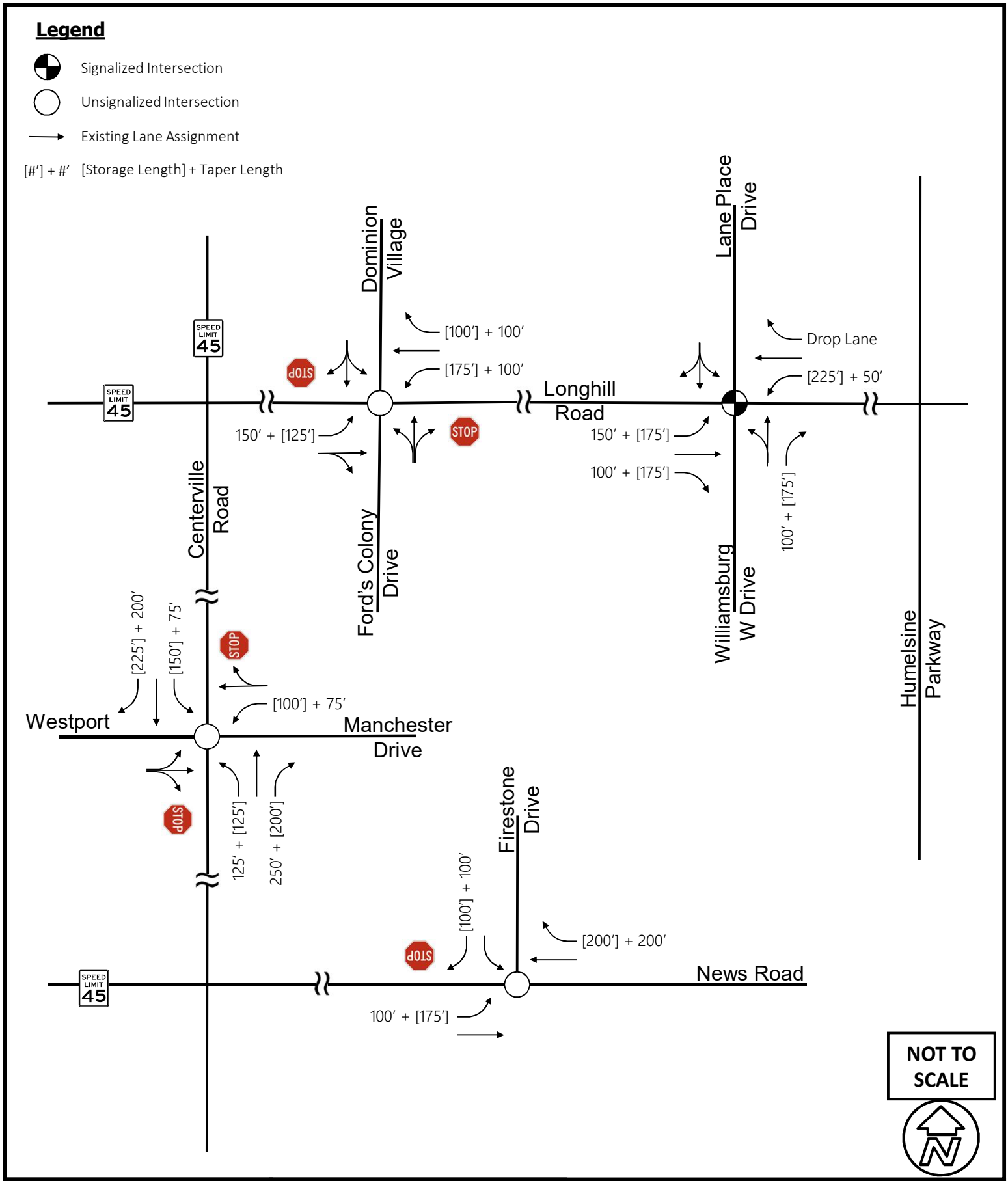

Kimley»Horn	Ford's Colony TIS Update James City County, VA	Existing Roadway Conditions	FIGURE 3

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3.5 EXISTING PEDESTRIAN AND BICYCLE ACCOMMODATIONS

Pedestrian accommodations (i.e., crosswalks, pedestrian signal heads) are not provided at any of the study intersections. However, sidewalk is provided on the north side of Longhill Road from Williamsburg W. Drive/Lane Place Drive to Warhill Trail. Portions of sidewalk are located along Centerville Road but lack connectivity throughout the study area.

In addition, paved shoulders allow for bicycle traffic on Longhill Road from Williamsburg W. Drive to Old Towne Road. Dedicated bike lane pavement markings traversing through the intersections are provided at major intersections along Longhill Road to enhance the visibility and safety of the bicyclists. A dedicated bike lane is provided along southbound Centerville Road from Longhill Road to just north of Mallory Place. Paved shoulders allow for bicyclist traffic on Centerville Road, south of Mallory Place. Pedestrian and bicycle accommodations are not provided along either side of News Road.

3.6 EXISTING TRAFFIC

Consistent with the previously completed TIS, AM and PM peak conditions were analyzed to evaluate potential impacts of the proposed development. To coincide with these times, turning movement counts (TMC) which included vehicular, truck, and pedestrian traffic were collected at the following study area intersections on June 8, 2017:

- Longhill Road at Williamsburg W. Drive/Lane Place Drive
- Longhill Road at Fords Colony Drive
- Centerville Road at Manchester Drive
- News Road at Firestone Drive

The uniform peak hours for these intersections were found to be 7:30 AM to 8:30 AM and 4:45 PM to 5:45 PM for the AM and PM peak hours, respectively. It should be noted that peak hour volumes were not adjusted and/or balanced, due to the location and number of access driveways between study area intersections.

Each movement of the 2017 TMCs were grown using annualized growth rates detailed in **Section 6.1** to calculate the 2019 volumes for each intersection. The AM and PM peak hour turning movement volumes from the abovementioned data sources are shown in **Figure 4**. Detailed count data is also provided in **Appendix B**.

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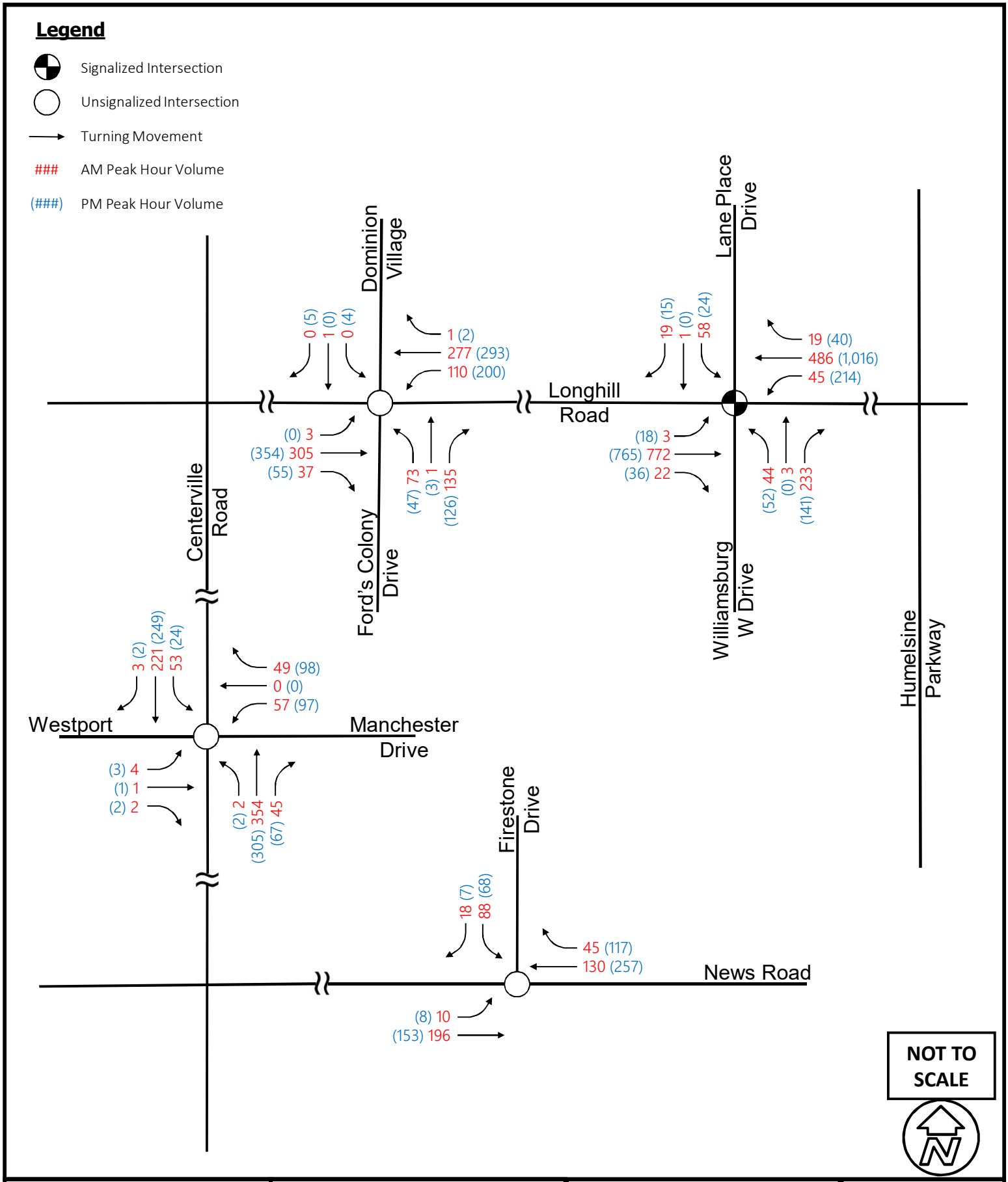

Kimley»Horn	Ford's Colony TIS Update James City County, VA	2019 Existing AM and PM Peak Hour Traffic Volumes	FIGURE 4

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4 TRIP GENERATION

To determine the anticipated number of trips generated by the proposed residential condominium/townhouse development, the *Trip Generation Manual*, published by the Institute of Transportation Engineers [ITE], 10th Edition, 2017 was used to estimate the new traffic on the adjacent roadway network.

The proposed development will consist of 60 residential condominium/townhouse units. Based on this land use type and intensity, trip generation estimates were calculated as shown in **Table 2**.

Table 2: ITE Trip Generation Summary (10th Edition)

ITE Code	ITE Description	Density	Daily	AM Peak Hour			PM Peak Hour		
				Enter (23%)	Exit (77%)	Total	Enter (63%)	Exit (37%)	Total
220	Multifamily Housing (Low-Rise)	60 Dwelling Units	413	7	22	29	23	14	37

Source: ITE Trip Generation Manual, 10th Edition

The total amount of traffic generated by the proposed development is anticipated to consisted of 413 daily trips, of which 29 trips will occur during the AM peak and 37 trips will occur during the PM peak hour, respectively. No pass-by or internal capture rate reductions were included as part of this analysis.

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5 TRAFFIC DISTRIBUTION AND ASSIGNMENT

The directional distribution and assignment of trips generated by the proposed redevelopment was based on a review of existing traffic volumes, site access, the *Ford's Colony Traffic Impact Study 2003-2004 Update*, and an understanding of travel patterns within the study area. From this review and conversations with VDOT, the following traffic distributions were derived for the analysis of the study area:

- AM Peak Hour
  - 80% of the trips generated will travel to/from the north on Ford's Colony Drive
    - 60% to/from the east on Longhill Road
    - 20% to/from the west on Longhill Road
  - 20% of the trips generated will travel to/from the west on Manchester Drive
- PM Peak Hour
  - 70% of the trips generated will travel to/from the north on Ford's Colony Drive
    - 55% to/from the east on Longhill Road
    - 15% to/from the west on Longhill Road
  - 30% of the trips generated will travel to/from the west on Manchester Drive

Based on conversations with VDOT, this TIS assumes site trips will not utilize the Williamsburg W. Drive or Firestone Drive access points due to the distance to/from the proposed development site.

As shown previously in and consistent with the previous TIS, the proposed development site will not introduce any new access points to existing/adjacent study area roadways.

Detailed AM and PM peak hour trip distribution and trip assignment is shown in **Figure 5** and **Figure 6**, respectively.

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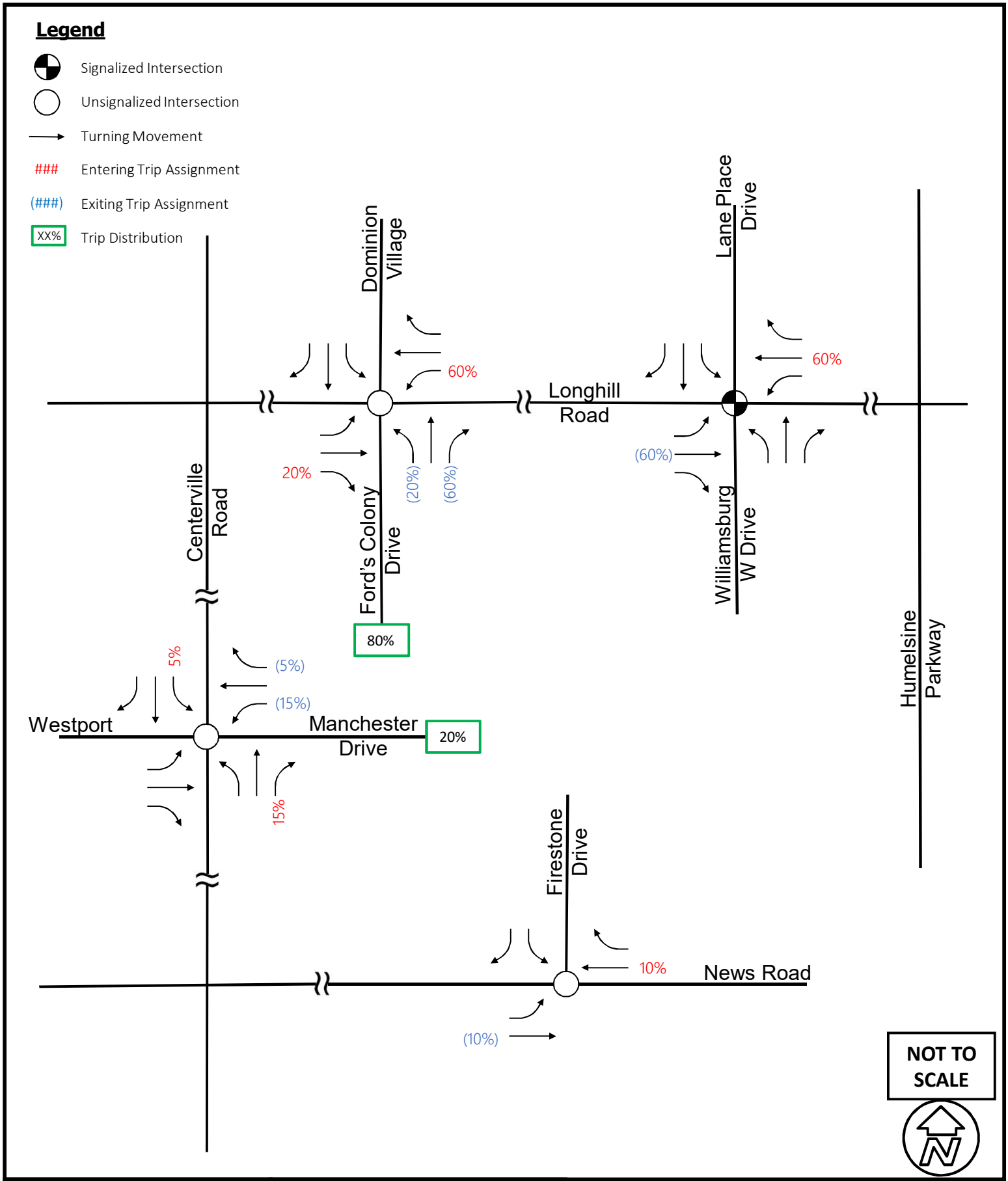

Kimley»Horn	Ford's Colony TIS Update James City County, VA	AM Condominium Site Distribution and Assignment	FIGURE 5

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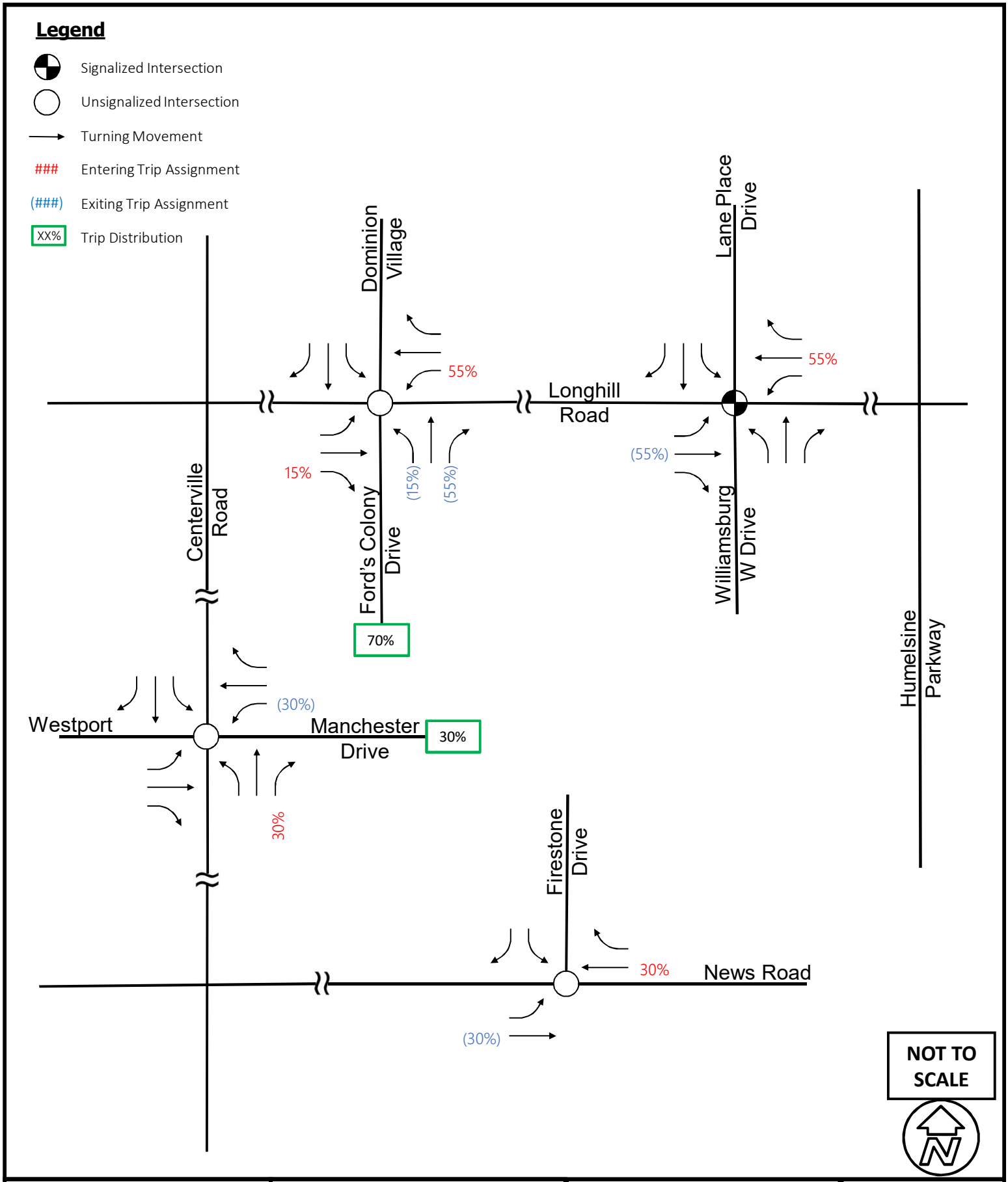

Kimley»Horn	Ford's Colony TIS Update James City County, VA	PM Condominium Site Distribution and Assignment	FIGURE 6

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6 PROJECTED TRAFFIC VOLUMES

Based on discussions with James City County, the following existing and horizon year scenarios were agreed to and analyzed to determine future impacts of the proposed development based on the anticipated schedule for construction and opening:

- Scenario 1 – 2019 Existing traffic conditions
- Scenario 2 – 2021 Opening Year No-Build conditions – Build-out year traffic conditions ***with*** only background development trips applied (i.e., approved adjacent development traffic)
- Scenario 3 – 2021 Opening Year Build conditions – Build-out year traffic conditions ***with*** background development trips applied ***plus*** traffic volumes generated by the proposed development
- Scenario 4 – 2027 Opening Year +6 years No-Build conditions – Build-out year traffic conditions ***with*** only background development trips applied (i.e., approved adjacent development traffic)
- Scenario 5 – 2027 Opening Year +6 years Build conditions – Build-out year traffic conditions ***with*** background development trips applied ***plus*** traffic volumes generated by the proposed development

6.1 BACKGROUND TRAFFIC GROWTH

Background traffic growth rates were determined by using rates developed as part of the *Longhill Road Corridor Study*, completed and adopted in October 2014, and historical traffic volume trends over the previous six (6) years (i.e., 2011 to 2016) from VDOT data.

- Longhill Road – 2.0% per year (consistent with *Longhill Road Corridor Study*)
- Centerville Road – 2.5% per year
- News Road – 2.0% per year

Since November 2019, approximately 2,851 of 3,250 total units have been built within Ford's Colony with a remainder of 399 unbuilt units, as shown in **Figure 7**. The 399 unbuilt units are as follows:

- 295 platted, unbuilt lots
- 60 un-platted Eaglescliff development lots
- 30 un-platted Windsor development lots
- 14 un-platted Ford's property lots

With the addition of 90 units, Ford's Colony has a remainder of 309 units available. The additional 90 units consist of 60 units in the Eaglescliff development (described in Chapter 4) and 30 units in the Windsor development (described in Section 6.1.1.). The aforementioned traffic growth rates were applied to all intersection movements to account for the trip generation potential of the remaining 309 units; thus, accounting for the full build-out of Ford's Colony.

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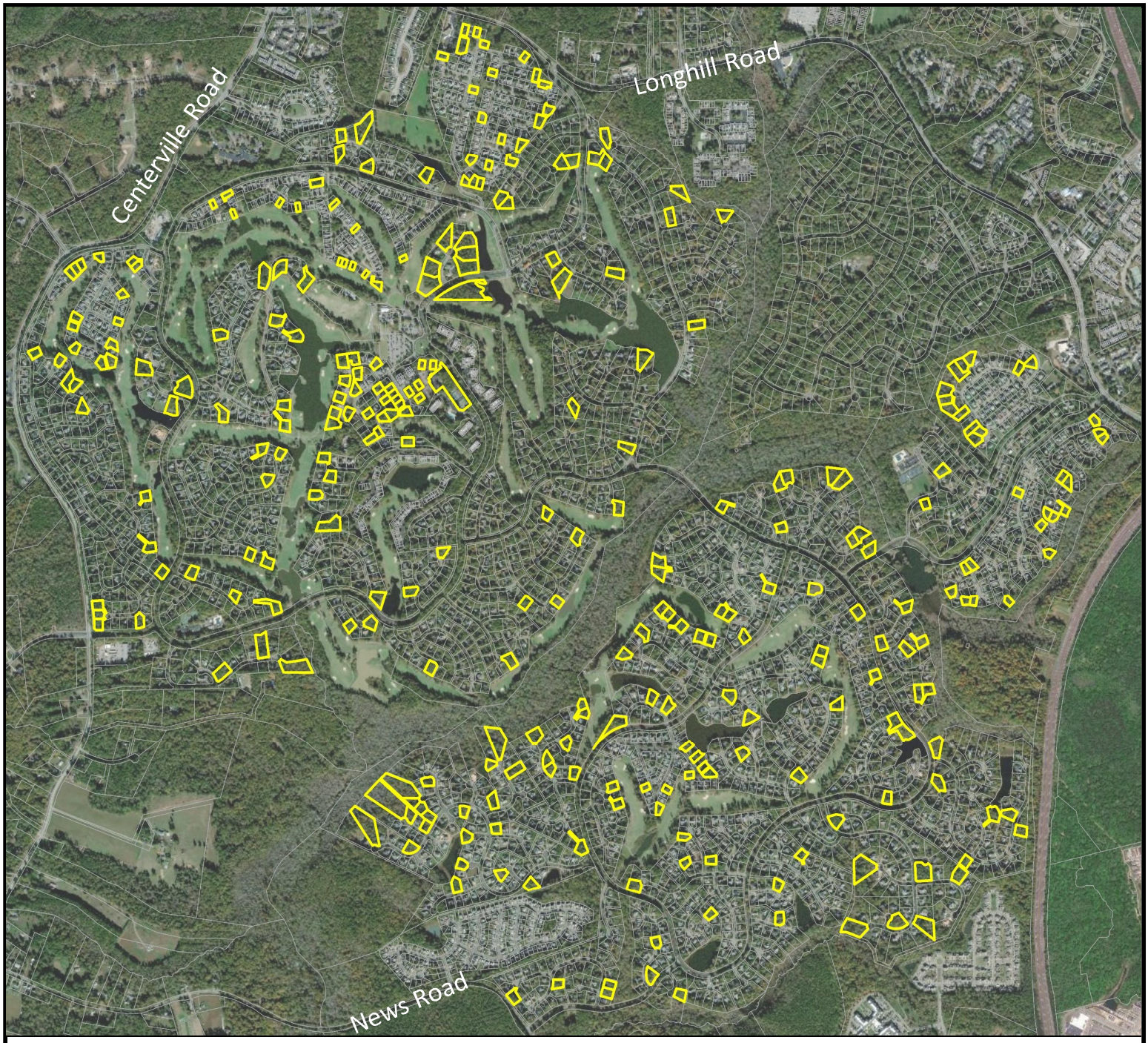

Kimley»Horn	Ford's Colony TIS Update James City County, VA	Ford's Colony Unbuilt Lots	FIGURE 7

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6.1.1 OTHER DEVELOPMENT TRAFFIC

Since the 2004 study was completed, there has been minimal to no residential development/expansion occurring within the Ford's Colony Master Plan development. However, three additional developments adjacent to Ford's Colony were provided by James City County for inclusion in the analysis of future traffic operational conditions: The Villages at Ford's Colony (The Villages), Westport Subdivision at Ford's Colony (Westport), and Windsor Property (Windsor).

Per the *News Road Corridor Traffic Forecast and Analysis*, completed in April 2008, the Villages at Ford's Colony has a proposed entrance on the northbound approach of the News Road at Firestone Drive intersection. The Westport development's entrance is currently located on the eastbound approach (west leg) of the Manchester Drive at Centerville Road intersection.

In addition, the Windsor development is anticipated to be located along Ford's Colony Drive across from N. Knob Hill. Future traffic volumes associated with these other approved developments were accounted for and calculated using the most recent version of the *ITE Trip Generation Manual.*

Trip generation densities as well as the trip distribution and assignment percentages for The Villages and Westport developments will remain consistent with the *News Road Corridor Traffic Forecast and Analysis.* The trip distribution and assignment for the Windsor property will be consistent with the proposed redevelopment as detailed in **Chapter 5**.

The Villages development will consist of attached and detached senior adult housing, congregate care housing, assisted living, and a nursing home, for a total of 739 units. The trip generation was calculated, and the results are shown in **Table 3.** The total amount of traffic generated by The Villages development consisted of 2,078 daily trips, of which 101 and 161 trips will occur during the AM and PM peak hours, respectively.

Table 3: ITE Trip Generation Summary for The Villages at Ford's Colony Development

ITE Code	ITE Description	Density	Unit	Daily	AM Peak Hour			PM Peak Hour		
					Enter	Exit	Total	Enter	Exit	Total
251	Senior Adult Housing - Detached	38	Dwelling Units	240	7	13	20	14	9	23
252	Senior Adult Housing - Attached	168	Dwelling Units	650	12	21	33	24	19	43
253	Congregate Care Housing	390	Dwelling Units	788	13	9	22	32	28	60
254	Assisted Living	83	Beds/Rooms	216	10	6	16	8	14	22
620	Nursing Home	60	Beds/Rooms	184	7	3	10	4	9	13
Total		**739**		**2,078**	**49**	**52**	**101**	**82**	**79**	**161**

Note: It is assumed that there is one bed per room, and therefore each bed is considered one dwelling unit.

The Westport development will consist of 43 units of single-family detached housing. The trip generation estimates for the proposed Westport development are shown in **Table 4**. The total amount of traffic generated by the Westport development consisted of 478 daily trips, of which 35 will occur during the AM peak hour and 45 will occur during the PM peak hour, respectively.

Table 4: ITE Trip Generation Summary for Westport Subdivision at Ford's Colony Development

ITE Code	ITE Description	Density	Unit	Daily	AM Peak Hour			PM Peak Hour		
					Enter	Exit	Total	Enter	Exit	Total
210	Single-Family Detached Housing	43	Dwelling Units	478	9	26	35	28	17	45

The Windsor development will consist of 30 units of multifamily attached housing. The trip generation estimates for the proposed Windsor development are shown in **Table 5.** The total amount of traffic generated by the Windsor development consisted of 186 daily trips, of which 15 will occur during the AM peak hour and 20 will occur during the PM peak hour, respectively. **Figure 8** through **Figure 13** illustrate the approved development site trip distributions and assignments.

Table 5: ITE Trip Generation Summary for Windsor Development

ITE Code	ITE Description	Density	Unit	Daily	AM Peak Hour			PM Peak Hour		
					Enter	Exit	Total	Enter	Exit	Total
220	Multifamily Housing (Low-Rise)	30	Dwelling Units	186	3	12	15	13	7	20

6.2 TOTAL TRAFFIC

Traffic associated with the proposed residential condominium/townhouse development was added to the future background traffic volumes as well as the approved development traffic volumes to develop the total traffic volumes for 2021 and 2027 future Build conditions. **Figure 14** through **Figure 17** illustrate the peak hour traffic volumes used in the analysis of future conditions (i.e., No-Build and Build). Worksheets detailing the volumes for the study area intersections are provided in **Appendix C**.

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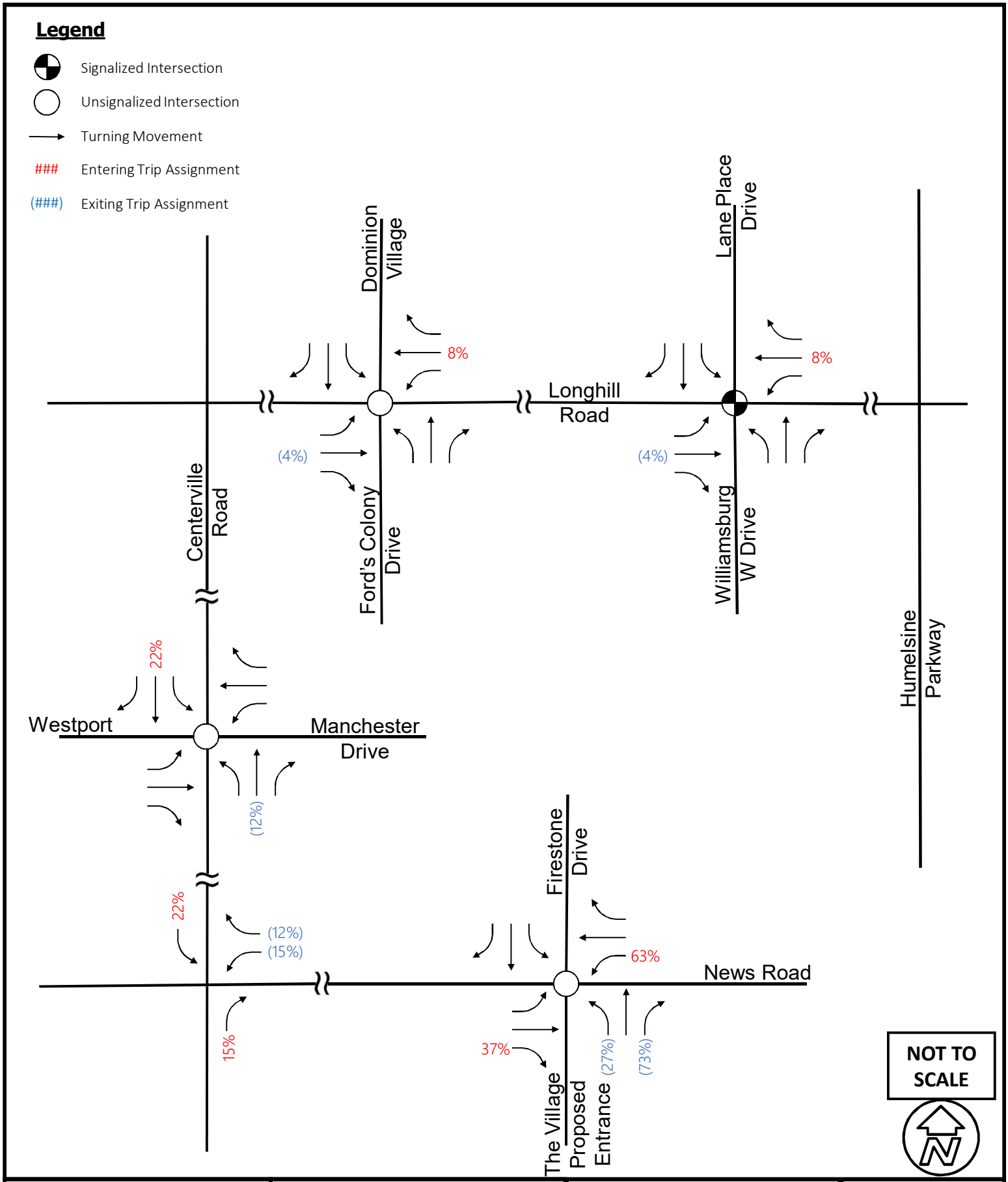

Kimley»Horn	Ford's Colony TIS Update James City County, VA	The Villages AM Background Site Distribution	FIGURE 8

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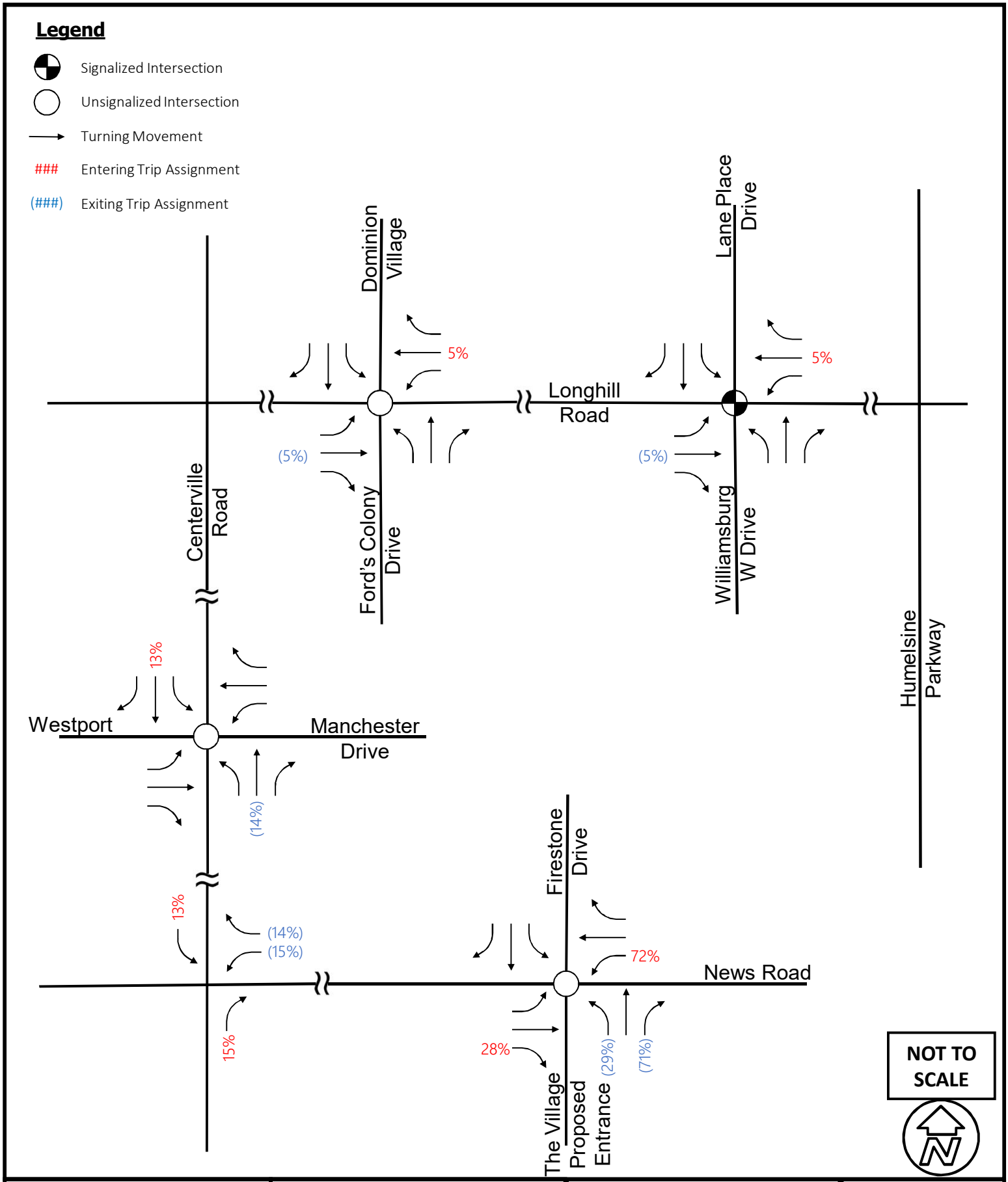

Kimley»Horn	Ford's Colony TIS Update James City County, VA	The Villages PM Background Site Distribution	FIGURE 9

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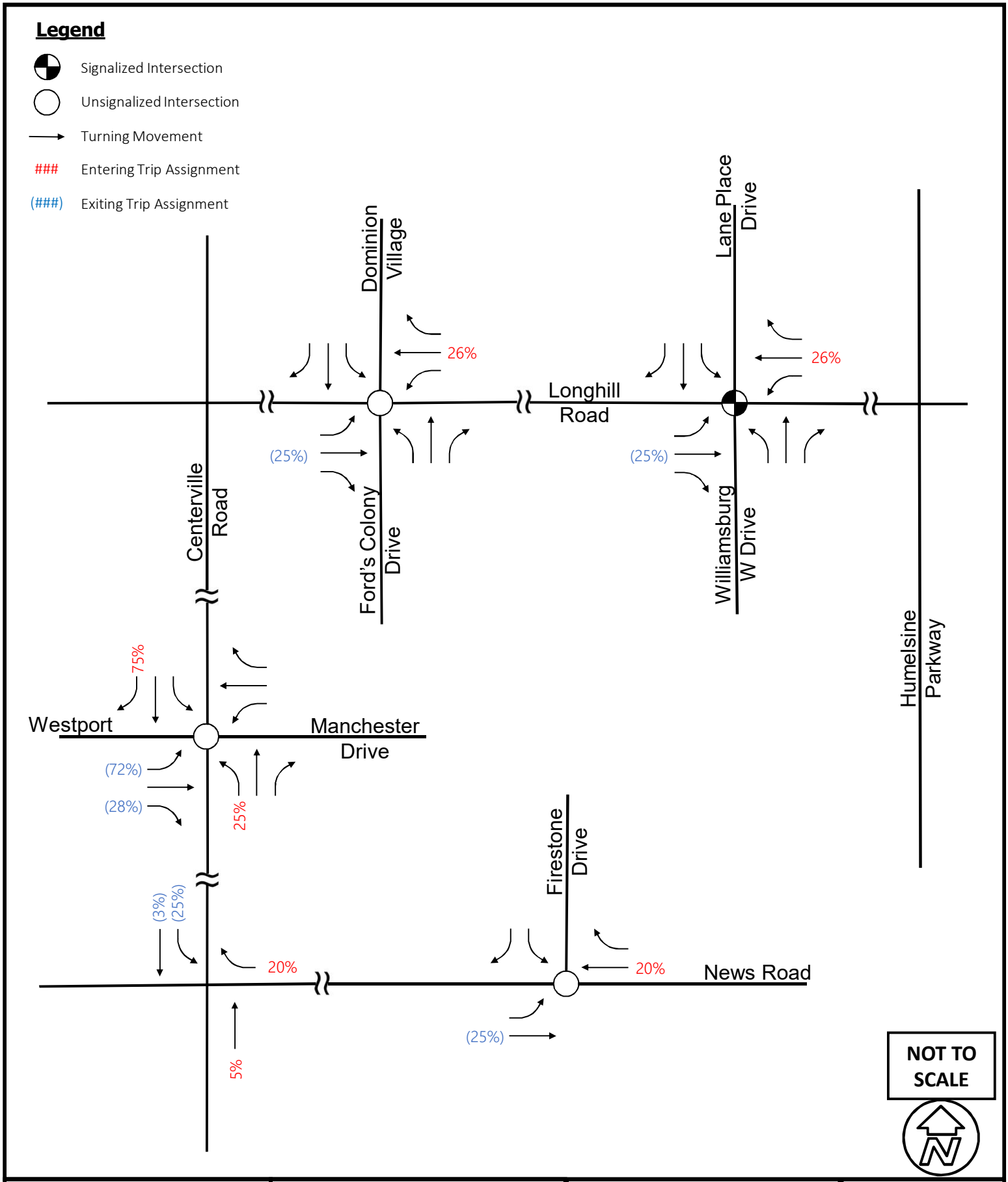

Kimley»Horn	Ford's Colony TIS Update James City County, VA	Westport AM Background Site Distribution	FIGURE 10

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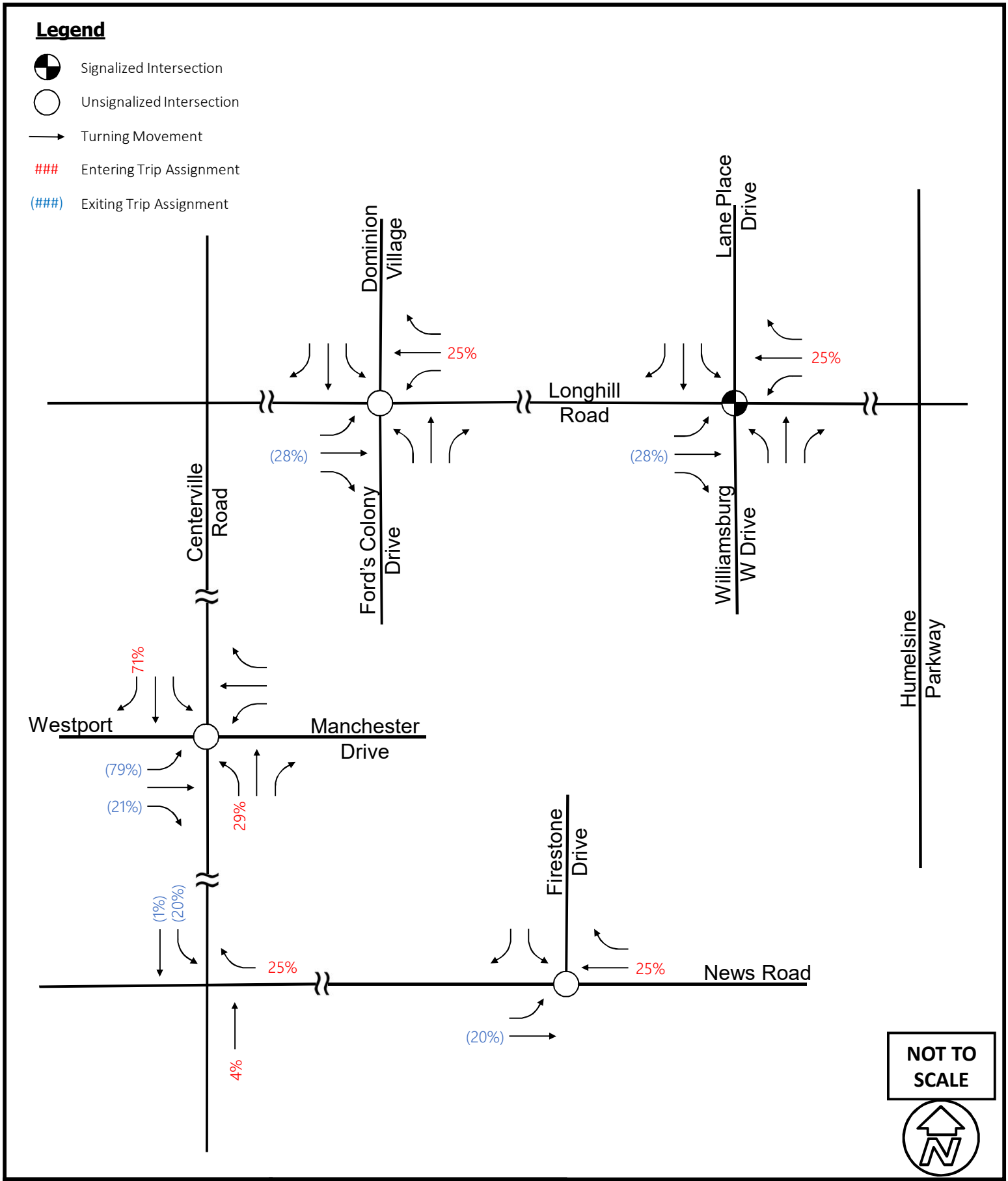

Kimley»Horn	Ford's Colony TIS Update James City County, VA	Westport PM Background Site Distribution	FIGURE 11

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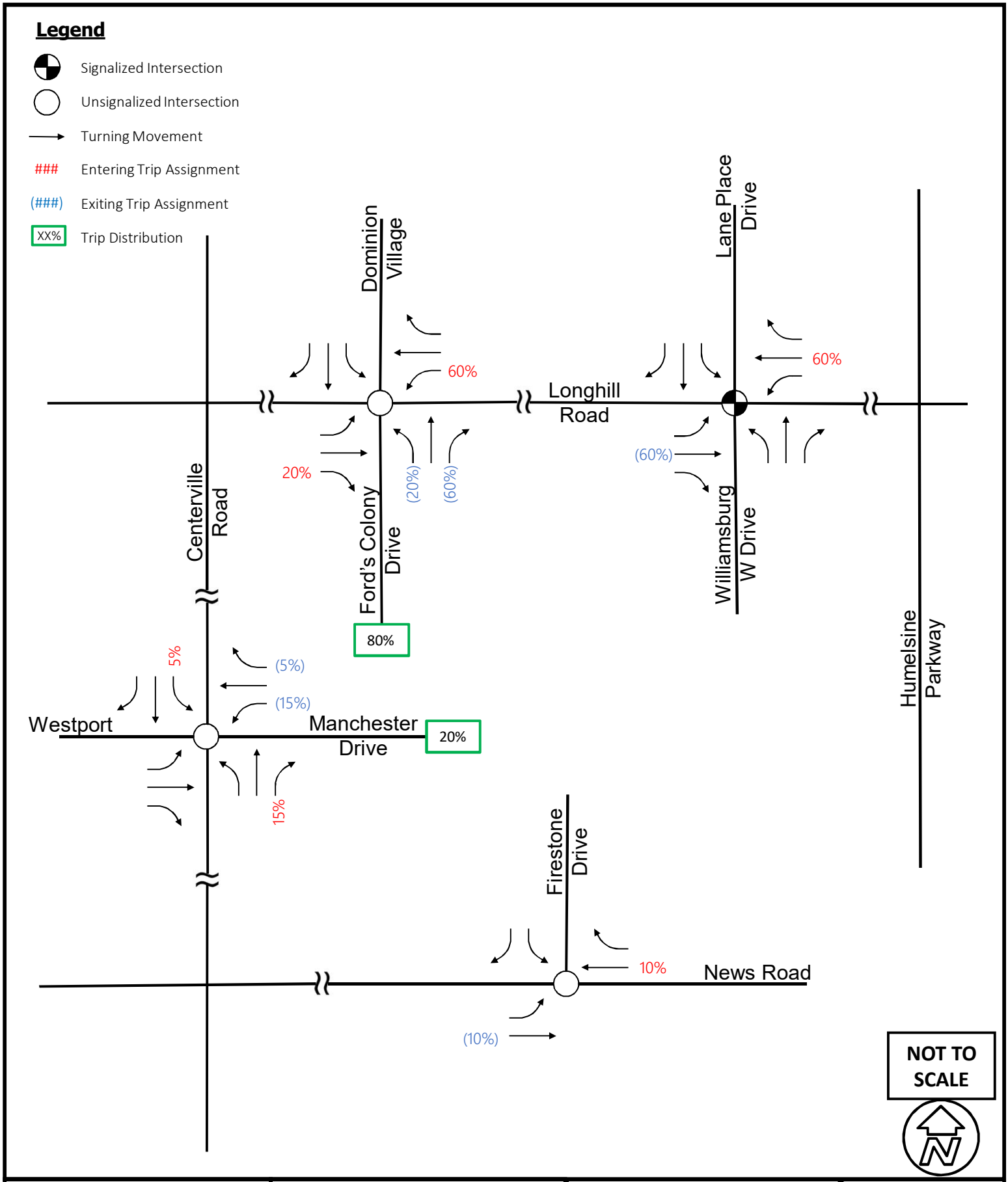

Kimley»Horn	Ford's Colony TIS Update James City County, VA	Windsor AM Background Site Distribution	FIGURE 12

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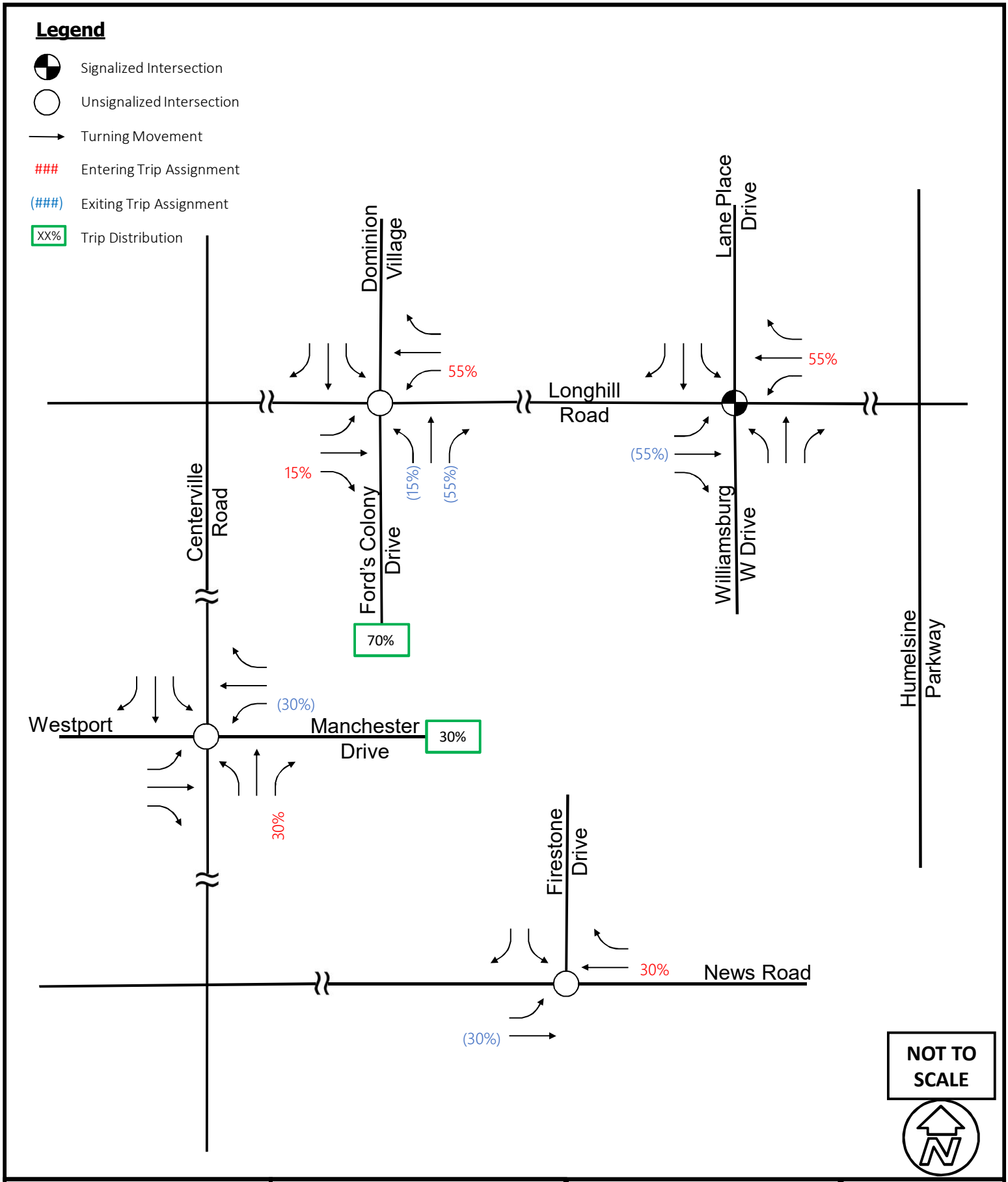

Kimley»Horn	Ford's Colony TIS Update James City County, VA	Windsor PM Background Site Distribution	FIGURE 13

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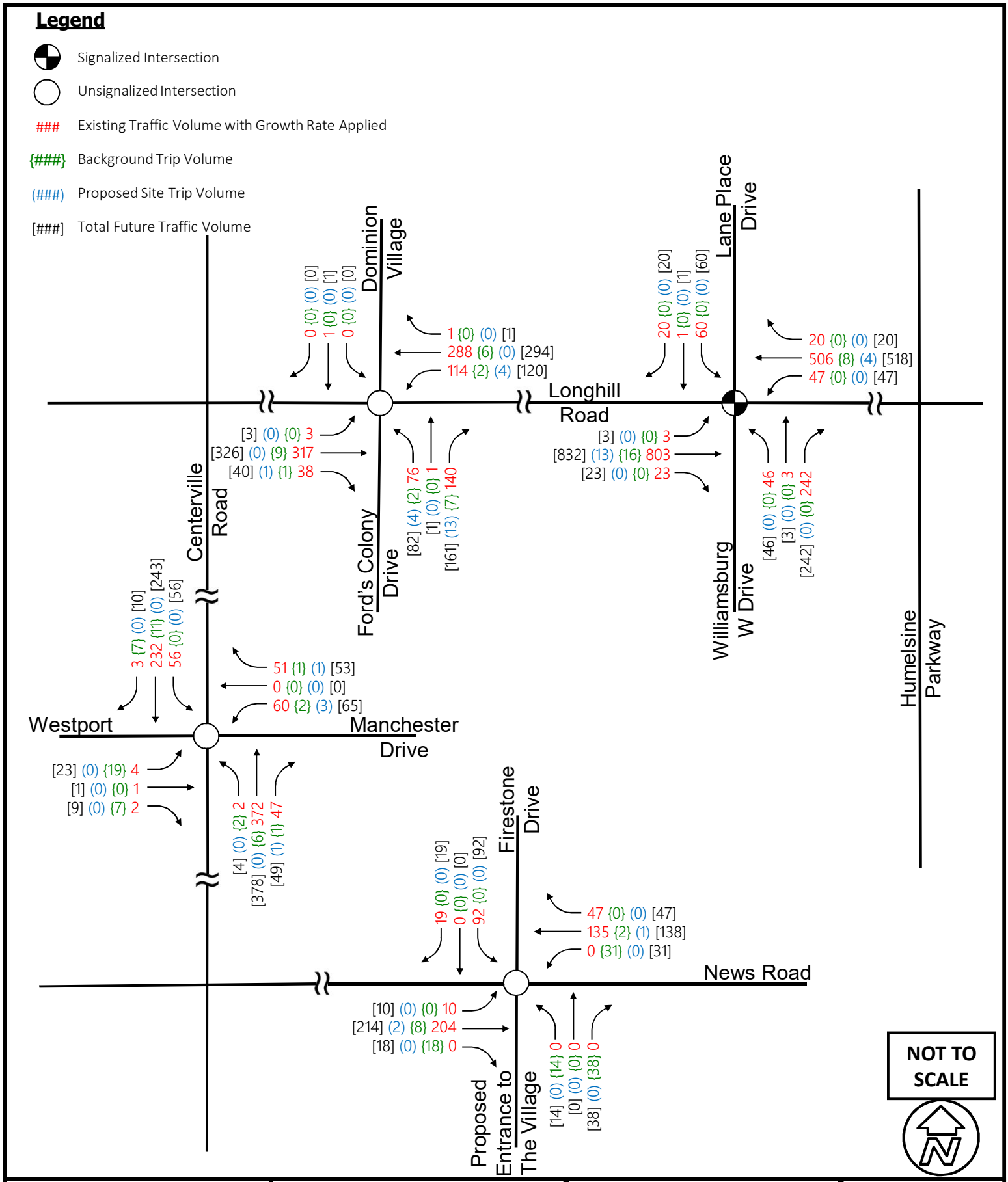

Kimley»Horn	Ford's Colony TIS Update James City County, VA	2021 Build AM Peak Hour Volumes	FIGURE 14

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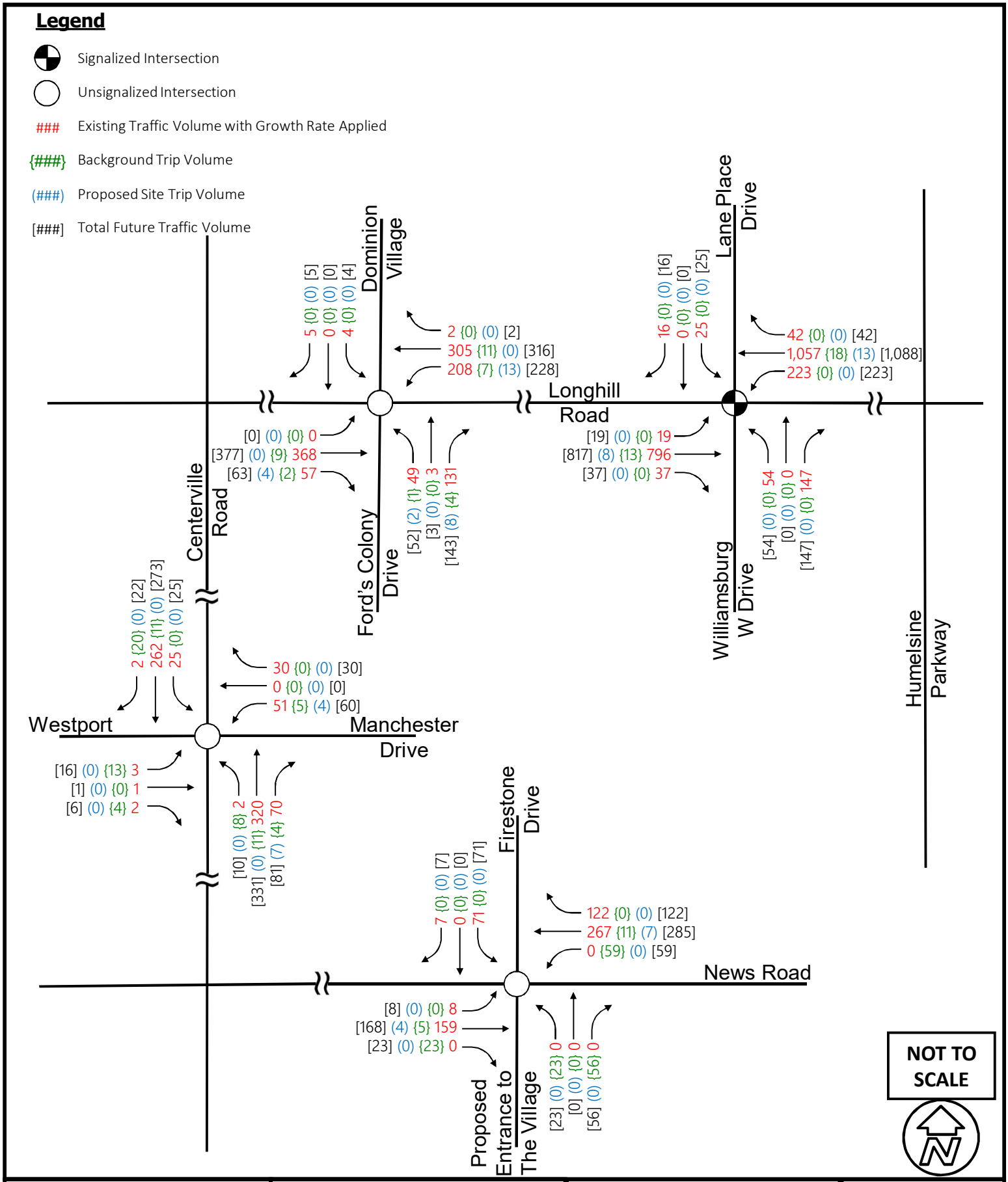

Kimley»Horn	Ford's Colony TIS Update James City County, VA	2021 Build PM Peak Hour Volumes	FIGURE 15

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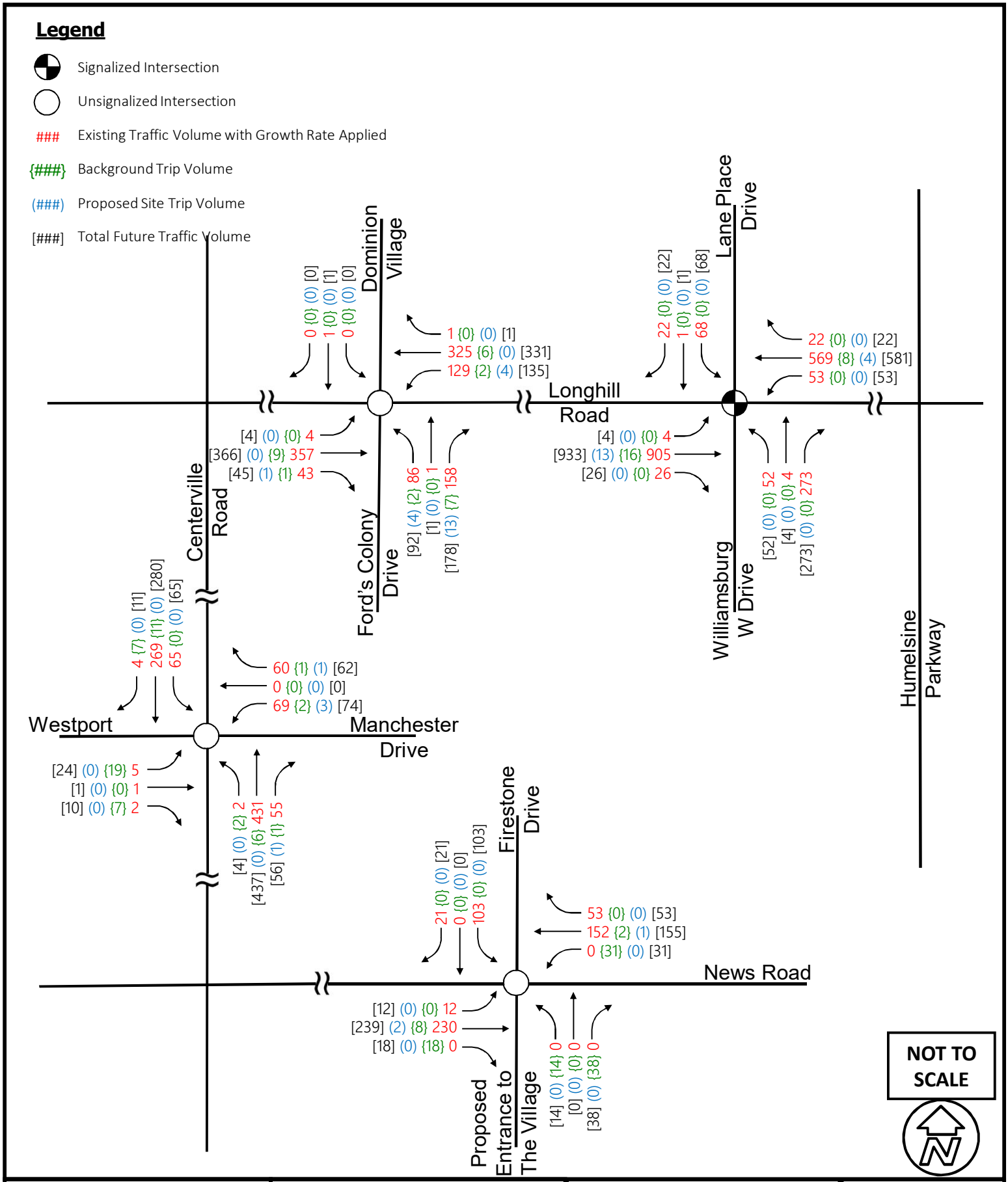

Kimley»Horn	Ford's Colony TIS Update James City County, VA	2027 Build AM Peak Hour Volumes	FIGURE 16

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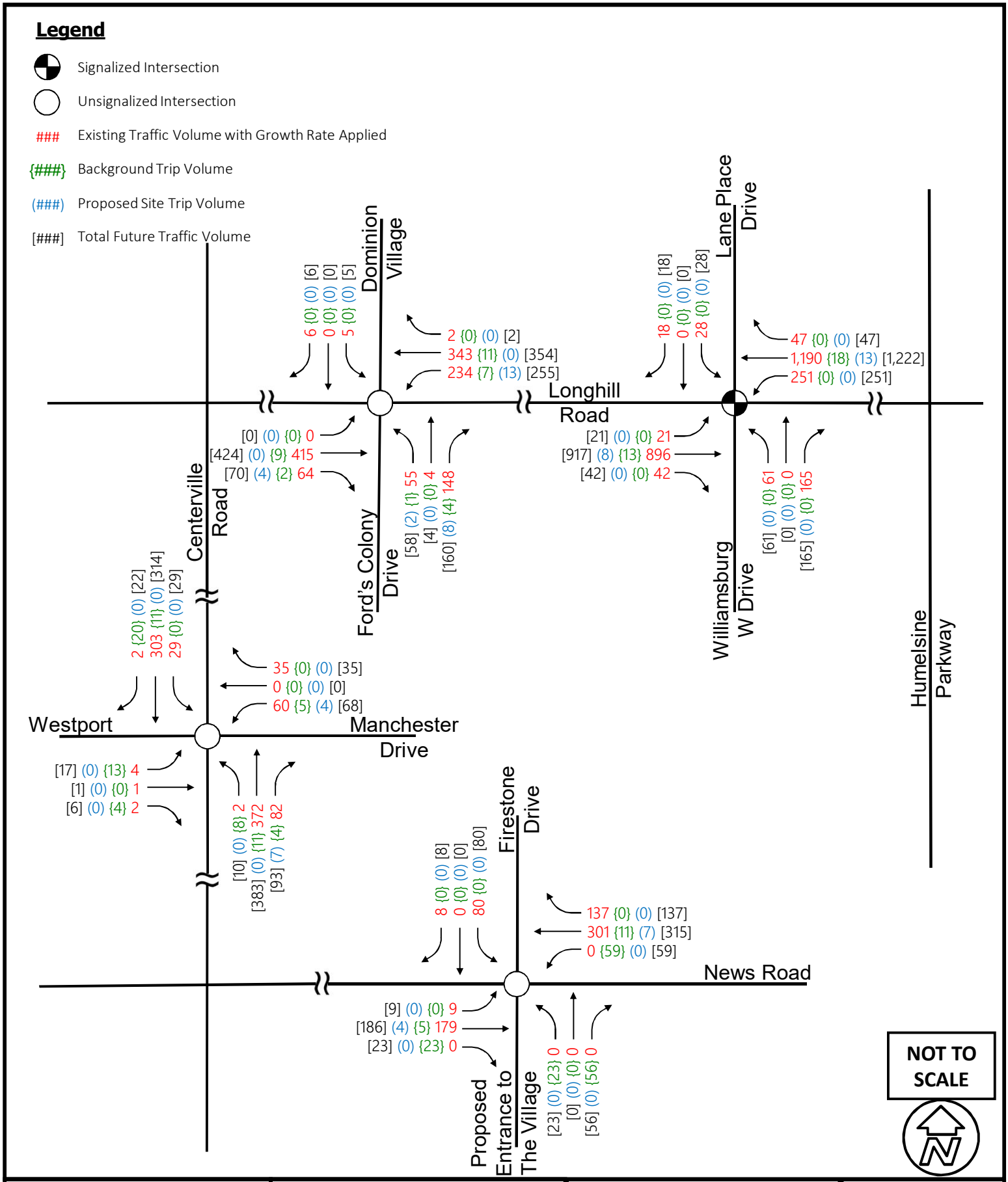

Kimley»Horn

Ford's Colony TIS Update
James City County, VA

2027 Build
PM Peak Hour Volumes

FIGURE
17

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7 TRAFFIC ANALYSIS

The traffic analysis for the proposed condominium/townhouse development as well as the improvements outlined in the proffers consisted of right-turn lane warrants, traffic signal warrants, and intersection operations. Analyses of study area intersections for AM and PM peak hours were performed for the following scenarios:

- 2019 Existing
- 2021 No-Build (background traffic only)
- 2021 Build (background traffic with proposed development trips)
- 2027 No-Build (background traffic only) – *Includes planned Longhill Road widening and intersection improvements currently under construction*
- 2027 Build (background traffic with proposed development trips) – *Includes planned Longhill Road widening and intersection improvements currently under construction*

The planned Longhill Road widening and intersection improvements currently under construction included in the study area are shown in **Figure 18**.

Figure 18: Longhill Road Widening and Intersection Improvements

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7.1 RIGHT-TURN LANE WARRANT

A right-turn lane warrant analysis was performed for the eastbound approach of Longhill Road at the Fords Colony Drive intersection to assess the need for a full-width exclusive right-turn treatment, as outlined by the proffers. This was conducted in accordance with VDOT right turn-lane warrant analysis guidelines per *Appendix F Access Management Design Standards for Entrances and Intersections*. Detailed data sheets for the turn lane warrant under each scenario are provided in **Appendix D.** Based on these guidelines, **Table 6** illustrates that a full-width, right-turn lane and taper is warranted for the PM peak hour under 2021 Build, 2027 No Build, and 2027 Build scenarios.. Based on these turn-lane warrant analysis findings, it is recommended that a full width right-turn lane be constructed for the eastbound approach Longhill Road at Fords Colony Drive.

Table 6: Summary of Right-Turn Lane Warrant Analysis for Fords Colony Drive at Longhill Road

Scenario	Warrants Analysis	
	Right-Turn Lane Warrant	
	AM	PM
Existing (2019)	✓ (taper required)	✓ (taper required)
No Build (2021)	✓ (taper required)	✓ (taper required)
Build (2021)	✓ (taper required)	✓ (full-width turn lane and taper required)
No Build (2027)	✓ (taper required)	✓ (full-width turn lane and taper required)
Build (2027)	✓ (taper required)	✓ (full-width turn lane and taper required)

Notes: ✗ *- Warrant not met*
✓ *- Warrant met*

7.2 TRAFFIC SIGNAL WARRANT ANALYSIS

Traffic signal warrant analyses were performed for the unsignalized intersection of Longhill Road at Fords Colony Drive and the unsignalized intersection of News Road at Firestone Drive, consistent with the methodologies provided in the *Manual on Uniform Traffic Control Devices* (MUTCD), to evaluate the need for traffic signalization under existing and future traffic conditions. These warrants are based on mainline and minor street traffic volumes, the number of travel lanes, approach turn-lanes, and mainline posted speed limit. According to the MUTCD, a traffic control signal should not be installed unless one or more of the signal warrants are met. The warrants used in this analysis are as follows:

- **Warrant 1 (Eight-Hour Vehicular Volume)** - is satisfied if ONE of the following conditions exists for any eight hours of an average day:
  - Condition A (Minimum Vehicular Volume) - volumes meet or exceed the necessary hourly thresholds for any eight hours of an average day. Thresholds may be modified based on vehicle speeds and population of the local community.

- Condition B (Interruption of Continuous Traffic) - volumes meet or exceed the necessary hourly thresholds for any eight hours of an average day. Thresholds may be modified based on vehicle speeds and population of the local community.
- Combination of Condition A and B - intended to be used where Conditions A and B are not individually met and where volume thresholds may be reduced based on anticipated traffic delay at the intersection.

- **Warrant 2 (Four-Hour Vehicular Volume)** - volumes meet or exceed the necessary hourly thresholds for any four hours of an average day. Thresholds are typically higher than those for Warrant 1 and may be applicable when high traffic volumes are concentrated over a shorter time period (less than eight hours). The thresholds may also be modified based on vehicle speeds and population of the local community

- **Warrant 3 (Peak Hour Volume)** - volumes meet or exceed the necessary hourly thresholds for any one hour of an average day. This warrant should only be applied in unusual cases where an area is expected to discharge a large volume of traffic over a short period of time. Thresholds may be modified based on vehicle speeds and population of the local community.

Under each warrant analysis, existing turning movement volumes were used to determine if the volume thresholds provided in the MUTCD were met. This provides a baseline to establish the potential for needing a signal under current traffic loads. For future No-Build and Build conditions, the signal warrant analysis was performed accounting for future growth in traffic associated with and without the proposed development traffic. For the Longhill Road at Fords Colony Drive intersection, the westbound right-turn volumes were not accounted for as part of this analysis under the existing and future conditions since an exclusive right-turn lane is provided to accommodate this movement. In addition, the northbound right-turn lane volumes on Fords Colony Drive were not included in the signal warrant analysis as drivers are utilizing the 24-foot pavement width to turn right as other vehicles are stopped for the through or left-turn movements. For the News Road at Firestone Drive intersection, the southbound and westbound right-turn vehicles were not accounted for as part of this analysis under the existing conditions. In addition, the northbound right-turn vehicles were not included as part of this analysis for the Villages driveway under the future conditions.

To assign the hourly site traffic for the future warrant analysis, all assumptions and methods (i.e., trip generation, pass-by reduction, distribution, background traffic growth, other development traffic) were followed, with an additional step of applying hourly variations to the daily trip generation total. The hourly variation breakdown for Multifamily Housing (Low-Rise) (220), as provided in the ITE Trip Generation Manual, were used for this purpose, as shown in **Table 7.**

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Table 7: Hourly Variations in Residential Traffic

Time	Average Weekday	
	Percent of 24-Hour Entering Traffic	Percent of 24-Hour Exiting Traffic
6 am – 7 am	1.6%	5.7%
7 am – 8 am	2.5%	9.0%
8 am – 9 am	3.7%	9.1%
9 am – 10 am	3.7%	6.5%
10 am – 11 am	4.1%	5.5%
11 am – 12 pm	4.5%	5.7%
12 pm – 1 pm	5.3%	5.3%
1 pm – 2 pm	5.4%	5.7%
2 pm – 3 pm	6.5%	5.9%
3 pm – 4 pm	8.1%	6.3%
4 pm – 5 pm	9.8%	6.3%
5 pm – 6 pm	10.8%	6.5%

Source: ITE Trip Generation Manual, 10th Edition

The results of the signal warrant analyses are provided in **Table 8** and **Table 9**, with complete tables outlining the traffic volumes used, in **Appendix D**.

Table 8: Summary of Warrant Analysis for Longhill Road at Fords Colony Drive

Scenario	Warrants Analysis				
	Warrant 1 (8 Hour)			Warrant 2 (4 Hour)	Warrant 3 (1 Hour)
	Condition A	Condition B	Combination (A & B)		
Existing (2019)	✗ (0 out of 8)	✗ (4 out of 8)	✗ (0 out of 8)	✗	✗
No Build (2021)	✗ (0 out of 8)	✗ (6 out of 8)	✗ (0 out of 8)	✗	✗
Build (2021)	✗ (0 out of 8)	✓	✗ (1 out of 8)	✗	✗
No Build (2027)	✗ (0 out of 8)	✓	✗ (1 out of 8)	✓	✗
Build (2027)	✗ (0 out of 8)	✓	✗ (3 out of 8)	✓	✗

Notes: ✗ *- Warrant not met*
✓ *- Warrant met*
(# out of 8) – Number of hours that could meet the 8-hour warrant requirement

The warrant analysis for the Longhill Road at Fords Colony Drive intersection indicate that under the Existing and No Build future scenarios, Condition A, Condition B, and the Combination (A & B) Condition were not met except for the 2021 Build, 2027 No Build, and Build models, where Condition B was met.

Warrant 2 (4-hour volume) was not met under Existing and 2021 future scenarios for the Longhill Road at Fords Colony Drive intersection but was met for 2027 No Build and Build scenarios. From the warrant analysis, the traffic volumes on Longhill Road did not meet the minimum thresholds under Condition A and a maximum of 3 out of 8 volumes were met for the Combination Warrant. Since the intersection does not meet both Warrant 1 Condition A and Condition B or the Combination as well as low demand on Longhill Road, the traffic signal is not warranted and not recommended for further consideration as a part of the Fords Colony Master Plan.

Table 9: Summary of Warrant Analysis for News Road at Firestone Drive

Scenario	Warrants Analysis				
	Warrant 1 (8 Hour)			Warrant 2 (4 Hour)	Warrant 3 (1 Hour)
	Condition A	Condition B	Combination (A & B)*		
Existing (2019)	✗ (0 out of 8)	✗ (0 out of 8)	✗ (0 out of 8)	✗	✗
No Build (2021)	✗ (1 out of 8)	✗ (0 out of 8)	✗ (3 out of 8)	✗	✗
Build (2021)	✗ (1 out of 8)	✗ (0 out of 8)	✗ (3 out of 8)	✗	✗
No Build (2027)	✗ (6 out of 8)	✗ (3 out of 8)	✗ (6 out of 8)	✗	✗
Build (2027)	✗ (6 out of 8)	✗ (3 out of 8)	✗ (7 out of 8)	✗	✗

Notes: ✗ *- Warrant not met*
✓ *- Warrant met*
(# out of 8) – Number of hours that could meet the 8-hour warrant requirements

The warrant analysis for the News Road at Firestone Drive indicated that under existing, No Build future, and Build future scenarios, conditions for Warrant 1 were not met. Under these scenarios, traffic generated by the current developments in Ford's Colony and approved developments were not high enough to meet the volume thresholds. Additionally, the 4-hour volume warrant was not met under existing conditions the News Road at Firestone Drive intersection. When taking into consideration the future site traffic generated by the background development and proposed residential condominium/townhouse development, a traffic signal is not warranted at the intersection for News Road at Firestone Drive.

7.3 PROFFER SCHEDULE OF IMPROVEMENTS

In addition to the turn lane and signal warrant analyses, the proffers identified the schedule of improvements based on the number of residential building permits when the hotel was or was not built. Since the hotel has not been constructed, the number of remaining undeveloped parcels was identified as 399 undeveloped within Ford's Colony out of the total 3,250 parcels identified from the previously completed TIS. The 399 undeveloped units consist of the following:

- 295 platted, unbuilt lots
- 60 un-platted Eaglescliff development lots
- 30 un-platted Windsor development lots

- 14 un-platted Brian Ford's property lots

Therefore, 2,841 parcels have been developed to date. **Table 10** illustrates the schedule of improvements, satisfaction of schedule, and construction of improvements.

Under Proffer Item A, the Longhill Road at Fords Colony Drive intersection satisfies the number of units, but the intersection of News Road at Firestone Drive does not satisfy the number of units. The Proffer Item E improvement is satisfied by the number of units constructed. Although several of the schedule of improvements are satisfied by the number of units, traffic operations and warrant analyses results proceed this schedule of improvements as the traffic operations are acceptable and warrants are not met for signalization.

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Table 10: Proffered Improvements Triggered by Ford's Colony Permits

Proffer Item	Proffer Improvement	Residential Building Permits if Hotel Not Built	Number of Units Constructed	Number of Units Satisfied	Improvement Constructed	Improvement for Full Build Out (3,250 Units)
A. Installation of Traffic Signals						
i	Longhill Road at Williamsburg W. Drive	2,236	2,851	✓	✓	-
ii	News Road at Firestone Drive	3,250	2,851	X	X	X
iii	Longhill Road at Fords Colony Drive	947	2,851	✓	X	X
B. Installation of Left and Right-Turn Lanes						
i	News Road at Firestone Drive (Left-Turn)	2,603	2,851	✓	✓	-
	News Road at Firestone Drive (Right-Turn)		2,851	✓	✓	-
ii	Centerville Road at Manchester Drive (Left-Turn)	947	2,851	✓	✓	-
	Centerville Road at Manchester Drive (Right-Turn)		2,851	✓	✓	-
C. Construct Williamsburg W. Drive						
i.	Establish right-of-way for four-lane road to Longhill Road	1,545	2,851	✓	✓	-
ii.	Construct two-lane private road Williamsburg W. Drive to Longhill Road	1,545	2,851	✓	✓	-
iii.	If VDOT does not permit construction of an intersection with Route 199 as set forth in paragraph below, widen the initial two-lane road to a four-lane road	2,928	2,851	X	X	X
D. Longhill Road at Williamsburg W. Drive Intersection Improvements						
i.	Construct intersection of Williamsburg W. Drive and Longhill Road with: Right-turn lane on Williamsburg W. Drive onto Longhill Road; Right turn-lane on Longhill Road onto Williamsburg W. Drive; and left-turn lane on Longhill Road onto Williamsburg W. Drive	1,545	2,851	✓	✓	-
ii.	Add two through lanes on Longhill Road	2,603	2,851	✓	Under construction	-
iii.	Add lane for dual left-turn lanes on westbound Longhill Road onto Williamsburg W. Drive	2,928	2,851	✓	X	X
iv.	Add lane for dual right-turn on Williamsburg W. Drive onto Longhill Road	3,250	2,851	X	X	X
E. Installation of right-turn lane on Longhill Road onto Ford's Colony Drive		947	2,851	✓	X	✓

7.4 INTERSECTION OPERATIONAL ANALYSIS

Operational analyses were conducted for the study area intersections for the AM and PM peak hours under the existing and future scenarios. The existing signal timings, including cycle lengths, clearance intervals, and splits, were provided by VDOT. Under 2019 No Build and Build conditions, all signal timings, coordination offsets, and phasing were optimized. Additionally, splits were generally kept similar between scenario as well, with only minor changes made to compensate for additional site traffic.

In addition, the peak hour factor (PHF) used for the existing (2019) conditions represents the actual PHF based on recent traffic count data. Per VDOT's Traffic Operations and Safety Analysis Manual (TOSAM) guidance, PHFs less than 0.92 should be adjusted up to 0.92 for all future analyses. Therefore, under future conditions, the intersections with PHFs less than 0.92 were adjusted up to 0.92 for this purpose of this study.

Analyses were completed to determine the operating characteristics of the study area intersections using *Synchro Professional 10.0* modeling software, which uses methodologies contained in the 2010 Highway Capacity Manual (HCM) [TRB Special Report 209, 2000]. The intersection operational analysis inputs and analysis methodologies were consistent with VDOT's TOSAM. Intersection turning movement counts were used with information about the number of lanes, current traffic control, and signal timings to determine the operational conditions of each study area intersection. Level of service (LOS) is reported for each of the study area intersections.

LOS describes the amount of traffic congestion at an intersection or on a roadway and ranges from A to F (A indicating a condition of little to no congestion and F a condition with severe congestion, unstable traffic flow, and stop-and-go conditions). LOS is based on the average delay experienced by all traffic using the intersection during the busiest (peak) 15-minute period. Generally, LOS A through LOS D are considered acceptable. Delay and associated LOS for both signalized and unsignalized intersections are reported from the Synchro analysis. In the LOS/delay tables for each of the study area intersections, values highlighted in "bold" represent movements operating at LOS E or worse. **Table 11** shows the corresponding thresholds in delay for unsignalized and signalized intersections.

The queuing results represent the maximum simulated queues for each movement as they compare to the effective storage lengths. Effective storage lengths represent the amount of distance available to vehicles to queue without generally impacting the adjacent lanes and consist of the full width storage, plus half of the taper distance. By using the effective storage, vehicles that can use a portion of the taper length as additional room for storage can be accounted for. All traffic models were developed and analyzed with the effective storage lengths coded into the network. Values highlighted as "bold" represent queue lengths that exceed the available storage lengths/spill back to an upstream intersection. As part of the queuing analysis, "percent blocking" was noted in instances where queues impact adjacent turn- and/or through-lanes. This percentage represents the approximate amount of time during the peak hour when a lane was observed to be blocked (e.g., "10% blocking" indicates that during the peak hour, the turn-lane storage was exceeded and impacted 10 percent of the adjacent lane volume). The results are presented in the following summaries and supporting calculations are presented in **Appendix E**.

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Table 11: LOS Control Delay Thresholds

LOS	Signalized Intersections Control Delay Per Vehicle [sec/veh]	Unsignalized Intersections Average Control Delay [sec/veh]	Relative Delay
A	≤ 10	≤ 10	Short Delays
	Free-flow traffic operations at average travel speeds. Vehicles completely unimpeded in ability to maneuver. Minimal delay at signalized intersections.		
B	> 10 – 20	> 10 – 15	
	Reasonably unimpeded traffic operations at average travel speeds. Vehicle maneuverability slightly restricted. Low traffic delays.		
C	> 20 – 35	> 15 – 25	
	Stable traffic operations. Lane changes becoming more restricted. Travel speeds reduced to half of average free flow travel speeds. Longer intersection delays.		
D	>35 – 55	> 25 – 35	Moderate Delays
	Small increases in traffic flow can cause increased delays. Delays likely attributable to increase traffic, reduced signal progression and adverse timing.		
E	>55 – 80	> 35 – 50	
	Significant delays. Travel speeds reduced to one third of average free flow travel speed.		
F	> 80	> 50	Long Delays
	Extremely low speeds. Intersection congestion. Long delays. Extensive traffic queues at intersections.		

Source: Highway Capacity Manual, Transportation Research Board, Washington, D.C., 2010

The following sections summarizes each study area intersection's operations as it relates to vehicle traffic demand for the analysis scenarios. Results are presented in **Table 12** through **Table 19** and **Figure 19** through **Figure 28**.

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7.4.1 LONGHILL ROAD AT WILLIAMSBURG W. DRIVE/LANE PLACE DRIVE

Results of the capacity and queuing analysis for this signalized intersection are shown in **Table 12** and **Table 13**. Under existing and future conditions, the AM and PM peak hours are anticipated to experience an overall intersection LOS D or better with individual movements also expected to operate at LOS D or better. The overall intersection LOS improves to LOS C or better under 2027 No-Build and Build conditions due to the Longhill Road widening improvements.

Queuing results indicate that the intersection does not currently, nor is it projected to experience significant queuing or blocking. **Table 13** does show that the westbound left-turn and right-turn lanes have the potential to periodically meet or exceed its available storage length during the PM peak hour under 2019 Existing, 2021 No Build, and 2021 Build conditions. However, this is attributed to the adjacent through-lane stacking up and blocking access to this turn lane, and not due to the capacity of the turn lane. It has been observed with the SimTraffic software, that maximum queues can be recorded when vehicles are blocked from being able to enter a turn lane, because as soon as a vehicle is able to enter the turn lane, it meets the speed thresholds that the software uses to record maximum queue, which always happens at the back of the turn lane (i.e., 250 feet in this case).

Table 12: Longhill Road at Williamsburg W. Drive/Lane Place Drive Intersection Level of Service

Scenario	Overall LOS	Level of Service per Movement by Approach (Delay in sec/veh)											
		Eastbound			Westbound			Northbound			Southbound		
		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
AM Peak Hour													
2019 Existing	C (28.5)	A (9.8)	C (33.7)	B (10.9)	B (17.9)	B (14.5)	A (9.4)	D (39.7)		D (38.5)	D (44.0)		
		C (33.0)			B (14.6)			D (38.7)			D (44.0)		
2021 No Build	C (27.8)	A (9.3)	C (33.0)	B (10.1)	B (17.2)	B (14.1)	A (9.0)	D (38.0)		D (37.5)	D (44.8)		
		C (32.3)			B (14.1)			D (37.6)			D (44.8)		
2021 Build	C (28.9)	A (9.4)	D (35.2)	B (10.1)	B (17.7)	B (14.1)	A (9.0)	D (38.0)		D (37.6)	D (44.8)		
		C (34.5)			B (14.2)			D (37.7)			D (44.8)		
2027 No Build	C (21.0)	B (10.8)	B (19.1)	B (13.0)	B (12.7)	B (13.8)	B (11.2)	C (32.5)		D (35.2)	D (47.2)		
		B (18.9)			B (13.6)			D (34.7)			D (47.2)		
2027 Build	C (21.1)	B (10.8)	B (19.2)	B (12.9)	B (12.8)	B (13.8)	B (11.2)	C (32.6)		D (35.5)	D (47.5)		
		B (19.0)			B (13.6)			D (35.0)			D (47.5)		
PM Peak Hour													
2019 Existing	C (31.2)	C (20.46)	C (26.0)	B (10.8)	C (25.7)	D (36.1)	A (7.9)	D (40.9)		D (39.0)	D (42.9)		
		C (25.2)			C (33.5)			D (39.5)			D (42.9)		
2021 No Build	D (41.2)	C (22.3)	C (29.2)	B (10.9)	D (48.6)	D (51.4)	A (7.6)	D (42.4)		D (40.1)	D (44.4)		
		C (28.3)			D (49.5)			D (40.7)			D (44.4)		
2021 Build	D (43.0)	C (22.4)	C (29.6)	B (10.9)	D (52.4)	D (54.2)	A (7.5)	D (42.6)		D (40.2)	D (44.6)		
		C (28.7)			D (52.4)			D (40.9)			D (44.6)		
2027 No Build	B (17.3)	A (9.0)	B (17.7)	B (12.6)	B (14.4)	B (13.3)	A (8.1)	D (39.3)		D (37.3)	D (42.7)		
		B (17.3)			B (13.4)			D (37.8)			D (42.7)		
2027 Build	B (17.3)	A (9.1)	B (17.7)	B (12.6)	B (14.6)	B (13.4)	A (8.1)	D (39.4)		D (37.4)	D (42.8)		
		B (17.3)			B (13.5)			D (38.0)			D (42.8)		

Table 13: Longhill Road at Williamsburg W. Drive/Lane Place Drive Maximum Queuing

Scenario	Maximum Queue Length by Movement (feet)											
	Eastbound			Westbound			Northbound			Southbound		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Effective Storage Length	250	Cont.	225	250	Cont.	250*	Cont.		225	Cont.		
AM Peak Hour												
2019 Existing	69	479	164	81	230	41	92		120	112		
2021 No Build	46	563	205	67	206	51	93		133	115		
2021 Build	66	561	187	65	217	49	92		141	124		
2027 No Build	27	233	67	78	157	55	94		168	132		
2027 Build	49	264	29	67	166	44	98		167	124		
PM Peak Hour												
2019 Existing	148	519	206	**250**	763	**690**	97		109	81		
2021 No Build	167	562	224	**250**	772	**777**	115		83	88		
2021 Build	209	553	204	**250**	784	**777**	140		87	83		
2027 No Build	59	238	33	211	251	73	109		110	90		
2027 Build	69	262	53	215	244	115	128		103	88		

Notes: Results displayed are the average results across 10 microsimulation runs
**denotes the No Build and Build effective storage length associated with the Longhill Road widening*

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7.4.2 LONGHILL ROAD AT FORDS COLONY DRIVE

Results of the capacity and queuing analysis for this unsignalized intersection are shown in **Table 14** and **Table 15**. Under existing and future conditions, the AM and PM peak hours are anticipated to experience an overall intersection LOS B or better with all movements at LOS D or better with the exception of the following movements/approaches:

- AM Peak Hour
  - 2019 Existing – Northbound Approach (LOS E)
  - 2027 No Build - Northbound Approach (LOS F)
- PM Peak Hour
  - 2021 No Build – Northbound Approach (LOS E)
  - 2027 No Build – Northbound Approach (LOS F)/Southbound Approach (LOS E)
  - 2027 Build – Northbound Approach (LOS E)/Southbound Approach (LOS E)

Restriping the northbound approach noticeably improves operations under the future 2027 No Build conditions from LOS F during the AM and PM peak hours to LOS D and LOS E respectively, under the 2027 Build conditions. Queuing results also indicate that the intersection is not projected to experience significant queuing or blocking issues. Based on these operational conditions (i.e., existing and future) the existing two-way STOP configuration provides sufficient traffic control for this intersection.

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Table 14: Longhill Road at Fords Colony Drive Intersection Level of Service

Scenario	Overall LOS	Level of Service per Movement by Approach (Delay in sec/veh)											
		Eastbound			Westbound			Northbound			Southbound		
		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
AM Peak Hour													
2019 Existing	A (8.9)	A (7.9)	A (0.0)		A (8.6)	A (0.0)	A (0.0)	**E (35.5)**			C (22.2)		
		A (0.1)			A (2.4)			**E (35.5)**			C (22.2)		
2021 No Build	A (7.8)	A (7.9)	A (0.0)		A (8.5)	A (0.0)	A (0.0)	D (30.1)			C (21.0)		
		A (0.1)			A (2.4)			D (30.1)			C (21.0)		
2021 Build	A (5.6)	A (7.9)	A (0.0)	A (0.0)	A (8.5)	A (0.0)	A (0.0)	C (19.2)		A (0.0)	C (21.3)		
		A (0.1)			A (2.5)			C (19.2)			C (21.3)		
2027 No Build	B (13.5)	A (8.0)	A (0.0)		A (8.7)	A (0.0)	A (0.0)	**F (55.5)**			C (24.4)		
		A (0.1)			A (2.5)			**F (55.5)**			C (24.4)		
2027 Build	A (7.1)	A (8.0)	A (0.0)	A (0.0)	A (8.7)	A (0.0)	A (0.0)	D (25.9)		A (0.0)	C (24.8)		
		A (0.1)			A (2.5)			D (25.9)			C (24.8)		
PM Peak Hour													
2019 Existing	A (6.5)	A (0.0)	A (0.0)		A (8.9)	A (0.0)	A (0.0)	D (28.8)			C (24.5)		
		A (0.0)			A (3.6)			D (28.8)			C (24.5)		
2021 No Build	B (8.3)	A (0.0)	A (0.0)		A (9.2)	A (0.0)	A (0.0)	**E (39.7)**			D (28.3)		
		A (0.0)			A (3.7)			**E (39.7)**			D (28.3)		
2021 Build	A (6.1)	A (0.0)	A (0.0)	A (0.0)	A (9.3)	A (0.0)	A (0.0)	C (24.7)		A (0.0)	D (27.3)		
		A (0.0)			A (3.9)			C (24.7)			D (27.3)		
2027 No Build	B (17.0)	A (0.0)	A (0.0)		A (9.6)	A (0.0)	A (0.0)	**F (92.0)**			**E (39.8)**		
		A (0.0)			A (3.9)			**F (92.0)**			**E (39.8)**		
2027 Build	A (8.6)	A (0.0)	A (0.0)	A (0.0)	A (9.7)	A (0.0)	A (0.0)	**E (38.8)**		A (0.0)	**E (37.7)**		
		A (0.0)			A (4.0)			**E (38.8)**			**E (37.7)**		

Table 15: Longhill Road at Fords Colony Drive Maximum Queuing

Scenario	Maximum Queue Length by Movement (feet)											
	Eastbound			Westbound			Northbound			Southbound		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Effective Storage Length	200	Cont.		225	Cont.	150	Cont.		175*	Cont.		
AM Peak Hour												
2019 Existing	14	10		70	0	0	192			6		
2021 No Build	5	22		77	0	0	209			14		
2021 Build	9	8	0	103	0	0	115		93	14		
2027 No Build	7	19		84	0	0	291			5		
2027 Build	16	4	8	87	0	0	196		132	9		
PM Peak Hour												
2019 Existing	0	21		88	4	0	156			17		
2021 No Build	0	33		105	0	0	246			22		
2021 Build	0	2	17	125	0	0	155		106	26		
2027 No Build	0	32		138	0	0	500			26		
2027 Build	0	5	19	134	0	0	357		156	24		

Notes: Results displayed are the average results across 10 microsimulation runs
**denotes the Build effective storage length associated with the Fords Colony Drive widening*

7.4.3 CENTERVILLE ROAD AT MANCHESTER DRIVE

Results of the capacity and queuing analysis for this unsignalized intersection are shown in **Table 16** and **Table 17**. Under existing and future conditions, the AM and PM peak hours are anticipated to experience movements with LOS C or better. Queuing results also indicate that the intersection is not projected to experience significant queuing or blocking issues.

Table 16: Centerville Road at Manchester Drive Intersection Level of Service

Scenario	Overall LOS	Level of Service per Movement by Approach (Delay in sec/veh)											
		Eastbound			Westbound			Northbound			Southbound		
		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
AM Peak Hour													
2019 Existing	A (2.8)	C (16.0)			C (19.7)	B (11.0)		A (7.7)	A (0.0)	A (0.0)	A (8.6)	A (0.0)	A (0.0)
		C (16.0)			C (15.7)			A (0.0)			A (1.6)		
2021 No Build	A (3.5)	C (18.7)			C (22.2)	B (11.2)		A (7.8)	A (0.0)	A (0.0)	A (8.7)	A (0.0)	A (0.0)
		C (18.7)			C (17.2)			A (0.1)			A (1.6)		
2021 Build	A (3.6)	C (18.7)			C (22.6)	B (11.2)		A (7.8)	A (0.0)	A (0.0)	A (8.7)	A (0.0)	A (0.0)
		C (18.7)			C (17.5)			A (0.1)			A (1.6)		
2027 No Build	A (4.1)	C (22.6)			D (29.4)	B (11.9)		A (7.9)	A (0.0)	A (0.0)	A (9.0)	A (0.0)	A (0.0)
		C (22.6)			C (21.3)			A (0.1)			A (1.7)		
2027 Build	A (4.2)	C (22.7)			D (29.9)	B (11.9)		A (7.9)	A (0.0)	A (0.0)	A (9.0)	A (0.0)	A (0.0)
		C (22.7)			C (21.7)			A (0.1)			A (1.7)		
PM Peak Hour													
2019 Existing	A (1.9)	B (13.5)			C (15.9)	B (10.3)		A (7.7)	A (0.0)	A (0.0)	A (8.1)	A (0.0)	A (0.0)
		B (13.5)			B (13.8)			A (0.0)			A (0.7)		
2021 No Build	A (2.4)	C (15.6)			C (18.2)	B (10.5)		A (7.9)	A (0.0)	A (0.0)	A (8.5)	A (0.0)	A (0.0)
		C (15.6)			C (15.5)			A (0.2)			A (0.7)		
2021 Build	A (2.4)	C (15.6)			C (18.4)	B (10.5)		A (7.9)	A (0.0)	A (0.0)	A (8.5)	A (0.0)	A (0.0)
		C (15.6)			C (15.7)			A (0.2)			A (0.7)		
2027 No Build	A (2.6)	C (17.9)			C (22.0)	B (10.9)		A (8.0)	A (0.0)	A (0.0)	A (8.7)	A (0.0)	A (0.0)
		C (17.9)			C (18.1)			A (0.2)			A (0.7)		
2027 Build	A (2.7)	C (17.9)			C (22.5)	B (10.9)		A (8.0)	A (0.0)	A (0.0)	A (8.7)	A (0.0)	A (0.0)
		C (17.9)			C (18.5)			A (0.2)			A (0.7)		

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Table 17: Centerville Road at Manchester Drive Maximum Queuing

Scenario	Maximum Queue Length by Movement (feet)											
	Eastbound			Westbound			Northbound			Southbound		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Effective Storage Length	Cont.			Cont.	140		190	Cont.	325	190	Cont.	325
AM Peak Hour												
2019 Existing	30			60	54		8	0	0	64	0	0
2021 No Build	45			72	52		9	0	0	60	0	0
2021 Build	47			68	55		7	2	0	64	0	0
2027 No Build	47			69	58		10	2	5	72	0	0
2027 Build	51			77	56		8	2	4	69	0	0
PM Peak Hour												
2019 Existing	28			42	46		4	0	0	30	0	0
2021 No Build	40			56	46		16	0	0	50	0	0
2021 Build	39			58	47		16	0	0	53	0	0
2027 No Build	38			70	46		14	0	0	54	0	0
2027 Build	42			63	49		19	0	0	49	0	2

Notes: Results displayed are the average results across 10 microsimulation runs

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7.4.4 NEWS ROAD AT FIRESTONE DRIVE

Results of the capacity and queuing analysis for this unsignalized intersection are shown in **Table 18** and **Table 19**. Under existing and future conditions, the AM and PM peak hours are anticipated to experience movements with LOS C or better. Queuing results also indicate that the intersection is not projected to experience significant queuing or blocking issues.

Table 18: News Road at Firestone Drive Intersection Level of Service

Scenario	Overall LOS	Level of Service per Movement by Approach (Delay in sec/veh) AM Peak Hour											
		Eastbound			Westbound			Northbound			Southbound		
		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
AM Peak Hour													
2019 Existing	A (2.6)	A (7.8)	A (0.0)	-	-	A (0.0)	A (0.0)	-	-	-	B (11.2)	-	A (0.0)
		A (0.4)			A (0.0)			-			B (11.2)		
2021 No Build	A (4.0)	A (7.8)	A (0.0)		A (7.8)	A (0.0)		B (10.5)		A (0.0)	B (14.2)		A (0.0)
		A (0.3)			A (1.1)			B (10.5)			B (14.2)		
2021 Build	A (4.0)	A (7.8)	A (0.0)		A (7.8)	A (0.0)		B (10.6)		A (0.0)	B (14.2)		A (0.0)
		A (0.3)			A (1.1)			B (10.6)			B (14.2)		
2027 No Build	A (4.1)	A (7.9)	A (0.0)		A (7.9)	A (0.0)		B (10.8)		A (0.0)	C (15.5)		A (0.0)
		A (0.4)			A (1.0)			B (10.8)			C (15.5)		
2027 Build	A (4.1)	A (7.9)	A (0.0)		A (7.9)	A (0.0)		B (10.9)		A (0.0)	C (15.6)		A (0.0)
		A (0.4)			A (1.0)			B (10.9)			C (15.6)		
PM Peak Hour													
2019 Existing	A (1.6)	A (8.1)	A (0.0)	-	-	A (0.0)	A (0.0)	-	-	-	B (12.0)	-	A (0.0)
		A (0.4)			A (0.0)			-			B (12.0)		
2021 No Build	A (3.5)	A (8.4)	A (0.0)		A (7.7)	A (0.0)		B (11.1)		A (0.0)	C (18.6)		A (0.0)
		A (0.3)			A (1.0)			B (11.1)			C (18.6)		
2021 Build	A (3.5)	A (8.5)	A (0.0)		A (7.7)	A (0.0)		B (11.2)		A (0.0)	C (18.9)		A (0.0)
		A (0.3)			A (1.0)			B (11.2)			C (18.9)		
2027 No Build	A (3.7)	A (8.6)	A (0.0)		A (7.8)	A (0.0)		B (11.5)		A (0.0)	C (21.0)		A (0.0)
		A (0.3)			A (0.9)			B (11.5)			C (21.0)		
2027 Build	A (3.7)	A (8.6)	A (0.0)		A (7.8)	A (0.0)		B (11.5)		A (0.0)	C (21.4)		A (0.0)
		A (0.3)			A (0.9)			B (11.5)			C (21.4)		

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Table 19: News Road at Firestone Drive Maximum Queuing

Scenario	Maximum Queue Length by Movement (feet)											
	Eastbound			Westbound			Northbound			Southbound		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Effective Storage Length	225	Cont.		225	Cont.	300	Cont.		150	Cont.		150
AM Peak Hour												
2019 Existing	40	0	-	-	4	0	-		-	69	-	31
2021 No Build	28	0		31	0		40		54	82		33
2021 Build	30	0		28	0		40		54	71		33
2027 No Build	28	0		26	0		38		54	79		33
2027 Build	37	0		26	0		36		52	82		37
PM Peak Hour												
2019 Existing	27	0	-	-	0	5	-		-	71	-	31
2021 No Build	35	1		34	4		57		68	76		33
2021 Build	33	1		34	0		49		59	87		32
2027 No Build	37	0		32	0		52		67	99		33
2027 Build	44	0		37	6		54		54	94		33

Notes: Results displayed are the average results across 10 microsimulation runs

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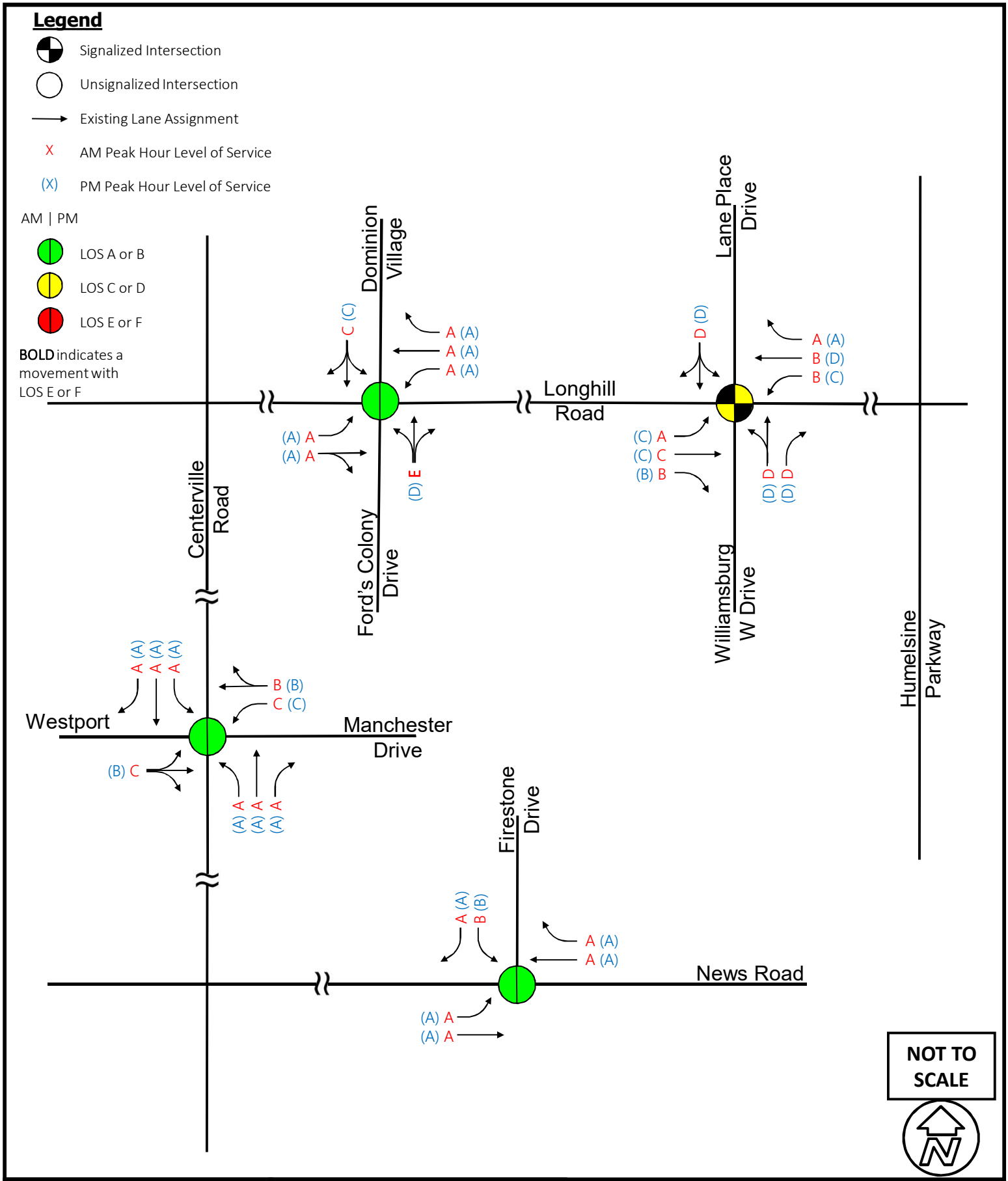

Kimley»Horn	Ford's Colony TIS Update James City County, VA	2019 Existing Conditions Level of Service	FIGURE 19

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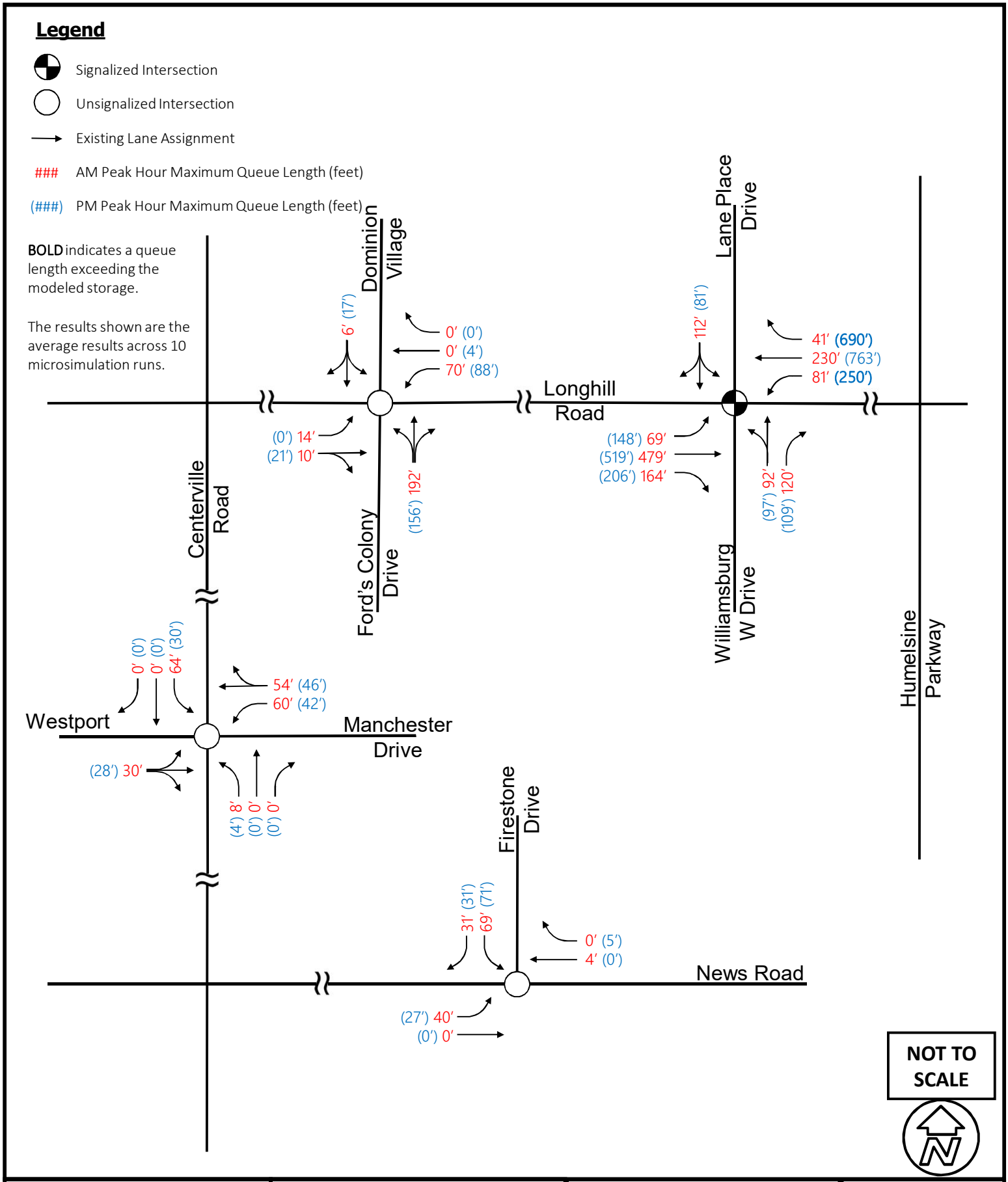

Kimley»Horn	Ford's Colony TIS Update James City County, VA	2019 Existing Conditions Maximum Queue Length	FIGURE 20

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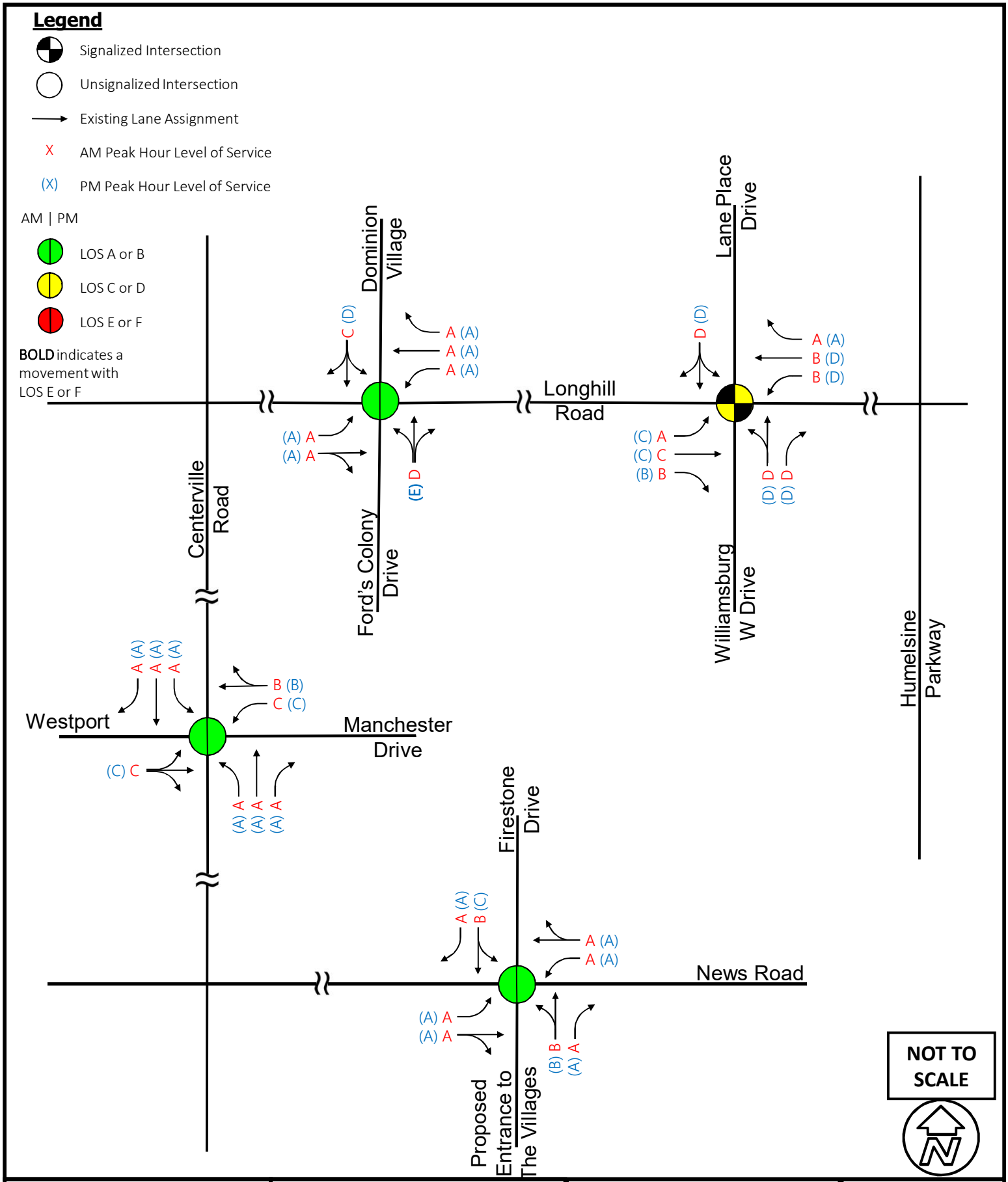

Kimley»Horn	Ford's Colony TIS Update James City County, VA	2021 No Build Conditions Level of Service	FIGURE 21

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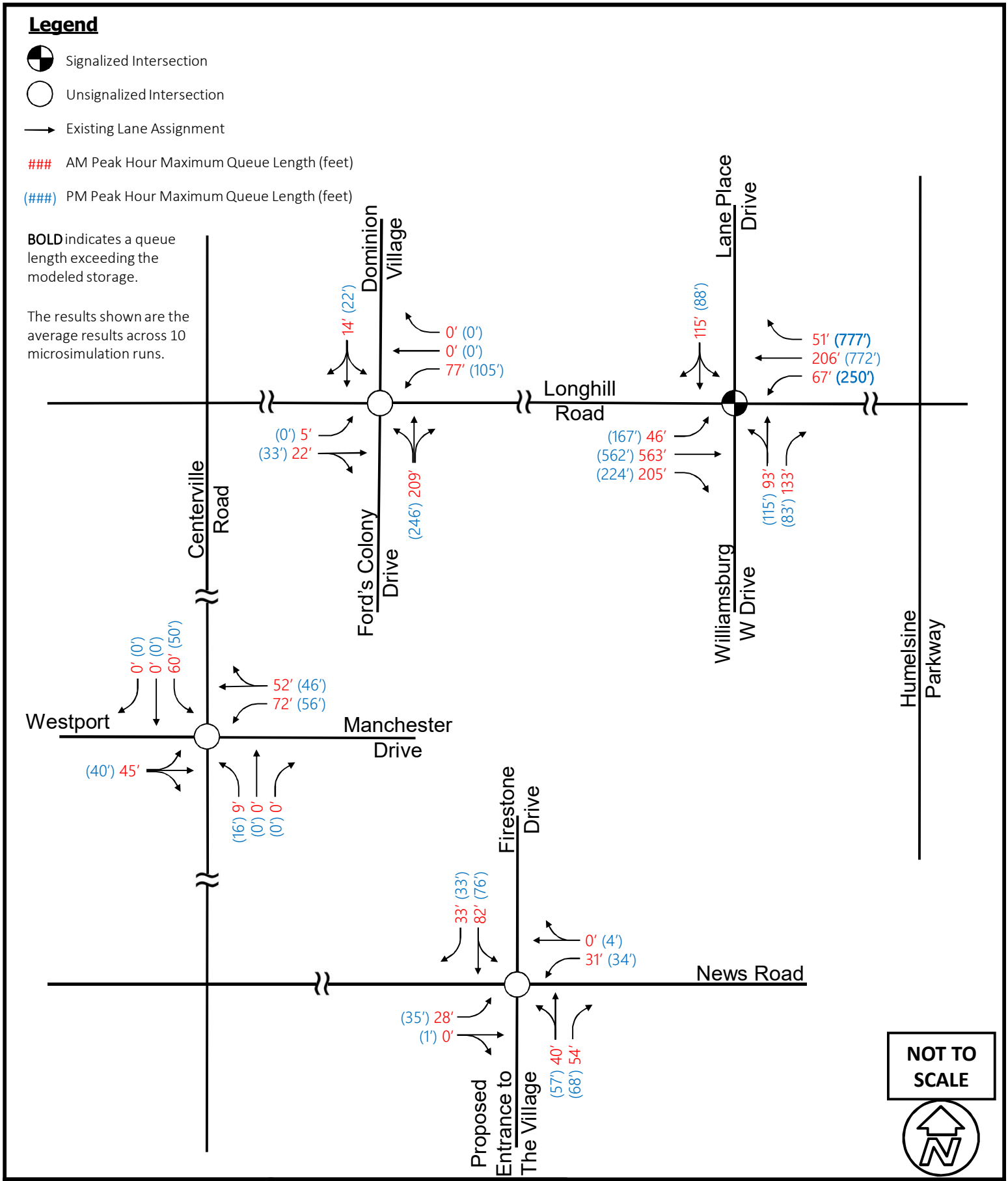

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Ford's Colony TIS Update
James City County, VA

2021 No Build Conditions
Maximum Queue

FIGURE
22

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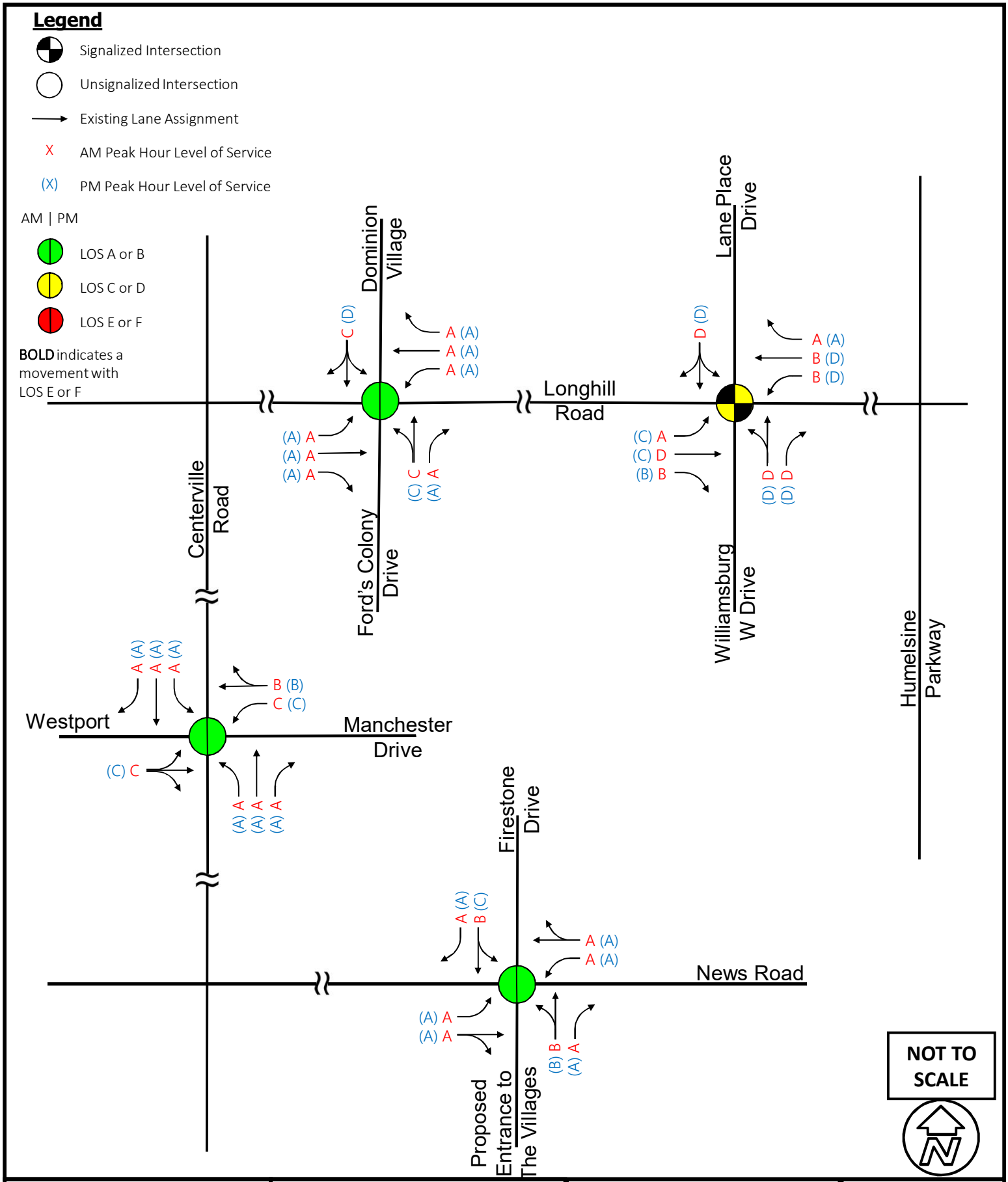

Kimley»Horn	Ford's Colony TIS Update James City County, VA	2021 Build Conditions Level of Service	FIGURE 23

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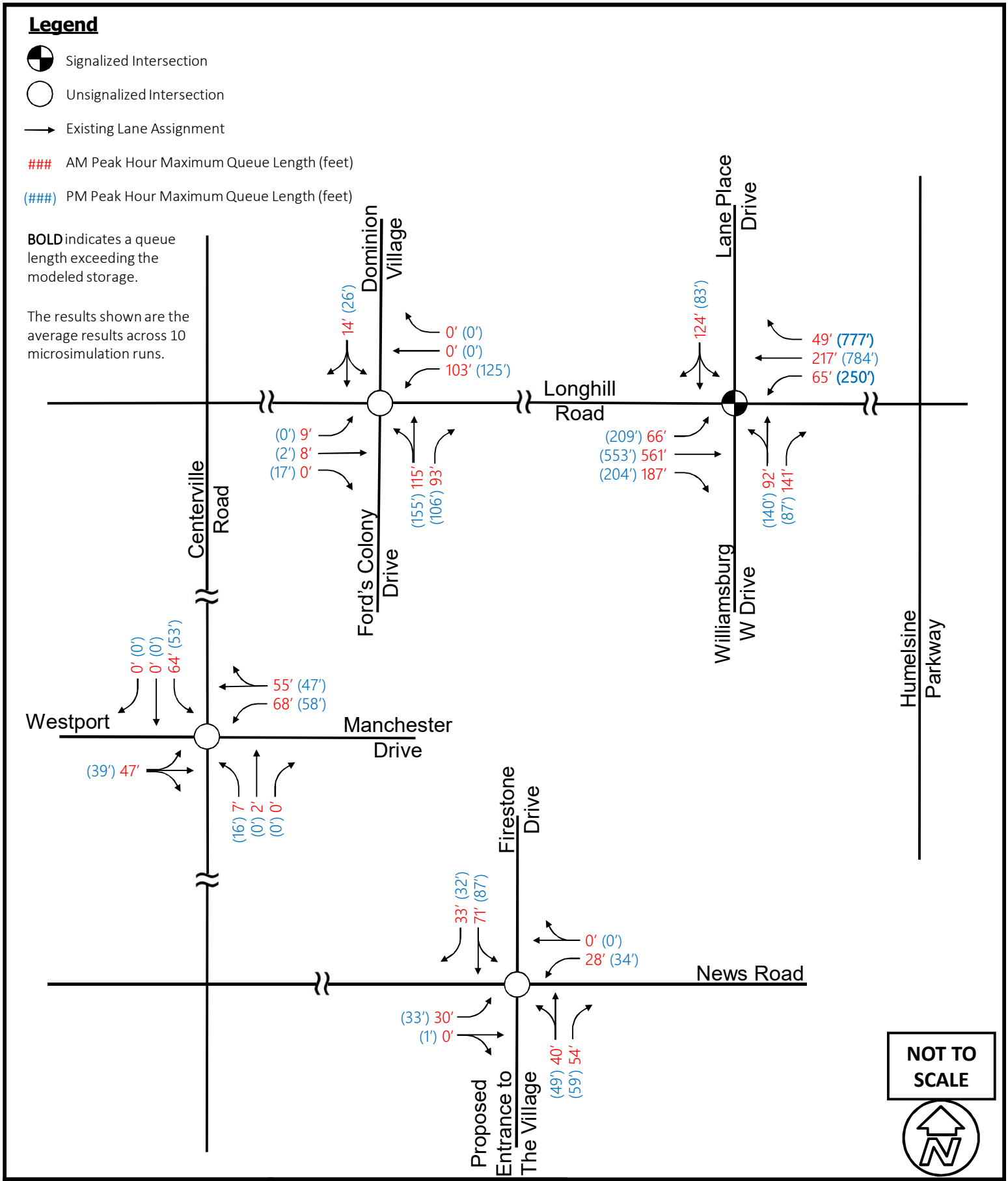

Kimley»Horn	Ford's Colony TIS Update James City County, VA	2021 Build Conditions Maximum Queue	FIGURE 24

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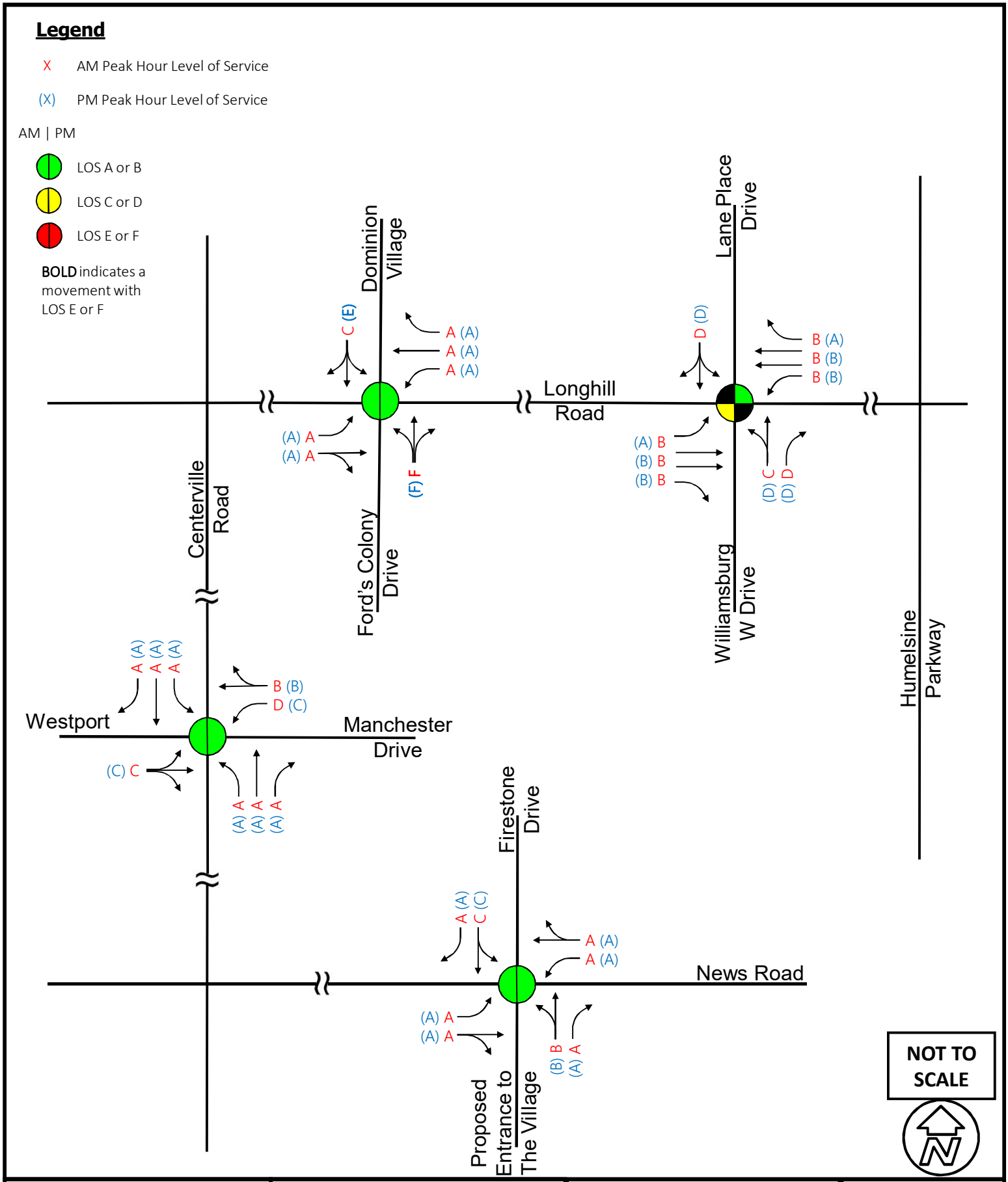

Kimley»Horn	Ford's Colony TIS Update James City County, VA	2027 No Build Conditions Level of Service	FIGURE 25

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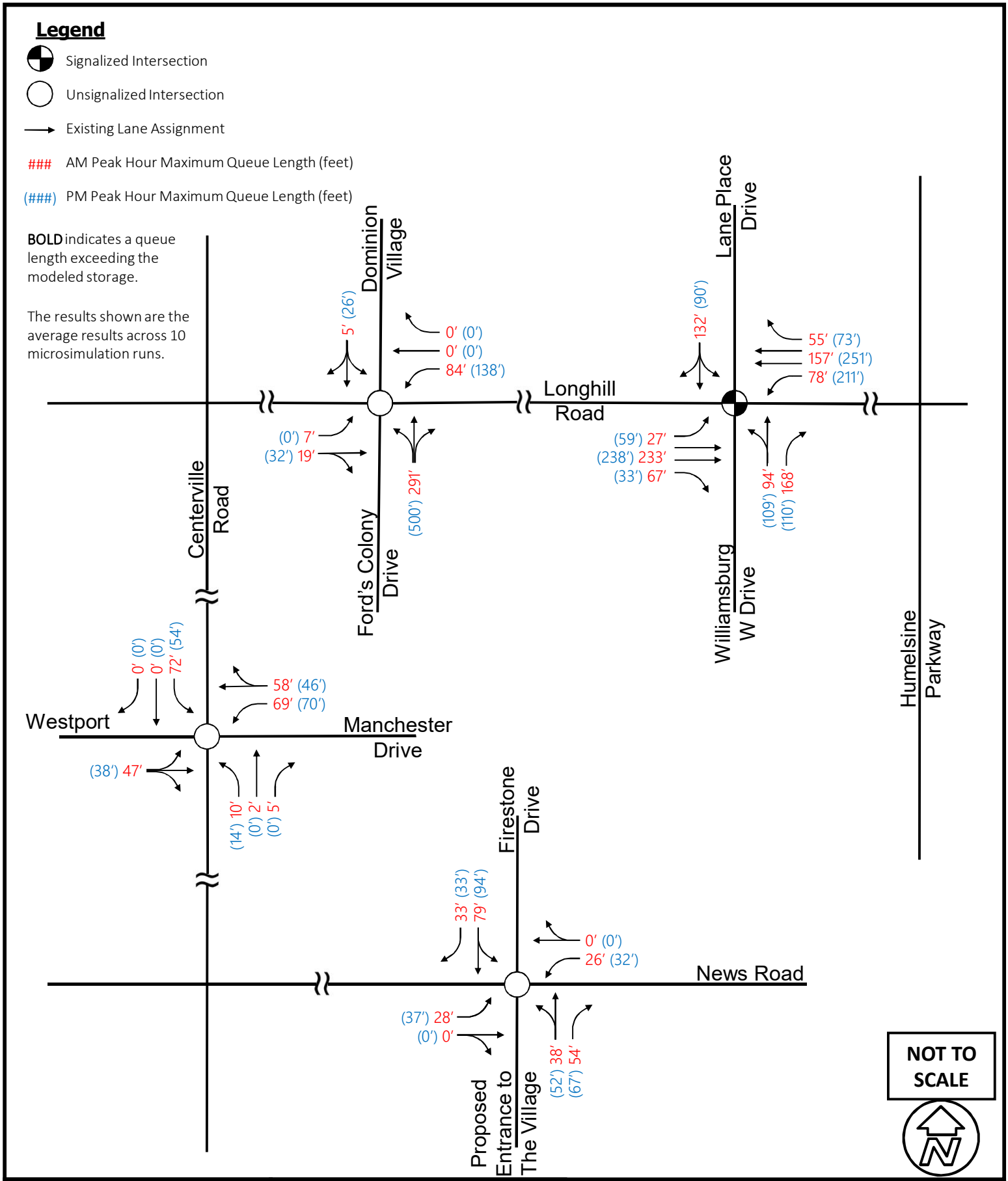

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Ford's Colony TIS Update
James City County, VA

2027 No Build Conditions
Maximum Queue Length

FIGURE
26

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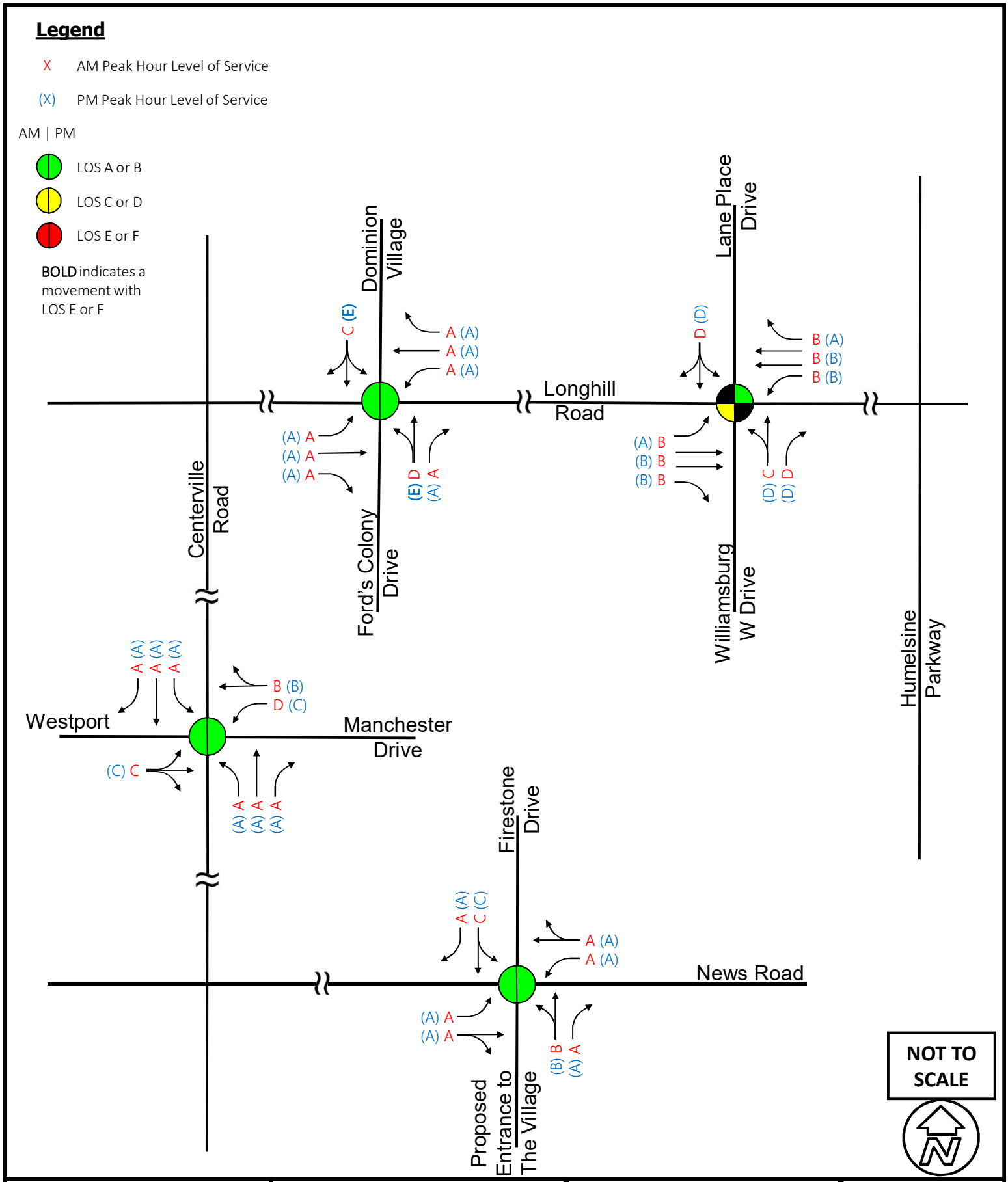

Kimley»Horn	Ford's Colony TIS Update James City County, VA	2027 Build Conditions Level of Service	FIGURE 27

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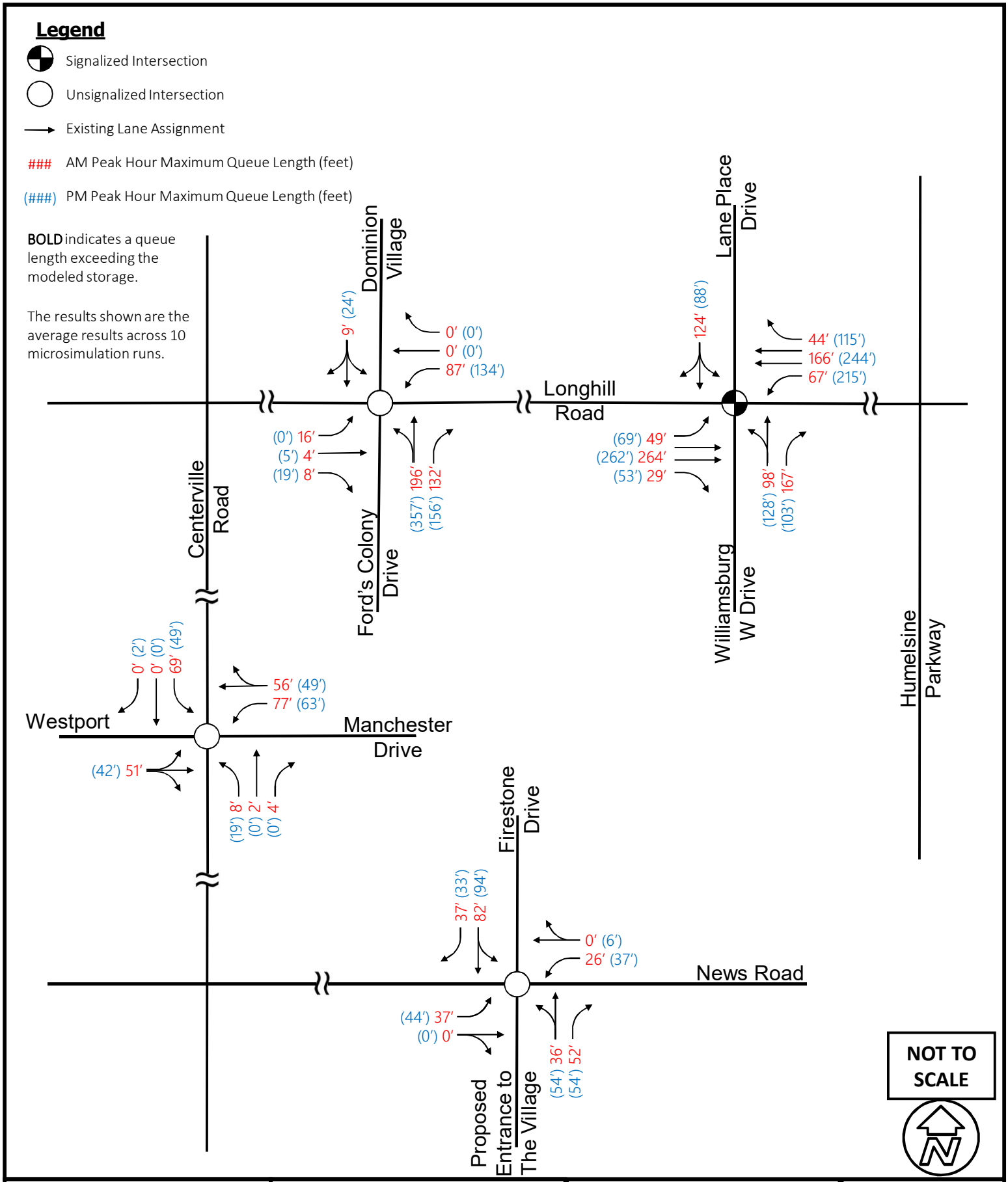

Kimley»Horn	Ford's Colony TIS Update James City County, VA	2027 Build Conditions Maximum Queue Length	FIGURE 28

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8 CONCLUSIONS AND RECOMMENDATIONS

This traffic study examined the existing operational characteristics of the Ford's Colony study area intersections as well as the anticipated impacts associated with the proposed residential condominium/townhouse development located in Ford's Colony in James City County, Virginia. Additionally, this study was completed to meet the requirements of the original proffers (i.e., FCHOA to prepare and submit an updated Traffic Impact Study every five (5)), as well as determine if any of the identified proffered off-site roadway, intersection, or traffic control improvements have been triggered for construction and/or may require accelerated implementation. Based on the results of the No Build and Build traffic analysis, the future impacts of vehicular traffic associated with the background traffic and the proposed development are anticipated to be minimal, with conditions at the study area intersections expected to be maintained at levels comparable to that under existing conditions. Based on the analysis of the existing traffic volumes and operation findings provided in this traffic study, the following recommendations were identified and are summarized below for the Existing conditions:

- **Longhill Road at Williamsburg W. Drive/Lane Place Drive**
  - Maintain the existing geometric configuration and traffic control measures
  - Continue to monitor and implement new timing and coordination plans as part of regular VDOT operations and maintenance
  - It is noted that the Longhill Road Phase 1 Widening Project (VDOT UPC – 100921) includes improvements that will enhance the capacity at this intersection, is fully funded, and currently under construction
- **Longhill Road at Fords Colony Drive**
  - Relocate and restripe the northbound approach STOP bar so driver sight distance is not impeded by the Ford's Colony monument sign and/or vegetation located in the median
  - Restripe the 24-foot wide northbound approach to consist of a 12-foot shared through/left-turn lane and a 12-foot exclusive right-turn lane with 150 feet of storage
  - Continue to monitor traffic volumes to identify when/if the full turn-lane warrant for the eastbound right-turn movement is satisfied
  - Existing traffic volumes and the associated operational conditions (i.e., level of service (LOS)/side street delay) do not warrant or justify the installation of the traffic signal at this time.
  - Although the installation of a traffic signal is specifically referenced in the Ford's Colony proffers, per VDOT policy and roadway design manual guidelines, should volumes warrant the consideration of a traffic signal the intersection will also need to be analyzed for the consideration of a roundabout.
- **Centerville Road at Manchester Drive**
  - Maintain the existing geometric configuration and traffic control measures
- **News Road at Firestone Drive**
  - Maintain the existing geometric configuration and traffic control measures

From the analysis of the Build conditions which included the background traffic growth and approved developments, the following recommendations were identified and are summarized below for the Build conditions:

- **Longhill Road at Williamsburg W. Drive/Lane Place Drive**
  - Continue to monitor and implement new timing and coordination plans as part of regular VDOT operations and maintenance
  - The Longhill Road Phase 1 Widening Project (UPC – 100921) is currently construction. The widening project includes the following improvements to this intersection:
    - Widen Longhill Road to a four-lane divided typical section
    - Upgrade the traffic signal equipment to accommodate the additional through lanes
    - Pedestrian accommodations such as crosswalks, ADA ramps, and pedestrian signal displays for the crossing of select legs of the intersection

    <u>Eastbound Longhill Road</u>
      - Widen and construct an additional approach and receiving through lane

    <u>Westbound Longhill Road</u>
      - Widen and construct an additional approach and receiving through lane
  - Improvements associated with Longhill Road Phase 1 Widening Project (UPC – 100921) address several of the proffered improvements associated with the Ford's Colony Master Plan. Proffers should be updated/modified to account for/recognize these changes in responsibility.
- **Longhill Road at Fords Colony Drive**
  - Based on future traffic volume projections, construct a full width right-turn lane consisting of 200-feet of storage and 200-foot taper for the eastbound approach.
  - Future traffic volumes and the associated future operational conditions (i.e., level of service (LOS)/side street delay) continue to reflect that a traffic signal is not warranted and do not justify the installation of a traffic signal at this intersection.
  - It is noted that the installation of a traffic signal is specifically referenced in the Ford's Colony proffers. However, per VDOT policy and roadway design manual guidelines, if volumes warrant the consideration of a traffic signal then the intersection will also need to be analyzed for the consideration of a roundabout.
  - Additionally, it is noted that the Longhill Road Corridor Study, completed in October 2014, did not recommended the installation of a traffic signal at this intersection as part of the long term (horizon year 2034) improvements. Therefore, it is recommended that a traffic signal should no longer be proffered as a means of traffic control for this intersection.
- **Centerville Road at Manchester Drive**
  - Maintain the existing geometric configuration and traffic control measures
- **News Road at Firestone Drive**
  - Maintain the existing geometric configuration and traffic control measures

Given the minimal residual development potential in Ford's Colony, no additional or proffered improvements are triggered beyond those that were identified under the Existing or Build operational conditions.

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TRAFFIC IMPACT STUDY (TIS) UPDATE

Ford’s Colony Master Plan – Phased Development

James City County, Virginia

Technical Appendices

Prepared for:

Ford's Colony Home Owners Association (FCHOA)

Prepared by:

Kimley»Horn

January 2020

Appendix A: Assumptions Document

The following documentation outlines our proposed traffic impact study (TIS) assumptions for the Ford's Colony Master Plan development, located in James City County and bounded by Longhill Road (State Route 612) to the north, Centerville Road (State Route 614) to the west, News Road (State Route 613) to the south, and a combination of retail/commercial land uses, residential land uses, and Route 199 to the east. As part of this analysis, existing traffic data will be collected and future traffic volumes developed to identify if any of the proffered but unbuilt roadway, intersection, or traffic control improvements at the four (4) access points/study area intersections are experiencing or will experience traffic conditions that are or will trigger the need for construction. Proffered improvements are those described in the Ford's Colony original proffers dated March 11, 1987 and the associated Ford's Colony Phasing Plan for Roadway Improvements agreement approved by the County on June 20, 1988. This includes traffic signal and turn-lane warrant analyses that will be conducted at the defined study area intersections. Recommendations and opinions of probable cost for relevant improvements associated with the potential development will be described in the DRAFT and FINAL report.

Study Area

The study area for the TIS update and the associated proposed development site includes the following signalized and unsignalized intersections:

- County Club Drive/Williamsburg W. Drive at Longhill Road *(signalized)*
- Ford's Colony Drive at Longhill Road *(unsignalized)*
- Manchester Drive at Centerville Road *(unsignalized)*
- Firestone Drive at News Road *(unsignalized)*

Data Collection

Turning movement counts (TMC) were collected at the study area intersections on Thursday, June 8, 2017 which included vehicular, truck, and pedestrian volumes. Four-hour TMCs were conducted during the AM and PM peak periods (6:30 AM to 8:30 AM and 4:00 PM to 6:00 PM) at the following intersections:

- Manchester Drive at Centerville Road
- Country Club Drive/Williamsburg W. Drive at Longhill Road

In preparation for potential signal warrant analysis, 12-hour TMCs (i.e., 6:00 AM to 6:00 PM) were performed at the following intersections:

- Ford's Colony Drive at Longhill Road
- Firestone Drive at News Road

Future Traffic

The proposed development will have an opening year of 2019. Future analyses will coincide with this year. Growth rates will be determined by using rates developed as part of the *Longhill Road Corridor Study*, completed and adopted in October 2014, and historical traffic volume trends over the previous six (6) years (i.e., 2011 to 2016) from the Virginia Department of Transportation (VDOT) data.

- Longhill Road – 2.0% per year (consistent with Longhill Road Corridor Study)
- Centerville Road – 2.5% per year
- News Road – 2.0% per year

Two additional developments adjacent to Ford's Colony have been approved for development and were provided by James City County: The Village's at Ford's Colony and Westport Subdivision at Ford's Colony. These two developments will be included in the background traffic projections in addition to the general traffic growth. For the Villages at Ford's Colony, Kimley-Horn will use *ITE Trip Generation 9th Edition* (2012) Trip Generation Rates and Land Use Code 251: Senior Adult Housing-Detached, Code 252: Senior Adult Housing-Attached, Code 253: Congregate Care Housing, Code 254: Assisted Living, and Code 620: Nursing Home. For the Westport Subdivision at Ford's Colony, Kimley-Horn will use Code 210: Single-Family Detached-Housing. This is consistent with the land use provided in the *Ford's Colony Traffic Impact Study 2003-2004 Update.* The trip distribution and assignment for these approved developments will be based on the previous study's trip distribution percentages. Trip generation calculations for the approved developments are shown in **Table 1 and Table 2**.

Table 1: Trip Generation for The Villages at Ford's Colony Development

ITE Code	ITE Description	Density	Unit	Daily	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
251	Senior Adult Housing - Detached	38	Dwelling Units	200	13	23	36	13	9	22
252	Senior Adult Housing - Attached	168	Dwelling Units	522	11	22	33	23	19	42
253	Congregate Care Housing	390	Dwelling Units	788	14	9	23	36	30	66
254	Assisted Living	83	Beds/Rooms	256	8	4	12	8	10	18
620	Nursing Home	60	Beds/Rooms	120	7	3	10	4	9	13
Total		**739**		**1,886**	**53**	**61**	**114**	**84**	**77**	**161**

Note: It is assumed that there is one bed per room, and therefore each bed is considered one dwelling unit.

Table 2: Trip Generation for Westport Subdivision at Ford's Colony Development

ITE Code	ITE Description	Density	Unit	Daily	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
210	Single-Family Detached Housing	43	Dwelling Units	483	10	30	40	31	18	49

Proposed Land Use

Kimley-Horn will use *ITE Trip Generation 9th Edition* (2012) Trip Generation Rates and Land Use Code 230: Residential Condominium/Townhouse. This is consistent with the land use provided in the *Ford's Colony Traffic Impact Study 2003-2004 Update*. Trip generation calculations for the proposed development are shown in **Table 3**. No pass-by or internal capture rate reductions will be included as part of this analysis.

Table 3: Trip Generation for Residential Development

Land Use (ITE Code)	Dwelling Units	Weekday Total	AM			PM		
			Total	Enter (17%)	Exit (83%)	Total	Enter (67%)	Exit (33%)
Residential Condominium/Townhouse (230)	60 units	412	34	6	28	40	27	13

To assign the hourly site traffic for the future traffic signal warrant analysis, hourly variations will be used for Residential Uses Combined – Excluding Senior-Oriented Facilities as provided in the *Hourly Variation in Trip Generation for Office and Residential Land Uses* article published in the ITE Journal January 2015, as shown in **Table 4** below. It is noted that the hourly trip generation variation for residential land uses is proposed since it is a similar land use and ITE does not provide an applicable hourly variation breakdown for Residential Condominium/Townhouse (230).

Table 4: Hourly Trip Generation Variations for Residential Land Uses

Time	Average Weekday	
	Percent of 24-Hour Entering Traffic	Percent of 24-Hour Exiting Traffic
6 AM – 7 AM	1.6	5.7
7 AM – 8 AM	2.5	9.0
8 AM – 9 AM	3.7	9.1
9 AM – 10 AM	3.7	6.5
10 AM – 11 AM	4.1	5.5
11 AM – 12 PM	4.5	5.7
12 PM – 1 PM	5.3	5.3
1 PM – 2 PM	5.4	5.7
2 PM – 3 PM	6.5	5.9
3 PM – 4 PM	8.1	6.3
4 PM – 5 PM	9.8	6.3
5 PM – 6 PM	10.8	6.5

Site traffic distributions will be determined from existing travel patterns, site location within Ford's Colony, access to/from the external adjacent street network, and employment/activity center destinations in the surrounding area. Based on this, we are assuming that the following distributions will be used for the proposed development:

- 65% of the trips generated will travel to/from the north on Ford's Colony Drive
- 20% of the trips generated will travel to/from the west on Manchester Drive
- 10% of the trips generated will travel to/from the east on Williamsburg W. Drive
- 5% of the trips generated will travel to/from the south on Firestone Drive

Analysis Years

The proposed development is anticipated to be completed in 2019. Therefore, the following analysis scenarios for the AM and PM peak hours will be studied as part of this TIS update.

- Scenario 1 – Existing (2017) traffic conditions
- Scenario 2 – Opening Year (2019) No-Build conditions – Build-out year traffic conditions *with* only background development trips applied (i.e., approved adjacent development traffic)
- Scenario 3 – Opening Year (2019) Build-out conditions – Build-out year traffic conditions *with* background development trips applied *plus* traffic volumes generated by the proposed development
- Scenario 4 – Opening Year +6 years (2025) No-Build conditions – Build-out year traffic conditions *with* only background development trips applied (i.e., approved adjacent development traffic)
- Scenario 5 – Opening Year +6 years (2025) Build-out conditions – Build-out year traffic conditions *with* background development trips applied *plus* traffic volumes generated by the proposed development

Traffic Operations Analysis

Proposed inputs and analysis methodologies will be consistent with VDOT's Traffic Operations and Safety Analysis Manual (TOSAM). Operational analyses for the study area intersections will be conducted using traffic analysis tools (e.g., Synchro 9.1 Professional, SimTraffic 9.1) and Highway Capacity Manual (HCM) methodologies.

The following warrants will be analyzed for the study area intersections for future no-build and build conditions: *Warrant 1 – Eight Hour* and *Warrant 2 – Four Hour*. Kimley-Horn will conduct a traffic signal warrant analysis using the standards provided in the *Manual of Uniform Traffic Control Devices (MUTCD)*. The traffic signal warrant analysis will be performed for the following intersections:

- Ford's Colony Drive at Longhill Road
- Firestone Drive at News Road

Turn-lane warrant analyses will be prepared and evaluated for the intersection of Ford's Colony Drive at Longhill Road. The turn-lane warrant analysis will be consistent with methodologies shown in Appendix C of the VDOT Road Design Manual as well as guidelines provided in Appendix F of the VDOT Access Management Design Standards for Entrances and Intersections. Should a turn-lane be warranted, recommendations for storage length and taper length will be provided.

The future conditions analyses will confirm the need and define the geometric configurations necessary for the proposed roadway and intersection capacity improvements. Measures of effectiveness that will be reported for each scenario will consist of delay per vehicle, level of service (LOS), and maximum queue lengths. These measures of effectiveness will be presented in tabular format. Vehicle delay and LOS will be summarized by movement, approach, and overall intersection, while maximum queue lengths will be summarized for each movement.

Reporting

A TIS report with an accompanying appendix (including all analysis files) will be prepared that summarizes the analysis methodology and results. The report and associated analysis files will be provided in electronic format as a part of the FINAL traffic analysis submittal.

Appendix B: Traffic Count Data

Data Collection Group
LSmith@DataCollectionGroup.net

File Name : Longhill and Country Club
Site Code :
Start Date : 6/8/2017
Page No : 1

Groups Printed- Passenger Veh - Trucks

	Lane Place From North					Longhill From East					Country Club From South					Longhill From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:30 AM	4	0	4	0	8	2	71	1	0	74	26	0	5	0	31	1	84	0	0	85	198
06:45 AM	3	0	9	0	12	3	123	4	0	130	35	1	11	0	47	1	107	0	0	108	297
Total	7	0	13	0	20	5	194	5	0	204	61	1	16	0	78	2	191	0	0	193	495
07:00 AM	1	1	12	0	14	2	147	6	0	155	57	0	15	0	72	4	164	0	0	168	409
07:15 AM	3	0	8	0	11	4	100	7	0	111	52	0	6	0	58	4	158	1	0	163	343
07:30 AM	4	0	17	0	21	5	92	10	0	107	53	1	15	0	69	3	168	1	0	172	369
07:45 AM	9	0	19	0	28	7	121	9	0	137	77	2	10	0	89	9	200	1	0	210	464
Total	17	1	56	0	74	18	460	32	0	510	239	3	46	0	288	20	690	3	0	713	1585
08:00 AM	5	1	11	0	17	4	125	10	0	139	50	0	11	0	61	4	182	1	0	187	404
08:15 AM	0	0	9	0	9	2	129	14	0	145	44	0	6	0	50	5	192	0	0	197	401
Total	5	1	20	0	26	6	254	24	0	284	94	0	17	0	111	9	374	1	0	384	805
04:00 PM	2	0	6	0	8	11	192	45	0	248	33	0	7	0	40	10	155	6	0	171	467
04:15 PM	2	0	4	0	6	7	227	61	0	295	33	0	9	0	42	13	174	4	0	191	534
04:30 PM	8	0	6	0	14	11	211	50	0	272	27	1	5	0	33	11	180	3	0	194	513
04:45 PM	4	0	7	0	11	6	239	61	0	306	33	0	12	0	45	10	181	3	0	194	556
Total	16	0	23	0	39	35	869	217	0	1121	126	1	33	0	160	44	690	16	0	750	2070
05:00 PM	2	0	4	0	6	10	237	49	0	296	34	0	10	0	44	8	198	9	0	215	561
05:15 PM	4	0	6	0	10	16	266	60	0	342	29	0	14	0	43	8	182	2	0	192	587
05:30 PM	4	0	6	0	10	6	235	36	0	277	40	0	14	0	54	9	174	3	0	186	527
05:45 PM	5	0	1	0	6	11	244	44	0	299	32	0	10	0	42	8	172	5	0	185	532
Total	15	0	17	0	32	43	982	189	0	1214	135	0	48	0	183	33	726	19	0	778	2207
Grand Total	60	2	129	0	191	107	2759	467	0	3333	655	5	160	0	820	108	2671	39	0	2818	7162
Apprch %	31.4	1	67.5	0		3.2	82.8	14	0		79.9	0.6	19.5	0		3.8	94.8	1.4	0		
Total %	0.8	0	1.8	0	2.7	1.5	38.5	6.5	0	46.5	9.1	0.1	2.2	0	11.4	1.5	37.3	0.5	0	39.3	
Passenger Veh	55	2	126	0	183	103	2688	464	0	3255	650	2	154	0	806	107	2602	37	0	2746	6990
% Passenger Veh	91.7	100	97.7	0	95.8	96.3	97.4	99.4	0	97.7	99.2	40	96.2	0	98.3	99.1	97.4	94.9	0	97.4	97.6
Trucks	5	0	3	0	8	4	71	3	0	78	5	3	6	0	14	1	69	2	0	72	172
% Trucks	8.3	0	2.3	0	4.2	3.7	2.6	0.6	0	2.3	0.8	60	3.8	0	1.7	0.9	2.6	5.1	0	2.6	2.4

Data Collection Group
LSmith@DataCollectionGroup.net

File Name : Longhill and Country Club
Site Code :
Start Date : 6/8/2017
Page No : 2

	Lane Place From North					Longhill From East					Country Club From South					Longhill From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	4	0	17	0	21	5	92	10	0	107	53	1	**15**	0	69	3	168	**1**	0	172	369
07:45 AM	**9**	0	**19**	0	**28**	**7**	121	9	0	137	**77**	**2**	10	0	**89**	**9**	**200**	1	0	**210**	**464**
08:00 AM	5	**1**	11	0	17	4	125	10	0	139	50	0	11	0	61	4	182	1	0	187	404
08:15 AM	0	0	9	0	9	2	**129**	**14**	0	**145**	44	0	6	0	50	5	192	0	0	197	401
Total Volume	18	1	56	0	75	18	467	43	0	528	224	3	42	0	269	21	742	3	0	766	1638
% App. Total	24	1.3	74.7	0		3.4	88.4	8.1	0		83.3	1.1	15.6	0		2.7	96.9	0.4	0		
PHF	.500	.250	.737	.000	.670	.643	.905	.768	.000	.910	.727	.375	.700	.000	.756	.583	.928	.750	.000	.912	.883
Passenger Veh	16	1	54	0	71	15	449	41	0	505	223	2	39	0	264	21	727	3	0	751	1591
% Passenger Veh	88.9	100	96.4	0	94.7	83.3	96.1	95.3	0	95.6	99.6	66.7	92.9	0	98.1	100	98.0	100	0	98.0	97.1
Trucks	2	0	2	0	4	3	18	2	0	23	1	1	3	0	5	0	15	0	0	15	47
% Trucks	11.1	0	3.6	0	5.3	16.7	3.9	4.7	0	4.4	0.4	33.3	7.1	0	1.9	0	2.0	0	0	2.0	2.9

Data Collection Group
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File Name : Longhill and Country Club
Site Code :
Start Date : 6/8/2017
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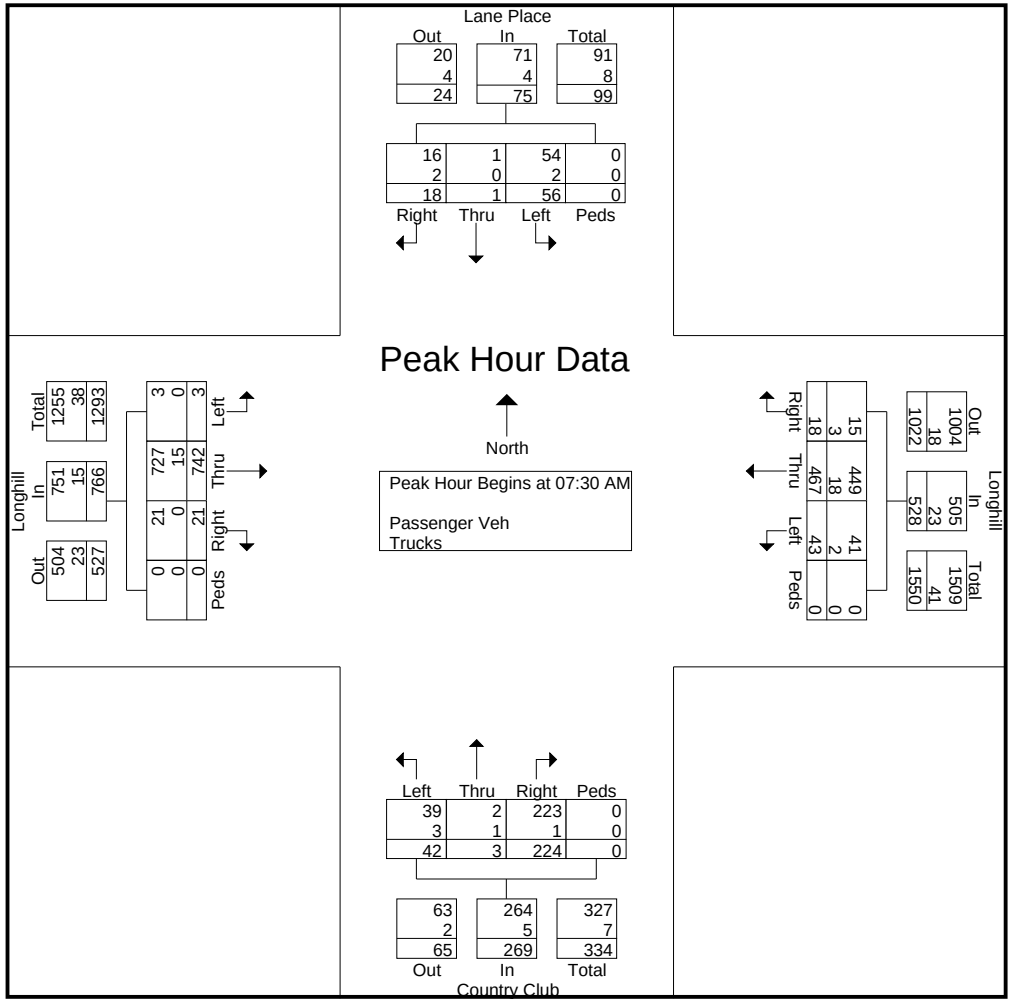

Data Collection Group
LSmith@DataCollectionGroup.net

File Name : Longhill and Country Club
Site Code :
Start Date : 6/8/2017
Page No : 4

	Lane Place From North					Longhill From East					Country Club From South					Longhill From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	**4**	0	**7**	0	**11**	6	239	**61**	0	306	33	0	12	0	45	**10**	181	3	0	194	556
05:00 PM	2	0	4	0	6	10	237	49	0	296	34	0	10	0	44	8	**198**	**9**	0	**215**	561
05:15 PM	4	0	6	0	10	**16**	**266**	60	0	**342**	29	0	**14**	0	43	8	182	2	0	192	**587**
05:30 PM	4	0	6	0	10	6	235	36	0	277	**40**	0	14	0	**54**	9	174	3	0	186	527
Total Volume	14	0	23	0	37	38	977	206	0	1221	136	0	50	0	186	35	735	17	0	787	2231
% App. Total	37.8	0	62.2	0		3.1	80	16.9	0		73.1	0	26.9	0		4.4	93.4	2.2	0		
PHF	.875	.000	.821	.000	.841	.594	.918	.844	.000	.893	.850	.000	.893	.000	.861	.875	.928	.472	.000	.915	.950
Passenger Veh	13	0	23	0	36	38	967	206	0	1211	132	0	49	0	181	35	716	17	0	768	2196
% Passenger Veh	92.9	0	100	0	97.3	100	99.0	100	0	99.2	97.1	0	98.0	0	97.3	100	97.4	100	0	97.6	98.4
Trucks	1	0	0	0	1	0	10	0	0	10	4	0	1	0	5	0	19	0	0	19	35
% Trucks	7.1	0	0	0	2.7	0	1.0	0	0	0.8	2.9	0	2.0	0	2.7	0	2.6	0	0	2.4	1.6

Data Collection Group
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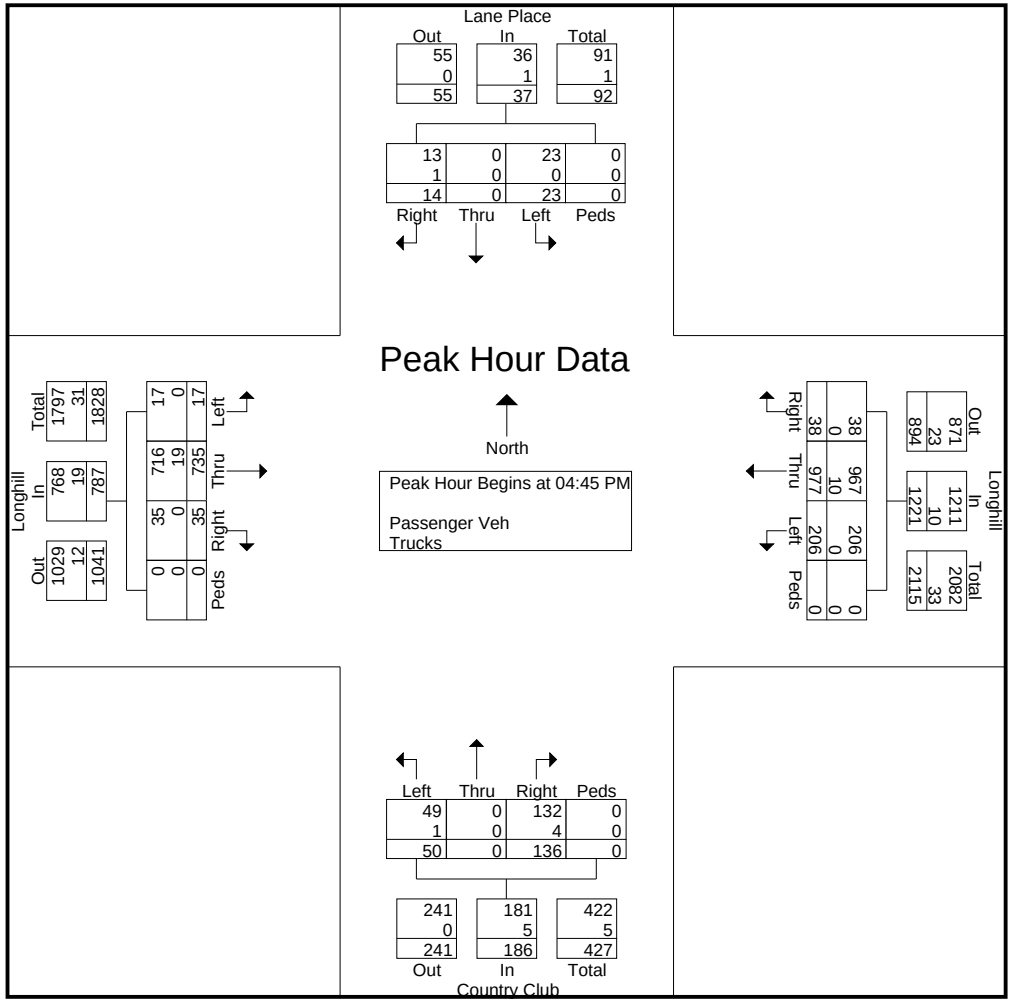
File Name : Longhill and Country Club
Site Code :
Start Date : 6/8/2017
Page No : 5



Data Collection Group
LSmith@DataCollectionGroup.net

File Name : Longhill and Fords Colony
Site Code : 13333333
Start Date : 6/8/2017
Page No : 1

Groups Printed- Passenger Veh - Trucks

	Entrance From North					Longhill From East					Fords Colony From South					Longhill From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	0	0	0	0	0	1	10	3	0	14	8	0	4	0	12	3	16	0	0	19	45
06:15 AM	1	0	1	0	2	1	13	1	0	15	6	0	2	0	8	2	21	1	0	24	49
06:30 AM	0	0	0	0	0	1	19	7	0	27	7	0	2	0	9	0	26	0	0	26	62
06:45 AM	0	0	0	0	0	1	36	9	0	46	25	0	6	0	31	2	55	1	0	58	135
Total	1	0	1	0	2	4	78	20	0	102	46	0	14	0	60	7	118	2	0	127	291
07:00 AM	0	0	1	0	1	1	46	11	0	58	39	1	3	0	43	2	51	0	0	53	155
07:15 AM	1	0	0	0	1	0	55	20	0	75	26	0	16	0	42	8	64	0	0	72	190
07:30 AM	0	0	0	0	0	0	68	19	0	87	28	0	15	0	43	4	56	0	0	60	190
07:45 AM	0	0	0	0	0	0	55	30	0	85	37	0	15	0	52	7	84	1	0	92	229
Total	1	0	1	0	2	1	224	80	0	305	130	1	49	0	180	21	255	1	0	277	764
08:00 AM	0	0	0	0	0	1	53	28	0	82	36	0	15	0	51	10	69	2	0	81	214
08:15 AM	0	1	0	0	1	0	90	29	0	119	29	1	25	0	55	15	84	0	0	99	274
08:30 AM	0	0	0	0	0	0	63	39	0	102	42	0	10	0	52	14	80	0	0	94	248
08:45 AM	0	0	1	0	1	1	52	45	0	98	32	0	10	0	42	12	56	0	0	68	209
Total	0	1	1	0	2	2	258	141	0	401	139	1	60	0	200	51	289	2	0	342	945
09:00 AM	0	0	0	0	0	1	56	27	0	84	22	0	11	0	33	12	58	1	0	71	188
09:15 AM	0	0	0	0	0	0	48	25	0	73	25	0	9	0	34	10	66	0	0	76	183
09:30 AM	0	0	1	0	1	1	36	20	0	57	37	0	12	0	49	11	61	1	0	73	180
09:45 AM	0	0	0	0	0	0	38	48	0	86	43	0	10	0	53	12	63	0	0	75	214
Total	0	0	1	0	1	2	178	120	0	300	127	0	42	0	169	45	248	2	0	295	765
10:00 AM	1	0	0	0	1	0	53	30	0	83	44	0	17	0	61	9	36	0	0	45	190
10:15 AM	0	0	1	0	1	0	41	28	0	69	41	0	16	0	57	14	49	0	0	63	190
10:30 AM	1	0	0	0	1	1	41	20	0	62	34	0	14	0	48	5	39	1	0	45	156
10:45 AM	1	0	1	0	2	0	40	28	0	68	29	3	14	0	46	10	42	1	0	53	169
Total	3	0	2	0	5	1	175	106	0	282	148	3	61	0	212	38	166	2	0	206	705
11:00 AM	1	0	1	0	2	1	37	32	0	70	35	0	6	0	41	15	39	1	0	55	168
11:15 AM	0	0	0	0	0	2	38	30	0	70	24	0	9	0	33	11	48	0	0	59	162
11:30 AM	0	0	1	0	1	0	45	33	0	78	25	2	14	0	41	12	53	1	0	66	186
11:45 AM	0	0	3	0	3	0	49	41	0	90	33	0	12	0	45	17	49	0	0	66	204
Total	1	0	5	0	6	3	169	136	0	308	117	2	41	0	160	55	189	2	0	246	720
12:00 PM	1	1	0	0	2	2	56	51	0	109	29	1	13	0	43	9	44	0	0	53	207
12:15 PM	2	0	0	0	2	3	48	33	0	84	30	0	5	0	35	18	34	2	0	54	175
12:30 PM	0	1	0	0	1	0	46	33	0	79	29	1	9	0	39	11	37	0	0	48	167
12:45 PM	0	0	0	0	0	0	46	34	0	80	36	0	19	0	55	21	52	0	0	73	208
Total	3	2	0	0	5	5	196	151	0	352	124	2	46	0	172	59	167	2	0	228	757

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File Name : Longhill and Fords Colony
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Groups Printed- Passenger Veh - Trucks

	Entrance From North					Longhill From East					Fords Colony From South					Longhill From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
01:00 PM	2	0	0	0	2	1	35	31	0	67	38	0	15	0	53	12	38	0	0	50	172
01:15 PM	0	0	1	0	1	4	62	40	0	106	28	0	10	0	38	11	59	0	0	70	215
01:30 PM	0	1	3	0	4	2	45	27	0	74	20	0	8	0	28	11	38	0	0	49	155
01:45 PM	2	0	3	0	5	2	32	20	0	54	28	0	9	0	37	8	59	1	0	68	164
Total	4	1	7	0	12	9	174	118	0	301	114	0	42	0	156	42	194	1	0	237	706
02:00 PM	0	0	0	0	0	1	64	42	0	107	42	1	18	0	61	12	51	3	0	66	234
02:15 PM	1	0	1	0	2	1	60	51	0	112	29	0	5	0	34	15	43	0	0	58	206
02:30 PM	2	0	2	0	4	1	83	37	0	121	29	0	10	0	39	16	55	1	0	72	236
02:45 PM	2	0	0	0	2	0	86	51	0	137	34	0	19	0	53	8	55	1	0	64	256
Total	5	0	3	0	8	3	293	181	0	477	134	1	52	0	187	51	204	5	0	260	932
03:00 PM	1	0	2	0	3	0	58	41	0	99	31	0	15	0	46	16	45	0	0	61	209
03:15 PM	1	0	4	0	5	1	73	32	0	106	29	0	14	0	43	30	105	0	0	135	289
03:30 PM	3	0	1	0	4	1	77	45	0	123	30	0	14	0	44	20	75	1	0	96	267
03:45 PM	0	0	1	0	1	0	60	43	0	103	36	2	27	0	65	15	63	1	0	79	248
Total	5	0	8	0	13	2	268	161	0	431	126	2	70	0	198	81	288	2	0	371	1013
04:00 PM	0	1	0	0	1	0	68	31	0	99	32	0	16	0	48	12	77	0	0	89	237
04:15 PM	0	0	1	0	1	1	61	37	0	99	27	0	9	0	36	16	84	6	0	106	242
04:30 PM	1	0	0	0	1	0	74	38	0	112	27	1	13	0	41	9	77	1	0	87	241
04:45 PM	1	0	0	0	1	0	65	50	0	115	30	1	14	0	45	19	93	0	0	112	273
Total	2	1	1	0	4	1	268	156	0	425	116	2	52	0	170	56	331	7	0	394	993
05:00 PM	3	0	0	0	3	1	63	39	0	103	31	2	4	0	37	11	78	0	0	89	232
05:15 PM	0	0	1	0	1	1	79	47	0	127	25	0	14	0	39	9	86	0	0	95	262
05:30 PM	1	0	3	0	4	0	75	56	0	131	35	0	13	0	48	14	83	0	0	97	280
05:45 PM	0	0	0	0	0	0	53	44	0	97	39	0	5	0	44	13	81	0	0	94	235
Total	4	0	4	0	8	2	270	186	0	458	130	2	36	0	168	47	328	0	0	375	1009
Grand Total	29	5	34	0	68	35	2551	1556	0	4142	1451	16	565	0	2032	553	2777	28	0	3358	9600
Apprch %	42.6	7.4	50	0		0.8	61.6	37.6	0		71.4	0.8	27.8	0		16.5	82.7	0.8	0		
Total %	0.3	0.1	0.4	0	0.7	0.4	26.6	16.2	0	43.1	15.1	0.2	5.9	0	21.2	5.8	28.9	0.3	0	35	
Passenger Veh	29	4	34	0	67	35	2433	1538	0	4006	1443	15	551	0	2009	537	2645	27	0	3209	9291
% Passenger Veh	100	80	100	0	98.5	100	95.4	98.8	0	96.7	99.4	93.8	97.5	0	98.9	97.1	95.2	96.4	0	95.6	96.8
Trucks	0	1	0	0	1	0	118	18	0	136	8	1	14	0	23	16	132	1	0	149	309
% Trucks	0	20	0	0	1.5	0	4.6	1.2	0	3.3	0.6	6.2	2.5	0	1.1	2.9	4.8	3.6	0	4.4	3.2

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Site Code : 13333333
Start Date : 6/8/2017
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	Entrance From North					Longhill From East					Fords Colony From South					Longhill From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	0	0	0	0	0	55	30	0	85	37	0	15	0	52	7	**84**	1	0	92	229
08:00 AM	0	0	0	0	0	**1**	53	28	0	82	36	0	15	0	51	10	69	**2**	0	81	214
08:15 AM	0	**1**	0	0	**1**	0	**90**	29	0	**119**	29	**1**	**25**	0	**55**	**15**	84	0	0	**99**	**274**
08:30 AM	0	0	0	0	0	0	63	**39**	0	102	**42**	0	10	0	52	14	80	0	0	94	248
Total Volume	0	1	0	0	1	1	261	126	0	388	144	1	65	0	210	46	317	3	0	366	965
% App. Total	0	100	0	0		0.3	67.3	32.5	0		68.6	0.5	31	0		12.6	86.6	0.8	0		
PHF	.000	.250	.000	.000	.250	.250	.725	.808	.000	.815	.857	.250	.650	.000	.955	.767	.943	.375	.000	.924	.880
Passenger Veh	0	1	0	0	1	1	244	123	0	368	143	1	59	0	203	44	296	3	0	343	915
% Passenger Veh	0	100	0	0	100	100	93.5	97.6	0	94.8	99.3	100	90.8	0	96.7	95.7	93.4	100	0	93.7	94.8
Trucks	0	0	0	0	0	0	17	3	0	20	1	0	6	0	7	2	21	0	0	23	50
% Trucks	0	0	0	0	0	0	6.5	2.4	0	5.2	0.7	0	9.2	0	3.3	4.3	6.6	0	0	6.3	5.2

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File Name : Longhill and Fords Colony
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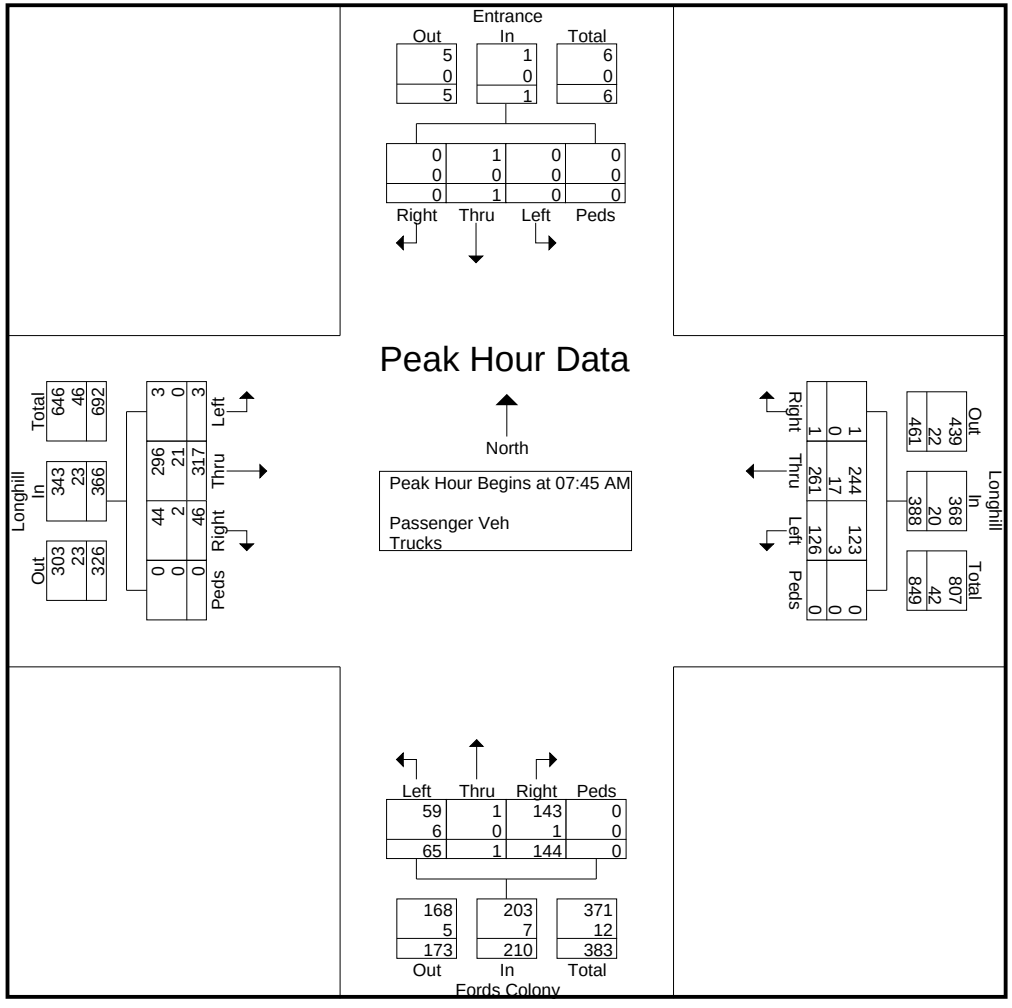

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File Name : Longhill and Fords Colony
Site Code : 13333333
Start Date : 6/8/2017
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	Entrance From North					Longhill From East					Fords Colony From South					Longhill From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	0	0	1	0	1	0	45	33	0	78	25	**2**	**14**	0	41	12	**53**	1	0	**66**	186
11:45 AM	0	0	**3**	0	**3**	0	49	41	0	90	**33**	0	12	0	**45**	17	49	0	0	66	204
12:00 PM	1	**1**	0	0	2	2	**56**	**51**	0	**109**	29	1	13	0	43	9	44	0	0	53	**207**
12:15 PM	**2**	0	0	0	2	**3**	48	33	0	84	30	0	5	0	35	**18**	34	**2**	0	54	175
Total Volume	3	1	4	0	8	5	198	158	0	361	117	3	44	0	164	56	180	3	0	239	772
% App. Total	37.5	12.5	50	0		1.4	54.8	43.8	0		71.3	1.8	26.8	0		23.4	75.3	1.3	0		
PHF	.375	.250	.333	.000	.667	.417	.884	.775	.000	.828	.886	.375	.786	.000	.911	.778	.849	.375	.000	.905	.932
Passenger Veh	3	1	4	0	8	5	193	154	0	352	117	3	44	0	164	56	177	2	0	235	759
% Passenger Veh	100	100	100	0	100	100	97.5	97.5	0	97.5	100	100	100	0	100	100	98.3	66.7	0	98.3	98.3
Trucks	0	0	0	0	0	0	5	4	0	9	0	0	0	0	0	0	3	1	0	4	13
% Trucks	0	0	0	0	0	0	2.5	2.5	0	2.5	0	0	0	0	0	0	1.7	33.3	0	1.7	1.7

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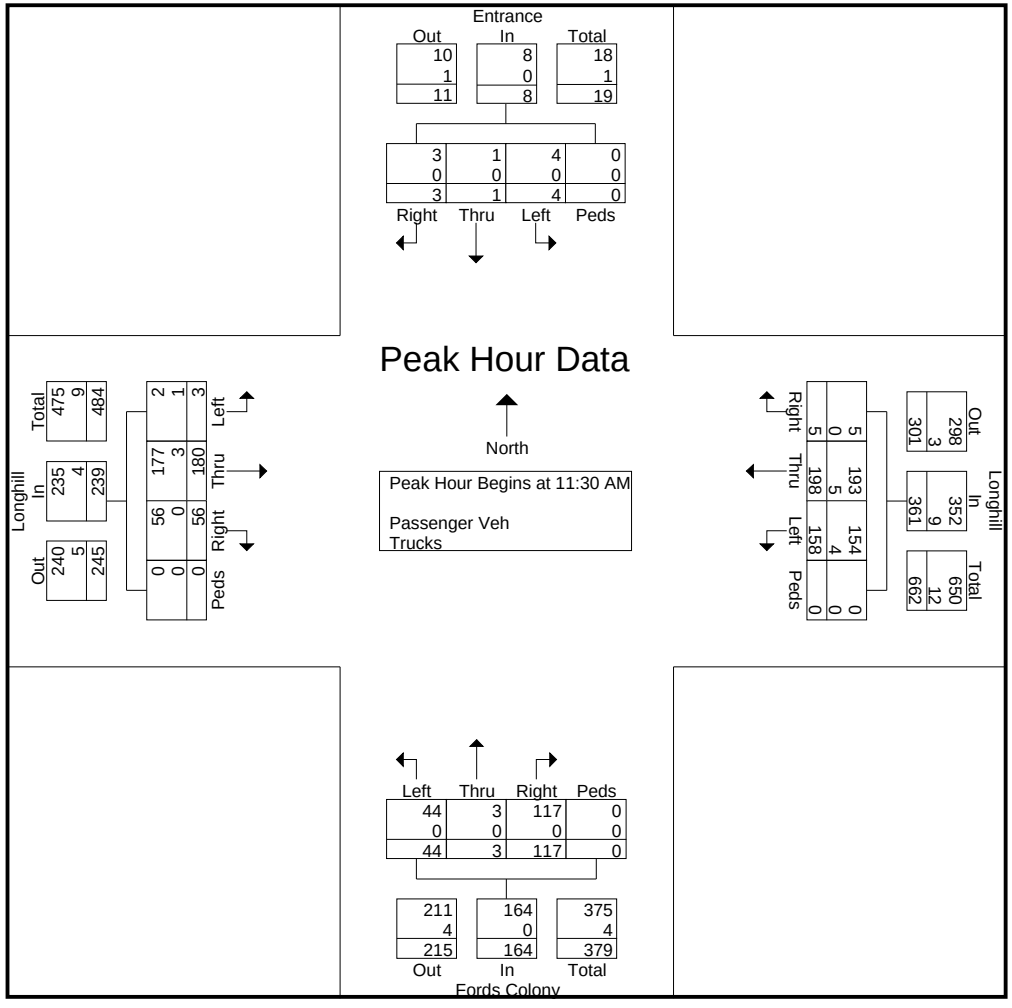

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File Name : Longhill and Fords Colony
Site Code : 13333333
Start Date : 6/8/2017
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	Entrance From North					Longhill From East					Fords Colony From South					Longhill From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	1	0	0	0	1	0	65	50	0	115	30	1	**14**	0	45	**19**	**93**	0	0	**112**	273
05:00 PM	**3**	0	0	0	3	**1**	63	39	0	103	31	**2**	4	0	37	11	78	0	0	89	232
05:15 PM	0	0	1	0	1	1	**79**	47	0	127	25	0	14	0	39	9	86	0	0	95	262
05:30 PM	1	0	**3**	0	**4**	0	75	**56**	0	**131**	**35**	0	13	0	**48**	14	83	0	0	97	**280**
Total Volume	5	0	4	0	9	2	282	192	0	476	121	3	45	0	169	53	340	0	0	393	1047
% App. Total	55.6	0	44.4	0		0.4	59.2	40.3	0		71.6	1.8	26.6	0		13.5	86.5	0	0		
PHF	.417	.000	.333	.000	.563	.500	.892	.857	.000	.908	.864	.375	.804	.000	.880	.697	.914	.000	.000	.877	.935
Passenger Veh	5	0	4	0	9	2	277	192	0	471	119	2	45	0	166	53	337	0	0	390	1036
% Passenger Veh	100	0	100	0	100	100	98.2	100	0	98.9	98.3	66.7	100	0	98.2	100	99.1	0	0	99.2	98.9
Trucks	0	0	0	0	0	0	5	0	0	5	2	1	0	0	3	0	3	0	0	3	11
% Trucks	0	0	0	0	0	0	1.8	0	0	1.1	1.7	33.3	0	0	1.8	0	0.9	0	0	0.8	1.1

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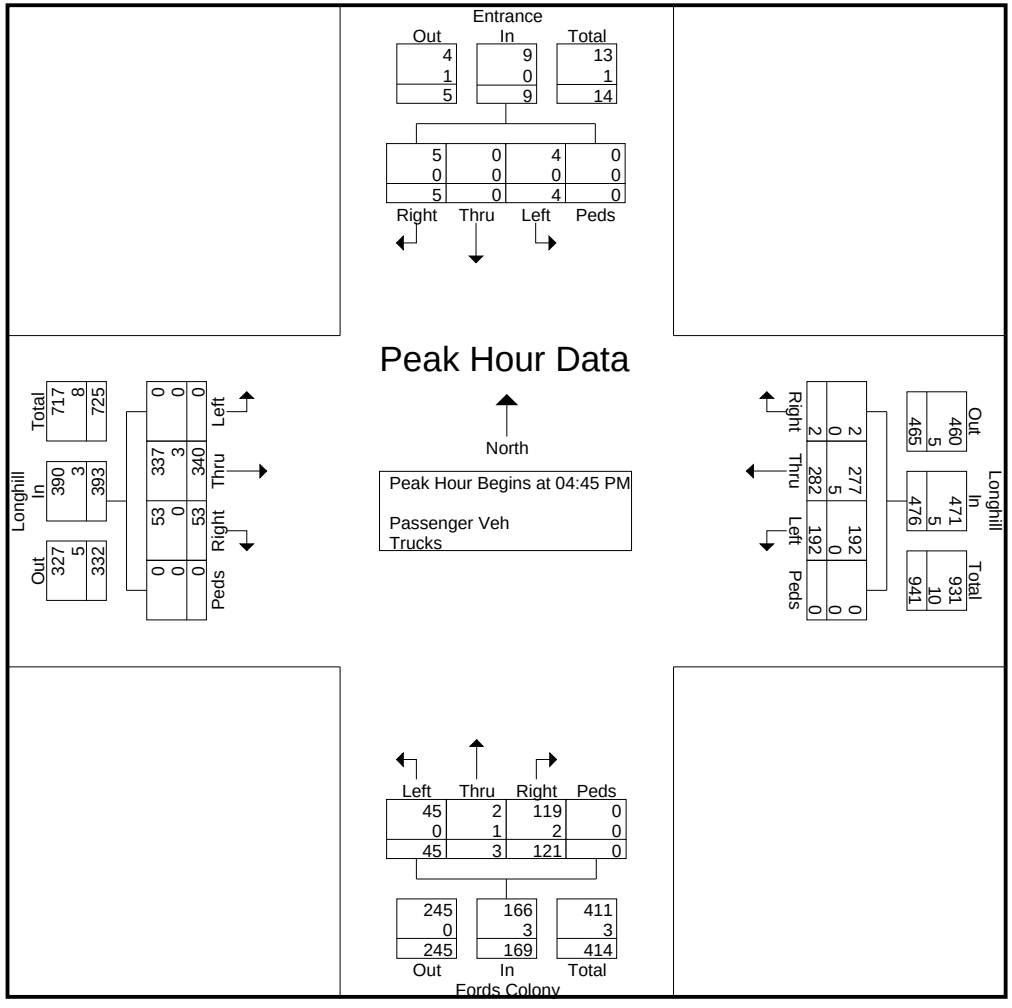

Data Collection Group
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File Name : Centerville and Manchester
Site Code :
Start Date : 6/8/2017
Page No : 1

Groups Printed- Passenger Veh - Trucks

	Centerville From North					Manchester From East					Centerville From South					Westport From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:30 AM	0	19	6	0	25	3	0	4	0	7	2	31	1	0	34	1	0	0	0	1	67
06:45 AM	0	28	10	0	38	7	0	7	0	14	4	54	0	0	58	0	0	0	0	0	110
Total	0	47	16	0	63	10	0	11	0	21	6	85	1	0	92	1	0	0	0	1	177
07:00 AM	1	29	1	0	31	7	0	9	0	16	5	57	0	0	62	1	0	0	0	1	110
07:15 AM	0	52	7	0	59	10	0	13	0	23	6	77	2	0	85	0	0	0	0	0	167
07:30 AM	2	36	9	0	47	11	0	12	0	23	11	123	1	0	135	0	1	2	0	3	208
07:45 AM	0	58	10	0	68	10	0	15	0	25	10	85	1	0	96	0	0	1	0	1	190
Total	3	175	27	0	205	38	0	49	0	87	32	342	4	0	378	1	1	3	0	5	675
08:00 AM	0	55	14	0	69	8	0	16	0	24	10	61	0	0	71	0	0	1	0	1	165
08:15 AM	1	61	17	0	79	18	0	11	0	29	12	68	0	0	80	2	0	0	0	2	190
Total	1	116	31	0	148	26	0	27	0	53	22	129	0	0	151	2	0	1	0	3	355
04:00 PM	0	59	11	0	70	5	2	11	0	18	17	74	0	0	91	1	0	1	0	2	181
04:15 PM	0	58	4	0	62	1	0	9	0	10	16	65	0	0	81	0	0	1	0	1	154
04:30 PM	1	45	5	0	51	6	0	7	0	13	13	85	0	0	98	2	1	0	0	3	165
04:45 PM	0	61	5	0	66	7	0	15	0	22	21	71	0	0	92	1	1	2	0	4	184
Total	1	223	25	0	249	19	2	42	0	63	67	295	0	0	362	4	2	4	0	10	684
05:00 PM	0	60	6	0	66	9	0	12	0	21	16	66	0	0	82	0	0	0	0	0	169
05:15 PM	2	59	7	0	68	5	0	8	0	13	14	74	2	0	90	1	0	0	0	1	172
05:30 PM	0	57	5	0	62	7	0	12	0	19	13	79	0	0	92	0	0	1	0	1	174
05:45 PM	1	58	9	0	68	5	0	13	0	18	13	46	2	0	61	1	0	2	0	3	150
Total	3	234	27	0	264	26	0	45	0	71	56	265	4	0	325	2	0	3	0	5	665
Grand Total	8	795	126	0	929	119	2	174	0	295	183	1116	9	0	1308	10	3	11	0	24	2556
Apprch %	0.9	85.6	13.6	0		40.3	0.7	59	0		14	85.3	0.7	0		41.7	12.5	45.8	0		
Total %	0.3	31.1	4.9	0	36.3	4.7	0.1	6.8	0	11.5	7.2	43.7	0.4	0	51.2	0.4	0.1	0.4	0	0.9	
Passenger Veh	6	752	117	0	875	114	2	170	0	286	165	1050	8	0	1223	9	3	10	0	22	2406
% Passenger Veh	75	94.6	92.9	0	94.2	95.8	100	97.7	0	96.9	90.2	94.1	88.9	0	93.5	90	100	90.9	0	91.7	94.1
Trucks	2	43	9	0	54	5	0	4	0	9	18	66	1	0	85	1	0	1	0	2	150
% Trucks	25	5.4	7.1	0	5.8	4.2	0	2.3	0	3.1	9.8	5.9	11.1	0	6.5	10	0	9.1	0	8.3	5.9

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File Name : Centerville and Manchester
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	Centerville From North					Manchester From East					Centerville From South					Westport From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	**2**	36	9	0	47	11	0	12	0	23	11	**123**	**1**	0	**135**	0	**1**	**2**	0	**3**	**208**
07:45 AM	0	58	10	0	68	10	0	15	0	25	10	85	1	0	96	0	0	1	0	1	190
08:00 AM	0	55	14	0	69	8	0	**16**	0	24	10	61	0	0	71	0	0	1	0	1	165
08:15 AM	1	**61**	**17**	0	**79**	**18**	0	11	0	**29**	**12**	68	0	0	80	**2**	0	0	0	2	190
Total Volume	3	210	50	0	263	47	0	54	0	101	43	337	2	0	382	2	1	4	0	7	753
% App. Total	1.1	79.8	19	0		46.5	0	53.5	0		11.3	88.2	0.5	0		28.6	14.3	57.1	0		
PHF	.375	.861	.735	.000	.832	.653	.000	.844	.000	.871	.896	.685	.500	.000	.707	.250	.250	.500	.000	.583	.905
Passenger Veh	1	193	42	0	236	45	0	52	0	97	32	310	2	0	344	2	1	4	0	7	684
% Passenger Veh	33.3	91.9	84.0	0	89.7	95.7	0	96.3	0	96.0	74.4	92.0	100	0	90.1	100	100	100	0	100	90.8
Trucks	2	17	8	0	27	2	0	2	0	4	11	27	0	0	38	0	0	0	0	0	69
% Trucks	66.7	8.1	16.0	0	10.3	4.3	0	3.7	0	4.0	25.6	8.0	0	0	9.9	0	0	0	0	0	9.2

Data Collection Group
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File Name : Centerville and Manchester
Site Code :
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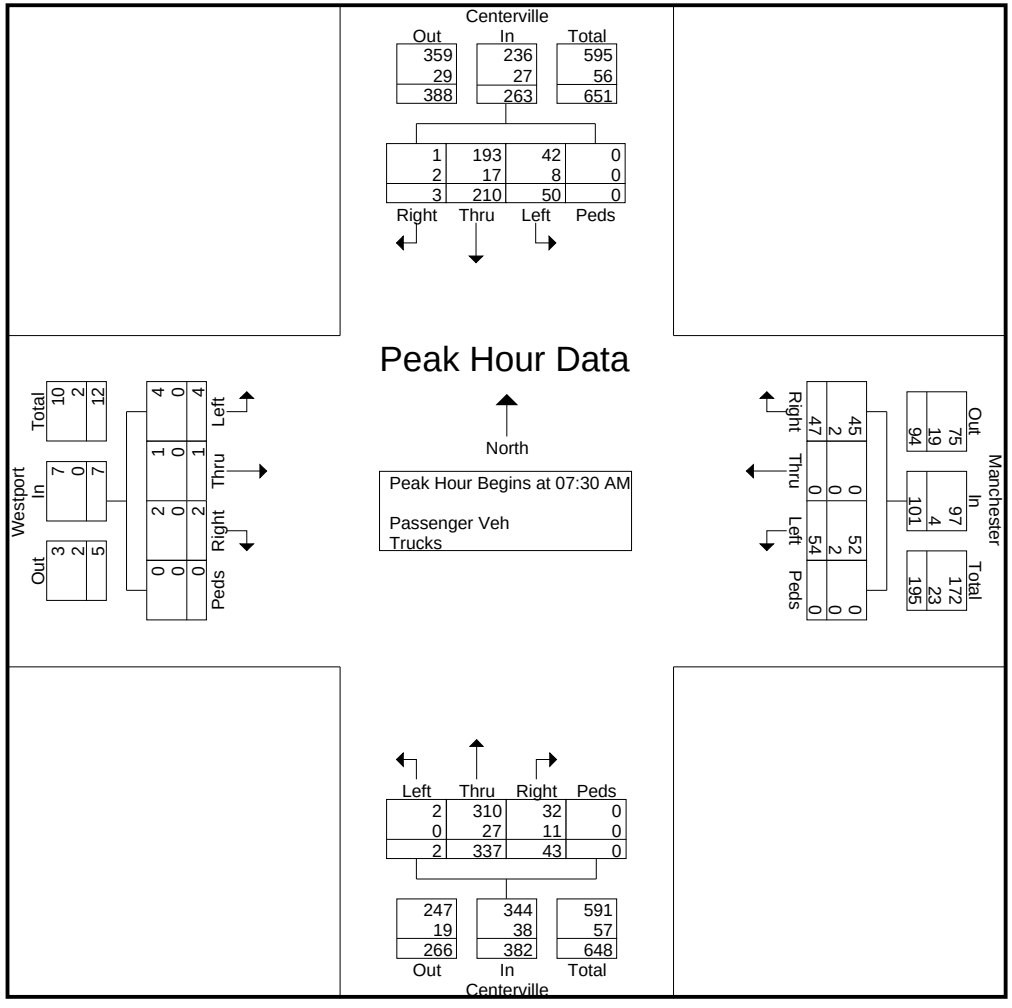

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File Name : Centerville and Manchester
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Start Date : 6/8/2017
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	Centerville From North					Manchester From East					Centerville From South					Westport From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	**61**	5	0	66	7	0	**15**	0	**22**	**21**	71	0	0	**92**	**1**	**1**	**2**	0	**4**	**184**
05:00 PM	0	60	6	0	66	**9**	0	12	0	21	16	66	0	0	82	0	0	0	0	0	169
05:15 PM	**2**	59	**7**	0	**68**	5	0	8	0	13	14	74	**2**	0	90	1	0	0	0	1	172
05:30 PM	0	57	5	0	62	7	0	12	0	19	13	**79**	0	0	92	0	0	1	0	1	174
Total Volume	2	237	23	0	262	28	0	47	0	75	64	290	2	0	356	2	1	3	0	6	699
% App. Total	0.8	90.5	8.8	0		37.3	0	62.7	0		18	81.5	0.6	0		33.3	16.7	50	0		
PHF	.250	.971	.821	.000	.963	.778	.000	.783	.000	.852	.762	.918	.250	.000	.967	.500	.250	.375	.000	.375	.950
Passenger Veh	2	233	23	0	258	27	0	47	0	74	62	281	2	0	345	2	1	3	0	6	683
% Passenger Veh	100	98.3	100	0	98.5	96.4	0	100	0	98.7	96.9	96.9	100	0	96.9	100	100	100	0	100	97.7
Trucks	0	4	0	0	4	1	0	0	0	1	2	9	0	0	11	0	0	0	0	0	16
% Trucks	0	1.7	0	0	1.5	3.6	0	0	0	1.3	3.1	3.1	0	0	3.1	0	0	0	0	0	2.3

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File Name : Centerville and Manchester
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Start Date : 6/8/2017
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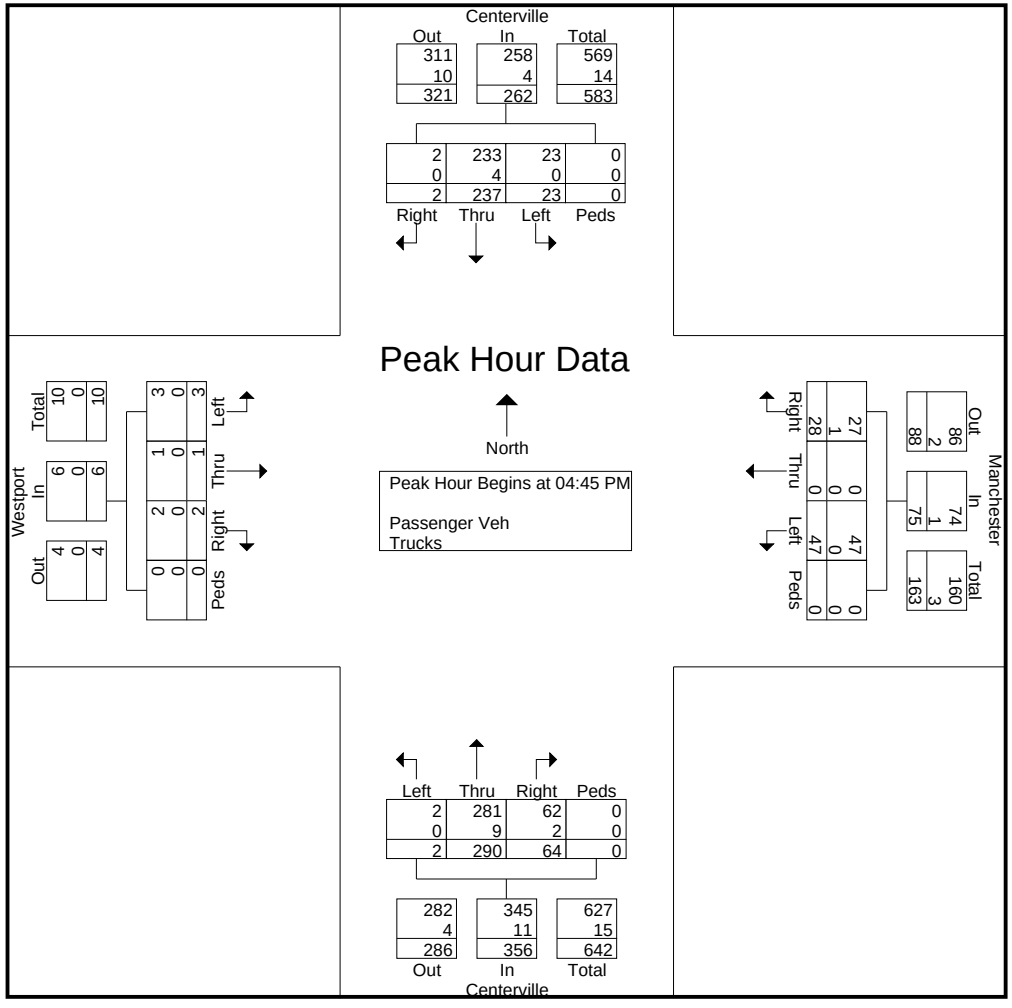

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File Name : News and Firestone
Site Code : 00681114
Start Date : 6/8/2017
Page No : 1

Groups Printed- Passenger Veh - Trucks

	Firestone From North					News From East					From South					News From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	0	0	7	0	7	0	3	0	0	3	0	0	0	0	0	0	17	0	0	17	27
06:15 AM	0	0	5	0	5	1	6	0	0	7	0	0	0	0	0	0	21	0	0	21	33
06:30 AM	1	0	16	0	17	3	6	0	0	9	0	0	0	0	0	0	26	0	0	26	52
06:45 AM	1	0	14	0	15	1	14	0	0	15	0	0	0	0	0	0	27	0	0	27	57
Total	2	0	42	0	44	5	29	0	0	34	0	0	0	0	0	0	91	0	0	91	169
07:00 AM	2	0	18	0	20	2	23	0	0	25	0	0	0	0	0	0	36	0	0	36	81
07:15 AM	2	0	15	0	17	2	21	0	0	23	0	0	0	0	0	0	47	0	0	47	87
07:30 AM	1	0	24	0	25	9	30	0	0	39	0	0	0	0	0	0	49	0	0	49	113
07:45 AM	5	0	15	0	20	11	29	0	0	40	0	0	0	0	0	0	55	2	0	57	117
Total	10	0	72	0	82	24	103	0	0	127	0	0	0	0	0	0	187	2	0	189	398
08:00 AM	4	0	27	0	31	11	31	0	0	42	0	0	0	0	0	0	39	3	0	42	115
08:15 AM	7	0	19	0	26	12	35	0	0	47	0	0	0	0	0	0	45	5	0	50	123
08:30 AM	1	0	30	0	31	9	25	0	0	34	0	0	0	0	0	0	58	4	0	62	127
08:45 AM	2	0	18	0	20	11	40	0	0	51	0	0	0	0	0	0	61	1	0	62	133
Total	14	0	94	0	108	43	131	0	0	174	0	0	0	0	0	0	203	13	0	216	498
09:00 AM	3	0	25	0	28	13	46	0	0	59	0	0	0	0	0	0	66	0	0	66	153
09:15 AM	5	0	22	0	27	16	25	0	0	41	0	0	0	0	0	0	38	1	0	39	107
09:30 AM	4	0	18	0	22	13	29	0	0	42	0	0	0	0	0	0	36	1	0	37	101
09:45 AM	4	0	22	0	26	19	22	0	0	41	0	0	0	0	0	0	35	0	0	35	102
Total	16	0	87	0	103	61	122	0	0	183	0	0	0	0	0	0	175	2	0	177	463
10:00 AM	1	0	19	0	20	22	28	0	0	50	0	0	0	0	0	0	34	2	0	36	106
10:15 AM	4	0	29	0	33	10	32	0	0	42	0	0	0	0	0	0	37	0	0	37	112
10:30 AM	3	0	27	0	30	13	22	0	0	35	0	0	0	0	0	0	39	1	0	40	105
10:45 AM	3	0	35	0	38	33	35	0	0	68	0	0	0	0	0	0	43	1	0	44	150
Total	11	0	110	0	121	78	117	0	0	195	0	0	0	0	0	0	153	4	0	157	473
11:00 AM	3	0	22	0	25	31	30	0	0	61	0	0	0	0	0	0	31	2	0	33	119
11:15 AM	6	0	22	0	28	20	35	0	0	55	0	0	0	0	0	0	41	1	0	42	125
11:30 AM	0	0	31	0	31	21	52	0	0	73	0	0	0	0	0	0	43	0	0	43	147
11:45 AM	2	0	29	0	31	33	35	0	0	68	0	0	0	0	0	0	31	3	0	34	133
Total	11	0	104	0	115	105	152	0	0	257	0	0	0	0	0	0	146	6	0	152	524
12:00 PM	3	0	19	0	22	29	23	0	0	52	0	0	0	0	0	0	32	3	0	35	109
12:15 PM	3	0	26	0	29	33	40	0	0	73	0	0	0	0	0	0	36	2	0	38	140
12:30 PM	0	0	21	0	21	29	44	0	0	73	0	0	0	0	0	0	33	2	0	35	129
12:45 PM	6	0	17	0	23	35	65	0	0	100	0	0	0	0	0	0	41	4	0	45	168
Total	12	0	83	0	95	126	172	0	0	298	0	0	0	0	0	0	142	11	0	153	546

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Groups Printed- Passenger Veh - Trucks

	Firestone From North					News From East					From South					News From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
01:00 PM	6	0	32	0	38	28	39	0	0	67	0	0	0	0	0	0	47	0	0	47	152
01:15 PM	0	0	30	0	30	25	44	0	0	69	0	0	0	0	0	0	31	4	0	35	134
01:30 PM	1	0	27	0	28	21	34	0	0	55	0	0	0	0	0	0	40	0	0	40	123
01:45 PM	3	0	25	0	28	32	41	0	0	73	0	0	0	0	0	0	28	1	0	29	130
Total	10	0	114	0	124	106	158	0	0	264	0	0	0	0	0	0	146	5	0	151	539
02:00 PM	4	0	28	0	32	22	40	0	1	63	0	0	0	0	0	0	49	6	0	55	150
02:15 PM	2	0	32	0	34	29	46	0	0	75	0	0	0	0	0	0	29	0	0	29	138
02:30 PM	3	0	26	0	29	37	66	0	0	103	0	0	0	0	0	0	43	2	0	45	177
02:45 PM	8	0	26	0	34	30	59	0	0	89	0	0	0	0	0	0	37	2	0	39	162
Total	17	0	112	0	129	118	211	0	1	330	0	0	0	0	0	0	158	10	0	168	627
03:00 PM	2	0	18	0	20	27	48	0	0	75	0	0	0	0	0	0	30	5	0	35	130
03:15 PM	1	0	24	0	25	38	56	0	0	94	0	0	0	0	0	0	35	0	0	35	154
03:30 PM	2	0	19	0	21	34	60	0	0	94	0	0	0	0	0	0	64	8	0	72	187
03:45 PM	3	0	20	0	23	24	56	0	0	80	0	0	0	0	0	0	44	3	0	47	150
Total	8	0	81	0	89	123	220	0	0	343	0	0	0	0	0	0	173	16	0	189	621
04:00 PM	4	0	14	0	18	39	51	0	0	90	0	0	0	0	0	0	52	5	0	57	165
04:15 PM	1	0	20	0	21	36	52	0	0	88	0	0	0	0	0	0	37	4	0	41	150
04:30 PM	6	0	16	0	22	33	61	0	0	94	0	0	0	0	0	0	38	5	0	43	159
04:45 PM	3	0	15	0	18	27	67	0	0	94	0	0	0	0	0	0	37	3	0	40	152
Total	14	0	65	0	79	135	231	0	0	366	0	0	0	0	0	0	164	17	0	181	626
05:00 PM	0	0	17	0	17	39	60	0	0	99	0	0	0	0	0	0	34	2	0	36	152
05:15 PM	1	0	12	0	13	25	57	0	0	82	0	0	0	0	0	0	41	0	0	41	136
05:30 PM	3	0	21	0	24	21	63	0	0	84	0	0	0	0	0	0	35	3	0	38	146
05:45 PM	2	0	24	0	26	35	70	0	0	105	0	0	0	0	0	0	34	4	0	38	169
Total	6	0	74	0	80	120	250	0	0	370	0	0	0	0	0	0	144	9	0	153	603
Grand Total	131	0	1038	0	1169	1044	1896	0	1	2941	0	0	0	0	0	0	1882	95	0	1977	6087
Apprch %	11.2	0	88.8	0		35.5	64.5	0	0		0	0	0	0		0	95.2	4.8	0		
Total %	2.2	0	17.1	0	19.2	17.2	31.1	0	0	48.3	0	0	0	0	0	0	30.9	1.6	0	32.5	
Passenger Veh	122	0	1024	0	1146	1034	1819	0	1	2854	0	0	0	0	0	0	1827	90	0	1917	5917
% Passenger Veh	93.1	0	98.7	0	98	99	95.9	0	100	97	0	0	0	0	0	0	97.1	94.7	0	97	97.2
Trucks	9	0	14	0	23	10	77	0	0	87	0	0	0	0	0	0	55	5	0	60	170
% Trucks	6.9	0	1.3	0	2	1	4.1	0	0	3	0	0	0	0	0	0	2.9	5.3	0	3	2.8

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File Name : News and Firestone
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	Firestone From North					News From East					From South					News From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:15 AM																					
08:15 AM	**7**	0	19	0	26	12	35	0	0	47	0	0	0	0	0	0	45	**5**	0	50	123
08:30 AM	1	0	**30**	0	**31**	9	25	0	0	34	0	0	0	0	0	0	58	4	0	62	127
08:45 AM	2	0	18	0	20	11	40	0	0	51	0	0	0	0	0	0	61	1	0	62	133
09:00 AM	3	0	25	0	28	**13**	**46**	0	0	**59**	0	0	0	0	0	0	**66**	0	0	**66**	**153**
Total Volume	13	0	92	0	105	45	146	0	0	191	0	0	0	0	0	0	230	10	0	240	536
% App. Total	12.4	0	87.6	0		23.6	76.4	0	0		0	0	0	0		0	95.8	4.2	0		
PHF	.464	.000	.767	.000	.847	.865	.793	.000	.000	.809	.000	.000	.000	.000	.000	.000	.871	.500	.000	.909	.876
Passenger Veh	12	0	91	0	103	44	131	0	0	175	0	0	0	0	0	0	221	10	0	231	509
% Passenger Veh	92.3	0	98.9	0	98.1	97.8	89.7	0	0	91.6	0	0	0	0	0	0	96.1	100	0	96.3	95.0
Trucks	1	0	1	0	2	1	15	0	0	16	0	0	0	0	0	0	9	0	0	9	27
% Trucks	7.7	0	1.1	0	1.9	2.2	10.3	0	0	8.4	0	0	0	0	0	0	3.9	0	0	3.8	5.0

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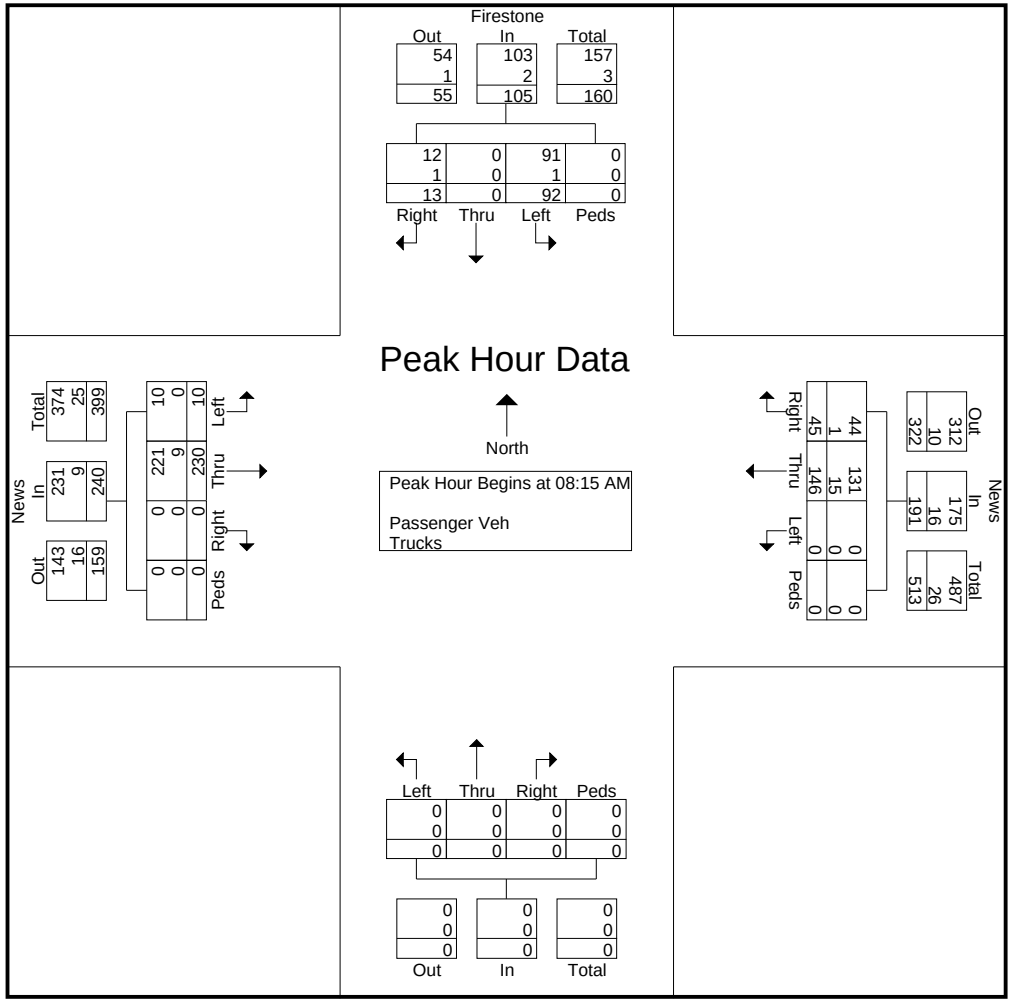

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File Name : News and Firestone
Site Code : 00681114
Start Date : 6/8/2017
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	Firestone From North					News From East					From South					News From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:15 PM																					
12:15 PM	3	0	26	0	29	33	40	0	0	73	0	0	0	0	0	0	36	2	0	38	140
12:30 PM	0	0	21	0	21	29	44	0	0	73	0	0	0	0	0	0	33	2	0	35	129
12:45 PM	**6**	0	17	0	23	**35**	**65**	0	0	**100**	0	0	0	0	0	0	41	**4**	0	45	**168**
01:00 PM	6	0	**32**	0	**38**	28	39	0	0	67	0	0	0	0	0	0	**47**	0	0	**47**	152
Total Volume	15	0	96	0	111	125	188	0	0	313	0	0	0	0	0	0	157	8	0	165	589
% App. Total	13.5	0	86.5	0		39.9	60.1	0	0		0	0	0	0		0	95.2	4.8	0		
PHF	.625	.000	.750	.000	.730	.893	.723	.000	.000	.783	.000	.000	.000	.000	.000	.000	.835	.500	.000	.878	.876
Passenger Veh	12	0	92	0	104	121	181	0	0	302	0	0	0	0	0	0	153	8	0	161	567
% Passenger Veh	80.0	0	95.8	0	93.7	96.8	96.3	0	0	96.5	0	0	0	0	0	0	97.5	100	0	97.6	96.3
Trucks	3	0	4	0	7	4	7	0	0	11	0	0	0	0	0	0	4	0	0	4	22
% Trucks	20.0	0	4.2	0	6.3	3.2	3.7	0	0	3.5	0	0	0	0	0	0	2.5	0	0	2.4	3.7

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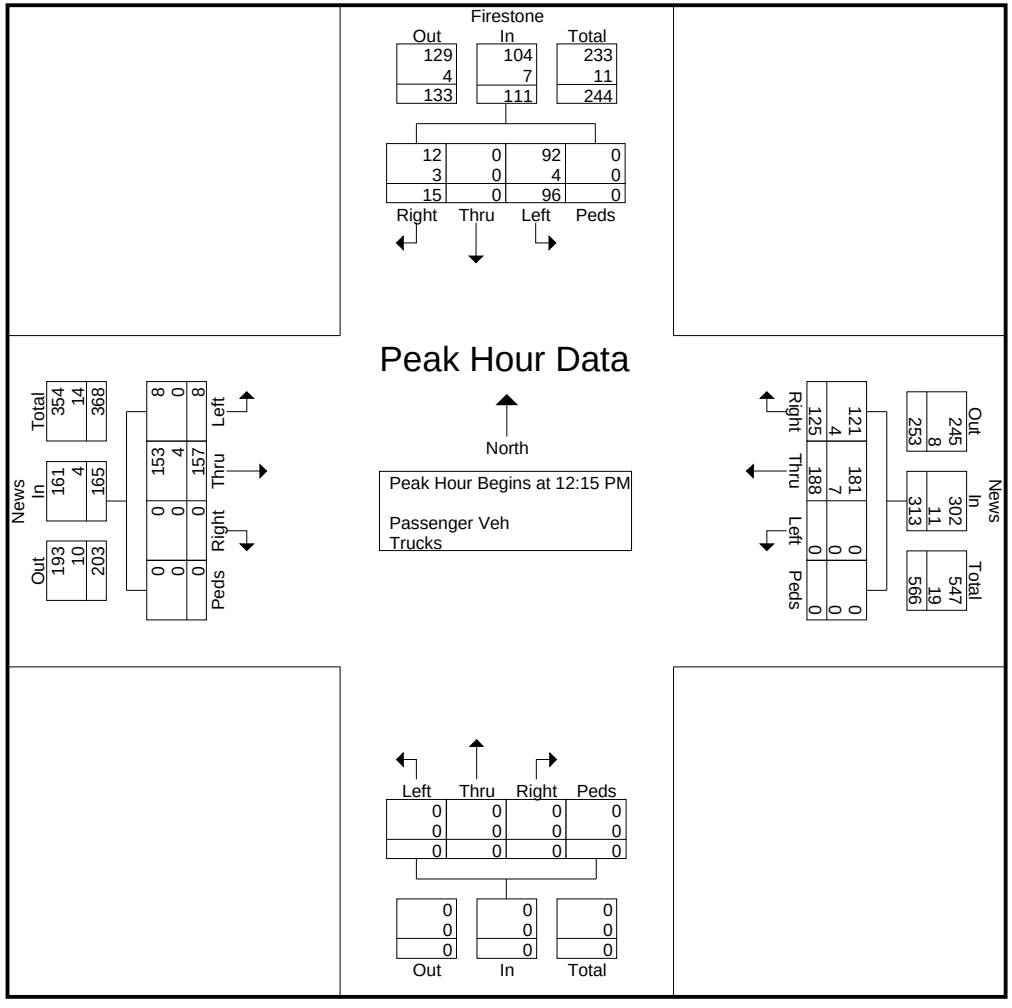

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File Name : News and Firestone
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	Firestone From North					News From East					From South					News From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:15 PM																					
03:15 PM	1	0	**24**	0	**25**	38	56	0	0	**94**	0	0	0	0	0	0	35	0	0	35	154
03:30 PM	2	0	19	0	21	34	**60**	0	0	94	0	0	0	0	0	0	**64**	**8**	0	**72**	**187**
03:45 PM	3	0	20	0	23	24	56	0	0	80	0	0	0	0	0	0	44	3	0	47	150
04:00 PM	**4**	0	14	0	18	**39**	51	0	0	90	0	0	0	0	0	0	52	5	0	57	165
Total Volume	10	0	77	0	87	135	223	0	0	358	0	0	0	0	0	0	195	16	0	211	656
% App. Total	11.5	0	88.5	0		37.7	62.3	0	0		0	0	0	0		0	92.4	7.6	0		
PHF	.625	.000	.802	.000	.870	.865	.929	.000	.000	.952	.000	.000	.000	.000	.000	.000	.762	.500	.000	.733	.877
Passenger Veh	10	0	76	0	86	135	218	0	0	353	0	0	0	0	0	0	184	14	0	198	637
% Passenger Veh	100	0	98.7	0	98.9	100	97.8	0	0	98.6	0	0	0	0	0	0	94.4	87.5	0	93.8	97.1
Trucks	0	0	1	0	1	0	5	0	0	5	0	0	0	0	0	0	11	2	0	13	19
% Trucks	0	0	1.3	0	1.1	0	2.2	0	0	1.4	0	0	0	0	0	0	5.6	12.5	0	6.2	2.9

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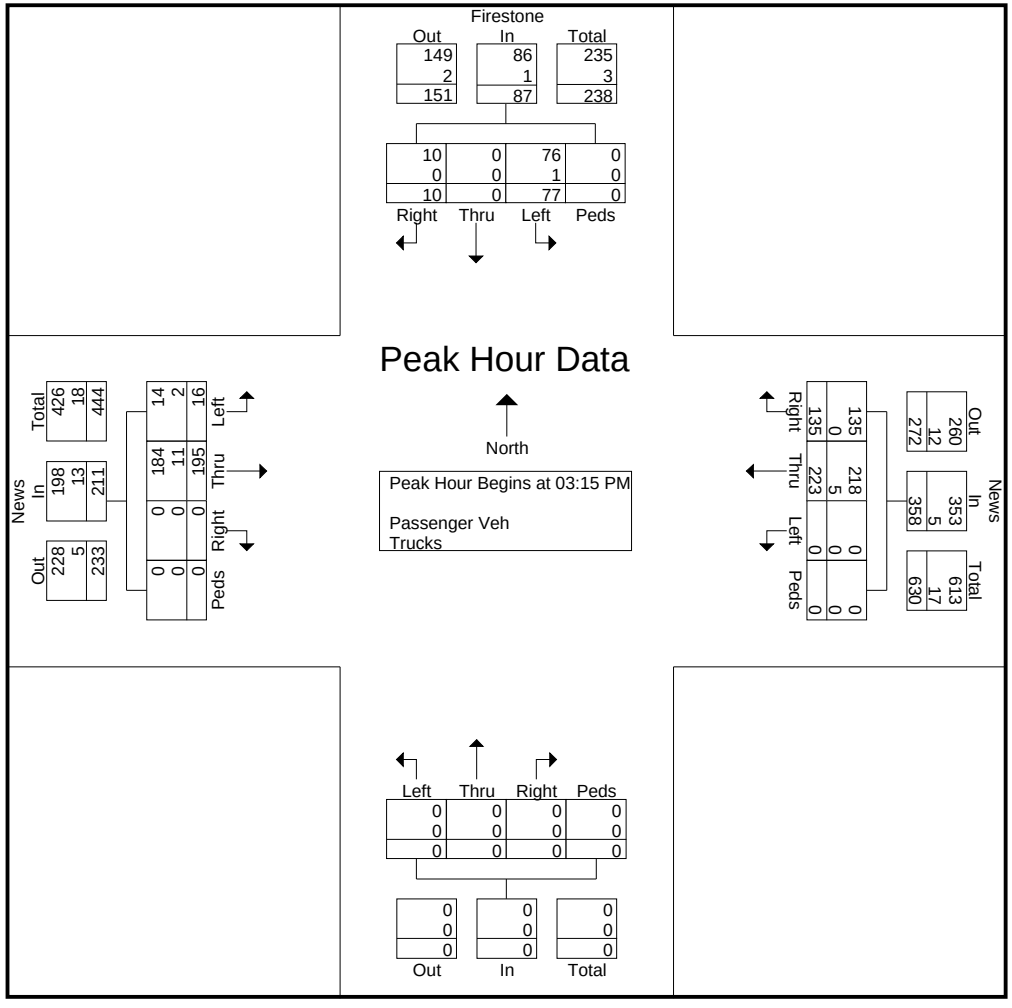


Appendix C: Volume Worksheets

VOLUME DEVELOPMENT SHEET

Longhill Road at Williamsburg W. Drive/Lane Place Drive
AM Peak Hour
(7:30 AM to 8:30 AM)

Description	Longhill Road Eastbound			Longhill Road Westbound			Williamsburg W. Drive Northbound			Lane Place Drive Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2017 Counts												
Cars	3	727	21	41	449	15	39	2	223	54	1	16
Trucks	0	15	0	2	18	3	3	1	1	2	0	2
Total Existing 2017 Traffic	3	742	21	43	467	18	42	3	224	56	1	18
Truck %	0%	2%	0%	5%	4%	17%	7%	33%	0%	4%	0%	11%
PHF	0.88											
Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Existing												
2019 Existing	3	772	22	45	486	19	44	3	233	58	1	19
Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Background Traffic												
Westport												
Entering Distribution					26%							
Exiting Distribution		25%										
Entering Assignment					2							
Exiting Assignment		7										
Windsor												
Entering Distribution					60%							
Exiting Distribution		60%										
Entering Assignment					2							
Exiting Assignment		7										
The Village												
Entering Distribution					8%							
Exiting Distribution		4%										
Entering Assignment					4							
Exiting Assignment		2										
2021 No Build	3	819	23	47	514	20	46	3	242	60	1	20
2027 No Build	4	920	26	53	577	22	52	4	273	68	1	22
Proposed Trips												
Entering Distribution					60%							
Exiting Distribution		60%										
Entering Assignment					4							
Exiting Assignment		13										
Proposed + Background												
2021 Total Traffic	3	832	23	47	518	20	46	3	242	60	1	20
2027 Total Traffic	4	933	26	53	581	22	52	4	273	68	1	22

PM Peak Hour
(4:45 PM to 5:45 PM)

Description	Longhill Road Eastbound			Longhill Road Westbound			Williamsburg W. Drive Northbound			Lane Place Drive Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2017 Counts												
Cars	17	716	35	206	967	38	49	0	132	23	0	13
Trucks	0	19	0	0	10	0	1	0	4	0	0	1
Total Existing 2017 Traffic	17	735	35	206	977	38	50	0	136	23	0	14
Truck %	0%	3%	0%	0%	1%	0%	2%	-	3%	0%	-	7%
PHF	0.95											
Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Existing												
2019 Existing	18	765	36	214	1,016	40	52	0	141	24	0	15
Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Background Traffic												
Westport												
Entering Distribution					25%							
Exiting Distribution		28%										
Entering Assignment					7							
Exiting Assignment		5										
Windsor												
Entering Distribution					55%							
Exiting Distribution		55%										
Entering Assignment					7							
Exiting Assignment		4										
The Village												
Entering Distribution					5%							
Exiting Distribution		5%										
Entering Assignment					4							
Exiting Assignment		4										
2021 No Build	19	809	37	223	1,075	42	54	0	147	25	0	16
2027 No Build	21	909	42	251	1,209	47	61	0	165	28	0	18
Proposed Trips												
Entering Distribution					55%							
Exiting Distribution		55%										
Entering Assignment					13							
Exiting Assignment		8										
Proposed + Background												
2021 Total Traffic	19	817	37	223	1,088	42	54	0	147	25	0	16
2027 Total Traffic	21	917	42	251	1,222	47	61	0	165	28	0	18

VOLUME DEVELOPMENT SHEET

Longhill Road at Ford's Colony Drive
AM Peak Hour
(7:30 AM to 8:30 AM)

Description	Longhill Road Eastbound			Longhill Road Westbound			Fords Colony Drive Northbound			Dominion Village Entrance Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2017 Counts												
Cars	3	277	34	103	247	1	63	1	130	0	1	0
Trucks	0	16	2	3	19	0	7	0	0	0	0	0
Total Existing 2017 Traffic	3	293	36	106	266	1	70	1	130	0	1	0
Truck %	0%	5%	6%	3%	7%	0%	10%	0%	0%	-	0%	-
PHF	0.83											
Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Existing												
2019 Existing	3	305	37	110	277	1	73	1	135	0	1	0
Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Background Traffic												
Westport												
Entering Distribution					26%							
Exiting Distribution		25%										
Entering Assignment					2							
Exiting Assignment		7										
Windsor												
Entering Distribution			20%	60%								
Exiting Distribution							20%		60%			
Entering Assignment			1	2								
Exiting Assignment							2		7			
The Village												
Entering Distribution					8%							
Exiting Distribution		4%										
Entering Assignment					4							
Exiting Assignment		2										
2021 No Build	3	326	39	116	294	1	78	1	148	0	1	0
2027 No Build	4	366	44	131	331	1	88	1	165	0	1	0
Proposed Trips												
Entering Distribution			20%	60%								
Exiting Distribution							20%		60%			
Entering Assignment			1	4								
Exiting Assignment							4		13			
Proposed + Background												
2021 Total Traffic	3	326	40	120	294	1	82	1	161	0	1	0
2027 Total Traffic	4	366	45	135	331	1	92	1	178	0	1	0

PM Peak Hour
(4:45 PM to 5:45 PM)

Description	Longhill Road Eastbound			Longhill Road Westbound			Fords Colony Drive Northbound			Dominion Village Entrance Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2017 Counts												
Cars	0	337	53	192	277	2	45	2	119	4	0	5
Trucks	0	3	0	0	5	0	0	1	2	0	0	0
Total Existing 2017 Traffic	0	340	53	192	282	2	45	3	121	4	0	5
Truck %	-	1%	0%	0%	2%	0%	0%	33%	2%	0%	-	0%
PHF	0.94											
Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Existing												
2019 Existing	0	354	55	200	293	2	47	3	126	4	0	5
Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Background Traffic												
Westport												
Entering Distribution					25%							
Exiting Distribution		28%										
Entering Assignment					7							
Exiting Assignment		5										
Windsor												
Entering Distribution			15%	55%								
Exiting Distribution							15%		55%			
Entering Assignment			2	7								
Exiting Assignment							1		4			
The Village												
Entering Distribution					5%							
Exiting Distribution		5%										
Entering Assignment					4							
Exiting Assignment		4										
2021 No Build	0	377	59	215	316	2	50	3	135	4	0	5
2027 No Build	0	424	66	242	354	2	56	4	152	5	0	6
Proposed Trips												
Entering Distribution			15%	55%								
Exiting Distribution							15%		55%			
Entering Assignment			4	13								
Exiting Assignment							2		8			
Proposed + Background												
2021 Total Traffic	0	377	63	228	316	2	52	3	143	4	0	5
2027 Total Traffic	0	424	70	255	354	2	58	4	160	5	0	6

VOLUME DEVELOPMENT SHEET

Centerville Road at Manchester Drive
AM Peak Hour
(7:30 AM to 8:30 AM)

Description	Westport Eastbound			Manchester Drive Westbound			Centerville Road Northbound			Centerville Road Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2017 Counts												
Cars	4	1	2	52	0	45	2	310	32	42	193	1
Trucks	0	0	0	2	0	2	0	27	11	8	17	2
Total Existing 2017 Traffic	4	1	2	54	0	47	2	337	43	50	210	3
Truck %	0%	0%	0%	4%	-	4%	0%	8%	26%	16%	8%	67%
PHF	0.91											
Growth Rate	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
Existing												
2019 Existing	4	1	2	57	0	49	2	354	45	53	221	3
Growth Rate	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
Background Traffic												
Westport												
Entering Distribution							*25%*					*75%*
Exiting Distribution	72%		28%									
Entering Assignment							*2*					*7*
Exiting Assignment	19		7									
Windsor												
Entering Distribution									*15%*	*5%*		
Exiting Distribution				15%		5%						
Entering Assignment									*1*	*0*		
Exiting Assignment				2		1						
The Village												
Entering Distribution											*22%*	
Exiting Distribution								12%				
Entering Assignment											*11*	
Exiting Assignment								6				
2021 No Build	23	1	9	62	0	52	4	378	48	56	243	10
2027 No Build	24	1	10	71	0	61	4	437	55	65	280	11
Proposed Trips												
Entering Distribution									*15%*	*5%*		
Exiting Distribution				15%		5%						
Entering Assignment									*1*	*0*		
Exiting Assignment				3		1						
Proposed + Background												
2021 Total Traffic	23	1	9	65	0	53	4	378	49	56	243	10
2027 Total Traffic	24	1	10	74	0	62	4	437	56	65	280	11

PM Peak Hour
(4:45 PM to 5:45 PM)

Description	Westport Eastbound			Manchester Drive Westbound			Centerville Road Northbound			Centerville Road Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2017 Counts												
Cars	3	1	2	47	0	27	2	281	62	23	233	2
Trucks	0	0	0	0	0	1	0	9	2	0	4	0
Total Existing 2017 Traffic	3	1	2	47	0	28	2	290	64	23	237	2
Truck %	0%	0%	0%	0%	-	4%	0%	3%	3%	0%	2%	0%
PHF	0.95											
Growth Rate	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
Existing												
2019 Existing	3	1	2	49	0	29	2	305	67	24	249	2
Growth Rate	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
Background Traffic												
Westport												
Entering Distribution							*29%*					*71%*
Exiting Distribution	79%		21%									
Entering Assignment							*8*					*20*
Exiting Assignment	13		4									
Windsor												
Entering Distribution									*30%*			
Exiting Distribution				30%								
Entering Assignment									*4*			
Exiting Assignment				5								
The Village												
Entering Distribution											*13%*	
Exiting Distribution								14%				
Entering Assignment											*11*	
Exiting Assignment								11				
2021 No Build	16	1	6	56	0	30	10	331	74	25	273	22
2027 No Build	17	1	6	64	0	35	10	383	86	29	314	22
Proposed Trips												
Entering Distribution									*30%*			
Exiting Distribution				30%								
Entering Assignment									*7*			
Exiting Assignment				4								
Proposed + Background												
2021 Total Traffic	16	1	6	60	0	30	10	331	81	25	273	22
2027 Total Traffic	17	1	6	68	0	35	10	383	93	29	314	22

VOLUME DEVELOPMENT SHEET

Firestone Drive at News Road
AM Peak Hour
(7:30 AM to 8:30 AM)

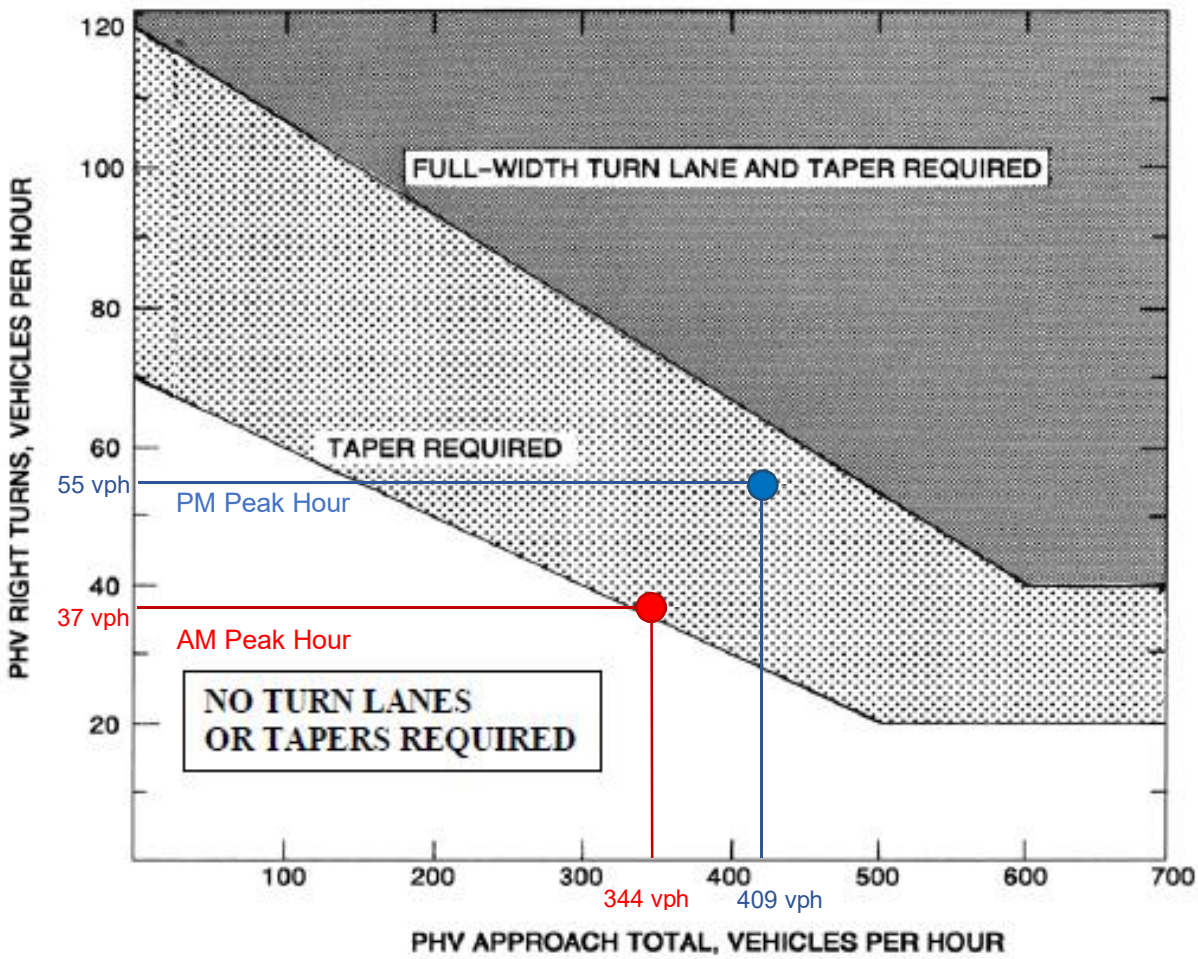
Description	News Road Eastbound			News Road Westbound			Proposed Entrance Northbound			Firestone Drive Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2017 Counts												
Cars	8	182	0	0	109	42	-	-	-	85	0	17
Trucks	2	6	0	0	16	1	-	-	-	0	0	0
Total Existing 2017 Traffic	10	188	0	0	125	43	0	0	0	85	0	17
Truck %	20%	3%	-	-	13%	2%	-	-	-	0%	-	0%
PHF	0.95											
Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Existing												
2019 Existing	10	196	0	0	130	45	0	0	0	88	0	18
Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Background Traffic												
Westport												
Entering Distribution					*20%*							
Exiting Distribution		25%										
Entering Assignment					*2*							
Exiting Assignment		7										
Windsor												
Entering Distribution					*10%*							
Exiting Distribution		10%										
Entering Assignment					*0*							
Exiting Assignment		1										
The Village												
Entering Distribution			*37%*	*63%*								
Exiting Distribution							27%		73%			
Entering Assignment			*18*	*31*								
Exiting Assignment							14		38			
2021 No Build	10	212	18	31	137	47	14	0	38	92	0	19
2027 No Build	12	237	18	31	154	53	14	0	38	103	0	21
Proposed Trips												
Entering Distribution					*10%*							
Exiting Distribution		10%										
Entering Assignment					*1*							
Exiting Assignment		2										
Proposed + Background												
2021 Total Traffic	10	214	18	31	138	47	14	0	38	92	0	19
2027 Total Traffic	12	239	18	31	155	53	14	0	38	103	0	21

PM Peak Hour
(4:45 PM to 5:45 PM)

Description	News Road Eastbound			News Road Westbound			Proposed Entrance Northbound			Firestone Drive Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2017 Counts												
Cars	8	144	0	0	243	112	-	-	-	64	0	7
Trucks	0	3	0	0	4	0	-	-	-	1	0	0
Total Existing 2017 Traffic	8	147	0	0	247	112	0	0	0	65	0	7
Truck %	0%	2%	-	-	2%	0%	-	-	-	2%	-	0%
PHF	0.96											
Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Existing												
2019 Existing	8	153	0	0	257	117	0	0	0	68	0	7
Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Background Traffic												
Westport												
Entering Distribution					*25%*							
Exiting Distribution		20%										
Entering Assignment					*7*							
Exiting Assignment		3										
Windsor												
Entering Distribution					*30%*							
Exiting Distribution		30%										
Entering Assignment					*4*							
Exiting Assignment		2										
The Village												
Entering Distribution			*28%*	*72%*								
Exiting Distribution							29%		71%			
Entering Assignment			*23*	*59*								
Exiting Assignment							23		56			
2021 No Build	8	164	23	59	278	122	23	0	56	71	0	7
2027 No Build	9	182	23	59	308	137	23	0	56	80	0	8
Proposed Trips												
Entering Distribution					*30%*							
Exiting Distribution		30%										
Entering Assignment					*7*							
Exiting Assignment		4										
Proposed + Background												
2021 Total Traffic	8	168	23	59	285	122	23	0	56	71	0	7
2027 Total Traffic	9	186	23	59	315	137	23	0	56	80	0	8

Appendix D: Turn Lane and Signal Warrant Worksheets

2019 Existing Conditions – Longhill Road EBRT



Appropriate Radius required at all Intersections and Entrances (Commercial or Private).

LEGEND

PHV - Peak Hour Volume (also Design Hourly Volume equivalent)

Adjustment for Right Turns

For posted speeds at or under 45 mph, PHV right turns > 40, and PHV total < 300.
Adjusted right turns = PHV Right Turns - 20
If PHV is not known use formula: PHV = ADT x K x D

K = the percent of AADT occurring in the peak hour
D = the percent of traffic in the peak direction of flow

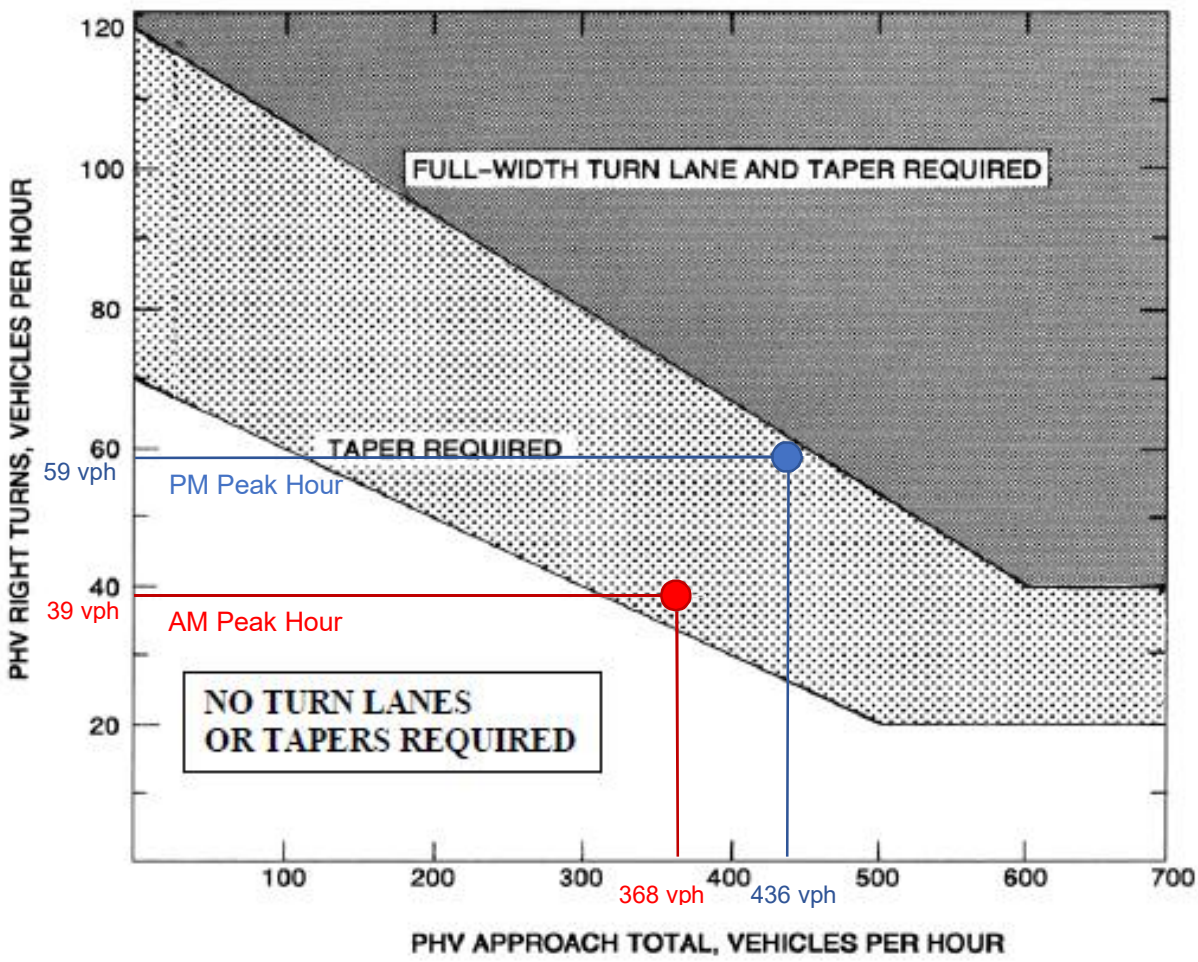
Note: An average of 11% for K x D will suffice.

When right turn facilities are warranted, see Figure 3-1 for design criteria.*

FIGURE 3-26 WARRANTS FOR RIGHT TURN TREATMENT (2-LANE HIGHWAY)

* Rev. 1/15

2021 No Build Conditions – Longhill Road EBRT



Appropriate Radius required at all Intersections and Entrances (Commercial or Private).

LEGEND

PHV - Peak Hour Volume (also Design Hourly Volume equivalent)

Adjustment for Right Turns

For posted speeds at or under 45 mph, PHV right turns > 40, and PHV total < 300.
Adjusted right turns = PHV Right Turns - 20
If PHV is not known use formula: PHV = ADT x K x D

K = the percent of AADT occurring in the peak hour
D = the percent of traffic in the peak direction of flow

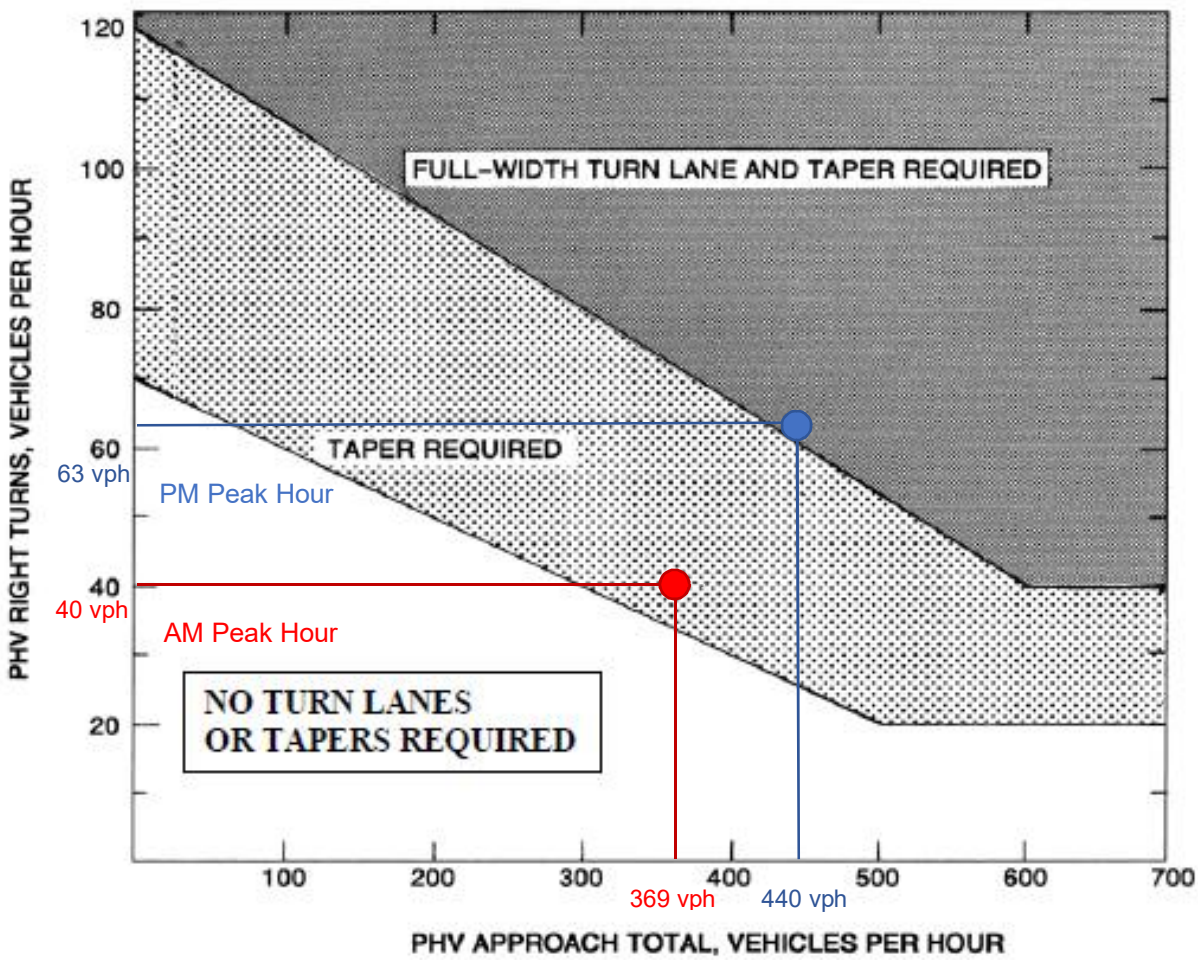
Note: An average of 11% for K x D will suffice.

When right turn facilities are warranted, see Figure 3-1 for design criteria.*

FIGURE 3-26 WARRANTS FOR RIGHT TURN TREATMENT (2-LANE HIGHWAY)

* Rev. 1/15

2021 Build Conditions – Longhill Road EBRT



Appropriate Radius required at all Intersections and Entrances (Commercial or Private).

LEGEND

PHV - Peak Hour Volume (also Design Hourly Volume equivalent)

Adjustment for Right Turns

For posted speeds at or under 45 mph, PHV right turns > 40, and PHV total < 300.
Adjusted right turns = PHV Right Turns - 20
If PHV is not known use formula: PHV = ADT x K x D

K = the percent of AADT occurring in the peak hour
D = the percent of traffic in the peak direction of flow

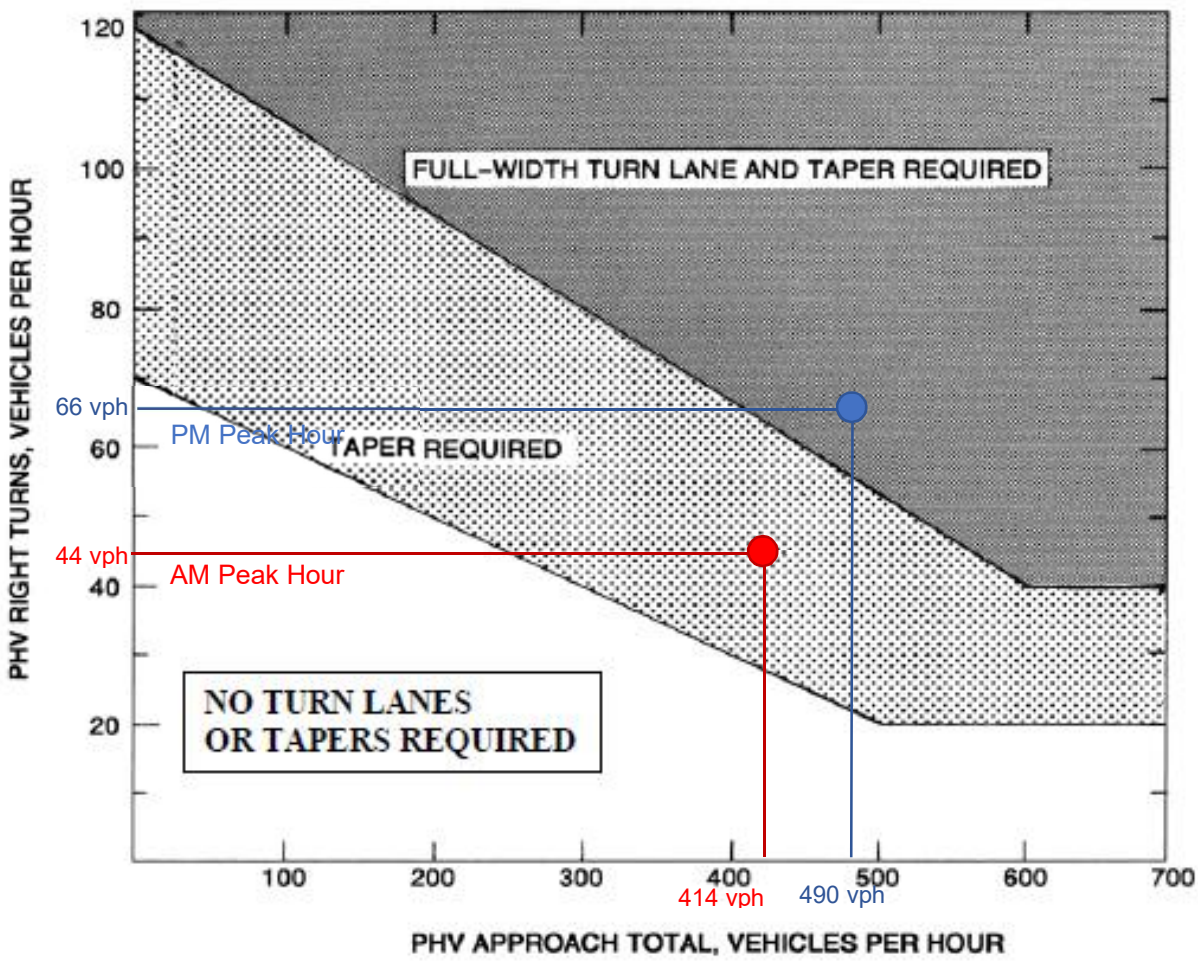
Note: An average of 11% for K x D will suffice.

When right turn facilities are warranted, see Figure 3-1 for design criteria.*

FIGURE 3-26 WARRANTS FOR RIGHT TURN TREATMENT (2-LANE HIGHWAY)

* Rev. 1/15

2027 No Build Conditions – Longhill Road EBRT



Appropriate Radius required at all Intersections and Entrances (Commercial or Private).

LEGEND

PHV - Peak Hour Volume (also Design Hourly Volume equivalent)

Adjustment for Right Turns

For posted speeds at or under 45 mph, PHV right turns > 40, and PHV total < 300.
Adjusted right turns = PHV Right Turns - 20
If PHV is not known use formula: PHV = ADT x K x D

K = the percent of AADT occurring in the peak hour
D = the percent of traffic in the peak direction of flow

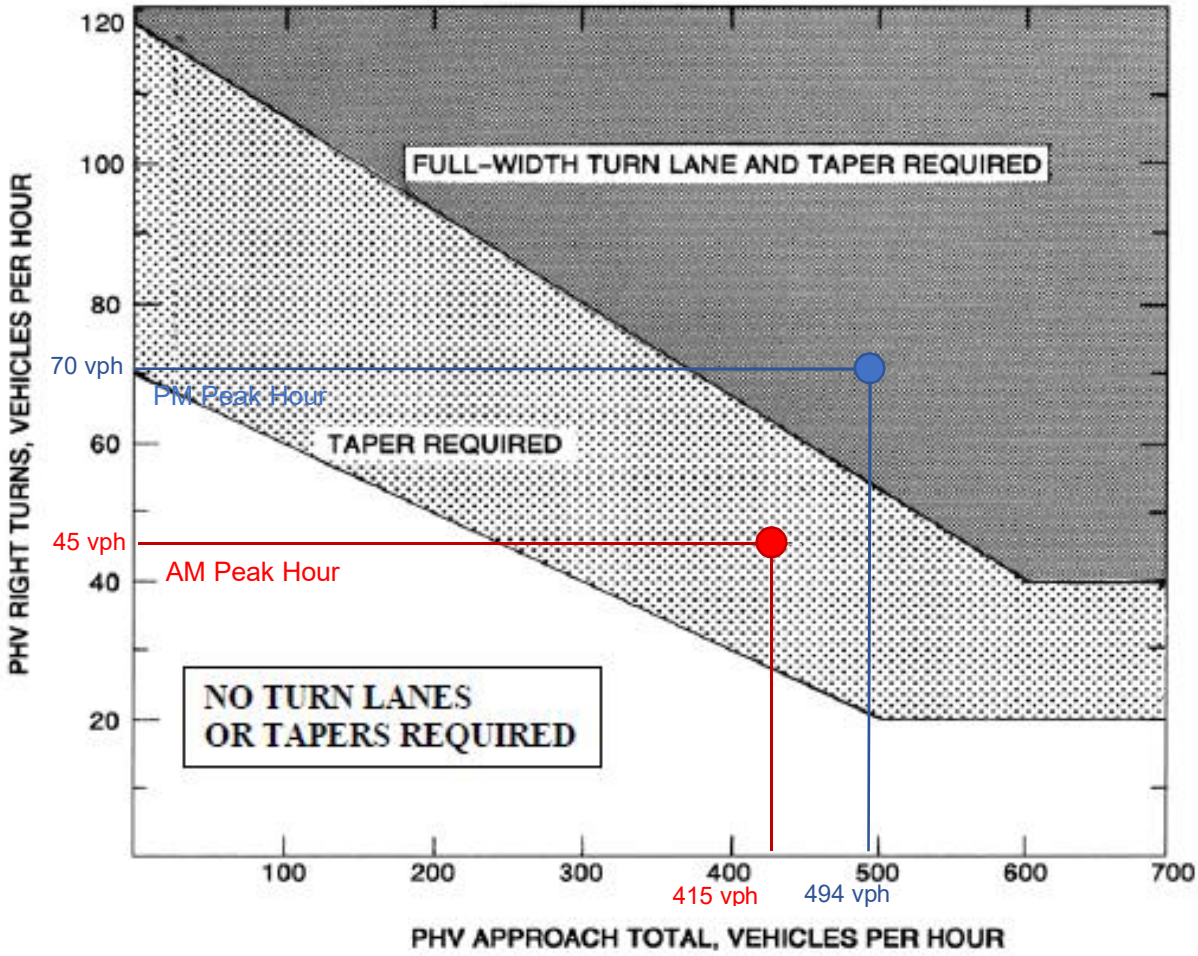
Note: An average of 11% for K x D will suffice.

When right turn facilities are warranted, see Figure 3-1 for design criteria.*

FIGURE 3-26 WARRANTS FOR RIGHT TURN TREATMENT (2-LANE HIGHWAY)

* Rev. 1/15

2027 Build Conditions – Longhill Road EBRT



Appropriate Radius required at all Intersections and Entrances (Commercial or Private).

LEGEND

PHV - Peak Hour Volume (also Design Hourly Volume equivalent)

Adjustment for Right Turns

For posted speeds at or under 45 mph, PHV right turns > 40, and PHV total < 300.
Adjusted right turns = PHV Right Turns - 20
If PHV is not known use formula: PHV = ADT x K x D

K = the percent of AADT occurring in the peak hour
D = the percent of traffic in the peak direction of flow

Note: An average of 11% for K x D will suffice.

When right turn facilities are warranted, see Figure 3-1 for design criteria.*

FIGURE 3-26 WARRANTS FOR RIGHT TURN TREATMENT (2-LANE HIGHWAY)

* Rev. 1/15

Firestone Drive at News Road

Firestone Drive Traffic Signal Warrant Analysis

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS

INTERSECTION NAME: Firestone Drive at News Road

COUNT DATE: 6/8/2017

INTERSECTION CONDITION: 2019 Existing (No SBR or WBR)

MAJOR STREET: News Road — # OF APPROACH LANES: 2

MINOR STREET: Firestone Drive — # OF APPROACH LANES: 1

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): N

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): Y

	MAJOR ST	MINOR ST		WARRANT 1, Condition A			WARRANT 1, Condition B			WARRANT 1, Combination Warrant						WARRANT 2	WARRANT 3
										CONDITION A			CONDITION B				
	BOTH APPROACHES	HIGHEST APPROACH		MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET		
THRESHOLD VALUES	EB/WB	SB	NB	420	105		630	53		336	84		504	42			
06:00 AM TO 07:00 AM	125	**42**	0											Y			
07:00 AM TO 08:00 AM	304	**72**	0					Y						Y			
08:00 AM TO 09:00 AM	360	**94**	0					Y		Y	Y	**Y**		Y			
09:00 AM TO 10:00 AM	311	**87**	0					Y			Y			Y			
10:00 AM TO 11:00 AM	285	**110**	0		Y			Y			Y			Y			
11:00 AM TO 12:00 AM	316	**104**	0					Y			Y			Y			
12:00 PM TO 01:00 PM	338	**83**	0					Y		Y				Y			
01:00 PM TO 02:00 PM	321	**114**	0		Y			Y			Y			Y			
02:00 PM TO 03:00 PM	394	**112**	0		Y			Y		Y	Y	**Y**		Y			
03:00 PM TO 04:00 PM	425	**81**	0	Y				Y		Y				Y			
04:00 PM TO 05:00 PM	428	**65**	0	Y				Y		Y				Y			
05:00 PM TO 06:00 PM	419	**74**	0					Y		Y				Y			
	0	**0**	**0**														
	0	0	0														
	0	0	0														
	0	0	0														
	4,026	1,038	0			**0**			**0**			**2**			**0**	**0**	**0**
				8 HOURS NEEDED **NOT SATISFIED**			8 HOURS NEEDED **NOT SATISFIED**			8 HOURS OF BOTH COND. A AND COND. B NEEDED **NOT SATISFIED**						4 HRS NEEDED **NOT SATISFIED**	1 HR NEEDED **NOT SATISFIED**

WARRANT 1 -- Eight-Hour Vehicular Volume Warrant
- Condition A : Minimum Vehicular Volume
- Condition B : Interruption of Continuous Traffic
- Combination : Combination of Condition A and Condition B

WARRANT 2 -- Four-Hour Vehicular Volume Warrant

WARRANT 3 -- Peak Hour Warrant

Firestone Drive Traffic Signal Warrant Analysis

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS

INTERSECTION NAME: Firestone Drive at News Road

COUNT DATE: 6/8/2017

INTERSECTION CONDITION: 2021 No Build (No SBR, WBR, or NBR)

MAJOR STREET: News Road — # OF APPROACH LANES: 2

MINOR STREET: Firestone Drive/The Villages Driveway — # OF APPROACH LANES: 1

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): N

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): Y

	MAJOR ST	MINOR ST		WARRANT 1, Condition A			WARRANT 1, Condition B			WARRANT 1, Combination Warrant						WARRANT 2	WARRANT 3
										CONDITION A			CONDITION B				
	BOTH APPROACHES	HIGHEST APPROACH		MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET		
THRESHOLD VALUES	EB/WB	SB	NB	420	105		630	53		336	84		504	42			
06:00 AM TO 07:00 AM	151	**42**	32											Y			
07:00 AM TO 08:00 AM	348	**72**	50					Y		Y				Y			
08:00 AM TO 09:00 AM	417	**94**	51					Y		Y	Y	**Y**		Y			
09:00 AM TO 10:00 AM	363	**87**	36					Y		Y	Y	**Y**		Y			
10:00 AM TO 11:00 AM	338	**110**	31		Y			Y		Y	Y	**Y**		Y			
11:00 AM TO 12:00 AM	374	**104**	32					Y		Y	Y	**Y**		Y			
12:00 PM TO 01:00 PM	393	**83**	32					Y		Y				Y			
01:00 PM TO 02:00 PM	377	**114**	34		Y			Y		Y	Y	**Y**		Y			
02:00 PM TO 03:00 PM	462	**112**	36	Y	Y	**Y**		Y		Y	Y	**Y**		Y			
03:00 PM TO 04:00 PM	504	**81**	38	Y				Y		Y			Y	Y	**Y**		
04:00 PM TO 05:00 PM	520	**65**	38	Y				Y		Y			Y	Y	**Y**		
05:00 PM TO 06:00 PM	518	**74**	39	Y				Y		Y			Y	Y	**Y**		
	0	**0**	**0**														
	0	0	0														
	0	0	0														
	0	0	0														
	4,765	1,038	449			**1**			**0**			**6**			**3**	**0**	**0**
				8 HOURS NEEDED **NOT SATISFIED**			8 HOURS NEEDED **NOT SATISFIED**			8 HOURS OF BOTH COND. A AND COND. B NEEDED **NOT SATISFIED**						4 HRS NEEDED **NOT SATISFIED**	1 HR NEEDED **NOT SATISFIED**

WARRANT 1 -- Eight-Hour Vehicular Volume Warrant
- Condition A : Minimum Vehicular Volume
- Condition B : Interruption of Continuous Traffic
- Combination : Combination of Condition A and Condition B

WARRANT 2 -- Four-Hour Vehicular Volume Warrant

WARRANT 3 -- Peak Hour Warrant

Firestone Drive Traffic Signal Warrant Analysis

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS

INTERSECTION NAME: Firestone Drive at News Road

COUNT DATE: 6/8/2017

INTERSECTION CONDITION: 2021 Build (No SBR, WBR,or NBR)

MAJOR STREET: News Road — # OF APPROACH LANES: 2

MINOR STREET: Firestone Drive/The Villages Driveway — # OF APPROACH LANES: 1

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): N

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): Y

	MAJOR ST	MINOR ST		WARRANT 1, Condition A			WARRANT 1, Condition B			WARRANT 1, Combination Warrant						WARRANT 2	WARRANT 3
										CONDITION A			CONDITION B				
	BOTH APPROACHES	HIGHEST APPROACH		MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET		
THRESHOLD VALUES	EB/WB	SB	NB	420	105		630	53		336	84		504	42			
06:00 AM TO 07:00 AM	151	**43**	32											Y			
07:00 AM TO 08:00 AM	348	**74**	50					Y		Y				Y			
08:00 AM TO 09:00 AM	417	**96**	51					Y		Y	Y	**Y**		Y			
09:00 AM TO 10:00 AM	363	**88**	36					Y		Y	Y	**Y**		Y			
10:00 AM TO 11:00 AM	338	**111**	31		Y			Y		Y	Y	**Y**		Y			
11:00 AM TO 12:00 AM	374	**105**	32		Y			Y		Y	Y	**Y**		Y			
12:00 PM TO 01:00 PM	393	**84**	32					Y		Y	Y	**Y**		Y			
01:00 PM TO 02:00 PM	377	**115**	34		Y			Y		Y	Y	**Y**		Y			
02:00 PM TO 03:00 PM	462	**113**	36	Y	Y	**Y**		Y		Y	Y	**Y**		Y			
03:00 PM TO 04:00 PM	504	**82**	38	Y				Y		Y			Y	Y	**Y**		
04:00 PM TO 05:00 PM	520	**66**	38	Y				Y		Y			Y	Y	**Y**		
05:00 PM TO 06:00 PM	518	**75**	39	Y				Y		Y			Y	Y	**Y**		
	0	**0**	**0**														
	0	0	0														
	0	0	0														
	0	0	0														
	4,765	1,052	449			**1**			**0**			**7**			**3**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS OF BOTH COND. A AND COND. B NEEDED						4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**

WARRANT 1 -- Eight-Hour Vehicular Volume Warrant
- Condition A : Minimum Vehicular Volume
- Condition B : Interruption of Continuous Traffic
- Combination : Combination of Condition A and Condition B

WARRANT 2 -- Four-Hour Vehicular Volume Warrant

WARRANT 3 -- Peak Hour Warrant

Firestone Drive Traffic Signal Warrant Analysis

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS

INTERSECTION NAME: Firestone Drive at News Road

COUNT DATE: 6/8/2017

INTERSECTION CONDITION: 2027 No Build (No SBR, WBR, or NBR)

MAJOR STREET: News Road — # OF APPROACH LANES: 2

MINOR STREET: Firestone Drive/The Villages Driveway — # OF APPROACH LANES: 1

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): N

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): Y

	MAJOR ST	MINOR ST		WARRANT 1, Condition A			WARRANT 1, Condition B			WARRANT 1, Combination Warrant						WARRANT 2	WARRANT 3
										CONDITION A			CONDITION B				
	BOTH APPROACHES	HIGHEST APPROACH		MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET		
THRESHOLD VALUES	EB/WB	SB	NB	420	105		630	53		336	84		504	42			
06:00 AM TO 07:00 AM	188	**42**	32											Y			
07:00 AM TO 08:00 AM	420	**72**	50	Y				Y		Y				Y			
08:00 AM TO 09:00 AM	511	**94**	51	Y				Y		Y	Y	**Y**	Y	Y	**Y**		
09:00 AM TO 10:00 AM	453	**87**	36	Y				Y		Y	Y	**Y**		Y			
10:00 AM TO 11:00 AM	429	**110**	31	Y	Y	**Y**		Y		Y	Y	**Y**		Y			
11:00 AM TO 12:00 AM	474	**104**	32	Y				Y		Y	Y	**Y**		Y			
12:00 PM TO 01:00 PM	515	**83**	32	Y				Y		Y			Y	Y	**Y**		
01:00 PM TO 02:00 PM	499	**114**	34	Y	Y	**Y**		Y		Y	Y	**Y**		Y			
02:00 PM TO 03:00 PM	609	**112**	36	Y	Y	**Y**		Y		Y	Y	**Y**	Y	Y	**Y**		
03:00 PM TO 04:00 PM	679	**81**	38	Y			Y	Y	**Y**	Y			Y	Y	**Y**		
04:00 PM TO 05:00 PM	720	**65**	38	Y			Y	Y	**Y**	Y			Y	Y	**Y**		
05:00 PM TO 06:00 PM	733	**74**	39	Y			Y	Y	**Y**	Y			Y	Y	**Y**		
	0	**0**	**0**														
	0	0	0														
	0	0	0														
	0	0	0														
	6,230	1,038	449			**3**			**3**			**6**			**6**	**0**	**0**
				8 HOURS NEEDED **NOT SATISFIED**			8 HOURS NEEDED **NOT SATISFIED**			8 HOURS OF BOTH COND. A AND COND. B NEEDED **NOT SATISFIED**						4 HRS NEEDED **NOT SATISFIED**	1 HR NEEDED **NOT SATISFIED**

WARRANT 1 -- Eight-Hour Vehicular Volume Warrant
- Condition A : Minimum Vehicular Volume
- Condition B : Interruption of Continuous Traffic
- Combination : Combination of Condition A and Condition B

WARRANT 2 -- Four-Hour Vehicular Volume Warrant

WARRANT 3 -- Peak Hour Warrant

Firestone Drive Traffic Signal Warrant Analysis

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS

INTERSECTION NAME: Firestone Drive at News Road

COUNT DATE: 6/8/2017

INTERSECTION CONDITION: 2027 Build (No SBR, WBR, or NBR)

MAJOR STREET: News Road — # OF APPROACH LANES: 2

MINOR STREET: Firestone Drive/The Villages Driveway — # OF APPROACH LANES: 1

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): N

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): Y

	MAJOR ST	MINOR ST		WARRANT 1, Condition A			WARRANT 1, Condition B			WARRANT 1, Combination Warrant						WARRANT 2	WARRANT 3
										CONDITION A			CONDITION B				
	BOTH APPROACHES	HIGHEST APPROACH		MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET		
THRESHOLD VALUES	EB/WB	SB	NB	420	105		630	53		336	84		504	42			
06:00 AM TO 07:00 AM	188	**43**	32											Y			
07:00 AM TO 08:00 AM	420	**74**	50	Y				Y		Y				Y			
08:00 AM TO 09:00 AM	511	**96**	51	Y				Y		Y	Y	**Y**	Y	Y	**Y**		
09:00 AM TO 10:00 AM	453	**88**	36	Y				Y		Y	Y	**Y**		Y			
10:00 AM TO 11:00 AM	429	**111**	31	Y	Y	**Y**		Y		Y	Y	**Y**		Y			
11:00 AM TO 12:00 AM	474	**105**	32	Y	Y	**Y**		Y		Y	Y	**Y**		Y			
12:00 PM TO 01:00 PM	515	**84**	32	Y				Y		Y	Y	**Y**	Y	Y	**Y**		
01:00 PM TO 02:00 PM	499	**115**	34	Y	Y	**Y**		Y		Y	Y	**Y**		Y			
02:00 PM TO 03:00 PM	609	**113**	36	Y	Y	**Y**		Y		Y	Y	**Y**	Y	Y	**Y**		
03:00 PM TO 04:00 PM	679	**82**	38	Y			Y	Y	**Y**	Y			Y	Y	**Y**		
04:00 PM TO 05:00 PM	720	**66**	38	Y			Y	Y	**Y**	Y			Y	Y	**Y**		
05:00 PM TO 06:00 PM	733	**75**	39	Y			Y	Y	**Y**	Y			Y	Y	**Y**		
	0	**0**	**0**														
	0	0	0														
	0	0	0														
	0	0	0														
	6,230	1,052	449			**4**			**3**			**7**			**6**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS OF BOTH COND. A AND COND. B NEEDED						4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**

WARRANT 1 -- Eight-Hour Vehicular Volume Warrant
- Condition A : Minimum Vehicular Volume
- Condition B : Interruption of Continuous Traffic
- Combination : Combination of Condition A and Condition B

WARRANT 2 -- Four-Hour Vehicular Volume Warrant

WARRANT 3 -- Peak Hour Warrant

Fords Colony Drive at Longhill Road

Fords Colony Drive Traffic Signal Warrant Analysis

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS

INTERSECTION NAME: Fords Colony Drive at Longhill Road

COUNT DATE: 6/8/2017

INTERSECTION CONDITION: 2019 Existing (No WBR or NBR)

MAJOR STREET: Longhill Road — # OF APPROACH LANES: 2

MINOR STREET: Fords Colony Drive — # OF APPROACH LANES: 1

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): N

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): Y

	MAJOR ST	MINOR ST		WARRANT 1, Condition A			WARRANT 1, Condition B			WARRANT 1, Combination Warrant						WARRANT 2	WARRANT 3
										CONDITION A			CONDITION B				
	BOTH APPROACHES	HIGHEST APPROACH		MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET		
THRESHOLD VALUES	EB/WB	NB	SB	420	105		630	53		336	84		504	42			
06:00 AM TO 07:00 AM	234	15	2														
07:00 AM TO 08:00 AM	604	52	2	Y						Y			Y	Y	Y		
08:00 AM TO 09:00 AM	771	63	2	Y			Y	Y	Y	Y			Y	Y	Y		
09:00 AM TO 10:00 AM	617	44	1	Y						Y			Y	Y	Y		
10:00 AM TO 11:00 AM	507	66	5	Y				Y		Y			Y	Y	Y		
11:00 AM TO 12:00 AM	573	45	6	Y						Y			Y	Y	Y		
12:00 PM TO 01:00 PM	598	50	5	Y						Y			Y	Y	Y		
01:00 PM TO 02:00 PM	551	44	12	Y						Y			Y	Y	Y		
02:00 PM TO 03:00 PM	763	55	8	Y			Y	Y	Y	Y			Y	Y	Y		
03:00 PM TO 04:00 PM	833	75	13	Y			Y	Y	Y	Y			Y	Y	Y	Y	
04:00 PM TO 05:00 PM	850	56	4	Y			Y	Y	Y	Y			Y	Y	Y		
05:00 PM TO 06:00 PM	865	39	8	Y			Y			Y			Y				
	0	0	0														
	0	0	0														
	0	0	0														
	0	0	0														
	7,766	604	68			0			4			0			10	1	0
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS OF BOTH COND. A AND COND. B NEEDED						4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			NOT SATISFIED			NOT SATISFIED						NOT SATISFIED	NOT SATISFIED

WARRANT 1 -- Eight-Hour Vehicular Volume Warrant
- Condition A : Minimum Vehicular Volume
- Condition B : Interruption of Continuous Traffic
- Combination : Combination of Condition A and Condition B

WARRANT 2 -- Four-Hour Vehicular Volume Warrant

WARRANT 3 -- Peak Hour Warrant

Fords Colony Drive Traffic Signal Warrant Analysis

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS

INTERSECTION NAME: Fords Colony Drive at Longhill Road

COUNT DATE: 6/8/2017

INTERSECTION CONDITION: 2021 No Build (No WBR or NBR)

MAJOR STREET: Longhill Road — # OF APPROACH LANES: 2

MINOR STREET: Fords Colony Drive — # OF APPROACH LANES: 1

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): N

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): Y

	MAJOR ST	MINOR ST		WARRANT 1, Condition A			WARRANT 1, Condition B			WARRANT 1, Combination Warrant						WARRANT 2	WARRANT 3
										CONDITION A			CONDITION B				
	BOTH APPROACHES	HIGHEST APPROACH		MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET		
THRESHOLD VALUES	EB/WB	NB	SB	420	105		630	53		336	84		504	42			
06:00 AM TO 07:00 AM	268	18	2														
07:00 AM TO 08:00 AM	665	57	2	Y			Y	Y	Y	Y			Y	Y	Y		
08:00 AM TO 09:00 AM	843	69	2	Y			Y	Y	Y	Y			Y	Y	Y		
09:00 AM TO 10:00 AM	674	48	1	Y			Y			Y			Y	Y	Y		
10:00 AM TO 11:00 AM	560	71	5	Y				Y		Y			Y	Y	Y		
11:00 AM TO 12:00 AM	631	49	6	Y			Y			Y			Y	Y	Y		
12:00 PM TO 01:00 PM	656	54	5	Y			Y	Y	Y	Y			Y	Y	Y		
01:00 PM TO 02:00 PM	608	48	12	Y						Y			Y	Y	Y		
02:00 PM TO 03:00 PM	831	59	8	Y			Y	Y	Y	Y			Y	Y	Y		
03:00 PM TO 04:00 PM	909	80	14	Y			Y	Y	Y	Y			Y	Y	Y	Y	
04:00 PM TO 05:00 PM	932	60	4	Y			Y	Y	Y	Y			Y	Y	Y	Y	
05:00 PM TO 06:00 PM	950	43	8	Y			Y			Y			Y	Y	Y		
	0	0	0														
	0	0	0														
	0	0	0														
	0	0	0														
	8,527	656	69			0			6			0			11	2	0
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS OF BOTH COND. A AND COND. B NEEDED						4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			NOT SATISFIED			NOT SATISFIED						NOT SATISFIED	NOT SATISFIED

WARRANT 1 -- Eight-Hour Vehicular Volume Warrant
- Condition A : Minimum Vehicular Volume
- Condition B : Interruption of Continuous Traffic
- Combination : Combination of Condition A and Condition B

WARRANT 2 -- Four-Hour Vehicular Volume Warrant

WARRANT 3 -- Peak Hour Warrant

Fords Colony Drive Traffic Signal Warrant Analysis

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS

INTERSECTION NAME: Fords Colony Drive at Longhill Road

COUNT DATE: 6/8/2017

INTERSECTION CONDITION: 2021 Build (No WBR or NBR)

MAJOR STREET: Longhill Road — # OF APPROACH LANES: 2

MINOR STREET: Fords Colony Drive — # OF APPROACH LANES: 1

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): N

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): Y

	MAJOR ST	MINOR ST		WARRANT 1, Condition A			WARRANT 1, Condition B			WARRANT 1, Combination Warrant						WARRANT 2	WARRANT 3
										CONDITION A			CONDITION B				
	BOTH APPROACHES	HIGHEST APPROACH		MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET		
THRESHOLD VALUES	EB/WB	NB	SB	420	105		630	53		336	84		504	42			
06:00 AM TO 07:00 AM	273	**23**	2														
07:00 AM TO 08:00 AM	673	**64**	2	Y			Y	Y	**Y**	Y			Y	Y	**Y**		
08:00 AM TO 09:00 AM	855	**77**	2	Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**	
09:00 AM TO 10:00 AM	686	**53**	1	Y			Y	Y	**Y**	Y			Y	Y	**Y**		
10:00 AM TO 11:00 AM	573	**76**	5	Y				Y		Y			Y	Y	**Y**		
11:00 AM TO 12:00 AM	646	**54**	6	Y			Y	Y	**Y**	Y			Y	Y	**Y**		
12:00 PM TO 01:00 PM	671	**57**	5	Y			Y	Y	**Y**	Y			Y	Y	**Y**		
01:00 PM TO 02:00 PM	623	**52**	12	Y						Y			Y	Y	**Y**		
02:00 PM TO 03:00 PM	850	**63**	8	Y			Y	Y	**Y**	Y			Y	Y	**Y**		
03:00 PM TO 04:00 PM	932	**84**	14	Y			Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	
04:00 PM TO 05:00 PM	960	**64**	4	Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**	
05:00 PM TO 06:00 PM	982	**47**	8	Y			Y			Y			Y	Y	**Y**		
	0	**0**	**0**														
	0	0	0														
	0	0	0														
	0	0	0														
	8,724	714	69			**0**			**8**			**1**			**11**	**3**	**0**
				8 HOURS NEEDED **NOT SATISFIED**			8 HOURS NEEDED **SATISFIED**			8 HOURS OF BOTH COND. A AND COND. B NEEDED **NOT SATISFIED**						4 HRS NEEDED **NOT SATISFIED**	1 HR NEEDED **NOT SATISFIED**

WARRANT 1 -- Eight-Hour Vehicular Volume Warrant
- Condition A : Minimum Vehicular Volume
- Condition B : Interruption of Continuous Traffic
- Combination : Combination of Condition A and Condition B

WARRANT 2 -- Four-Hour Vehicular Volume Warrant

WARRANT 3 -- Peak Hour Warrant

Fords Colony Drive Traffic Signal Warrant Analysis

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS

INTERSECTION NAME: Fords Colony Drive at Longhill Road

COUNT DATE: 6/8/2017

INTERSECTION CONDITION: 2027 No Build (No WBR or NBR)

MAJOR STREET: Longhill Road — # OF APPROACH LANES: 2

MINOR STREET: Fords Colony Drive — # OF APPROACH LANES: 1

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): N

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): Y

	MAJOR ST	MINOR ST		WARRANT 1, Condition A			WARRANT 1, Condition B			WARRANT 1, Combination Warrant						WARRANT 2	WARRANT 3
										CONDITION A			CONDITION B				
	BOTH APPROACHES	HIGHEST APPROACH		MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET		
THRESHOLD VALUES	EB/WB	NB	SB	420	105		630	53		336	84		504	42			
06:00 AM TO 07:00 AM	300	**20**	2														
07:00 AM TO 08:00 AM	743	**64**	2	Y			Y	Y	**Y**	Y			Y	Y	**Y**		
08:00 AM TO 09:00 AM	944	**77**	2	Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**	
09:00 AM TO 10:00 AM	755	**54**	1	Y			Y	Y	**Y**	Y			Y	Y	**Y**		
10:00 AM TO 11:00 AM	626	**79**	6	Y				Y		Y			Y	Y	**Y**		
11:00 AM TO 12:00 AM	706	**55**	7	Y			Y	Y	**Y**	Y			Y	Y	**Y**		
12:00 PM TO 01:00 PM	734	**61**	6	Y			Y	Y	**Y**	Y			Y	Y	**Y**		
01:00 PM TO 02:00 PM	680	**54**	14	Y			Y	Y	**Y**	Y			Y	Y	**Y**		
02:00 PM TO 03:00 PM	931	**66**	9	Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**	
03:00 PM TO 04:00 PM	1,018	**90**	15	Y			Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	
04:00 PM TO 05:00 PM	1,043	**68**	5	Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**	
05:00 PM TO 06:00 PM	1,064	**48**	9	Y			Y			Y			Y	Y	**Y**		
	0																
	0	0	0														
	0	0	0														
	0	0	0														
	9,544	736	78			**0**			**9**			**1**			**11**	**4**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS OF BOTH COND. A AND COND. B NEEDED						4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**SATISFIED**			**NOT SATISFIED**						**SATISFIED**	**NOT SATISFIED**

WARRANT 1 -- Eight-Hour Vehicular Volume Warrant
- Condition A : Minimum Vehicular Volume
- Condition B : Interruption of Continuous Traffic
- Combination : Combination of Condition A and Condition B

WARRANT 2 -- Four-Hour Vehicular Volume Warrant

WARRANT 3 -- Peak Hour Warrant

Fords Colony Drive Traffic Signal Warrant Analysis

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS

INTERSECTION NAME: Fords Colony Drive at Longhill Road

COUNT DATE: 6/8/2017

INTERSECTION CONDITION: 2027 Build (No WBR or NBR)

MAJOR STREET: Longhill Road — # OF APPROACH LANES: 2

MINOR STREET: Fords Colony Drive — # OF APPROACH LANES: 1

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): N

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): Y

	MAJOR ST	MINOR ST		WARRANT 1, Condition A			WARRANT 1, Condition B			WARRANT 1, Combination Warrant						WARRANT 2	WARRANT 3
										CONDITION A			CONDITION B				
	BOTH APPROACHES	HIGHEST APPROACH		MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET		
THRESHOLD VALUES	EB/WB	NB	SB	420	105		630	53		336	84		504	42			
06:00 AM TO 07:00 AM	305	**25**	2														
07:00 AM TO 08:00 AM	751	**71**	2	Y			Y	Y	**Y**	Y			Y	Y	**Y**		
08:00 AM TO 09:00 AM	956	**85**	2	Y			Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	
09:00 AM TO 10:00 AM	767	**59**	1	Y			Y	Y	**Y**	Y			Y	Y	**Y**		
10:00 AM TO 11:00 AM	639	**84**	6	Y			Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**		
11:00 AM TO 12:00 AM	721	**60**	7	Y			Y	Y	**Y**	Y			Y	Y	**Y**		
12:00 PM TO 01:00 PM	749	**64**	6	Y			Y	Y	**Y**	Y			Y	Y	**Y**		
01:00 PM TO 02:00 PM	695	**58**	14	Y			Y	Y	**Y**	Y			Y	Y	**Y**		
02:00 PM TO 03:00 PM	950	**70**	9	Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**	
03:00 PM TO 04:00 PM	1,041	**94**	15	Y			Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	
04:00 PM TO 05:00 PM	1,071	**72**	5	Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**	
05:00 PM TO 06:00 PM	1,096	**52**	9	Y			Y			Y			Y	Y	**Y**		
	0	**0**	**0**														
	0	0	0														
	0	0	0														
	0	0	0														
	9,741	794	78			**0**			**10**			**3**			**11**	**4**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS OF BOTH COND. A AND COND. B NEEDED						4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**SATISFIED**			**NOT SATISFIED**						**SATISFIED**	**NOT SATISFIED**

WARRANT 1 -- Eight-Hour Vehicular Volume Warrant
- Condition A : Minimum Vehicular Volume
- Condition B : Interruption of Continuous Traffic
- Combination : Combination of Condition A and Condition B

WARRANT 2 -- Four-Hour Vehicular Volume Warrant

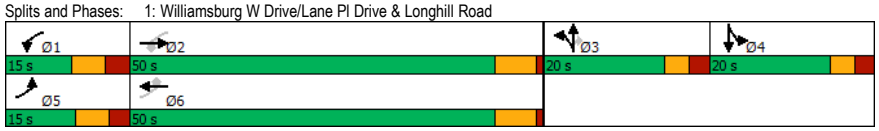
WARRANT 3 -- Peak Hour Warrant

Appendix E: Synchro and SimTraffic Reports

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	772	22	45	486	19	44	3	233	58	1	19
Future Volume (vph)	3	772	22	45	486	19	44	3	233	58	1	19
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.967	
Flt Protected	0.950			0.950				0.955			0.964	
Satd. Flow (prot)	1805	1863	1615	1719	1827	1380	0	1673	1615	0	1676	0
Flt Permitted	0.346			0.084				0.955			0.964	
Satd. Flow (perm)	657	1863	1615	152	1827	1380	0	1673	1615	0	1676	0
Satd. Flow (RTOR)			156			156			265		13	
Adj. Flow (vph)	3	877	25	51	552	22	50	3	265	66	1	22
Lane Group Flow (vph)	3	877	25	51	552	22	0	53	265	0	89	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Total Split (s)	15.0	50.0	50.0	15.0	50.0	50.0	20.0	20.0	20.0	20.0	20.0	
Total Lost Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Act Effct Green (s)	51.1	45.5	45.5	47.9	50.8	50.8		9.2	9.2		9.9	
Actuated g/C Ratio	0.59	0.53	0.53	0.56	0.59	0.59		0.11	0.11		0.12	
v/c Ratio	0.01	0.89	0.03	0.27	0.51	0.03		0.30	0.65		0.44	
Control Delay	9.3	35.7	0.0	13.1	15.4	0.1		43.8	13.5		41.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	9.3	35.7	0.0	13.1	15.4	0.1		43.8	13.5		41.3	
LOS	A	D	A	B	B	A		D	B		D	
Approach Delay		34.6			14.7			18.5			41.3	
Approach LOS		C			B			B			D	

Intersection Summary	
Cycle Length: 105	
Actuated Cycle Length: 85.9	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 25.8	Intersection LOS: C
Intersection Capacity Utilization 75.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	772	22	45	486	19	44	3	233	58	1	19
Future Volume (vph)	3	772	22	45	486	19	44	3	233	58	1	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.96	
Satd. Flow (prot)	1805	1863	1615	1719	1827	1380		1673	1615		1676	
Flt Permitted	0.35	1.00	1.00	0.08	1.00	1.00		0.95	1.00		0.96	
Satd. Flow (perm)	658	1863	1615	152	1827	1380		1673	1615		1676	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	3	877	25	51	552	22	50	3	265	66	1	22
RTOR Reduction (vph)	0	0	12	0	0	10	0	0	239	0	12	0
Lane Group Flow (vph)	3	877	13	51	552	12	0	53	26	0	77	0
Heavy Vehicles (%)	0%	2%	0%	5%	4%	17%	7%	33%	0%	4%	0%	11%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Actuated Green, G (s)	51.5	47.6	47.6	51.0	50.7	50.7		9.2	9.2		8.0	
Effective Green, g (s)	51.5	47.6	47.6	51.0	50.7	50.7		9.2	9.2		8.0	
Actuated g/C Ratio	0.56	0.52	0.52	0.55	0.55	0.55		0.10	0.10		0.09	
Clearance Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	377	961	833	141	1004	758		166	161		145	
v/s Ratio Prot	0.00	c0.47		c0.01	c0.30			c0.03			c0.05	
v/s Ratio Perm	0.00		0.01	0.19		0.01			0.02			
v/c Ratio	0.01	0.91	0.02	0.36	0.55	0.02		0.32	0.16		0.53	
Uniform Delay, d1	9.8	20.4	10.9	17.3	13.4	9.4		38.6	38.0		40.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.0	13.3	0.0	0.6	1.1	0.0		1.1	0.5		3.7	
Delay (s)	9.8	33.7	10.9	17.9	14.5	9.4		39.7	38.5		44.0	
Level of Service	A	C	B	B	B	A		D	D		D	
Approach Delay (s)		33.0			14.6			38.7			44.0	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	28.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	92.2	Sum of lost time (s)	24.0
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	305	37	110	277	1	73	1	135	0	1	0
Future Volume (vph)	3	305	37	110	277	1	73	1	135	0	1	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984				0.850		0.913				
Flt Protected	0.950			0.950				0.983				
Satd. Flow (prot)	1805	1779	0	1752	1776	1615	0	1648	0	0	1900	0
Flt Permitted	0.950			0.950				0.983				
Satd. Flow (perm)	1805	1779	0	1752	1776	1615	0	1648	0	0	1900	0
Adj. Flow (vph)	4	367	45	133	334	1	88	1	163	0	1	0
Lane Group Flow (vph)	4	412	0	133	334	1	0	252	0	0	1	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 53.5%	ICU Level of Service A	
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	305	37	110	277	1	73	1	135	0	1	0
Future Volume (Veh/h)	3	305	37	110	277	1	73	1	135	0	1	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	4	367	45	133	334	1	88	1	163	0	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	335			412			998	998	390	1138	1020	334
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	335			412			998	998	390	1138	1020	334
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			88			55	100	75	100	100	100
cM capacity (veh/h)	1236			1142			195	216	663	123	210	712

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	4	412	133	334	1	252	1
Volume Left	4	0	133	0	0	88	0
Volume Right	0	45	0	0	1	163	0
cSH	1236	1700	1142	1700	1700	359	210
Volume to Capacity	0.00	0.24	0.12	0.20	0.00	0.70	0.00
Queue Length 95th (ft)	0	0	10	0	0	128	0
Control Delay (s)	7.9	0.0	8.6	0.0	0.0	35.5	22.2
Lane LOS	A		A			E	C
Approach Delay (s)	0.1		2.4			35.5	22.2
Approach LOS						E	C

Intersection Summary			
Average Delay	8.9		
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	1	2	57	0	49	2	354	45	53	221	3
Future Volume (vph)	4	1	2	57	0	49	2	354	45	53	221	3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.961			0.850				0.850			0.850
Flt Protected		0.972		0.950			0.950			0.950		
Satd. Flow (prot)	0	1775	0	1736	1553	0	1805	1759	1282	1556	1759	967
Flt Permitted		0.972		0.950			0.950			0.950		
Satd. Flow (perm)	0	1775	0	1736	1553	0	1805	1759	1282	1556	1759	967
Adj. Flow (vph)	4	1	2	63	0	54	2	389	49	58	243	3
Lane Group Flow (vph)	0	7	0	63	54	0	2	389	49	58	243	3
Sign Control		Stop			Stop			Free			Free	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 36.9%	ICU Level of Service A	
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	1	2	57	0	49	2	354	45	53	221	3
Future Volume (Veh/h)	4	1	2	57	0	49	2	354	45	53	221	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	4	1	2	63	0	54	2	389	49	58	243	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	806	801	243	754	755	389	246			438		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	806	801	243	754	755	389	246			438		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	98	100	100	79	100	92	100			94		
cM capacity (veh/h)	266	302	801	307	321	655	1332			1051		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	7	63	54	2	389	49	58	243	3
Volume Left	4	63	0	2	0	0	58	0	0
Volume Right	2	0	54	0	0	49	0	0	3
cSH	336	307	655	1332	1700	1700	1051	1700	1700
Volume to Capacity	0.02	0.21	0.08	0.00	0.23	0.03	0.06	0.14	0.00
Queue Length 95th (ft)	2	19	7	0	0	0	4	0	0
Control Delay (s)	16.0	19.7	11.0	7.7	0.0	0.0	8.6	0.0	0.0
Lane LOS	C	C	B	A			A		
Approach Delay (s)	16.0	15.7		0.0			1.6		
Approach LOS	C	C							

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	36.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	196	130	45	88	18
Future Volume (vph)	10	196	130	45	88	18
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1504	1845	1681	1583	1805	1615
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1504	1845	1681	1583	1805	1615
Adj. Flow (vph)	11	206	137	47	93	19
Lane Group Flow (vph)	11	206	137	47	93	19
Sign Control		Free	Free		Stop	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 21.9%	ICU Level of Service A	
Analysis Period (min) 15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	196	130	45	88	18
Future Volume (Veh/h)	10	196	130	45	88	18
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	11	206	137	47	93	19
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						6
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	184				365	137
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	184				365	137
tC, single (s)	4.3				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.4				3.5	3.3
p0 queue free %	99				85	98
cM capacity (veh/h)	1290				633	917

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	11	206	137	47	112
Volume Left	11	0	0	0	93
Volume Right	0	0	0	47	19
cSH	1290	1700	1700	1700	762
Volume to Capacity	0.01	0.12	0.08	0.03	0.15
Queue Length 95th (ft)	1	0	0	0	13
Control Delay (s)	7.8	0.0	0.0	0.0	11.2
Lane LOS	A				B
Approach Delay (s)	0.4		0.0		11.2
Approach LOS					B

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	21.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	R	L	T	R	LT	R	LTR
Maximum Queue (ft)	69	479	164	81	230	41	92	120	112
Average Queue (ft)	3	197	13	24	93	6	35	61	43
95th Queue (ft)	39	398	82	62	182	26	76	101	88
Link Distance (ft)		1007			741	741	405		475
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	250		225	250				225	
Storage Blk Time (%)	0	6	0	0	0				
Queuing Penalty (veh)	0	1	0	0	0				

Intersection: 2: Fords Colony Drive/Dominon Village & Longhill Road

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	L	LTR	LTR
Maximum Queue (ft)	14	10	70	192	6
Average Queue (ft)	1	0	21	69	0
95th Queue (ft)	7	6	51	148	4
Link Distance (ft)		2032		736	278
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	200		225		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Centerville Road & Westport/Manchester Drive

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	TR	L	L
Maximum Queue (ft)	30	60	54	8	64
Average Queue (ft)	5	23	19	0	14
95th Queue (ft)	22	48	41	5	45
Link Distance (ft)	247	762			
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			140	190	190
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: News Road & Firestone Drive

Movement	EB	WB	SB	SB
Directions Served	L	T	L	R
Maximum Queue (ft)	40	4	69	31
Average Queue (ft)	2	0	34	14
95th Queue (ft)	18	4	57	39
Link Distance (ft)		493	375	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	225			150
Storage Blk Time (%)				
Queuing Penalty (veh)				

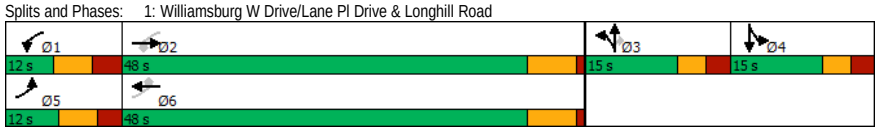
Network Summary

Network wide Queuing Penalty: 2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	819	23	47	514	20	46	3	242	60	1	20
Future Volume (vph)	3	819	23	47	514	20	46	3	242	60	1	20
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.966	
Flt Protected	0.950			0.950				0.955			0.964	
Satd. Flow (prot)	1805	1863	1615	1719	1827	1380	0	1673	1615	0	1674	0
Flt Permitted	0.342			0.088				0.955			0.964	
Satd. Flow (perm)	650	1863	1615	159	1827	1380	0	1673	1615	0	1674	0
Satd. Flow (RTOR)			182			182			244		15	
Adj. Flow (vph)	3	890	25	51	559	22	50	3	263	65	1	22
Lane Group Flow (vph)	3	890	25	51	559	22	0	53	263	0	88	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Total Split (s)	12.0	48.0	48.0	12.0	48.0	48.0	15.0	15.0	15.0	15.0	15.0	
Total Lost Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Act Effct Green (s)	47.8	43.0	43.0	44.7	47.5	47.5		8.3	8.3		8.5	
Actuated g/C Ratio	0.59	0.53	0.53	0.56	0.59	0.59		0.10	0.10		0.11	
v/c Ratio	0.01	0.89	0.03	0.27	0.52	0.02		0.31	0.68		0.46	
Control Delay	7.7	34.1	0.0	12.0	14.1	0.1		41.9	17.0		40.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	7.7	34.1	0.0	12.0	14.1	0.1		41.9	17.0		40.3	
LOS	A	C	A	B	B	A		D	B		D	
Approach Delay		33.1			13.4			21.2			40.3	
Approach LOS		C			B			C			D	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 80.4	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 25.1	Intersection LOS: C
Intersection Capacity Utilization 78.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	819	23	47	514	20	46	3	242	60	1	20
Future Volume (vph)	3	819	23	47	514	20	46	3	242	60	1	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.96	
Satd. Flow (prot)	1805	1863	1615	1719	1827	1380		1673	1615		1675	
Flt Permitted	0.34	1.00	1.00	0.09	1.00	1.00		0.95	1.00		0.96	
Satd. Flow (perm)	650	1863	1615	160	1827	1380		1673	1615		1675	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	890	25	51	559	22	50	3	263	65	1	22
RTOR Reduction (vph)	0	0	12	0	0	10	0	0	221	0	14	0
Lane Group Flow (vph)	3	890	13	51	559	12	0	53	42	0	74	0
Heavy Vehicles (%)	0%	2%	0%	5%	4%	17%	7%	33%	0%	4%	0%	11%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Actuated Green, G (s)	48.4	45.2	45.2	47.9	47.5	47.5		8.3	8.3		6.7	
Effective Green, g (s)	48.4	45.2	45.2	47.9	47.5	47.5		8.3	8.3		6.7	
Actuated g/C Ratio	0.56	0.52	0.52	0.55	0.55	0.55		0.10	0.10		0.08	
Clearance Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	373	969	840	136	998	754		159	154		129	
v/s Ratio Prot	0.00	c0.48		c0.01	0.31			c0.03			c0.04	
v/s Ratio Perm	0.00		0.01	0.19		0.01			0.03			
v/c Ratio	0.01	0.92	0.02	0.38	0.56	0.02		0.33	0.27		0.57	
Uniform Delay, d1	9.3	19.2	10.1	16.5	12.9	9.0		36.7	36.5		38.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.0	13.8	0.0	0.6	1.2	0.0		1.2	1.0		6.1	
Delay (s)	9.3	33.0	10.1	17.2	14.1	9.0		38.0	37.5		44.8	
Level of Service	A	C	B	B	B	A		D	D		D	
Approach Delay (s)		32.3			14.1			37.6			44.8	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	27.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	86.9	Sum of lost time (s)	24.0
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	326	39	116	294	1	78	1	148	0	1	0
Future Volume (vph)	3	326	39	116	294	1	78	1	148	0	1	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984				0.850		0.912				
Flt Protected	0.950			0.950				0.983				
Satd. Flow (prot)	1805	1779	0	1752	1776	1615	0	1647	0	0	1900	0
Flt Permitted	0.950			0.950				0.983				
Satd. Flow (perm)	1805	1779	0	1752	1776	1615	0	1647	0	0	1900	0
Adj. Flow (vph)	3	354	42	126	320	1	85	1	161	0	1	0
Lane Group Flow (vph)	3	396	0	126	320	1	0	247	0	0	1	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 56.1%	ICU Level of Service B	
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	326	39	116	294	1	78	1	148	0	1	0
Future Volume (Veh/h)	3	326	39	116	294	1	78	1	148	0	1	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	354	42	126	320	1	85	1	161	0	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	321			396			954	954	375	1094	974	320
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	321			396			954	954	375	1094	974	320
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			89			60	100	76	100	100	100
cM capacity (veh/h)	1250			1157			210	232	676	134	226	725

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	3	396	126	320	1	247	1
Volume Left	3	0	126	0	0	85	0
Volume Right	0	42	0	0	1	161	0
cSH	1250	1700	1157	1700	1700	382	226
Volume to Capacity	0.00	0.23	0.11	0.19	0.00	0.65	0.00
Queue Length 95th (ft)	0	0	9	0	0	109	0
Control Delay (s)	7.9	0.0	8.5	0.0	0.0	30.1	21.0
Lane LOS	A		A			D	C
Approach Delay (s)	0.1		2.4			30.1	21.0
Approach LOS						D	C

Intersection Summary			
Average Delay	7.8		
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	1	9	62	0	52	4	378	48	56	243	10
Future Volume (vph)	23	1	9	62	0	52	4	378	48	56	243	10
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.962			0.850				0.850			0.850
Flt Protected		0.966		0.950			0.950			0.950		
Satd. Flow (prot)	0	1766	0	1736	1553	0	1805	1759	1282	1556	1759	967
Flt Permitted		0.966		0.950			0.950			0.950		
Satd. Flow (perm)	0	1766	0	1736	1553	0	1805	1759	1282	1556	1759	967
Adj. Flow (vph)	25	1	10	67	0	57	4	411	52	61	264	11
Lane Group Flow (vph)	0	36	0	67	57	0	4	411	52	61	264	11
Sign Control		Stop			Stop			Free			Free	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 41.8%	ICU Level of Service A	
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	1	9	62	0	52	4	378	48	56	243	10
Future Volume (Veh/h)	23	1	9	62	0	52	4	378	48	56	243	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	1	10	67	0	57	4	411	52	61	264	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	862	857	264	816	816	411	275			463		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	862	857	264	816	816	411	275			463		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	90	100	99	76	100	91	100			94		
cM capacity (veh/h)	241	279	780	275	294	636	1300			1029		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	36	67	57	4	411	52	61	264	11
Volume Left	25	67	0	4	0	0	61	0	0
Volume Right	10	0	57	0	0	52	0	0	11
cSH	299	275	636	1300	1700	1700	1029	1700	1700
Volume to Capacity	0.12	0.24	0.09	0.00	0.24	0.03	0.06	0.16	0.01
Queue Length 95th (ft)	10	23	7	0	0	0	5	0	0
Control Delay (s)	18.7	22.2	11.2	7.8	0.0	0.0	8.7	0.0	0.0
Lane LOS	C	C	B	A			A		
Approach Delay (s)	18.7	17.2		0.1			1.6		
Approach LOS	C	C							

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	41.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	212	18	31	137	47	14	0	38	92	0	19
Future Volume (vph)	10	212	18	31	137	47	14	0	38	92	0	19
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.962				0.850			0.850
Flt Protected	0.950			0.950				0.950			0.950	
Satd. Flow (prot)	1504	1824	0	1770	1659	0	0	1770	1583	0	1805	1615
Flt Permitted	0.950			0.950				0.950			0.950	
Satd. Flow (perm)	1504	1824	0	1770	1659	0	0	1770	1583	0	1805	1615
Adj. Flow (vph)	11	223	19	33	144	49	15	0	40	97	0	20
Lane Group Flow (vph)	11	242	0	33	193	0	0	15	40	0	97	20
Sign Control		Free			Free			Stop			Stop	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 37.3%	ICU Level of Service A	
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	212	18	31	137	47	14	0	38	92	0	19
Future Volume (Veh/h)	10	212	18	31	137	47	14	0	38	92	0	19
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	11	223	19	33	144	49	15	0	40	97	0	20
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									6			6
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	193			242			474	514	232	500	498	168
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	193			242			474	514	232	500	498	168
tC, single (s)	4.3			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			98			97	100	95	78	100	98
cM capacity (veh/h)	1279			1324			477	449	807	449	458	881

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	11	242	33	193	55	117
Volume Left	11	0	33	0	15	97
Volume Right	0	19	0	49	40	20
cSH	1279	1700	1324	1700	1109	542
Volume to Capacity	0.01	0.14	0.02	0.11	0.05	0.22
Queue Length 95th (ft)	1	0	2	0	4	20
Control Delay (s)	7.8	0.0	7.8	0.0	10.5	14.2
Lane LOS	A		A		B	B
Approach Delay (s)	0.3		1.1		10.5	14.2
Approach LOS					B	B

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	37.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	R	L	T	R	LT	R	LTR
Maximum Queue (ft)	46	563	205	67	206	51	93	133	115
Average Queue (ft)	2	241	18	30	94	7	38	63	46
95th Queue (ft)	28	465	106	58	179	30	80	105	94
Link Distance (ft)		1007			741	741	405		475
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	250		225	250				225	
Storage Blk Time (%)		10	0		0				
Queuing Penalty (veh)		3	0		0				

Intersection: 2: Fords Colony Drive/Dominon Village & Longhill Road

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	L	LTR	LTR
Maximum Queue (ft)	5	22	77	209	14
Average Queue (ft)	0	1	23	72	1
95th Queue (ft)	4	9	56	151	6
Link Distance (ft)		2032		736	278
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	200		225		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Centerville Road & Westport/Manchester Drive

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	TR	L	L
Maximum Queue (ft)	45	72	52	9	60
Average Queue (ft)	19	25	19	0	15
95th Queue (ft)	41	50	40	4	45
Link Distance (ft)	247	762			
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			140	190	190
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: News Road & Firestone Drive

Movement	EB	WB	NB	NB	SB	SB
Directions Served	L	L	LT	R	LT	R
Maximum Queue (ft)	28	31	40	54	82	33
Average Queue (ft)	2	6	12	24	35	14
95th Queue (ft)	15	23	37	49	63	39
Link Distance (ft)			372		374	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	225	225		150		150
Storage Blk Time (%)					0	
Queuing Penalty (veh)					0	

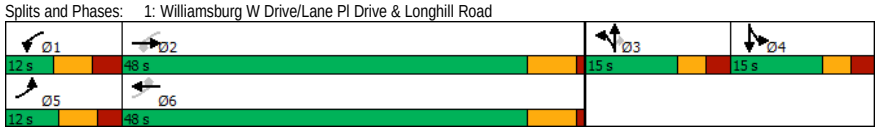
Network Summary

Network wide Queuing Penalty: 3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	832	23	47	518	20	46	3	242	60	1	20
Future Volume (vph)	3	832	23	47	518	20	46	3	242	60	1	20
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.966	
Flt Protected	0.950			0.950				0.955			0.964	
Satd. Flow (prot)	1805	1863	1615	1719	1827	1380	0	1673	1615	0	1674	0
Flt Permitted	0.339			0.088				0.955			0.964	
Satd. Flow (perm)	644	1863	1615	159	1827	1380	0	1673	1615	0	1674	0
Satd. Flow (RTOR)			182			182			241		15	
Adj. Flow (vph)	3	904	25	51	563	22	50	3	263	65	1	22
Lane Group Flow (vph)	3	904	25	51	563	22	0	53	263	0	88	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Total Split (s)	12.0	48.0	48.0	12.0	48.0	48.0	15.0	15.0	15.0	15.0	15.0	
Total Lost Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Act Effct Green (s)	47.8	43.0	43.0	44.7	47.5	47.5		8.3	8.3		8.5	
Actuated g/C Ratio	0.59	0.53	0.53	0.56	0.59	0.59		0.10	0.10		0.11	
v/c Ratio	0.01	0.91	0.03	0.27	0.52	0.02		0.31	0.69		0.46	
Control Delay	7.7	35.8	0.0	12.0	14.1	0.1		41.9	17.5		40.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	7.7	35.8	0.0	12.0	14.1	0.1		41.9	17.5		40.3	
LOS	A	D	A	B	B	A		D	B		D	
Approach Delay		34.7			13.5			21.6			40.3	
Approach LOS		C			B			C			D	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 80.4	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 26.0	Intersection LOS: C
Intersection Capacity Utilization 78.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	832	23	47	518	20	46	3	242	60	1	20
Future Volume (vph)	3	832	23	47	518	20	46	3	242	60	1	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.96	
Satd. Flow (prot)	1805	1863	1615	1719	1827	1380		1673	1615		1675	
Flt Permitted	0.34	1.00	1.00	0.09	1.00	1.00		0.95	1.00		0.96	
Satd. Flow (perm)	645	1863	1615	160	1827	1380		1673	1615		1675	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	904	25	51	563	22	50	3	263	65	1	22
RTOR Reduction (vph)	0	0	12	0	0	10	0	0	218	0	14	0
Lane Group Flow (vph)	3	904	13	51	563	12	0	53	45	0	74	0
Heavy Vehicles (%)	0%	2%	0%	5%	4%	17%	7%	33%	0%	4%	0%	11%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Actuated Green, G (s)	48.4	45.2	45.2	47.9	47.5	47.5		8.3	8.3		6.7	
Effective Green, g (s)	48.4	45.2	45.2	47.9	47.5	47.5		8.3	8.3		6.7	
Actuated g/C Ratio	0.56	0.52	0.52	0.55	0.55	0.55		0.10	0.10		0.08	
Clearance Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	371	969	840	136	998	754		159	154		129	
v/s Ratio Prot	0.00	c0.49		c0.01	0.31			c0.03			c0.04	
v/s Ratio Perm	0.00		0.01	0.19		0.01			0.03			
v/c Ratio	0.01	0.93	0.02	0.38	0.56	0.02		0.33	0.29		0.57	
Uniform Delay, d1	9.4	19.4	10.1	17.0	12.9	9.0		36.7	36.6		38.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.0	15.8	0.0	0.6	1.2	0.0		1.2	1.1		6.1	
Delay (s)	9.4	35.2	10.1	17.7	14.1	9.0		38.0	37.6		44.8	
Level of Service	A	D	B	B	B	A		D	D		D	
Approach Delay (s)		34.5			14.2			37.7			44.8	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	86.9	Sum of lost time (s)	24.0
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	326	40	120	294	1	82	1	161	0	1	0
Future Volume (vph)	3	326	40	120	294	1	82	1	161	0	1	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			
Flt Protected	0.950			0.950				0.953				
Satd. Flow (prot)	1805	1810	1524	1752	1776	1615	0	1648	1615	0	1900	0
Flt Permitted	0.950			0.950				0.953				
Satd. Flow (perm)	1805	1810	1524	1752	1776	1615	0	1648	1615	0	1900	0
Adj. Flow (vph)	3	354	43	130	320	1	89	1	175	0	1	0
Lane Group Flow (vph)	3	354	43	130	320	1	0	90	175	0	1	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 45.1%	ICU Level of Service A	
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	326	40	120	294	1	82	1	161	0	1	0
Future Volume (Veh/h)	3	326	40	120	294	1	82	1	161	0	1	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	354	43	130	320	1	89	1	175	0	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									7			
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	321			397			940	941	354	1028	983	320
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	321			397			940	941	354	1028	983	320
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			89			58	100	75	100	100	100
cM capacity (veh/h)	1250			1156			214	235	694	146	222	725

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	3	354	43	130	320	1	265	1
Volume Left	3	0	0	130	0	0	89	0
Volume Right	0	0	43	0	0	1	175	0
cSH	1250	1700	1700	1156	1700	1700	631	222
Volume to Capacity	0.00	0.21	0.03	0.11	0.19	0.00	0.42	0.00
Queue Length 95th (ft)	0	0	0	9	0	0	52	0
Control Delay (s)	7.9	0.0	0.0	8.5	0.0	0.0	19.2	21.3
Lane LOS	A			A			C	C
Approach Delay (s)	0.1			2.5			19.2	21.3
Approach LOS							C	C

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	1	9	65	0	53	4	378	49	56	243	10
Future Volume (vph)	23	1	9	65	0	53	4	378	49	56	243	10
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.962			0.850				0.850			0.850
Flt Protected		0.966		0.950			0.950			0.950		
Satd. Flow (prot)	0	1766	0	1736	1553	0	1805	1759	1282	1556	1759	967
Flt Permitted		0.966		0.950			0.950			0.950		
Satd. Flow (perm)	0	1766	0	1736	1553	0	1805	1759	1282	1556	1759	967
Adj. Flow (vph)	25	1	10	71	0	58	4	411	53	61	264	11
Lane Group Flow (vph)	0	36	0	71	58	0	4	411	53	61	264	11
Sign Control		Stop			Stop			Free			Free	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 41.8%	ICU Level of Service A	
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	1	9	65	0	53	4	378	49	56	243	10
Future Volume (Veh/h)	23	1	9	65	0	53	4	378	49	56	243	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	1	10	71	0	58	4	411	53	61	264	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	863	858	264	816	816	411	275			464		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	863	858	264	816	816	411	275			464		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	90	100	99	74	100	91	100			94		
cM capacity (veh/h)	240	278	780	275	294	636	1300			1028		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	36	71	58	4	411	53	61	264	11
Volume Left	25	71	0	4	0	0	61	0	0
Volume Right	10	0	58	0	0	53	0	0	11
cSH	298	275	636	1300	1700	1700	1028	1700	1700
Volume to Capacity	0.12	0.26	0.09	0.00	0.24	0.03	0.06	0.16	0.01
Queue Length 95th (ft)	10	25	7	0	0	0	5	0	0
Control Delay (s)	18.7	22.6	11.2	7.8	0.0	0.0	8.7	0.0	0.0
Lane LOS	C	C	B	A			A		
Approach Delay (s)	18.7	17.5		0.1			1.6		
Approach LOS	C	C							

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	41.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	214	18	31	138	47	14	0	38	92	0	19
Future Volume (vph)	10	214	18	31	138	47	14	0	38	92	0	19
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.962				0.850			0.850
Flt Protected	0.950			0.950				0.950			0.950	
Satd. Flow (prot)	1504	1824	0	1770	1658	0	0	1770	1583	0	1805	1615
Flt Permitted	0.950			0.950				0.950			0.950	
Satd. Flow (perm)	1504	1824	0	1770	1658	0	0	1770	1583	0	1805	1615
Adj. Flow (vph)	11	225	19	33	145	49	15	0	40	97	0	20
Lane Group Flow (vph)	11	244	0	33	194	0	0	15	40	0	97	20
Sign Control		Free			Free			Stop			Stop	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 37.5%	ICU Level of Service A	
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	214	18	31	138	47	14	0	38	92	0	19
Future Volume (Veh/h)	10	214	18	31	138	47	14	0	38	92	0	19
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	11	225	19	33	145	49	15	0	40	97	0	20
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									6			6
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	194			244			478	516	234	502	502	170
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	194			244			478	516	234	502	502	170
tC, single (s)	4.3			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			98			97	100	95	78	100	98
cM capacity (veh/h)	1278			1322			474	447	805	447	456	880

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	11	244	33	194	55	117
Volume Left	11	0	33	0	15	97
Volume Right	0	19	0	49	40	20
cSH	1278	1700	1322	1700	1106	539
Volume to Capacity	0.01	0.14	0.02	0.11	0.05	0.22
Queue Length 95th (ft)	1	0	2	0	4	20
Control Delay (s)	7.8	0.0	7.8	0.0	10.6	14.2
Lane LOS	A		A		B	B
Approach Delay (s)	0.3		1.1		10.6	14.2
Approach LOS					B	B

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	R	L	T	R	LT	R	LTR
Maximum Queue (ft)	66	561	187	65	217	49	92	141	124
Average Queue (ft)	3	255	19	28	93	7	36	65	46
95th Queue (ft)	38	499	106	57	181	31	75	108	96
Link Distance (ft)		1007			741	741	405		475
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	250		225	250				225	
Storage Blk Time (%)		11	0		0				
Queuing Penalty (veh)		3	1		0				

Intersection: 2: Fords Colony Drive/Dominon Village & Longhill Road

Movement	EB	EB	WB	NB	NB	SB
Directions Served	L	R	L	LT	R	LTR
Maximum Queue (ft)	9	8	103	115	93	14
Average Queue (ft)	1	0	32	42	35	1
95th Queue (ft)	6	5	72	90	67	6
Link Distance (ft)				723		278
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	200	300	225		175	
Storage Blk Time (%)				0	0	
Queuing Penalty (veh)				0	0	

Intersection: 3: Centerville Road & Westport/Manchester Drive

Movement	EB	WB	WB	NB	NB	SB
Directions Served	LTR	L	TR	L	T	L
Maximum Queue (ft)	47	68	55	7	2	64
Average Queue (ft)	18	27	19	0	0	15
95th Queue (ft)	41	54	40	4	2	47
Link Distance (ft)	247	762			622	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			140	190		190
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 4: News Road & Firestone Drive

Movement	EB	WB	NB	NB	SB	SB
Directions Served	L	L	LT	R	LT	R
Maximum Queue (ft)	30	28	40	54	71	33
Average Queue (ft)	3	5	12	24	35	14
95th Queue (ft)	17	21	37	49	59	39
Link Distance (ft)			372		374	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	225	225		150		150
Storage Blk Time (%)						
Queuing Penalty (veh)						

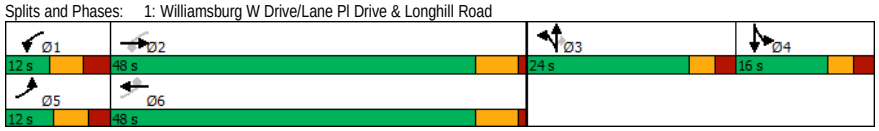
Network Summary

Network wide Queuing Penalty: 4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	920	26	53	577	22	52	4	273	68	1	22
Future Volume (vph)	4	920	26	53	577	22	52	4	273	68	1	22
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.967	
Flt Protected	0.950			0.950				0.955			0.964	
Satd. Flow (prot)	1805	3539	1615	1719	3471	1380	0	1669	1615	0	1676	0
Flt Permitted	0.377			0.186				0.955			0.964	
Satd. Flow (perm)	716	3539	1615	337	3471	1380	0	1669	1615	0	1676	0
Satd. Flow (RTOR)			164			164			207		13	
Adj. Flow (vph)	4	1000	28	58	627	24	57	4	297	74	1	24
Lane Group Flow (vph)	4	1000	28	58	627	24	0	61	297	0	99	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Total Split (s)	12.0	48.0	48.0	12.0	48.0	48.0	24.0	24.0	24.0	16.0	16.0	
Total Lost Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Act Effct Green (s)	40.9	34.0	34.0	36.4	40.7	40.7		12.0	12.0		9.8	
Actuated g/C Ratio	0.52	0.43	0.43	0.46	0.52	0.52		0.15	0.15		0.12	
v/c Ratio	0.01	0.65	0.04	0.23	0.35	0.03		0.24	0.71		0.45	
Control Delay	10.5	22.1	0.1	12.9	13.4	0.1		37.2	22.6		42.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	10.5	22.1	0.1	12.9	13.4	0.1		37.2	22.6		42.3	
LOS	B	C	A	B	B	A		D	C		D	
Approach Delay		21.5			12.9			25.1			42.3	
Approach LOS		C			B			C			D	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 78.6	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 20.3	Intersection LOS: C
Intersection Capacity Utilization 61.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	920	26	53	577	22	52	4	273	68	1	22
Future Volume (vph)	4	920	26	53	577	22	52	4	273	68	1	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.96	
Satd. Flow (prot)	1805	3539	1615	1719	3471	1380		1670	1615		1677	
Flt Permitted	0.38	1.00	1.00	0.19	1.00	1.00		0.96	1.00		0.96	
Satd. Flow (perm)	716	3539	1615	336	3471	1380		1670	1615		1677	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	1000	28	58	627	24	57	4	297	74	1	24
RTOR Reduction (vph)	0	0	16	0	0	12	0	0	177	0	12	0
Lane Group Flow (vph)	4	1000	12	58	627	12	0	61	120	0	87	0
Heavy Vehicles (%)	0%	2%	0%	5%	4%	17%	7%	33%	0%	4%	0%	11%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Actuated Green, G (s)	41.5	37.4	37.4	41.0	40.7	40.7		12.0	12.0		6.8	
Effective Green, g (s)	41.5	37.4	37.4	41.0	40.7	40.7		12.0	12.0		6.8	
Actuated g/C Ratio	0.50	0.45	0.45	0.49	0.49	0.49		0.14	0.14		0.08	
Clearance Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	364	1579	720	223	1685	670		239	231		136	
v/s Ratio Prot	0.00	c0.28		c0.01	c0.18			0.04			c0.05	
v/s Ratio Perm	0.01		0.01	0.12		0.01			c0.07			
v/c Ratio	0.01	0.63	0.02	0.26	0.37	0.02		0.26	0.52		0.64	
Uniform Delay, d1	10.8	17.9	12.9	12.5	13.5	11.2		31.9	33.2		37.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.0	1.2	0.0	0.2	0.3	0.0		0.6	2.0		9.9	
Delay (s)	10.8	19.1	13.0	12.7	13.8	11.2		32.5	35.2		47.2	
Level of Service	B	B	B	B	B	B		C	D		D	
Approach Delay (s)		18.9			13.6			34.7			47.2	
Approach LOS		B			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	83.8	Sum of lost time (s)	24.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	366	44	131	331	1	88	1	165	0	1	0
Future Volume (vph)	4	366	44	131	331	1	88	1	165	0	1	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984				0.850		0.912				
Flt Protected	0.950			0.950				0.983				
Satd. Flow (prot)	1805	1779	0	1752	1776	1615	0	1646	0	0	1900	0
Flt Permitted	0.950			0.950				0.983				
Satd. Flow (perm)	1805	1779	0	1752	1776	1615	0	1646	0	0	1900	0
Adj. Flow (vph)	4	398	48	142	360	1	96	1	179	0	1	0
Lane Group Flow (vph)	4	446	0	142	360	1	0	276	0	0	1	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 60.9%	ICU Level of Service B	
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	366	44	131	331	1	88	1	165	0	1	0
Future Volume (Veh/h)	4	366	44	131	331	1	88	1	165	0	1	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	398	48	142	360	1	96	1	179	0	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	361			446			1074	1075	422	1230	1098	360
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	361			446			1074	1075	422	1230	1098	360
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			87			44	99	72	100	99	100
cM capacity (veh/h)	1209			1109			171	192	636	100	186	689

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	4	446	142	360	1	276	1
Volume Left	4	0	142	0	0	96	0
Volume Right	0	48	0	0	1	179	0
cSH	1209	1700	1109	1700	1700	325	186
Volume to Capacity	0.00	0.26	0.13	0.21	0.00	0.85	0.01
Queue Length 95th (ft)	0	0	11	0	0	189	0
Control Delay (s)	8.0	0.0	8.7	0.0	0.0	55.5	24.4
Lane LOS	A		A			F	C
Approach Delay (s)	0.1		2.5			55.5	24.4
Approach LOS						F	C

Intersection Summary			
Average Delay	13.5		
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	1	10	71	0	61	4	437	55	65	280	11
Future Volume (vph)	24	1	10	71	0	61	4	437	55	65	280	11
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.961			0.850				0.850			0.850
Flt Protected		0.967		0.950			0.950			0.950		
Satd. Flow (prot)	0	1766	0	1736	1553	0	1805	1759	1282	1556	1759	967
Flt Permitted		0.967		0.950			0.950			0.950		
Satd. Flow (perm)	0	1766	0	1736	1553	0	1805	1759	1282	1556	1759	967
Adj. Flow (vph)	26	1	11	77	0	66	4	475	60	71	304	12
Lane Group Flow (vph)	0	38	0	77	66	0	4	475	60	71	304	12
Sign Control		Stop			Stop			Free			Free	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 45.3%	ICU Level of Service A	
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	1	10	71	0	61	4	437	55	65	280	11
Future Volume (Veh/h)	24	1	10	71	0	61	4	437	55	65	280	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	1	11	77	0	66	4	475	60	71	304	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	995	989	304	940	941	475	316			535		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	995	989	304	940	941	475	316			535		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	86	100	99	66	100	89	100			93		
cM capacity (veh/h)	188	230	740	223	245	586	1256			966		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	38	77	66	4	475	60	71	304	12
Volume Left	26	77	0	4	0	0	71	0	0
Volume Right	11	0	66	0	0	60	0	0	12
cSH	242	223	586	1256	1700	1700	966	1700	1700
Volume to Capacity	0.16	0.34	0.11	0.00	0.28	0.04	0.07	0.18	0.01
Queue Length 95th (ft)	14	37	9	0	0	0	6	0	0
Control Delay (s)	22.6	29.4	11.9	7.9	0.0	0.0	9.0	0.0	0.0
Lane LOS	C	D	B	A			A		
Approach Delay (s)	22.6	21.3		0.1			1.7		
Approach LOS	C	C							

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	237	18	31	154	53	14	0	38	103	0	21
Future Volume (vph)	12	237	18	31	154	53	14	0	38	103	0	21
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.989			0.961				0.850			0.850
Flt Protected	0.950			0.950				0.950			0.950	
Satd. Flow (prot)	1504	1826	0	1770	1657	0	0	1770	1583	0	1805	1615
Flt Permitted	0.950			0.950				0.950			0.950	
Satd. Flow (perm)	1504	1826	0	1770	1657	0	0	1770	1583	0	1805	1615
Adj. Flow (vph)	13	249	19	33	162	56	15	0	40	108	0	22
Lane Group Flow (vph)	13	268	0	33	218	0	0	15	40	0	108	22
Sign Control		Free			Free			Stop			Stop	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 39.3%	ICU Level of Service A	
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	237	18	31	154	53	14	0	38	103	0	21
Future Volume (Veh/h)	12	237	18	31	154	53	14	0	38	103	0	21
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	13	249	19	33	162	56	15	0	40	108	0	22
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									6			6
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	218			268			524	568	258	551	550	190
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	218			268			524	568	258	551	550	190
tC, single (s)	4.3			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			97			97	100	95	74	100	97
cM capacity (veh/h)	1252			1296			440	417	780	414	427	857

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	13	268	33	218	55	130
Volume Left	13	0	33	0	15	108
Volume Right	0	19	0	56	40	22
cSH	1252	1700	1296	1700	1073	498
Volume to Capacity	0.01	0.16	0.03	0.13	0.05	0.26
Queue Length 95th (ft)	1	0	2	0	4	26
Control Delay (s)	7.9	0.0	7.9	0.0	10.8	15.5
Lane LOS	A		A		B	C
Approach Delay (s)	0.4		1.0		10.8	15.5
Approach LOS					B	C

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	39.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	LT	R	LTR
Maximum Queue (ft)	27	233	229	67	78	157	132	55	94	168	132
Average Queue (ft)	2	114	107	8	28	84	39	10	37	73	49
95th Queue (ft)	14	197	189	43	61	143	92	38	79	133	101
Link Distance (ft)		1006	1006			738	738		392		461
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	250			225	250			250		225	
Storage Blk Time (%)		0	0	0						0	
Queuing Penalty (veh)		0	0	0						0	

Intersection: 2: Fords Colony Drive/Dominon Village & Longhill Road

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	L	LTR	LTR
Maximum Queue (ft)	7	19	84	291	5
Average Queue (ft)	1	1	26	106	0
95th Queue (ft)	6	11	60	233	3
Link Distance (ft)		2032		736	278
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	200		225		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Centerville Road & Westport/Manchester Drive

Movement	EB	WB	WB	NB	NB	NB	SB
Directions Served	LTR	L	TR	L	T	R	L
Maximum Queue (ft)	47	69	58	10	2	5	72
Average Queue (ft)	20	28	20	1	0	0	19
95th Queue (ft)	42	56	41	6	2	5	52
Link Distance (ft)	247	762			622		
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			140	190		325	190
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: News Road & Firestone Drive

Movement	EB	WB	NB	NB	SB	SB
Directions Served	L	L	LT	R	LT	R
Maximum Queue (ft)	28	26	38	54	79	33
Average Queue (ft)	3	5	12	24	40	16
95th Queue (ft)	16	20	37	51	67	40
Link Distance (ft)			372		374	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	225	225		150		150
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	933	26	53	581	22	52	4	273	68	1	22
Future Volume (vph)	4	933	26	53	581	22	52	4	273	68	1	22
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.967	
Flt Protected	0.950			0.950				0.955			0.964	
Satd. Flow (prot)	1805	3539	1615	1719	3471	1380	0	1669	1615	0	1676	0
Flt Permitted	0.374			0.181				0.955			0.964	
Satd. Flow (perm)	711	3539	1615	328	3471	1380	0	1669	1615	0	1676	0
Satd. Flow (RTOR)			164			164			206		13	
Adj. Flow (vph)	4	1014	28	58	632	24	57	4	297	74	1	24
Lane Group Flow (vph)	4	1014	28	58	632	24	0	61	297	0	99	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Total Split (s)	12.0	48.0	48.0	12.0	48.0	48.0	24.0	24.0	24.0	16.0	16.0	
Total Lost Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Act Effct Green (s)	41.1	34.1	34.1	36.5	40.9	40.9		12.0	12.0		9.8	
Actuated g/C Ratio	0.52	0.43	0.43	0.46	0.52	0.52		0.15	0.15		0.12	
v/c Ratio	0.01	0.66	0.04	0.23	0.35	0.03		0.24	0.71		0.45	
Control Delay	10.5	22.3	0.1	12.9	13.5	0.1		37.2	22.8		42.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	10.5	22.3	0.1	12.9	13.5	0.1		37.2	22.8		42.5	
LOS	B	C	A	B	B	A		D	C		D	
Approach Delay		21.7			13.0			25.2			42.5	
Approach LOS		C			B			C			D	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 78.8	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 20.4	Intersection LOS: C
Intersection Capacity Utilization 62.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	933	26	53	581	22	52	4	273	68	1	22
Future Volume (vph)	4	933	26	53	581	22	52	4	273	68	1	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.96	
Satd. Flow (prot)	1805	3539	1615	1719	3471	1380		1670	1615		1677	
Flt Permitted	0.37	1.00	1.00	0.18	1.00	1.00		0.96	1.00		0.96	
Satd. Flow (perm)	711	3539	1615	327	3471	1380		1670	1615		1677	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	1014	28	58	632	24	57	4	297	74	1	24
RTOR Reduction (vph)	0	0	15	0	0	12	0	0	177	0	12	0
Lane Group Flow (vph)	4	1014	13	58	632	12	0	61	120	0	87	0
Heavy Vehicles (%)	0%	2%	0%	5%	4%	17%	7%	33%	0%	4%	0%	11%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Actuated Green, G (s)	41.7	37.6	37.6	41.2	40.9	40.9		12.0	12.0		6.8	
Effective Green, g (s)	41.7	37.6	37.6	41.2	40.9	40.9		12.0	12.0		6.8	
Actuated g/C Ratio	0.50	0.45	0.45	0.49	0.49	0.49		0.14	0.14		0.08	
Clearance Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	363	1584	722	220	1690	671		238	230		135	
v/s Ratio Prot	0.00	c0.29		c0.01	c0.18			0.04			c0.05	
v/s Ratio Perm	0.01		0.01	0.12		0.01			c0.07			
v/c Ratio	0.01	0.64	0.02	0.26	0.37	0.02		0.26	0.52		0.64	
Uniform Delay, d1	10.8	18.0	12.9	12.5	13.5	11.2		32.0	33.4		37.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.0	1.2	0.0	0.2	0.3	0.0		0.6	2.1		10.1	
Delay (s)	10.8	19.2	12.9	12.8	13.8	11.2		32.6	35.5		47.5	
Level of Service	B	B	B	B	B	B		C	D		D	
Approach Delay (s)		19.0			13.6			35.0			47.5	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	21.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	84.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	366	45	135	331	1	92	1	178	0	1	0
Future Volume (vph)	4	366	45	135	331	1	92	1	178	0	1	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			
Flt Protected	0.950			0.950				0.953				
Satd. Flow (prot)	1805	1810	1524	1752	1776	1615	0	1648	1615	0	1900	0
Flt Permitted	0.950			0.950				0.953				
Satd. Flow (perm)	1805	1810	1524	1752	1776	1615	0	1648	1615	0	1900	0
Adj. Flow (vph)	4	398	49	147	360	1	100	1	193	0	1	0
Lane Group Flow (vph)	4	398	49	147	360	1	0	101	193	0	1	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 48.6%	ICU Level of Service A	
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	366	45	135	331	1	92	1	178	0	1	0
Future Volume (Veh/h)	4	366	45	135	331	1	92	1	178	0	1	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	398	49	147	360	1	100	1	193	0	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									7			
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	361			447			1060	1061	398	1157	1109	360
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	361			447			1060	1061	398	1157	1109	360
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			87			42	99	71	100	99	100
cM capacity (veh/h)	1209			1108			174	195	656	110	183	689

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	4	398	49	147	360	1	294	1
Volume Left	4	0	0	147	0	0	100	0
Volume Right	0	0	49	0	0	1	193	0
cSH	1209	1700	1700	1108	1700	1700	507	183
Volume to Capacity	0.00	0.23	0.03	0.13	0.21	0.00	0.58	0.01
Queue Length 95th (ft)	0	0	0	11	0	0	91	0
Control Delay (s)	8.0	0.0	0.0	8.7	0.0	0.0	25.9	24.8
Lane LOS	A			A			D	C
Approach Delay (s)	0.1			2.5			25.9	24.8
Approach LOS							D	C

Intersection Summary			
Average Delay	7.1		
Intersection Capacity Utilization	48.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	1	10	74	0	62	4	437	56	65	280	11
Future Volume (vph)	24	1	10	74	0	62	4	437	56	65	280	11
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.961			0.850				0.850			0.850
Flt Protected		0.967		0.950			0.950			0.950		
Satd. Flow (prot)	0	1766	0	1736	1553	0	1805	1759	1282	1556	1759	967
Flt Permitted		0.967		0.950			0.950			0.950		
Satd. Flow (perm)	0	1766	0	1736	1553	0	1805	1759	1282	1556	1759	967
Adj. Flow (vph)	26	1	11	80	0	67	4	475	61	71	304	12
Lane Group Flow (vph)	0	38	0	80	67	0	4	475	61	71	304	12
Sign Control		Stop			Stop			Free			Free	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 45.3%	ICU Level of Service A	
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	1	10	74	0	62	4	437	56	65	280	11
Future Volume (Veh/h)	24	1	10	74	0	62	4	437	56	65	280	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	1	11	80	0	67	4	475	61	71	304	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	996	990	304	940	941	475	316			536		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	996	990	304	940	941	475	316			536		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	86	100	99	64	100	89	100			93		
cM capacity (veh/h)	188	229	740	223	245	586	1256			965		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	38	80	67	4	475	61	71	304	12
Volume Left	26	80	0	4	0	0	71	0	0
Volume Right	11	0	67	0	0	61	0	0	12
cSH	241	223	586	1256	1700	1700	965	1700	1700
Volume to Capacity	0.16	0.36	0.11	0.00	0.28	0.04	0.07	0.18	0.01
Queue Length 95th (ft)	14	39	10	0	0	0	6	0	0
Control Delay (s)	22.7	29.9	11.9	7.9	0.0	0.0	9.0	0.0	0.0
Lane LOS	C	D	B	A			A		
Approach Delay (s)	22.7	21.7		0.1			1.7		
Approach LOS	C	C							

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	239	18	31	155	53	14	0	38	103	0	21
Future Volume (vph)	12	239	18	31	155	53	14	0	38	103	0	21
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.989			0.962				0.850			0.850
Flt Protected	0.950			0.950				0.950			0.950	
Satd. Flow (prot)	1504	1826	0	1770	1659	0	0	1770	1583	0	1805	1615
Flt Permitted	0.950			0.950				0.950			0.950	
Satd. Flow (perm)	1504	1826	0	1770	1659	0	0	1770	1583	0	1805	1615
Adj. Flow (vph)	13	252	19	33	163	56	15	0	40	108	0	22
Lane Group Flow (vph)	13	271	0	33	219	0	0	15	40	0	108	22
Sign Control		Free			Free			Stop			Stop	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 39.4%	ICU Level of Service A	
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	239	18	31	155	53	14	0	38	103	0	21
Future Volume (Veh/h)	12	239	18	31	155	53	14	0	38	103	0	21
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	13	252	19	33	163	56	15	0	40	108	0	22
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									6			6
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	219			271			528	572	262	555	554	191
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	219			271			528	572	262	555	554	191
tC, single (s)	4.3			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			97			97	100	95	74	100	97
cM capacity (veh/h)	1251			1292			437	415	777	411	425	856

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	13	271	33	219	55	130
Volume Left	13	0	33	0	15	108
Volume Right	0	19	0	56	40	22
cSH	1251	1700	1292	1700	1069	495
Volume to Capacity	0.01	0.16	0.03	0.13	0.05	0.26
Queue Length 95th (ft)	1	0	2	0	4	26
Control Delay (s)	7.9	0.0	7.9	0.0	10.9	15.6
Lane LOS	A		A		B	C
Approach Delay (s)	0.4		1.0		10.9	15.6
Approach LOS					B	C

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	39.4%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	LT	R	LTR
Maximum Queue (ft)	49	250	264	29	67	166	140	44	98	167	124
Average Queue (ft)	4	122	118	7	26	80	44	8	35	77	52
95th Queue (ft)	32	211	211	24	55	141	101	32	76	138	99
Link Distance (ft)		1006	1006			738	738		392		461
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	250			225	250			250		225	
Storage Blk Time (%)	0	0	0							0	
Queuing Penalty (veh)	0	0	0							0	

Intersection: 2: Fords Colony Drive/Dominon Village & Longhill Road

Movement	EB	EB	EB	WB	NB	NB	SB
Directions Served	L	T	R	L	LT	R	LTR
Maximum Queue (ft)	16	4	8	87	196	132	9
Average Queue (ft)	1	0	0	34	58	44	0
95th Queue (ft)	9	4	6	69	146	102	5
Link Distance (ft)		2030			723		278
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	200		300	225		175	
Storage Blk Time (%)					1	0	
Queuing Penalty (veh)					3	0	

Intersection: 3: Centerville Road & Westport/Manchester Drive

Movement	EB	WB	WB	NB	NB	NB	SB
Directions Served	LTR	L	TR	L	T	R	L
Maximum Queue (ft)	51	77	56	8	2	4	69
Average Queue (ft)	19	30	20	1	0	0	20
95th Queue (ft)	44	61	42	7	2	5	53
Link Distance (ft)	247	762			622		
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			140	190		325	190
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: News Road & Firestone Drive

Movement	EB	WB	NB	NB	SB	SB
Directions Served	L	L	LT	R	LT	R
Maximum Queue (ft)	37	26	36	52	82	37
Average Queue (ft)	3	4	13	24	40	17
95th Queue (ft)	17	18	38	48	68	42
Link Distance (ft)			372		374	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	225	225		150		150
Storage Blk Time (%)						
Queuing Penalty (veh)						

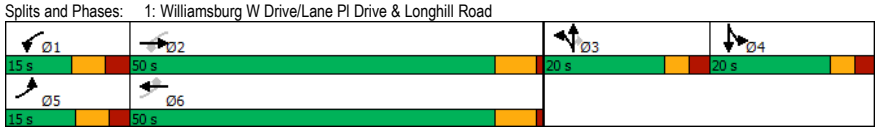
Network Summary

Network wide Queuing Penalty: 3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	765	36	214	1016	40	52	0	141	24	0	15
Future Volume (vph)	18	765	36	214	1016	40	52	0	141	24	0	15
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.947	
Flt Protected	0.950			0.950				0.950			0.970	
Satd. Flow (prot)	1805	1845	1615	1805	1881	1615	0	1770	1568	0	1699	0
Flt Permitted	0.073			0.138				0.950			0.970	
Satd. Flow (perm)	139	1845	1615	262	1881	1615	0	1770	1568	0	1699	0
Satd. Flow (RTOR)			156			156			161		161	
Adj. Flow (vph)	19	805	38	225	1069	42	55	0	148	25	0	16
Lane Group Flow (vph)	19	805	38	225	1069	42	0	55	148	0	41	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Total Split (s)	15.0	50.0	50.0	15.0	50.0	50.0	20.0	20.0	20.0	20.0	20.0	
Total Lost Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Act Effct Green (s)	56.6	44.4	44.4	51.4	55.1	55.1		8.5	8.5		7.1	
Actuated g/C Ratio	0.65	0.51	0.51	0.59	0.64	0.64		0.10	0.10		0.08	
v/c Ratio	0.10	0.85	0.04	0.75	0.89	0.04		0.32	0.49		0.14	
Control Delay	7.8	31.0	0.1	30.3	29.5	0.1		43.1	11.6		1.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	7.8	31.0	0.1	30.3	29.5	0.1		43.1	11.6		1.1	
LOS	A	C	A	C	C	A		D	B		A	
Approach Delay		29.2			28.7			20.1			1.1	
Approach LOS		C			C			C			A	

Intersection Summary	
Cycle Length: 105	
Actuated Cycle Length: 86.6	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 27.7	Intersection LOS: C
Intersection Capacity Utilization 81.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	765	36	214	1016	40	52	0	141	24	0	15
Future Volume (vph)	18	765	36	214	1016	40	52	0	141	24	0	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.97	
Satd. Flow (prot)	1805	1845	1615	1805	1881	1615		1770	1568		1700	
Flt Permitted	0.07	1.00	1.00	0.14	1.00	1.00		0.95	1.00		0.97	
Satd. Flow (perm)	138	1845	1615	262	1881	1615		1770	1568		1700	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	19	805	38	225	1069	42	55	0	148	25	0	16
RTOR Reduction (vph)	0	0	18	0	0	17	0	0	134	0	39	0
Lane Group Flow (vph)	19	805	20	225	1069	25	0	55	14	0	2	0
Heavy Vehicles (%)	0%	3%	0%	0%	1%	0%	2%	0%	3%	0%	0%	7%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Actuated Green, G (s)	57.1	48.5	48.5	56.6	55.1	55.1		8.5	8.5		3.9	
Effective Green, g (s)	57.1	48.5	48.5	56.6	55.1	55.1		8.5	8.5		3.9	
Actuated g/C Ratio	0.61	0.52	0.52	0.61	0.59	0.59		0.09	0.09		0.04	
Clearance Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	120	962	842	293	1114	956		161	143		71	
v/s Ratio Prot	0.00	0.44		c0.07	c0.57			c0.03			c0.00	
v/s Ratio Perm	0.09		0.01	0.40		0.02			0.01			
v/c Ratio	0.16	0.84	0.02	0.77	0.96	0.03		0.34	0.09		0.02	
Uniform Delay, d1	20.3	18.9	10.8	15.3	17.9	7.8		39.6	38.7		42.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.2	7.1	0.0	10.4	18.2	0.0		1.3	0.3		0.1	
Delay (s)	20.6	26.0	10.8	25.7	36.1	7.9		40.9	39.0		42.9	
Level of Service	C	C	B	C	D	A		D	D		D	
Approach Delay (s)		25.2			33.5			39.5			42.9	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	31.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	93.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	354	55	200	293	2	47	3	126	4	0	5
Future Volume (vph)	0	354	55	200	293	2	47	3	126	4	0	5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.980				0.850		0.903			0.925	
Flt Protected				0.950				0.987			0.978	
Satd. Flow (prot)	1900	1846	0	1805	1863	1615	0	1661	0	0	1719	0
Flt Permitted				0.950				0.987			0.978	
Satd. Flow (perm)	1900	1846	0	1805	1863	1615	0	1661	0	0	1719	0
Adj. Flow (vph)	0	377	59	213	312	2	50	3	134	4	0	5
Lane Group Flow (vph)	0	436	0	213	312	2	0	187	0	0	9	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 54.8%	ICU Level of Service A	
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	354	55	200	293	2	47	3	126	4	0	5
Future Volume (Veh/h)	0	354	55	200	293	2	47	3	126	4	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	377	59	213	312	2	50	3	134	4	0	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	314			436			1150	1146	406	1250	1174	312
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	314			436			1150	1146	406	1250	1174	312
tC, single (s)	4.1			4.1			7.1	6.8	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.3	3.3	3.5	4.0	3.3
p0 queue free %	100			81			67	98	79	96	100	99
cM capacity (veh/h)	1258			1134			150	142	644	101	157	733

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	0	436	213	312	2	187	9
Volume Left	0	0	213	0	0	50	4
Volume Right	0	59	0	0	2	134	5
cSH	1700	1700	1134	1700	1700	333	193
Volume to Capacity	0.00	0.26	0.19	0.18	0.00	0.56	0.05
Queue Length 95th (ft)	0	0	17	0	0	81	4
Control Delay (s)	0.0	0.0	8.9	0.0	0.0	28.8	24.5
Lane LOS			A			D	C
Approach Delay (s)	0.0		3.6			28.8	24.5
Approach LOS						D	C

Intersection Summary			
Average Delay	6.5		
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1	2	49	0	29	2	305	67	24	249	2
Future Volume (vph)	3	1	2	49	0	29	2	305	67	24	249	2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.955			0.850				0.850			0.850
Flt Protected		0.976		0.950			0.950			0.950		
Satd. Flow (prot)	0	1771	0	1805	1553	0	1805	1845	1568	1805	1863	1615
Flt Permitted		0.976		0.950			0.950			0.950		
Satd. Flow (perm)	0	1771	0	1805	1553	0	1805	1845	1568	1805	1863	1615
Adj. Flow (vph)	3	1	2	52	0	31	2	321	71	25	262	2
Lane Group Flow (vph)	0	6	0	52	31	0	2	321	71	25	262	2
Sign Control		Stop			Stop			Free			Free	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 31.4%	ICU Level of Service A	
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	2	49	0	29	2	305	67	24	249	2
Future Volume (Veh/h)	3	1	2	49	0	29	2	305	67	24	249	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	3	1	2	52	0	31	2	321	71	25	262	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	668	708	262	640	639	321	264			392		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	668	708	262	640	639	321	264			392		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	86	100	96	100			98		
cM capacity (veh/h)	352	354	782	383	388	715	1312			1178		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	6	52	31	2	321	71	25	262	2
Volume Left	3	52	0	2	0	0	25	0	0
Volume Right	2	0	31	0	0	71	0	0	2
cSH	431	383	715	1312	1700	1700	1178	1700	1700
Volume to Capacity	0.01	0.14	0.04	0.00	0.19	0.04	0.02	0.15	0.00
Queue Length 95th (ft)	1	12	3	0	0	0	2	0	0
Control Delay (s)	13.5	15.9	10.3	7.7	0.0	0.0	8.1	0.0	0.0
Lane LOS	B	C	B	A			A		
Approach Delay (s)	13.5	13.8		0.0			0.7		
Approach LOS	B	B							

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	31.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	153	257	117	68	7
Future Volume (vph)	8	153	257	117	68	7
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1863	1863	1615	1770	1615
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1863	1863	1615	1770	1615
Adj. Flow (vph)	8	159	268	122	71	7
Lane Group Flow (vph)	8	159	268	122	71	7
Sign Control		Free	Free		Stop	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 24.0%	ICU Level of Service A	
Analysis Period (min) 15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	153	257	117	68	7
Future Volume (Veh/h)	8	153	257	117	68	7
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	8	159	268	122	71	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						6
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	390				443	268
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	390				443	268
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				88	99
cM capacity (veh/h)	1180				568	776

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	8	159	268	122	78
Volume Left	8	0	0	0	71
Volume Right	0	0	0	122	7
cSH	1180	1700	1700	1700	624
Volume to Capacity	0.01	0.09	0.16	0.07	0.12
Queue Length 95th (ft)	1	0	0	0	11
Control Delay (s)	8.1	0.0	0.0	0.0	12.0
Lane LOS	A				B
Approach Delay (s)	0.4		0.0		12.0
Approach LOS					B

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	24.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	R	L	T	R	LT	R	LTR
Maximum Queue (ft)	148	519	206	250	763	690	97	109	81
Average Queue (ft)	16	228	25	124	330	110	39	47	26
95th Queue (ft)	74	445	120	248	758	532	78	81	61
Link Distance (ft)		1007			741	741	405		475
Upstream Blk Time (%)					7	3			
Queuing Penalty (veh)					0	0			
Storage Bay Dist (ft)	250		225	250				225	
Storage Blk Time (%)	0	9	0	1	7				
Queuing Penalty (veh)	0	5	1	7	15				

Intersection: 2: Fords Colony Drive/Dominon Village & Longhill Road

Movement	EB	WB	WB	NB	SB
Directions Served	TR	L	T	LTR	LTR
Maximum Queue (ft)	21	88	4	156	17
Average Queue (ft)	2	34	0	58	4
95th Queue (ft)	11	71	4	118	14
Link Distance (ft)	2032		1469	736	278
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		225			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Centerville Road & Westport/Manchester Drive

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	TR	L	L
Maximum Queue (ft)	28	42	46	4	30
Average Queue (ft)	6	20	13	0	6
95th Queue (ft)	23	37	34	3	23
Link Distance (ft)	247	762			
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			140	190	190
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: News Road & Firestone Drive

Movement	EB	WB	SB	SB
Directions Served	L	R	L	R
Maximum Queue (ft)	27	5	71	31
Average Queue (ft)	3	0	34	6
95th Queue (ft)	16	5	60	26
Link Distance (ft)			375	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	225	300		150
Storage Blk Time (%)				
Queuing Penalty (veh)				

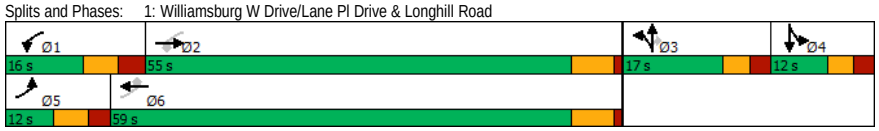
Network Summary

Network wide Queuing Penalty: 28

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	809	37	223	1075	42	54	0	147	25	0	16
Future Volume (vph)	19	809	37	223	1075	42	54	0	147	25	0	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.947	
Flt Protected	0.950			0.950				0.950			0.971	
Satd. Flow (prot)	1805	1863	1615	1719	1827	1380	0	1687	1615	0	1636	0
Flt Permitted	0.069			0.106				0.950			0.971	
Satd. Flow (perm)	131	1863	1615	192	1827	1380	0	1687	1615	0	1636	0
Satd. Flow (RTOR)			158			158			164		164	
Adj. Flow (vph)	20	852	39	235	1132	44	57	0	155	26	0	17
Lane Group Flow (vph)	20	852	39	235	1132	44	0	57	155	0	43	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Total Split (s)	12.0	55.0	55.0	16.0	59.0	59.0	17.0	17.0	17.0	12.0	12.0	
Total Lost Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Act Effct Green (s)	59.2	45.7	45.7	53.9	57.8	57.8		8.6	8.6		6.6	
Actuated g/C Ratio	0.67	0.51	0.51	0.61	0.65	0.65		0.10	0.10		0.07	
v/c Ratio	0.11	0.89	0.04	0.86	0.95	0.05		0.35	0.51		0.16	
Control Delay	7.4	34.2	0.1	49.7	36.6	0.1		46.6	12.4		1.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	7.4	34.2	0.1	49.7	36.6	0.1		46.6	12.4		1.2	
LOS	A	C	A	D	D	A		D	B		A	
Approach Delay		32.1			37.7			21.6			1.2	
Approach LOS		C			D			C			A	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 88.9	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 33.8	Intersection LOS: C
Intersection Capacity Utilization 84.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	809	37	223	1075	42	54	0	147	25	0	16
Future Volume (vph)	19	809	37	223	1075	42	54	0	147	25	0	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.97	
Satd. Flow (prot)	1805	1863	1615	1719	1827	1380		1687	1615		1635	
Flt Permitted	0.07	1.00	1.00	0.11	1.00	1.00		0.95	1.00		0.97	
Satd. Flow (perm)	131	1863	1615	192	1827	1380		1687	1615		1635	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	20	852	39	235	1132	44	57	0	155	26	0	17
RTOR Reduction (vph)	0	0	19	0	0	17	0	0	141	0	41	0
Lane Group Flow (vph)	20	852	20	235	1132	27	0	57	14	0	2	0
Heavy Vehicles (%)	0%	2%	0%	5%	4%	17%	7%	33%	0%	4%	0%	11%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Actuated Green, G (s)	59.7	50.0	50.0	59.2	57.8	57.8		8.6	8.6		3.5	
Effective Green, g (s)	59.7	50.0	50.0	59.2	57.8	57.8		8.6	8.6		3.5	
Actuated g/C Ratio	0.63	0.52	0.52	0.62	0.61	0.61		0.09	0.09		0.04	
Clearance Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	115	977	847	266	1108	836		152	145		60	
v/s Ratio Prot	0.00	0.46		c0.09	c0.62			c0.03			c0.00	
v/s Ratio Perm	0.10		0.01	0.46		0.02			0.01			
v/c Ratio	0.17	0.87	0.02	0.88	1.02	0.03		0.38	0.10		0.03	
Uniform Delay, d1	22.1	19.8	10.9	21.9	18.8	7.5		40.8	39.8		44.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.3	9.3	0.0	26.7	32.6	0.0		1.6	0.3		0.2	
Delay (s)	22.3	29.2	10.9	48.6	51.4	7.6		42.4	40.1		44.4	
Level of Service	C	C	B	D	D	A		D	D		D	
Approach Delay (s)		28.3			49.5			40.7			44.4	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	41.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	95.3	Sum of lost time (s)	24.0
Intersection Capacity Utilization	84.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	377	59	215	316	2	50	3	135	4	0	5
Future Volume (vph)	0	377	59	215	316	2	50	3	135	4	0	5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.980				0.850		0.903			0.925	
Flt Protected				0.950				0.987			0.978	
Satd. Flow (prot)	1900	1771	0	1752	1776	1615	0	1650	0	0	1719	0
Flt Permitted				0.950				0.987			0.978	
Satd. Flow (perm)	1900	1771	0	1752	1776	1615	0	1650	0	0	1719	0
Adj. Flow (vph)	0	401	63	229	336	2	53	3	144	4	0	5
Lane Group Flow (vph)	0	464	0	229	336	2	0	200	0	0	9	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 57.8%	ICU Level of Service B	
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	377	59	215	316	2	50	3	135	4	0	5
Future Volume (Veh/h)	0	377	59	215	316	2	50	3	135	4	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	401	63	229	336	2	53	3	144	4	0	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	338			464			1232	1228	432	1340	1258	336
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	338			464			1232	1228	432	1340	1258	336
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			79			57	98	77	95	100	99
cM capacity (veh/h)	1232			1092			124	142	627	83	136	711

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	0	464	229	336	2	200	9
Volume Left	0	0	229	0	0	53	4
Volume Right	0	63	0	0	2	144	5
cSH	1700	1700	1092	1700	1700	294	163
Volume to Capacity	0.00	0.27	0.21	0.20	0.00	0.68	0.06
Queue Length 95th (ft)	0	0	20	0	0	115	4
Control Delay (s)	0.0	0.0	9.2	0.0	0.0	39.7	28.3
Lane LOS			A			E	D
Approach Delay (s)	0.0		3.7			39.7	28.3
Approach LOS						E	D

Intersection Summary			
Average Delay	8.3		
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	1	6	56	0	30	10	331	74	25	273	22
Future Volume (vph)	16	1	6	56	0	30	10	331	74	25	273	22
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.966			0.850				0.850			0.850
Flt Protected		0.966		0.950			0.950			0.950		
Satd. Flow (prot)	0	1773	0	1736	1553	0	1805	1759	1282	1556	1759	967
Flt Permitted		0.966		0.950			0.950			0.950		
Satd. Flow (perm)	0	1773	0	1736	1553	0	1805	1759	1282	1556	1759	967
Adj. Flow (vph)	17	1	6	59	0	32	11	348	78	26	287	23
Lane Group Flow (vph)	0	24	0	59	32	0	11	348	78	26	287	23
Sign Control		Stop			Stop			Free			Free	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 35.4%	ICU Level of Service A	
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	1	6	56	0	30	10	331	74	25	273	22
Future Volume (Veh/h)	16	1	6	56	0	30	10	331	74	25	273	22
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	17	1	6	59	0	32	11	348	78	26	287	23
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	741	787	287	716	732	348	310			426		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	741	787	287	716	732	348	310			426		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	95	100	99	82	100	95	99			98		
cM capacity (veh/h)	311	315	757	331	339	691	1262			1062		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	24	59	32	11	348	78	26	287	23
Volume Left	17	59	0	11	0	0	26	0	0
Volume Right	6	0	32	0	0	78	0	0	23
cSH	365	331	691	1262	1700	1700	1062	1700	1700
Volume to Capacity	0.07	0.18	0.05	0.01	0.20	0.05	0.02	0.17	0.01
Queue Length 95th (ft)	5	16	4	1	0	0	2	0	0
Control Delay (s)	15.6	18.2	10.5	7.9	0.0	0.0	8.5	0.0	0.0
Lane LOS	C	C	B	A			A		
Approach Delay (s)	15.6	15.5		0.2			0.7		
Approach LOS	C	C							

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	35.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	164	23	59	278	122	23	0	56	71	0	7
Future Volume (vph)	8	164	23	59	278	122	23	0	56	71	0	7
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.982			0.954				0.850			0.850
Flt Protected	0.950			0.950				0.950			0.950	
Satd. Flow (prot)	1504	1814	0	1770	1653	0	0	1770	1583	0	1805	1615
Flt Permitted	0.950			0.950				0.950			0.950	
Satd. Flow (perm)	1504	1814	0	1770	1653	0	0	1770	1583	0	1805	1615
Adj. Flow (vph)	8	171	24	61	290	127	24	0	58	74	0	7
Lane Group Flow (vph)	8	195	0	61	417	0	0	24	58	0	74	7
Sign Control		Free			Free			Stop			Stop	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 46.0%	ICU Level of Service A	
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	164	23	59	278	122	23	0	56	71	0	7
Future Volume (Veh/h)	8	164	23	59	278	122	23	0	56	71	0	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	8	171	24	61	290	127	24	0	58	74	0	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									6			6
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	417			195			614	738	183	692	686	354
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	417			195			614	738	183	692	686	354
tC, single (s)	4.3			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			96			94	100	93	77	100	99
cM capacity (veh/h)	1052			1378			384	328	859	324	351	695

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	8	195	61	417	82	81
Volume Left	8	0	61	0	24	74
Volume Right	0	24	0	127	58	7
cSH	1052	1700	1378	1700	1215	354
Volume to Capacity	0.01	0.11	0.04	0.25	0.07	0.23
Queue Length 95th (ft)	1	0	3	0	5	22
Control Delay (s)	8.4	0.0	7.7	0.0	11.1	18.6
Lane LOS	A		A		B	C
Approach Delay (s)	0.3		1.0		11.1	18.6
Approach LOS					B	C

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	R	L	T	R	LT	R	LTR
Maximum Queue (ft)	167	562	224	250	772	777	115	83	88
Average Queue (ft)	19	251	25	145	397	204	45	45	30
95th Queue (ft)	85	474	120	271	843	748	93	74	68
Link Distance (ft)		1007			741	741	405		475
Upstream Blk Time (%)					13	7			
Queuing Penalty (veh)					0	0			
Storage Bay Dist (ft)	250		225	250				225	
Storage Blk Time (%)	0	10	0	1	9				
Queuing Penalty (veh)	0	6	1	6	19				

Intersection: 2: Fords Colony Drive/Dominon Village & Longhill Road

Movement	EB	WB	NB	SB
Directions Served	TR	L	LTR	LTR
Maximum Queue (ft)	33	105	246	22
Average Queue (ft)	3	39	84	4
95th Queue (ft)	18	79	193	16
Link Distance (ft)	2032		736	278
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		225		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Centerville Road & Westport/Manchester Drive

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	TR	L	L
Maximum Queue (ft)	40	56	46	16	50
Average Queue (ft)	14	24	13	1	6
95th Queue (ft)	37	47	32	8	30
Link Distance (ft)	247	762			
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			140	190	190
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: News Road & Firestone Drive

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	LT	R	LT	R
Maximum Queue (ft)	35	1	34	4	57	68	76	33
Average Queue (ft)	2	0	7	0	18	31	34	6
95th Queue (ft)	16	0	26	3	47	55	61	25
Link Distance (ft)		1230		492	372		374	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	225		225			150		150
Storage Blk Time (%)								
Queuing Penalty (veh)								

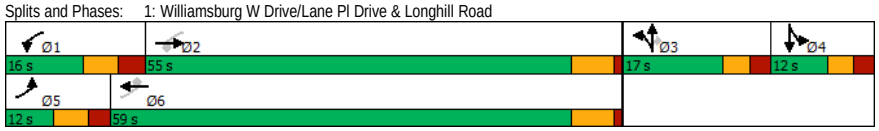
Network Summary

Network wide Queuing Penalty: 32

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	817	37	223	1088	42	54	0	147	25	0	16
Future Volume (vph)	19	817	37	223	1088	42	54	0	147	25	0	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.947	
Flt Protected	0.950			0.950				0.950			0.971	
Satd. Flow (prot)	1805	1863	1615	1719	1827	1380	0	1687	1615	0	1636	0
Flt Permitted	0.069			0.101				0.950			0.971	
Satd. Flow (perm)	131	1863	1615	183	1827	1380	0	1687	1615	0	1636	0
Satd. Flow (RTOR)			158			158			164		164	
Adj. Flow (vph)	20	860	39	235	1145	44	57	0	155	26	0	17
Lane Group Flow (vph)	20	860	39	235	1145	44	0	57	155	0	43	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Total Split (s)	12.0	55.0	55.0	16.0	59.0	59.0	17.0	17.0	17.0	12.0	12.0	
Total Lost Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Act Effct Green (s)	59.5	46.0	46.0	54.2	58.1	58.1		8.6	8.6		6.6	
Actuated g/C Ratio	0.67	0.52	0.52	0.61	0.65	0.65		0.10	0.10		0.07	
v/c Ratio	0.11	0.90	0.04	0.88	0.96	0.05		0.35	0.51		0.16	
Control Delay	7.4	34.7	0.1	53.4	38.3	0.1		46.8	12.5		1.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	7.4	34.7	0.1	53.4	38.3	0.1		46.8	12.5		1.2	
LOS	A	C	A	D	D	A		D	B		A	
Approach Delay		32.7			39.6			21.7			1.2	
Approach LOS		C			D			C			A	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 89.2	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 35.1	Intersection LOS: D
Intersection Capacity Utilization 85.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	817	37	223	1088	42	54	0	147	25	0	16
Future Volume (vph)	19	817	37	223	1088	42	54	0	147	25	0	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.97	
Satd. Flow (prot)	1805	1863	1615	1719	1827	1380		1687	1615		1635	
Flt Permitted	0.07	1.00	1.00	0.10	1.00	1.00		0.95	1.00		0.97	
Satd. Flow (perm)	131	1863	1615	184	1827	1380		1687	1615		1635	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	20	860	39	235	1145	44	57	0	155	26	0	17
RTOR Reduction (vph)	0	0	18	0	0	17	0	0	141	0	41	0
Lane Group Flow (vph)	20	860	21	235	1145	27	0	57	14	0	2	0
Heavy Vehicles (%)	0%	2%	0%	5%	4%	17%	7%	33%	0%	4%	0%	11%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Actuated Green, G (s)	60.0	50.3	50.3	59.5	58.1	58.1		8.6	8.6		3.5	
Effective Green, g (s)	60.0	50.3	50.3	59.5	58.1	58.1		8.6	8.6		3.5	
Actuated g/C Ratio	0.63	0.53	0.53	0.62	0.61	0.61		0.09	0.09		0.04	
Clearance Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	115	980	849	262	1110	838		151	145		59	
v/s Ratio Prot	0.00	0.46		c0.09	c0.63			c0.03			c0.00	
v/s Ratio Perm	0.11		0.01	0.47		0.02			0.01			
v/c Ratio	0.17	0.88	0.02	0.90	1.03	0.03		0.38	0.10		0.03	
Uniform Delay, d1	22.2	19.9	10.9	23.0	18.7	7.5		41.0	39.9		44.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.3	9.7	0.0	29.4	35.4	0.0		1.6	0.3		0.2	
Delay (s)	22.4	29.6	10.9	52.4	54.2	7.5		42.6	40.2		44.6	
Level of Service	C	C	B	D	D	A		D	D		D	
Approach Delay (s)		28.7			52.4			40.9			44.6	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	43.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	95.6	Sum of lost time (s)	24.0
Intersection Capacity Utilization	85.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	377	63	228	316	2	52	3	143	4	0	5
Future Volume (vph)	0	377	63	228	316	2	52	3	143	4	0	5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.925	
Flt Protected				0.950				0.955			0.978	
Satd. Flow (prot)	1900	1810	1524	1752	1776	1615	0	1657	1615	0	1719	0
Flt Permitted				0.950				0.955			0.978	
Satd. Flow (perm)	1900	1810	1524	1752	1776	1615	0	1657	1615	0	1719	0
Adj. Flow (vph)	0	401	67	243	336	2	55	3	152	4	0	5
Lane Group Flow (vph)	0	401	67	243	336	2	0	58	152	0	9	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 48.2%	ICU Level of Service A	
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	377	63	228	316	2	52	3	143	4	0	5
Future Volume (Veh/h)	0	377	63	228	316	2	52	3	143	4	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	401	67	243	336	2	55	3	152	4	0	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									7			
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	338			468			1228	1225	401	1300	1290	336
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	338			468			1228	1225	401	1300	1290	336
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			78			55	98	77	95	100	99
cM capacity (veh/h)	1232			1088			123	140	653	87	128	711

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	0	401	67	243	336	2	210	9
Volume Left	0	0	0	243	0	0	55	4
Volume Right	0	0	67	0	0	2	152	5
cSH	1700	1700	1700	1088	1700	1700	447	170
Volume to Capacity	0.00	0.24	0.04	0.22	0.20	0.00	0.47	0.05
Queue Length 95th (ft)	0	0	0	21	0	0	61	4
Control Delay (s)	0.0	0.0	0.0	9.3	0.0	0.0	24.7	27.3
Lane LOS				A			C	D
Approach Delay (s)	0.0			3.9			24.7	27.3
Approach LOS							C	D

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	1	6	60	0	30	10	331	81	25	273	22
Future Volume (vph)	16	1	6	60	0	30	10	331	81	25	273	22
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.966			0.850				0.850			0.850
Flt Protected		0.966		0.950			0.950			0.950		
Satd. Flow (prot)	0	1773	0	1736	1553	0	1805	1759	1282	1556	1759	967
Flt Permitted		0.966		0.950			0.950			0.950		
Satd. Flow (perm)	0	1773	0	1736	1553	0	1805	1759	1282	1556	1759	967
Adj. Flow (vph)	17	1	6	63	0	32	11	348	85	26	287	23
Lane Group Flow (vph)	0	24	0	63	32	0	11	348	85	26	287	23
Sign Control		Stop			Stop			Free			Free	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 35.4%	ICU Level of Service A	
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	1	6	60	0	30	10	331	81	25	273	22
Future Volume (Veh/h)	16	1	6	60	0	30	10	331	81	25	273	22
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	17	1	6	63	0	32	11	348	85	26	287	23
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	741	794	287	716	732	348	310			433		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	741	794	287	716	732	348	310			433		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	95	100	99	81	100	95	99			98		
cM capacity (veh/h)	311	312	757	331	339	691	1262			1056		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	24	63	32	11	348	85	26	287	23
Volume Left	17	63	0	11	0	0	26	0	0
Volume Right	6	0	32	0	0	85	0	0	23
cSH	365	331	691	1262	1700	1700	1056	1700	1700
Volume to Capacity	0.07	0.19	0.05	0.01	0.20	0.05	0.02	0.17	0.01
Queue Length 95th (ft)	5	17	4	1	0	0	2	0	0
Control Delay (s)	15.6	18.4	10.5	7.9	0.0	0.0	8.5	0.0	0.0
Lane LOS	C	C	B	A			A		
Approach Delay (s)	15.6	15.7		0.2			0.7		
Approach LOS	C	C							

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	35.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	168	23	59	285	122	23	0	56	71	0	7
Future Volume (vph)	8	168	23	59	285	122	23	0	56	71	0	7
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.982			0.955				0.850			0.850
Flt Protected	0.950			0.950				0.950			0.950	
Satd. Flow (prot)	1504	1814	0	1770	1654	0	0	1770	1583	0	1805	1615
Flt Permitted	0.950			0.950				0.950			0.950	
Satd. Flow (perm)	1504	1814	0	1770	1654	0	0	1770	1583	0	1805	1615
Adj. Flow (vph)	8	175	24	61	297	127	24	0	58	74	0	7
Lane Group Flow (vph)	8	199	0	61	424	0	0	24	58	0	74	7
Sign Control		Free			Free			Stop			Stop	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 46.4%	ICU Level of Service A	
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	168	23	59	285	122	23	0	56	71	0	7
Future Volume (Veh/h)	8	168	23	59	285	122	23	0	56	71	0	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	8	175	24	61	297	127	24	0	58	74	0	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									6			6
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	424			199			626	749	187	702	698	360
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	424			199			626	749	187	702	698	360
tC, single (s)	4.3			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			96			94	100	93	77	100	99
cM capacity (veh/h)	1045			1373			377	323	855	318	346	689

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	8	199	61	424	82	81
Volume Left	8	0	61	0	24	74
Volume Right	0	24	0	127	58	7
cSH	1045	1700	1373	1700	1209	348
Volume to Capacity	0.01	0.12	0.04	0.25	0.07	0.23
Queue Length 95th (ft)	1	0	3	0	5	22
Control Delay (s)	8.5	0.0	7.7	0.0	11.2	18.9
Lane LOS	A		A		B	C
Approach Delay (s)	0.3		1.0		11.2	18.9
Approach LOS					B	C

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	R	L	T	R	LT	R	LTR
Maximum Queue (ft)	209	553	204	250	784	777	140	87	83
Average Queue (ft)	23	266	23	144	454	253	45	47	28
95th Queue (ft)	105	491	111	270	929	835	98	74	63
Link Distance (ft)		1007			741	741	405		475
Upstream Blk Time (%)					18	10			
Queuing Penalty (veh)					0	0			
Storage Bay Dist (ft)	250		225	250				225	
Storage Blk Time (%)	0	12	0	1	10				
Queuing Penalty (veh)	0	7	0	8	22				

Intersection: 2: Fords Colony Drive/Dominon Village & Longhill Road

Movement	EB	EB	WB	NB	NB	SB
Directions Served	T	R	L	LT	R	LTR
Maximum Queue (ft)	2	17	125	155	106	26
Average Queue (ft)	0	1	53	45	34	5
95th Queue (ft)	2	9	98	110	74	18
Link Distance (ft)	2030			723		278
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		300	225		175	
Storage Blk Time (%)				0	0	
Queuing Penalty (veh)				0	0	

Intersection: 3: Centerville Road & Westport/Manchester Drive

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	TR	L	L
Maximum Queue (ft)	39	58	47	16	53
Average Queue (ft)	15	24	14	1	6
95th Queue (ft)	37	49	33	9	29
Link Distance (ft)	247	762			
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			140	190	190
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: News Road & Firestone Drive

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	LT	R	LT	R
Maximum Queue (ft)	33	1	34	49	59	87	32
Average Queue (ft)	3	0	8	18	30	35	6
95th Queue (ft)	17	0	28	46	52	67	26
Link Distance (ft)		1230		372		374	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	225		225		150		150
Storage Blk Time (%)							
Queuing Penalty (veh)							

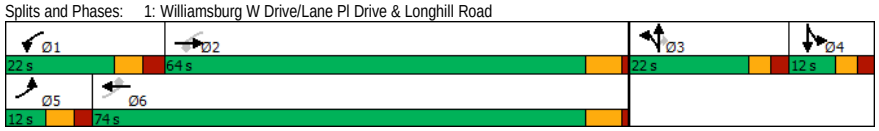
Network Summary

Network wide Queuing Penalty: 37

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	909	42	251	1209	47	61	0	165	28	0	18
Future Volume (vph)	21	909	42	251	1209	47	61	0	165	28	0	18
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.947	
Flt Protected	0.950			0.950				0.950			0.971	
Satd. Flow (prot)	1805	3539	1615	1719	3471	1380	0	1687	1615	0	1636	0
Flt Permitted	0.151			0.214				0.950			0.971	
Satd. Flow (perm)	287	3539	1615	387	3471	1380	0	1687	1615	0	1636	0
Satd. Flow (RTOR)			195			132			200		200	
Adj. Flow (vph)	22	957	44	264	1273	49	64	0	174	29	0	19
Lane Group Flow (vph)	22	957	44	264	1273	49	0	64	174	0	48	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Total Split (s)	12.0	64.0	64.0	22.0	74.0	74.0	22.0	22.0	22.0	12.0	12.0	
Total Lost Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Act Effct Green (s)	54.4	38.6	38.6	48.2	53.4	53.4		9.6	9.6		7.1	
Actuated g/C Ratio	0.64	0.45	0.45	0.57	0.63	0.63		0.11	0.11		0.08	
v/c Ratio	0.08	0.60	0.05	0.68	0.59	0.05		0.34	0.48		0.15	
Control Delay	6.8	19.6	0.1	18.5	12.7	0.1		47.4	9.4		1.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	6.8	19.6	0.1	18.5	12.7	0.1		47.4	9.4		1.0	
LOS	A	B	A	B	B	A		D	A		A	
Approach Delay		18.5			13.3			19.6			1.0	
Approach LOS		B			B			B			A	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 85.2	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 15.4	Intersection LOS: B
Intersection Capacity Utilization 63.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	909	42	251	1209	47	61	0	165	28	0	18
Future Volume (vph)	21	909	42	251	1209	47	61	0	165	28	0	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.97	
Satd. Flow (prot)	1805	3539	1615	1719	3471	1380		1687	1615		1635	
Flt Permitted	0.15	1.00	1.00	0.21	1.00	1.00		0.95	1.00		0.97	
Satd. Flow (perm)	286	3539	1615	387	3471	1380		1687	1615		1635	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	22	957	44	264	1273	49	64	0	174	29	0	19
RTOR Reduction (vph)	0	0	23	0	0	20	0	0	156	0	46	0
Lane Group Flow (vph)	22	957	21	264	1273	29	0	64	18	0	2	0
Heavy Vehicles (%)	0%	2%	0%	5%	4%	17%	7%	33%	0%	4%	0%	11%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Actuated Green, G (s)	55.0	43.8	43.8	54.5	53.4	53.4		9.6	9.6		3.3	
Effective Green, g (s)	55.0	43.8	43.8	54.5	53.4	53.4		9.6	9.6		3.3	
Actuated g/C Ratio	0.60	0.48	0.48	0.60	0.58	0.58		0.11	0.11		0.04	
Clearance Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	198	1695	773	386	2027	806		177	169		59	
v/s Ratio Prot	0.00	0.27		c0.08	c0.37			c0.04			c0.00	
v/s Ratio Perm	0.06		0.01	c0.33		0.02			0.01			
v/c Ratio	0.11	0.56	0.03	0.68	0.63	0.04		0.36	0.11		0.03	
Uniform Delay, d1	8.9	17.0	12.6	10.5	12.5	8.1		38.0	37.0		42.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.1	0.7	0.0	4.0	0.9	0.0		1.3	0.3		0.2	
Delay (s)	9.0	17.7	12.6	14.4	13.3	8.1		39.3	37.3		42.7	
Level of Service	A	B	B	B	B	A		D	D		D	
Approach Delay (s)		17.3			13.4			37.8			42.7	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	91.4	Sum of lost time (s)	24.0
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	424	66	242	354	2	56	4	152	5	0	6
Future Volume (vph)	0	424	66	242	354	2	56	4	152	5	0	6
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.980				0.850		0.903			0.926	
Flt Protected				0.950				0.987			0.978	
Satd. Flow (prot)	1900	1771	0	1752	1776	1615	0	1650	0	0	1721	0
Flt Permitted				0.950				0.987			0.978	
Satd. Flow (perm)	1900	1771	0	1752	1776	1615	0	1650	0	0	1721	0
Adj. Flow (vph)	0	451	70	257	377	2	60	4	162	5	0	6
Lane Group Flow (vph)	0	521	0	257	377	2	0	226	0	0	11	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 63.7%	ICU Level of Service B	
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	424	66	242	354	2	56	4	152	5	0	6
Future Volume (Veh/h)	0	424	66	242	354	2	56	4	152	5	0	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	451	70	257	377	2	60	4	162	5	0	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	379			521			1383	1379	486	1506	1412	377
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	379			521			1383	1379	486	1506	1412	377
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			75			36	96	72	91	100	99
cM capacity (veh/h)	1191			1040			93	110	585	57	105	674

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	0	521	257	377	2	226	11
Volume Left	0	0	257	0	0	60	5
Volume Right	0	70	0	0	2	162	6
cSH	1700	1700	1040	1700	1700	236	114
Volume to Capacity	0.00	0.31	0.25	0.22	0.00	0.96	0.10
Queue Length 95th (ft)	0	0	24	0	0	215	8
Control Delay (s)	0.0	0.0	9.6	0.0	0.0	92.0	39.8
Lane LOS			A			F	E
Approach Delay (s)	0.0		3.9			92.0	39.8
Approach LOS						F	E

Intersection Summary			
Average Delay	17.0		
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	1	6	64	0	35	10	383	86	29	314	22
Future Volume (vph)	17	1	6	64	0	35	10	383	86	29	314	22
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.968			0.850				0.850			0.850
Flt Protected		0.965		0.950			0.950			0.950		
Satd. Flow (prot)	0	1775	0	1736	1553	0	1805	1759	1282	1556	1759	967
Flt Permitted		0.965		0.950			0.950			0.950		
Satd. Flow (perm)	0	1775	0	1736	1553	0	1805	1759	1282	1556	1759	967
Adj. Flow (vph)	18	1	6	67	0	37	11	403	91	31	331	23
Lane Group Flow (vph)	0	25	0	67	37	0	11	403	91	31	331	23
Sign Control		Stop			Stop			Free			Free	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 38.8%	ICU Level of Service A	
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	1	6	64	0	35	10	383	86	29	314	22
Future Volume (Veh/h)	17	1	6	64	0	35	10	383	86	29	314	22
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	18	1	6	67	0	37	11	403	91	31	331	23
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	855	909	331	824	841	403	354			494		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	855	909	331	824	841	403	354			494		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	93	100	99	76	100	94	99			97		
cM capacity (veh/h)	256	266	715	278	291	643	1216			1001		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	25	67	37	11	403	91	31	331	23
Volume Left	18	67	0	11	0	0	31	0	0
Volume Right	6	0	37	0	0	91	0	0	23
cSH	304	278	643	1216	1700	1700	1001	1700	1700
Volume to Capacity	0.08	0.24	0.06	0.01	0.24	0.05	0.03	0.19	0.01
Queue Length 95th (ft)	7	23	5	1	0	0	2	0	0
Control Delay (s)	17.9	22.0	10.9	8.0	0.0	0.0	8.7	0.0	0.0
Lane LOS	C	C	B	A			A		
Approach Delay (s)	17.9	18.1		0.2			0.7		
Approach LOS	C	C							

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	38.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	182	23	59	308	137	23	0	56	80	0	8
Future Volume (vph)	9	182	23	59	308	137	23	0	56	80	0	8
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.983			0.954				0.850			0.850
Flt Protected	0.950			0.950				0.950			0.950	
Satd. Flow (prot)	1504	1815	0	1770	1654	0	0	1770	1583	0	1805	1615
Flt Permitted	0.950			0.950				0.950			0.950	
Satd. Flow (perm)	1504	1815	0	1770	1654	0	0	1770	1583	0	1805	1615
Adj. Flow (vph)	9	190	24	61	321	143	24	0	58	83	0	8
Lane Group Flow (vph)	9	214	0	61	464	0	0	24	58	0	83	8
Sign Control		Free			Free			Stop			Stop	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 49.0%	ICU Level of Service A	
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	182	23	59	308	137	23	0	56	80	0	8
Future Volume (Veh/h)	9	182	23	59	308	137	23	0	56	80	0	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	9	190	24	61	321	143	24	0	58	83	0	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									6			6
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	464			214			667	806	202	752	746	392
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	464			214			667	806	202	752	746	392
tC, single (s)	4.3			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			96			93	100	93	72	100	99
cM capacity (veh/h)	1009			1356			353	299	839	294	323	661

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	9	214	61	464	82	91
Volume Left	9	0	61	0	24	83
Volume Right	0	24	0	143	58	8
cSH	1009	1700	1356	1700	1186	322
Volume to Capacity	0.01	0.13	0.04	0.27	0.07	0.28
Queue Length 95th (ft)	1	0	4	0	6	28
Control Delay (s)	8.6	0.0	7.8	0.0	11.5	21.0
Lane LOS	A		A		B	C
Approach Delay (s)	0.3		0.9		11.5	21.0
Approach LOS					B	C

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	LT	R	LTR
Maximum Queue (ft)	59	238	228	33	211	251	230	73	109	110	90
Average Queue (ft)	15	123	113	9	93	110	93	12	45	47	31
95th Queue (ft)	48	203	204	29	170	212	185	49	91	87	66
Link Distance (ft)		1006	1006			738	738		390		461
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	250			225	250			250		225	
Storage Blk Time (%)		0	0		0	0	0	0			
Queuing Penalty (veh)		0	0		1	1	0	0			

Intersection: 2: Fords Colony Drive/Dominon Village & Longhill Road

Movement	EB	WB	NB	SB
Directions Served	TR	L	LTR	LTR
Maximum Queue (ft)	32	138	500	26
Average Queue (ft)	4	52	216	5
95th Queue (ft)	19	102	508	18
Link Distance (ft)	2032		736	278
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)		225		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Centerville Road & Westport/Manchester Drive

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	TR	L	L
Maximum Queue (ft)	38	70	46	14	54
Average Queue (ft)	15	27	15	1	8
95th Queue (ft)	38	57	35	10	33
Link Distance (ft)	247	762			
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			140	190	190
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: News Road & Firestone Drive

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	L	TR	LT	R	LT	R
Maximum Queue (ft)	37	32	2	52	67	99	33
Average Queue (ft)	4	8	0	18	30	40	7
95th Queue (ft)	20	27	2	46	56	76	29
Link Distance (ft)			492	372		374	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	225	225			150		150
Storage Blk Time (%)						0	
Queuing Penalty (veh)						0	

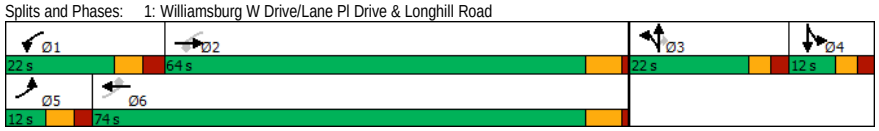
Network Summary

Network wide Queuing Penalty: 1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	917	42	251	1222	47	61	0	165	28	0	18
Future Volume (vph)	21	917	42	251	1222	47	61	0	165	28	0	18
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.947	
Flt Protected	0.950			0.950				0.950			0.971	
Satd. Flow (prot)	1805	3539	1615	1719	3471	1380	0	1687	1615	0	1636	0
Flt Permitted	0.147			0.211				0.950			0.971	
Satd. Flow (perm)	279	3539	1615	382	3471	1380	0	1687	1615	0	1636	0
Satd. Flow (RTOR)			195			132			200		200	
Adj. Flow (vph)	22	965	44	264	1286	49	64	0	174	29	0	19
Lane Group Flow (vph)	22	965	44	264	1286	49	0	64	174	0	48	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Total Split (s)	12.0	64.0	64.0	22.0	74.0	74.0	22.0	22.0	22.0	12.0	12.0	
Total Lost Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Act Effct Green (s)	54.7	38.9	38.9	48.5	53.6	53.6		9.6	9.6		7.1	
Actuated g/C Ratio	0.64	0.45	0.45	0.57	0.63	0.63		0.11	0.11		0.08	
v/c Ratio	0.08	0.60	0.05	0.69	0.59	0.05		0.34	0.48		0.15	
Control Delay	6.8	19.6	0.1	18.9	12.8	0.1		47.5	9.4		1.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	6.8	19.6	0.1	18.9	12.8	0.1		47.5	9.4		1.0	
LOS	A	B	A	B	B	A		D	A		A	
Approach Delay		18.5			13.4			19.6			1.0	
Approach LOS		B			B			B			A	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 85.5	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 15.5	Intersection LOS: B
Intersection Capacity Utilization 64.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	917	42	251	1222	47	61	0	165	28	0	18
Future Volume (vph)	21	917	42	251	1222	47	61	0	165	28	0	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.97	
Satd. Flow (prot)	1805	3539	1615	1719	3471	1380		1687	1615		1635	
Flt Permitted	0.15	1.00	1.00	0.21	1.00	1.00		0.95	1.00		0.97	
Satd. Flow (perm)	280	3539	1615	382	3471	1380		1687	1615		1635	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	22	965	44	264	1286	49	64	0	174	29	0	19
RTOR Reduction (vph)	0	0	23	0	0	20	0	0	156	0	46	0
Lane Group Flow (vph)	22	965	21	264	1286	29	0	64	18	0	2	0
Heavy Vehicles (%)	0%	2%	0%	5%	4%	17%	7%	33%	0%	4%	0%	11%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Actuated Green, G (s)	55.2	44.0	44.0	54.7	53.6	53.6		9.6	9.6		3.3	
Effective Green, g (s)	55.2	44.0	44.0	54.7	53.6	53.6		9.6	9.6		3.3	
Actuated g/C Ratio	0.60	0.48	0.48	0.60	0.59	0.59		0.10	0.10		0.04	
Clearance Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	195	1699	775	384	2031	807		176	169		58	
v/s Ratio Prot	0.00	0.27		c0.08	c0.37			c0.04			c0.00	
v/s Ratio Perm	0.07		0.01	c0.33		0.02			0.01			
v/c Ratio	0.11	0.57	0.03	0.69	0.63	0.04		0.36	0.11		0.03	
Uniform Delay, d1	9.0	17.0	12.5	10.5	12.5	8.0		38.2	37.1		42.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.1	0.7	0.0	4.0	0.9	0.0		1.3	0.3		0.2	
Delay (s)	9.1	17.7	12.6	14.6	13.4	8.1		39.4	37.4		42.8	
Level of Service	A	B	B	B	B	A		D	D		D	
Approach Delay (s)		17.3			13.5			38.0			42.8	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	91.6	Sum of lost time (s)	24.0
Intersection Capacity Utilization	64.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	424	70	255	354	2	58	4	160	5	0	6
Future Volume (vph)	0	424	70	255	354	2	58	4	160	5	0	6
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.926	
Flt Protected				0.950				0.955			0.978	
Satd. Flow (prot)	1900	1810	1524	1752	1776	1615	0	1659	1615	0	1721	0
Flt Permitted				0.950				0.955			0.978	
Satd. Flow (perm)	1900	1810	1524	1752	1776	1615	0	1659	1615	0	1721	0
Adj. Flow (vph)	0	451	74	271	377	2	62	4	170	5	0	6
Lane Group Flow (vph)	0	451	74	271	377	2	0	66	170	0	11	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 52.7%	ICU Level of Service A	
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	424	70	255	354	2	58	4	160	5	0	6
Future Volume (Veh/h)	0	424	70	255	354	2	58	4	160	5	0	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	451	74	271	377	2	62	4	170	5	0	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									7			
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	379			525			1376	1372	451	1457	1444	377
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	379			525			1376	1372	451	1457	1444	377
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			74			33	96	72	92	100	99
cM capacity (veh/h)	1191			1037			93	109	613	61	98	674

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	0	451	74	271	377	2	236	11
Volume Left	0	0	0	271	0	0	62	5
Volume Right	0	0	74	0	0	2	170	6
cSH	1700	1700	1700	1037	1700	1700	336	121
Volume to Capacity	0.00	0.27	0.04	0.26	0.22	0.00	0.70	0.09
Queue Length 95th (ft)	0	0	0	26	0	0	126	7
Control Delay (s)	0.0	0.0	0.0	9.7	0.0	0.0	38.8	37.7
Lane LOS				A			E	E
Approach Delay (s)	0.0			4.0			38.8	37.7
Approach LOS							E	E

Intersection Summary			
Average Delay	8.6		
Intersection Capacity Utilization	52.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	1	6	68	0	35	10	383	93	29	314	22
Future Volume (vph)	17	1	6	68	0	35	10	383	93	29	314	22
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.968			0.850				0.850			0.850
Flt Protected		0.965		0.950			0.950			0.950		
Satd. Flow (prot)	0	1775	0	1736	1553	0	1805	1759	1282	1556	1759	967
Flt Permitted		0.965		0.950			0.950			0.950		
Satd. Flow (perm)	0	1775	0	1736	1553	0	1805	1759	1282	1556	1759	967
Adj. Flow (vph)	18	1	6	72	0	37	11	403	98	31	331	23
Lane Group Flow (vph)	0	25	0	72	37	0	11	403	98	31	331	23
Sign Control		Stop			Stop			Free			Free	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 38.8%	ICU Level of Service A	
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	1	6	68	0	35	10	383	93	29	314	22
Future Volume (Veh/h)	17	1	6	68	0	35	10	383	93	29	314	22
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	18	1	6	72	0	37	11	403	98	31	331	23
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	855	916	331	824	841	403	354			501		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	855	916	331	824	841	403	354			501		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	93	100	99	74	100	94	99			97		
cM capacity (veh/h)	256	263	715	278	291	643	1216			995		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	25	72	37	11	403	98	31	331	23
Volume Left	18	72	0	11	0	0	31	0	0
Volume Right	6	0	37	0	0	98	0	0	23
cSH	303	278	643	1216	1700	1700	995	1700	1700
Volume to Capacity	0.08	0.26	0.06	0.01	0.24	0.06	0.03	0.19	0.01
Queue Length 95th (ft)	7	25	5	1	0	0	2	0	0
Control Delay (s)	17.9	22.5	10.9	8.0	0.0	0.0	8.7	0.0	0.0
Lane LOS	C	C	B	A			A		
Approach Delay (s)	17.9	18.5		0.2			0.7		
Approach LOS	C	C							

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	38.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	186	23	59	315	137	23	0	56	80	0	8
Future Volume (vph)	9	186	23	59	315	137	23	0	56	80	0	8
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.983			0.954				0.850			0.850
Flt Protected	0.950			0.950				0.950			0.950	
Satd. Flow (prot)	1504	1815	0	1770	1653	0	0	1770	1583	0	1805	1615
Flt Permitted	0.950			0.950				0.950			0.950	
Satd. Flow (perm)	1504	1815	0	1770	1653	0	0	1770	1583	0	1805	1615
Adj. Flow (vph)	9	194	24	61	328	143	24	0	58	83	0	8
Lane Group Flow (vph)	9	218	0	61	471	0	0	24	58	0	83	8
Sign Control		Free			Free			Stop			Stop	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 49.4%	ICU Level of Service A	
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	186	23	59	315	137	23	0	56	80	0	8
Future Volume (Veh/h)	9	186	23	59	315	137	23	0	56	80	0	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	9	194	24	61	328	143	24	0	58	83	0	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									6			6
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	471			218			678	817	206	762	758	400
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	471			218			678	817	206	762	758	400
tC, single (s)	4.3			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			95			93	100	93	71	100	99
cM capacity (veh/h)	1003			1352			347	294	835	289	319	655

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	9	218	61	471	82	91
Volume Left	9	0	61	0	24	83
Volume Right	0	24	0	143	58	8
cSH	1003	1700	1352	1700	1180	317
Volume to Capacity	0.01	0.13	0.05	0.28	0.07	0.29
Queue Length 95th (ft)	1	0	4	0	6	29
Control Delay (s)	8.6	0.0	7.8	0.0	11.5	21.4
Lane LOS	A		A		B	C
Approach Delay (s)	0.3		0.9		11.5	21.4
Approach LOS					B	C

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	LT	R	LTR
Maximum Queue (ft)	69	262	253	53	215	242	244	115	128	103	88
Average Queue (ft)	15	129	120	11	94	108	96	12	45	42	32
95th Queue (ft)	50	229	219	40	166	203	189	59	97	80	69
Link Distance (ft)		1006	1006			738	738		390		461
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	250			225	250			250		225	
Storage Blk Time (%)	0	0	1	0	0	0	0	0			
Queuing Penalty (veh)	0	0	0	0	0	0	0	0			

Intersection: 2: Fords Colony Drive/Dominon Village & Longhill Road

Movement	EB	EB	WB	B11	NB	NB	SB
Directions Served	T	R	L	T	LT	R	LTR
Maximum Queue (ft)	5	19	134	54	357	156	24
Average Queue (ft)	0	1	62	2	107	56	5
95th Queue (ft)	5	8	112	55	362	145	18
Link Distance (ft)	2030			2988	723		278
Upstream Blk Time (%)					1		
Queuing Penalty (veh)					0		
Storage Bay Dist (ft)		300	225			175	
Storage Blk Time (%)					10	1	
Queuing Penalty (veh)					16	0	

Intersection: 3: Centerville Road & Westport/Manchester Drive

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	L	TR	L	L	R
Maximum Queue (ft)	42	63	49	19	49	2
Average Queue (ft)	15	27	16	2	9	0
95th Queue (ft)	39	52	36	11	33	0
Link Distance (ft)	247	762				
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			140	190	190	325
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 4: News Road & Firestone Drive

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	L	TR	LT	R	LT	R
Maximum Queue (ft)	44	37	6	54	54	94	33
Average Queue (ft)	4	10	0	18	28	40	7
95th Queue (ft)	23	31	3	46	50	76	29
Link Distance (ft)			492	372		374	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	225	225			150		150
Storage Blk Time (%)						0	
Queuing Penalty (veh)						0	

Network Summary

Network wide Queuing Penalty: 18

News Road Corridor Traffic Forecast And Analysis

JAMES CITY COUNTY, VIRGINIA

For:
REALTEC, INC.

By:
DRW Consultants, LLC
Midlothian, VA

April 22, 2008

News Road Corridor Traffic Forecast And Analysis

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April 22, 2008

COMMONWEALTH OF VIRGINIA
DEXTER R. WILLIAMS
Lic. No. 031163
4-24-08
PROFESSIONAL ENGINEER

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REPORT TEXT

EXECUTIVE SUMMARY

This traffic study was prepared in response to comments received at the February 27, 2008 meeting of the James City County Planning Commission regarding the proposed rezoning of The Village At Ford's Colony (The Village). The primary principle discussed at the meeting was that a traffic study for the News Road corridor should be prepared based on an accounting of traffic from approved development to date as well as the proposed development of The Village At Ford's Colony and other likely proposals for development. This approach to accounting for other anticipated development traffic in the area is a corridor build out approach to traffic forecasting as opposed to the previous July 12, 2007 "Traffic Analysis For Ford's Colony CRCC". The July 12, 2007 used a forecast year with growth factor approach to traffic forecasting, which does not account for other development directly.

The July 12, 2007 report focused only on the The Village (CCRC) connection to the News Road/Firestone Drive intersection. As discussed at the Planning Commission meeting, counts were available for the News Road intersections at Centerville Road, Old News Road and Monticello Avenue and thus were available to be included in a News Road corridor study. This corridor study includes traffic forecasts for the News Road intersections at Centerville Road, Firestone Drive, Old News Road and Monticello Avenue.

The Village is a retirement community with various types of housing for seniors. These include:

1. Townhomes. 32 units are included in this report. (Note: the number of planned townhome units has been reduced to 24 since the completion of traffic analysis in this report).
2. Independent Living Units. 332 units included in this report.
3. Congregate Case Apartments. 290 units included in this report.
4. Assisted Living/Skill Care. 118 beds included in this report.
5. Nursing Home. 180 beds included in this report.

The existing two lane sections of News Road have adequate capacity for traffic to be generated by all approved and proposed development (including The Village) in the News Road corridor. Ford's Colony, the developer The Village will include turn lanes on News Road at Firestone Drive for access to The Village as well as cash contributions and/or construction for turn lanes on News Road at Powhatan Village, general improvements to News Road, and to the West Monticello Avenue plan which includes improvements at the Monticello Avenue/News Road intersection.

INTRODUCTION

Exhibit 1a shows the News Road corridor from Centerville Road on the west to Monticello Avenue on the east. Centerville Road is the periphery of the Primary Service Area and primarily serves a radial route connection between residential uses in the adjacent area and the Williamsburg region. As such, a forecast for residential development in the adjacent area can be an effective tool for forecasting future traffic on News Road.

Exhibit 1b shows the development area and inventory used in this traffic study (the Exhibit 1b development area map frame is shown on Exhibit 1a). There are 10 identified developments in the area.

There are four AM and PM peak hour traffic analysis scenarios presented in this study:

1. 2007/2008 counts.
2. All Approved Development: Addition of Ford's Colony, Powhatan Secondary north of News Road, Springhill, Westport and Liberty Ridge traffic to counts.
3. The Village: Addition of The Village traffic to all approved development traffic.
4. Proposed Development: Addition of Nixon/Graves, Richardson and Beamer traffic to The Village traffic.

Exhibit 1c shows intersections on the News Road corridor from Centerville Road to Monticello Avenue. Traffic forecasts and analysis for these intersections are addressed as follows:

1. Traffic counts and forecasts are included for the Centerville Road, Firestone Drive, Old News Road and Monticello Avenue intersections. These were the counts that were available for creation of forecasts and inclusion in this study.
2. Traffic analysis is included for the Centerville Road, Firestone Drive, Old News Road and Monticello Avenue intersections. A more thorough traffic analysis for the Monticello Avenue corridor, including the News Road intersection, is included in the March 1, 2008 traffic study for Section 12 of New Town for the 2015 PM peak hour. The March 1, 2008 traffic study includes traffic growth from sources other than News Road area development, and includes recommendations for improvements for West Monticello Avenue (including the News Road intersection) that were originally developed in conjunction with the 2006 rezoning of Section 9 of New Town.
3. Recommendations for turn lane additions at intersections are included for all unsignalized intersections. (See March 1, 2008 report for signalized intersection at Monticello Avenue).

2007/2008 AM AND PM PEAK HOUR TRAFFIC COUNTS

Exhibit 3 shows AM and PM peak hour counts for the News Road corridor. The Centerville Road intersection turning movement counts are tabulated on Appendix Exhibit A series and shown graphically on the upper row of Exhibit 3. These counts were conducted in April 2007, but have not been published before.

The Firestone Drive intersection turning movement counts are tabulated on Appendix Exhibit B series and shown graphically on the second row of Exhibit 3. These counts were conducted in April 2007 and were used in the July 12, 2007 traffic study for The Village.

The Old News Road intersection turning movement counts are tabulated on Appendix Exhibit C series and shown graphically on the third row of Exhibit 3. These counts were conducted in January 2008 by LandMark Design Group and haven not been published before.

The Old News Road intersection turning movement counts are tabulated on Appendix Exhibit D series and shown graphically on the bottom row of Exhibit 3. The PM counts were conducted in April 2007 and were used in the March 1, 2008 traffic study for Section 12 of New Town. The AM counts were conducted on March 11, 2008 and have not been published before. (Note: the Appendix Exhibit D exhibit uses a north/south orientation for News Road; all other areas of this report use an east/west orientation for News Road).

Peak hour intersection levels of service are calculated using Synchro. Synchro reports are presented in the technical appendix. Following are peak hour LOS for 2007/2008 counts on the News Road corridor:

1. Centerville Road (Appendix Exhibits G1 and G2). There are no auxiliary lanes at this three-way, unsignalized intersection, with single lane approaches in all three directions and a stop sign for the westbound approach on News Road. News Road westbound approach: LOS B for AM and PM, Centerville Road southbound approach: LOS A for AM and PM. Right turn and left turn lane warrants are included in the technical appendix for existing counts (Appendix Exhibits J1 and J2 for AM and PM peak hour right turn lane warrants on northbound Centerville Road, and Appendix Exhibit K for left turn lanes warrants on southbound Centerville Road). A right turn taper is warranted for existing counts, and a left turn lane is warranted on southbound Centerville Road for 2007 PM peak hour counts.
2. Firestone Drive (Appendix Exhibits H1 and H2). There are auxiliary lanes on all approaches at this three-way, unsignalized intersection, with an eastbound left turn lane and a westbound right turn lane on News Road, and separate right and left turn lanes and a stop sign for the southbound approach on Firestone Drive. Firestone Drive southbound approach: LOS B AM and PM, News Road eastbound left turn: LOS A AM and PM.
3. Old News Road (Appendix Exhibits I1 and I2). This is a four-way, unsignalized intersection with stop signs on the northbound and southbound approaches. Southbound Old News Road and northbound Lake Powhatan have single approach lanes to the stop signs. Westbound News Road has two through lanes with a left turn

lane and a right turn lane. Eastbound News Road has two through lanes with a separate left turn lane. Old News Road southbound approach: LOS B AM and PM, Lake Powhatan northbound approach: LOS B AM and LOS C PM, News Road eastbound left turn: LOS A AM and PM, News Road westbound left turn: LOS A AM and PM.

4. Monticello Avenue (Appendix Exhibit P1 and P2). This is a signalized intersection with overall LOS C and LOS D or better for all turning movements for AM and PM peak hours.

Traffic on News Road progressively increases from west to east. The lowest traffic volumes are on News Road east of Centerville Road. The peak hour two-way two lane highway segment LOS is B in the AM and PM peak hours. The highest traffic on the two lane sections of News Road is from Powhatan Secondary to Old News Road. The peak hour two-way two lane highway segment LOS is C in the AM peak hour and LOS D in the PM peak hour.

FORD'S COLONY TRIP DISTRIBUTION

Peak hour traffic counts were conducted at all access points to Ford's Colony in 2003 with results reported in a traffic study dated February 28, 2004 by DRW Consultants, Inc. The 2004 report was an update of previous reports in 1993 and 1998. The report documented that Ford's Colony peak hour trip generation in 1998 and 2003 varied from 54% to 64% of values in Trip Generation, 6th Edition by the Institute of Transportation Engineers (ITE). The traffic forecast for Ford's Colony in the 2004 study used a percentage of ITE values for trip generation. The percentage of ITE values was the average of 1998 and 2003 peak hour entering and exiting traffic.

The 2003 counts also provide a basis for determining trip distribution for Ford's Colony for use as a basis for other development trip distribution. The upper sections of Exhibits 2a and 2b respectively show the 2003 AM and PM peak hour counts for traffic entering and existing Ford's Colony four points of access. The lower sections of Exhibits 2a and 2b respectively

show the percentages of total entering and exiting traffic for the AM and PM peak hours at the four points of access.

There are four points of access to Ford's Colony:

1. Williamsburg West Drive on Longhill Road: This access also provides access to Williamsburg West subdivision. Ford's Colony access is via a card-operated gate.
2. Ford's Colony Drive on Longhill Road: This access is open in Ford's Colony for about 1,000 feet, with manned and card-operated gates thereafter for access to Ford's Colony.
3. Firestone Drive on News Road: This access is a card-operated gate.
4. Manchester Drive on Centerville Road: This is a manned gate access, and is the designated access for construction and outside service traffic.

To determine east-west trip distribution splits for new development traffic with access on News Road, Ford's Colony traffic on Longhill Road and News Road (direct east-west access roads) is aggregated. These access points include Ford's Colony Drive and Williamsburg West Drive on Longhill Road and Firestone Drive on News Road. The east-west split delineation of traffic at these three points of access is shown on Exhibit 2c (east in blue arrows, west in red arrows).

East-west splits using these three points of access are calculated for the AM and PM peak hours on Exhibits 2a and 2b. The following table summarizes the results for the east-west directional split of Ford's Colony traffic:

TABLE ONE: FORD'S COLONY EAST-WEST DIRECTIONAL SPLIT

	EAST	WEST
AM ENTERING	73%	27%
AM EXITING	83%	17%
PM ENTERING	82%	18%
PM EXITING	81%	19%

To determine north-south trip distribution splits for new development traffic with access on Centerville Road, all Ford's Colony traffic is aggregated. The north-south split delineation of traffic at these three points of access is shown on Exhibit 2d (north in blue arrows, south in red arrows).

North-south splits using these three points of access are calculated for the AM and PM peak hours using the three access points. The following table summarizes the results for the north-south directional split of Ford's Colony traffic:

TABLE TWO: FORD'S COLONY NORTH-SOUTH DIRECTIONAL SPLIT

	NORTH	SOUTH
AM ENTERING	75%	25%
AM EXITING	72%	28%
PM ENTERING	71%	29%
PM EXITING	79%	21%

The Table One results for the east-west split are remarkably consistent for the AM exiting, PM entering and PM exiting traffic, with 2% or less difference between any of the three conditions. The AM entering traffic has a higher west split which may be related to relatively higher trip generation for Ford's Colony service-oriented, AM entering traffic.

The Table Two results for the north-south split are also relatively consistent, with 8% or less difference between any of the four conditions. These results are applied to new developments in this study.

APPROVED DEVELOPMENT TRAFFIC FORECAST

Ford's Colony has access to News Road directly at Firestone Drive only. Traffic studies in 1993, 1998 and 2003 have shown Ford's Colony trip generation to vary substantially from conventional trip generate equations and average rates in Trip Generation, 5th, 6th and 7th Editions (TG5 through TG7), published by the Institute of Transportation Engineers (ITE).

The approach to forecasting build out traffic from Ford's Colony on News Road is to calculate the percentage increase in TG7 traffic values between April 2007 development and build out, and apply the percentage increase to Ford's Colony traffic counts at Firestone Drive.

Table One on Exhibit 4 shows Ford's Colony trip generation for 2007 and build out using TG7. Percentage increases for build out over 2007 development are in the 32% range. These percentages have been applied to Ford's Colony traffic on Firestone Drive. The increase in Firestone Drive traffic is assigned to the four News Road intersections on Appendix Exhibit E1.

For the 30 unbuilt single family housing units in Powhatan Secondary north of News Road, 100% of TG7 values are assigned as new traffic onto News Road at Powhatan Secondary. Trip generation and distribution for these units are shown on Table 2 on Exhibit 4. Trip assignments to the four News Road intersections are shown on Appendix Exhibit E2.

For the 74 unbuilt units in Greensprings, these are assumed to be the Exhibit 2 Greensprings area with access to Centerville Road south of News Road as shown on Exhibit 2. Table 3 on Exhibit 4 shows trip generation for these 74 units, and trip distribution from these units north on Centerville Road. 60% of traffic is assigned to the north, with 40% assigned to News Road. Trip assignments to the four News Road intersections are shown on Appendix Exhibit E3. The Ford's Colony trip distribution was not applied completely to Greensprings because of the relative ease of access to Monticello Avenue at Centerville Road.

For the 108 unbuilt units in Westport, Ford's Colony trip generation factors are used and results are assigned as new traffic. Westport has access to Centerville Road north of News Road. Table 1 on Exhibit 5 shows trip generation using the Ford's Colony north-south trip distribution split. Trip assignments to the four News Road intersections are shown on Appendix Exhibit E4.

For the 138 unbuilt units in Liberty Ridge, 100% of TG7 values are assigned as new traffic. Liberty Ridge has access to Centerville Road north of Westport. Table 2 on Exhibit 5 shows trip generation using the Ford's Colony north-south trip distribution split. Trip assignments to the four News Road intersections are shown on Appendix Exhibit E5.

Exhibit 8 shows the traffic forecast on News Road for all approved development. Traffic assignment for unbuilt units in Ford's Colony, Powhatan Secondary, Greensprings, Westport and Liberty Ridge have been added to the 2007/2008 counts.

Following are peak hour LOS for traffic forecast with all approved development on the News Road corridor:

1. Centerville Road (Appendix Exhibits G3 and G4). With existing lane configuration, News Road westbound approach: LOS B for AM and LOS C PM, Centerville Road southbound approach: LOS A for AM and PM. Right turn warrants are included in the technical appendix for the approved development forecast (Appendix Exhibits J1 and J2 for AM and PM peak hour right turn lane warrants on northbound Centerville Road). A right turn taper is warranted for the approved development forecast, and a left turn lane was warranted on southbound Centerville Road for 2007 PM peak hour counts.
2. Firestone Drive (Appendix Exhibits H3 and H4). With existing lane configuration, Firestone Drive southbound approach: LOS B AM and LOS B PM, News Road eastbound left turn: LOS A AM and PM.
3. Old News Road (Appendix Exhibits I3 and I4). With existing lane configuration, Old News Road southbound approach: LOS B AM and LOS C PM, Lake Powhatan northbound approach: LOS B AM and LOS C PM, News Road eastbound left turn: LOS A AM and PM, News Road westbound left turn: LOS A AM and PM.
4. Monticello Avenue (Appendix Exhibit P3 and P4). This is a signalized intersection with overall LOS D for the AM peak hour and LOS C for the PM peak hour and LOS D or better for all turning movements for AM and PM peak hours.

On News Road east of Centerville Road, the peak hour two-way two lane highway segment LOS is C in the AM and PM peak hours. On News Road from Powhatan Secondary to Old News Road, the peak hour two-way two lane highway segment LOS is C in the AM peak hour and LOS D in the PM peak hour.

THE VILLAGE AT FORD'S COLONY TRAFFIC FORECAST

Trip generation for The Village is shown in Table 1 on Exhibit 6 using Trip Generation, 7th Edition (TG7), by the Institute of Transportation Engineers (ITE). Trip generation has increased from the July 12, 2007 report by the addition of 180 nursing home beds which were not included in the development inventory provided for that report.

Trip distribution for The Village is also shown on Exhibit 6. The Ford's Colony east-west trip distribution split is used. Trip assignments to the four News Road intersections are shown on Appendix Exhibit E6.

Exhibit 9 shows the traffic forecast on News Road for The Village. Traffic assignment for The Village has been added to the approved development forecast.

Following are peak hour LOS for traffic forecast with all approved development on the News Road corridor:

1. Centerville Road (Appendix Exhibits G5 and G6). With existing lane configuration, News Road westbound approach: LOS B for AM and LOS C PM, Centerville Road southbound approach: LOS A for AM and PM.
2. Firestone Drive (Appendix Exhibits H5 and H6). Firestone Drive southbound approach: LOS C AM and LOS B PM, The Village northbound approach: LOS B AM and LOS C PM, News Road eastbound left turn: LOS A AM and PM, News Road westbound left turn: LOS A AM and PM.
3. Old News Road (Appendix Exhibits I5 and I6). With existing lane configuration, Old News Road southbound approach: LOS B AM and LOS C PM, Lake Powhatan

northbound approach: LOS B AM and LOS C PM, News Road eastbound left turn: LOS A AM and PM, News Road westbound left turn: LOS A AM and PM.

4. Monticello Avenue (Appendix Exhibit P5 and P6). This is a signalized intersection with overall LOS D for the AM peak hour and LOS C for the PM peak hour and LOS D or better for all turning movements for AM and PM peak hours.

On News Road east of Centerville Road, the peak hour two-way two lane highway segment LOS is C in the AM and PM peak hours. On News Road from Powhatan Secondary to Old News Road, the peak hour two-way two lane highway segment LOS is C in the AM peak hour and LOS D in the PM peak hour.

PROPOSED DEVELOPMENT TRAFFIC FORECAST

The Nixon/Graves property lies west of The Village with access via News Road. There is no specific development plan for this property. Development density at one single family unit per acre is used, yielding 60 units. Trip generation for the 60 units is shown on Table 1 on Exhibit 7. The Ford's Colony east-west trip distribution split is used. Trip assignments to the four News Road intersections are shown on Appendix Exhibit E7.

The Richardson property lies west of the Nixon/Graves property. There is no specific development plan for this property. Development density at one single family unit per three acres is used, yielding 39 units. Trip generation for the 39 units is shown on Table 2 on Exhibit 7. The Ford's Colony east-west trip distribution split is used. Trip assignments to the four News Road intersections are shown on Appendix Exhibit E8.

The Beamer property is adjacent to Powhatan Secondary north of News Road. 70 townhouses are proposed for this property. Trip generation for the 39 units is shown on Table 3 on Exhibit 7. All access is via Jester Lane to Old News Road, traffic to Centerville Road, News Road east and Monticello Avenue south is assigned to News Road at Old News Road. Trip assignments to the four News Road intersections are shown on Appendix Exhibit E8.

Exhibit 10 shows the traffic forecast on News Road for proposed development. Traffic assignment for the three proposed developments has been added to The Village forecast.

Following are peak hour LOS for traffic forecast with all approved development on the News Road corridor:

1. Centerville Road (Appendix Exhibits G7 and G8). With existing lane configuration, News Road westbound approach: LOS B for AM and LOS C PM, Centerville Road southbound approach: LOS A for AM and PM. Right turn warrants are included in the technical appendix for the proposed development forecast (Appendix Exhibits J1 and J2 for AM and PM peak hour right turn lane warrants on northbound Centerville Road). A right turn taper is warranted for the proposed development forecast, and a left turn lane was warranted on southbound Centerville Road for 2007 PM peak hour counts.
2. Firestone Drive (Appendix Exhibits H7 and H8). With westbound left turn lane, Firestone Drive southbound approach: LOS C AM and LOS D PM , The Village northbound approach: LOS B AM and PM, News Road eastbound left turn: LOS A AM and PM, News Road westbound left turn: LOS A AM and PM.
3. Old News Road (Appendix Exhibits I7 and I8). With existing lane configuration, Old News Road southbound approach: LOS B AM and LOS D PM, Lake Powhatan northbound approach: LOS B AM and LOS D PM, News Road eastbound left turn: LOS A AM and PM, News Road westbound left turn: LOS A AM and PM.
4. Monticello Avenue (Appendix Exhibit P7 and P8). This is a signalized intersection with overall LOS D for the AM and PM peak hours and LOS D or better for all turning movements for AM peak hour and LOS E or better for PM peak hour.

On News Road east of Centerville Road, the peak hour two-way two lane highway segment LOS is C in the AM and PM peak hours. On News Road from Powhatan Secondary to Old News Road, the peak hour two-way two lane highway segment LOS is D in the AM and PM peak hours.

SUMMARY AND CONCLUSIONS

At the News Road/Centerville Road intersection, existing counts warrant a southbound left turn lane on Centerville Road. For all scenarios, a right turn lane taper is warranted on northbound Centerville Road at the intersection. The proposed development forecast shows traffic very nearly warranting a full right turn lane. The westbound single lane on News Road at the stop sign show LOS C or better for all scenarios, but the volumes are such that widening to provide two lanes on the stop approach is desirable. The following table shows the intersection LOS for all scenarios:

TABLE THREE
UNSIGNALIZED INTERSECTION LOS AT
CENTERVILLE ROAD/NEWS ROAD

CONDITION	AM PEAK HOUR LOS		PM PEAK HOUR LOS	
	Westbound Left/Right	Southbound Left/Thru	Westbound Left/Right	Southbound Left/Thru
2007/2008	B – 12.1	A – 2.5	B – 13.6	A – 2.5
Approved	B – 13.5	A – 3.4	C – 16.7	A – 3.1
The Village	B – 14.1	A – 3.7	C – 17.9	A – 3.4
Proposed	B – 14.6	A – 3.9	C – 19.2	A – 3.7

Notes: Numeric values in seconds delay, with increasing value for decreasing LOS.

At the News Road/Springhill Drive intersection, counts were not available. There is a right turn lane on westbound News Road and there is no eastbound left turn lane on News Road. The proposed development forecast is a 58% increase over existing counts on News Road west of Firestone and the potential for a left turn lane warrant increases with increasing traffic.

At the News Road/Firestone Drive, the progressive increase in traffic from existing counts to the proposed development forecast shows a corresponding increase in delay for the southbound Firestone Drive approach. There is an existing left turn lane on westbound News Road to serve the access connection of The Village at this intersection. An eastbound right turn lane on News Road is not warranted (Appendix Exhibit J3). The following table shows the intersection LOS for all scenarios:

TABLE FOUR
UNSIGNALIZED INTERSECTION LOS AT
FIRESTONE DRIVE/NEWS ROAD

CONDITION	AM PEAK HOUR LOS				PM PEAK HOUR LOS			
	SB Left	NB Left	EB Left	WB Left	SB Left	NB Left	EB Left	WB Left
2007/2008	B – 11.3	n/a	A – 7.5	n/a	B – 12.2	n/a	A – 8.1	n/a
Approved	B – 12.7	n/a	A – 7.5	n/a	B – 14.0	n/a	A – 8.4	n/a
The Village	C – 17.9	B – 13.5	A – 7.6	A – 7.9	D – 26.1	C – 17.2	A – 8.4	A – 7.8
Proposed	C – 20.3	B – 14.5	A – 7.7	A – 8.0	D – 33.0	C – 19.7	A – 8.6	A – 7.9

Notes: Numeric values in seconds delay, with increasing value for decreasing LOS.

At the News Road/Powhatan Parkway intersection, there is a westbound right turn lane. There is no eastbound right turn lane or left turn lanes in either direction. While counts were not available for this intersection, the 2008 counts on News Road west of Old News Road probably warrant a westbound left turn lane, and the proposed development forecast almost certainly will warrant a left turn lane. A full eastbound right turn lane may not be warranted under any condition due to the trend towards most trip distribution to and from the east on News Road.

At the News Road/Old News Road, the progressive increase in traffic from existing counts to the proposed development forecast shows a corresponding decline in LOS for the southbound Old News Road approach. There are existing eastbound and westbound left turn lanes on News Road, and a westbound right turn lane. An eastbound right turn lane on News Road is not warranted (right turn volume of 2 vph less than 10 vph minimum to warrant a right turn taper on a four lane road). The addition of a second southbound lane on Old News Road may not show a LOS improvement, but the volumes are such that improvements to provide two lanes on the stop approach are desirable. The following table shows the intersection LOS for all scenarios:

TABLE FIVE
UNSIGNALIZED INTERSECTION LOS AT
OLD NEWS ROAD/NEWS ROAD

CONDITION	AM PEAK HOUR LOS				PM PEAK HOUR LOS			
	SB App.	NB App.	EB Left	WB Left	SB App.	NB App.	EB Left	WB Left
2007/2008	B – 10.3	B – 10.8	A – 7.7	A – 8.1	B – 15.0	C – 15.2	A – 8.5	A – 0.0
Approved	B – 10.7	B – 11.8	A – 7.8	A – 8.4	C – 18.3	C – 18.7	A – 8.8	A – 0.0
The Village	B – 11.0	B – 12.4	A – 7.9	A – 8.5	C – 22.6	C – 23.1	A – 9.1	A – 0.0
Proposed	B – 11.7	B – 13.1	A – 7.9	A – 8.7	D – 28.6	D – 27.5	A – 9.4	A – 0.0

Notes: Numeric values in seconds delay, with increasing value for decreasing LOS.

The following table shows the two-way two lane highway segment traffic LOS and volume/capacity (v/c) ratios for New Road east of Centerville Road (lowest volumes) and from Powhatan Secondary to Old News Road (highest volumes):

TABLE SIX
TWO-WAY TWO LANE HIGHWAY SEGMENT LOS ON NEWS ROAD

CONDITION	EAST OF CENTERVILLE		POW. SEC. TO OLD NEWS	
	AM PEAK HOUR	PM PEAK HOUR	AM PEAK HOUR	PM PEAK HOUR
2007/2008	B – 0.12	B – 0.15	C – 0.23	D – 0.32
Approved	C – 0.16	C – 0.15	C – 0.28	D – 0.35
The Village	C – 0.18	C – 0.17	C – 0.31	D – 0.40
Proposed	C – 0.19	C – 0.18	D – 0.34	D – 0.44

Notes: Numeric values in volume capacity ratios (v/c), with increasing value for decreasing LOS.

Needed improvements for News Road at Monticello Avenue were addressed with the West Monticello Plan prepared in 2006 and included in the March 1, 2008 traffic study for Section 12 of New Town. The March 1, 2008 traffic study includes a traffic forecast beyond the News Road corridor with resulting large volumes. Any changes needed for the Monticello Marketplace driveway on News Road should be addressed with the design for the West Monticello Plan. For the purposes of comparison, the following table presents signalized intersection LOS results for the traffic counts and forecasts presented in this report:

TABLE SEVEN
SIGNALIZED INTERSECTION LOS AT
NEWS ROAD/MONTICELLO AVENUE

CONDITION	AM PEAK HOUR LOS									
	Overall	EB Left	EB Thru	WB Left	WB Thru	NB Left	NB Thru	NB Right	SB Left	SB L/T/R
2007/2008	C – 34.0	D – 45.4	D – 36.9	C – 25.0	B – 12.3	D– 41.2	D – 42.2	D – 42.2	D – 45.3	D – 39.8
Approved	D – 35.2	D – 45.4	D – 38.9	C – 25.0	B – 13.1	D– 41.2	D – 42.5	D – 42.2	D – 47.4	D – 39.5
The Village	D – 35.9	D – 45.4	D – 39.9	C – 24.9	B – 13.5	D– 40.9	D – 42.6	D – 41.8	D – 49.3	D – 40.1
Proposed	D – 36.8	D – 45.4	D – 41.3	C – 24.9	B – 14.0	D– 40.7	D – 42.7	D – 41.7	D – 51.3	D – 41.0
CONDITION	PM PEAK HOUR LOS									
	Overall	EB Left	EB Thru	WB Left	WB Thru	NB Left	NB Thru	NB Right	SB Left	SB L/T/R
2007/2008	C – 32.1	D – 44.5	D – 38.0	C – 28.0	B – 17.3	D– 40.1	D – 45.9	D – 39.7	D – 46.4	D – 43.2
Approved	C – 33.1	D – 44.8	D – 39.1	C – 27.9	B – 18.0	D– 39.7	D – 50.0	D – 39.3	D – 48.6	D – 44.7
The Village	C – 34.7	D – 43.3	D – 38.0	C – 29.5	B – 19.4	D– 39.4	D – 54.5	D – 39.1	D – 53.9	D – 47.4
Proposed	D – 35.9	D – 43.7	D – 38.5	C – 29.5	B – 19.8	D– 39.2	E – 60.0	D – 38.9	E – 57.1	D – 49.1

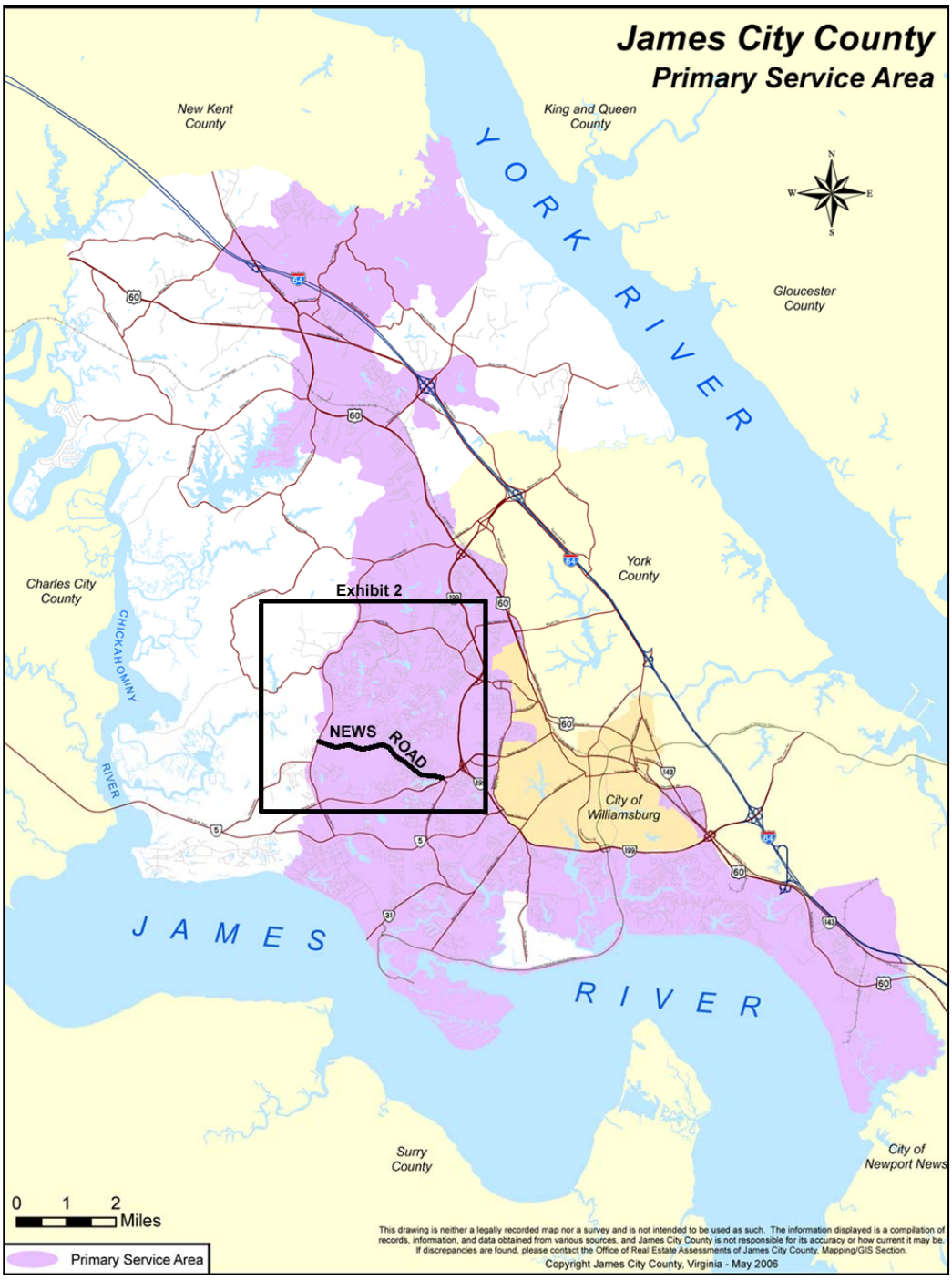
Notes: Numeric values in seconds delay, with increasing value for decreasing LOS.

Overall, the total traffic forecast on News Road will be within the capacity of two lane News Road. Stop-sign controlled traffic will experience LOS B through D, with LOS D occurring only in the PM peak hour.

At Firestone Drive, Ford's Colony will include an eastbound right turn lane for The Village development as well as a westbound left turn lane. Ford's Colony previously proffered the installation of a traffic signal at News Road/Firestone Drive at such time that traffic at the intersection warrants the traffic signal.

Ford's Colony also intends to provide a westbound left turn lane on News Road at Powhatan Secondary. This westbound left turn lane will provide improved convenience to the residents of Powhatan Secondary and reduced delay for all westbound traffic on News Road.

REPORT EXHIBITS



NEWS ROAD CORRIDOR
REGIONAL LOCATION

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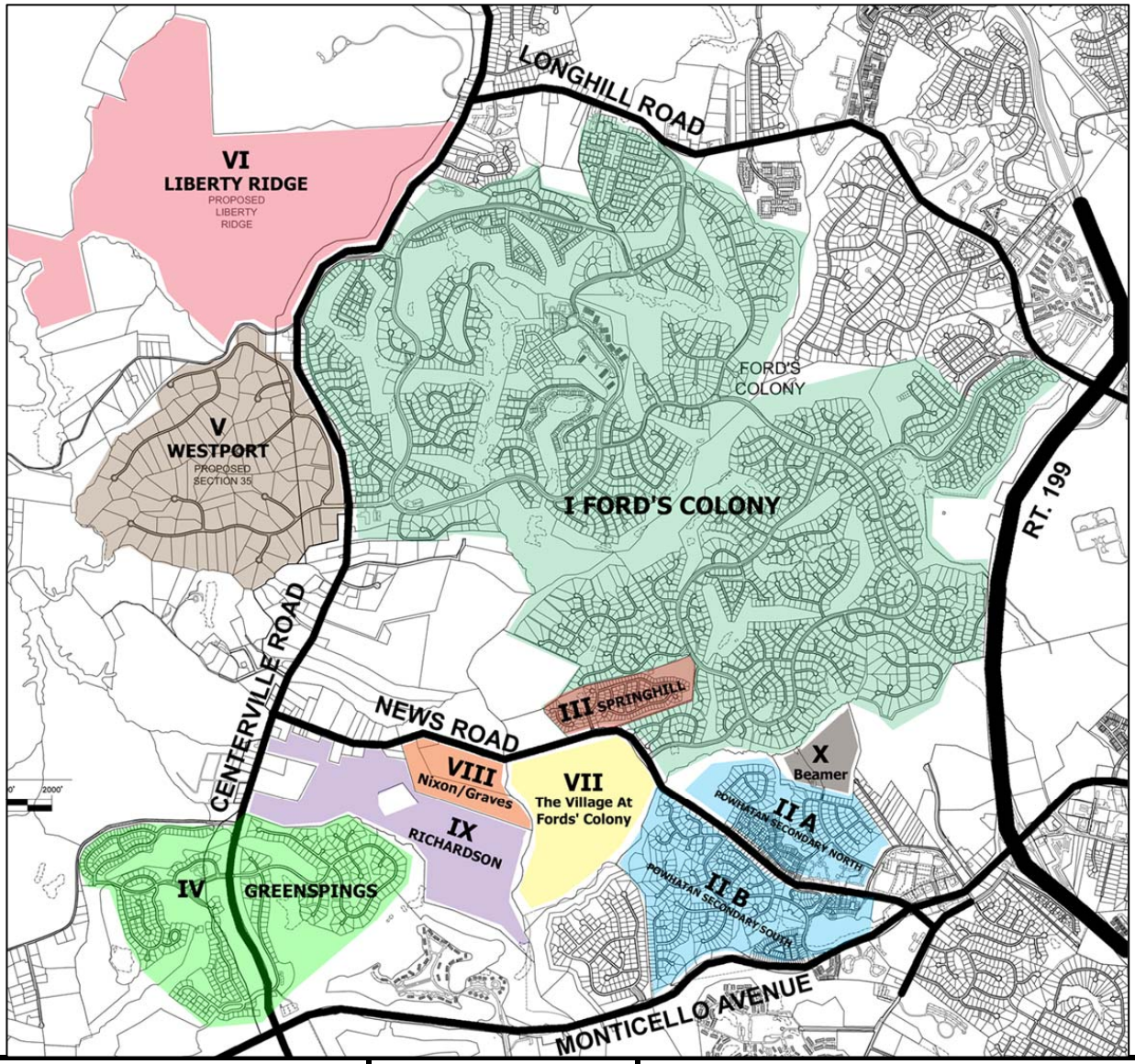
Exhibit 1a



Development		Inventory Source	Forecast Technique
Map #	Name		
I	Ford's Colony	Ford's Colony	Increase News Road/Firestone counts by buildout (3050 units)/April 07 (2272 units) ratio
IIA	Powhatan Secondary North of News Road	Ford's Colony	Assign trips for 30 unbuilt units
IIB	Powhatan Secondary South of News Road	Ford's Colony	Built out; no assignment
III	Springhill	Ford's Colony	Built out; no assignment
IV	Greensprings	AES	Assign trips for 74 unbuilt units
V	Westport	Ford's Colony	Assign trips for 108 unbuilt units
VI	Liberty Ridge	Ford's Colony	Assign trips for 139 unbuilt units
VII	The Village At Ford's Colony	Ford's Colony	Assign proposed development trips
VIII	Nixon/Graves (Realtec)	Ford's Colony	Assign trips for one SF unit per 3 ac. (60 units)
IX	Richardson	Ford's Colony	Assign trips for one SF unit per 1 ac. (20 units)
X	Beamer	Ford's Colony	Assign trips for 70 new units

NEWS ROAD CORRIDOR
DEVELOPMENT INVENTORY

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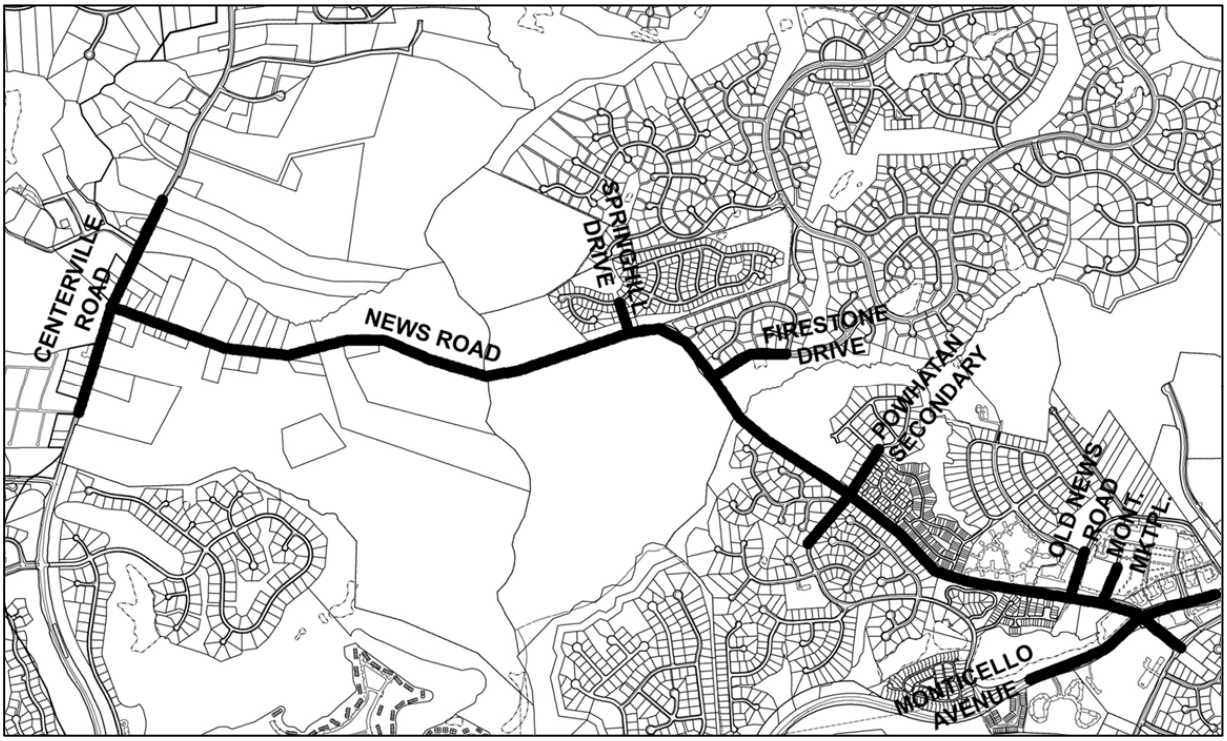
Exhibit 1b



NEWS ROAD CORRIDOR
INTERSECTIONS

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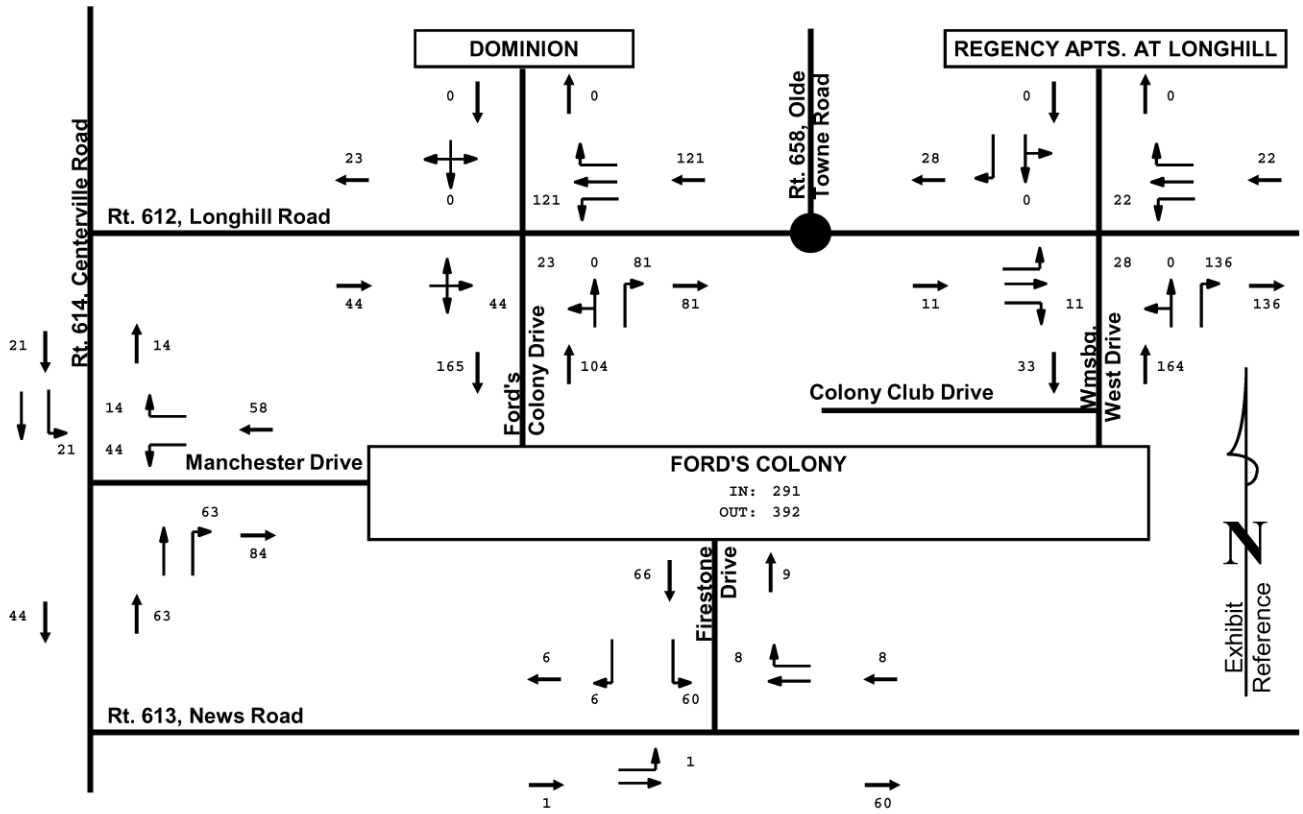
Exhibit 1c

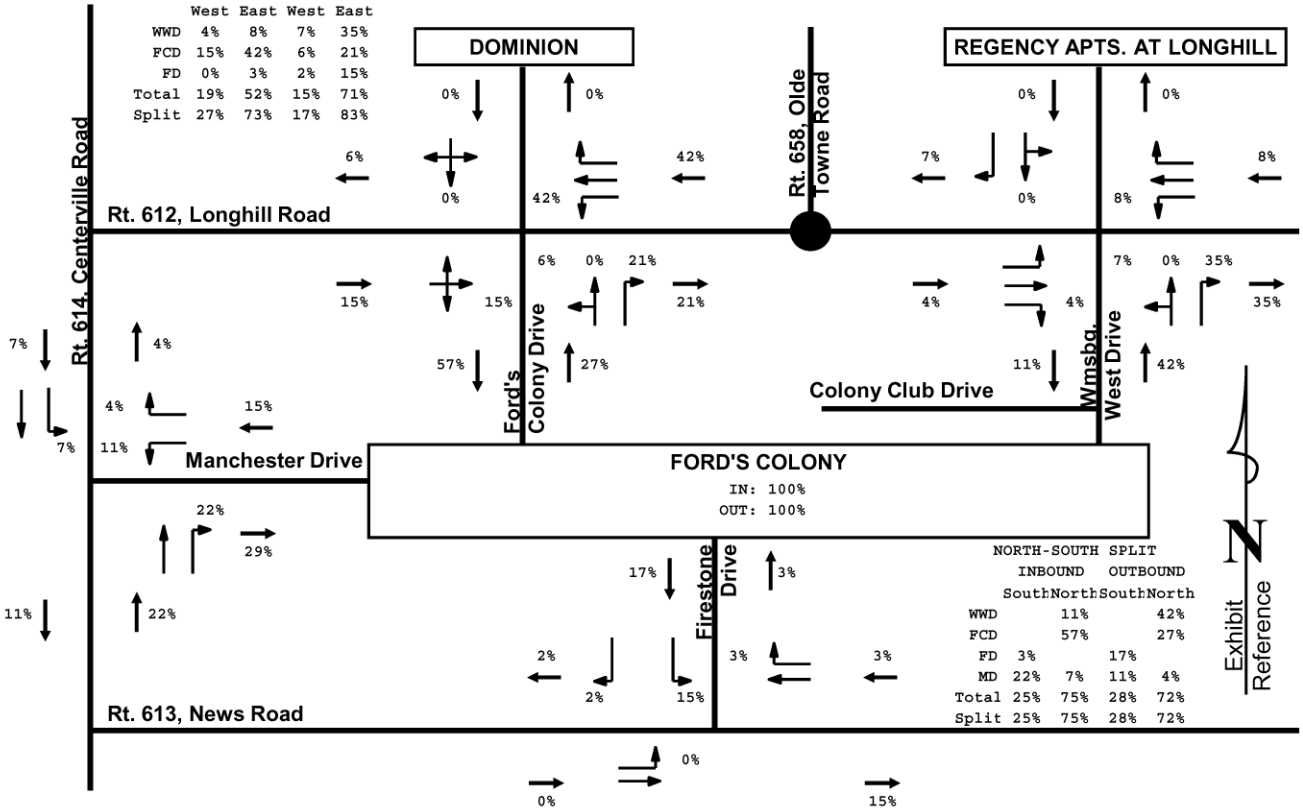
2003 AM Peak Hour Counts



2003 AM PEAK HOUR DISTRIBUTION

EAST-WEST SPLIT

	INBOUND		OUTBOUND	
	West	East	West	East
WWD	4%	8%	7%	35%
FCD	15%	42%	6%	21%
FD	0%	3%	2%	15%
Total	19%	52%	15%	71%
Split	27%	73%	17%	83%



NORTH-SOUTH SPLIT

	INBOUND		OUTBOUND	
	South	North	South	North
WWD		11%		42%
FCD		57%		27%
FD	3%		17%	
MD	22%	7%	11%	4%
Total	25%	75%	28%	72%
Split	25%	75%	28%	72%

FORD'S COLONY 2003 AM PEAK HOUR DISTRIBUTION

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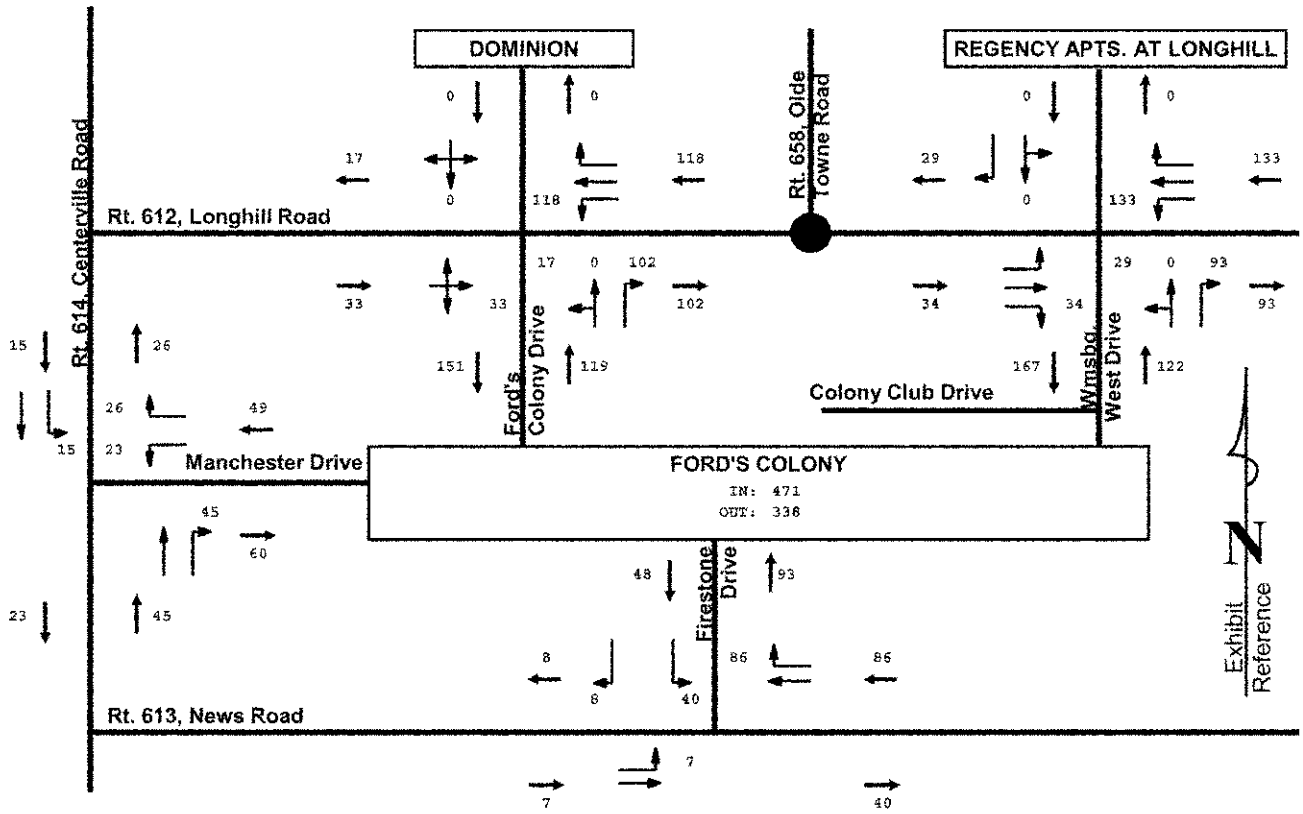
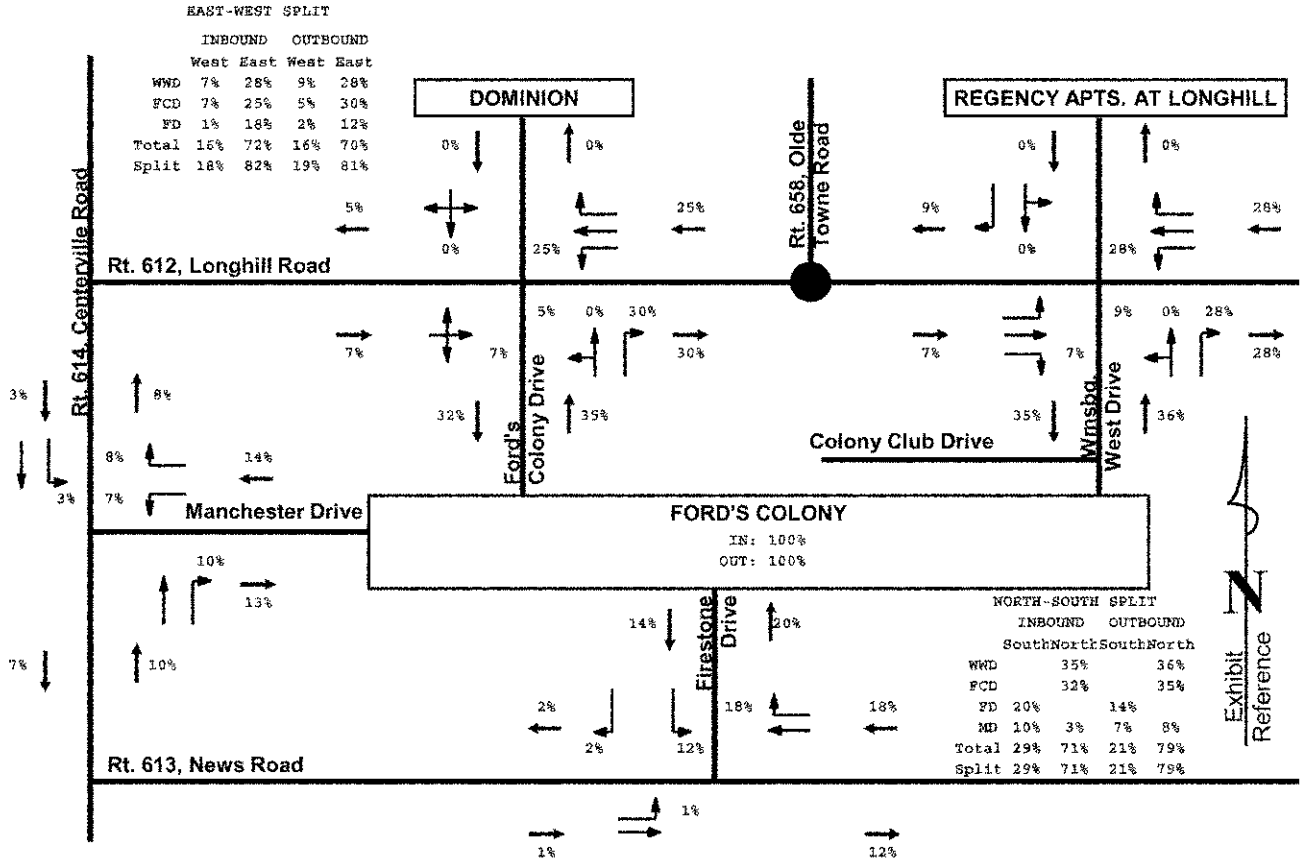
Exhibit 2a

2003 PM Peak Hour Counts



2003 PM PEAK HOUR DISTRIBUTION



FORD'S COLONY 2003 PM PEAK HOUR DISTRIBUTION

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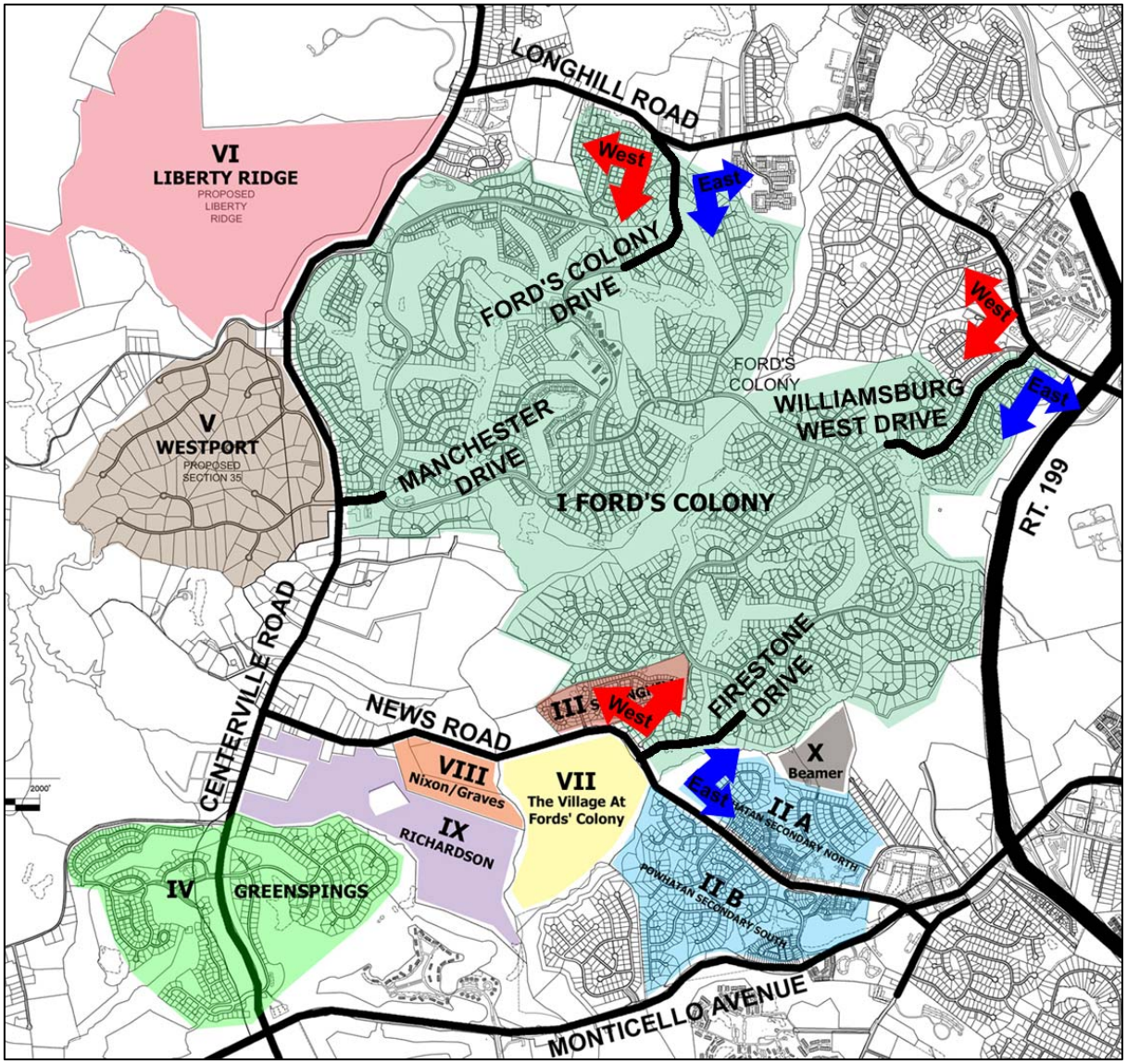
Exhibit 2b



FORD'S COLONY EAST- WEST DISTRIBUTION SPLIT
TRAFFIC LOCATIONS

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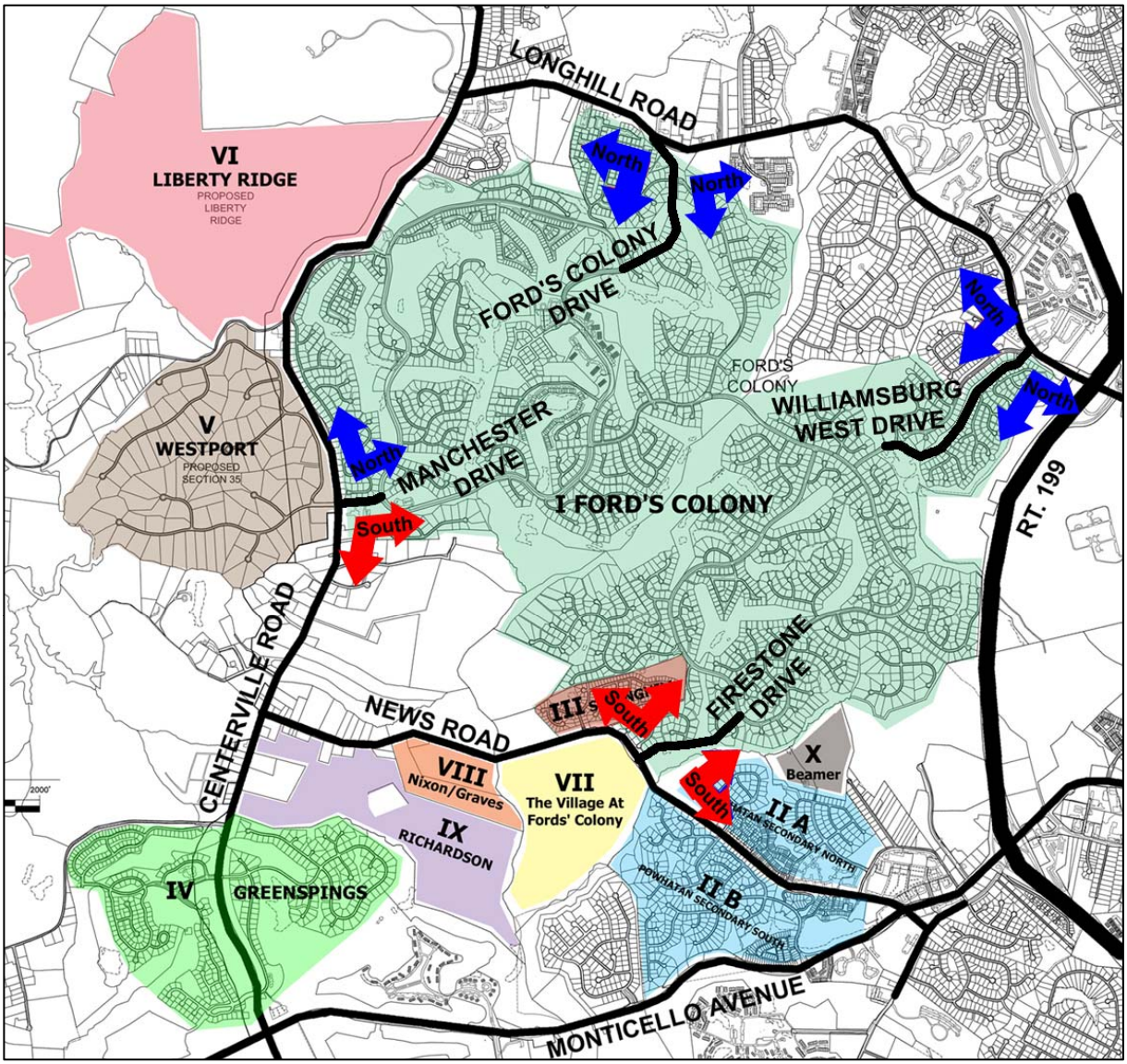
Exhibit 2c



FORD'S COLONY NORTH-SOUTH DISTRIBUTION SPLIT
TRAFFIC LOCATIONS

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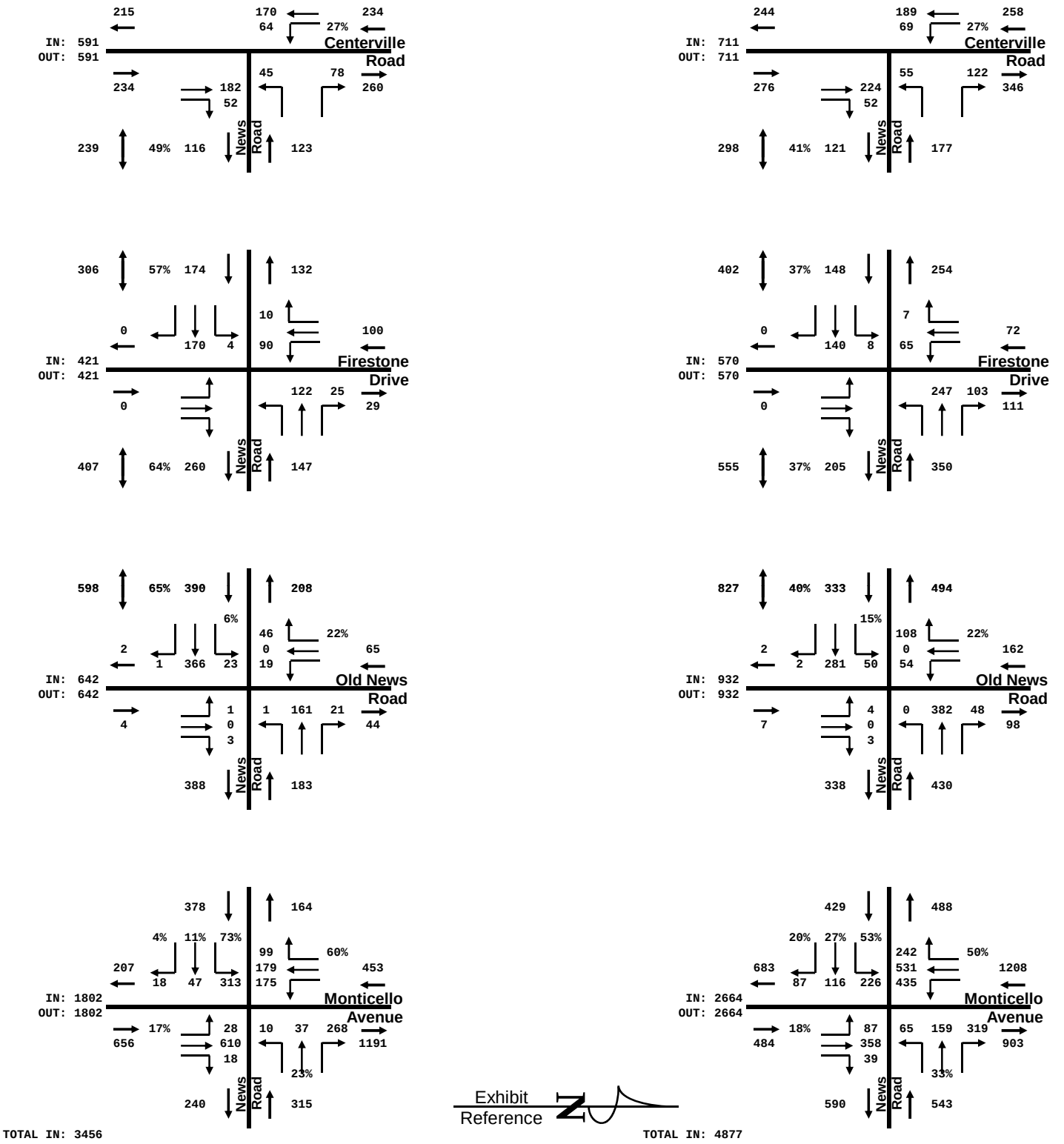
Exhibit 2d



AM PEAK HOUR

PM PEAK HOUR

2007/2008 PEAK HOUR COUNTS

DRW Consultants, LLC
804-794-7312

Exhibit 3

TRACT	LAND USE	LAND USE CODE	SQ.FT., OTHER UNITS	WEEKDAY TRIP GENERATION AM PEAK HOUR Enter	Exit	Total	PM PEAK HOUR Enter	Exit	Total	DAILY

TABLE 1 - FORD'S COLONY TRIP GENERATION (I)

2007										
avg. rate-adj. st.	Single-Family	210	2,180 units	409	1226	1635	1387	815	2202	20863
eq.-adj. st.	Condo/Townhouse	230	92 units	8	40	48	38	18	56	598
		2007 TOTAL	2272 units	417	1266	1683	1425	833	2258	21461
BUILD OUT										
avg. rate-adj. st.	Single-Family	210	2,862 units	537	1610	2147	1821	1070	2891	27389
eq.-adj. st.	Condo/Townhouse	230	188 units	15	71	86	68	33	101	1098
		BUILDOUT TOTAL	3050 units	552	1681	2233	1889	1103	2992	28487
			% INCREASE	32.4%	32.8%	32.7%	32.6%	32.4%	32.5%	32.7%

TABLE 2 - POWHATAN SECONDARY NORTH (IIA) - East West Split

eq.-adj. st.	Single-Family	210	30 units	8	22	30	23	13	36	343

	AM Peak Hour				PM Peak Hour			
	Entering Traffic		Exiting Traffic		Entering Traffic		Exiting Traffic	
Direction	% Dist.	Trips	% Dist.	Trips	% Dist.	Trips	% Dist.	Trips
Centerville North	22%	2	12%	3	13%	3	14%	2
Centerville South	5%	0	5%	1	5%	1	5%	1
Old News North	20%	2	5%	1	20%	5	15%	2
Monticello North	20%	2	45%	10	30%	7	35%	5
News East	23%	2	23%	5	22%	5	21%	3
Monticello South	10%	1	10%	2	10%	2	10%	1
	100%	9	100%	22	100%	23	100%	14

NOTE: ALL TRAFFIC ASSIGNED TO NEWS ROAD VIA POWHATAN SECONDARY

TABLE 3 - GREENSPRINGS (IV) - 40% To News Road

eq.-adj. st.	Single-Family	210	74 units	15	46	61	52	30	82	788

	AM Peak Hour				PM Peak Hour			
	Entering Traffic		Exiting Traffic		Entering Traffic		Exiting Traffic	
Direction	% Dist.	Trips	% Dist.	Trips	% Dist.	Trips	% Dist.	Trips
Centerville South	40%	6	40%	18	40%	21	40%	12
Centerville North	20%	3	20%	9	20%	10	20%	6
Old News North	10%	2	10%	5	10%	5	10%	3
Monticello North	20%	3	20%	9	20%	10	20%	6
News East	10%	2	10%	5	10%	5	10%	3
	100%	16	100%	46	100%	51	100%	30

NOTE: TRAFFIC ASSIGNED TO NEWS ROAD VIA CENTERVILLE ROAD

Trip generation rates from Trip Generation, 7th Edition (TG7) by the Institute of Transportation Engineers (ITE)

FORD'S COLONY, POWHATAN SECONDARY, GREENSPRINGS
TRIP GENERATION AND DISTRIBUTION

DRW Consultants, LLC
804-794-7312

Exhibit 4

TRACT	LAND USE	LAND USE CODE	SQ.FT., OTHER UNITS	WEEKDAY TRIP GENERATION						
				AM PEAK HOUR			PM PEAK HOUR			DAILY
				Enter	Exit	Total	Enter	Exit	Total	

TABLE 1 - WESTPORT (V) - North-South Split

eq.-adj. st.	Single-Family	210	108 units	21	64	85	72	43	115	1116
Average of % ITE avg. trip rate for 1998 and 2003 - Ford's Colony				95%	46%	58%	49%	74%	58%	
Ford's Colony Trip Generation Rates			108 units	20	30	49	35	32	67	

	AM Peak Hour				PM Peak Hour			
	Entering Traffic		Exiting Traffic		Entering Traffic		Exiting Traffic	
Direction	% Dist.	Trips	% Dist.	Trips	% Dist.	Trips	% Dist.	Trips
Centerville North	75%	15	72%	22	71%	25	79%	25
Centerville South	0%	0	0%	0	0%	0	0%	0
Old News North	5%	1	5%	2	5%	2	5%	2
Monticello North	10%	2	15%	5	15%	5	10%	3
News East	5%	1	5%	2	5%	2	5%	2
Monticello South	5%	1	3%	1	4%	1	1%	0
	100%	20	100%	32	100%	35	100%	32

NOTE: TRAFFIC ASSIGNED TO NEWS ROAD VIA CENTERVILLE ROAD

TABLE 2 - LIBERTY RIDGE (VI) - North-South Split

eq.-adj. st.	Single-Family	210	138 units	27	79	106	90	53	143	1398

	AM Peak Hour				PM Peak Hour			
	Entering Traffic		Exiting Traffic		Entering Traffic		Exiting Traffic	
Direction	% Dist.	Trips	% Dist.	Trips	% Dist.	Trips	% Dist.	Trips
Centerville North	75%	20	72%	57	71%	64	79%	42
Centerville South	0%	0	0%	0	0%	0	0%	0
Old News North	5%	1	5%	4	5%	5	5%	3
Monticello North	10%	3	15%	12	15%	14	10%	5
News East	5%	1	5%	4	5%	5	5%	3
Monticello South	5%	1	3%	2	4%	4	1%	1
	100%	26	100%	79	100%	92	100%	54

NOTE: TRAFFIC ASSIGNED TO NEWS ROAD VIA CENTERVILLE ROAD

Trip generation rates from Trip Generation, 7th Edition (TG7) by the Institute of Transportation Engineers (ITE)

WESTPORT, LIBERTY RIDGE
TRIP GENERATION AND DISTRIBUTION

DRW Consultants, LLC
804-794-7312

Exhibit 5

TABLE 1 - THE VILLAGE TRIP GENERATION

TRACT	LAND USE	LAND USE CODE	SQ.FT., OTHER UNITS	WEEKDAY TRIP GENERATION						
				AM PEAK HOUR			PM PEAK HOUR			DAILY
				Enter	Exit	Total	Enter	Exit	Total	
	Elderly Detached	251	32 units	4	6	10	13	9	22	206
	Elderly Attached	252	332 units	12	15	27	23	14	37	1155
	Congregate Care	253	290 units	10	7	17	27	22	49	586
	Assisted Living	254	118 occ.bed	15	5	20	18	16	34	323
rate/adj. st.	Nursing Home	620	180 beds	21	10	31	13	27	40	427
		TOTAL	952 units	62	43	105	94	88	182	2697

TG 7 Definitions	Elderly Detached	251	may have recreation, but not central dining or health care
	Elderly Attached	252	apartment-like residential units
	Congregate Care	253	centralized amenities: dining, house keeping, trans., social/rec
	Assisted Living	254	protective oversight, ALS and Alzheimers may be included

ITE USE CODE	253	254			251	252		
FORD'S COLONY CCRC DEFINITIONS	CCRC Apt	Asst. Liv. Skill Care	CCRC Total		Town Homes	Ind. L.U.	Non CCRC	
Community 1	154	18	172		6			
Community 2		100	100		26	214		
Community 3	136		136			118		
	290	118	408		32	332	364	

TABLE 2 - THE VILLAGE SITE TRIP DISTRIBUTION - East West Split

				62	43	105	94	88	182
	AM Peak Hour						PM Peak Hour		
	Entering Traffic		Exiting Traffic				Entering Traffic		Exiting Traffic
Direction	% Dist.	Trips	% Dist.	Trips			% Dist.	Trips	% Dist.	Trips
Centerville North	22%	14	12%	5			13%	12	14%	12
Centerville South	5%	3	5%	2			5%	5	5%	4
Old News North	20%	12	5%	2			20%	19	15%	13
Monticello North	20%	12	45%	19			30%	28	35%	31
News East	23%	14	23%	10			22%	21	21%	18
Monticello South	10%	6	10%	4			10%	9	10%	9
	100%	61	100%	42			100%	94	100%	87

Trip generation rates from Trip Generation, 7th Edition (TG7) by the Institute of Transportation Engineers (ITE)

THE VILLAGE AT FORD'S COLONY (VII)
TRIP GENERATION AND DISTRIBUTION

DRW Consultants, LLC
804-794-7312

Exhibit 6

TRACT	LAND USE	LAND USE CODE	SQ.FT., OTHER UNITS	WEEKDAY TRIP GENERATION						
				AM PEAK HOUR			PM PEAK HOUR			DAILY
				Enter	Exit	Total	Enter	Exit	Total	

TABLE 1 - NIXON-GRAVES (VIII) - East-West Split

eq.-adj. st.	Single-Family	210	60 units	13	38	51	43	25	68	650
		AM Peak Hour					PM Peak Hour			
		Entering Traffic		Exiting Traffic			Entering Traffic		Exiting Traffic	
	Direction	% Dist.	Trips	% Dist.	Trips		% Dist.	Trips	% Dist.	Trips
	Centerville North	22%	3	12%	5		13%	6	14%	4
	Centerville South	5%	1	5%	2		5%	2	5%	1
	Old News North	20%	3	5%	2		20%	9	15%	4
	Monticello North	20%	3	45%	17		30%	13	35%	9
	News East	23%	3	23%	9		22%	9	21%	5
	Monticello South	10%	1	10%	4		10%	4	10%	3
		100%	14	100%	39		100%	43	100%	26

NOTE: ALL TRAFFIC ASSIGNED TO NEWS ROAD

TABLE 2 - RICHARDSON (IX) - East-West Split

eq.-adj. st.	Single-Family	210	39 units	9	28	37	29	17	46	437
		AM Peak Hour					PM Peak Hour			
		Entering Traffic		Exiting Traffic			Entering Traffic		Exiting Traffic	
	Direction	% Dist.	Trips	% Dist.	Trips		% Dist.	Trips	% Dist.	Trips
	Centerville North	22%	2	12%	3		13%	4	14%	2
	Centerville South	5%	0	5%	1		5%	1	5%	1
	Old News North	20%	2	5%	1		20%	6	15%	3
	Monticello North	20%	2	45%	13		30%	9	35%	6
	News East	23%	2	23%	6		22%	6	21%	4
	Monticello South	10%	1	10%	3		10%	3	10%	2
		100%	9	100%	27		100%	29	100%	18

NOTE: ALL TRAFFIC ASSIGNED TO NEWS ROAD

TABLE 3 - BEAMER (X) - North-South Split

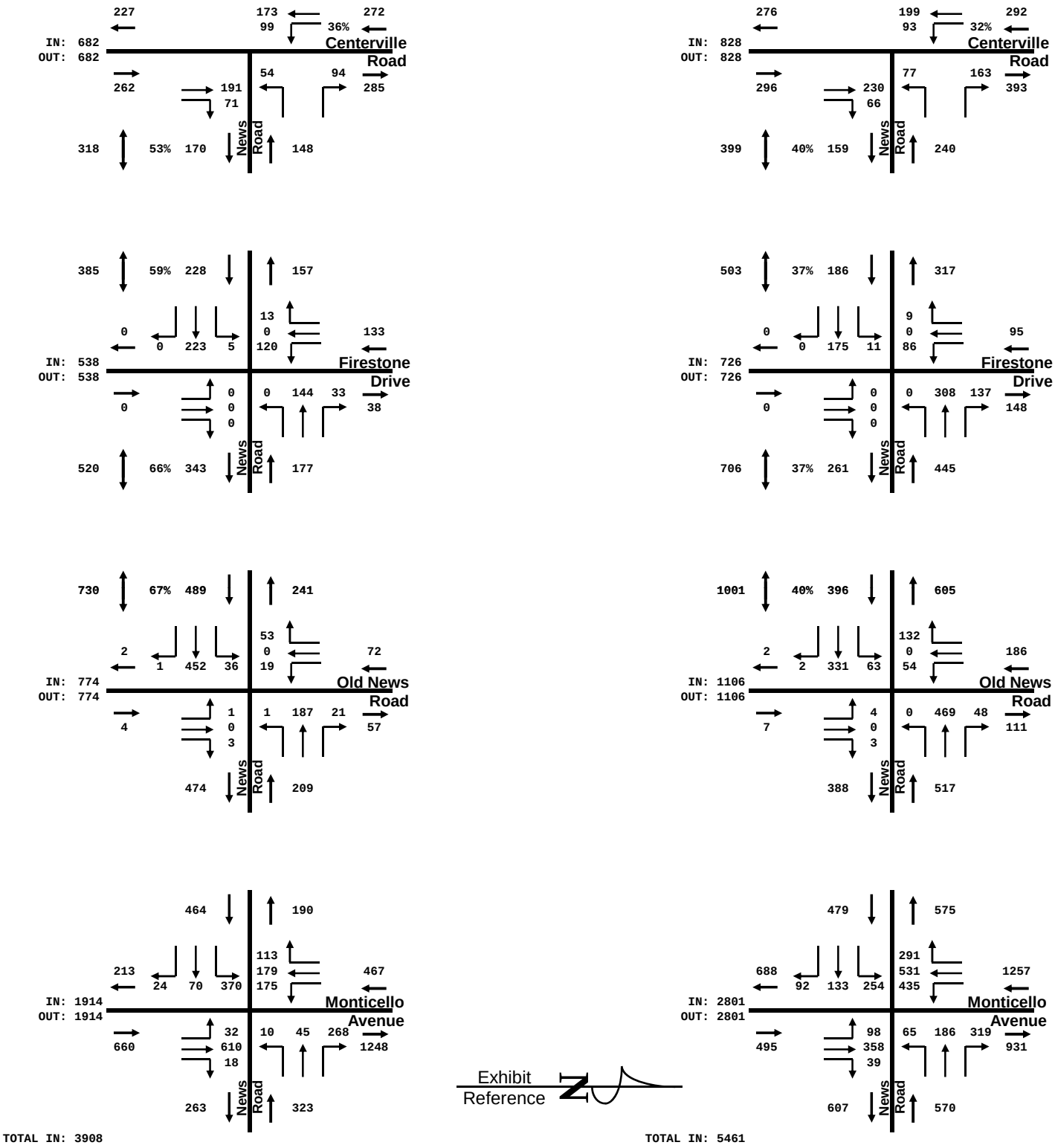
eq.-adj. st.	Condo/Townhouse	230	70 units	7	32	39	30	15	45	474
		AM Peak Hour					PM Peak Hour			
		Entering Traffic		Exiting Traffic			Entering Traffic		Exiting Traffic	
	Direction	% Dist.	Trips	% Dist.	Trips		% Dist.	Trips	% Dist.	Trips
	Centerville North	5%	0	5%	2		5%	2	5%	1
	Centerville South	5%	0	5%	2		5%	2	5%	1
	Old News North	75%	5	72%	23		71%	21	79%	12
	Monticello North	0%	0	0%	0		0%	0	0%	0
	News East	10%	1	13%	4		10%	3	10%	2
	Monticello South	5%	0	5%	2		9%	3	1%	0
		100%	6	100%	33		100%	31	100%	16

Trip generation rates from Trip Generation, 7th Edition (TG7) by the Institute of Transportation Engineers (ITE)

NIXON-GRAVES, RICHARDSON, BEAMER
TRIP GENERATION AND DISTRIBUTION

DRW Consultants, LLC
804-794-7312

Exhibit 7



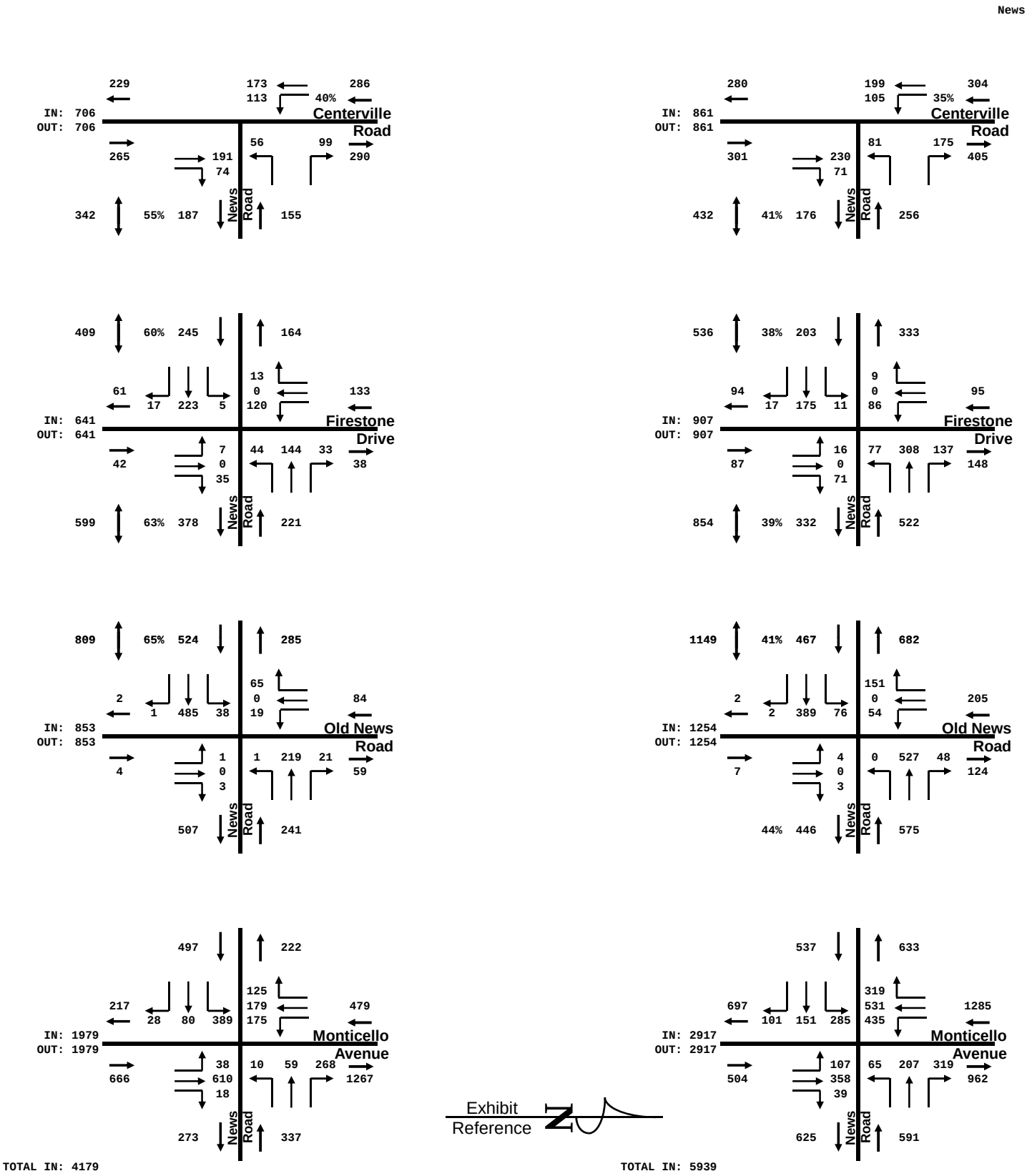
AM PEAK HOUR

PM PEAK HOUR

APPROVED DEVELOPMENT TRAFFIC FORECAST (I THRU VI)
(2007/2008 Counts And All Approved Development Traffic)

DRW Consultants, LLC
804-794-7312

Exhibit 8



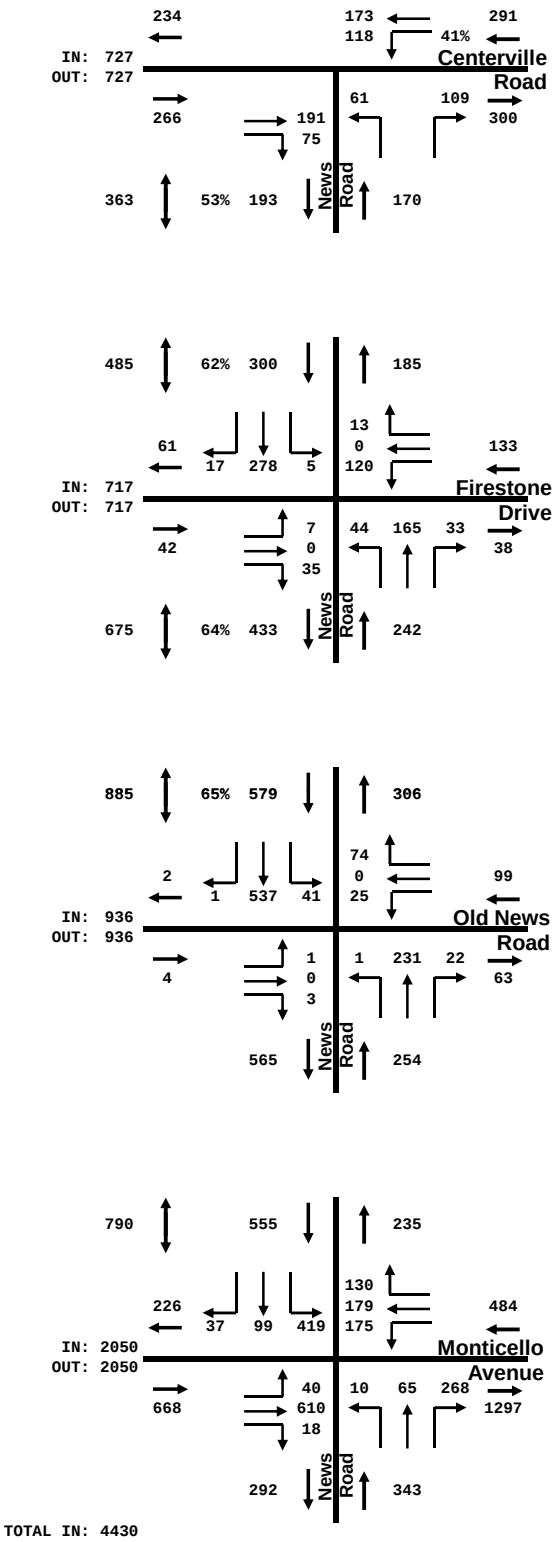
AM PEAK HOUR

PM PEAK HOUR

THE VILLAGE AT FORD'S COLONY TRAFFIC FORECAST (I THRU VII)
(Approved Development Forecast And The Village Traffic)

DRW Consultants, LLC
804-794-7312

Exhibit 9



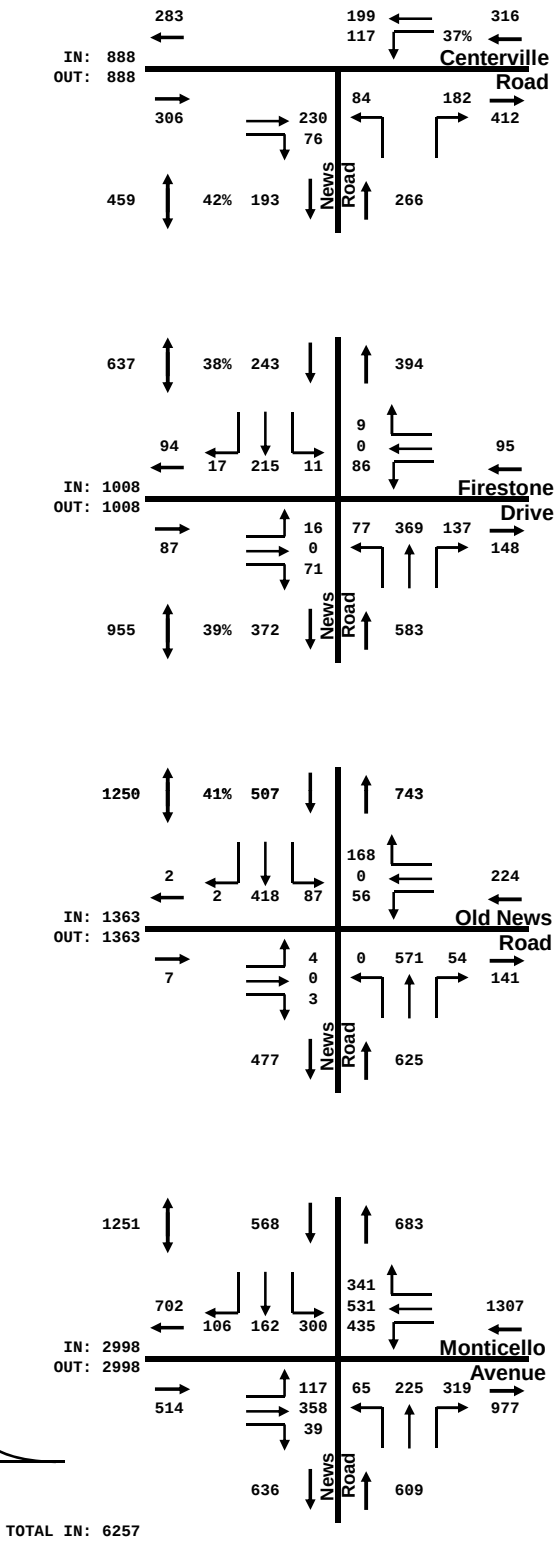


Exhibit Reference

AM PEAK HOUR

PM PEAK HOUR

PROPOSED DEVELOPMENT TRAFFIC FORECAST (I THRU X)
(The Village Forecast With Proposed Development Traffic)

DRW Consultants, LLC
804-794-7312

Exhibit 10

APPENDIX
EXHIBITS

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Approved Development Forecast ..... P3 ..... P4
The Village Forecast ..... P5 ..... P6
Proposed Development Forecast ..... P7 ..... P8

AM PEAK HOUR Date: Thu, 4/26/07

LOCATION: Centerville Road/News Road

CUMULATIVE 15 MINUTE COUNTS

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
7:00 to 7:15		34	10	19	44					14		20	141
7:15 to 7:30		91	19	35	83					26		33	287
7:30 to 7:45		133	36	46	128					38		60	441
7:45 to 8:00		182	52	64	170					45		78	591
8:00 to 8:15		216	66	79	195					54		87	697
8:15 to 8:30		267	70	103	228					61		117	846
8:30 to 8:45		308	80	120	262					66		139	975
8:45 to 9:00		357	90	134	296					73		157	1107
Count Sheet		F	E	B	A					D		C	

15 MINUTE INTERVAL COUNTS

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
7:00 to 7:15	0	34	10	19	44	0	0	0	0	14	0	20	141
7:15 to 7:30	0	57	9	16	39	0	0	0	0	12	0	13	146
7:30 to 7:45	0	42	17	11	45	0	0	0	0	12	0	27	154
7:45 to 8:00	0	49	16	18	42	0	0	0	0	7	0	18	150
8:00 to 8:15	0	34	14	15	25	0	0	0	0	9	0	9	106
8:15 to 8:30	0	51	4	24	33	0	0	0	0	7	0	30	149
8:30 to 8:45	0	41	10	17	34	0	0	0	0	5	0	22	129
8:45 to 9:00	0	49	10	14	34	0	0	0	0	7	0	18	132

HOUR INTERVAL

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
7:00 to 8:00	0	182	52	64	170	0	0	0	0	45	0	78	591
7:15 to 8:15	0	182	56	60	151	0	0	0	0	40	0	67	556
7:30 to 8:30	0	176	51	68	145	0	0	0	0	35	0	84	559
7:45 to 8:45	0	175	44	74	134	0	0	0	0	28	0	79	534
8:00 to 9:00	0	175	38	70	126	0	0	0	0	28	0	79	516

PEAK HOUR TURNING MOVEMENT VOLUMES

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
7:00 to 8:00	0	182	52	64	170	0	0	0	0	45	0	78	591
8:00 to 9:00	0	175	38	70	126	0	0	0	0	28	0	79	516

Exhibit A1

PM PEAK HOUR Date: Wed, 4/25/07

LOCATION: Centerville Road/News Road

CUMULATIVE 15 MINUTE COUNTS

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
3:45 to 4:00													
4:00 to 4:15		46	15	12	44					18		22	157
4:15 to 4:30		112	28	28	97					30		50	345
4:30 to 4:45		160	35	45	133					48		78	499
4:45 to 5:00		212	44	67	174					64		106	667
5:00 to 5:15		274	62	84	227					79		140	866
5:15 to 5:30		337	75	96	277					90		172	1047
5:30 to 5:45		384	87	114	322					103		200	1210
5:45 to 6:00		425	96	121	371					112		221	1346
Count Sheet		F	E	B	A					D		C	

15 MINUTE INTERVAL COUNTS

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
4:00 to 4:15	0	46	15	12	44	0	0	0	0	18	0	22	157
4:15 to 4:30	0	66	13	16	53	0	0	0	0	12	0	28	188
4:30 to 4:45	0	48	7	17	36	0	0	0	0	18	0	28	154
4:45 to 5:00	0	52	9	22	41	0	0	0	0	16	0	28	168
5:00 to 5:15	0	62	18	17	53	0	0	0	0	15	0	34	199
5:15 to 5:30	0	63	13	12	50	0	0	0	0	11	0	32	181
5:30 to 5:45	0	47	12	18	45	0	0	0	0	13	0	28	163
5:45 to 6:00	0	41	9	7	49	0	0	0	0	9	0	21	136

HOUR INTERVAL

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
4:00 to 5:00	0	212	44	67	174	0	0	0	0	64	0	106	667
4:15 to 5:15	0	228	47	72	183	0	0	0	0	61	0	118	709
4:30 to 5:30	0	225	47	68	180	0	0	0	0	60	0	122	702
4:45 to 5:45	0	224	52	69	189	0	0	0	0	55	0	122	711
5:00 to 6:00	0	213	52	54	197	0	0	0	0	48	0	115	679

PEAK HOUR TURNING MOVEMENT VOLUMES

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
4:45 to 5:45	0	224	52	69	189	0	0	0	0	55	0	122	711

Exhibit A2

AM PEAK HOUR

LOCATION: News Road/Firestone Drive

DATE:
Thu, 4/26/07

CUMULATIVE 15 MINUTE COUNTS

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
7:00 to 7:15				10		1	0	54			29	3	97
7:15 to 7:30				23		2	1	109			53	6	194
7:30 to 7:45				37		6	1	142			89	10	285
7:45 to 8:00				55		6	2	197			113	17	390
8:00 to 8:15				72		9	3	244			140	26	494
8:15 to 8:30				88		12	4	252			180	30	566
8:30 to 8:45				119		14	4	320			209	36	702
8:45 to 9:00				145		16	6	367			235	42	811
Count Sheet				C		D	E	F			A	B	

15 MINUTE INCREMENT COUNTS

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
7:00 to 7:15	0	0	0	10	0	1	0	54	0	0	29	3	97
7:15 to 7:30	0	0	0	13	0	1	1	55	0	0	24	3	97
7:30 to 7:45	0	0	0	14	0	4	0	33	0	0	36	4	91
7:45 to 8:00	0	0	0	18	0	0	1	55	0	0	24	7	105
8:00 to 8:15	0	0	0	17	0	3	1	47	0	0	27	9	104
8:15 to 8:30	0	0	0	16	0	3	1	8	0	0	40	4	72
8:30 to 8:45	0	0	0	31	0	2	0	68	0	0	29	6	136
8:45 to 9:00	0	0	0	26	0	2	2	47	0	0	26	6	109

HOUR INCREMENT

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
7:00 to 8:00	0	0	0	55	0	6	2	197	0	0	113	17	390
7:15 to 8:15	0	0	0	62	0	8	3	190	0	0	111	23	397
7:30 to 8:30	0	0	0	65	0	10	3	143	0	0	127	24	372
7:45 to 8:45	0	0	0	82	0	8	3	178	0	0	120	26	417
8:00 to 9:00	0	0	0	90	0	10	4	170	0	0	122	25	421

PEAK HOUR TURNING MOVEMENT VOLUMES

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
8:00 to 9:00	0	0	0	90	0	10	4	170	0	0	122	25	421

Exhibit B1

PM PEAK HOUR

LOCATION: News Road/Firestone Drive

DATE:
Wed, 4/25/07

CUMULATIVE 15 MINUTE COUNTS

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
4:00 to 4:15				19		4	3	27			53	24	130
4:15 to 4:30				36		7	3	58			91	49	244
4:30 to 4:45				47		7	5	91			148	80	378
4:45 to 5:00				69		13	7	127			202	101	519
5:00 to 5:15				84		14	8	166			274	130	676
5:15 to 5:30				101		14	11	198			338	152	814
5:30 to 5:45				111		18	14	230			393	173	939
5:45 to 6:00				122		20	16	259			438	191	1046
Count Sheet				C		D	E	F			A	B	

15 MINUTE INCREMENT COUNTS

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
4:00 to 4:15	0	0	0	19	0	4	3	27	0	0	53	24	130
4:15 to 4:30	0	0	0	17	0	3	0	31	0	0	38	25	114
4:30 to 4:45	0	0	0	11	0	0	2	33	0	0	57	31	134
4:45 to 5:00	0	0	0	22	0	6	2	36	0	0	54	21	141
5:00 to 5:15	0	0	0	15	0	1	1	39	0	0	72	29	157
5:15 to 5:30	0	0	0	17	0	0	3	32	0	0	64	22	138
5:30 to 5:45	0	0	0	10	0	4	3	32	0	0	55	21	125
5:45 to 6:00	0	0	0	11	0	2	2	29	0	0	45	18	107

HOUR INCREMENT

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
4:00 to 5:00	0	0	0	69	0	13	7	127	0	0	202	101	519
4:15 to 5:15	0	0	0	65	0	10	5	139	0	0	221	106	546
4:30 to 5:30	0	0	0	65	0	7	8	140	0	0	247	103	570
4:45 to 5:45	0	0	0	64	0	11	9	139	0	0	245	93	561
5:00 to 6:00	0	0	0	53	0	7	9	132	0	0	236	90	527

PEAK HOUR TURNING MOVEMENT VOLUMES

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
4:30 to 5:30	0	0	0	65	0	7	8	140	0	0	247	103	570

Exhibit B2

AM PEAK HOUR Date: Tue, 1/29/08

LOCATION: News Road/Old News Road

CUMULATIVE 15 MINUTE COUNTS

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
7:00 to 7:15													0
7:15 to 7:30													0
7:30 to 7:45													0
7:45 to 8:00													0
8:00 to 8:15													0
8:15 to 8:30													0
8:30 to 8:45													0
8:45 to 9:00													0

Count Sheet

15 MINUTE INTERVAL COUNTS

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
7:00 to 7:15	0	0	0	0	0	4	2	46	0	0	12	7	71
7:15 to 7:30	0	0	0	2	0	5	4	91	0	0	37	2	141
7:30 to 7:45	0	0	0	14	0	13	4	84	0	0	18	1	134
7:45 to 8:00	0	0	0	2	0	8	7	108	0	0	34	2	161
8:00 to 8:15	0	0	0	5	0	16	9	104	0	0	65	7	206
8:15 to 8:30	1	0	0	2	0	8	2	54	0	0	34	6	107
8:30 to 8:45	0	0	0	4	0	14	3	87	0	0	32	3	143
8:45 to 9:00	0	0	3	8	0	8	9	121	1	1	30	5	186

HOUR INTERVAL

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
7:00 to 8:00	0	0	0	18	0	30	17	329	0	0	101	12	507
7:15 to 8:15	0	0	0	23	0	42	24	387	0	0	154	12	642
7:30 to 8:30	1	0	0	23	0	45	22	350	0	0	151	16	608
7:45 to 8:45	1	0	0	13	0	46	21	353	0	0	165	18	617
8:00 to 9:00	1	0	3	19	0	46	23	366	1	1	161	21	642

PEAK HOUR TURNING MOVEMENT VOLUMES

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
7:15 to 8:15	0	0	0	23	0	42	24	387	0	0	154	12	642
8:00 to 9:00	1	0	3	19	0	46	23	366	1	1	161	21	642

Exhibit C1

PM PEAK HOUR Date: Tue, 1/29/08

LOCATION: News Road/Old News Road

CUMULATIVE 15 MINUTE COUNTS

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
3:45 to 4:00													
4:00 to 4:15													0
4:15 to 4:30													0
4:30 to 4:45													0
4:45 to 5:00													0
5:00 to 5:15													0
5:15 to 5:30													0
5:30 to 5:45													0
5:45 to 6:00													0

Count Sheet

15 MINUTE INTERVAL COUNTS

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
4:00 to 4:15	0	0	0	5	0	19	11	47	1	0	53	8	144
4:15 to 4:30	1	0	0	8	0	26	9	56	0	1	99	11	211
4:30 to 4:45	0	0	0	25	0	29	14	81	2	0	112	19	282
4:45 to 5:00	0	0	0	8	0	13	11	66	0	0	77	2	177
5:00 to 5:15	0	0	2	7	0	31	12	71	0	0	86	11	220
5:15 to 5:30	4	0	1	14	0	35	13	63	0	0	107	16	253
5:30 to 5:45	1	0	0	6	0	26	8	82	0	0	106	16	245
5:45 to 6:00	0	0	1	9	0	29	8	66	4	0	80	10	207

HOUR INTERVAL

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
4:00 to 5:00	1	0	0	46	0	87	45	250	3	1	341	40	814
4:15 to 5:15	1	0	2	48	0	99	46	274	2	1	374	43	890
4:30 to 5:30	4	0	3	54	0	108	50	281	2	0	382	48	932
4:45 to 5:45	5	0	3	35	0	105	44	282	0	0	376	45	895
5:00 to 6:00	5	0	4	36	0	121	41	282	4	0	379	53	925

PEAK HOUR TURNING MOVEMENT VOLUMES

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
4:30 to 5:30	4	0	3	54	0	108	50	281	2	0	382	48	932

Exhibit C2

AM PEAK HOUR Date: Tue, 3/11/08

LOCATION: MONTICELLO AVENUE/NEWS ROAD

CUMULATIVE 15 MINUTE COUNTS

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
7:00 to 7:15	5	12	44	59	14	9	9	112	5	37	49	14	369
7:15 to 7:30	8	24	112	143	24	11	21	237	6	72	89	29	776
7:30 to 7:45	11	35	175	217	32	17	23	398	13	111	134	44	1210
7:45 to 8:00	11	41	251	316	45	20	29	586	19	160	176	74	1728
8:00 to 8:15	15	49	312	372	61	27	37	722	23	212	228	113	2171
8:15 to 8:30	19	60	375	428	75	32	41	838	26	258	281	143	2576
8:30 to 8:45	27	75	428	489	95	37	48	921	31	309	324	172	2956
8:45 to 9:00	33	86	486	569	126	46	55	1039	42	373	380	193	3428
Count Sheet	J	K	L	G	H	I	A	B	C	D	E	F	

15 MINUTE INTERVAL COUNTS

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
7:00 to 7:15	5	12	44	59	14	9	9	112	5	37	49	14	369
7:15 to 7:30	3	12	68	84	10	2	12	125	1	35	40	15	407
7:30 to 7:45	3	11	63	74	8	6	2	161	7	39	45	15	434
7:45 to 8:00	0	6	76	99	13	3	6	188	6	49	42	30	518
8:00 to 8:15	4	8	61	56	16	7	8	136	4	52	52	39	443
8:15 to 8:30	4	11	63	56	14	5	4	116	3	46	53	30	405
8:30 to 8:45	8	15	53	61	20	5	7	83	5	51	43	29	380
8:45 to 9:00	6	11	58	80	31	9	7	118	11	64	56	21	472

HOUR INTERVAL

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
7:00 to 8:00	11	41	251	316	45	20	29	586	19	160	176	74	1728
7:15 to 8:15	10	37	268	313	47	18	28	610	18	175	179	99	1802
7:30 to 8:30	11	36	263	285	51	21	20	601	20	186	192	114	1800
7:45 to 8:45	16	40	253	272	63	20	25	523	18	198	190	128	1746
8:00 to 9:00	22	45	235	253	81	26	26	453	23	213	204	119	1700

PEAK HOUR TURNING MOVEMENT VOLUMES

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
7:15 to 8:15	10	37	268	313	47	18	28	610	18	175	179	99	1802

Exhibit D1

PM PEAK HOUR Date: Thu, 4/19/07

LOCATION: MONTICELLO AVENUE/NEWS ROAD

CUMULATIVE 15 MINUTE COUNTS

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
3:45 to 4:00													
4:00 to 4:15	8	40	57	34	20	15	8	60	7	107	101	39	496
4:15 to 4:30	16	88	141	72	49	29	25	148	17	221	206	93	1105
4:30 to 4:45	24	122	211	115	81	42	37	218	27	304	318	133	1632
4:45 to 5:00	35	162	291	165	116	56	52	319	32	406	437	190	2261
5:00 to 5:15	47	208	384	233	152	71	73	393	45	520	564	251	2941
5:15 to 5:30	69	259	448	291	183	84	93	505	55	646	702	321	3656
5:30 to 5:45	83	287	528	339	205	107	120	584	61	738	819	372	4243
5:45 to 6:00	100	321	607	388	232	133	139	675	71	823	952	423	4864
Count Sheet	D	E	F	A	B	C	J	K	L	G	H	I	

15 MINUTE INTERVAL COUNTS

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
4:00 to 4:15	8	40	57	34	20	15	8	60	7	107	101	39	496
4:15 to 4:30	8	48	84	38	29	14	17	88	10	114	105	54	609
4:30 to 4:45	8	34	70	43	32	13	12	70	10	83	112	40	527
4:45 to 5:00	11	40	80	50	35	14	15	101	5	102	119	57	629
5:00 to 5:15	12	46	93	68	36	15	21	74	13	114	127	61	680
5:15 to 5:30	22	51	64	58	31	13	20	112	10	126	138	70	715
5:30 to 5:45	14	28	80	48	22	23	27	79	6	92	117	51	587
5:45 to 6:00	17	34	79	49	27	26	19	91	10	85	133	51	621

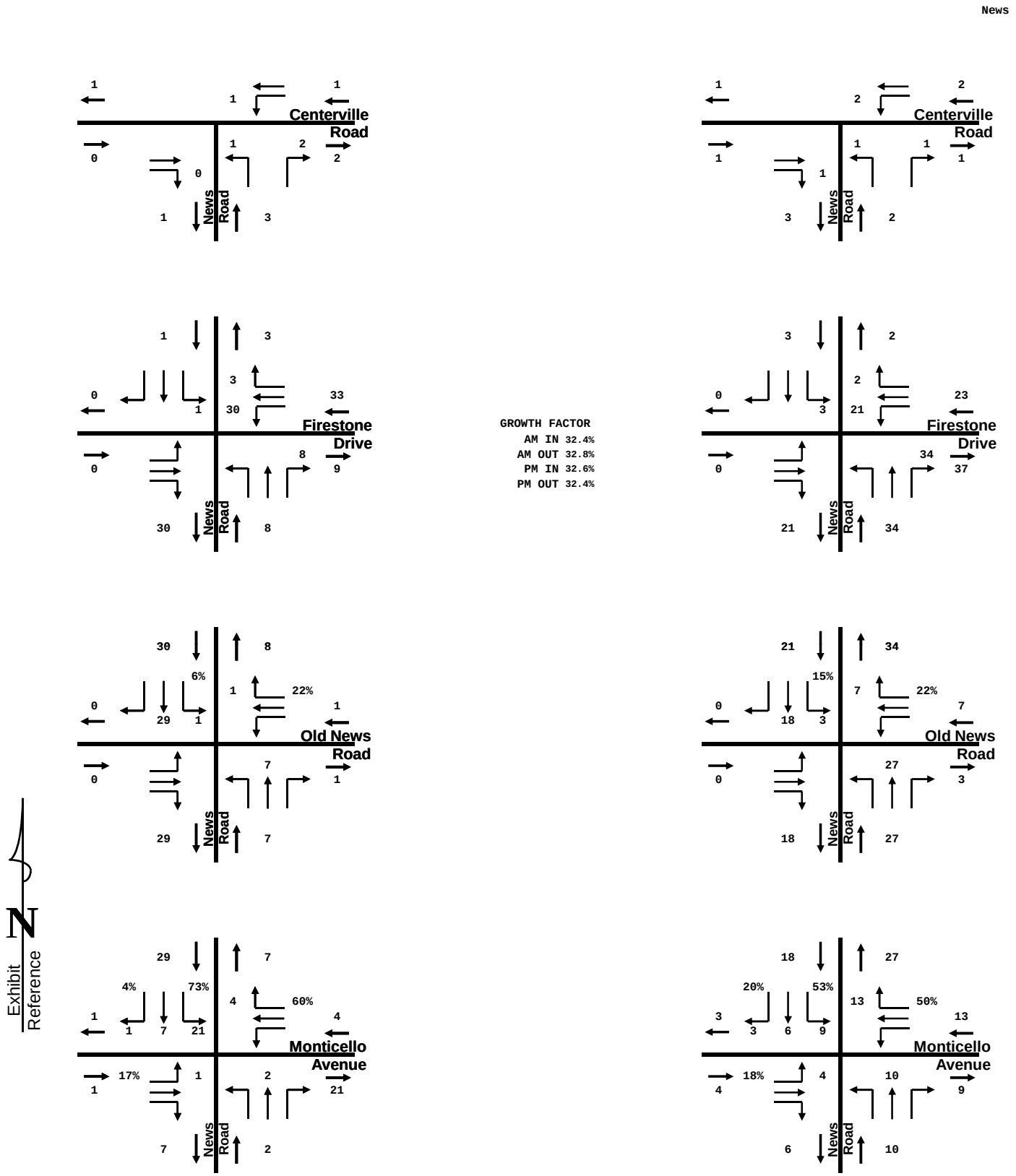
HOUR INTERVAL

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
4:00 to 5:00	35	162	291	165	116	56	52	319	32	406	437	190	2261
4:15 to 5:15	39	168	327	199	132	56	65	333	38	413	463	212	2445
4:30 to 5:30	53	171	307	219	134	55	68	357	38	425	496	228	2551
4:45 to 5:45	59	165	317	224	124	65	83	366	34	434	501	239	2611
5:00 to 6:00	65	159	316	223	116	77	87	356	39	417	515	233	2603

PEAK HOUR TURNING MOVEMENT VOLUMES

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
4:45 to 5:45	59	165	317	224	124	65	83	366	34	434	501	239	2611

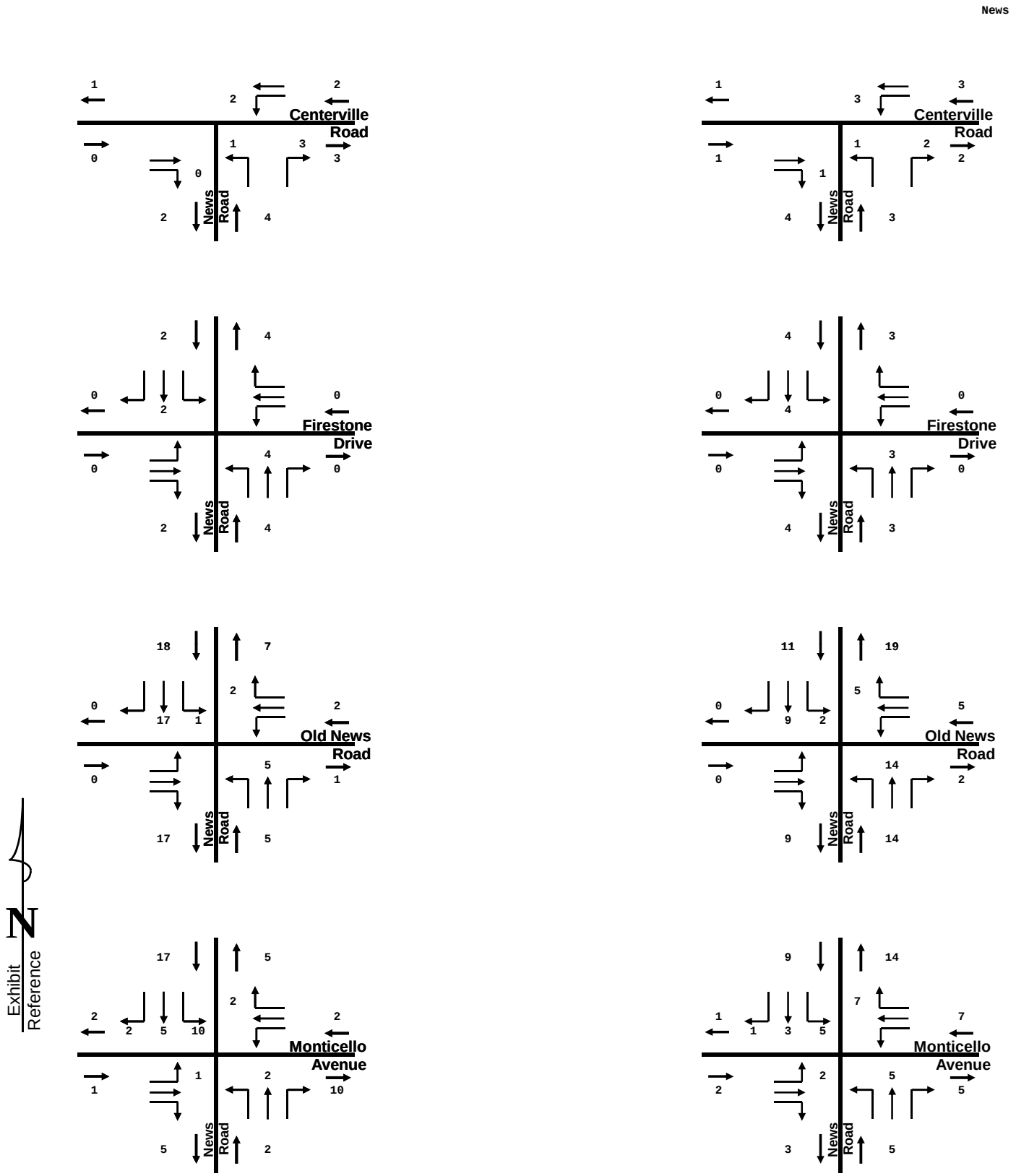
Exhibit D2



FORD'S COLONY BUILD OUT TRIP ASSIGNMENTS

DRW Consultants, LLC
804-794-7312

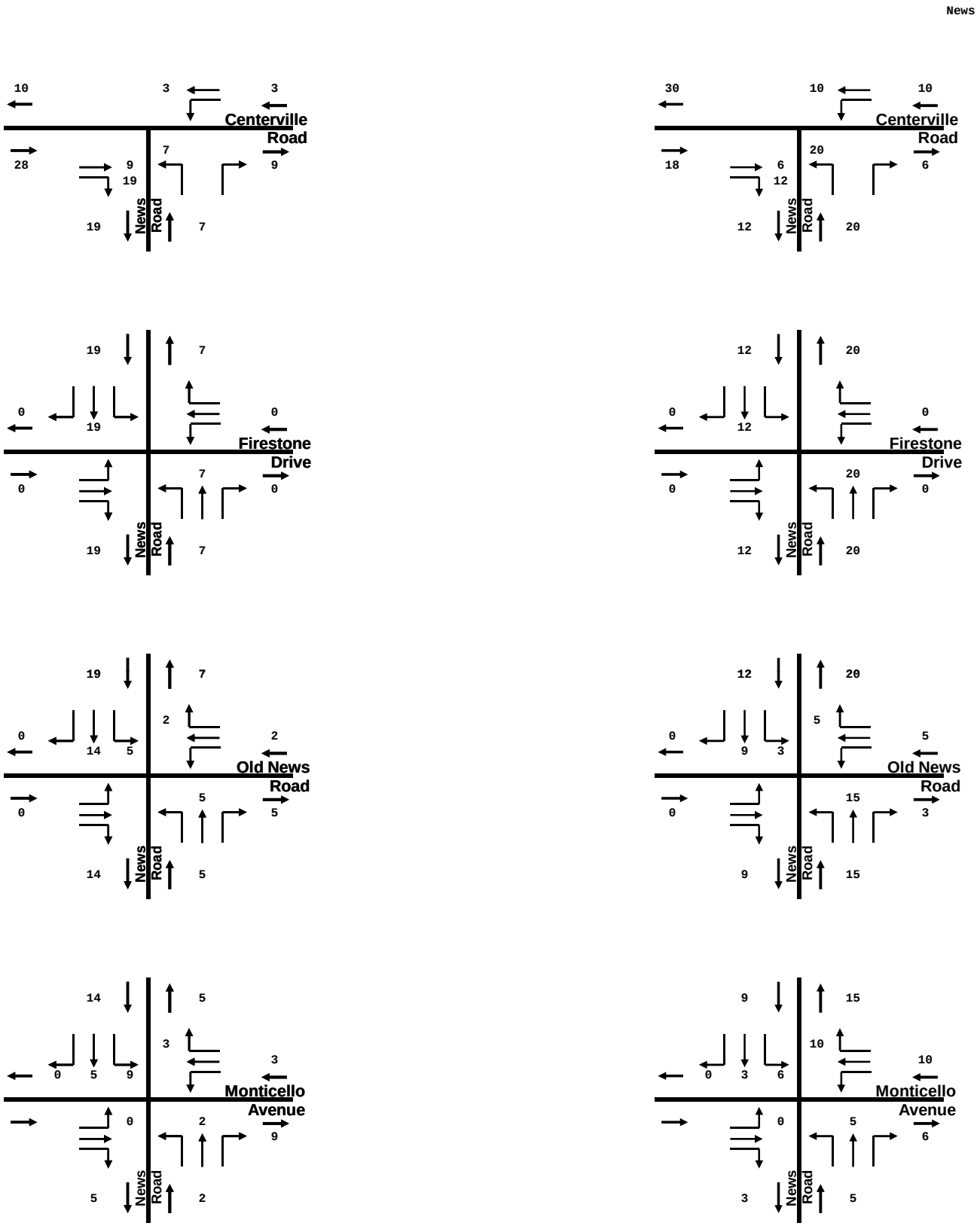
Exhibit E1



POWHATAN SECONDARY NORTH TRIP ASSIGNMENTS

DRW Consultants, LLC
804-794-7312

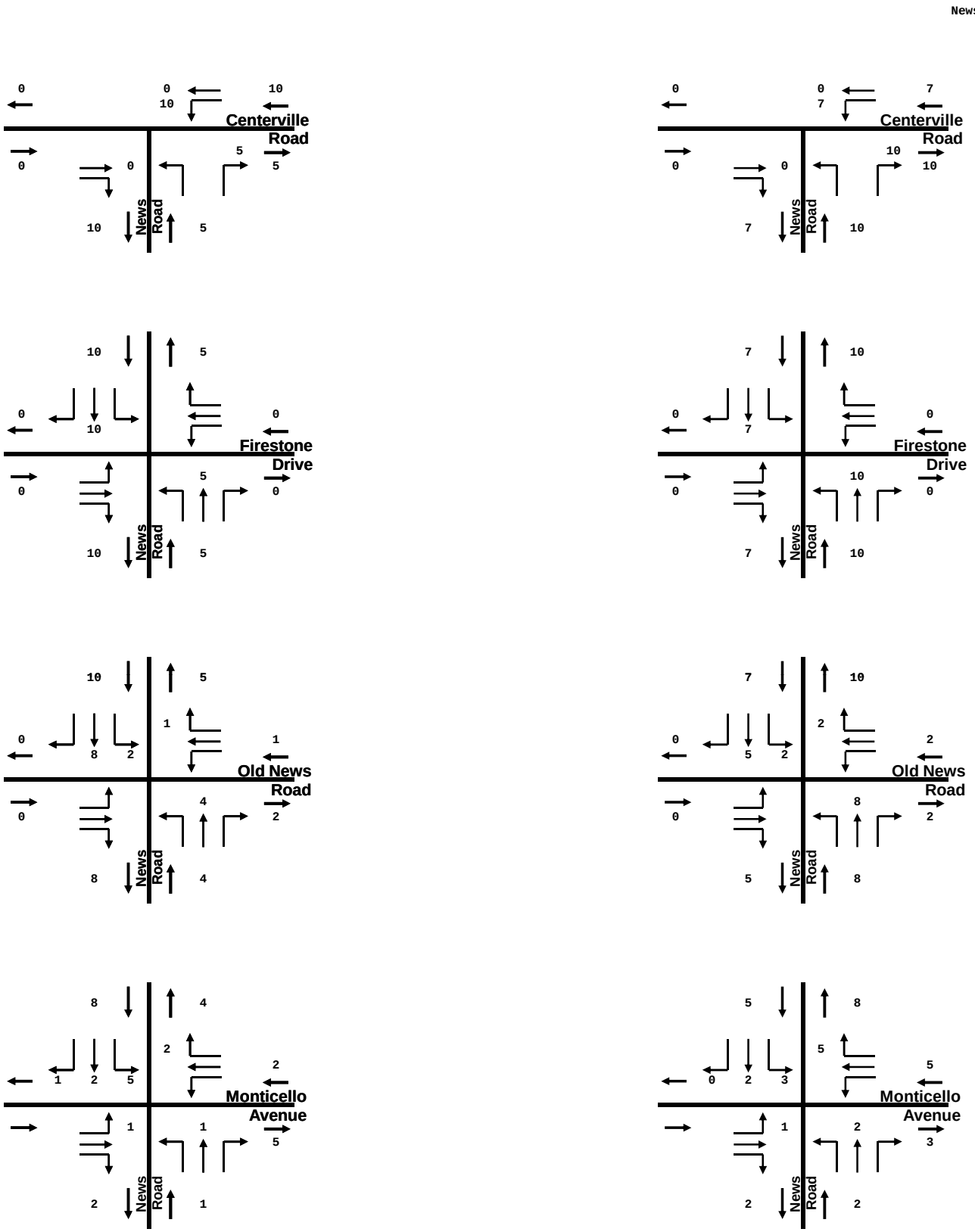
Exhibit E2



GREENSPRINGS TRIP ASSIGNMENTS

DRW Consultants, LLC
804-794-7312

Exhibit E3



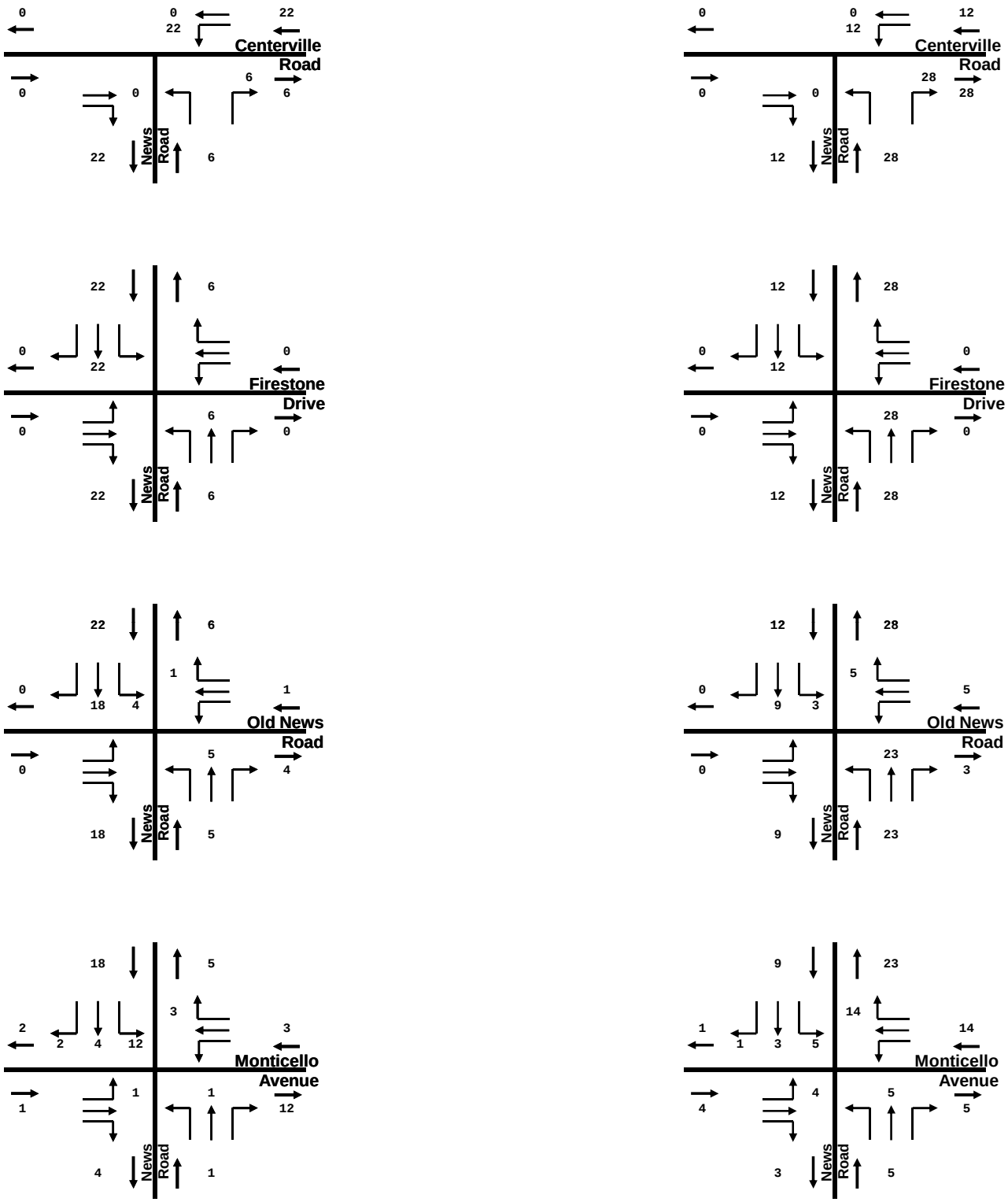
AM PEAK HOUR

PM PEAK HOUR

WESTPORT TRIP ASSIGNMENTS

DRW Consultants, LLC
804-794-7312

Exhibit E4



N

Exhibit Reference

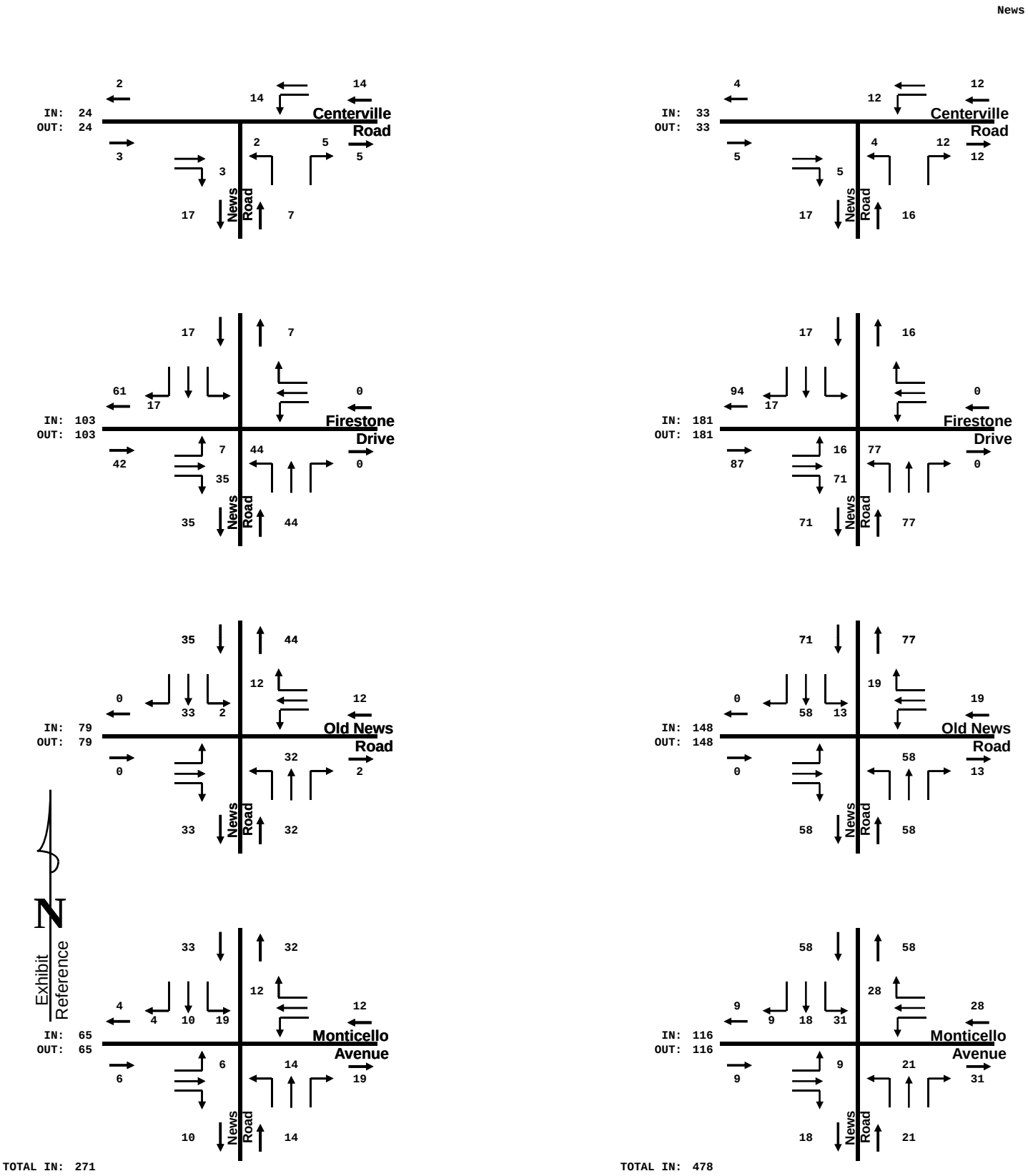
AM PEAK HOUR

PM PEAK HOUR

LIBERTY RIDGE TRIP ASSIGNMENTS

DRW Consultants, LLC
804-794-7312

Exhibit E5



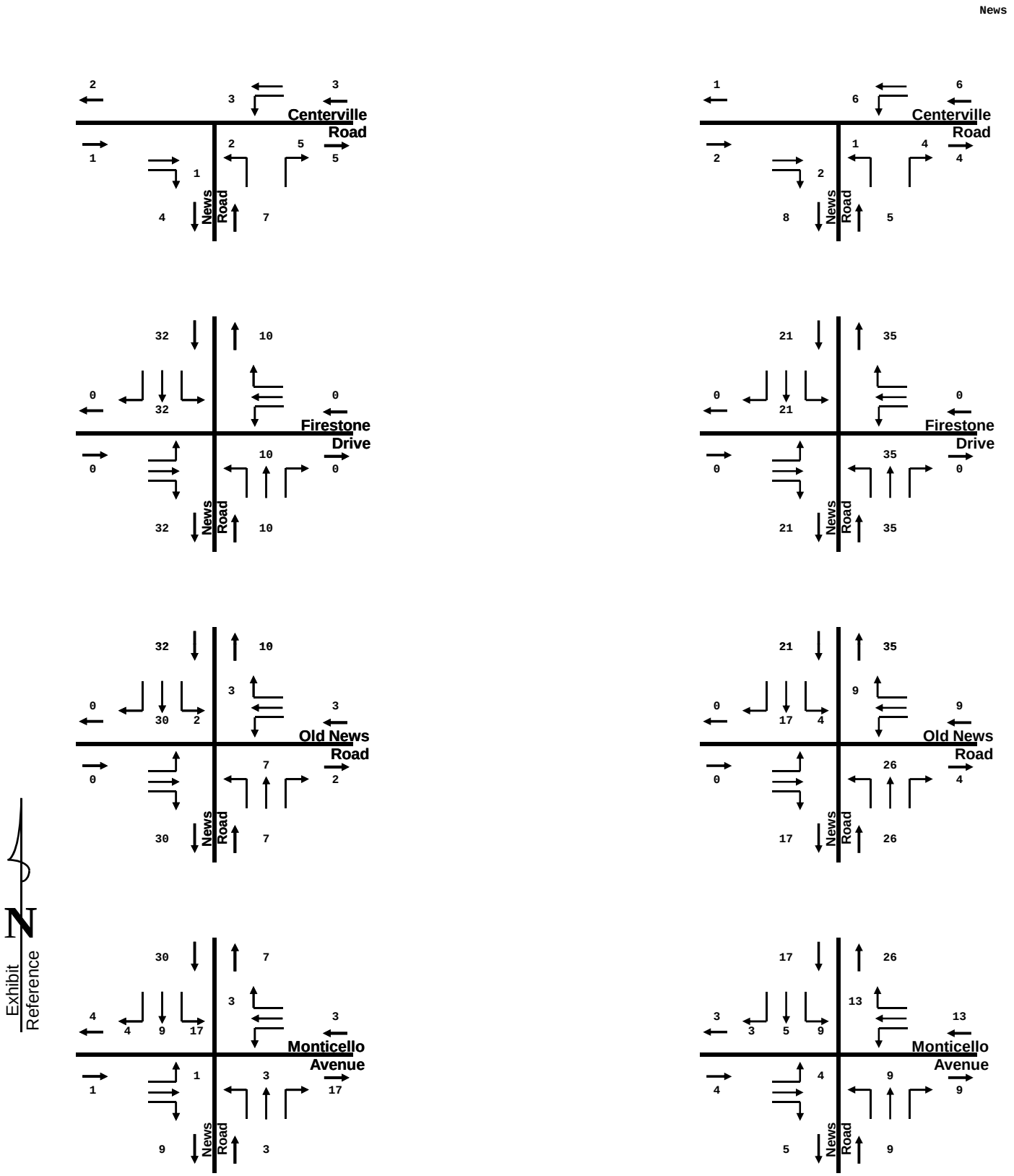
AM PEAK HOUR

PM PEAK HOUR

THE VILLAGE AT FORD'S COLONY TRIP ASSIGNMENTS

DRW Consultants, LLC
804-794-7312

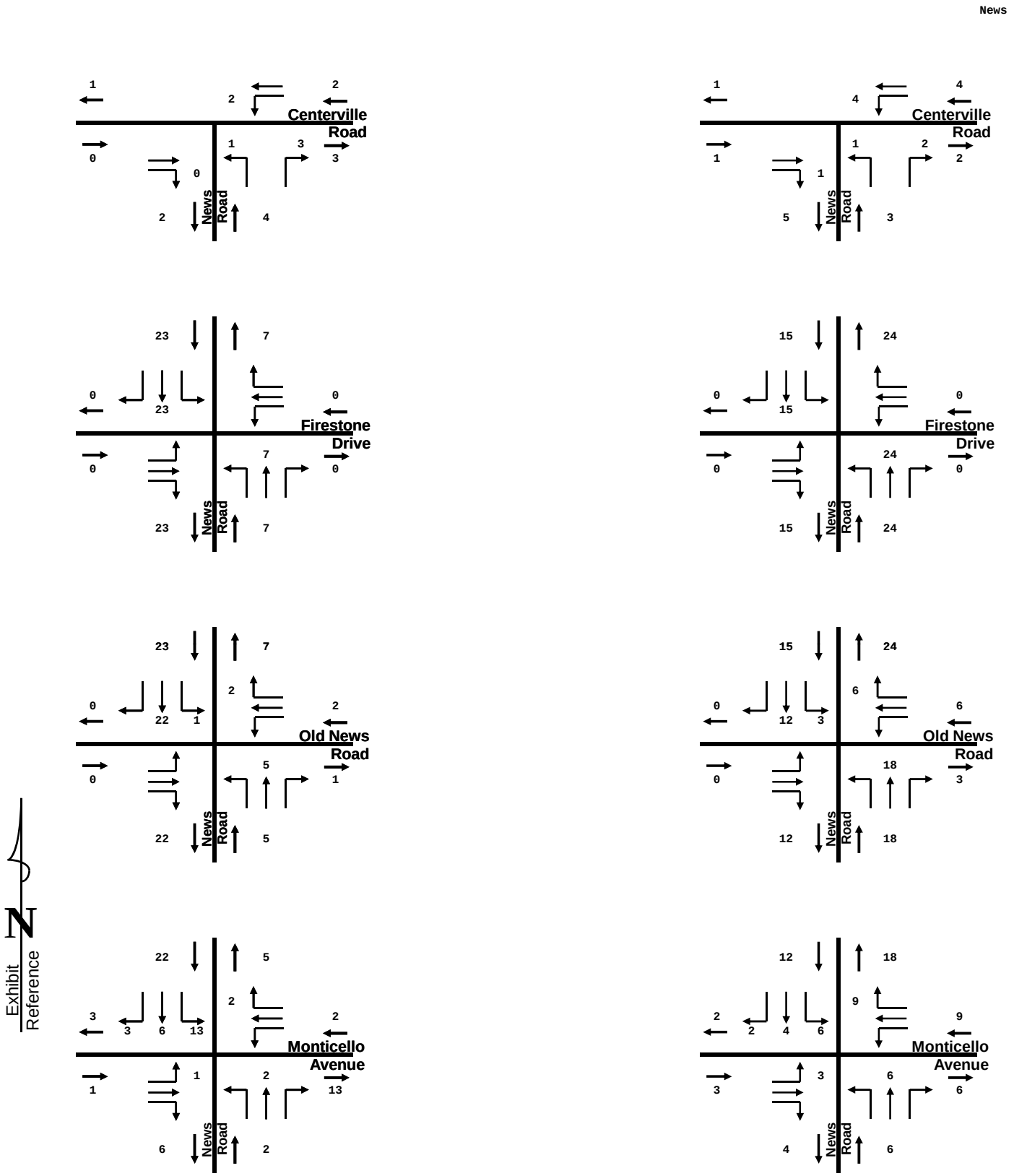
Exhibit E6



NIXON-GRAVES TRIP ASSIGNMENTS

DRW Consultants, LLC
804-794-7312

Exhibit E7



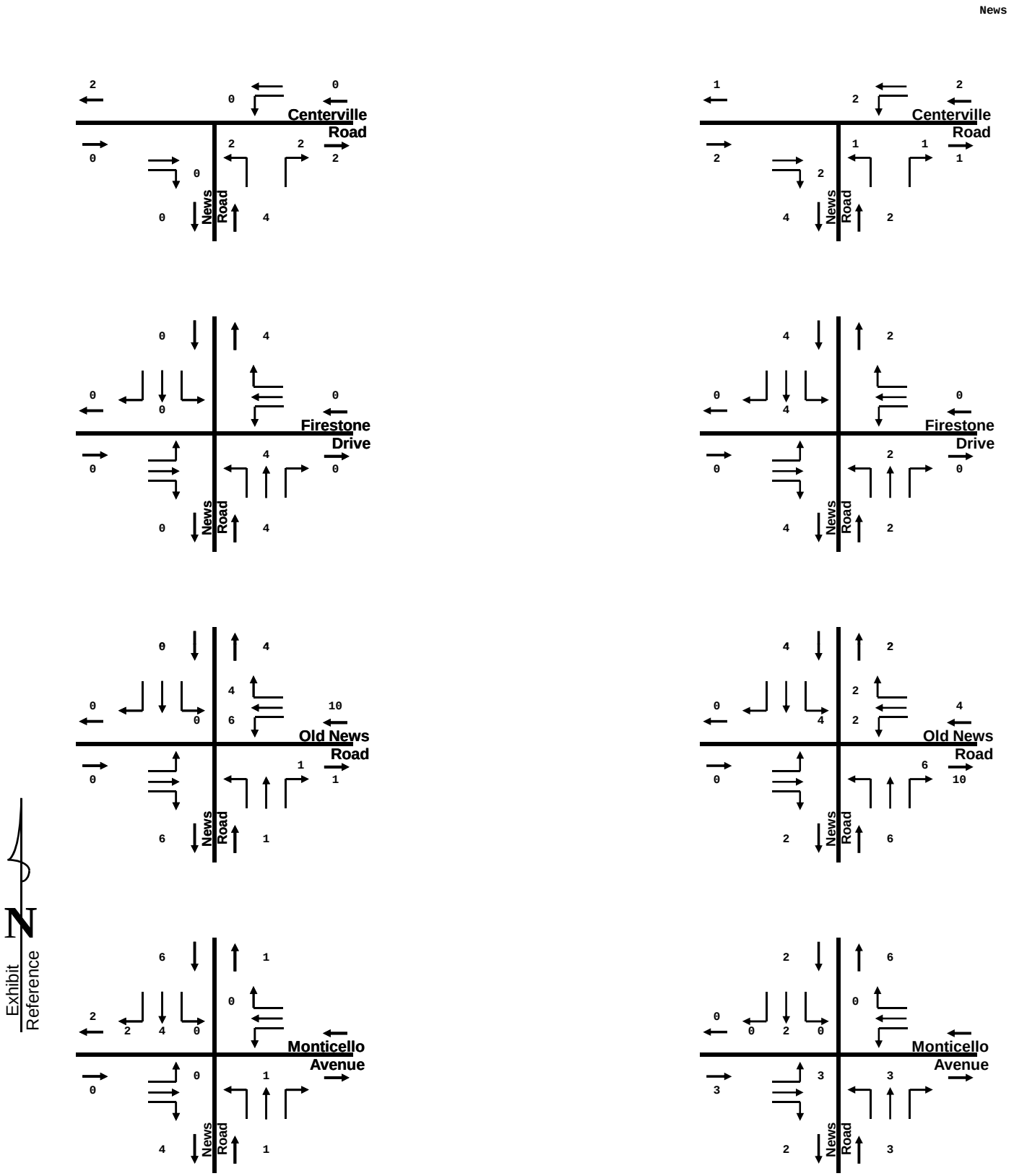
AM PEAK HOUR

PM PEAK HOUR

RICHARDSON TRIP ASSIGNMENTS

DRW Consultants, LLC
804-794-7312

Exhibit E8



BEAMER TRIP ASSIGNMENTS

DRW Consultants, LLC
804-794-7312

Exhibit E9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	45	78	182	52	64	170
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	49	85	198	57	70	185
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	550	226			254	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	550	226			254	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	90			95	
cM capacity (veh/h)	470	813			1311	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	134	254	254
Volume Left	49	0	70
Volume Right	85	57	0
cSH	642	1700	1311
Volume to Capacity	0.21	0.15	0.05
Queue Length (ft)	20	0	4
Control Delay (s)	12.1	0.0	2.5
Lane LOS	B		A
Approach Delay (s)	12.1	0.0	2.5
Approach LOS	B		

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	42.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	55	122	224	52	69	189
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	60	133	243	57	75	205
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	627	272			300	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	627	272			300	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	86	83			94	
cM capacity (veh/h)	421	767			1261	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	192	300	280
Volume Left	60	0	75
Volume Right	133	57	0
cSH	611	1700	1261
Volume to Capacity	0.32	0.18	0.06
Queue Length (ft)	34	0	5
Control Delay (s)	13.6	0.0	2.5
Lane LOS	B		A
Approach Delay (s)	13.6	0.0	2.5
Approach LOS	B		

Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	49.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	54	94	191	71	99	173
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	59	102	208	77	108	188
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	649	246			285	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	649	246			285	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	85	87			92	
cM capacity (veh/h)	398	793			1277	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	161	285	296
Volume Left	59	0	108
Volume Right	102	77	0
cSH	582	1700	1277
Volume to Capacity	0.28	0.17	0.08
Queue Length (ft)	28	0	7
Control Delay (s)	13.5	0.0	3.4
Lane LOS	B		A
Approach Delay (s)	13.5	0.0	3.4
Approach LOS	B		

Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	47.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	77	163	230	66	93	199
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	84	177	250	72	101	216
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	704	286			322	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	704	286			322	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	77	76			92	
cM capacity (veh/h)	370	753			1238	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	261	322	317
Volume Left	84	0	101
Volume Right	177	72	0
cSH	565	1700	1238
Volume to Capacity	0.46	0.19	0.08
Queue Length (ft)	60	0	7
Control Delay (s)	16.7	0.0	3.1
Lane LOS	C		A
Approach Delay (s)	16.7	0.0	3.1
Approach LOS	C		

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	56	99	191	74	113	173
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	61	108	208	80	123	188
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	682	248			288	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	682	248			288	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	84	86			90	
cM capacity (veh/h)	376	791			1274	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	168	288	311
Volume Left	61	0	123
Volume Right	108	80	0
cSH	565	1700	1274
Volume to Capacity	0.30	0.17	0.10
Queue Length (ft)	31	0	8
Control Delay (s)	14.1	0.0	3.7
Lane LOS	B		A
Approach Delay (s)	14.1	0.0	3.7
Approach LOS	B		

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	49.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	81	175	230	71	105	199
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	88	190	250	77	114	216
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	733	289			327	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	733	289			327	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	75	75			91	
cM capacity (veh/h)	352	751			1232	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	278	327	330
Volume Left	88	0	114
Volume Right	190	77	0
cSH	552	1700	1232
Volume to Capacity	0.50	0.19	0.09
Queue Length (ft)	70	0	8
Control Delay (s)	17.9	0.0	3.4
Lane LOS	C		A
Approach Delay (s)	17.9	0.0	3.4
Approach LOS	C		

Intersection Summary			
Average Delay	6.5		
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	61	109	191	75	118	173
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	66	118	208	82	128	188
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	693	248			289	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	693	248			289	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	82	85			90	
cM capacity (veh/h)	368	790			1273	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	185	289	316
Volume Left	66	0	128
Volume Right	118	82	0
cSH	560	1700	1273
Volume to Capacity	0.33	0.17	0.10
Queue Length (ft)	36	0	8
Control Delay (s)	14.6	0.0	3.9
Lane LOS	B		A
Approach Delay (s)	14.6	0.0	3.9
Approach LOS	B		

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	84	182	230	76	117	199
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	91	198	250	83	127	216
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	762	291			333	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	762	291			333	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	73	74			90	
cM capacity (veh/h)	334	748			1227	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	289	333	343
Volume Left	91	0	127
Volume Right	198	83	0
cSH	538	1700	1227
Volume to Capacity	0.54	0.20	0.10
Queue Length (ft)	79	0	9
Control Delay (s)	19.2	0.0	3.7
Lane LOS	C		A
Approach Delay (s)	19.2	0.0	3.7
Approach LOS	C		

Intersection Summary			
Average Delay	7.1		
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	4	170	122	25	90	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	185	133	27	98	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	160				326	133
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	160				326	133
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				85	99
cM capacity (veh/h)	1419				666	917

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	4	185	133	27	98	11
Volume Left	4	0	0	0	98	0
Volume Right	0	0	0	27	0	11
cSH	1419	1700	1700	1700	666	917
Volume to Capacity	0.00	0.11	0.08	0.02	0.15	0.01
Queue Length (ft)	0	0	0	0	13	1
Control Delay (s)	7.5	0.0	0.0	0.0	11.3	9.0
Lane LOS	A				B	A
Approach Delay (s)	0.2		0.0		11.1	
Approach LOS					B	

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	20.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	8	140	247	103	65	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	152	268	112	71	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	380				438	268
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	380				438	268
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				88	99
cM capacity (veh/h)	1178				572	770

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	9	152	268	112	71	8
Volume Left	9	0	0	0	71	0
Volume Right	0	0	0	112	0	8
cSH	1178	1700	1700	1700	572	770
Volume to Capacity	0.01	0.09	0.16	0.07	0.12	0.01
Queue Length (ft)	1	0	0	0	11	1
Control Delay (s)	8.1	0.0	0.0	0.0	12.2	9.7
Lane LOS	A				B	A
Approach Delay (s)	0.4		0.0		11.9	
Approach LOS					B	

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	23.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	5	223	144	33	120	13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	242	157	36	130	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	192				410	157
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	192				410	157
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				78	98
cM capacity (veh/h)	1381				596	889

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	5	242	157	36	130	14
Volume Left	5	0	0	0	130	0
Volume Right	0	0	0	36	0	14
cSH	1381	1700	1700	1700	596	889
Volume to Capacity	0.00	0.14	0.09	0.02	0.22	0.02
Queue Length (ft)	0	0	0	0	21	1
Control Delay (s)	7.6	0.0	0.0	0.0	12.7	9.1
Lane LOS	A				B	A
Approach Delay (s)	0.2		0.0		12.4	
Approach LOS					B	

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	25.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	11	175	308	137	86	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	190	335	149	93	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	484				549	335
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	484				549	335
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				81	99
cM capacity (veh/h)	1079				491	707

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	12	190	335	149	93	10
Volume Left	12	0	0	0	93	0
Volume Right	0	0	0	149	0	10
cSH	1079	1700	1700	1700	491	707
Volume to Capacity	0.01	0.11	0.20	0.09	0.19	0.01
Queue Length (ft)	1	0	0	0	17	1
Control Delay (s)	8.4	0.0	0.0	0.0	14.0	10.2
Lane LOS	A				B	B
Approach Delay (s)	0.5		0.0		13.7	
Approach LOS					B	

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	27.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	5	223	17	44	155	33	7	0	35	120	0	13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	242	18	48	168	36	8	0	38	130	0	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	204			261			541	562	252	555	536	168
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	204			261			541	562	252	555	536	168
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			96			98	100	95	68	100	98
cM capacity (veh/h)	1367			1304			431	418	787	408	433	876

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	5	261	48	168	36	8	38	130	14
Volume Left	5	0	48	0	0	8	0	130	0
Volume Right	0	18	0	0	36	0	38	0	14
cSH	1367	1700	1304	1700	1700	431	787	408	876
Volume to Capacity	0.00	0.15	0.04	0.10	0.02	0.02	0.05	0.32	0.02
Queue Length (ft)	0	0	3	0	0	1	4	34	1
Control Delay (s)	7.6	0.0	7.9	0.0	0.0	13.5	9.8	17.9	9.2
Lane LOS	A		A			B	A	C	A
Approach Delay (s)	0.2		1.5			10.4		17.1	
Approach LOS						B		C	

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	39.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	11	175	17	77	308	137	16	0	71	86	0	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	190	18	84	335	149	17	0	77	93	0	10
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	484			209			735	874	199	793	735	335
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	484			209			735	874	199	793	735	335
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			94			94	100	91	64	100	99
cM capacity (veh/h)	1079			1362			312	267	842	263	322	707

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	12	209	84	335	149	17	77	93	10
Volume Left	12	0	84	0	0	17	0	93	0
Volume Right	0	18	0	0	149	0	77	0	10
cSH	1079	1700	1362	1700	1700	312	842	263	707
Volume to Capacity	0.01	0.12	0.06	0.20	0.09	0.06	0.09	0.36	0.01
Queue Length (ft)	1	0	5	0	0	4	8	39	1
Control Delay (s)	8.4	0.0	7.8	0.0	0.0	17.2	9.7	26.1	10.2
Lane LOS	A		A			C	A	D	B
Approach Delay (s)	0.5		1.2			11.1		24.6	
Approach LOS						B		C	

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	41.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	5	278	17	44	165	33	7	0	35	120	0	13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	302	18	48	179	36	8	0	38	130	0	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	215			321			611	633	311	626	607	179
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	215			321			611	633	311	626	607	179
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			96			98	100	95	64	100	98
cM capacity (veh/h)	1355			1239			386	380	729	364	394	863

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	5	321	48	179	36	8	38	130	14
Volume Left	5	0	48	0	0	8	0	130	0
Volume Right	0	18	0	0	36	0	38	0	14
cSH	1355	1700	1239	1700	1700	386	729	364	863
Volume to Capacity	0.00	0.19	0.04	0.11	0.02	0.02	0.05	0.36	0.02
Queue Length (ft)	0	0	3	0	0	2	4	40	1
Control Delay (s)	7.7	0.0	8.0	0.0	0.0	14.5	10.2	20.3	9.2
Lane LOS	A		A			B	B	C	A
Approach Delay (s)	0.1		1.5			10.9		19.2	
Approach LOS						B		C	

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	11	215	17	77	369	137	16	0	71	86	0	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	234	18	84	401	149	17	0	77	93	0	10
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	550			252			845	984	243	903	845	401
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	550			252			845	984	243	903	845	401
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			94			93	100	90	57	100	98
cM capacity (veh/h)	1020			1313			262	230	796	220	277	649

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	12	252	84	401	149	17	77	93	10
Volume Left	12	0	84	0	0	17	0	93	0
Volume Right	0	18	0	0	149	0	77	0	10
cSH	1020	1700	1313	1700	1700	262	796	220	649
Volume to Capacity	0.01	0.15	0.06	0.24	0.09	0.07	0.10	0.43	0.02
Queue Length (ft)	1	0	5	0	0	5	8	49	1
Control Delay (s)	8.6	0.0	7.9	0.0	0.0	19.7	10.0	33.0	10.6
Lane LOS	A		A			C	B	D	B
Approach Delay (s)	0.4		1.0			11.8		30.9	
Approach LOS						B		D	

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	44.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	23	366	1	1	161	21	1	0	3	19	0	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	398	1	1	175	23	1	0	3	21	0	50
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	198			399			588	648	199	429	626	88
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	198			399			588	648	199	429	626	88
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			100	100	100	96	100	95
cM capacity (veh/h)	1372			1156			366	380	808	500	391	953

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	25	265	134	1	88	88	23	4	71
Volume Left	25	0	0	1	0	0	0	1	21
Volume Right	0	0	1	0	0	0	23	3	50
cSH	1372	1700	1700	1156	1700	1700	1700	621	754
Volume to Capacity	0.02	0.16	0.08	0.00	0.05	0.05	0.01	0.01	0.09
Queue Length (ft)	1	0	0	0	0	0	0	1	8
Control Delay (s)	7.7	0.0	0.0	8.1	0.0	0.0	0.0	10.8	10.3
Lane LOS	A			A				B	B
Approach Delay (s)	0.5			0.0				10.8	10.3
Approach LOS								B	B

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	29.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	50	281	2	0	382	48	4	0	3	54	0	108
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	305	2	0	415	52	4	0	3	59	0	117
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	467			308			740	883	154	680	832	208
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	467			308			740	883	154	680	832	208
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			100			98	100	100	82	100	85
cM capacity (veh/h)	1090			1250			250	269	865	323	288	798

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	54	204	104	0	208	208	52	8	176
Volume Left	54	0	0	0	0	0	0	4	59
Volume Right	0	0	2	0	0	0	52	3	117
cSH	1090	1700	1700	1700	1700	1700	1700	360	536
Volume to Capacity	0.05	0.12	0.06	0.00	0.12	0.12	0.03	0.02	0.33
Queue Length (ft)	4	0	0	0	0	0	0	2	36
Control Delay (s)	8.5	0.0	0.0	0.0	0.0	0.0	0.0	15.2	15.0
Lane LOS	A							C	B
Approach Delay (s)	1.3			0.0				15.2	15.0
Approach LOS								C	B

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	34.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	36	452	1	1	187	21	1	0	3	19	0	53
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	39	491	1	1	203	23	1	0	3	21	0	58
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	226			492			732	798	246	533	776	102
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	226			492			732	798	246	533	776	102
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			100	100	100	95	100	94
cM capacity (veh/h)	1340			1067			284	308	754	418	317	934

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	39	328	165	1	102	102	23	4	78
Volume Left	39	0	0	1	0	0	0	1	21
Volume Right	0	0	1	0	0	0	23	3	58
cSH	1340	1700	1700	1067	1700	1700	1700	533	705
Volume to Capacity	0.03	0.19	0.10	0.00	0.06	0.06	0.01	0.01	0.11
Queue Length (ft)	2	0	0	0	0	0	0	1	9
Control Delay (s)	7.8	0.0	0.0	8.4	0.0	0.0	0.0	11.8	10.7
Lane LOS	A			A				B	B
Approach Delay (s)	0.6			0.0				11.8	10.7
Approach LOS								B	B

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	31.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	63	331	2	0	469	48	4	0	3	54	0	132
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	360	2	0	510	52	4	0	3	59	0	143
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	562			362			896	1060	181	830	1009	255
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	562			362			896	1060	181	830	1009	255
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			100			98	100	100	76	100	81
cM capacity (veh/h)	1005			1193			180	208	831	248	223	744

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	68	240	122	0	255	255	52	8	202
Volume Left	68	0	0	0	0	0	0	4	59
Volume Right	0	0	2	0	0	0	52	3	143
cSH	1005	1700	1700	1700	1700	1700	1700	271	471
Volume to Capacity	0.07	0.14	0.07	0.00	0.15	0.15	0.03	0.03	0.43
Queue Length (ft)	5	0	0	0	0	0	0	2	53
Control Delay (s)	8.8	0.0	0.0	0.0	0.0	0.0	0.0	18.7	18.3
Lane LOS	A							C	C
Approach Delay (s)	1.4			0.0				18.7	18.3
Approach LOS								C	C

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	38.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	38	485	1	1	219	21	1	0	3	19	0	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	41	527	1	1	238	23	1	0	3	21	0	71
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	261			528			802	873	264	590	851	119
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	261			528			802	873	264	590	851	119
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			100	100	100	95	100	92
cM capacity (veh/h)	1301			1035			247	277	734	380	286	910

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	41	351	177	1	119	119	23	4	91
Volume Left	41	0	0	1	0	0	0	1	21
Volume Right	0	0	1	0	0	0	23	3	71
cSH	1301	1700	1700	1035	1700	1700	1700	492	692
Volume to Capacity	0.03	0.21	0.10	0.00	0.07	0.07	0.01	0.01	0.13
Queue Length (ft)	2	0	0	0	0	0	0	1	11
Control Delay (s)	7.9	0.0	0.0	8.5	0.0	0.0	0.0	12.4	11.0
Lane LOS	A			A				B	B
Approach Delay (s)	0.6			0.0				12.4	11.0
Approach LOS								B	B

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	33.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	76	389	2	0	527	48	4	0	3	54	0	151
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	83	423	2	0	573	52	4	0	3	59	0	164
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	625			425			1040	1214	212	953	1163	286
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	625			425			1040	1214	212	953	1163	286
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			100			97	100	100	70	100	77
cM capacity (veh/h)	952			1131			133	165	793	199	177	710

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	83	282	143	0	286	286	52	8	223
Volume Left	83	0	0	0	0	0	0	4	59
Volume Right	0	0	2	0	0	0	52	3	164
cSH	952	1700	1700	1700	1700	1700	1700	206	423
Volume to Capacity	0.09	0.17	0.08	0.00	0.17	0.17	0.03	0.04	0.53
Queue Length (ft)	7	0	0	0	0	0	0	3	75
Control Delay (s)	9.1	0.0	0.0	0.0	0.0	0.0	0.0	23.1	22.6
Lane LOS	A							C	C
Approach Delay (s)	1.5			0.0				23.1	22.6
Approach LOS								C	C

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	41.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	41	537	1	1	231	22	1	0	3	25	0	74
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	45	584	1	1	251	24	1	0	3	27	0	80
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	275			585			882	951	292	638	927	126
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	275			585			882	951	292	638	927	126
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			99	100	100	92	100	91
cM capacity (veh/h)	1285			986			213	249	704	350	257	901

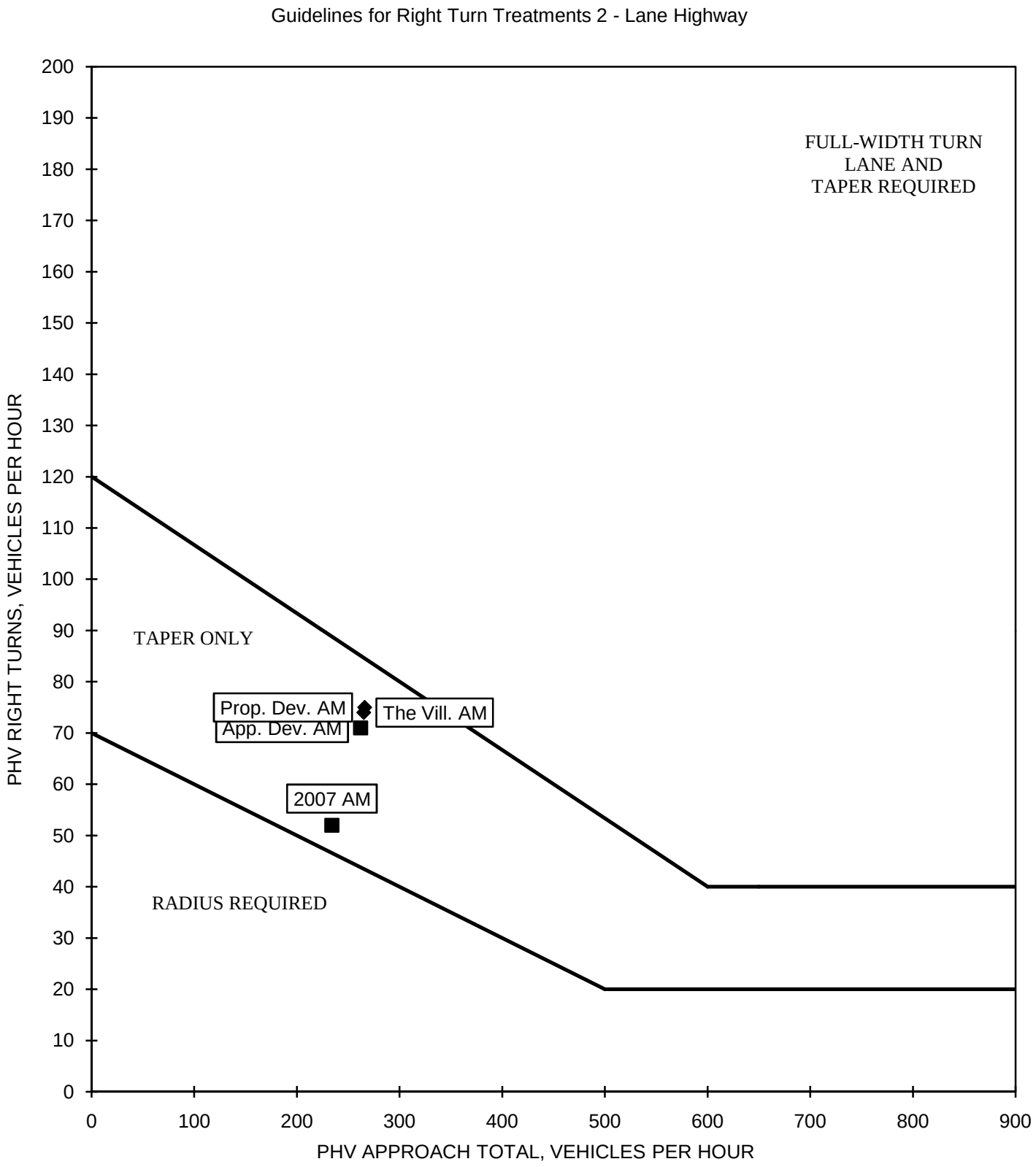
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	45	389	196	1	126	126	24	4	108
Volume Left	45	0	0	1	0	0	0	1	27
Volume Right	0	0	1	0	0	0	24	3	80
cSH	1285	1700	1700	986	1700	1700	1700	447	645
Volume to Capacity	0.03	0.23	0.12	0.00	0.07	0.07	0.01	0.01	0.17
Queue Length (ft)	3	0	0	0	0	0	0	1	15
Control Delay (s)	7.9	0.0	0.0	8.7	0.0	0.0	0.0	13.1	11.7
Lane LOS	A			A				B	B
Approach Delay (s)	0.6			0.0				13.1	11.7
Approach LOS								B	B

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	36.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	87	418	2	0	571	54	4	0	3	56	0	168
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	95	454	2	0	621	59	4	0	3	61	0	183
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	679			457			1138	1324	228	1040	1266	310
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	679			457			1138	1324	228	1040	1266	310
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			100			96	100	100	64	100	73
cM capacity (veh/h)	909			1101			106	139	774	169	150	686

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	95	303	154	0	310	310	59	8	243
Volume Left	95	0	0	0	0	0	0	4	61
Volume Right	0	0	2	0	0	0	59	3	183
cSH	909	1700	1700	1700	1700	1700	1700	168	389
Volume to Capacity	0.10	0.18	0.09	0.00	0.18	0.18	0.03	0.05	0.63
Queue Length (ft)	9	0	0	0	0	0	0	4	103
Control Delay (s)	9.4	0.0	0.0	0.0	0.0	0.0	0.0	27.5	28.6
Lane LOS	A							D	D
Approach Delay (s)	1.6			0.0				27.5	28.6
Approach LOS								D	D

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	15		

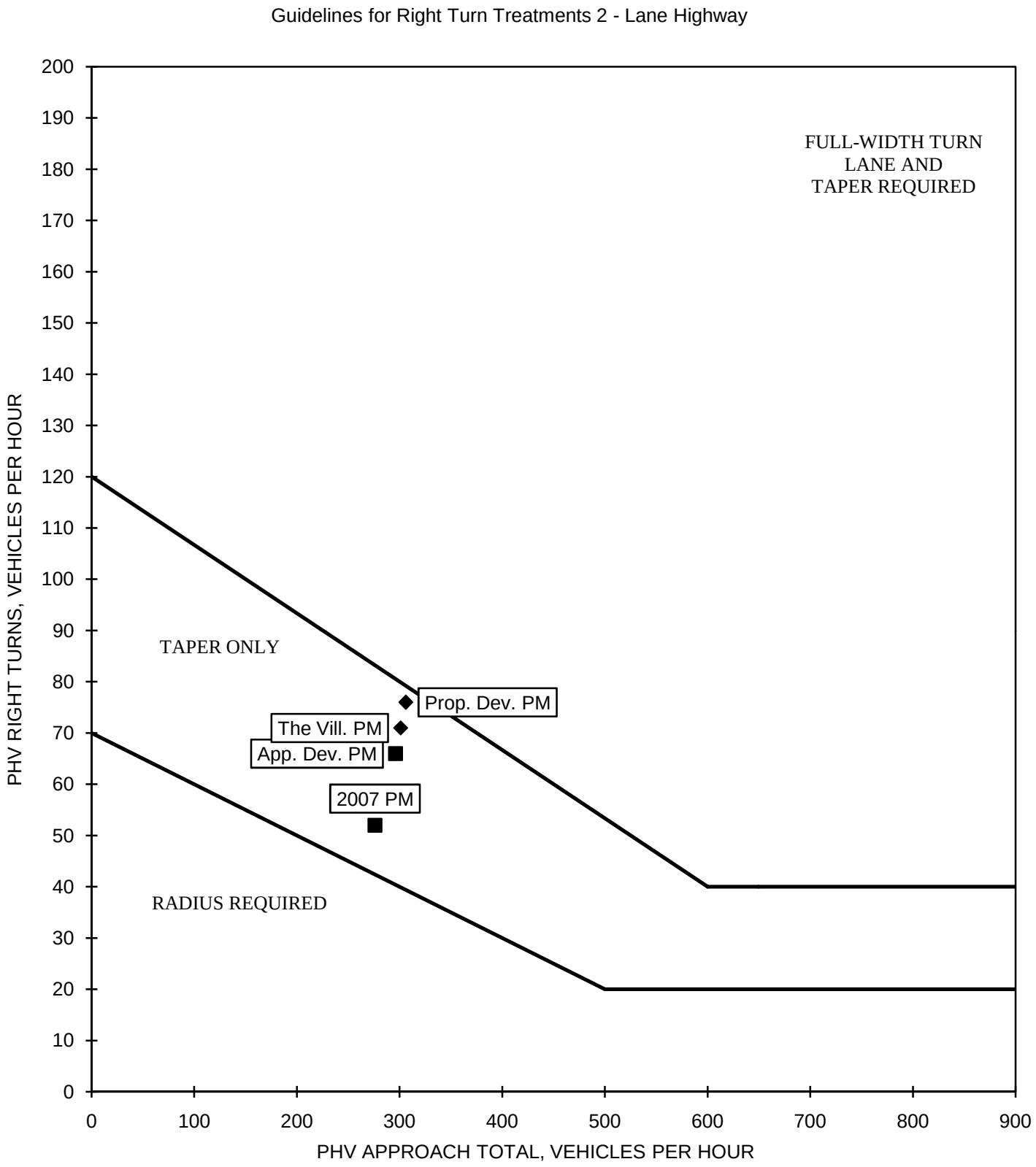


Source: VDOT Road Design Manual, Vol. 1, Page C-15, Figure C-1-8

VDOT RIGHT TURN LANE WARRANT
NORTHBOUND CENTERVILLE ROAD AT NEWS ROAD
AM PEAK HOUR COUNTS AND FORECAST

DRW Consultants, LLC
804-794-7312

Exhibit J1

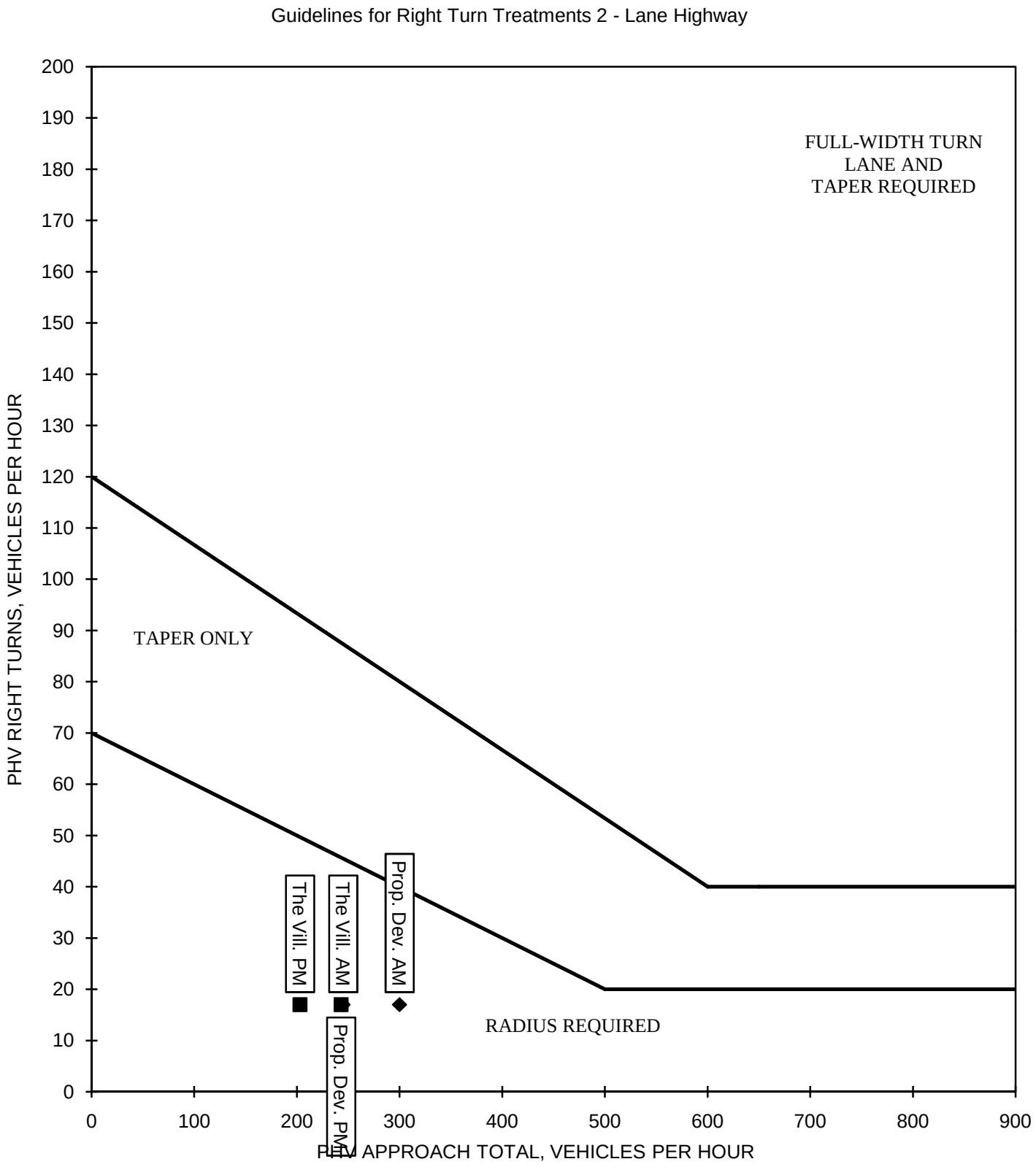


Source: VDOT Road Design Manual, Vol. 1, Page C-15, Figure C-1-8

VDOT RIGHT TURN LANE WARRANT
NORTHBOUND CENTERVILLE ROAD AT NEWS ROAD
PM PEAK HOUR COUNTS AND FORECAST

DRW Consultants, LLC
804-794-7312

Exhibit J2

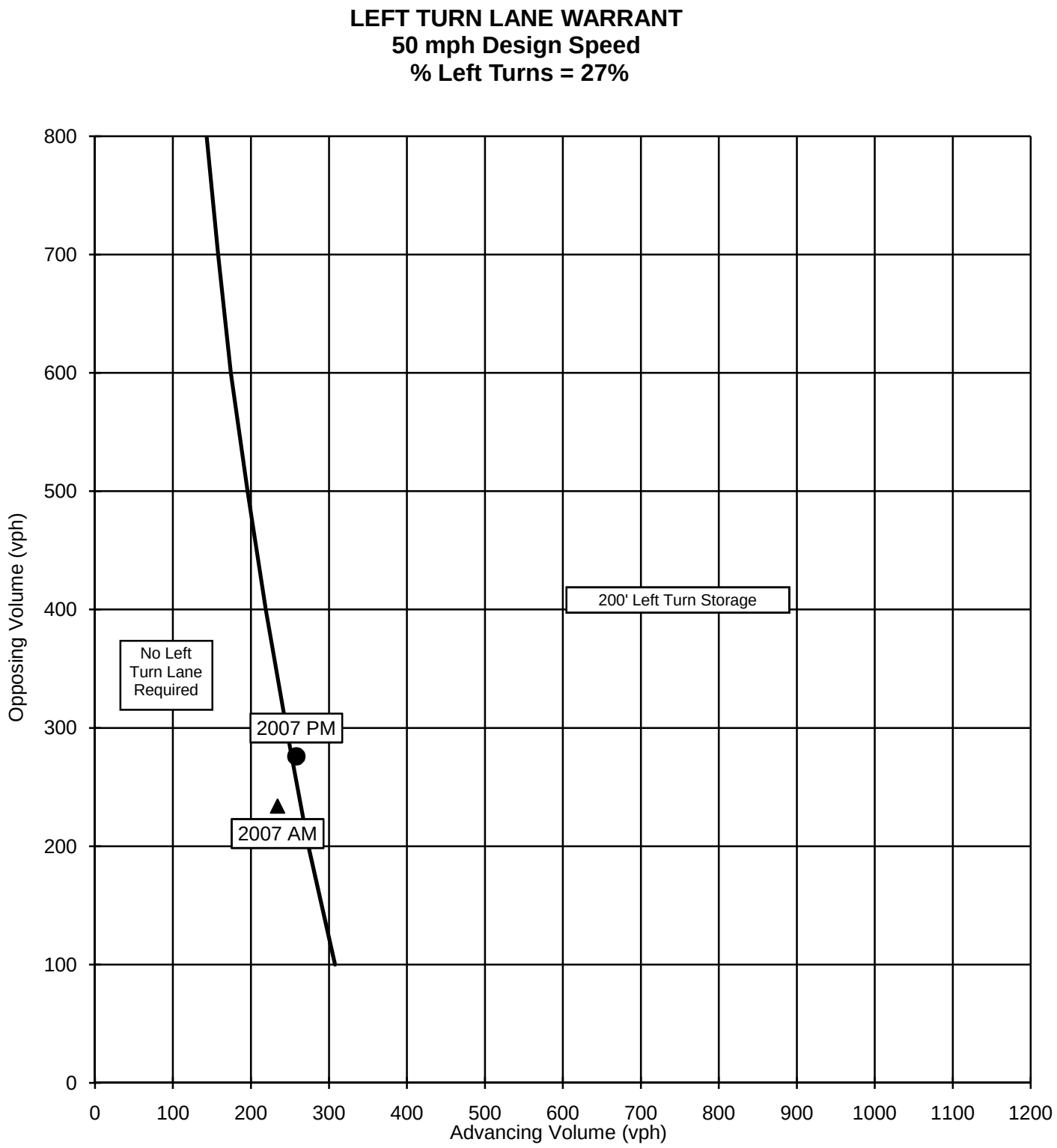


Source: VDOT Road Design Manual, Vol. 1, Page C-15, Figure C-1-8

VDOT RIGHT TURN LANE WARRANT
EASTBOUND NEWS ROAD AT FIRESTONE DRIVE

DRW Consultants, LLC
804-794-7312

Exhibit J3



Source: Interpolated from VDOT Road Design Manual, Appendix C, derived from Highway Research Record Number 211

VDOT LEFT TURN LANE WARRANTS
NORTHBOUND CENTERVILLE ROAD AT NEWS ROAD
AM AND PM PEAK HOUR COUNTS

DRW Consultants, LLC
804-794-7312

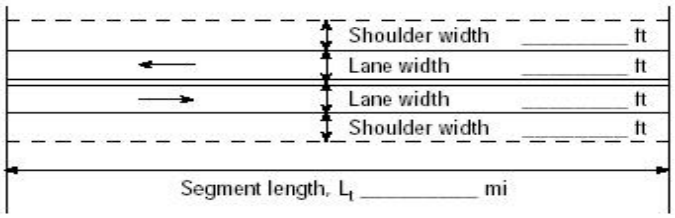
Exhibit K

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*DRW*	Highway	*News Road*
Agency or Company	*DRW Consultants, LLC*	From/To	*East of Centerville*
Date Performed	*4/3/2008*	Jurisdiction	*JCC*
Analysis Time Period	*2007/2008 COUNTS AM*	Analysis Year	*Exhibit L1*

Project Description: *News Road Corridor Study - Exhibit L1*

Input Data



☐ Class I highway ☑ Class II highway

Terrain ☐ Level ☑ Rolling

Two-way hourly volume	*239* veh/h
Directional split	*51 / 49*
Peak-hour factor, PHF	*0.92*
No-passing zone	*100*
% Trucks and Buses , P_T	*5 %*
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*10*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.71*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*2.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.930*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*393*
v_p * highest directional split proportion[2] (pc/h)	*200*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*3.0 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*2.5 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*44.5 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*4.5*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*37.0*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.77*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.962*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*351*
v_p * highest directional split proportion[2] (pc/h)	*179*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*26.5*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*23.9*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*50.5*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*B*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.12*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*91*
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*335*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*2.5*

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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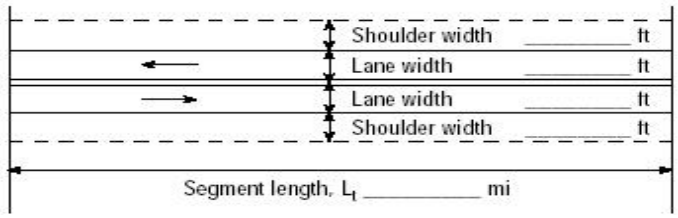
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*DRW*	Highway	*News Road*
Agency or Company	*DRW Consultants, LLC*	From/To	*East of Centerville*
Date Performed	*4/3/2008*	Jurisdiction	*JCC*
Analysis Time Period	*2007/2008 COUNTS PM*	Analysis Year	*Exhibit L2*

Project Description: *News Road Corridor Study - Exhibit L2*

Input Data



☐ Class I highway ☑ Class II highway

Terrain ☐ Level ☑ Rolling

Two-way hourly volume	*298* veh/h
Directional split	*59 / 41*
Peak-hour factor, PHF	*0.92*
No-passing zone	*100*
% Trucks and Buses , P_T	*5 %*
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*10*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.71*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*2.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.930*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*490*
v_p * highest directional split proportion[2] (pc/h)	*289*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*3.0 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*2.5 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*44.5 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*4.2*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*36.5*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.77*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.962*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*437*
v_p * highest directional split proportion[2] (pc/h)	*258*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*31.9*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*22.1*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*54.0*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*B*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.15*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*113*
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*417*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*3.1*

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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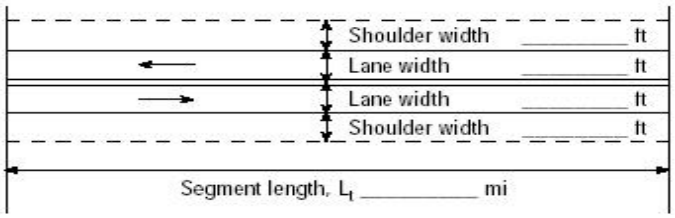
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*DRW*	Highway	*News Road*
Agency or Company	*DRW Consultants, LLC*	From/To	*East of Centerville*
Date Performed	*4/3/2008*	Jurisdiction	*JCC*
Analysis Time Period	*APPROVED DEVELOPMENT AM*	Analysis Year	*Exhibit L3*

Project Description: *News Road Corridor Study - Exhibit L3*

Input Data



☐ Class I highway ☑ Class II highway

Terrain ☐ Level ☑ Rolling

Two-way hourly volume	*318* veh/h
Directional split	*53 / 47*
Peak-hour factor, PHF	*0.92*
No-passing zone	*100*
% Trucks and Buses , P_T	*5 %*
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*10*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.71*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*2.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.930*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*523*
v_p * highest directional split proportion[2] (pc/h)	*277*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*3.0 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*2.5 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*44.5 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*4.1*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*36.3*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.77*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.962*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*467*
v_p * highest directional split proportion[2] (pc/h)	*248*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*33.7*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*22.9*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*56.5*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*C*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.16*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*121*
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*445*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*3.3*

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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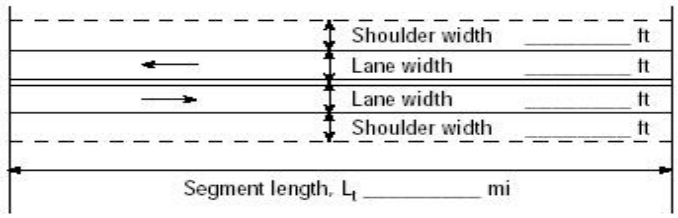
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*DRW*	Highway	*News Road*
Agency or Company	*DRW Consultants, LLC*	From/To	*East of Centerville*
Date Performed	*4/3/2008*	Jurisdiction	*JCC*
Analysis Time Period	*Approved Development PM*	Analysis Year	*Exhibit L4*

Project Description: *News Road Corridor Study - Exhibit L4*

Input Data



☐ Class I highway ☑ Class II highway

Terrain ☐ Level ☑ Rolling

Two-way hourly volume	*399* veh/h
Directional split	*60 / 40*
Peak-hour factor, PHF	*0.92*
No-passing zone	*100*
% Trucks and Buses , P_T	*5 %*
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*10*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.93*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.957*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*487*
v_p * highest directional split proportion[2] (pc/h)	*292*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*3.0 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*2.5 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*44.5 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*4.2*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*36.5*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.77*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.962*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*586*
v_p * highest directional split proportion[2] (pc/h)	*352*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*40.3*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*20.8*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*61.1*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*C*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.15*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*152*
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*559*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*4.2*

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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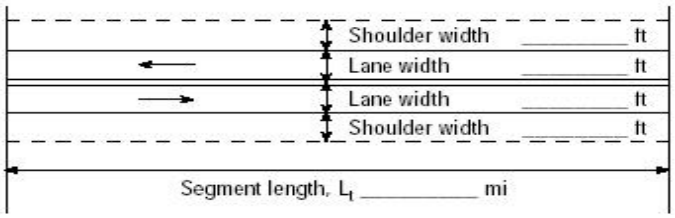
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*DRW*	Highway	*News Road*
Agency or Company	*DRW Consultants, LLC*	From/To	*East of Centerville*
Date Performed	*4/3/2008*	Jurisdiction	*JCC*
Analysis Time Period	*The Village DEVELOPMENT AM*	Analysis Year	*Exhibit L5*

Project Description: *News Road Corridor Study - Exhibit L5*

Input Data



☐ Class I highway ☑ Class II highway

Terrain ☐ Level ☑ Rolling

Two-way hourly volume	*342* veh/h
Directional split	*55 / 45*
Peak-hour factor, PHF	*0.92*
No-passing zone	*100*
% Trucks and Buses , P_T	*5 %*
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*10*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.71*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*2.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.930*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*563*
v_p * highest directional split proportion[2] (pc/h)	*310*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*3.0 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*2.5 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*44.5 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*4.0*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*36.1*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.77*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.962*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*502*
v_p * highest directional split proportion[2] (pc/h)	*276*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*35.7*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*22.0*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*57.7*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*C*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.18*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*130*
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*479*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*3.6*

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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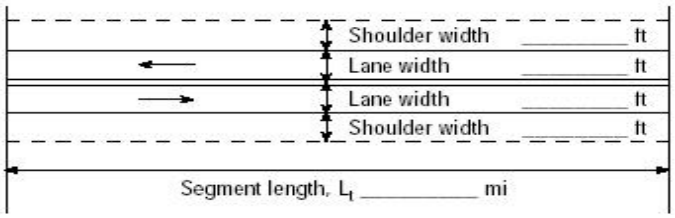
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*DRW*	Highway	*News Road*
Agency or Company	*DRW Consultants, LLC*	From/To	*East of Centerville*
Date Performed	*4/3/2008*	Jurisdiction	*JCC*
Analysis Time Period	*The Village DEVELOPMENT PM*	Analysis Year	*Exhibit L6*

Project Description: *News Road Corridor Study - Exhibit L6*

Input Data



☐ Class I highway ☑ Class II highway

Terrain ☐ Level ☑ Rolling

Two-way hourly volume	*432* veh/h
Directional split	*59 / 41*
Peak-hour factor, PHF	*0.92*
No-passing zone	*100*
% Trucks and Buses , P_T	*5 %*
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*10*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.93*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.957*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*528*
v_p * highest directional split proportion[2] (pc/h)	*312*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*3.0 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*2.5 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*44.5 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*4.1*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*36.3*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.94*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.976*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*512*
v_p * highest directional split proportion[2] (pc/h)	*302*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*36.2*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*21.5*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*57.7*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*C*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.17*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*164*
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*605*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*4.5*

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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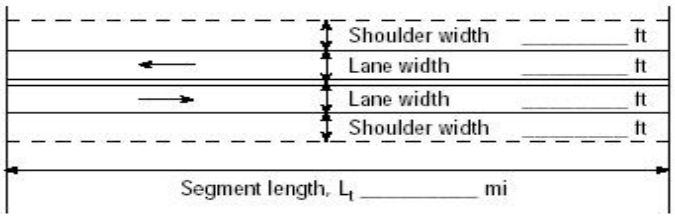
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*DRW*	Highway	*News Road*
Agency or Company	*DRW Consultants, LLC*	From/To	*East of Centerville*
Date Performed	*4/3/2008*	Jurisdiction	*JCC*
Analysis Time Period	*PROPOSED DEVELOPMENT AM*	Analysis Year	*Exhibit L7*

Project Description: *News Road Corridor Study - Exhibit L7*

Input Data



☐ Class I highway ☑ Class II highway

Terrain ☐ Level ☑ Rolling

Two-way hourly volume	*363* veh/h
Directional split	*53 / 47*
Peak-hour factor, PHF	*0.92*
No-passing zone	*100*
% Trucks and Buses , P_T	*5 %*
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*10*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.71*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*2.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.930*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*597*
v_p * highest directional split proportion[2] (pc/h)	*316*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*3.0 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*2.5 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*44.5 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*3.9*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*36.0*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.77*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.962*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*533*
v_p * highest directional split proportion[2] (pc/h)	*282*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*37.4*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*21.7*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*59.1*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*C*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.19*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*138*
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*508*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*3.8*

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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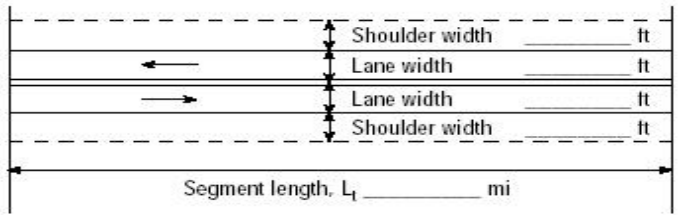
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*DRW*	Highway	*News Road*
Agency or Company	*DRW Consultants, LLC*	From/To	*East of Centerville*
Date Performed	*4/3/2008*	Jurisdiction	*JCC*
Analysis Time Period	*PROPOSED DEVELOPMENT PM*	Analysis Year	*Exhibit L8*

Project Description: *News Road Corridor Study - Exhibit L8*

Input Data



☐ Class I highway ☑ Class II highway

Terrain ☐ Level ☑ Rolling

Two-way hourly volume	*459* veh/h
Directional split	*58 / 42*
Peak-hour factor, PHF	*0.92*
No-passing zone	*100*
% Trucks and Buses , P_T	*5 %*
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*10*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.93*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.957*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*561*
v_p * highest directional split proportion[2] (pc/h)	*325*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*3.0 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*2.5 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*44.5 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*4.0*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*36.1*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.94*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.976*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*544*
v_p * highest directional split proportion[2] (pc/h)	*316*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*38.0*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*21.2*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*59.2*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*C*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.18*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*175*
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*643*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*4.8*

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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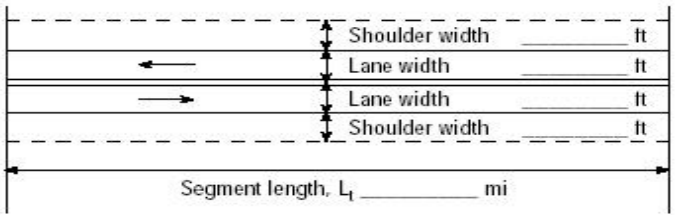
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*DRW*	Highway	*News Road*
Agency or Company	*DRW Consultants, LLC*	From/To	*Old News Road/Powhatan Seconda*
Date Performed	*3/12/2008*	Jurisdiction	*JCC*
Analysis Time Period	*2007/2008 COUNTS AM*	Analysis Year	*Exhibit O1*

Project Description: *News Road Corridor Study - Exhibit O1*

Input Data



☐ Class I highway ☑ Class II highway

Terrain ☐ Level ☑ Rolling

Two-way hourly volume	*598* veh/h
Directional split	*65 / 35*
Peak-hour factor, PHF	*0.92*
No-passing zone	*100*
% Trucks and Buses , P_T	*5 %*
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*1*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.93*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.957*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*730*
v_p * highest directional split proportion[2] (pc/h)	*475*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*3.0 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.3 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*46.8 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*3.3*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*37.8*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.94*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.976*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*709*
v_p * highest directional split proportion[2] (pc/h)	*461*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*46.4*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*17.4*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*63.7*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*C*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.23*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*98*
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*359*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*2.6*

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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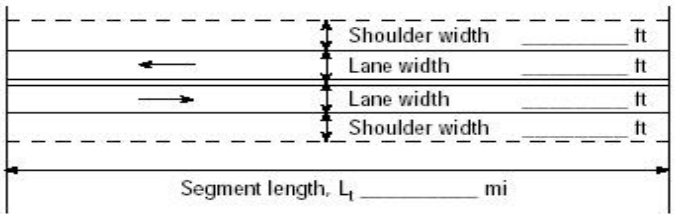
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*DRW*	Highway	*News Road*
Agency or Company	*DRW Consultants, LLC*	From/To	*Old News Road/Powhatan Seconda*
Date Performed	*3/12/2008*	Jurisdiction	*JCC*
Analysis Time Period	*2007/2008 COUNTS PM*	Analysis Year	*Exhibit O2*

Project Description: *News Road Corridor Study - Exhibit O2*

Input Data



☐ Class I highway ☑ Class II highway

Terrain ☐ Level ☑ Rolling

Two-way hourly volume	*827* veh/h
Directional split	*60 / 40*
Peak-hour factor, PHF	*0.92*
No-passing zone	*100*
% Trucks and Buses , P_T	*5 %*
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*1*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.93*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.957*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1010*
v_p * highest directional split proportion[2] (pc/h)	*606*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*4.8 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.3 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*45.0 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*2.6*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*34.5*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.94*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.976*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*980*
v_p * highest directional split proportion[2] (pc/h)	*588*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*57.7*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*12.5*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*70.3*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*D*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.32*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*135*
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*496*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*3.9*

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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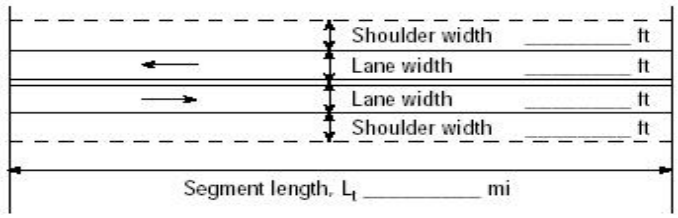
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*DRW*	Highway	*News Road*
Agency or Company	*DRW Consultants, LLC*	From/To	*Old News Road/Powhatan Seconda*
Date Performed	*3/12/2008*	Jurisdiction	*JCC*
Analysis Time Period	*Approved Development AM*	Analysis Year	*Exhibit O3*

Project Description: *News Road Corridor Study - Exhibit O3*

Input Data



☐ Class I highway ☑ Class II highway

Terrain ☐ Level ☑ Rolling

Two-way hourly volume	*730* veh/h
Directional split	*67 / 33*
Peak-hour factor, PHF	*0.92*
No-passing zone	*100*
% Trucks and Buses , P_T	*5 %*
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*1*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.93*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.957*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*892*
v_p * highest directional split proportion[2] (pc/h)	*598*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*3.0 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.3 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*46.8 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*2.8*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*37.0*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.94*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.976*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*865*
v_p * highest directional split proportion[2] (pc/h)	*580*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*53.2*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*13.9*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*67.1*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*C*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.28*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*119*
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*438*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*3.2*

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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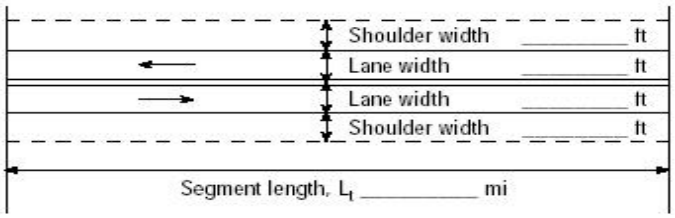
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*DRW*	Highway	*News Road*
Agency or Company	*DRW Consultants, LLC*	From/To	*Old News Road/Powhatan Seconda*
Date Performed	*3/12/2008*	Jurisdiction	*JCC*
Analysis Time Period	*Approved Development PM*	Analysis Year	*Exhibit O4*

Project Description: *News Road Corridor Study - Exhibit O4*

Input Data



☐ Class I highway ☑ Class II highway

Terrain ☐ Level ☑ Rolling

Two-way hourly volume	*1001* veh/h
Directional split	*60 / 40*
Peak-hour factor, PHF	*0.92*
No-passing zone	*100*
% Trucks and Buses , P_T	*5 %*
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*1*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.99*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.976*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1127*
v_p * highest directional split proportion[2] (pc/h)	*676*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*3.0 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.3 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*46.8 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*2.3*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*35.7*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.94*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.976*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1186*
v_p * highest directional split proportion[2] (pc/h)	*712*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*64.7*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*10.3*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*75.1*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*D*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.35*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*163*
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*601*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*4.6*

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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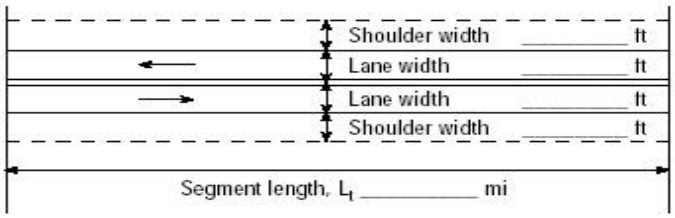
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*DRW*	Highway	*News Road*
Agency or Company	*DRW Consultants, LLC*	From/To	*Old News Road/Powhatan Seconda*
Date Performed	*3/12/2008*	Jurisdiction	*JCC*
Analysis Time Period	*The Village Development AM*	Analysis Year	*Exhibit O5*

Project Description: *News Road Corridor Study - Exhibit O5*

Input Data



☐ Class I highway ☑ Class II highway

Terrain ☐ Level ☑ Rolling

Two-way hourly volume	*809* veh/h
Directional split	*65 / 35*
Peak-hour factor, PHF	*0.92*
No-passing zone	*100*
% Trucks and Buses , P_T	*5 %*
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*1*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.93*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.957*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*988*
v_p * highest directional split proportion[2] (pc/h)	*642*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*3.0 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.3 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*46.8 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*2.6*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*36.5*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.94*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.976*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*959*
v_p * highest directional split proportion[2] (pc/h)	*623*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*57.0*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*12.8*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*69.8*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*C*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.31*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*132*
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*485*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*3.6*

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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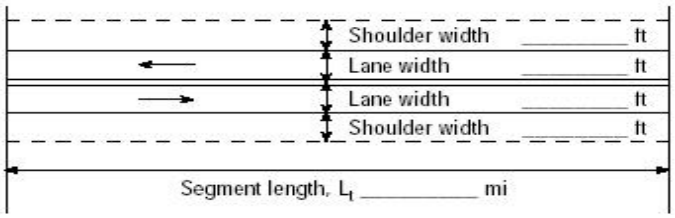
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*DRW*	Highway	*News Road*
Agency or Company	*DRW Consultants, LLC*	From/To	*Old News Road/Powhatan Seconda*
Date Performed	*3/12/2008*	Jurisdiction	*JCC*
Analysis Time Period	*The Village Development PM*	Analysis Year	*Exhibit O6*

Project Description: *News Road Corridor Study - Exhibit O6*

Input Data



☐ Class I highway ☑ Class II highway

Terrain ☐ Level ☑ Rolling

Two-way hourly volume	*1149* veh/h
Directional split	*59 / 41*
Peak-hour factor, PHF	*0.92*
No-passing zone	*100*
% Trucks and Buses , P_T	*5 %*
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*1*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.99*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.976*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1293*
v_p * highest directional split proportion[2] (pc/h)	*763*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*3.0 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.3 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*46.8 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*1.9*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*34.8*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*1.000*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1249*
v_p * highest directional split proportion[2] (pc/h)	*737*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*66.6*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*9.7*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*76.3*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*D*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.40*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*187*
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*689*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*5.4*

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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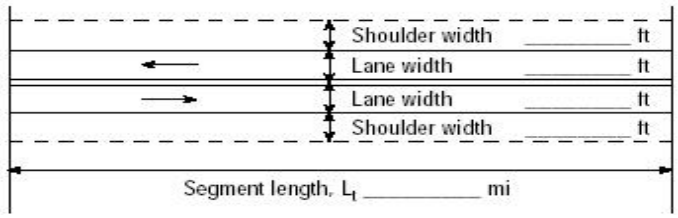
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*DRW*	Highway	*News Road*
Agency or Company	*DRW Consultants, LLC*	From/To	*Old News Road/Powhatan Seconda*
Date Performed	*3/12/2008*	Jurisdiction	*JCC*
Analysis Time Period	*Proposed Development AM*	Analysis Year	*Exhibit O7*

Project Description: *News Road Corridor Study - Exhibit O7*

Input Data



☐ Class I highway ☑ Class II highway

Terrain ☐ Level ☑ Rolling

Two-way hourly volume	*885* veh/h
Directional split	*65 / 35*
Peak-hour factor, PHF	*0.92*
No-passing zone	*100*
% Trucks and Buses , P_T	*5 %*
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*1*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.93*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.957*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1081*
v_p * highest directional split proportion[2] (pc/h)	*703*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*3.0 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.3 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*46.8 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*2.4*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*36.0*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.94*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.976*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1049*
v_p * highest directional split proportion[2] (pc/h)	*682*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*60.2*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*11.9*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*72.1*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*D*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.34*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*144*
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*531*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*4.0*

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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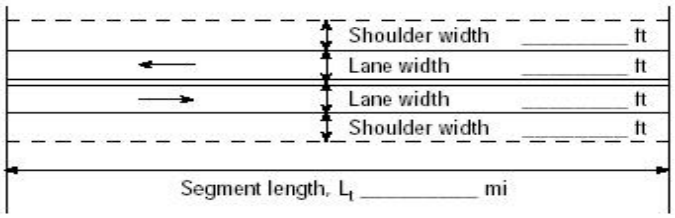
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*DRW*	Highway	*News Road*
Agency or Company	*DRW Consultants, LLC*	From/To	*Old News Road/Powhatan Seconda*
Date Performed	*3/12/2008*	Jurisdiction	*JCC*
Analysis Time Period	*Proposed Development PM*	Analysis Year	*Exhibit O8*

Project Description: *News Road Corridor Study - Exhibit O8*

Input Data



☐ Class I highway ☑ Class II highway

Terrain ☐ Level ☑ Rolling

Two-way hourly volume	*1250* veh/h
Directional split	*59 / 41*
Peak-hour factor, PHF	*0.92*
No-passing zone	*100*
% Trucks and Buses , P_T	*5 %*
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*1*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.99*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.976*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1407*
v_p * highest directional split proportion[2] (pc/h)	*830*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*3.0 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.3 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*46.8 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*1.7*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*34.1*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*1.000*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1359*
v_p * highest directional split proportion[2] (pc/h)	*802*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*69.7*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*8.5*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*78.2*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*D*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.44*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*204*
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*750*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*6.0*

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.91	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1610	3234	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1610	3234	
Volume (vph)	28	610	18	175	179	99	10	37	268	313	47	18
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	29	642	19	184	188	104	11	39	282	329	49	19
RTOR Reduction (vph)	0	0	14	0	0	49	0	0	250	0	6	0
Lane Group Flow (vph)	29	642	5	184	188	55	11	39	32	165	226	0
Turn Type	Prot		Perm	Prot		Perm	Split		Perm	Split		
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases			2			6			4			
Actuated Green, G (s)	4.9	23.7	23.7	32.6	51.4	51.4	8.8	8.8	8.8	13.9	13.9	
Effective Green, g (s)	8.4	27.2	27.2	36.1	54.9	54.9	11.8	11.8	11.8	16.9	16.9	
Actuated g/C Ratio	0.08	0.26	0.26	0.35	0.53	0.53	0.11	0.11	0.11	0.16	0.16	
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	143	926	414	614	1868	836	201	211	180	262	526	
v/s Ratio Prot	0.02	c0.18		c0.10	0.05		0.01	0.02		c0.10	0.07	
v/s Ratio Perm			0.01			0.07			0.18			
v/c Ratio	0.20	0.69	0.01	0.30	0.10	0.07	0.05	0.18	0.18	0.63	0.43	
Uniform Delay, d1	44.7	34.6	28.4	24.7	12.2	12.0	41.1	41.7	41.7	40.6	39.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.7	2.3	0.0	0.3	0.1	0.2	0.1	0.4	0.5	4.7	0.6	
Delay (s)	45.4	36.9	28.5	25.0	12.3	12.2	41.2	42.2	42.2	45.3	39.8	
Level of Service	D	D	C	C	B	B	D	D	D	D	D	
Approach Delay (s)		37.0			17.2			42.2			42.1	
Approach LOS		D			B			D			D	

Intersection Summary			
HCM Average Control Delay	34.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	104.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.91	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1610	3190	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1610	3190	
Volume (vph)	87	358	39	435	531	242	65	159	319	226	116	87
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	92	377	41	458	559	255	68	167	336	238	122	92
RTOR Reduction (vph)	0	0	33	0	0	133	0	0	287	0	41	0
Lane Group Flow (vph)	92	377	8	458	559	122	68	167	49	143	268	0
Turn Type	Prot		Perm	Prot		Perm	Split		Perm	Split		
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases			2			6			4			
Actuated Green, G (s)	8.5	17.3	17.3	37.5	46.3	46.3	12.1	12.1	12.1	12.1	12.1	
Effective Green, g (s)	12.0	20.8	20.8	41.0	49.8	49.8	15.1	15.1	15.1	15.1	15.1	
Actuated g/C Ratio	0.12	0.20	0.20	0.39	0.48	0.48	0.15	0.15	0.15	0.15	0.15	
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	204	708	317	698	1695	758	257	270	230	234	463	
v/s Ratio Prot	0.05	c0.11		c0.26	0.16		0.04	0.09		0.09	c0.10	
v/s Ratio Perm			0.03			0.16			0.21			
v/c Ratio	0.45	0.53	0.03	0.66	0.33	0.16	0.26	0.62	0.21	0.61	0.58	
Uniform Delay, d1	42.9	37.2	33.5	25.7	16.8	15.3	39.5	41.7	39.2	41.7	41.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.6	0.8	0.0	2.2	0.5	0.5	0.6	4.2	0.5	4.7	1.8	
Delay (s)	44.5	38.0	33.5	28.0	17.3	15.8	40.1	45.9	39.7	46.4	43.2	
Level of Service	D	D	C	C	B	B	D	D	D	D	D	
Approach Delay (s)		38.8			20.8			41.5			44.2	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM Average Control Delay	32.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	104.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.91	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1610	3240	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1610	3240	
Volume (vph)	32	610	18	175	179	113	10	45	268	370	70	24
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	34	642	19	184	188	119	11	47	282	389	74	25
RTOR Reduction (vph)	0	0	14	0	0	58	0	0	250	0	7	0
Lane Group Flow (vph)	34	642	5	184	188	61	11	47	32	195	286	0
Turn Type	Prot		Perm	Prot		Perm	Split		Perm	Split		
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases			2			6			4			
Actuated Green, G (s)	5.1	22.4	22.4	32.6	49.9	49.9	8.8	8.8	8.8	15.2	15.2	
Effective Green, g (s)	8.6	25.9	25.9	36.1	53.4	53.4	11.8	11.8	11.8	18.2	18.2	
Actuated g/C Ratio	0.08	0.25	0.25	0.35	0.51	0.51	0.11	0.11	0.11	0.17	0.17	
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	146	881	394	614	1817	813	201	211	180	282	567	
v/s Ratio Prot	0.02	c0.18		c0.10	0.05		0.01	0.03		c0.12	0.09	
v/s Ratio Perm			0.01			0.08			0.18			
v/c Ratio	0.23	0.73	0.01	0.30	0.10	0.08	0.05	0.22	0.18	0.69	0.51	
Uniform Delay, d1	44.6	35.8	29.4	24.7	13.0	12.8	41.1	41.9	41.7	40.3	38.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.8	3.0	0.0	0.3	0.1	0.2	0.1	0.5	0.5	7.1	0.7	
Delay (s)	45.4	38.9	29.4	25.0	13.1	13.0	41.2	42.5	42.2	47.4	39.5	
Level of Service	D	D	C	C	B	B	D	D	D	D	D	
Approach Delay (s)		38.9			17.5			42.2			42.7	
Approach LOS		D			B			D			D	

Intersection Summary			
HCM Average Control Delay	35.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	104.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.91	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1610	3197	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1610	3197	
Volume (vph)	98	358	39	435	531	291	65	186	319	254	133	92
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	103	377	41	458	559	306	68	196	336	267	140	97
RTOR Reduction (vph)	0	0	33	0	0	163	0	0	286	0	37	0
Lane Group Flow (vph)	103	377	8	458	559	143	68	196	50	160	307	0
Turn Type	Prot		Perm	Prot		Perm	Split		Perm	Split		
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases			2			6			4			
Actuated Green, G (s)	8.8	16.4	16.4	37.6	45.2	45.2	12.5	12.5	12.5	12.5	12.5	
Effective Green, g (s)	12.3	19.9	19.9	41.1	48.7	48.7	15.5	15.5	15.5	15.5	15.5	
Actuated g/C Ratio	0.12	0.19	0.19	0.40	0.47	0.47	0.15	0.15	0.15	0.15	0.15	
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	209	677	303	699	1657	741	264	278	236	240	476	
v/s Ratio Prot	0.06	c0.11		c0.26	0.16		0.04	0.11		0.10	c0.11	
v/s Ratio Perm			0.03			0.19			0.21			
v/c Ratio	0.49	0.56	0.03	0.66	0.34	0.19	0.26	0.71	0.21	0.67	0.65	
Uniform Delay, d1	42.9	38.1	34.2	25.7	17.5	16.2	39.2	42.1	38.9	41.8	41.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.8	1.0	0.0	2.2	0.6	0.6	0.5	7.9	0.5	6.8	3.0	
Delay (s)	44.8	39.1	34.2	27.9	18.0	16.7	39.7	50.0	39.3	48.6	44.7	
Level of Service	D	D	C	C	B	B	D	D	D	D	D	
Approach Delay (s)		39.8			21.1			42.8			45.9	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM Average Control Delay	33.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	104.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.91	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1610	3239	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1610	3239	
Volume (vph)	38	610	18	175	179	125	10	59	268	389	80	28
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	40	642	19	184	188	132	11	62	282	409	84	29
RTOR Reduction (vph)	0	0	14	0	0	65	0	0	249	0	7	0
Lane Group Flow (vph)	40	642	5	184	188	67	11	62	33	205	310	0
Turn Type	Prot		Perm	Prot		Perm	Split		Perm	Split		
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases			2			6			4			
Actuated Green, G (s)	5.4	21.8	21.8	32.7	49.1	49.1	9.2	9.2	9.2	15.3	15.3	
Effective Green, g (s)	8.9	25.3	25.3	36.2	52.6	52.6	12.2	12.2	12.2	18.3	18.3	
Actuated g/C Ratio	0.09	0.24	0.24	0.35	0.51	0.51	0.12	0.12	0.12	0.18	0.18	
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	151	861	385	616	1790	801	208	219	186	283	570	
v/s Ratio Prot	0.02	c0.18		c0.10	0.05		0.01	0.03		c0.13	0.10	
v/s Ratio Perm			0.01			0.08			0.18			
v/c Ratio	0.26	0.75	0.01	0.30	0.11	0.08	0.05	0.28	0.18	0.72	0.54	
Uniform Delay, d1	44.5	36.4	29.9	24.7	13.4	13.3	40.8	41.9	41.4	40.5	39.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.9	3.5	0.0	0.3	0.1	0.2	0.1	0.7	0.5	8.9	1.1	
Delay (s)	45.4	39.9	29.9	24.9	13.5	13.5	40.9	42.6	41.8	49.3	40.1	
Level of Service	D	D	C	C	B	B	D	D	D	D	D	
Approach Delay (s)		40.0			17.7			41.9			43.7	
Approach LOS		D			B			D			D	

Intersection Summary			
HCM Average Control Delay	35.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	104.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	54.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.91	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1610	3200	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1610	3200	
Volume (vph)	107	358	39	435	531	319	65	207	319	285	151	101
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	113	377	41	458	559	336	68	218	336	300	159	106
RTOR Reduction (vph)	0	0	33	0	0	185	0	0	285	0	35	0
Lane Group Flow (vph)	113	377	8	458	559	151	68	218	51	181	349	0
Turn Type	Prot		Perm	Prot		Perm	Split		Perm	Split		
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases			2			6			4			
Actuated Green, G (s)	10.3	17.3	17.3	36.2	43.2	43.2	12.8	12.8	12.8	12.7	12.7	
Effective Green, g (s)	13.8	20.8	20.8	39.7	46.7	46.7	15.8	15.8	15.8	15.7	15.7	
Actuated g/C Ratio	0.13	0.20	0.20	0.38	0.45	0.45	0.15	0.15	0.15	0.15	0.15	
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	235	708	317	676	1589	711	269	283	240	243	483	
v/s Ratio Prot	0.06	c0.11		c0.26	0.16		0.04	0.12		0.11	c0.12	
v/s Ratio Perm			0.03			0.21			0.21			
v/c Ratio	0.48	0.53	0.03	0.68	0.35	0.21	0.25	0.77	0.21	0.74	0.72	
Uniform Delay, d1	41.8	37.2	33.5	26.8	18.7	17.4	38.9	42.4	38.6	42.2	42.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.6	0.8	0.0	2.7	0.6	0.7	0.5	12.2	0.4	11.7	5.3	
Delay (s)	43.3	38.0	33.5	29.5	19.4	18.1	39.4	54.5	39.1	53.9	47.4	
Level of Service	D	D	C	C	B	B	D	D	D	D	D	
Approach Delay (s)		38.8			22.5			44.5			49.5	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM Average Control Delay	34.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	104.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.91	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1610	3237	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1610	3237	
Volume (vph)	40	610	18	175	179	130	10	65	268	419	99	37
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	42	642	19	184	188	137	11	68	282	441	104	39
RTOR Reduction (vph)	0	0	15	0	0	69	0	0	248	0	8	0
Lane Group Flow (vph)	42	642	4	184	188	68	11	68	34	221	355	0
Turn Type	Prot		Perm	Prot		Perm	Split		Perm	Split		
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases			2			6			4			
Actuated Green, G (s)	5.5	21.1	21.1	32.7	48.3	48.3	9.4	9.4	9.4	15.8	15.8	
Effective Green, g (s)	9.0	24.6	24.6	36.2	51.8	51.8	12.4	12.4	12.4	18.8	18.8	
Actuated g/C Ratio	0.09	0.24	0.24	0.35	0.50	0.50	0.12	0.12	0.12	0.18	0.18	
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	153	837	374	616	1763	788	211	222	189	291	585	
v/s Ratio Prot	0.02	c0.18		c0.10	0.05		0.01	0.04		c0.14	0.11	
v/s Ratio Perm			0.01			0.09			0.18			
v/c Ratio	0.27	0.77	0.01	0.30	0.11	0.09	0.05	0.31	0.18	0.76	0.61	
Uniform Delay, d1	44.4	37.0	30.4	24.7	13.8	13.7	40.6	41.9	41.2	40.5	39.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.0	4.2	0.0	0.3	0.1	0.2	0.1	0.8	0.5	10.8	1.8	
Delay (s)	45.4	41.3	30.4	24.9	14.0	13.9	40.7	42.7	41.7	51.3	41.0	
Level of Service	D	D	C	C	B	B	D	D	D	D	D	
Approach Delay (s)		41.2			17.9			41.8			44.9	
Approach LOS		D			B			D			D	

Intersection Summary			
HCM Average Control Delay	36.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	104.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.91	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1610	3201	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1610	3201	
Volume (vph)	117	358	39	435	531	341	65	225	319	300	162	106
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	123	377	41	458	559	359	68	237	336	316	171	112
RTOR Reduction (vph)	0	0	33	0	0	200	0	0	284	0	35	0
Lane Group Flow (vph)	123	377	8	458	559	159	68	237	52	192	372	0
Turn Type	Prot		Perm	Prot		Perm	Split		Perm	Split		
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases			2			6			4			
Actuated Green, G (s)	10.5	16.9	16.9	36.2	42.6	42.6	13.0	13.0	13.0	12.9	12.9	
Effective Green, g (s)	14.0	20.4	20.4	39.7	46.1	46.1	16.0	16.0	16.0	15.9	15.9	
Actuated g/C Ratio	0.13	0.20	0.20	0.38	0.44	0.44	0.15	0.15	0.15	0.15	0.15	
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	238	694	311	676	1569	702	272	287	244	246	489	
v/s Ratio Prot	0.07	c0.11		c0.26	0.16		0.04	0.13		0.12	c0.13	
v/s Ratio Perm			0.03			0.23			0.21			
v/c Ratio	0.52	0.54	0.03	0.68	0.36	0.23	0.25	0.83	0.21	0.78	0.76	
Uniform Delay, d1	41.9	37.6	33.8	26.8	19.1	17.9	38.7	42.6	38.5	42.4	42.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.9	0.9	0.0	2.7	0.6	0.8	0.5	17.3	0.4	14.8	6.9	
Delay (s)	43.7	38.5	33.8	29.5	19.8	18.7	39.2	60.0	38.9	57.1	49.1	
Level of Service	D	D	C	C	B	B	D	E	D	E	D	
Approach Delay (s)		39.3			22.7			46.7			51.7	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM Average Control Delay	35.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	104.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Traffic Analysis For Ford's Colony CCRC

JAMES CITY COUNTY, VIRGINIA

For:
Realtec, Inc.

By:
DRW Consultants, LLC
Midlothian, VA

July 12, 2007

Traffic Analysis For Ford's Colony CCRC

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For:
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July 12, 2007

COMMONWEALTH OF VIRGINIA
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REPORT TEXT

INTRODUCTION

Realtec, Inc. (Fords' Colony) proposes to build a Continuing Care Retirement Community (CCRC) on News Road across from the existing Firestone Drive access to Ford's Colony. This report has been prepared for review by James City County (JCC) and VDOT concurrent with the proposed rezoning of the development.

The Ford's Colony CCRC development location in the Williamsburg region is shown on Exhibit 1. The Ford's Colony CCRC development location in the local area is shown on Exhibit 2. The property is located on the south side of News Road.

Access to the Ford's Colony CCRC will be on News Road across from Firestone Drive. This traffic study addresses existing and future traffic conditions at the News Road/Firestone Drive intersection.

EXISTING PEAK HOUR TRAFFIC

Peak hour turning movement counts were conducted at the News Road/Firestone Drive intersection. The counts were conducted from 7 to 9 AM on Thursday, April 26, 2007 and from 4 to 6 PM on Wednesday, April 25, 2007. The peak hour counts are tabulated on Appendix Exhibit A series.

The April 2007 peak hour turning movement volumes are shown on the intersection diagram on the top row of Exhibit 5. There is an existing eastbound left turn and westbound right turn on News Road serving Firestone Drive. There is also an existing westbound left turn that will serve the Ford's Colony CCRC.

2007 peak hour level of service (LOS) calculations are shown on Appendix Exhibits D1 and D2 for the AM and PM peak hours, respectively. Synchro is used for LOS calculations in this study, and Exhibits D1 and D2 are SYNCHRO HCM (Highway Capacity Manual) unsignalized intersection reports. There is LOS A overall (ICU LOS basis) and LOS B or better for all turning movements in both peak hours for 2007 conditions.

2012 PEAK HOUR BACKGROUND TRAFFIC

Exhibit 3 shows JCC daily traffic counts and the resulting trends on two sections of News Road. The section of News Road from Centerville Road to Springhill Subdivision has a 1.00 growth factor from 2007 to 2012, or 0% per year average increase. The section of News Road from Springhill Subdivision to Powhatan Secondary has a 1.13 growth factor from 2007 to 2012, or 2.6% per year average increase.

A 3% annual traffic growth rate is used in this study. The second row on Exhibit 5 shows 2012 peak hour background traffic at the News Road/Firestone Drive intersection with a 1.15 growth factor applied to existing peak hour counts.

2012 peak hour background traffic level of service (LOS) calculations are shown on Appendix Exhibits D3 and D4 for the AM and PM peak hours, respectively. There is LOS A overall (ICU LOS basis) and LOS B or better for all turning movements in both peak hours for 2012 background traffic.

FORD'S COLONY CCRC TRIP GENERATION, DISTRIBUTION AND ASSIGNMENT

The Ford's Colony CCRC development includes a range of senior living accommodations. Trip generation for the Ford's Colony CCRC has been calculated using Trip Generation, 7th Edition (TG7), published by the Institute of Transportation Engineers (ITE). The terminology used in the project description of the Ford's Colony CCRC has been translated to TG7 categories as follows:

1. 32 Townhomes. For trip generation purposes, TG7 Elderly Detached, Land Use Code (LUC) 251 is used in this study. These units are not attached but LUC 251 distinguishes these units from the independent living units (apartments).
2. 332 Independent Living Units. These are described as apartments, and TG7 Elderly Attached, Land Use Code 252 is characterized as apartment-like units.

3. 290 CCRC Apartments. These units translate directly to TG7 Congregate Care, Land Use Code 253.
4. 118 Assisted Living/Skill Care. These units translate directly to TG7 Assisted Living, Land Use Code 254.

Trip generation and distribution for the Ford's Colony CCRC is shown on Exhibit 4, Table 1. Site trip distribution is shown in Table 2 on Exhibit 4. The third row on Exhibit 5 shows the assignment of Ford's Colony CCRC traffic to the News Road/Firestone Drive intersection.

2012 TOTAL TRAFFIC FORECAST

The bottom row on Exhibit 5 shows total 2012 peak hour traffic at the News Road/Firestone Drive intersection.

Exhibits 6a and 6b respectively show the peak hour left turn lane warrants for the westbound left turn at News Road/Firestone Drive intersection. A left turn lane is warranted in the PM peak hour.

Exhibit 7 shows the peak hour right turn lane turn lane warrants for the eastbound right turn at News Road/Firestone Drive intersection. Only a right turn radius is warranted for AM or PM peak hour traffic.

2012 peak hour total traffic level of service (LOS) calculations are shown on Appendix Exhibits D5 and D6 for the AM and PM peak hours, respectively. There is LOS A overall (ICU LOS basis) and LOS C or better for all turning movements in both peak hours.

SUMMARY AND CONCLUSIONS

The collective effect of background traffic growth and the Ford's Colony CCRC in 2012 produces LOS C or better for all turning movements. The following table compares LOS results:

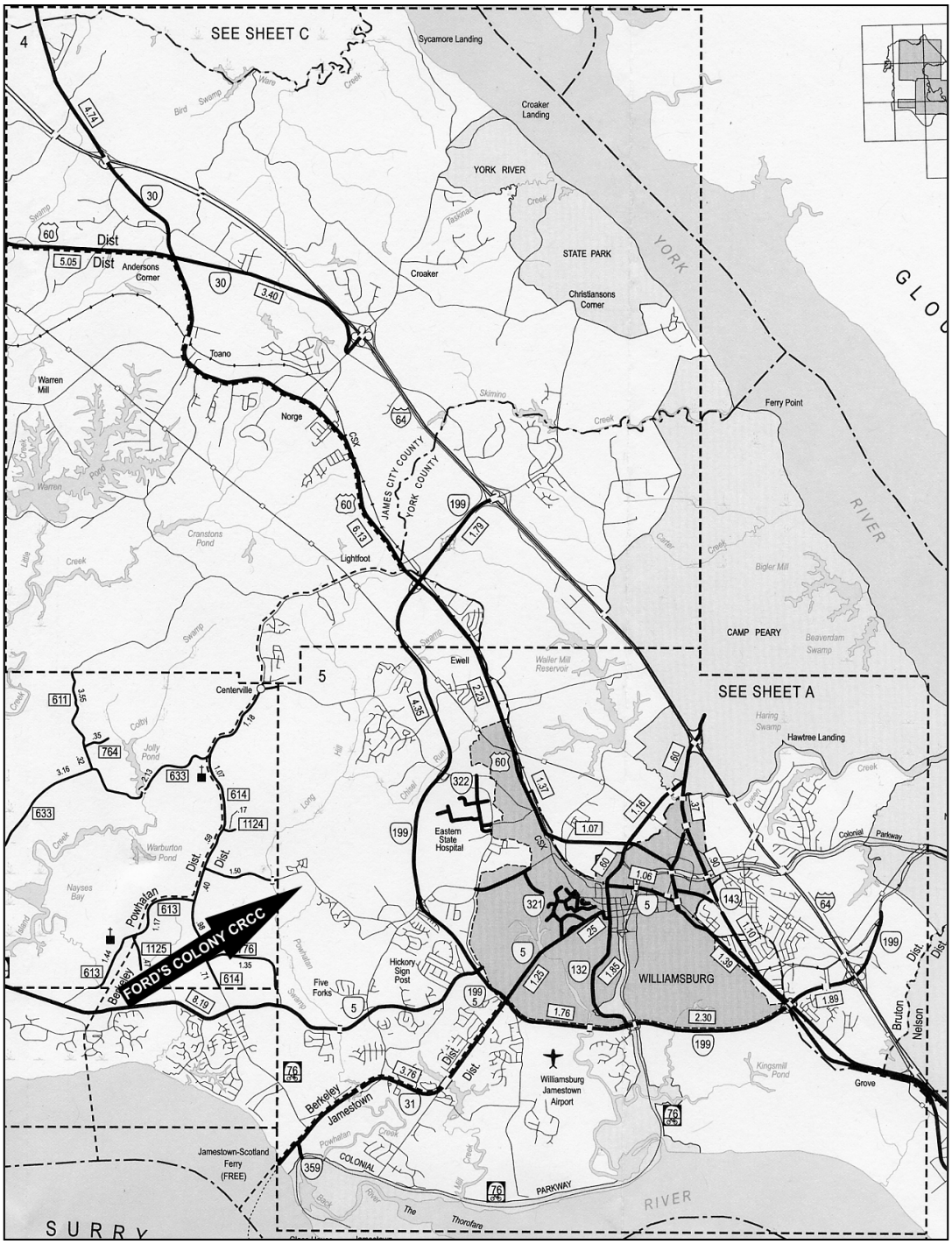
TABLE 1: NEWS ROAD/FIRESTONE DRIVE
UNSIGNALIZED INTERSECTION LOS RESULTS

	AM PEAK HOUR						PM PEAK HOUR					
	2007		2012 Bkgd		2012 Total		2007		2012 Bkgd		2012 Total	
Overall	A	21%	A	23%	A	36%	A	23%	A	26%	A	39%
EBL	A	8	A	8	A	8	A	8	A	8	A	8
EBT	n/a		n/a		n/a		n/a		n/a		n/a	
EBR	n/a		n/a		n/a		n/a		n/a		n/a	
WBL	n/a		n/a		A	8	n/a		n/a		A	8
WBT	n/a		n/a		n/a		n/a		n/a		n/a	
WBR	n/a		n/a		n/a		n/a		n/a		n/a	
NBL	n/a		n/a		n/a		n/a		n/a		n/a	
NBT	n/a		n/a		B	13	n/a		n/a		C	16
NBR	n/a		n/a		A	10	n/a		n/a		A	10
SBL	B	11	B	12	n/a		B	12	B	13	n/a	
SBT	n/a		n/a		C	15	n/a		n/a		C	21
SBR	A	9	A	9	A	9	A	10	A	10	A	9

Notes: For overall intersection, numeric values in % Intersection Capacity Utilization, with increasing value for decreasing LOS. For individual movements, numeric values in seconds delay, with increasing value for decreasing LOS.

The addition of the Ford's Colony CCRC access to align on News Road at Firestone Drive produces LOS C or better for all turning movements and does not require any additional turn lanes. The existing southbound left turn lane on Firestone Drive at News Road will be restriped to a shared left and through lane. The only other improvement at the intersection will be the connection of Ford's Colony CCRC access.

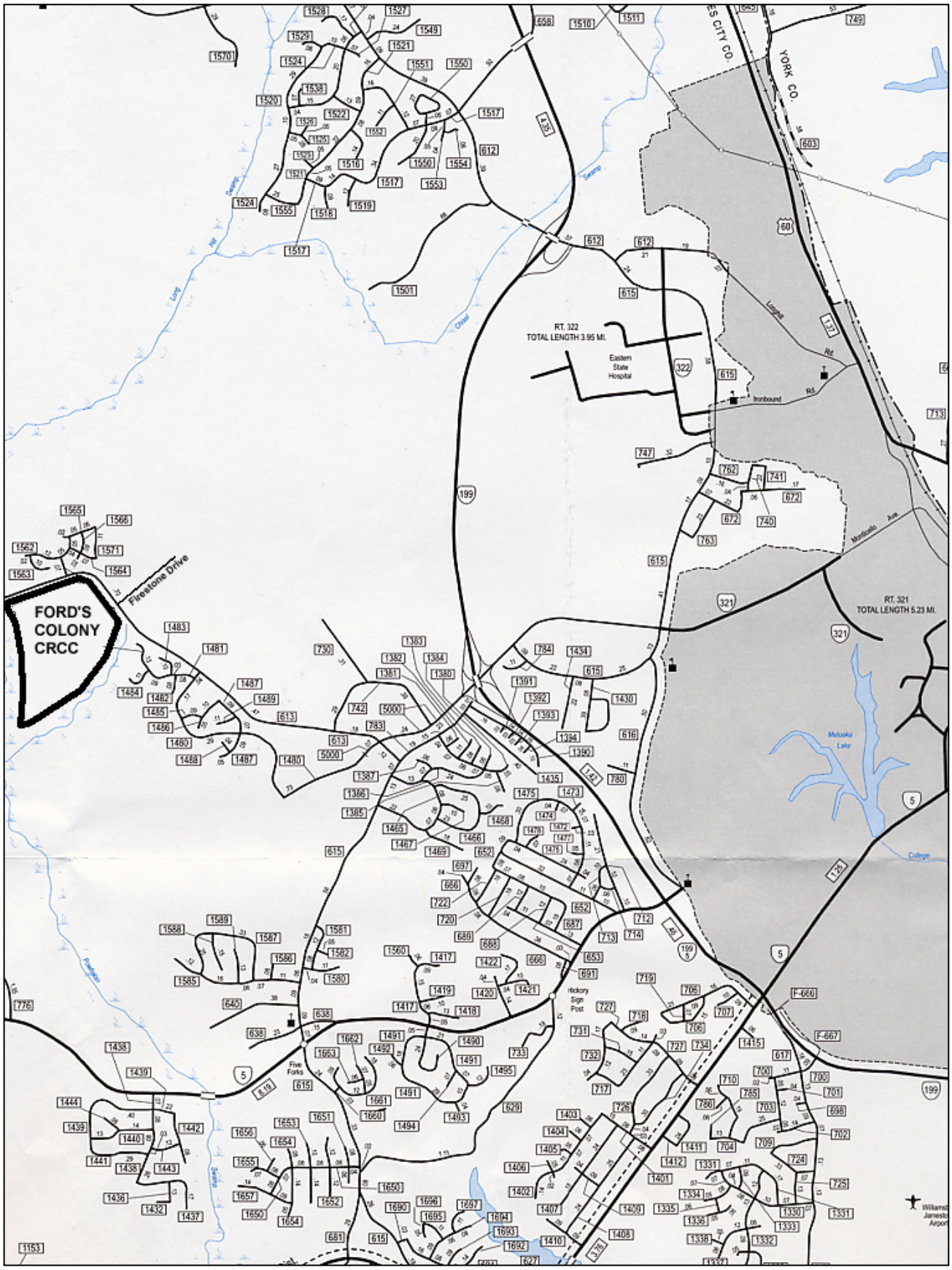
REPORT EXHIBITS



REGIONAL LOCATION MAP
FORD'S COLONY CCRC

DRW Consultants, LLC
804-794-7312

Exhibit 1



AREA LOCATION MAP
FORD'S COLONY CRCC

DRW Consultants, LLC
804-794-7312

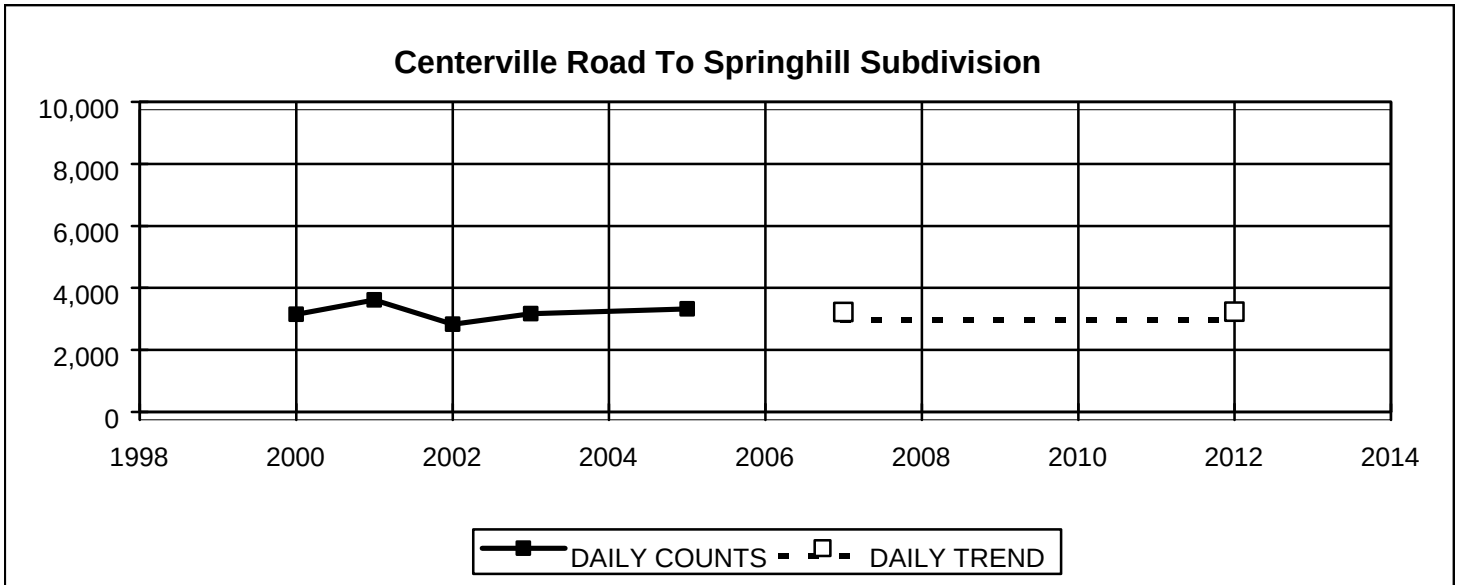
Exhibit 2

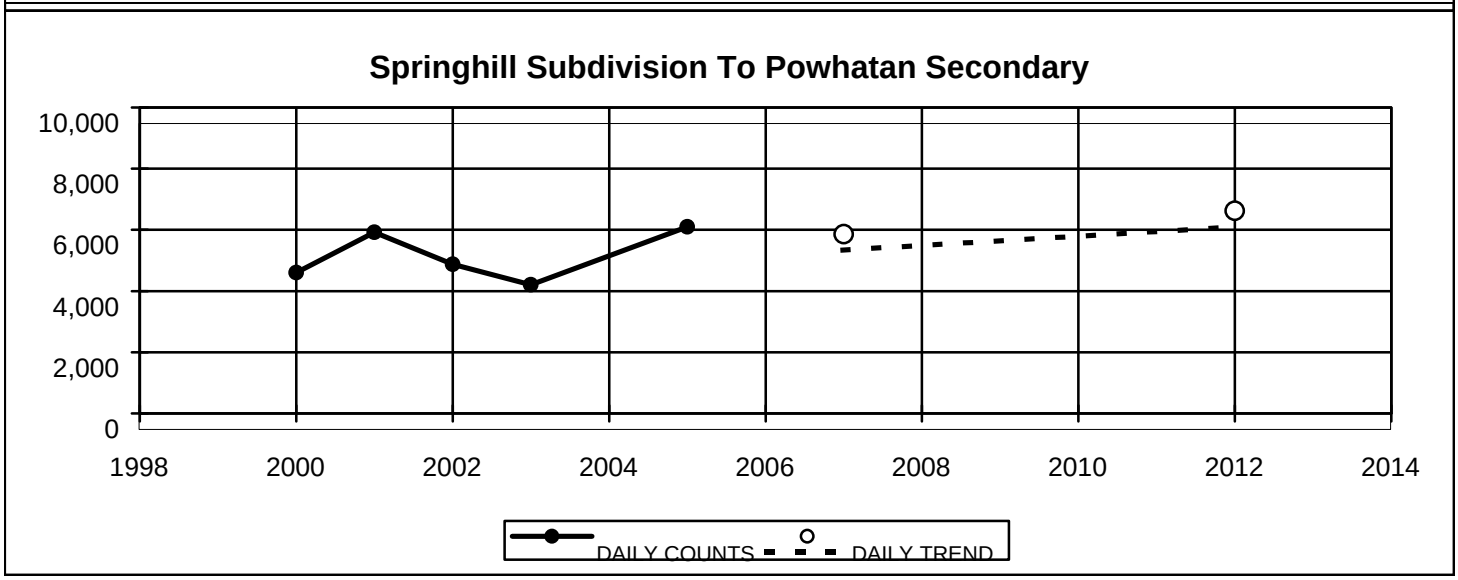
Street: News Road, Rt. 613
From: Centerville Road
To: Springhill Subdivision
Station: 36

Year	DAILY COUNTS	
2000	3,147	
2001	3,611	
2002	2,830	
2003	3,168	
2005	3,323	
Year	DAILY TREND	
2007	3,221	Δ07
2012	3,227	1.00

Street: News Road, Rt. 613
From: Springhill Subdivision
To: Powhatan Secondary
Station: 37

Year	DAILY COUNTS	
2000	4,603	
2001	5,918	
2002	4,871	
2003	4,207	
2005	6,096	
Year	DAILY TREND	
2007	5,863	Δ07
2012	6,617	1.13





Traffic counts published by James City County Planning Division.

NEWS ROAD DAILY TRAFFIC COUNTS AND TRENDS

DRW Consultants, LLC
804-794-7312

Exhibit 3

TABLE 1 - Total Units Trip Generation

TRACT	LAND USE	LAND USE CODE	SQ.FT., OTHER UNITS	WEEKDAY TRIP GENERATION AM PEAK HOUR Enter	Exit	Total	PM PEAK HOUR Enter	Exit	Total	DAILY
	Elderly Detached	251	32 units	4	6	10	13	9	22	206
	Elderly Attached	252	332 units	12	15	27	23	14	37	1155
	Congregate Care	253	290 units	10	7	17	27	22	49	586
	Assisted Living	254	118 occ.bed	15	5	20	18	16	34	323
		TOTAL	772 units	41	33	74	81	61	142	2270
TG 7 Definitions	Elderly Detached	251	may have recreation, but not central dining or health care							
	Elderly Attached	252	apartment-like residential units							
	Congregate Care	253	centralized amenities: dining, house keeping, trans., social/rec							
	Assisted Living	254	protective oversight, ALS and Alzheimers may be included							

ITE USE CODE	253	254			251	252		
FORD'S COLONY CCRC DEFINITIONS	CCRC Apt	Asst. Liv. Skill Care	CCRC Total		Town Homes	Ind. L.U.	Non CCRC	
Community 1	154	18	172		6			
Community 2		100	100		26	214		
Community 3	136		136			118		
	290	118	408		32	332	364	

TABLE 2 - SITE TRIP DISTRIBUTION

				41	33	74	81	61	142
	AM Peak Hour					PM Peak Hour			
	Entering Traffic		Exiting Traffic			Entering Traffic		Exiting Traffic	
Direction	% Dist.	Trips	% Dist.	Trips		% Dist.	Trips	% Dist.	Trips
East	85%	35	85%	28		85%	69	85%	52
North	5%	2	5%	2		5%	4	5%	3
West	10%	4	10%	3		10%	8	10%	6
	100%	41	100%	33		100%	81	100%	61

Trip generation rates from Trip Generation, 7th Edition (TG7) by the Institute of Transportation Engineers (ITE)

FORD'S COLONY CCRC
TRIP GENERATION AND DISTRIBUTION

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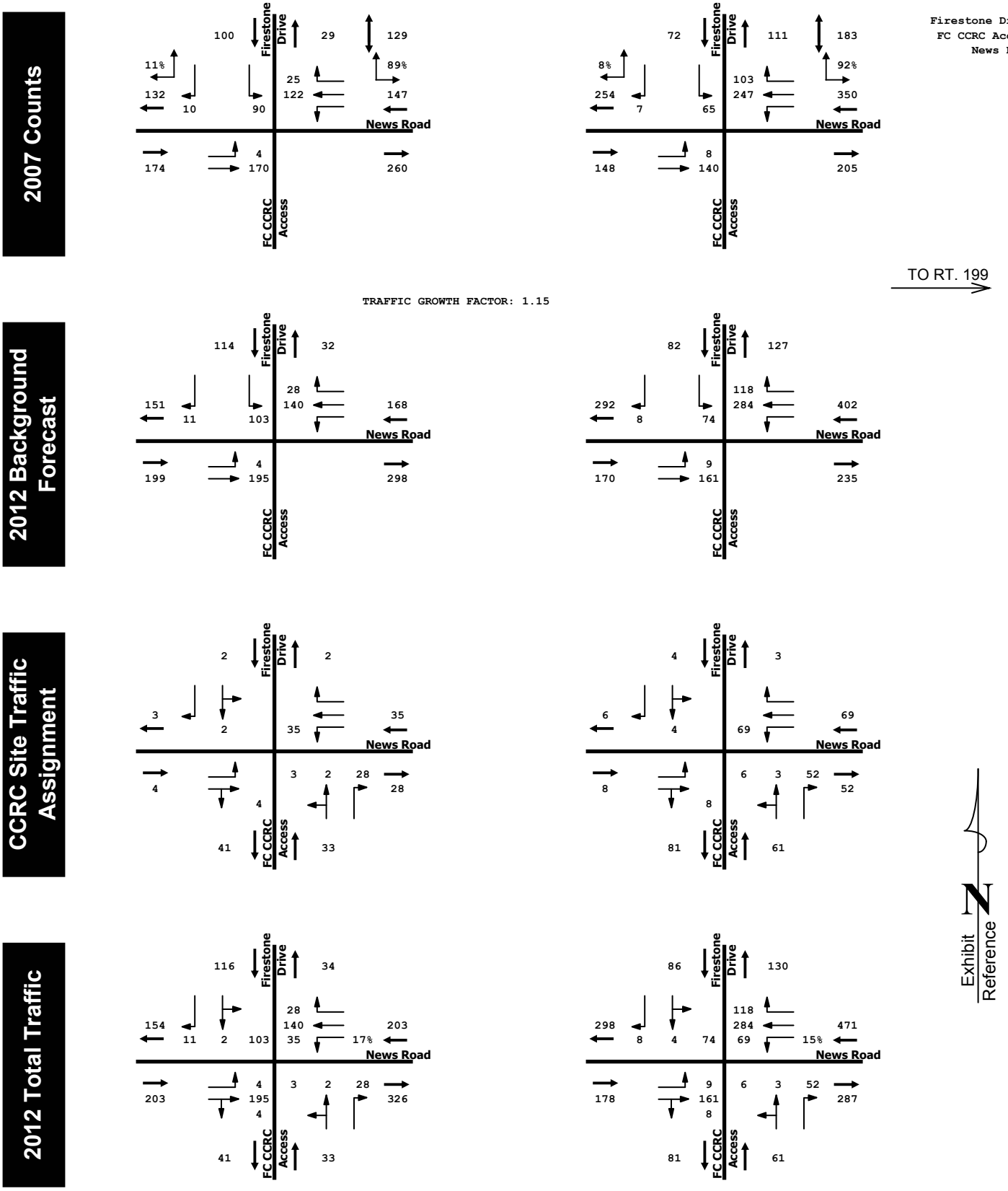
Exhibit 4

Firestone Drive
FC CCRC Access
News Road

TO RT. 199

TRAFFIC GROWTH FACTOR: 1.15



EXISTING PEAK HOUR TRAFFIC COUNTS AND 2012 FORECAST

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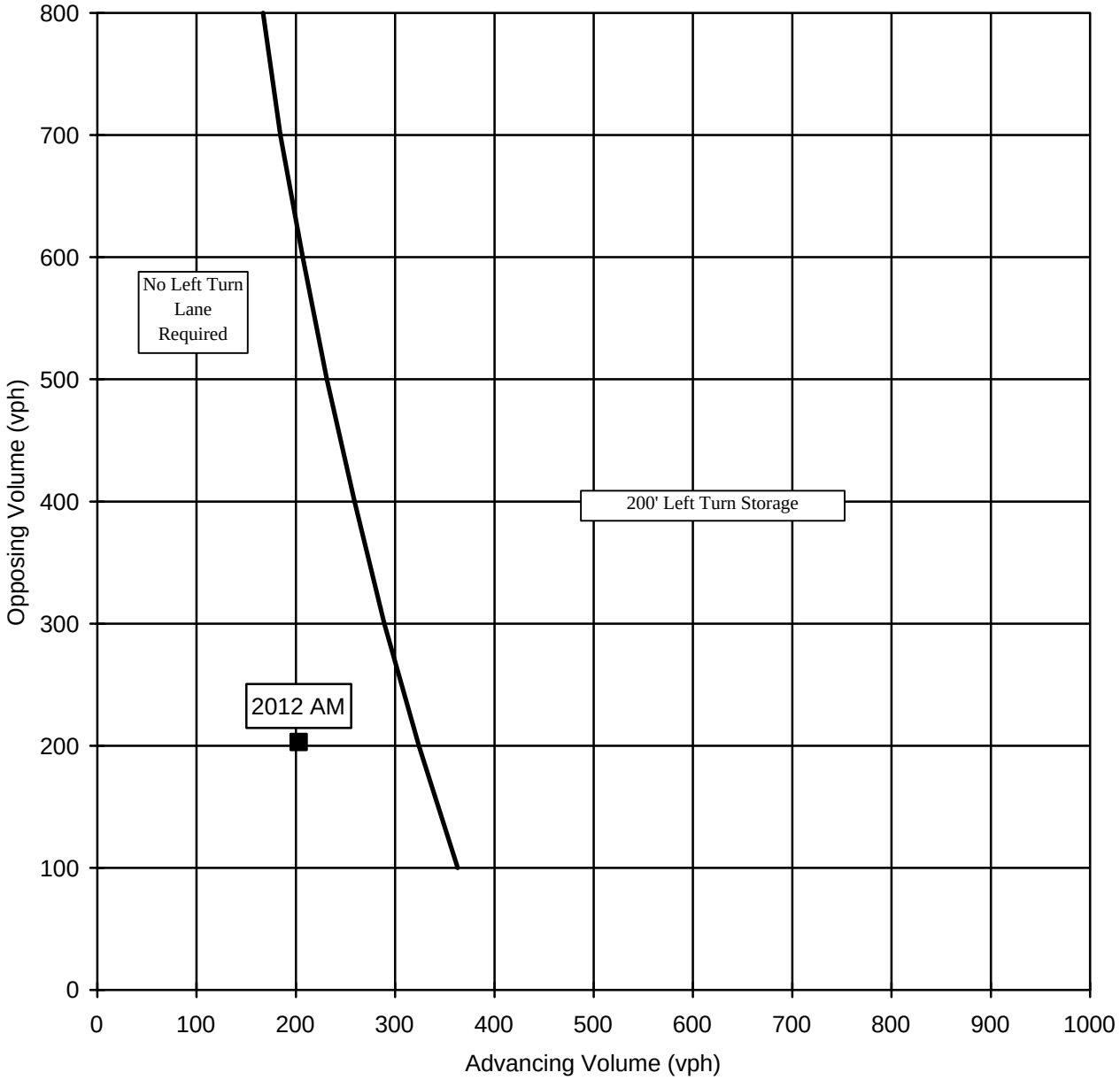
Exhibit 5

LEFT TURN LANE WARRANT
50 mph Design Speed
% Left Turns = 17%



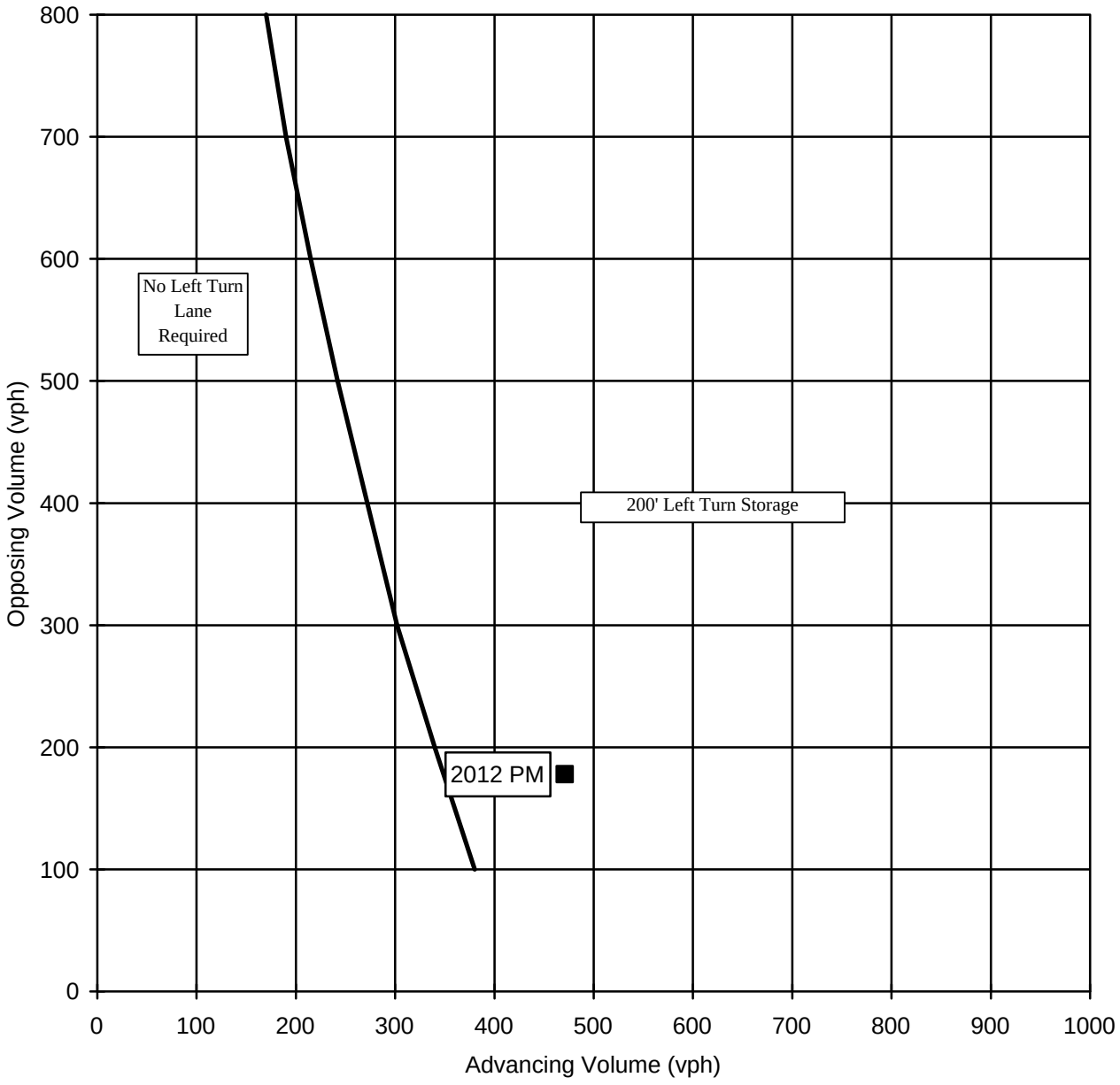
Source: Interpolated from VDOT Road Design Manual, Appendix C, derived from Highway Research Record Number 211

2012 AM PEAK HOUR
LEFT TURN LANE WARRANT
WESTBOUND NEWS ROAD AT FORDS'S COLONY CCRC

DRW Consultants, LLC
804-794-7312

Exhibit 6a

LEFT TURN LANE WARRANT
50 mph Design Speed
% Left Turns = 15%

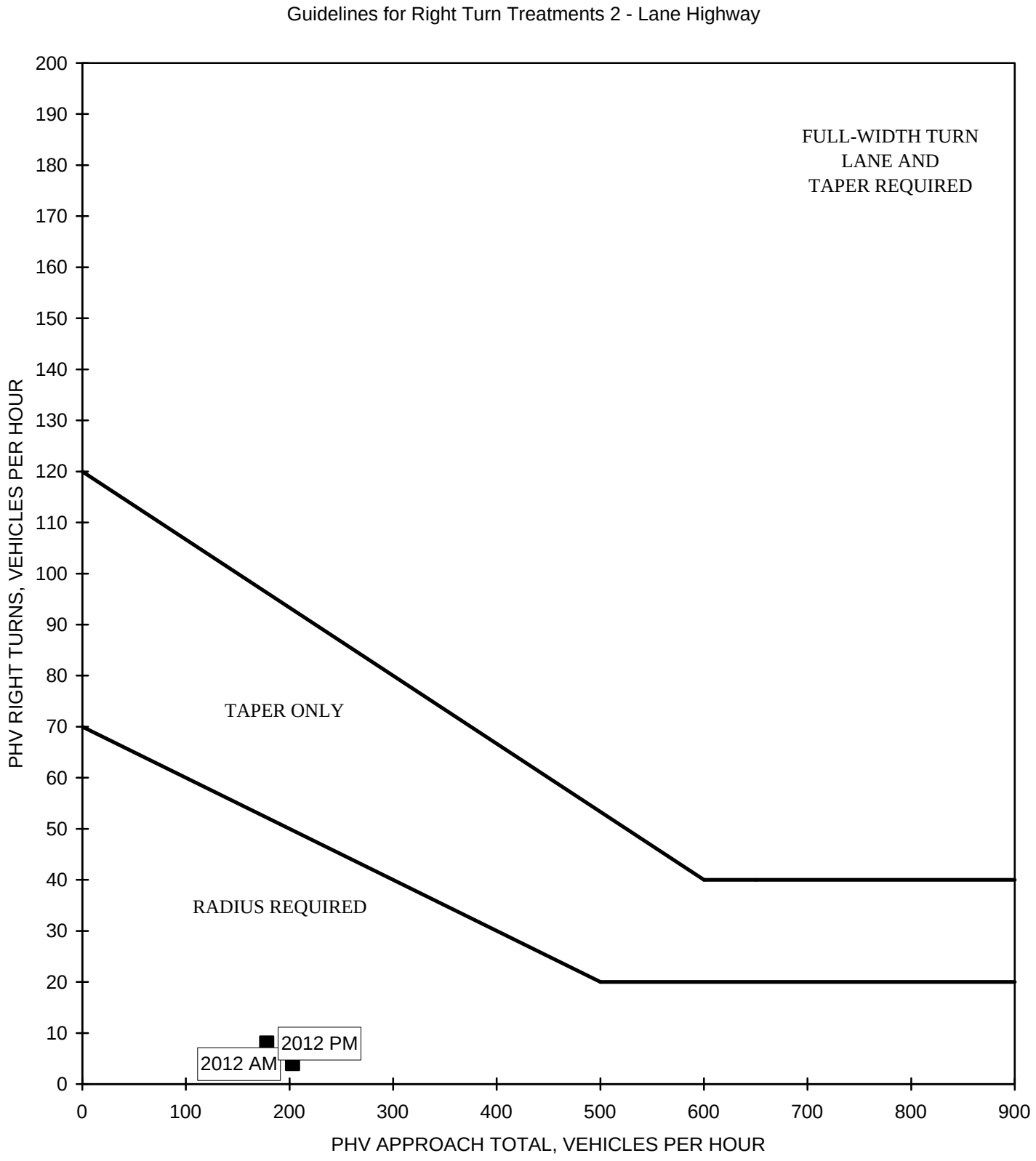


Source: Interpolated from VDOT Road Design Manual, Appendix C, derived from Highway Research Record Number 211

2012 PM PEAK HOUR
LEFT TURN LANE WARRANT
WESTBOUND NEWS ROAD AT FORDS'S COLONY CCRC

DRW Consultants, LLC
804-794-7312

Exhibit 6b



Source: VDOT Road Design Manual, Vol. 1, Page C-15, Figure C-1-8

2012 PEAK HOUR
RIGHT TURN LANE WARRANT
EASTBOUND NEWS ROAD AT FORD'S COLONY CCRC

DRW Consultants, LLC
804-794-7312

Exhibit 7

APPENDIX
EXHIBITS

APPENDIX
TABLE OF CONTENTS

APPENDIX EXHIBITS	Number
Peak Hour Traffic Count	**AM PM**
News Road/Firestone Drive	A1..... A2
News Road/Firestone Drive Unsignalized Intersection LOS	**AM PM**
2007 Peak Hour Traffic Counts	D1..... D2
2012 Background Traffic	D3..... D4
2012 Total Traffic (With Ford's Colony CCRC)	D5..... D6

AM PEAK HOUR

LOCATION: News Road/Firestone Drive

DATE:
Thu, 4/26/07

CUMULATIVE 15 MINUTE COUNTS

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
7:00 to 7:15				10		1	0	54			29	3	97
7:15 to 7:30				23		2	1	109			53	6	194
7:30 to 7:45				37		6	1	142			89	10	285
7:45 to 8:00				55		6	2	197			113	17	390
8:00 to 8:15				72		9	3	244			140	26	494
8:15 to 8:30				88		12	4	252			180	30	566
8:30 to 8:45				119		14	4	320			209	36	702
8:45 to 9:00				145		16	6	367			235	42	811
Count Sheet				C		D	E	F			A	B	

15 MINUTE INCREMENT COUNTS

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
7:00 to 7:15	0	0	0	10	0	1	0	54	0	0	29	3	97
7:15 to 7:30	0	0	0	13	0	1	1	55	0	0	24	3	97
7:30 to 7:45	0	0	0	14	0	4	0	33	0	0	36	4	91
7:45 to 8:00	0	0	0	18	0	0	1	55	0	0	24	7	105
8:00 to 8:15	0	0	0	17	0	3	1	47	0	0	27	9	104
8:15 to 8:30	0	0	0	16	0	3	1	8	0	0	40	4	72
8:30 to 8:45	0	0	0	31	0	2	0	68	0	0	29	6	136
8:45 to 9:00	0	0	0	26	0	2	2	47	0	0	26	6	109

HOUR INCREMENT

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
7:00 to 8:00	0	0	0	55	0	6	2	197	0	0	113	17	390
7:15 to 8:15	0	0	0	62	0	8	3	190	0	0	111	23	397
7:30 to 8:30	0	0	0	65	0	10	3	143	0	0	127	24	372
7:45 to 8:45	0	0	0	82	0	8	3	178	0	0	120	26	417
8:00 to 9:00	0	0	0	90	0	10	4	170	0	0	122	25	421

PEAK HOUR TURNING MOVEMENT VOLUMES

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
8:00 to 9:00	0	0	0	90	0	10	4	170	0	0	122	25	421

Exhibit A1

PM PEAK HOUR

LOCATION: News Road/Firestone Drive

DATE:
Wed, 4/25/07

CUMULATIVE 15 MINUTE COUNTS

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
4:00 to 4:15				19		4	3	27			53	24	130
4:15 to 4:30				36		7	3	58			91	49	244
4:30 to 4:45				47		7	5	91			148	80	378
4:45 to 5:00				69		13	7	127			202	101	519
5:00 to 5:15				84		14	8	166			274	130	676
5:15 to 5:30				101		14	11	198			338	152	814
5:30 to 5:45				111		18	14	230			393	173	939
5:45 to 6:00				122		20	16	259			438	191	1046
Count Sheet				C		D	E	F			A	B	

15 MINUTE INCREMENT COUNTS

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
4:00 to 4:15	0	0	0	19	0	4	3	27	0	0	53	24	130
4:15 to 4:30	0	0	0	17	0	3	0	31	0	0	38	25	114
4:30 to 4:45	0	0	0	11	0	0	2	33	0	0	57	31	134
4:45 to 5:00	0	0	0	22	0	6	2	36	0	0	54	21	141
5:00 to 5:15	0	0	0	15	0	1	1	39	0	0	72	29	157
5:15 to 5:30	0	0	0	17	0	0	3	32	0	0	64	22	138
5:30 to 5:45	0	0	0	10	0	4	3	32	0	0	55	21	125
5:45 to 6:00	0	0	0	11	0	2	2	29	0	0	45	18	107

HOUR INCREMENT

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
4:00 to 5:00	0	0	0	69	0	13	7	127	0	0	202	101	519
4:15 to 5:15	0	0	0	65	0	10	5	139	0	0	221	106	546
4:30 to 5:30	0	0	0	65	0	7	8	140	0	0	247	103	570
4:45 to 5:45	0	0	0	64	0	11	9	139	0	0	245	93	561
5:00 to 6:00	0	0	0	53	0	7	9	132	0	0	236	90	527

PEAK HOUR TURNING MOVEMENT VOLUMES

TIME	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
4:30 to 5:30	0	0	0	65	0	7	8	140	0	0	247	103	570

Exhibit A2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	4	170	122	25	90	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	185	133	27	98	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	160				326	133
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	160				326	133
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				85	99
cM capacity (veh/h)	1419				666	917

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	4	185	133	27	98	11
Volume Left	4	0	0	0	98	0
Volume Right	0	0	0	27	0	11
cSH	1419	1700	1700	1700	666	917
Volume to Capacity	0.00	0.11	0.08	0.02	0.15	0.01
Queue Length 95th (ft)	0	0	0	0	13	1
Control Delay (s)	7.5	0.0	0.0	0.0	11.3	9.0
Lane LOS	A				B	A
Approach Delay (s)	0.2		0.0		11.1	
Approach LOS					B	

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	20.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	8	140	247	103	65	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	152	268	112	71	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	380				438	268
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	380				438	268
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				88	99
cM capacity (veh/h)	1178				572	770

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	9	152	268	112	71	8
Volume Left	9	0	0	0	71	0
Volume Right	0	0	0	112	0	8
cSH	1178	1700	1700	1700	572	770
Volume to Capacity	0.01	0.09	0.16	0.07	0.12	0.01
Queue Length 95th (ft)	1	0	0	0	11	1
Control Delay (s)	8.1	0.0	0.0	0.0	12.2	9.7
Lane LOS	A				B	A
Approach Delay (s)	0.4		0.0		11.9	
Approach LOS					B	

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	23.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	4	195	140	28	103	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	212	152	30	112	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	183				373	152
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	183				373	152
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				82	99
cM capacity (veh/h)	1392				626	894

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	4	212	152	30	112	12
Volume Left	4	0	0	0	112	0
Volume Right	0	0	0	30	0	12
cSH	1392	1700	1700	1700	626	894
Volume to Capacity	0.00	0.12	0.09	0.02	0.18	0.01
Queue Length 95th (ft)	0	0	0	0	16	1
Control Delay (s)	7.6	0.0	0.0	0.0	12.0	9.1
Lane LOS	A				B	A
Approach Delay (s)	0.2		0.0		11.7	
Approach LOS					B	

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	22.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	9	161	284	118	74	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	175	309	128	80	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	437				503	309
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	437				503	309
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				85	99
cM capacity (veh/h)	1123				523	731

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	10	175	309	128	80	9
Volume Left	10	0	0	0	80	0
Volume Right	0	0	0	128	0	9
cSH	1123	1700	1700	1700	523	731
Volume to Capacity	0.01	0.10	0.18	0.08	0.15	0.01
Queue Length 95th (ft)	1	0	0	0	13	1
Control Delay (s)	8.2	0.0	0.0	0.0	13.1	10.0
Lane LOS	A				B	A
Approach Delay (s)	0.4		0.0		12.8	
Approach LOS					B	

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	25.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	4	195	4	35	140	28	3	2	28	103	2	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	212	4	38	152	30	3	2	30	112	2	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	183			216			464	482	214	480	453	152
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	183			216			464	482	214	480	453	152
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			99	100	96	76	100	99
cM capacity (veh/h)	1392			1353			488	469	826	465	487	894

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	4	216	38	152	30	5	30	114	12
Volume Left	4	0	38	0	0	3	0	112	0
Volume Right	0	4	0	0	30	0	30	0	12
cSH	1392	1700	1353	1700	1700	480	826	465	894
Volume to Capacity	0.00	0.13	0.03	0.09	0.02	0.01	0.04	0.25	0.01
Queue Length 95th (ft)	0	0	2	0	0	1	3	24	1
Control Delay (s)	7.6	0.0	7.7	0.0	0.0	12.6	9.5	15.2	9.1
Lane LOS	A		A			B	A	C	A
Approach Delay (s)	0.1		1.3			10.0		14.7	
Approach LOS						A		B	

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	36.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	9	161	8	69	284	118	6	3	52	74	4	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	175	9	75	309	128	7	3	57	80	4	9
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	437			184			668	786	179	711	662	309
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	437			184			668	786	179	711	662	309
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			95			98	99	93	74	99	99
cM capacity (veh/h)	1123			1391			346	304	863	307	358	731

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	10	184	75	309	128	10	57	85	9
Volume Left	10	0	75	0	0	7	0	80	0
Volume Right	0	9	0	0	128	0	57	0	9
cSH	1123	1700	1391	1700	1700	331	863	309	731
Volume to Capacity	0.01	0.11	0.05	0.18	0.08	0.03	0.07	0.27	0.01
Queue Length 95th (ft)	1	0	4	0	0	2	5	27	1
Control Delay (s)	8.2	0.0	7.7	0.0	0.0	16.2	9.5	21.0	10.0
Lane LOS	A		A			C	A	C	A
Approach Delay (s)	0.4		1.1			10.5		20.0	
Approach LOS						B		C	

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	39.3%	ICU Level of Service	A
Analysis Period (min)	15		

GEDDY, HARRIS, FRANCK & HICKMAN, L.L.P.

ATTORNEYS AT LAW
1177 JAMESTOWN ROAD
WILLIAMSBURG, VIRGINIA 23185
TELEPHONE: (757) 220-6500
FAX: (757) 229-5342

MAILING ADDRESS:
POST OFFICE BOX 379
WILLIAMSBURG, VIRGINIA 23187-0379

VERNON M. GEDDY, JR. (1926-2005)
STEPHEN D. HARRIS
SHELDON M. FRANCK
VERNON M. GEDDY, III
SUSANNA B. HICKMAN
ANDREW M. FRANCK

SHERRI L. NELSON

November 22, 2021

Mr. Paul Holt
Director of Community Development
James City County
101-A Mounts Bay Road
Williamsburg, Virginia 23185

Re: Ford's Village – Z-21-0012 and MP-21-0003

Dear Mr. Holt:

I write on behalf of the applicant to request an exception to the James City County Recreational Facility Development Guidelines for the referenced applications. Such an exception may be granted by the Board of Supervisors with recommendations from the Planning Director and Director of Parks and Recreation.

Ford's Village is a large-campus, continuing care retirement community. The applicants have proffered extensive age-appropriate recreation facilities designed for older adults pursuant to Proffer 13 of the Amendment to Amended and Restated Ford's Colony Proffers submitted with the applications, a copy of which is pasted below:

> **13.** **Recreation**. The portion of the Property designated as CCRC-D on the Master Plan shall include, but shall not be limited to, the following amenities: main lobby and living room; dining room; activities/card room; fitness center; beauty/barber salon; library; multipurpose room and landscaped grounds and courtyards generally as shown on the Master Plan. CCRC-D may also include, but shall not be limited to, the following additional amenities: a bar/lounge; café/coffee shop; education room, spa and wellness center; physical therapy and/or physician's office(s), home health, and pharmacy. The amenities listed above are intended for residents and employees of Ford's Village and their guests and not the general public. The portions of the Property designated as CCRC-A, CCRC-B and CCRC-C on the Master Plan shall include the following amenities: a clubhouse with studio room for classes, and a recreation room; an outdoor pool; pocket parks; pickleball courts and walking and biking paths all generally as shown on the Master Plan. The exact recreational facilities provided in portions of the Property designated as CCRC-A, CCRC-B and CCRC-C on the Master

Plan and their location may be changed with the prior approval of the Development Review Committee.

All residents of Ford's Village will have access to all amenities within the development. As discussed with staff, there are ample recreational facilities proffered but the proffered facilities do not meet the letter of the Guidelines due to the lack of an athletic field and playground. We submit the proffered facilities more than meet the goals of the Guidelines and that strict application of the Guidelines is not appropriate in this case.

Thank you for your consideration of this request and please let me know if you need anything further from us.

Sincerely,

Vernon M. Geddy, III

Mr. Rock Bell
Mr. Jason Grimes
Ms. Doris-Ellie Sullivan

Thomas Wysong

From: Thomas Wysong
Sent: Wednesday, November 3, 2021 3:23 PM
To: Paul Holt
Subject: RE: [External] [External]New Development on News Rd

Got it, thanks.

From: Paul Holt <Paul.Holt@jamescitycountyva.gov>
Sent: Wednesday, November 3, 2021 3:09 PM
To: Thomas Wysong <Thomas.Wysong@jamescitycountyva.gov>
Subject: FW: [External] [External]New Development on News Rd

For Dec. packet

From: Richard Krapf <Richard.Krapf@jamescitycountyva.gov>
Sent: Wednesday, November 3, 2021 3:07 PM
To: Jamie Shannon <jamieshannonrealty@gmail.com>
Cc: PlanComm <PlanComm@jamescitycountyva.gov>
Subject: Re: [External] [External]New Development on News Rd

Dear Ms. Shannon -

Thank you for taking the time to write, outlining your views on this land use case. Citizen feedback is an important part of our review process and will be considered along with other elements such as the Comprehensive Plan and staff report. Please note that the applicant has requested a deferral until our December 1st planning commission meeting.

Sincerely,

Rich Krapf

From: Jamie Shannon <jamieshannonrealty@gmail.com>
Sent: Wednesday, November 3, 2021 1:19 PM
To: Richard Krapf
Subject: [External] [External]New Development on News Rd

Mr. Krapf,

I'm a local business owner and resident. I work, live and worship here locally in Williamsburg, Virginia.

I'm opposed to the new mega-development being considered on News Road. That being said I understand that those services may be necessary for our area but feel like the area being considered isn't a good location due to the impact it will have on both the local residents, traffic patterns and lack of space to accommodate that with a major infrastructure change to the local roadways and utilities. Not to mention as a local real

estate agent I'm privy to the understanding that this could greatly affect local neighborhood values now as well as future values.

I personally live and have clients that live in neighborhoods to include Ford's Colony, Powhatan Secondary and Powhatan Woods.

I urge you to vote NO against this new development!

Jamie Shannon
Keller Williams Realty Williamsburg
4084 Courthouse St #3B
Williamsburg, VA 23188
Licensed agent in Virginia

Thomas Wysong

From: Sharon Paulson <spaul7137@gmail.com>
Sent: Wednesday, November 10, 2021 9:08 AM
To: Thomas Wysong
Subject: [External]Input regarding proposed Ford's Village on News Road

To all members of James City County Planning Commission:

It was with great consternation that my husband and I found out this morning for the first time that there is a huge plan afoot to build a high density housing/retirement/assisted living facility off of News Road in the middle of the Powhatan Creek watershed.

While we have confidence in the wisdom of our planning council and Board of Supervisors to make the correct decision, we would have felt remiss if we did not go on record as opposing this proposed project. The list of reasons for this stance is large, but we will just highlight a few in this email as follows:

1. News Road is already a safety hazard for many drivers who venture there. It is almost unthinkable to imagine hundreds (or thousands) if you count staff, more drivers navigating that dangerous 2-lane, curvy road. This is perhaps the single most salient point against building any new construction that has an outlet to News Road.
2. The potential damage to the watershed here is immense. This location is special and we have a huge custodial responsibility for this treasure.
3. Traffic on Centerville Road, already high, would also increase due to its intersection with News Road.
4.Construction noise and traffic would impact surrounding communities directly.
5. A sudden addition of so many residents demands that an assessment of availability of both medical staff and facilities be carried out. It is already difficult to secure necessary medical appointments, and this is an extremely important, often overlooked aspect of new development, particularly of the high-density kind.
6. A study of the impact on local law enforcement would also need to be undertaken.

We would like to be informed of any information with regard to forthcoming decisions and would definitely want time to gather community support against this.

There is a feeling in the community that nobody can fight big money projects when they get set in motion. We don't believe that. We trust that the decision to accept or reject this project will be done in a thoughtful, patient way, allowing for all voices to be heard.

Thanks so much for your service.

Sincerely,
Sharon & John Paulson

Carol A Burtis
4509 Basswood Way
Williamsburg VA 23188
Burtisca@gmail.com

November 30, 2021

Re: Fords Colony Fords Village

Michael Woolson
James City County, Virginia

Via e-mail: Michael.Woolson @jamescitycountyva.gov

Dear Mr. Woolson:

I have been a homeowner in the Powhatan Villages in Williamsburg VA for the past two years. I chose to move from the Midwest to Williamsburg, VA and selected my home based on affordability with my budget. My home backs up to News Road.

Any impact to News Road will affect my home and the homes of my neighbors. I noted the last traffic study to support the Fords Colony Fords Village project was done five years ago. In the past two years I have noted not only an increase in traffic on News Road, but a significant increase in traffic noise, to the point it can awaken me from sleep despite double honeycomb blinds AND sound blocking thermal drapes on my bedroom windows. At times, drivers hit the accelerator forcefully and do not have adequate mufflers on their vehicles, creating a noise nuisance. A current traffic study needs to be done to adequately forecast future traffic, and consideration as to reducing the speed limit and increasing police presence along News Road would be appropriate with yet another destination added to the street. It is not logical to project decreased traffic at the same time as adding yet another destination adjacent to News Road. Increasing buffers to offset additional noise along the North Side of News Road behind the Powhatan Villages homes would also be appropriate, and assurances that News Road will not be widened in the proximity of Powhatan Villages need to be addressed.

I also noted that the flood-plane measure is based on the current one-hundred year flood-plane criteria. Please be advised that this measure is being revised as one-hundred year flood-plane criteria are no longer dependable due to climate change. Until the method of measure's revision is complete, using a higher number year flood-plane criteria would be a more adequate measure. JCSA Engineer Dion Walsh's comments regarding the water main, revision of sewer manholes & uphill flow, minimizing grinder pump lots, & connection to sewer along the creek by Monticello Woods did not appear to be addressed in your project, and corrections need to be made to insure the best and safest alternatives for the area. It would also be beneficial to list prohibited chemicals that homeowners should not allow to seep into storm sewers.

My final area of concern is a possible increased real estate tax base due to this project, which will affect my Powhatan Villages community and anyone on a fixed income budget, including myself. Many of my neighbors are also retired and on fixed incomes. With inflation, any real estate property tax increase caused by the development of Ford Villages will negatively impact many Powhatan Village residents.

Mr. Woolson, if writing and presenting this letter of concern is adequate to have the issues I mentioned addressed, please so advise. If it does not, please inform me of the time and address of the meeting tonight so I may bring my concerns publicly. With the continued covid threat and an inability to see well to drive at night, I would prefer this letter meet the criteria to address the concerns. In any case, please respond via return e-mail: Burtisca@gmail.com

Thank you for your attention to these matters.

Sincerely,
Carol A. Burtis

SWR-HOCKADAY LLC
MARTHA WARBURTON MCMURRAN
WARBURTON FAMILY MEMBERS
C/O CHANNING M. HALL, III
CHANNING M. HALL, III, PLLC
P.O. BOX 339
WILLIAMSBURG, VA 23187

March 17, 2022

BY EMAIL ONLY

Board of Supervisors
County of James City
ATTN: Mr. Paul Holt
Director of Community Development/Planning Director
101 Mounts Bay Road
Building D
Williamsburg, VA 23185

CASE # Z-21-0012 & MP-21-003
PROFFERS AND MASTER PLAN
AMENDMENT (FORD'S VILLAGE) - ("THE FRYE PROPOSAL")
FRYE DEVELOPMENT, LLC ("FRYE")
PROPERTY: 179.2 ACRES/HOCKADAY-CYPRESS TRACT/
3889 NEWS ROAD/TAX MAP #373010004 ("HOCKADAY PARCEL")
OWNERS: SWR-HOCKADAY LLC & MARTHA WARBURTON MCMURRAN

Honorable Ladies and Gentlemen of the Board:

SWR-Hockaday LLC (a Warburton family entity) and Martha Warburton McMurran ("Martha") each own 50% of the Hockaday Parcel. Our Warburton family roots run deep in this community.

Susan Warburton Redd ("Susan") and Martha are the daughters of John G. Warburton and Sarah R. Warburton. Sarah Redd McCain ("Sarah") and A. Miles Redd, III ("Miles"), are the children of Susan, who formerly owned 50% of the Hockaday Parcel, before conveying it, for family planning purposes, to SWR-Hockaday LLC, of which she owned 100%. Sarah and Miles now own SWR-Hockaday, LLC. Robert S. McCain is the husband of Sarah Redd McCain. R. Epes McMurran, Jr., is the son of Martha.

Our family has been in James City County for at least 360 years. We love the scenic and historic environs that have nurtured many generations of Warburtons.

Board of Supervisors/County of James County
Re: Case # Z-21-0012 & MP-21-003
Hockaday Parcel/3889 News Road
March 17, 2022

Our forebearer, Thomas Warburton, first patented 200 acres of land in James City County on February 1, 1664. The Warburton family has continuously owned this land ever since, and intends to keep it in the family.

This family homeplace is located on the Pinewood-Varnese Parcel, now comprised of 659 wooded acres off of Brickbat Road, containing "Pinewoods," sometimes called "Warburton House." Built in the late 1600's, "Pinewoods," an early small brick "planter's house," is one of the oldest extant structures in James City County, and contains several unusual architectural details. We recently completed some conservation work on the structure to ensure its survival for future generations.

We seek to be wise, good, and careful stewards of all of our property, to the common good of our community.

In keeping with this goal of good stewardship, and endeavoring to be good citizens, over the years, we have given land outright, and easements over land, for purposes of the public interest and public utilities and improvements. For example, in 2016, we donated 31.47 acres of land, known as the Indigo Pond Tract, located at 4900 John Tyler Highway, to James City County, because of its environmentally sensitive nature, draining into the Mill Creek watershed. By way of further example, in 2006, we gave an easement on the Pinewoods property, along Brickbat Road, to the James City County Service Authority, for public utilities.

About 16 years ago, we sold the Hockaday Parcel to another developer, who used partial owner financing from us to fund its purchase. They rezoned it and subjected it to the current proffers of higher density than the Frye Proposal. When that developer defaulted on the owner financing we provided, we were forced to foreclose and take the property back.

Having been "burned" by this previous transaction, we were especially careful this time in evaluating the developer with whom we eventually contracted to sell. We wanted a Virginia firm of high repute, which was comprised of "good people," which subscribed to high standards of ethics, vision, and design, which was well-capitalized, which did not produce cookie-cutter tract housing, and which crafted communities of outstanding character, quality, architecture, and aesthetic sensibilities. After many meetings and much due diligence, we vetted Frye from stem to stern, and found Frye to exceed our expectations. One need look no further than Frye's acclaimed East Beach development to envision the aesthetics and the lifestyle that could be here on the Hockaday Parcel.

We are not speculators or investors out to make a quick buck. We have owned the Hockaday Parcel for a long time, and we want the Frye proposal to work for James City County and its citizens. John G. Warburton was in the lumber/timber business, and he used the Hockaday Parcel as a rough "timber tract," for the continuous harvesting, planting, and re-

harvesting of trees. It is time to move on from its past use as a timber parcel, especially because it is within the PSA, placed there by the County as an appropriate spot for responsible growth. We think that both John and his wife, Sarah, would be pleased to see this land turned into a high-quality, age-restricted residential and continuing care retirement community, that is an enduring asset and amenity for all of the County.

After Ford's Village is built, we will be proud to be its long-term neighbor, for we are here in James City County for the long haul. One day, some of our family may well reside in Ford's Village. We also suggest that Frye will not be here today and gone tomorrow, but will rather be a long-term contributor to our beloved, evolving community, which has come a long way since Thomas Warburton acquired the 17th century heart of Pinewoods which we still hold today.

We therefore urge you to act affirmatively on the Frye Proposal.

Very truly yours,

MARTHA WARBURTON MCMURRAN

By: _____
Channing M. Hall, III,
Her Attorney-in-Fact

SWR-HOCKADAY LLC

By: A.M. REDD, JR., INC., Its Manager

By: Margaret P. Staats
Margaret P. Staats

_____
A. Miles Redd, III

_____
Sarah Redd McCain

harvesting of trees. It is time to move on from its past use as a timber parcel, especially because it is within the PSA, placed there by the County as an appropriate spot for responsible growth. We think that both John and his wife, Sarah, would be pleased to see this land turned into a high-quality, age-restricted residential and continuing care retirement community, that is an enduring asset and amenity for all of the County.

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We therefore urge you to act affirmatively on the Frye Proposal.

Very truly yours,

MARTHA WARBURTON MCMURRAN

By: _____
Channing M. Hall, III,
Her Attorney-in-Fact

SWR-HOCKADAY LLC

By: A.M. REDD, JR., INC., Its Manager

By: _____
Margaret P. Staats

A. Miles Redd III
A. Miles Redd, III

Sarah Warburton Redd McCain
Sarah Redd McCain

Board of Supervisors/County of James County
Re: Case # Z-21-0012 & MP-21-003
Hockaday Parcel/3889 News Road
March 17, 2022

Susan W Redd

Susan Warburton Redd

R. Epes McMurran, Jr.

Robert S. McCain

cc: Channing M. Hall, III, Esquire
Vernon M. Geddy, III, Esquire

Board of Supervisors/County of James County
Re: Case # Z-21-0012 & MP-21-003
Hockaday Parcel/3889 News Road
March 17, 2022

Susan Warburton Redd

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cc: Channing M. Hall, III, Esquire
Vernon M. Geddy, III, Esquire

Board of Supervisors/County of James County
Re: Case # Z-21-0012 & MP-21-003
Hockaday Parcel/3889 News Road
March 17, 2022

Susan Warburton Redd

R. Epes McMurran, Jr.

Robert S. McCain

cc: Channing M. Hall, III, Esquire
Vernon M. Geddy, III, Esquire

Approved Minutes of the December 1, 2021
Planning Commission Regular Meeting

Z-21-0012 and MP-21-0003. Proffer and Master Plan Amendment for the Continuing Care Retirement Facility at Ford's Colony (Ford's Village)

Mr. Thomas Wysong, Senior Planner, stated that Mr. Vernon Geddy has applied on behalf of Frye Development to amend the adopted Master Plan and Proffers for the Continuing Care Retirement Community (CCRC) at Ford's Colony. Mr. Wysong stated that the subject parcel is zoned R-4, Residential Planned Community, is inside the Primary Service Area (PSA). and designated Low Density Residential in the Comprehensive Plan, which recommends this use.

Mr. Wysong stated that in 2008, this parcel was rezoned from R-8, Rural Residential to R-4, Residential Planned Community with Proffers to permit a CCRC known as the Village at Ford's Colony. Mr. Wysong further stated that this currently approved Master Plan for this property permits up to 741 units, rooms and beds and is accompanied by Proffers intended to mitigate community impacts.

Mr. Wysong stated that this proposal would amend the approved Master Plan and Proffers by reducing the total number of units, rooms, and beds from 741 to 516 and changing the layout of the site. Mr. Wysong stated that the applicant is proposing up to 286 residential units comprised of single-family dwellings and multifamily dwellings with an additional 230 assisted living/memory care rooms/skilled nursing beds to be located in the facility portion of the property. Mr. Wysong further stated that this development would include accessory amenities intended for the residents and employees of the development.

Mr. Wysong stated that the Proffers have been updated to include a unit mixture cap on the facility portion of the property of up to 75 apartments in this facility portion, no more than 155 assisted living rooms/memory care rooms, and no more than 40 skilled nursing beds. Mr. Wysong stated that the major changes to the proffers include the updating of the current contribution amount for community impacts, the addition of a proffer requiring a traffic signal warrant analysis for the proposed main entrance to the development, and the revision of stormwater commitments. Mr. Wysong further stated that the applicant is also proposing to remove certain proffers, including the completion of the Cold Spring Swamp Drainage Analysis and the Greenway Trail Proffer. Mr. Wysong stated that if approved, this amendment would reduce the density on the subject parcel from 3.59 units per acre to 2.17 dwelling units per acre and would also result in a marginal decrease within the overall density of Ford's Colony from 1.25 unit per acre to 1.13 units per acre.

Mr. Wysong stated that staff finds the proposal to be compatible with the Comprehensive Plan, Zoning Ordinance, and surrounding development, and recommends that the Planning Commission recommend approval of this application, subject to the amended proffers.

Mr. Polster inquired if the Stormwater Division took into account the removal of two proffers related to Stormwater mitigation when they reviewed the proposal.

Mr. Wysong stated that Stormwater staff did review the proposal and did not raise any concerns over the removal of the two proffers; however, they may not have fully considered the upstream issues, the culvert, and the flooding issues.

Mr. Krapf inquired whether the height limitation from previously approved proffers would remain in effect for new buildings.

Mr. Wysong stated that a new building not shown on the Master Plan would require a Master Plan Amendment.

Mr. Haldeman stated that there is an approved Master Plan for a CCRC on the property. Mr. Haldeman inquired if the developer could build out the CCRC according to the existing plan should this amended plan not be approved.

Mr. Wysong stated that the developer could build out the existing plan without any legislative action.

Mr. Haldeman noted that the Public Hearing remains open from the November 3, 2021 meeting.

Mr. Vernon Geddy, Geddy, Harris, Franck, & Hickman, LLP, 1177 Jamestown Road, representing the applicant, made a presentation to the Commission on the project.

Mr. Krapf inquired if there are any measures under consideration to mitigate the prolonged impact of construction vehicles on News Road.

Mr. Jason Grimes, AES Consulting Engineers, stated that nothing has been put in place; however, the most intense development will occur at the outset with the RUI building.

Mr. Krapf noted that his concern lies with the heavy equipment that brings in bulldozers, etc. and the impact on traffic flow. Mr. Krapf stated that since the bulk of the citizen concerns relate to traffic issues, this might be something that the applicant should consider.

Ms. Leverenz inquired if Frye Development has developed any other CCRC properties.

Mr. Geddy stated that this would be the first.

Ms. Leverenz further inquired if the owners of independent living units would also own the lot.

Mr. Geddy stated they would own the lot.

Ms. Leverenz inquired if the homeowners association (HOA) would provide property management services.

Mr. Geddy stated that there would be an HOA which would provide property maintenance services.

Ms. Leverenz inquired if the residents in the independent living section would have priority consideration for the assisted living option.

Mr. Geddy stated that at this time it would be based on availability.

Ms. Null inquired about the price range on the homes.

Mr. Rock Bell, Vice President for Development, Frye Properties, stated that they would be moderately high-end homes; however, it would not be feasible to give a price point at this time.

Ms. Null stated that her question stemmed from wanting to understand who might be living in that community; would it be sufficiently affordable.

Mr. Geddy stated that there would be a mix of housing types from small bungalow to larger single-family residences.

Mr. Rose inquired why there was no planning for construction traffic, given the applicant's experience in developing properties.

Mr. Geddy stated that traffic impacts had been addressed through the secondary construction entrance. Mr. Geddy further stated that the applicant would also look at options for timing of arrivals and departures, as well as what equipment could remain on the property for the duration of construction.

Mr. O'Connor inquired about the difference in intensity between the approved plan and this proposal and the resulting impact on the watershed.

Mr. Grimes stated that the original plan called for large apartment style buildings with large parking fields. Mr. Grimes stated that this proposal was developed to provide one large scale institutional style structure with single-family style development surrounding it. Mr. Grimes further stated that the resulting decrease in impervious covers allows for different stormwater mitigation options. Mr. Grimes noted that the existing proffers were no longer applicable to the proposal.

Mr. O'Connor inquired if the stormwater management would be the traditional curb and gutter with pipe and drop inlets.

Mr. Grimes stated that the current stormwater regulations would require treatment trains that take it through a series of infiltration measures, bioretention measures, and Low Impact Development (LID) swales. Mr. Grimes noted that many of the properties would have rain barrels or rain gardens as part of the stormwater management plan.

Ms. Leverenz inquired if the positive fiscal impact would come from the assisted living facility.

Mr. Geddy stated that the larger impact would come from the RUI facility; however, since there are no school children associated with the single-family dwellings, the independent living units should also have a positive impact.

* Mr. Rose left the meeting at approximately 6:50 p.m.

Mr. Haldeman called for disclosures from the Commission.

Mr. Polster stated that he spoke with Mr. Grimes and Mr. Geddy.

Mr. Krapf, Mr. O'Connor, Mr. Haldeman, and Ms. Null each stated that they spoke with Mr. Geddy.

Ms. Susan Tisdale, 209 Governor Edward Nott Court, addressed the Commission in opposition to the application.

Ms. Leanne Sutton, 201 Old Carriage Way, addressed the Commission in opposition to the application.

Ms. Kay Krapfl, 3833 Cluster Way, addressed the Commission in opposition to the application.

Mr. David Banks, 215 Charter House Lane, addressed the Commission in opposition to the application.

Mr. Kevin Fleming, 228 Old Carriage Way, addressed the Commission in opposition to the application.

Ms. Lisa Schmidt, 108 Powhatan Overlook, addressed the Commission in opposition to the application.

Ms. Regina Walsh, 4599 Beacon Hill Drive, addressed the Commission in opposition to the application.

Mr. Jason Smith, 124 Old Carriage Way, addressed the Commission in opposition to the application.

Mr. Bob Meyers, 143 Waters Edge Drive, addressed the Commission in opposition to the application.

Mr. Eric Ganzer, 4280 Beamer's Ridge, addressed the Commission in opposition to the application.

Ms. Debbie Wright, 450 Thompson Lane, addressed the Commission in opposition to the application.

Ms. Beth Emerson, 4052 Powhatan Secondary, addressed the Commission in opposition to the application.

As no one else wished to speak, Mr. Haldeman closed the Public Hearing.

Mr. Haldeman opened the floor for discussion by the Commission.

Mr. Polster stated that he was trying to understand whether the Stormwater Division concurs with the ramifications of removing these proffers for the upstream portion of the property and what, if any, consequences might occur. Mr. Polster stated that he would like to see the Stormwater Division come to the Board of Supervisors meeting prepared to discuss any potential consequences.

Mr. Krapf stated that the initial approved plan for this property included a CCRC that could still be built out by-right if this application is not approved. Mr. Krapf stated that he considered this application with an eye toward whether it was a better design or would mitigate any impacts of the development. Mr. Krapf noted that this plan reduces the number of residential units by 40% over the adopted Master Plan. Mr. Krapf further noted that the fiscal impact of this proposal is positive. Mr. Krapf stated that the proposed design is more appealing and leaves more open space giving it the appearance of a neighborhood.

Mr. Krapf stated that he does have significant concerns about the ability of News Road to accommodate the additional traffic.

Mr. Krapf requested that Mr. Holt clarify the Virginia Department of Transportation's (VDOT) role in the construction of the proffered traffic improvements.

Mr. Holt noted that the improvements and associated warrants are in the proffers and would rely on private versus public funding. Mr. Holt stated that the developer would be responsible for constructing the improvements. Mr. Holt further stated that VDOT's approval would be for the geometric design of the improvements in an engineering level document at the site plan stage.

Ms. Leverenz stated that she is pleased with the proposed design; however, it appears that this project is something slightly different from the traditional CCRC. Ms. Leverenz stated that this proposal has two distinct components with the Assisted Living facility being one and the Independent Living Units, essentially a 55 + retirement community, the second. Ms. Leverenz stated that contrary to the most CCRCs, there is no guarantee that residents in the Independent Living Units would be given priority for space in the Assisted Living, when the need arises. Ms. Leverenz noted that if this were just an age-restricted retirement community, the Commission would not be inclined to support it.

The Commission discussed several CCRC facilities that are adjacent to, but separate from a neighboring retirement community that do not guarantee access to the Assisted Living Units.

Mr. O'Connor stated that the decision point is whether to allow the possibility that the more intense development would be built out by-right or accept a proposal that would reduce the number of units, reduce the traffic and improve stormwater mitigation.

Mr. Haldeman stated that he plans to support the application. Mr. Haldeman stated that he shares the public's concerns and those of his fellow Commissioners. Mr. Haldeman stated that the location is not well suited to this type of development; however, there is an existing plan in place and this amendment is a substantial improvement.

Ms. Null noted that she would like to see a second gate or access point to ensure that residents can leave in the event of an emergency.

Mr. Polster made a motion to recommend approval of the application.

On a roll call vote, the Commission voted to recommend approval of Z-21-0012 and MP-21-0003. Proffer and Master Plan Amendment for the Continuing Care Retirement Facility at Ford's Colony (Ford's Village) (5-1)

AGENDA ITEM NO. G.6.

ITEM SUMMARY

DATE: 4/12/2022

TO: The Board of Supervisors

FROM: John Risinger, Planner

SUBJECT: HW-22-0001. Busch Gardens Height Waiver Extension

ATTACHMENTS:

	Description	Type
	Memorandum	Cover Memo
	1. Resolution	Resolution
	2. Applicant Letter	Backup Material
	3. HW-19-0001 Resolution	Backup Material
	4. HW-19-0001 Staff Report	Backup Material
	5. HW-19-0001 Location Map	Backup Material
	6. HW-19-0001 Sight Line Exhibit	Backup Material

REVIEWERS:

Department	Reviewer	Action	Date
Planning	Holt, Paul	Approved	3/25/2022 - 12:36 PM
Development Management	Holt, Paul	Approved	3/25/2022 - 12:36 PM
Publication Management	Pobiak, Amanda	Approved	3/25/2022 - 1:06 PM
Legal Review	Kinsman, Adam	Approved	3/31/2022 - 11:58 AM
Board Secretary	Saeed, Teresa	Approved	3/31/2022 - 3:41 PM
Board Secretary	Purse, Jason	Approved	4/4/2022 - 2:15 PM
Board Secretary	Saeed, Teresa	Approved	4/5/2022 - 7:42 AM

M E M O R A N D U M

DATE: April 12, 2022

TO: The Board of Supervisors

FROM: John Risinger, Planner

SUBJECT: Case No. HW-22-0001. Busch Gardens Height Limitation Waiver Extension

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Mr. Anthony Loubier of Vanasse Hangen Brustlin, Inc. has applied on behalf of SeaWorld Parks and Entertainment, LLC, for a 36-month extension of HW-19-0001, Busch Gardens Height Waiver 2019. Mr. Loubier has provided a letter (Attachment No. 2) detailing the reasons for the request, specifically difficulties faced with the COVID-19 pandemic. No other changes are proposed.

HW-19-0001 was approved by the Board of Supervisors (the "Board") on June 11, 2019, authorizing a Height Limitation Waiver for a proposed attraction to reach a height of 355 feet above finished grade or 435 feet above sea level. The approved resolution, staff report, location map, and sight line exhibit (Attachment Nos. 3, 4, 5, and 6, respectively) from the Board's June 11, 2019, meeting have been included for reference. Condition No. 4 of the approved resolution requires that construction be commenced within 36 months of the date of approval, or the Height Limitation Waiver shall be void. Subject to that condition, HW-19-0001 will automatically expire on June 11, 2022, unless the condition is satisfied, or an extension is granted by the Board. With the proposed resolution (Attachment No. 1), Condition No. 4 would be amended to require that construction be commenced within 72 months of the date of approval of HW-19-0001.

Staff finds that the application is consistent with the Zoning Ordinance and the 2045 Comprehensive Plan. Staff recommends that the Board approve the application subject to the proposed resolution.

JR/md
HW22-2BGdnHWExt-mem

Attachments:
1. Resolution
2. Applicant Letter
3. HW-19-0001 Resolution
4. HW-19-0001 Staff Report
5. HW-19-0001 Location Map
6. HW-19-0001 Sight Line Exhibit

R E S O L U T I O N

CASE NO. HW-22-0001. BUSCH GARDENS HEIGHT WAIVER EXTENSION

HEIGHT LIMITATION WAIVER

WHEREAS, the Board of Supervisors of James City County, Virginia, has adopted by Ordinance specific land uses that shall be subjected to a Height Limitation Waiver process; and

WHEREAS, on June 11, 2019, the Board of Supervisors approved HW-19-0001, authorizing a Height Limitation Waiver to allow for the installation of an attraction that is approximately 355 feet above finished grade (the "Attraction"); and

WHEREAS, the Attraction will be constructed in its entirety on property zoned M-1, Limited Business Industrial, further identified as James City County Real Estate Tax Map No. 5140100009, and commonly known as "Busch Gardens;" and

WHEREAS, Mr. Anthony Loubier of Vanasse Hangen Brustlin, Inc. has applied on behalf of SeaWorld Parks and Entertainment, LLC, to amend HW-19-0001 by amending Condition No. 4 of the approved resolution to extend the commencement of construction by 36 months from the original expiration date; and

WHEREAS, a public hearing was advertised, adjoining property owners notified, and a hearing conducted on Case No. HW-22-0001.

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors finds that the requirements of Section 24-418(c) of the James City County Zoning Ordinance have been satisfied, in order to grant a Height Limitation Waiver to allow for the erection of structures in excess of 60 feet in height.

BE IT FURTHER RESOLVED that the Board of Supervisors of James City County, Virginia, does hereby approve Height Limitation Waiver HW-22-0001 as described herein with the following conditions:

1. Commencement of Construction: Construction on the Attraction shall commence within 72 months from the date of approval of HW-19-0001 or this Height Limitation Waiver shall be void. Construction shall be defined as the obtaining of permits for the construction of foundations and/or footings for the Attraction.

BE IT FURTHER RESOLVED that Case No. HW-22-0001 shall be supplemental to and not replace or supersede HW-19-0001.

_____
John J. McGlennon
Chairman, Board of Supervisors

ATTEST:

_____
Teresa J. Saeed
Deputy Clerk to the Board

	VOTES			
	AYE	NAY	ABSTAIN	ABSENT
ICENHOUR	____	____	____	____
HIPPLE	____	____	____	____
LARSON	____	____	____	____
SADLER	____	____	____	____
MCGLENNON	____	____	____	____

Adopted by the Board of Supervisors of James City County, Virginia, this 12th day of April, 2022.

HW22-1BGdnHWExt-res

www.vhb.com

March 18, 2022

Ref: 33273.96

James City County Planning
101 Mounts Bay Road
Building A
Williamsburg, Virginia 23185

Re: Busch Gardens HW-19-0001

To whom it may concern:

On June 11, 2019, the James City County Board of Supervisors adopted a height waiver resolution for HW-19-0001. The height waiver was required for a planned attraction at Busch Gardens that would extend 355 feet above finished grade and was granted 295-foot waiver to the height limitation requirements set forth in the James City County Code.

The originally planned start of construction was anticipated in the Summer of 2020. Unfortunately, the Coronavirus pandemic closed the park's operations for nearly 6 months with a slow re-opening back to normal operations. The lock-down has delayed the completion and start of construction of several projects, including this one.

VHB is requesting that the Board of Supervisors grant a 36-month extension of the previously approved height waiver due to scheduling complications brought about by the pandemic. There are no revisions to the previously approved heights and graphics. We greatly appreciate your involvement on this project. If you have any questions or need additional information, please do not hesitate to contact us at (757) 220-0500. Thank you again for your attention to this project.

Regards,

Anthony Loubier, PE
Project Manager

VHB

351 McLaws Circle
Suite 3
Williamsburg, Virginia 23185
P 757.220.0500
F 757.903.2794

RESOLUTION

CASE NO. HW-19-0001. BUSCH GARDENS HEIGHT WAIVER 2019

HEIGHT LIMITATION WAIVER

WHEREAS, the Board of Supervisors of James City County has adopted by Ordinance specific land uses that shall be subjected to a Height Limitation Waiver process; and

WHEREAS, Mr. Anthony Loubier has applied on behalf of SeaWorld Parks and Entertainment, LLC for a Height Limitation Waiver to allow for the installation of an attraction that is approximately 355 feet above finished grade (the "Attraction"); and

WHEREAS, the Attraction will be constructed in its entirety on property zoned M-1, Limited Business Industrial, further identified as James City County Real Estate Tax Map No. 5140100009, and commonly known as "Busch Gardens;" and

WHEREAS, the location of the highest point of the Attraction is depicted on the plan prepared by Vanasse Hangen Brustlin, Inc., entitled "Busch Gardens Williamsburg-Height Waiver Sight Lines"; and

WHEREAS, a public hearing was advertised, adjoining property owners notified, and a hearing conducted on Case No. HW-19-0001.

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors finds that the requirements of Section 24-418(c) of the James City County Zoning Ordinance have been satisfied, in order to grant a Height Limitation Waiver to allow for the erection of structures in excess of 60 feet in height.

BE IT FURTHER RESOLVED that the Board of Supervisors of James City County, Virginia, does hereby approve Height Limitation Waiver HW-19-0001 to grant the applicant a 295-foot waiver to the height limitation requirements set forth in the James City County Code to allow for the erection of an attraction up to 315 feet tall from finished grade as described herein, pursuant to the following conditions:

1. Plan: This Height Waiver shall be valid for a 295-foot waiver to the height limitation requirements set forth in the James City County Code to allow for the erection of an attraction up to 355 feet above finished grade (or up to 435 feet above mean sea level) (the "Attraction") on property zoned M-1, Limited Business Industrial, further identified as James City County Real Estate Tax Map No. 5140100009. The Attraction shall be constructed as generally shown on the plan prepared by Vanasse Hangen Brustlin, Inc., entitled Busch Gardens Williamsburg-Height Waiver Sight Lines."

2. Lighting: All lighting locations and specifications shall be shown on future development plans. Unless otherwise required by the Federal Aviation Authority or

necessary for safety purposes, installation of any lights on the Attraction at points above 60 feet in height or installation of lights that direct light upward to illuminate any part of the Attraction or surrounding theme park areas shall be prohibited, with the sole exception being that landscape-shielded "wall-washer" type fixtures may be installed to illuminate vertical (solid) wall surfaces related to the Attraction.

3. Color Scheme: The color of the Attraction at any point at or above 60 feet above finished grade shall be muted and designed to minimize visual impacts from Community Character Corridors and areas as defined in the Comprehensive Plan. A color scheme plan and color samples shall be submitted to, and approved by, the Director of Planning for consistency with this condition prior to the issuance of a Building Permit for the Attraction.

4. Commencement of Construction: Construction on the Attraction shall commence within 36 months from the date of approval of this Height Limitation Waiver or this Height Limitation Waiver shall be void. Construction shall be defined as the obtaining of permits for the construction of foundations and/or footings for the Attraction.

5. Severance Clause: This Height Limitation Waiver is not severable. Invalidation of any word, phrase, clause, sentence, or paragraph shall invalidate the remainder.

James O. Icenhour, Jr.
Chairman, Board of Supervisors

	VOTES		
	AYE	NAY	ABSTAIN
HIPPLE	✓		
LARSON	✓		
SADLER	✓		
MCGLENNON	✓		
ICENHOUR	✓		

ATTEST:

Teresa J. Fellows
Deputy Clerk to the Board

Adopted by the Board of Supervisors of James City County, Virginia, this 11th day of June, 2019.

HW19-1BschGard19-res

SUMMARY FACTS

Applicant:	Mr. Anthony Loubier, Vanasse Hangen Brustlin, Inc.
Land Owner:	SeaWorld Parks and Entertainment, LLC
Proposal:	A height limitation waiver to permit the construction of an attraction not to exceed a height of ± 355 feet above finished grade, or ± 435 feet above sea level.
Location:	7851 Pocahontas Trail
Tax Map/Parcel No.:	5140100009
Project Acreage:	± 383.07 acres
Zoning:	M-1, Limited Business/Industrial
Comprehensive Plan:	Limited Industry
Primary Service Area (PSA):	Inside
Staff Contact:	Roberta Sulouff, Planner

PUBLIC HEARING DATE

Board of Supervisors:	May 14, 2019, 5:00 p.m. (Deferred to June 11, 2019)
	June 11, 2019, 5:00 p.m.

FACTORS FAVORABLE

1. With the proposed conditions, staff finds that the proposal would not impact surrounding development.

2. Service industry uses are recommended uses for areas designated Limited Industry by the adopted Comprehensive Plan. Amusement parks are service industry uses, albeit not traditional ones. Additionally, staff finds the proposed attraction would not create dust or odor, and additional noise impacts on adjacent residential properties will be minimal given the attraction's location. The proposal is consistent with the adopted Comprehensive Plan.

3. The proposed structure is located interior to the park in an area where a previous attraction was once located, with a lower base elevation which assists in mitigating visual and noise impacts in areas outside of the park.

4. Staff finds that the proposed application satisfies the criteria for height waivers found in Section 24-418(c) of the Zoning Ordinance.

FACTORS UNFAVORABLE

1. The proposed structure is visible in areas of the Kingsmill development and along Route 143 where previous attractions have not been visible.

SUMMARY STAFF RECOMMENDATION

Staff recommends the Board of Supervisors approve this Height Limitation Waiver, subject to the attached conditions.

This staff report is prepared by the James City County Planning Division to provide information to the Planning Commission and Board of Supervisors to assist them in making a recommendation on this application. It may be useful to members of the general public interested in this application.

CHANGES SINCE THE MAY 14, 2019 BOARD OF SUPERVISORS' MEETING

Per the applicant, a meeting has been scheduled with the Kingsmill Community Services Association (KCSA) to provide an opportunity for further communication regarding the proposed attraction between the applicant and KCSA. Additionally, after further discussion with the applicant, staff has updated distance data referenced below.

PROJECT DESCRIPTION

Mr. Anthony Loubier of Vanasse Hangen Brustlin, Inc. has applied on behalf of SeaWorld Parks and Entertainment, LLC, for a Height Limitation Waiver to permit the installation of a new attraction in Busch Gardens. The attraction is proposed to reach a height of approximately 355 feet above finished grade (or 435 feet above sea level), and will be located generally in the area which was formerly home to the site of the Drachenfire attraction. The highest point of the attraction is to be located generally in the location shown on the attached sight lines exhibit (Attachment No. 3), approximately 1,750 feet from Wareham's Pond Road, the nearest internal road in the Kingsmill development.

The applicant conducted a balloon test to simulate the expected height of the attraction, also shown in the sight lines exhibit (Attachment No. 3). The structure is proposed to be of a lattice-type construction. The visual simulations show an approximate "width" of the structure at its highest point as a bracket labeled "355 FT above Existing Grade" on the aforementioned exhibit. The balloon test was visible in many of the areas in which existing attractions are already visible, such as on Jamestown Island, along Route 60 near (and atop) the I-64 Grove Interchange overpass, and at the Williamsburg Country Club.

The balloon test was also visible in areas not generally impacted visually by earlier applications, such as at points along Wareham's Pond Road, the Kingsmill Tennis Clubhouse, and at points along Route 143. The balloon was not visible from College Creek Beach on the Colonial Parkway, or the River Bluffs area of the Kingsmill Development.

PLANNING AND ZONING HISTORY

The attached table (Attachment No. 4) provides a comparison of the current application with past Height Limitation Waivers that the Board of Supervisors has approved for Busch Gardens.

SURROUNDING ZONING AND DEVELOPMENT

The park is generally bounded by Route 60 to the east, The Woods Golf Course (Kingsmill), zoned M-1, Limited Business/Industrial to the south, the Anheuser-Busch Brewery, zoned M-2, General Industrial to the north, and the Kingsmill residential community and Carter's Grove Country Road, both zoned R-4, Residential Planned Community, to the west and southwest.

COMPREHENSIVE PLAN

- The property is designated as Limited Industry on the adopted Comprehensive Plan Land Use Map.

- Land designated Limited Industry is generally located within the PSA and used for warehousing, office, and service industries. Parcels ordinarily require access to arterial roads or major collector streets, public water and sewer, nearby police and fire protection, and other site characteristics suitable for intense development with adequate buffers to residential developments. The Comprehensive Plan also specifies that the following

characteristics should be considered during evaluation of a proposed land use: open space, protection of environmental and historical and archaeological resources, preservation of rural and scenic vistas and generation of noise, dust, or odor.

- In past applications, amusement parks have been interpreted as service industry uses, albeit not traditional ones. Additionally, staff finds the proposed attraction would not create dust or odor, and additional noise impacts on adjacent residential properties will be minimal, given the attraction's location. There is some anticipated increased visual impact to Route 60 and the Grove Interchange based on the visual simulation. Busch Gardens has an existing visible presence in these areas. In order to mitigate the additional impacts of the proposed attraction, staff has proposed several conditions to apply to the Height Limitation Waiver, including minimizing lighting on the attraction above 60 feet, and requiring muted colors designed to minimize visual impacts (that would be approved by the Director of Planning).

HEIGHT LIMITATION WAIVER ANALYSIS

- Section 24-418(c) of the James City County Zoning Ordinance states that structures in excess of 60 feet in height may be erected only upon the granting of a Height Limitation Waiver by the Board of Supervisors upon finding that the following criteria are met:

  1. Additional setbacks have been provided as required by Section 24-439 and Section 24-440 of the Zoning Ordinance; however, the Board may waive additional setbacks for structures in excess of 60 feet.

     Staff Comment: The proposed attraction is located more than 1,200 feet from the nearest property line shared with the Busch Service Road; therefore, the setbacks are well in excess of those required by the Zoning Ordinance.

  2. Such structure will not obstruct light from adjacent property.

     Staff Comment: Given that the attraction is proposed as an open, lattice-type structure and that it is not in close proximity to adjacent properties, staff finds that the proposed structure will not obstruct light from adjacent property.

  3. Such structure will not impair the enjoyment of historic attractions and areas of significant historic interest and surrounding developments.

     Staff Comment: Given that the proposed attraction has limited visual impacts on adjacent development beyond those of existing attractions within the park, staff finds that the proposed structure will not impair the enjoyment of historic attractions or areas of historic interest.

  4. Such structure will not impair property values in the area.

     Staff Comment: It is the opinion of the Director of Real Estate Assessments that the proposed 355-foot attraction and any associated lighting will not impair property values in the area.

  5. Such structure is adequately designed and served from the standpoint of safety and that the County Fire Chief finds the fire safety equipment installed is adequately designed and that the structure is reasonably well located in relation to fire stations and equipment, so as to offer adequate protection to life and property.

Staff Comment: The County Fire Chief finds that the attraction is well located relative to fire stations and appropriate equipment to offer adequate protection to life and property. The Fire Department has stated that it will continue to work with the attraction design team to resolve any concerns during subsequent development phases.

6. Such structure will not be contrary to public health, safety, and welfare.

   Staff Comment: Staff finds that the structure is not contrary to public health, safety, and welfare.

PUBLIC IMPACTS

- Staff finds that the proposed attraction would have minimal impact on the environment, utility service, or traffic generation. The attraction is located interior to Busch Gardens, which is already significantly developed and is not anticipated to produce an increased demand for utilities or public facilities.

PROPOSED CONDITIONS

- The full text of the proposed conditions are attached within the proposed resolution.

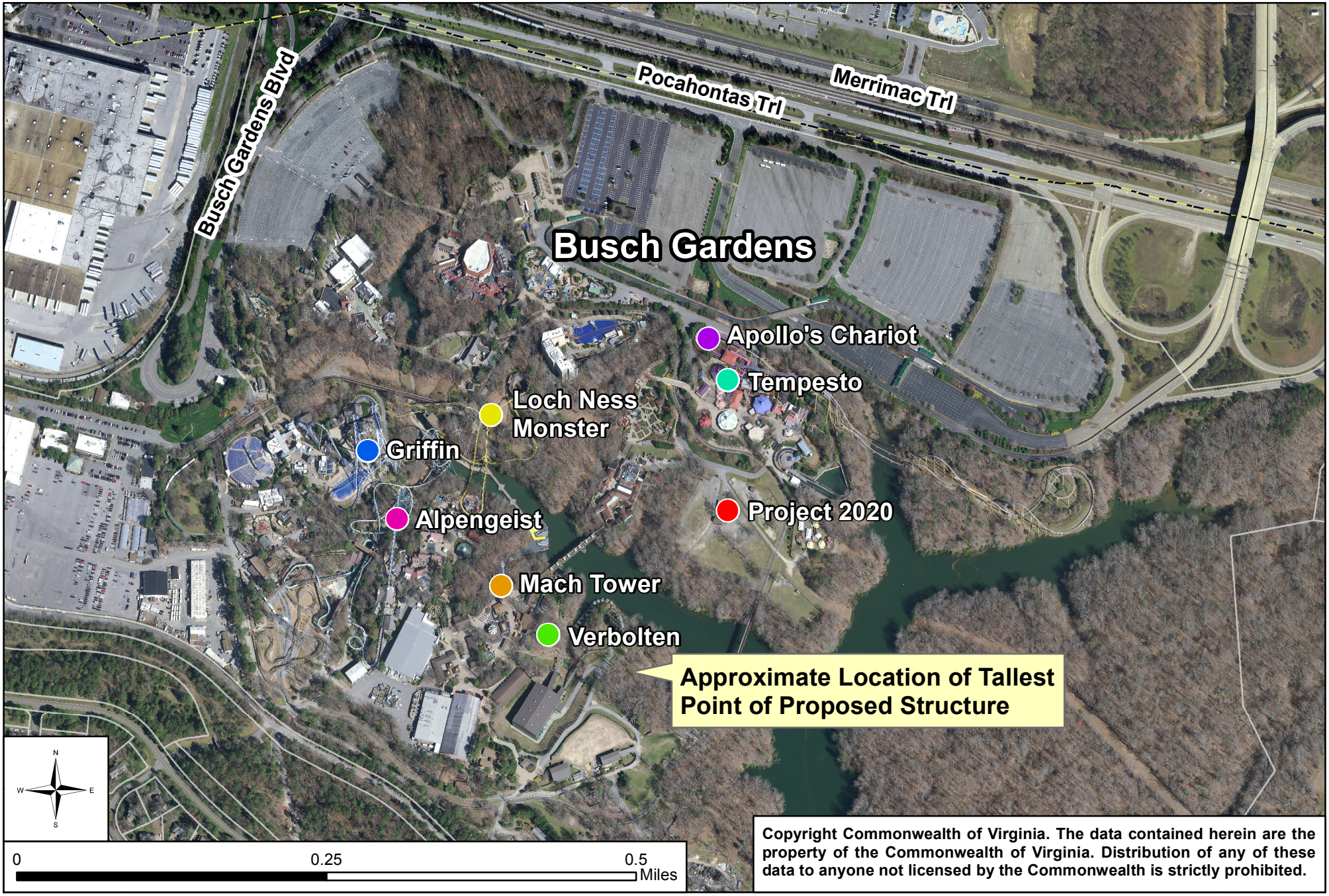
STAFF RECOMMENDATION

Staff recommends the Board of Supervisors approve this Height Limitation Waiver application subject to the attached conditions.

RS/md
HW19-1BschGard19

Attachments:
1. Resolution
2. Location Map
3. Height Waiver Sight Line Exhibit
4. Height Waiver Table
5. Citizen Correspondence

JCC HW-19-0001
Busch Gardens Height Waiver 2019



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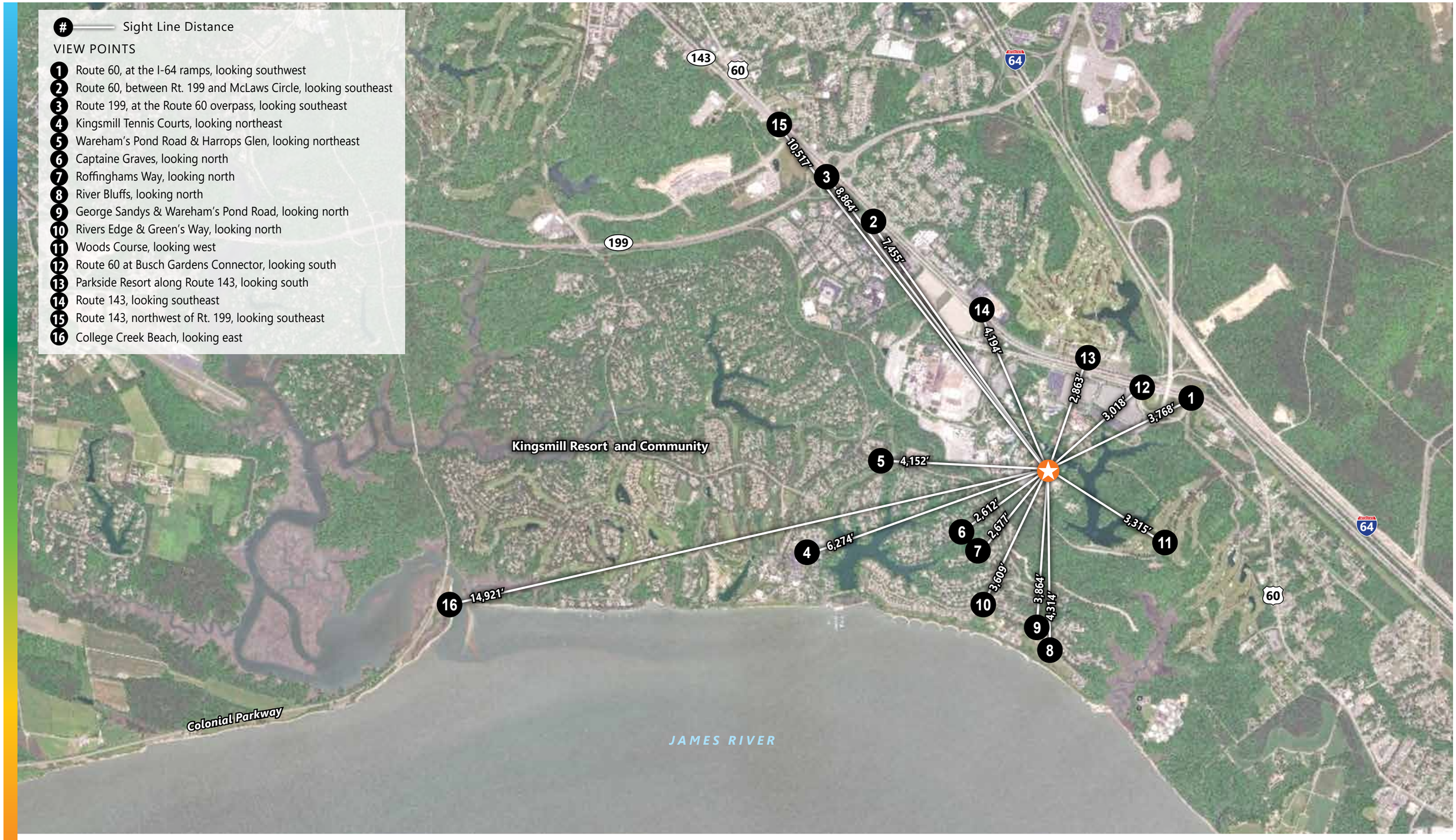


Busch Gardens WILLIAMSBURG, VA

Busch Gardens Williamsburg · HEIGHT WAVIER

Sight Lines · OVERALL

Busch Gardens WILLIAMSBURG, VA

Busch Gardens Williamsburg · HEIGHT WAVIER

EXHIBIT 1

Route 60, at the I-64 ramps, looking southwest

Busch Gardens
WILLIAMSBURG, VA

Busch Gardens Williamsburg · HEIGHT WAVIER

EXHIBIT 2

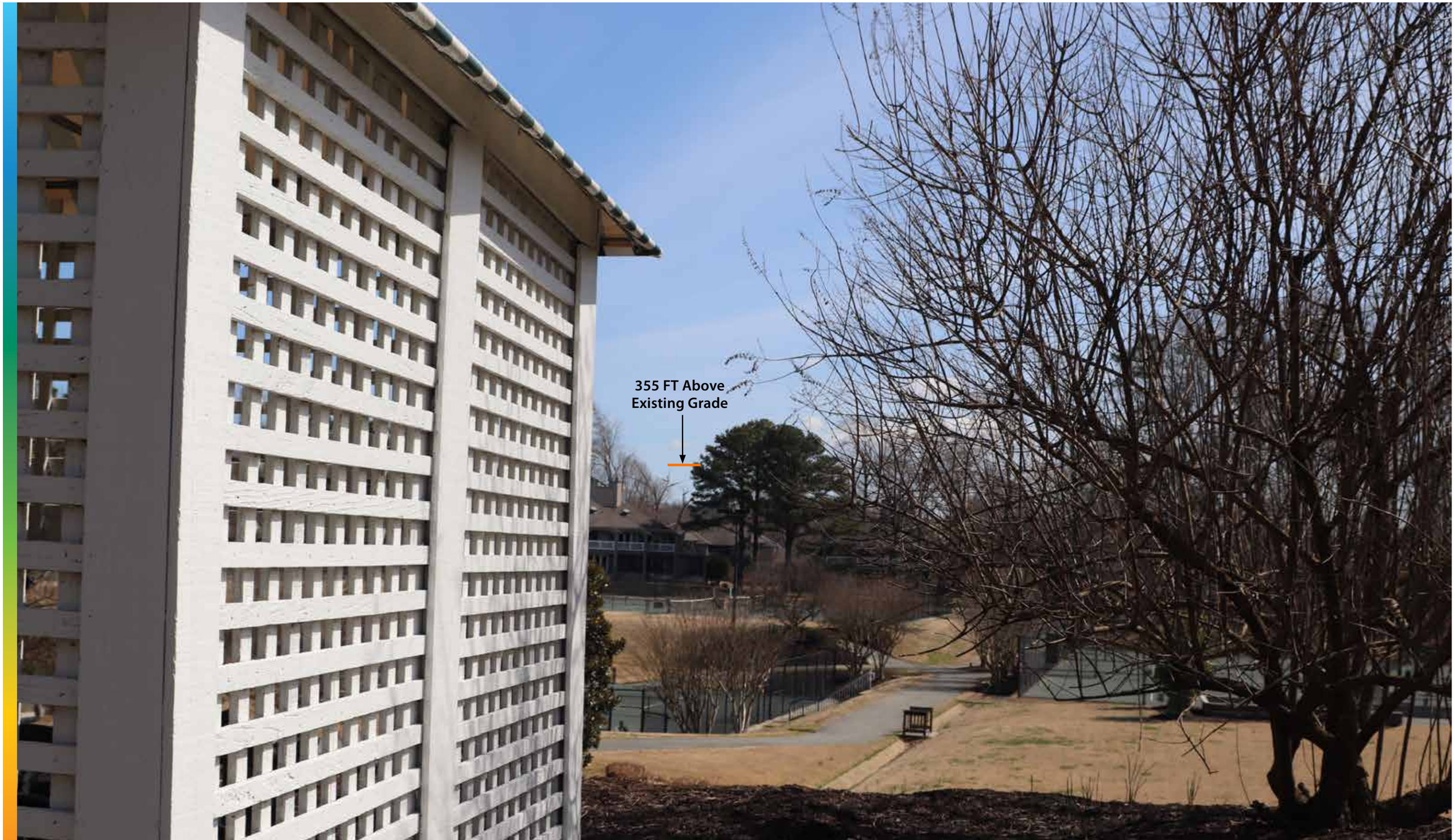
Route 60, between Rt. 199 and McLaws Circle, looking southeast

Busch Gardens WILLIAMSBURG, VA

Busch Gardens Williamsburg · HEIGHT WAVIER

EXHIBIT 3

Route 199, at the Route 60 overpass, looking southeast



Busch Gardens
WILLIAMSBURG, VA

Busch Gardens Williamsburg • HEIGHT WAVIER

EXHIBIT 4

Kingsmill Tennis Courts, looking northeast

Busch Gardens
WILLIAMSBURG, VA

Busch Gardens Williamsburg · HEIGHT WAVIER

EXHIBIT 5

Wareham's Pond Road & Harrops Glen, looking northeast

Busch Gardens WILLIAMSBURG, VA

Busch Gardens Williamsburg · HEIGHT WAVIER

EXHIBIT 6

Captaine Graves, looking north

Busch Gardens WILLIAMSBURG, VA

Busch Gardens Williamsburg · HEIGHT WAVIER

EXHIBIT 7

Roffinghams Way, looking north

Busch Gardens Williamsburg • HEIGHT WAVIER

EXHIBIT 8

River Bluffs, looking north

Busch Gardens
WILLIAMSBURG, VA

Busch Gardens Williamsburg • HEIGHT WAIVER

EXHIBIT 9

George Sandys & Wareham's Pond Road, looking north

Busch Gardens
WILLIAMSBURG, VA

Busch Gardens Williamsburg · HEIGHT WAVIER

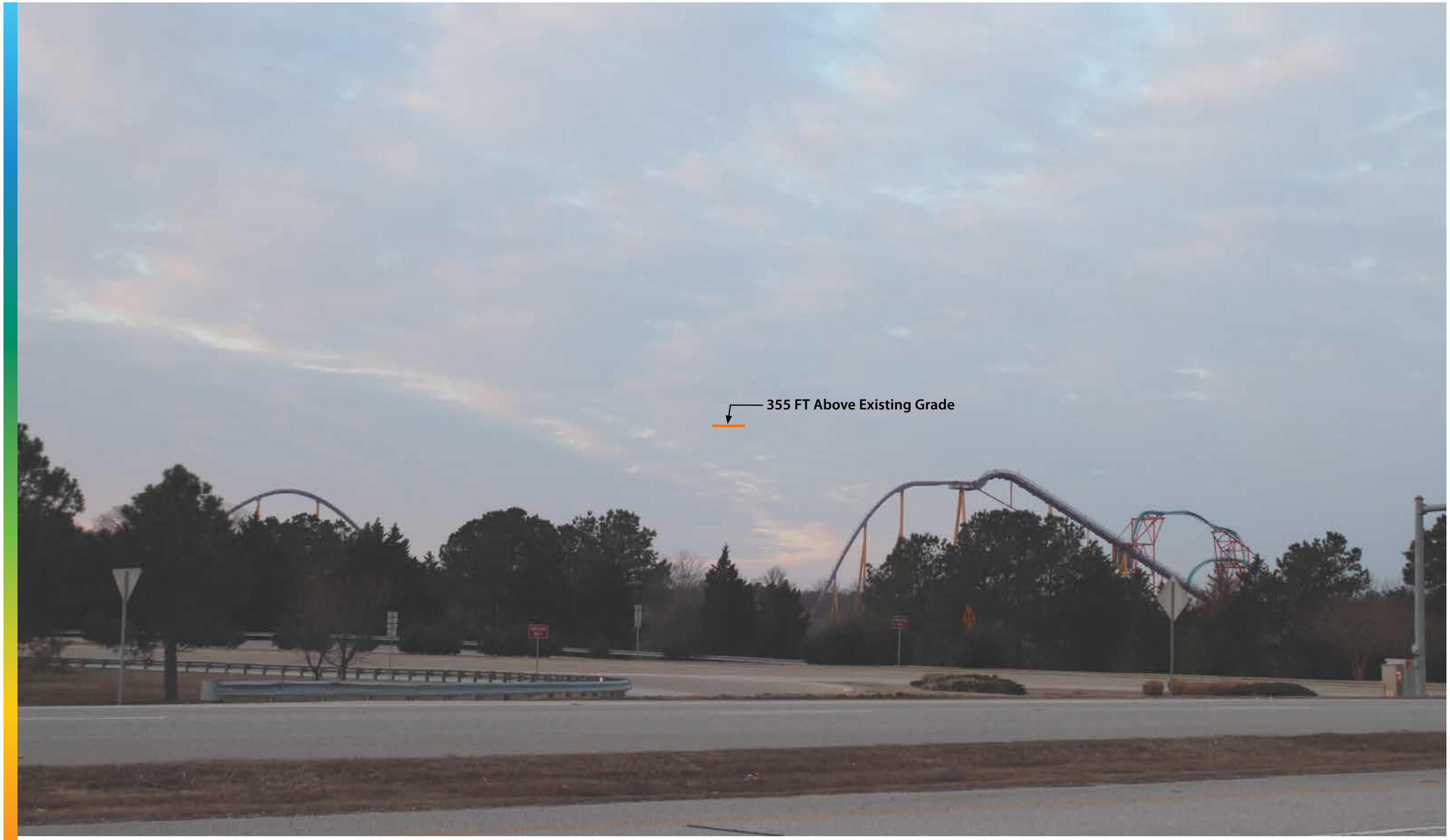
EXHIBIT 10

Rivers Edge & Green's Way, looking north

Busch Gardens
WILLIAMSBURG, VA

Busch Gardens Williamsburg · HEIGHT WAVIER

EXHIBIT 11
Woods Course, looking west



Busch Gardens WILLIAMSBURG, VA

Busch Gardens Williamsburg · HEIGHT WAVIER

EXHIBIT 12

Route 60 at Busch Gardens Connector, looking south

Busch Gardens WILLIAMSBURG, VA

Busch Gardens Williamsburg · HEIGHT WAVIER

EXHIBIT 13

Parkside Resort along Route 143, looking south

Busch Gardens WILLIAMSBURG, VA

Busch Gardens Williamsburg · HEIGHT WAVIER

EXHIBIT 14

Route 143, looking southeast

Busch Gardens
WILLIAMSBURG, VA

Busch Gardens Williamsburg · HEIGHT WAVIER

EXHIBIT 15

Route 143, northwest of Rt. 199, looking southeast

Busch Gardens Williamsburg · HEIGHT WAVIER

EXHIBIT 16

College Creek Beach, looking east

AGENDA ITEM NO. H.1.

ITEM SUMMARY

DATE: 4/12/2022

TO: The Board of Supervisors

FROM: Thomas Wysong, Senior Planner II

SUBJECT: S-21-0072. 7751 Newman Road Family Subdivision

ATTACHMENTS:

	Description	Type
	Staff Report	Staff Report
	1. Resolution	Resolution
	2. Location Map	Exhibit
	3. Preliminary Plat	Exhibit
	4. Christenson's Corner AFD 2018 Renewal Ordinance and Staff Report	Ordinance
	5. State Code § 15.2-4309	Backup Material
	6. VDH Approval Letter	Backup Material
	7. VDOT Approval Letter	Backup Material
	8. Unapproved minutes from the January 27, 2022, AFD Advisory Committee Meeting	Backup Material

REVIEWERS:

Department	Reviewer	Action	Date
Planning	Holt, Paul	Approved	3/25/2022 - 12:22 PM
Development Management	Holt, Paul	Approved	3/25/2022 - 12:22 PM
Publication Management	Pobiak, Amanda	Approved	3/25/2022 - 1:02 PM
Legal Review	Kinsman, Adam	Approved	3/31/2022 - 11:59 AM
Board Secretary	Saeed, Teresa	Approved	3/31/2022 - 3:46 PM
Board Secretary	Purse, Jason	Approved	4/4/2022 - 2:21 PM
Board Secretary	Saeed, Teresa	Approved	4/5/2022 - 7:48 AM

SUMMARY FACTS

Applicant:	Mrs. Sheila Chandler
Land Owner:	Mr. Kenneth Chandler
Proposal:	Proposed family subdivision to create one 6.07-acre lot for immediate family member within the Christenson's Corner Agricultural and Forestal District (AFD)
Location:	7751 Newman Road
Tax Map/Parcel No.:	1540100008
Project Acreage:	± 49.53 acres
Zoning:	A-1, General Agricultural
Comprehensive Plan:	Rural Lands
Primary Service Area:	Outside
Staff Contact:	Thomas Wysong, Senior Planner II

PUBLIC HEARING DATES

AFD Committee:	January 20, 2022, 4:00 p.m.
Board of Supervisors:	April 12, 2022, 5:00 p.m.

FACTORS FAVORABLE

1. Staff finds this proposal meets the requirements of the Subdivision and Zoning Ordinances.

2. Staff finds that the proposal is not incompatible with farming and forestry activities in the AFD, in accordance with State Code § 15.2-4309(B).

FACTORS UNFAVORABLE

As this proposal is not anticipated to generate any impacts that require mitigation, staff finds no unfavorable factors.

SUMMARY STAFF RECOMMENDATION

In accordance with Ordinance No. 171A-10, staff recommends the Board of Supervisors authorize one single-family residential parcel approximately 6.07 acres in size for a family subdivision within the Christenson's Corner AFD.

AFD ADVISORY COMMITTEE RECOMMENDATION

At its January 27, 2022, Organizational Meeting, the AFD Advisory Committee recommended approval of the family subdivision application by a vote of 6-0.

PROJECT DESCRIPTION

- Mrs. Sheila Chandler has applied for a family subdivision to create a 6.07-acre lot for her grandson on the parcel addressed 7751 Newman Road.

- The subject parcel is within the Christenson's Corner AFD (Ordinance No. 171A-10). The proposed family subdivision does not require any land to be withdrawn from the AFD. A Special Use Permit is not required for this proposal because the A-1 Zoning District allows family subdivisions of three or more acres by-right; however, per the Christenson's Corner AFD Ordinance, subdivisions within the AFD are "limited to 25 acres or more, except where the Board of Supervisors authorizes smaller lots to be created for residential use by members of the owner's immediate family, as defined in the James City County Subdivision Ordinance." As such, this family subdivision is permitted, but is required to be reviewed by the AFD Advisory Committee and approved by the Board of Supervisors.

- State Code § 15.2-4309(B) states that "local governing bodies shall not prohibit as a more intensive use, construction and placement of dwellings for persons who earn a substantial part of their livelihood from a farm or forestry operation on the same property, or for members of the immediate family of the owner, or divisions of parcels for such family members, unless the governing body finds that such use in the particular case would be incompatible with farming or forestry in the district."

- Staff has reviewed a preliminary plat and has received approval from the Virginia Department of Health (VDH) for the well and septic systems (see Attachment No. 6). All other Ordinance requirements can be met, including eligibility requirements for family subdivisions.

DISTRICT HISTORY

- The Christenson's Corner AFD was created in 1986 for a term of four years and originally consisted of four parcels totaling ± 568 acres.

- The District was renewed in 1990, 1994, 1998, 2002, 2006, 2010, and 2014 for four-year periods. Various additions and withdrawals occurred throughout these years.

- Since the 2014 renewal, the Board of Supervisors approved one addition to the District of 49.53 acres.

- Since 2014, a judicial division occurred which created Parcel ID No. 1540100011X from parent Parcel ID No. 1540100011. Both parcels remain within the AFD and there was no change to the total acreage of the District.

SURROUNDING ZONING AND DEVELOPMENT

All surrounding properties are zoned A-1, General Agricultural and designated Rural Lands on the Comprehensive Plan. Existing land uses on adjacent properties include single-family residences, farmland, and undeveloped forested land.

COMPREHENSIVE PLAN

The subject parcel is designated Rural Lands in the 2045 Comprehensive Plan. Appropriate uses in Rural Lands include traditional agricultural and forestal activities and residences associated with agricultural and forestal activities may be appropriate. Staff finds that creating one single-family parcel through the family subdivision process is consistent with the intent of the Comprehensive Plan.

STAFF RECOMMENDATION

In accordance with Ordinance No. 171A-10, staff recommends the Board of Supervisors authorize one single-family residential parcel approximately 6.07 acres in size for a family subdivision within the Christenson's Corner AFD.

TW/ap
S21-72_7751NwmnRd

Attachments:
1. Resolution
2. Location Map
3. Preliminary Plat
4. Christenson's Corner AFD 2018 Renewal Ordinance and Staff Report
5. State Code § 15.2-4309
6. VDH Approval Letter
7. VDOT Approval Letter
8. Unapproved minutes from the January 27, 2022, AFD Advisory Committee Meeting

R E S O L U T I O N

CASE NO. S-21-0072. 7751 NEWMAN ROAD, CHANDLER FAMILY SUBDIVISION

WHEREAS, on September 11, 2018, the Board of Supervisors of James City County adopted Ordinance No. 171A-10, Christenson's Corner 2018 Renewal, which states that the subdivision of land is limited to 25 acres or more, except where the Board of Supervisors authorizes smaller lots to be created for residential use by members of the owner's immediate family, as defined in the James City County Subdivision Ordinance; and

WHEREAS, Mrs. Sheila Chandler, on behalf of Mr. Kenneth Chandler, has applied for a Family subdivision to create one single-family residential parcel of ± 6.07 acres located in A-1, General Agricultural District, located at 7751 Newman Road, further identified as James City County Real Estate Tax Map No. 1540100008 and which is located within the Christenson's Corner Agricultural and Forestal District (AFD); and

WHEREAS, State Code § 15.2-4309(B) states that "local governing bodies shall not prohibit as a more intensive use, construction and placement of dwellings for persons who earn a substantial part of their livelihood from a farm or forestry operation on the same property, or for members of the immediate family of the owner, or divisions of parcels for such family members, unless the governing body finds that such use in the particular case would be incompatible with farming or forestry in the district."

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of James City County, Virginia, does hereby authorize a Family subdivision on property located at 7751 Newman Road further identified as James City County Real Estate Tax Map No. 1540100008, to create one single-family residential parcel approximately 6.07 acres in size within the Christenson's Corner AFD as part of Case No. S-21-0072, as described herein.

_____
John J. McGlennon
Chairman, Board of Supervisors

ATTEST:

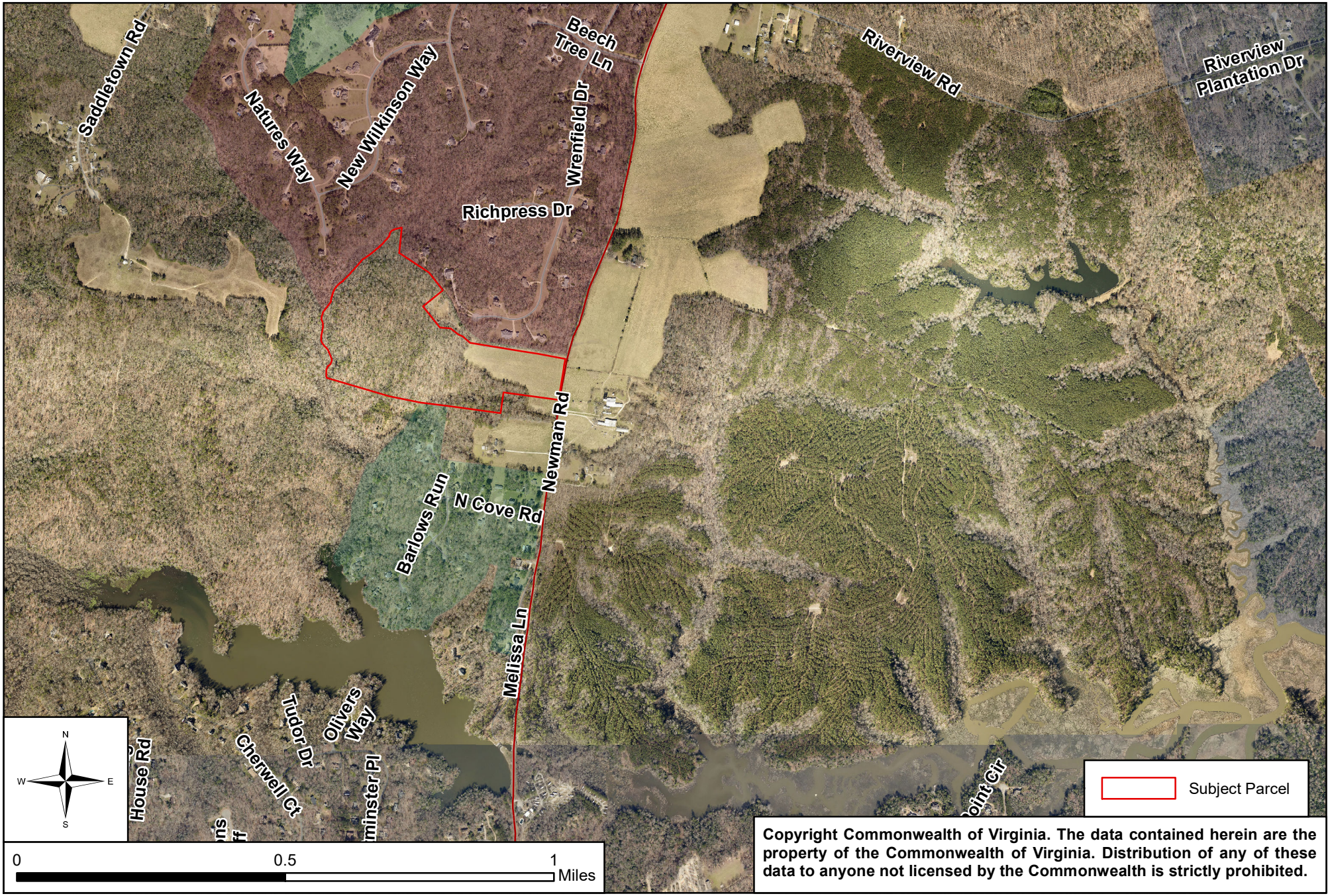
_____
Teresa J. Saeed
Deputy Clerk to the Board

	VOTES			
	AYE	NAY	ABSTAIN	ABSENT
ICENHOUR	____	____	____	____
HIPPLE	____	____	____	____
LARSON	____	____	____	____
SADLER	____	____	____	____
MCGLENNON	____	____	____	____

Adopted by the Board of Supervisors of James City County, Virginia, this 12th day of April, 2022.

S21-72_7751NwmnRd-res

S-21-0072 Newman Road Proposed Family Subdivision



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FAMILY SUBDIVISION

OF THE PROPERTY OF

KENNETH MILFORD CHANDLER

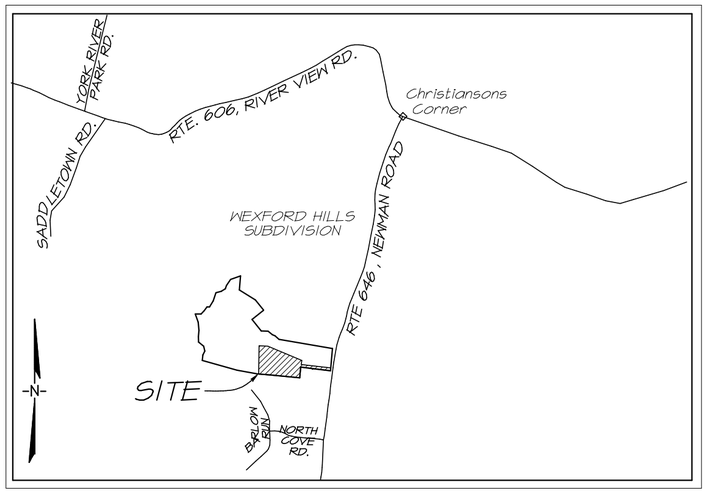
PARCEL ID # 1540100008

JAMES CITY CASE # S-21-0072

PROPERTY SHOWN IS LOCATED
IN STONEHOUSE DISTRICT
JAMES CITY COUNTY, VIRGINIA

PARCEL ID # 1540100008
PROPERTY ADDRESS
7751 NEWMAN ROAD
WILLIAMSBURG, VA.

PREPARED BY
ANGLE & DISTANCE LAND SURVEYING, INC.
269 RACEFIELD DRIVE, TOANO, VA. 23168
757-561-5334
EDWARD C. CARR II
PLAT DATE 1-18-2022



VICINITY MAP SCALE 1" = 2000'

AREA COMPUTATIONS

PARCEL ID # 1540100008
BEFORE SUBDIVISION=51.03 +/- ACRES
AFTER SUBDIVISION= 44.73 +/- ACRES
(ALL BY TAX MAP INFORMATION PARCEL NOT SURVEYED IN ITS ENTIRETY AT THIS TIME).

AREA DEDICATED TO PUBLIC USE= 0.24 ACRES
(SEE HATCHED AREA ON SHEET 2 of 2.)

NEW PARCEL = 6.06 ACRES

TOTAL AREA BEFORE SUBDIVISION = 51.03 +/- ACRES

A.O.S.E. CERTIFICATION STATEMENT

THIS SUBDIVISION IS APPROVED FOR INDIVIDUAL ONSITE SEWAGE SYSTEMS IN ACCORDANCE WITH THE PROVISIONS OF THE CODE OF VIRGINIA, AND THE SEWAGE HANDLING AND DISPOSAL REGULATIONS (12 VAC 5-610-10 et seq., THE ©REGULATIONSª).

THIS SUBDIVISION WAS SUBMITTED TO THE HEALTH DEPARTMENT FOR REVIEW PURSUANT TO 32.1-163.5 OF THE CODE OF VIRGINIA WHICH REQUIRES THE HEALTH DEPT. TO ACCEPT PRIVATE SOIL EVALUATIONS AND DESIGNS FROM AN AUTHORIZED ONSITE SOIL EVALUATOR (AOSE) OR A PROFESSIONAL ENGINEER WORKING IN CONSULTATION WITH AN AOSE FOR RESIDENTIAL DEVELOPMENT.THE DEPT. IS NOT REQUIRED TO PERFORM A FIELD CHECK OF SUCH EVALUATIONS. THIS SUBDIVISION WAS CERTIFIED AS BEING IN COMPLIANCE WITH THE BOARD OF HEALTH.S REGULATIONS BY:ADAM HERMAN A.O.S.E. # 1940001109, 757-344-6270. THIS SUBDIVISION APPROVAL IS ISSUED IN RELIANCE UPON THAT CERTIFICATION.

PURSUANT TO 360 OF THE REGULATIONS THIS APPROVAL IS NOT AN ASSURANCE THAT SEWAGE DISPOSAL SYSTEM CONSTRUCTION PERMITS WILL BE ISSUED FOR ANY LOT IN THE SUBDIVISION UNLESS THAT LOT IS SPECIFICALLY IDENTIFIED AS HAVING AN APPROVED SITE FOR AN ONSITE SEWAGE DISPOSAL SYSTEM, AND UNLESS ALL CONDITIONS AND CIRCUMSTANCES ARE PRESENT AT THE TIME OF APPROVAL. THIS SUBDIVISION MAY CONTAIN LOTS THAT DO NOT HAVE APPROVED SITES FOR ONSITE SEWAGE STSTEMS

THIS SUBDIVISION APPROVAL IS ISSUED IN RELIANCE UPON THE CERTIFICATION THAT APPROVED LOTS ARE SUITABLE FOR ©TRADITIONAL SYSTEMSª , HOWEVER ACTUAL SYSTEM DESIGN MAY BE DIFFERENT AT THE TIME CONSTRUCTION PERMITS ARE ISSUED.

ADAM HERMAN_____DATE_____

COMMONWEALTH OF VIRGINIA
Edward C. Carr II
Lic. No.02505
LAND SURVEYOR

GENERAL NOTES

PROPERTY IS ZONED A1, BUILDING SET BACK LINES ARE
FRONT = 75' OR UNTIL MINIMUM WIDTH OF 250' AT BSL.
REAR = 35'
SIDE = 15 '

PROPERTY APPEARS TO LIE IN FLOOD ZONE X (AREA DETERMINED TO LIE OUTSIDE THE 500 YR. FLOOD PLAIN AS SHOWN ON F.I.R.M. MAP # 51095 C 0064D EFFECTIVE DATE DEC. 16th. , 2015.

WETLANDS AND LANDS IN THE R.P.A. AREAS SHALL REMAIN IN A NATURAL UNDISTURDED STATE EXCEPT FOR THOSES ACTIVITIES PERMITTED BY SECTION 23-7C(1)OF THE JAMES CITY CO. CODE.

ALL NEWLY CREATED CORNERS TO BE MONUMENTED IN ACCORDANCE WITH JAMES CITY COUNTY SUBDIVISION ORDINANCE SEC. 19-35 THROUGH 19-36.

NO EXISTING DRAINFIELDS OR WELLS TO BE AFFECTED BY THIS PLAT.

ON-SITE SEWAGE DISPOSAL SYSTEM INFORMATION AND SOIL INFORMATION SHOULD BE VERIFIED AND RE-EVALUATED BY HEALTH DEPARTMENT PRIOR TO ANY NEW CONSTRUCTION.

ON SITE SEWAGE TREATMENT SYSTEMS SHALL BE PUMPED OUT AT LEAST ONCE EVERY FIVE YEARS PER SECTION 23-9(b)(6) OF THE JAMES CITY CODE.

BOUNDARY INFORMATION TAKEN FROM ADJOINING RECORD PLATS . THIS SURVEY HAS BEEN PREPARED WITHOUT THE BENEFIT OF A FURNISHED TITLE REPORT AND DOES NOT NECESSARILY INDICATE ALL ENCUMBERANCES ON THE PROPERTIES SHOWN. PLAT IS BASED ON A CURRENT FIELD SURVEY. POINTS FOUND AND LOCATED FOR THERE RELATIONSHIP TO ONE ANOTHER AND RECORD INFORMATION. PARCEL ID # 1540100008 WAS NOT SURVEYED IN ITS ENTIRETY AT THIS TIME.

MONUMENTS SHALL BE SET IN ACCORDANCE WITH SECTIONS 19-35 THROUGH 19-36 OF THE COUNTY CODE. SUBSEQUENT TO COMPLETION OF ALL IMPROVEMENTS, BUT PRIOR TO FINAL RELEASE OF SURETY FOR A SUBDIVISION OR ANY PART THEREOF, THE SUBDIVIDER SHALL PROVIDE THE AGENT A SURVEYORS CERTIFICATE THAT THE MONUMENTS AS SHOWN ON THE RECORD PLAT HAVE BEEN INSTALLED, WERE PROPERLY ALIGNED, AND ARE UNDAMAGED. THE PROVISIONS OF THE CERTIFICATION SHALL BE WITHIN SIX MONTHS OF PLAT APPROVAL, UNLESS OTHERWISE ARRANGED, IN WRITING, WITH THE AGENT.

IN ACCORDANCE WITH SECTION 19-33 OF THE SUBDIVISION ORDINANCE, ALL UTILITIES SHALL BE PLACED UNDERGROUND.

ANY UNUSED WELL(S) SHALL BE ABANDONED IN ACCORDANCE WITH STATE PRIVATE WELL REGULATIONS AND JAMES CITY COUNY CODE.

UNLESS OTHERWISE NOTED, ALL DRAINAGE EASEMENTS SHOW ON THIS PLAT SHALL REMAIN PRIVATE.

NO SUBSURFACE INVESTIGATION WAS PERFORMED UTILITY LINE LOCATIONS ARE APPROXIMATE ONLY.

PARCEL SHOWN IS LOCATED IN THE CHRISTENSON'S CORNER AGRIGULTURAL & FORESTAL DISTRICT(AFD).

OWNERS CONSENT

This Subdivision as shown on this plat is with the free consent and in accordance with the desire of the undersigned owners, proprietors and/or trustees.

PARCEL ID # 1540100008, KENNETH MILFORD CHANDLER

Date _____Signature _____

Name printed _____

CERTIFICATE OF NOTARIZATION

Commonwealth of Virginia
City/County of _____
I, (_____) , a Notary Public in and for the City/County and State aforesaid, do hereby certify that the persons whose names are signed to the foregoing writing have acknowledged the same before me in the City/County aforesaid.
Given under my hand this _____day of _____(Year) . _____
(Signature) _____
My commission expires: _____.
Notary registration number: _____

CERTIFICATE OF APPROVAL

THIS SUBDIVISION IS APPROVED BY THE UNDERSIGNED IN ACCORDANCE WITH EXISTING SUBDIVISION REGULATIONS AND MAY BE ADMITTED TO RECORD.

SUBDIVISION AGENT OF JAMES CITY COUNTY

_____DATE_____

VIRIGINIA DEPT. OF HEALTH

_____DATE_____

VIRIGINIA DEPT. OF TRANSPORTATION

_____DATE_____

SOURCE OF TITLE

The property(tax parcel # 1540100008) shown on this plat was conveyed by Will Dated 8-14-2014 from Cameron M. Chandler Estate to Kenneth Milford Chandler , by instrument # 140008345W (Will). and recorded in the Office of the Clerk of the Circuit Court of the County of James City.

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE OR BELIEF, THIS PLAT COMPLIES WITH ALL THE REQUIREMENTS OF THE BOARD OF SUPERVISORS AND JAMES CITY COUNTY ORDINANCES REGARDING THE PLATTING OF SUBDIVISIONS WITHIN THE COUNTY AND WITH THE MINIMUM STANDARDS ESTABLISHED BY THE VIRGINIA BOARD OF ARCHITECTS, ENGINEERS, LAND SURVEYORS AND CERTIFIED LANDSCAPE ARCHITECTS.

_____

EDWARD C. CARR II L.S.# 2505 DATE

STATE OF VIRGINIA

COUNTY OF JAMES CITY
IN THE CLERK'S OFFICE OF THE CIRCUIT COURT FOR THE COUNTY OF JAMES CITY THE _____ DAY OF _____ 2022
THIS PLAT WAS PRESENTED AND ADMITTED TO RECORD AS THE LAW DIRECTS IN PLAT BOOK_____, PAGE_____ AND OR INSTRUMENT # _____

TESTE: _____
CLERK

BY: _____

FAMILY SUBDIVISION

OF THE PROPERTY OF KENNETH MILFORD CHANDLER

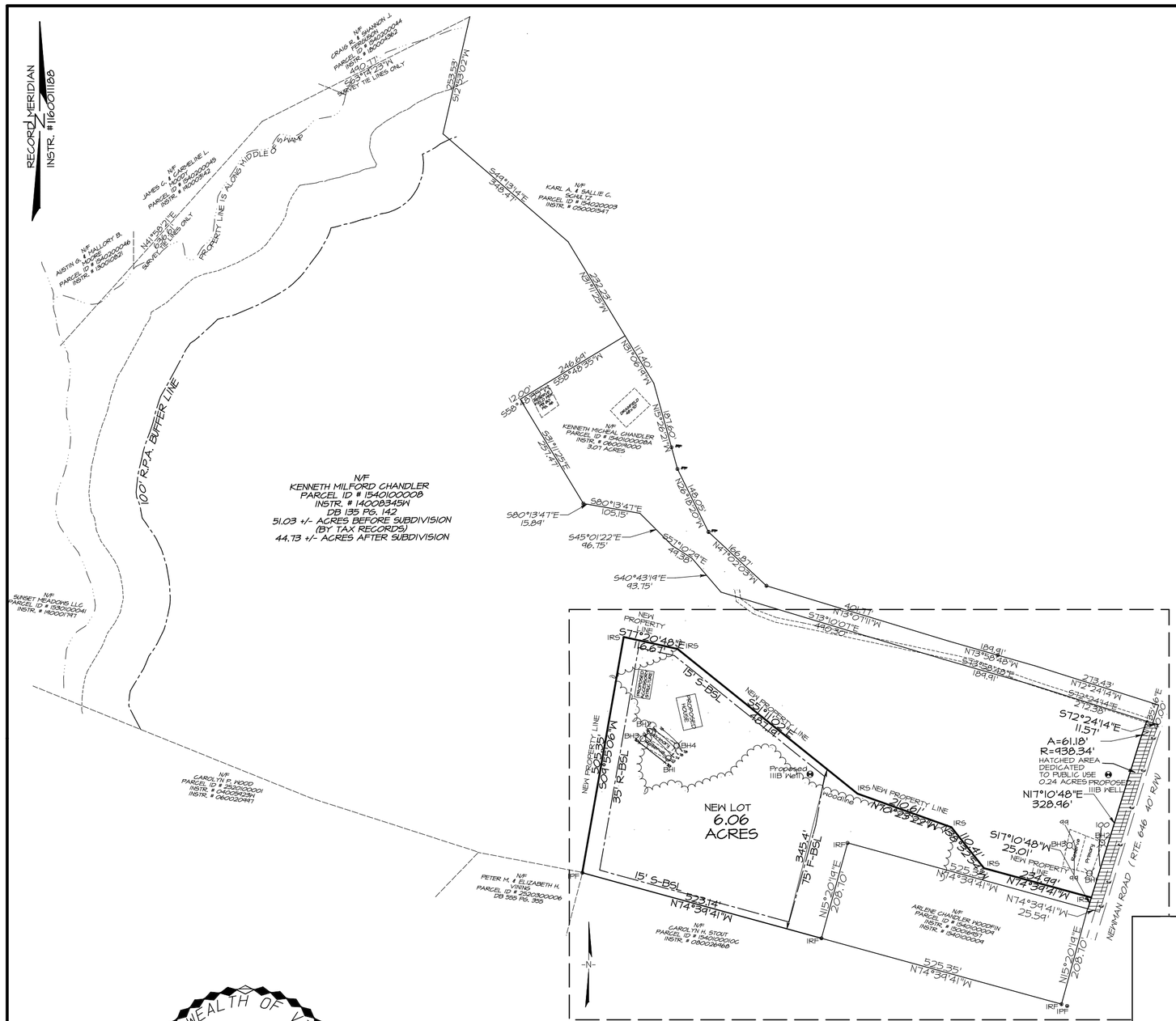
PARCEL ID # 1540100008

JAMES CITY CASE #S-21-0072

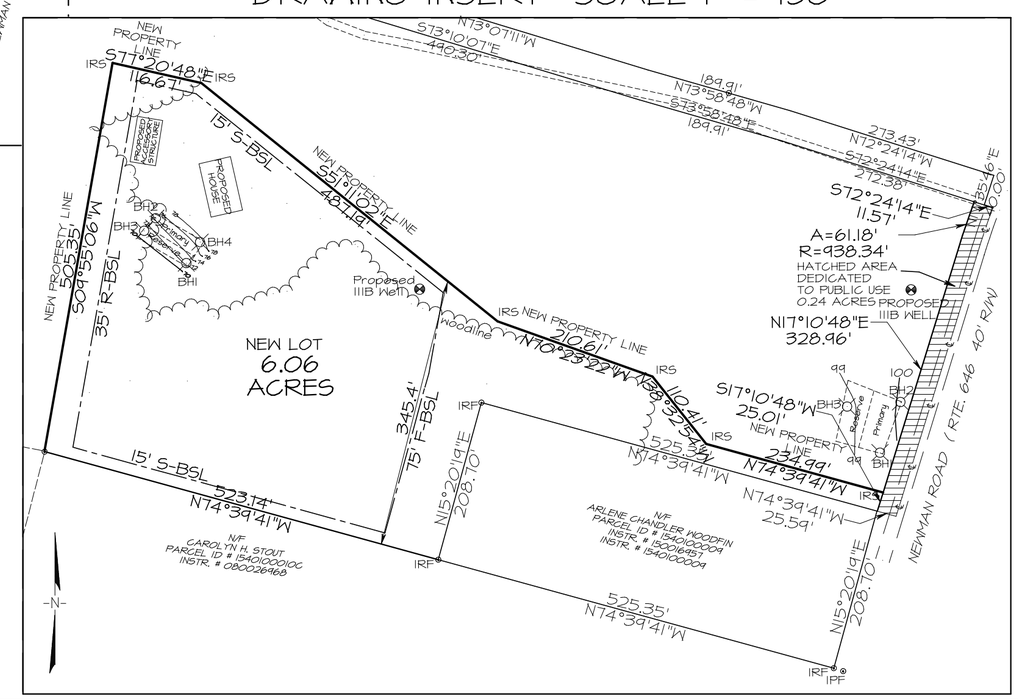
PROPERTY SHOWN IS LOCATED
IN STONEHOUSE DISTRICT
JAMES CITY COUNTY, VIRGINIA

PARCEL ID # 1540100008
PROPERTY ADDRESS
7751 NEWMAN ROAD
WILLIAMSBURG, VA.

PREPARED BY
ANGLE & DISTANCE LAND SURVEYING, INC.
269 RACEFIELD DRIVE, TOANO, VA. 23168
757-561-5334
EDWARD C. CARR II
PLAT DATE 1-18-2022



DRAWING INSERT- SCALE 1" = 150'



GRAPHIC SCALE 1"=200'

0 200 400 600

ADOPTED

SEP 11 2018

Board of Supervisors
James City County, VA

ORDINANCE NO. 171A-10

AGRICULTURAL AND FORESTAL DISTRICT-10-86-1-2018

CHRISTENSON'S CORNER 2018 RENEWAL

WHEREAS, James City County has completed a review of the Christenson's Corner Agricultural and Forestal District (the "District"); and

WHEREAS, in accordance with Section 15.2-4311 of the Code of Virginia, 1950, as amended (the "Virginia Code"), property owners have been notified, public notices have been filed, public hearings have been advertised, and public hearings have been held on the continuation of the District; and

WHEREAS, the Agricultural and Forestal District (AFD) Advisory Committee at its meeting on June 21, 2018, voted 9-0 to recommend renewal of the District; and

WHEREAS, the Planning Commission following its public hearing on August 1, 2018, concurred with the recommendation of staff and the AFD Advisory Committee and voted 5-0 to recommend renewal of the District with the conditions listed below.

NOW, THEREFORE, BE IT ORDAINED by the Board of Supervisors of James City County, Virginia that:

1. The Christenson's Corner Agricultural and Forestal District (the "District") is hereby continued to October 31, 2022 in accordance with the provisions of the Virginia Agricultural and Forestal District Act, Virginia Code Section 15.2-4300 et. seq. (the "Act").

2. That the District shall include the following parcels, provided, however, that all land within 25 feet of road right-of-ways is excluded from the District:

Owner	Parcel No.	±Acres
Kenneth Chandler	1540100011	151.25
Betty Arlene Chandler Woodfin	1540100011X	1.31
Kenneth Chandler	1630100001	8.01
Stieffen Co. LLC, B. P. Stieffen, Woodlands LLC & Dennis Stieffen	1640100003	402.89
Hampton 41 LLC, Abbitt Land Co., R Holdings LLC, & Mountain Park LLC	2520100007	410.79
Hampton 41 LLC, Abbitt Land Co., R Holdings LLC, & Mountain Park LLC	1630100011	156.85
Kenneth Chandler	1540100008	49.53

Total: 1,179.33

3. That pursuant to Sections 15.2-4312 and 15.2-4313 of the Act, the Board of Supervisors requires that no parcel in the District be developed to a more intensive use without prior approval of the Board of Supervisors. Specifically, the following restrictions shall apply:

   a. The subdivision of land is limited to 25 acres or more, except where the Board of Supervisors authorizes smaller lots to be created for residential use by members of the owner's immediate family, as defined in the James City County Subdivision Ordinance. Parcels of up to five acres, including necessary access roads, may be subdivided for the siting of Wireless Communications Facilities (WCF), provided: a) The subdivision does not result in the total acreage of the District to drop below 200 acres; and b) the subdivision does not result in a remnant parcel of less than 25 acres.

   b. No land outside the Primary Service Area and within the District may be rezoned and no application for such rezoning shall be filed earlier than six months prior to the expiration of the District. Land within the District may be withdrawn from the District in accordance with the Board of Supervisors' Policy Governing the Withdrawals of Properties from Agricultural and Forestal Districts, adopted September 28, 2010, as amended.

   c. No Special Use Permit (SUP) shall be issued except for agricultural, forestal, or other activities and uses consistent with the Act, which are not in conflict with the policies of this District. The Board of Supervisors, at its discretion, may issue SUPs for wireless communications facilities on properties in the District that are in accordance with the County's policies and Ordinances regulating such facilities.

Ruth M. Larson

Ruth M. Larson
Chairman, Board of Supervisors

ATTEST:

Teresa J. Fellows

Teresa J. Fellows
Deputy Clerk to the Board

	VOTES		
	AYE	NAY	ABSTAIN
MCGLENNON	✓		
ICENHOUR	✓		
SADLER	✓		
HIPPLE	✓		
LARSON	✓		

Adopted by the Board of Supervisors of James City County, Virginia, this 11th day of September, 2018.

AFD-ChristCrnRnw-res

Code of Virginia
Title 15.2. Counties, Cities and Towns
Subtitle IV. Other Governmental Entities
Chapter 43. Agricultural and Forestal Districts Act

§ 15.2-4309. Hearing; creation of district; conditions; notice

A. The local governing body, after receiving the report of the local planning commission and the advisory committee, shall hold a public hearing as provided by law, and after such public hearing, may by ordinance create the district or add land to an existing district as applied for, or with any modifications it deems appropriate.

B. The governing body may require, as a condition to creation of the district, that any parcel in the district shall not, without the prior approval of the governing body, be developed to any more intensive use or to certain more intensive uses, other than uses resulting in more intensive agricultural or forestal production, during the period which the parcel remains within the district. Local governing bodies shall not prohibit as a more intensive use, construction and placement of dwellings for persons who earn a substantial part of their livelihood from a farm or forestry operation on the same property, or for members of the immediate family of the owner, or divisions of parcels for such family members, unless the governing body finds that such use in the particular case would be incompatible with farming or forestry in the district. To further the purposes of this chapter and to promote agriculture and forestry and the creation of districts, the local governing body may adopt programs offering incentives to landowners to impose land use and conservation restrictions on their land within the district. Programs offering such incentives shall not be permitted unless authorized by law. Any conditions to creation of the district and the period before the review of the district shall be described, either in the application or in a notice sent by first-class mail to all landowners in the district and published in a newspaper having a general circulation within the district at least two weeks prior to adoption of the ordinance creating the district. The ordinance shall state any conditions to creation of the district and shall prescribe the period before the first review of the district, which shall be no less than four years but not more than ten years from the date of its creation. In prescribing the period before the first review, the local governing body shall consider the period proposed in the application. The ordinance shall remain in effect at least until such time as the district is to be reviewed. In the event of annexation by a city or town of any land within a district, the district shall continue until the time prescribed for review.

C. The local governing body shall act to adopt or reject the application, or any modification of it, no later than 180 days from (i) November 1 or (ii) the other date selected by the locality as provided in § 15.2-4305. Upon the adoption of an ordinance creating a district or adding land to an existing district, the local governing body shall submit a copy of the ordinance with maps to the local commissioner of the revenue, and the State Forester, and the Commissioner of Agriculture and Consumer Services for information purposes. The commissioner of the revenue shall identify the parcels of land in the district in the land book and on the tax map, and the local governing body shall identify such parcels on the zoning map, where applicable and shall designate the districts on the official comprehensive plan map each time the comprehensive plan map is updated.

1977, c. 681, § 15.1-1511; 1979, c. 377; 1981, c. 546; 1984, c. 20; 1985, c. 13; 1987, c. 552; 1993, cc. 745, 761; 1997, c. 587; 1998, c. 833;2011, cc. 344, 355.

Thomas Wysong

From: Davis, James <james.davis@vdh.virginia.gov>
Sent: Tuesday, March 8, 2022 8:58 AM
To: Thomas Wysong
Subject: [External]S-21-0072, 7751 Newman Rd. Family Subdivision

Thomas,
Our office has approved the above referenced subdivision. We have also signed the plat, who should I contact to pick up the signed plat?

Sincerely,
electroniclly signed
James A. Davis
Environmental Health Specialist, Sr.
Hampton and Peninsula Health Districts
Williamsburg Environmental Health Office
4095 Ironbound Road
Williamsburg, VA 23188
Ph: 757-603-4277
C: 757 510-8452

COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
4451 Ironbound Road
Williamsburg, Virginia 23188-2621

9 March 2022

James City County Planning
101-A Mounts Bay Road
Post Office Box 8784
Williamsburg, Virginia 23187

RE: Chandler Family Subdivision Newman Rd.
James City County Plan S-21-0072

VDOT has completed its review of the plat received by the VDOT Land Development Office on 1 March, 2022. The proposed boundary line adjustment appears to have no significant impact upon VDOT right-of-way. Approval is recommended.

If there are any significant changes in the plan in future which would affect the VDOT right of way, please inform VDOT for review.

If you have any questions, please contact me.

Sincerely,

Yogendra Patil
Land Use Engineer
VDOT, Williamsburg Residency
yogendra.patil@vdot.virginia.gov
Mobile: 419-324-9408

MINUTES
JAMES CITY COUNTY
AGRICULTURAL AND FORESTAL DISTRICT ADVISORY COMMITTEE
ORGANIZATIONAL MEETING
101-D Mounts Bay Road, Williamsburg, VA 23185
Building D Glass Conference Room
January 27, 2022
4:00 PM

A. CALL TO ORDER

Mr. Chris Taylor called the Agricultural and Forestal District (AFD) Advisory Committee meeting to order at 4 p.m.

B. ROLL CALL

Present:
Chris Taylor, Chair
Bruce Abbott, Vice Chair
Richard Bradshaw
Loretta Garrett
Sue Sadler (by phone)
Sandy Wanner

Absent:
Payten Harcum
William Harcum
Thomas Hitchens

Staff:
Tammy Rosario, Community Development Assistant Director
Josh Crump, Principal Planner
Tom Leininger, Principal Planner
Thomas Wysong, Senior Planner II
Beth Klapper, Community Development Assistant
Katie Pelletier, Community Development Assistant

C. MINUTES

1. Minutes of the October 21, 2021, Regular Meeting

Ms. Garrett motioned to Approve the minutes of the October 21, 2021, regular meeting.

Mr. Wanner seconded the motion.

On a voice vote, the motion was approved 6-0.

D. OLD BUSINESS

There was no old business for discussion.

DRAFT

E. NEW BUSINESS

1. Election of Officers

Mr. Abbott motioned to Re-elect Mr. Taylor as the Committee Chairman.

Ms. Garrett seconded the motion.

The motion was approved 6-0 after a unanimous voice vote.

Mr. Taylor motioned to Re-elect Mr. Abbott as the Committee Vice Chairman.

Ms. Garrett seconded the motion.

The motion was approved 6-0 after a unanimous voice vote.

2. AFD Advisory Committee Proposed 2022-2023 Calendar

Mr. Taylor reviewed the proposed 2022-2023 and tentative 2023-2024 Committee Meeting dates. He noted that AFD renewal cases are scheduled for meetings on July 21, 2022, and July 28, 2022.

Mr. Bradshaw and Mr. Crump discussed the timeline for property owner notices.

3. Case No. AFD-21-0003. 360 Racefield Drive Barnes Swamp Withdrawal

Mr. Leininger stated that Mr. Brendan Grajewski from Hexagon Energy, on behalf of the property owner, has applied to withdraw a 26-acre portion of the 65.26-acre parcel within the Barnes Swamp AFD. Mr. Leininger said the parcel is located at 360 Racefield Drive, is zoned A-1 General Agriculture, and is designated Rural Lands on the 2045 Comprehensive Plan Land Use Map. He told the Committee the subject parcel is one of 33 parcels currently in the Barnes Swamp AFD, which total 2,207 acres.

Mr. Leininger explained the reason for requesting withdrawal for this portion of the parcel from the AFD is for a proposed solar farm. He explained that, outside of renewal periods, withdrawals must be approved by the Board of Supervisors according to a specific set of criteria. Mr. Leininger said the criteria had been included in the Agenda packet and state that: (1) requests should be a result of an unforeseeable change in circumstances, traditionally interpreted to include death of a property owner; (2) the request needs to serve a demonstrable public interest, i.e. schools or fire stations; (3) withdrawals should not result in a disruption of the existing district (Mr. Leininger noted this withdrawal does not bring the overall acreage below the AFD requirement); and (4) the resulting land use should be in conformance with the Comprehensive Plan's designation for that parcel (Mr. Leininger stated that a solar farm is not consistent with the recommended uses of the 2045 Comprehensive Plan in Rural Lands).

Mr. Leininger said that, based on an evaluation of the criteria listed in the Board of Supervisor's Policy governing the withdrawal of properties from AFDs, staff recommends that the AFD Advisory Committee recommend denial of this application to the Planning Commission and the Board of Supervisors. He said he would be happy to answer any questions from the Committee, and the applicant was also available to answer questions as well.

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Mr. Brendan Grajewski, Development Manager with Hexagon Energy, addressed the Committee and gave a presentation outlining the applicant's withdrawal request. He said the renewable energy development company is based in Charlottesville, Virginia, and works with localities to create access to clean energy. He said they have been working on the new opportunity of smaller solar projects in Virginia for about 3.5 years.

Mr. Grajewski then described how the Racefield Solar Project and AFD withdrawal request met the criteria outlined by Mr. Leininger. Regarding change of circumstance, Mr. Grajewski noted the Barnes Swamp AFD is a large District, and the last renewal period in 2018 was before the 2020 enabling legislation for small-scale solar projects. He said this is a change of circumstance and a unique and time-sensitive opportunity for the landowner. Mr. Grajewski said there is a small margin of error for the approval and construction timeline for the solar project, with the County and Dominion Energy. Regarding the criteria of serving a public purpose, he noted the solar project would export power to the local grid, and most County residents are Dominion Energy customers. Regarding disruption to the District, Mr. Grajewski said the 26-acre withdrawal would represent just one percent of the land in the Barnes Swamp AFD, and the remaining parcel acreage would remain in the AFD and meet minimum AFD requirements. He noted the Barnes Swamp AFD would still encompass over 2,000 acres in the County.

Mr. Grajewski introduced Mr. Scott Foster, applicant attorney from Gentry Locke, to address the criteria of land use designation conformance with the County's Comprehensive Plan. Mr. Grajewski said they will also address this issue during the Planning Commission public hearing next week.

Mr. Foster addressed the Committee and noted that staff found the solar farm use inconsistent with the County's 2045 Comprehensive Plan Rural Lands designation. Mr. Foster said he comes to a different conclusion regarding the project's conformity with the Comprehensive Plan. He said the area is designated Rural Lands, with primary uses listed is Chapter 10 of the Comprehensive Plan that include certain public or semi-public uses compatible with the natural and rural surroundings. Mr. Foster argued that solar meets that definition, by letter and intent, being a passive use by nature that is not public utility intensive. He said this kind of development is very different that the commercial and residential development normally seen inside the Primary Service Area. He said it is a public utility use in keeping with State Code and is considered and meets the definition of a public utility facility, just like a water and sewer extension but does not lead to additional development. Mr. Foster said solar is a good fit and great neighbor to rural uses. He said it is not highly visible and does not make noise or light at night or complain about agricultural uses next door. Mr. Foster said he will also address the definition at the Planning Commission meeting, but he believes solar is a great way for rural landowners to monetize in the short-term in contrast to more traditional, less compatible, long-term development of rural lands. He noted after a solar project is decommissioned in 35-40 years, the land could return to an agricultural use.

Ms. Garrett asked about other localities with similar projects.

Mr. Grajewski replied a small-scale solar project was approved in Warsaw, and they are currently going through the approval process for summer projects in other areas.

Mr. Taylor asked about the economic feasibility of the project size.

Mr. Grajewski referenced the change of circumstance and new market created by the requirements and legislation regarding small-scale solar projects.

Mr. Foster added the power from this smaller project will be distributed and consumed locally.

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Mr. Taylor asked if the project could be expanded.

Mr. Foster replied the legislation prevents connections and expansion.

Mr. Grajewski said they would be happy to provide additional assurances or conditions.

Mr. Abbott asked who would manufacture the solar panels.

Mr. Grajewski said that has not been identified yet, but in previous projects they have committed to stateside-manufactured panels.

Mr. Wanner said conditions would be considered in the special use permit process.

Mr. Abbott said the adjacent property owners will likely not like the view of the solar farm.

Mr. Wanner said they would likely be well-shielded. He asked staff if the County Attorney's Office had been consulted on the recommendation.

Mr. Leininger replied yes, and he explained that the solar use is not identified or addressed in the County Comprehensive Plan, except on rooftops. He noted that solar is usually viewed as a temporary use, and previously approved solar projects in the County were on land designated Economic Opportunity and Low Density Residential, not Rural Lands. Mr. Leininger said that staff did not feel the project met the definition of institutional uses for public purposes and does not preserve the character of Rural Lands.

Mr. Wanner stated he is opposed to anything not consistent with the Comprehensive Plan and cannot support the proposed timeline. He said in his experience there is flexibility in all projects.

Mr. Taylor clarified what the Committee needed to review for their recommendation.

Mr. Wanner said they could wait and request withdrawal through the normal renewal process later this year.

Mr. Bradshaw said there would not be additional local revenue from the solar project due to tax credits, or significant increased property values. He said the change in legislation does not meet the change of circumstance criteria for early withdrawal from the AFD, normally reserved for death of a taxpayer. He said it is a financial operation, with no local benefit or institution. He agreed it would not disrupt the AFD, but he would vote against the withdrawal. He said they could wait until October to remove the property from the AFD during the renewal process.

Mr. Wanner motioned to recommend denial of Case. No. AFD-21-0003, 360 Racefield Dr. Barnes Swamp Withdrawal, to the Planning Commission and Board of Supervisors.

Ms. Garrett seconded the motion.

On a voice vote of 5-0-1, with Ms. Sadler abstaining, the motion was approved to recommend denial.

4. Case No. S-21-0072. Newman Road family Subdivision

Mr. Wysong addressed the Committee and stated that Mrs. Sheila Chandler submitted a family

subdivision application on behalf of Mr. Kenneth Chandler to create a 6.07-acre lot within the parcel addressed 7751 Newman Road. He said this property is approximately 50 acres, zoned A-1, General Agricultural, and is part of the Christenson's Corner AFD. Mr. Wysong stated, per the AFD Ordinance, a subdivision of land shall result in parcels greater than 25 acres except in cases where the Board of Supervisors approve of smaller lots as part of family subdivisions. He said therefore the case is before the Committee today.

Mr. Wysong said the new 6.07-acre parcel would remain within the AFD. He said there are no proposed changes to the AFD or negative impacts on surrounding property. Mr. Wysong said Staff recommends the AFD Advisory Committee recommend approval of this application to the Board of Supervisors, and he would be happy to answer any questions.

(Add discussion)

Mr. Wanner motioned to recommend approval of Case No. S-21-0072, Newman Road family Subdivision, to the Planning Commission and Board of Supervisors.

Mr. Abbott seconded the motion.

On a voice vote of 6-0, the motion was approved.

5. Case No. S-21-0069. 2188 Lake Powell Road, Perkinson Family Subdivision

Mr. Wysong stated that Mr. Alister Perkinson submitted a family subdivision application on behalf of his father, Mr. Roderick Perkinson, to create a 3.8-acre lot within the parcel addressed 2188 Lake Powell Road. Mr. Wysong said this property is approximately 28 acres, zoned R-8, Rural Residential, and is part of the Gospel Spreading Church AFD. Mr. Wysong said that, per the Gospel Spreading Church AFD Ordinance, a subdivision of land shall result in parcels greater than 25 acres except in cases where the Board of Supervisors approves of smaller lots as part of family subdivisions. Mr. Wysong said this means the AFD and BOS need to approve this subdivision. He noted the new 3.8-acre parcel would remain within the AFD, and there are no proposed changes to the AFD or negative impacts on surrounding property. Mr. Wysong stated that Staff recommends the AFD Advisory Committee recommend approval of this application to the Board of Supervisors. He said he would be happy to answer any questions, and the applicant is also available to answer questions as well.

(Add discussion)

Mr. Abbott motioned to recommend approval of Case No. S-21-0072, Newman Road family Subdivision, to the Planning Commission and Board of Supervisors.

Mr. Taylor seconded the motion.

On a voice vote of 6-0, the motion was approved.

F. DISCUSSION ITEMS

1. 2022 AFD Renewal Survey Responses

Mr. Crump stated the Board of Supervisors has requested that the Committee survey property owners regarding their preferred length of term renewal. He reviewed the survey card responses…

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G. ADJOURNMENT

Mr. Wanner motioned to Adjourn the meeting.

Mr. Abbott seconded the motion.

The meeting was adjourned at 5 p.m. after a unanimous 6-0 voice vote.

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AGENDA ITEM NO. K.1.

ITEM SUMMARY

DATE: 4/12/2022

TO: The Board of Supervisors

FROM: Rebecca Vinroot, Director of Social Services

SUBJECT: Appointment - Colonial Behavioral Health Board

ATTACHMENTS:

Description	Type

REVIEWERS:

Department	Reviewer	Action	Date
Social Services	Vinroot, Rebecca	Approved	3/25/2022 - 9:17 AM
Publication Management	Daniel, Martha	Approved	3/25/2022 - 9:27 AM
Legal Review	Kinsman, Adam	Approved	3/25/2022 - 9:48 AM
Board Secretary	Saeed, Teresa	Approved	3/30/2022 - 8:04 AM
Board Secretary	Rinehimer, Bradley	Approved	3/30/2022 - 8:06 AM
Board Secretary	Saeed, Teresa	Approved	3/31/2022 - 8:54 AM

AGENDA ITEM NO. L.1.

ITEM SUMMARY

DATE: 4/12/2022

TO: The Board of Supervisors

FROM: Teresa J. Saeed, Deputy Clerk

SUBJECT: Adjourn until 1 pm on April 26, 2022 for the Budget Business Meeting

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REVIEWERS:

Department	Reviewer	Action	Date
Board Secretary	Saeed, Teresa	Approved	4/5/2022 - 3:07 PM