

**LYNCHBURG CITY COUNCIL
PHYSICAL DEVELOPMENT COMMITTEE
Tuesday, April 8, 2014
9:00 a.m.**

Information Items

Recent/Pending Contract Awards: –

<u>Project/Phase</u>	<u>Contractor/Consultant</u>	<u>Budgeted Amount</u>	<u>Contract Amount</u>
Wingate Tank #2	Anderson Construction	\$733,000	\$713,220

Update on priority projects – see attached report.

General Business

1. Vacate a portion of right-of-way in front of 2134 and 2138 Kevin Henry
Langhorne Road.
2. Change in Status of Main Street Bridge Lee Newland
3. Urban Project Request for Odd Fellows Road P3 Projects Lee Newland
4. City Reimbursements to Developers Lee Newland
5. Daniel's Hill Community Garden Update Bonnie Svrcek
6. Discussion of May 13th Meeting Time due to
Police Week Ceremony and Breakfast
7. Roll Call

Pc: Kimball Payne, City Manager
Bonnie Svrcek, Deputy City Manager
Council Members
Gaynelle Hart, Director of Public Works
News & Advance

Next Meeting: May 13, 2014

Lynchburg Capital Projects (General Fund)

April 8, 2014

Projects of Interest		Status		Notes
Timberlake / Logan's Lane Intersection		Design	July 2014	Preliminary Design - Public Meeting Held - Interchange Modification Report Submitted to VDOT - Addressing VDOT Comments
Wards Road Pedestrian X-ing 2B		Construction	May 2014	Trail Phase 2B - Preparing to Start Construction
Midtown Connector		Construction	May 2015	Under Construction - Fort / Park Avenue Open - Working on Langhorne & Kemper
Greenview Drive Phase 2		R/W	August 2014	Project to be Included in P3 RFP with VDOT - Revenue Sharing Funds Awarded
Kemper Street Bridge / Interchange		Design	August 2014	Bids were over Budget. Working on Re-Design Hope to ReBid in Late August
Lower Bluffwalk Phase 2		Construction	October 2014	Underway
Memorial - Park - Lakeside Intersection		R/W	April 2013	Utility Relocations Underway - Project Discussion Underway with Engineer to ReBid
Miller Center Renovations		Construction	August 2014	Construction on Building Going Well and on Schedule. Parking Lot Construction has Been Slowed Due to Weather.
Odd Fellows Road - P3		Advertising	May 2014	Proposal Being Considered By VDOT - Hope to Advertise by May -
Lakeside Drive Improvements @ L.C.		Design	September 2014	Design Underway - VDOT Performing SERP.
Harvard Road Improvements at Tunnel		Construction	June 2014	Adding Turn Lanes and Utilities
Fifth Street Phase 2 Utilities w/ Streetscapes		Construction	November 2013	Closeout in Progress.

LYNCHBURG CITY COUNCIL

Agenda Item Summary

MEETING DATE: **April 8, 2014 (PDC)**

AGENDA ITEM NO.:

CONSENT: REGULAR: **X**

WORK SESSION:

CLOSED SESSION:
(Confidential)

ACTION:

INFORMATION:

ITEM TITLE: **Vacate a portion of right-of-way in front of 2134 and 2138 Langhorne Road.**

RECOMMENDATION: Vacate the right-of-way.

SUMMARY: Beacon Credit Union, Inc. and Mr. Morris E. McCrary, III are petitioning to vacate a portion of right-of-way in front of 2134 and 2138 Langhorne Road. The area is approximately two hundred twenty-four thousandths (.224) of an acre and runs three hundred sixty seven and twenty six hundredths (367.26) feet along the frontage of Langhorne Road and Tate Springs Road. This section of right-of-way includes a grassed area and a driveway entrance which serves 2134 Langhorne Road.

The petitioner is requesting the vacation in order to accommodate a new sign, stormwater, and parking at 2134 Langhorne Road for a future bank (Beacon Credit Union). The adjacent property owner of 2138 Langhorne Road (Mr. McCrary) is also in agreement with the right-of-way vacation in order to provide more land for future growth of the office use on his property.

There is no planned expansion of this intersection and staff feels there would be minimal impact from the vacation of this portion of the right-of-way.

PRIOR ACTION(S):

March 17, 2014: The Technical Review Committee [TRC] reviewed the petition. The TRC comments have been incorporated into the proposed ordinance.

FISCAL IMPACT: None

CONTACT(S): Kevin Henry, Planner II – 455-3900
Tom Martin, City Planner - 455-3900
Kent White, Director of Community Development – 455-3900

ATTACHMENT(S):

- Ordinance
- Application
- Map
- Copy of Survey

REVIEWED BY:

AN ORDINANCE VACATING A PORTION OF RIGHT OF WAY IN FRONT OF 2134 AND 2138 LANGHORNE ROAD.

WHEREAS, Beacon Credit Union, Inc. and Mr. Morris E. McCrary, III are petitioning to vacate a portion of right of way located in front of the properties 2134 and 2138 Langhorne Road, which is described as follows; and,

WHEREAS, City Council finds that no public inconvenience will result from vacating the portion of right of way

NOW, THEREFORE, BE IT ORDAINED by the Council of the City of Lynchburg, on its own motion, and in accordance with the provisions of Section 15.2-2006 of the Code of Virginia, 1950, as amended, and Section 35-71 through Section 36-77 of the City Code, 1981, as amended, the following described right of way be, and the same hereby is, discontinued and vacated, namely:

Beginning at a point, which point is located on the northerly right of way line of Tate Springs Road, and which point is located thirty- six and thirty-five hundredths (36.35) feet in an easterly direction from the southwestern corner of the property of Beacon Credit Union, Inc.;

Thence, with said line of Tate Springs Road, North 88 degrees 23 Minutes 31 Seconds East for a distance of one hundred sixty-three and sixty-five hundredths (163.65) feet to an iron pin found, which iron pins is a common corner between said Beacon and the property of Morris E. McCrary, III;

Thence, further along said line of Tate Springs Road with the line of said McCrary, North 88 degrees 23 Minutes 31 Seconds East for a distance of one hundred (100) feet to a punch hole found in concrete;

Thence, further along said line of Tate Springs Road with the line of said McCrary, along a curve to the left having a radius of one thousand five hundred ninety-two and twenty-eight hundredths (1,592.28) feet and an arc length of twenty-five (25) feet, being subtended by a chord of North 87 Degrees 56 Minutes 31 Seconds East for a distance of twenty-five (25) feet to a point;

Thence, leaving said line of Tate Springs Road along a new right of way line, South 28 Degrees 48 Minutes 03 Seconds East for a distance of eight and two hundredths (8.02) feet to a point;

Thence, further along said new right of way line, along a curve to the left having a radius of ninety-nine and twenty-three hundredths (99.23) feet and an arc length of fifty-six and fifty-six hundredths (56.56) feet, being subtended by a chord of South 44 Degrees 52 Minutes 13 Seconds West for a distance of fifty-five and eight tenths (55.80) feet to a point;

Thence, further along said new right of way line, along a curve to the right having a radius of fifty (50) feet and an arc length of seventy-six and forty-eight hundredths (76.48) feet, being subtended by a chord of South 72 Degrees 21 Minutes 47 Seconds West for a distance of sixty-nine and twenty-four hundredths (69.24) feet to a point;

Thence, further along said new right of way line, North 63 Degrees 48 Minutes 54 Seconds West for a distance of forty-six and eighty-four hundredths (46.84) feet to a point;

Thence, further along said new right of way line, along a curve to the left having a radius of three hundred eighty-three and thirty-eight hundredths (383.38) feet and an arc length of one hundred fifty-one and three hundredths (151.03) feet, being subtended by a chord of North 75 Degrees 06 Minutes 03 Seconds West for a distance of one hundred fifty and six hundredths (150.06) feet to the point of beginning;

Together with and subject to covenants, easements, and restrictions of record.

Said property contains two hundred twenty-four (0.224) acres more or less;

Said vacation is contingent upon the following: (1) that an easement to locate, relocate, repair, replace, maintain and perpetually operate all utilities currently located therein or needed by the City in the future is hereby reserved unto the City of Lynchburg, and the construction of any building or structure or the use of the

vacated property in any manner that could interfere with the City's right to locate, relocate, repair, replace, maintain and perpetually operate utilities is prohibited without the prior written approval of the City Manager's Office, City Utilities Division and the City Engineering Division.

BE IT FURTHER ORDAINED that the Clerk of the Council is hereby authorized and directed to deliver a duly-certified copy of this ordinance to the Clerk of the Circuit Court for the City of Lynchburg so that said certified copy of this ordinance may be recorded as deeds are recorded and indexed in the name of the City of Lynchburg.

Adopted:

Certified:

Clerk of Council

APPLICATION FOR THE VACATION OF A
PORTION OF TATE SPRINGS ROAD
LOCATED BETWEEN
Langhorne Road and Langhorne Square

The undersigned applicant, Beacon Credit Union, Inc., pursuant to the provisions of Section 15.2-2006 of the Code of Virginia, 1950, as amended, and Section 35-71 through Section 35-77 of the City Code, 1981, as amended, respectfully makes application to the Lynchburg City Council for the vacation of that certain parcel described as follows:

ALL THAT CERTAIN PARCEL OF LAND, BEING A PORTION OF THE RIGHT-OF-WAY OF TATE SPRINGS ROAD BETWEEN LANGHORNE ROAD AND LANGHORNE SQUARE IN THE CITY OF LYNCHBURG, VIRGINIA AND FURTHER DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT, WHICH POINT IS LOCATED ON THE NORTHERLY RIGHT-OF-WAY LINE OF SAID LANGHORNE ROAD AT ITS INTERSECTION WITH THE NORTHERLY RIGHT-OF-WAY LINE OF TATE SPRINGS ROAD, AND WHICH POINT IS LOATED 36.35 FEET IN AN EASTERLY DIRECTION FROM THE SOUTHWESTERN CORNER OF THE PROPERTY OF BEACON CREDIT UNION, INC.;

THENCE, WITH SAID LINE OF TATE SPRINGS ROAD, NORTH 88 DEGREES 23 MINUTES 31 SECONDS EAST FOR A DISTANCE OF 163.65 FEET TO AN IRON PIN FOUND, WHICH IRON PIN IS A COMMON CORNER BETWEEN SAID BEACON AND THE PROPERTY OF MORRIS E. McCRARY, III;

THENCE, FUTHER ALONG SAID LINE OF TATE SPRINGS ROAD WITH THE LINE OF SAID McCRARY, NORTH 88 DEGREES 23 MINUTES 31 SECONDS EAST FOR A DISTANCE OF 100.00 FEET TO A PUNCH HOLE FOUND IN CONCRETE;

THENCE, FUTHER ALONG SAID LINE OF TATE SPRINGS ROAD WITH THE LINE OF SAID McCRARY, ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 1592.28 FEET AND AN ARC LENGTH OF 25.00 FEET, BEING SUBTENDED BY A CHORD OF NORTH 87 DEGREES 56 MINUTES 31 SECONDS EAST FOR A DISTANCE OF 25.00 FEET TO A POINT;

THENCE, LEAVING SAID LINE OF TATE SPRINGS ROAD ALONG A NEW RIGHT-OF-WAY LINE, SOUTH 28 DEGREES 48 MINUTES 03 SECONDS EAST FOR A DISTANCE OF 8.02 FEET TO A POINT;

THENCE, FURTHER ALONG SAID NEW RIGHT-OF-WAY LINE, ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 99.23 FEET AND AN ARC LENGTH OF 56.56 FEET, BEING SUBTENDED BY A CHORD OF SOUTH 44 DEGREES 52 MINUTES 13 SECONDS WEST FOR A DISTANCE OF 55.80 FEET TO A POINT;

THENCE, FURTHER ALONG SAID NEW RIGHT-OF-WAY LINE, ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 50.00 FEET AND AN ARC LENGTH OF 76.48 FEET, BEING SUBTENDED BY A CHORD OF SOUTH 72 DEGREES 21 MINUTES 47 SECONDS WEST FOR A DISTANCE OF 69.24 FEET TO A POINT;

THENCE, FURTHER ALONG SAID NEW RIGHT-OF-WAY LINE, NORTH 63 DEGREES 48 MINUTES 54 SECONDS WEST FOR A DISTANCE OF 46.84 FEET TO A POINT;

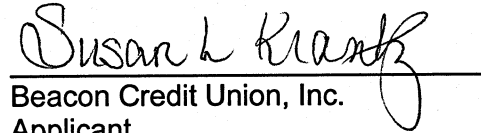
THENCE, FURTHER ALONG SAID NEW RIGHT-OF-WAY LINE, ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 383.38 FEET AND AN ARC LENGTH OF 151.03 FEET, BEING SUBTENDED BY A CHORD OF NORTH 75 DEGREES 06 MINUTES 03 SECONDS WEST FOR A DISTANCE OF 150.06 FEET TO THE POINT OF BEGINNING;

TOGETHER WITH AND SUBJECT TO COVENANTS, EASEMENTS, AND RESTRICTIONS OF RECORD.

SAID PROPERTY CONTAINS 0.224 ACRES MORE OR LESS.

The applicant further requests the Lynchburg City Council to hold a public hearing on this application at its meeting to be held in the Council Chambers, City Hall, 900 Church Street, Lynchburg, Virginia, on April 22, 2014, at 7:30 p.m., or as soon thereafter as the matter may be heard, and at the conclusion of which hearing to consider whether or not to vacate the above described parcel.

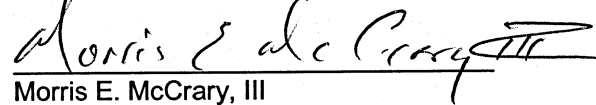
Given under my hand this 11 day of March, 2014.


Beacon Credit Union, Inc.
Applicant

6320 Logan Lane
Lynchburg, VA 24502-4292

Telephone Number: 1-434-237-1566, Ext 203

I, THE ADJOINING PROPERTY OWNER, AM IN AGREEMENT TO THE VACATION OF THE ABOVE DESCRIBED PROPERTY; AND, FURTHER, AM IN AGREEMENT WITH THE APPORTIONMENT OF THE VACATED PARCEL BETWEEN THE TWO AFFECTED PROPERTY OWNERS.


Morris E. McCrary, III
Adjoining Owner

2138 Langhorne Road
Lynchburg, VA 24501-1424

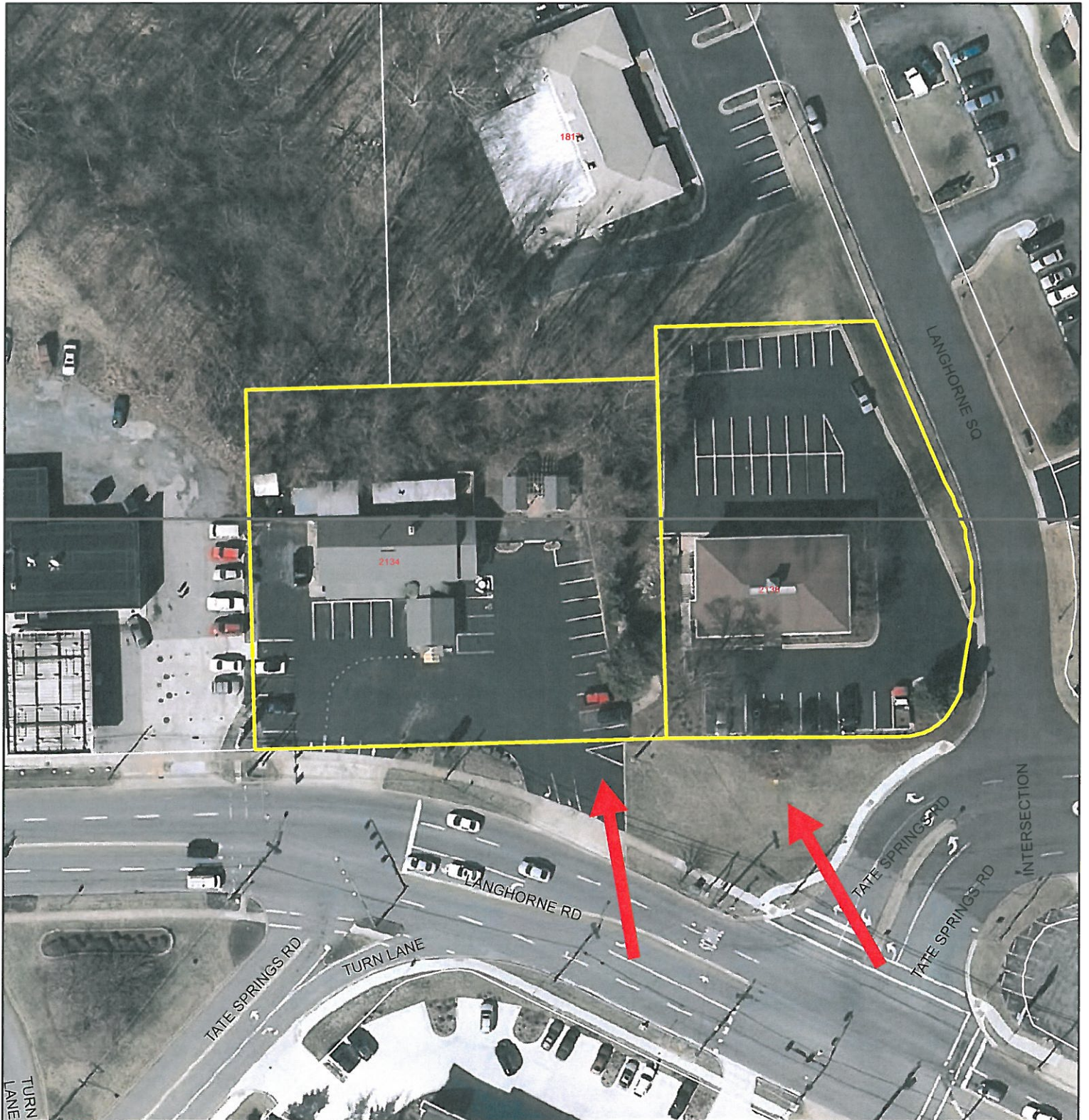
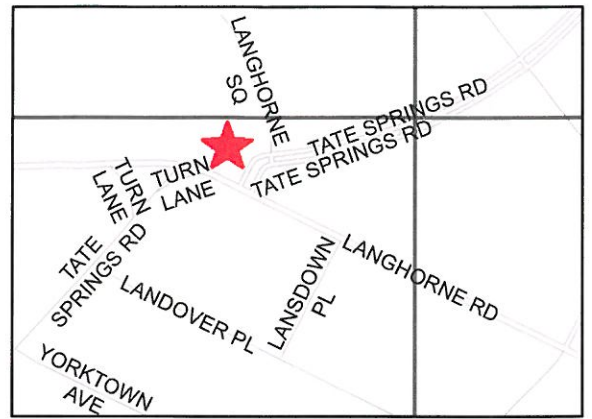
Telephone Number: 434-947-3920

2134 & 2138 Langhorne Road

Right-of-Way Vacation



Location



GRID NORTH
VA STATE PLANE (SOUTH ZONE)
NAD 83

CANDLER OIL COMPANY, INC.
D.B. 1140, PG. 129
INSTR #050002372
PIN: 00601018

BEACON CREDIT UNION, INC.
INSTR #120007911
PIN: 00125001
#2134 LANGHORNE ROAD
0.804 AC.

THOMAS E. DUNCAN &
REBECCA M. DUNCAN
D.B. 683, PG. 620
PIN: 00125004

MORRIS E. McCRARY, III
INSTR #010010781
PIN: 00125005
#2138 LANGHORNE ROAD
±0.61 AC. (PER RECORD)

CURVE DATA CHART					
CURVE	DELTA	RADIUS	LENGTH	CHORD	CHD BEARING
C1	000°53'59"	1592.28'	25.00'	25.00'	S87°56'31"W
C2	032°39'29"	99.23'	56.56'	55.80'	S44°52'13"W
C3	087°38'37"	50.00'	76.48'	69.24'	S72°21'47"W
C4	022°34'18"	383.38'	151.03'	150.06'	N75°06'03"W

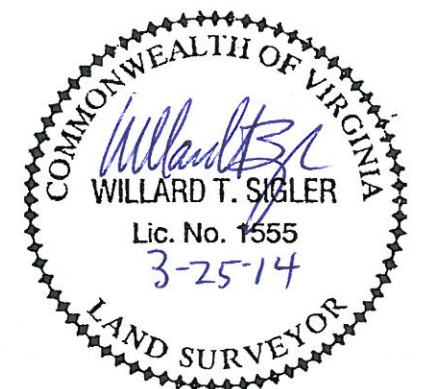
LEGEND	
	CORNER NEITHER SET NOR FOUND
	IRON PIN SET
	IRON PIN FOUND (IPF)
	R/W RIGHT-OF-WAY
	WM WATER METER
	TP TELEPHONE PEDESTAL
	UTILITY POLE
	OVERHEAD UTILITIES
	GUY WIRE
	WL APPROXIMATE LOCATION EXISTING WATER LINE
	CONCRETE
	C&G CURB & GUTTER

TATE SPRINGS ROAD
(VARIABLE WIDTH R/W)

RECEIVED

MAR 26 2014

COMMUNITY
DEVELOPMENT



NOTES:

1. THIS PLAT HAS BEEN PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AND DOES NOT NECESSARILY INDICATE ALL ENCUMBRANCES UPON THE TITLE.
2. BY GRAPHIC SCALING ONLY, THIS PROPERTY IS LOCATED IN ZONE "X" (NOT IN A SPECIAL FLOOD HAZARD AREA) ACCORDING TO THE F.E.M.A. FLOOD INSURANCE RATE MAP FOR THE CITY OF LYNCHBURG, VIRGINIA (#5100930041D) DATED JUNE 3, 2008. NO FIELD SURVEYING WAS PERFORMED TO MAKE THIS DETERMINATION.
3. THIS PLAT DOES NOT PURPORT TO ADDRESS THE EXISTENCE, DETECTION OR DELINEATION OF ANY ENVIRONMENTALLY SENSITIVE AREAS OR ANY ENVIRONMENTAL PROBLEMS LOCATED WITHIN THE PERIMETER OF THE PROPERTY SHOWN.
4. THIS PLAT HAS BEEN PREPARED FROM AN ACTUAL FIELD SURVEY DONE AS PER DATE OF THIS PLAT ONLY OF PARCELS "A" & "B" AND THE BEACON CREDIT UNION PROPERTY. THE McCRARY PROPERTY HAS BEEN PLOTTED FROM RECORDS AND IS NOT THE RESULT OF A CURRENT FIELD SURVEY.

BERKLEY-HOWELL & ASSOC., P.C.

ENGINEERS - SURVEYORS - PLANNERS

306 ENTERPRISE DRIVE, SUITE C

FOREST, VIRGINIA 24551

PHONE: (434)385-7548 FAX: (434)385-6178

SCALE: 1" = 50'

DATE: MARCH 7, 2014

REV. 3-25-14

PLAT SHOWING

PORTION OF RIGHT-OF-WAY
OF TATES SPRINGS ROAD TO BE VACATED
AND APPORTIONED TO ADJOINING OWNERS

CITY OF LYNCHBURG, VIRGINIA

COMM. NO. 130135

F.B. REF.

LYNCHBURG CITY COUNCIL

Agenda Item Summary

MEETING DATE: **April 8, 2014 (PDC)**

AGENDA ITEM NO.:

CONSENT:

REGULAR: **X**

WORK SESSION:

CLOSED SESSION:

(Confidential)

ACTION: **X**

INFORMATION:

ITEM TITLE: **Change in Status of Main Street Bridge**

RECOMMENDATION: Endorse the attached resolution to reclassify the current Main Street Bridge Revenue Sharing Project from a maintenance project to a construction project.

SUMMARY: In 2012, City Council approved an application for FY2014 Revenue Sharing Funds from VDOT for maintenance work on Main Street Bridge over the Lynchburg Expressway. A portion of those funds were approved and made available July 1, 2013. Staff has performed further evaluation on the concrete crib walls along the expressway at the bridge and has determined that their condition is poor and need to be rehabilitated. To minimize disruption to the travelling public, it is recommended that these walls be rehabilitated when the bridge is being worked on. With the additional work that is required, the project is no longer a maintenance effort and will be a construction project. Council approved an additional application for construction funds in November 2013. To be able to transfer the maintenance funds to the more in-depth construction project, the attached resolution is required.

PRIOR ACTION(S):

City Council, November 27, 2012

City Council, November 12, 2013

FISCAL IMPACT:

None

CONTACT(S):

Lee Newland, City Engineer, 455-3947

Gaynelle Hart, Director of Public Works, 455-4406

ATTACHMENT(S):

Resolution

REVIEWED BY:

RESOLUTION

WHEREAS, the Lynchburg City Council submitted a FY 2014 Revenue Sharing Program Application for maintenance activities to be performed on Main Street Bridge over the Lynchburg Expressway; and,

WHEREAS, the project was approved by the Commonwealth Transportation Board and set up as a project (UPC 104173); and,

WHEREAS, upon further engineering evaluation the crib retaining walls at the abutments are in such poor condition that they need to be rehabilitated as part of the bridge project to minimize disruption to the travelling public.

NOW, THEREFORE, BE IT RESOLVED That the Lynchburg City Council hereby requests that the Main Street Bridge maintenance project (UPC 104173) be reclassified by the Virginia Department of Transportation as a construction project.

BE IT FURTHER RESOLVED THAT: L. Kimball Payne, III, City Manager, is authorized to execute the City State Agreements and to execute any other documents for agreements that may be needed for this project.

Adopted: _____

Certified: _____
Clerk of Council

LYNCHBURG CITY COUNCIL

Agenda Item Summary

MEETING DATE: **April 8, 2014 (PDC)**

AGENDA ITEM NO.:

CONSENT:

REGULAR: **X**

WORK SESSION:

CLOSED SESSION:

(Confidential)

ACTION: **X**

INFORMATION:

ITEM TITLE: **Urban Project Request for Odd Fellows Road P3 Projects**

RECOMMENDATION: Endorse the attached resolutions to create an urban highway project for Odd Fellows Road and to include Greenview Drive in the Virginia Department of Transportation (VDOT) P3 project.

SUMMARY In 2009 VDOT created a project to construct an interchange on US Route 460 at Odd Fellows Road (segment A). This project would tie into the existing Odd Fellows Road which is substandard and would need to be improved. The portion from the new interchange to Mayflower Drive was included in the preliminary studies and included a roundabout at Mayflower Drive (segment B1). In 2013, an unsolicited Public Private Partnership (P3) proposal was submitted to VDOT and included the section of Odd Fellows Road from Mayflower Drive to the Lynchburg Expressway (segment B2) and Greenview Drive (segment C).

Since neither segment B1 or B2 was included in the earlier description of the VDOT Odd Fellows Road project in the Six Year Plan, in order to meet Federal and State requirements, City Council needs to ask VDOT to include these additional segments in the project.

Also, since segment C, Greenview Drive, a City project, has been included in the scope of the P3 proposal Council needs to ask that Greenview Drive be included in the VDOT P3 project and transfer the awarded Revenue Sharing funds to that project. The City has been assured that if the P3 project does not proceed with segment C, the funds previously allocated for Greenview Drive would be returned to the City of Lynchburg for us to complete as a City project.

VDOT personnel will be present on Tuesday to answer any questions from Council.

PRIOR ACTION(S):

Physical Development Committee, February 26, 2013

FISCAL IMPACT:

CONTACT(S):

Lee Newland, City Engineer, 455-3947

Gaynelle Hart, Director of Public Works, 455-4406

ATTACHMENT(S):

Resolutions

REVIEWED BY:

RESOLUTION

WHEREAS, in accordance with Virginia Department of Transportation construction allocations procedures, it is necessary that a request by Council resolution be made in order that the Department program an Urban Highway project in the City of Lynchburg;

NOW, THEREFORE, BE IT RESOLVED That the Lynchburg City Council requests the Virginia Department of Transportation to establish an urban system highway project for the improvement of Odd Fellows Road from 460 to Mayflower Drive, a distance of approximately 0.7 miles as Segment B1 of UPC 105515 and Mayflower Drive to the Lynchburg Expressway, a distance of approximately 0.6 miles as Segment B2 of UPC 105515.

BE IT FURTHER RESOLVED That the Lynchburg City Council hereby agrees to work with the Virginia Department of Transportation to partner with and participate in the procurement of the project under the Public-Private Transportation Act of 1995, VA Code §56-556, as amended to fully develop and construct the the Odd Fellows Road Project (UPC 105515), including Segments A, B1, B2, and C.

Adopted: _____

Certified: _____
Clerk of Council

RESOLUTION

WHEREAS, the City established a construction project for Greenview Drive Phase 2 (VDOT UPC 87145) to widen Greenview Drive from 2 lanes to 4 lanes; and

WHEREAS, the City has performed preliminary engineering for the improvements for this project; and

WHEREAS, the City has received and is a party to a State Revenue Sharing Grant for the partial acquisition of Right of Way for this project; and

WHEREAS, the City wishes to add the Greenview Drive project, as Segment "C," to the Odd Fellows Road Interchange at US Route 29/460 and Roadway Improvements Project/Odd Fellows Road Extension Project (VDOT UPC 105515) which VDOT is procuring under the Public-Private Transportation Act of 1995, VA Code § 56-556, as amended;

NOW, THEREFORE, BE IT RESOLVED That the Lynchburg City Council requests that the Odd Fellows Road Extension Project (UPC 105515) be designated as a Revenue Sharing Project and that the Greenview Drive Revenue Sharing Project (UPC 87145) be incorporated into UPC 105515 as Segment "C"; and

BE IT FURTHER RESOLVED That the Council hereby reallocates all Revenue Sharing Funds, totaling \$1,700,000, from the Greenview Drive Revenue Sharing Project (UPC 87145) to the Odd Fellows Road Project (UPC 105515) upon approval of a P3 agreement for the Odd Fellows Road project that includes Greenview Drive as Segment "C."

Adopted: _____

Certified: _____
Clerk of Council

LYNCHBURG CITY COUNCIL

Agenda Item Summary

MEETING DATE: **April 8, 2014 (PDC)**

AGENDA ITEM NO.:

CONSENT:

REGULAR: **X**

WORK SESSION:

CLOSED SESSION:

(Confidential)

ACTION: **X**

INFORMATION:

ITEM TITLE: **City Reimbursements to Developers**

RECOMMENDATION:

Discussion of City Code and Policies concerning reimbursements to Developers for public infrastructure installed with developments.

SUMMARY:

There are two main areas of reimbursements, residential and commercial, which can be general fund items like curb & gutter and sidewalks, or water and sewer fund items for water and sewer extensions and service connections. The residential reimbursements can sometimes be for individual homeowners or for subdivision developers.

Public Works/Engineering takes the lead in reimbursements which is a carryover from when Utilities was a part of Public Works. Decisions are made for reimbursements from City Code, Chapters 24, 34 & 39, the City of Lynchburg, Manual of Specifications and Standard Details, and the Engineering Policies/Practices for the Extension of Public Improvements. The latter was created after Council Action on January 13, 1976 and revised on August 17, 2001.

Currently, the City reimburses for:

- 50% of cost for Curb and Gutter installed on City residential streets. Can be from individual homeowner or developer of new subdivision. No reimbursement for commercial.
- 50% of cost of sidewalks installed on any City street to promote complete and sustainable streets.
- 100% of cost of sewer or water mains to get to boundary of new subdivision at rate of 100' per new lot and if economically feasible.
- 100% of sewer and water service connections within a new subdivision.
- 50% of sewer and water mains for commercial properties if feasible.

PRIOR ACTION(S):

None

FISCAL IMPACT:

CONTACT(S):

Lee Newland – City Engineer – 455-3947

Gaynelle Hart – Public Works Director - 455-4469

Jim Talian – Water Resources Engineer – 455-3953

Greg Poff – Assistant Water Resources Director - 455-4249

ATTACHMENT(S):

City Contributions to New Infrastructure

REVIEWED BY:

City Contributions to New Infrastructure

Roadway Improvements

Curbs, gutters and sidewalks: Curbs and gutters are required in accordance with regulations established by the City of Lynchburg, Manual of Specifications and Standard Details. Except where pedestrian traffic is explicitly prohibited, sidewalks are required (i) on at least one (1) side of all streets, (ii) on both sides of streets with a post-development traffic count of greater than six thousand (6,000) vehicles per day. The cost of said curbs, gutters and sidewalks shall be borne fifty (50) percent by the city and fifty (50) percent by the subdivider. Reimbursements shall be in accordance with regulations established by the City of Lynchburg, Manual of Specifications and Standard Details, per the year of origination of the subdivision. 24.1-30.(a)(2)k

3.0 PROCEDURES – ENGINEERING – DESIGN AND CONSTRUCTION

3.1 REIMBURSEMENT TO DEVELOPER PROCEDURE

A. Purpose

The City provides incentives to developers to offset additional costs associated with developing inside the City. The Engineering Division determines the amount of reimbursement owed to a developer upon completion of the project in accordance with City Code and other applicable policies and agreements.

B. General Requirements

Reimbursement Process

1. Following submittal of proposed development plans (road, water, and sewer (RWS) plans) by the Owner for review and approval by City staff, the City Engineering Division will notify the developer, by letter of the City's incentive program.
2. The City Engineering Division will estimate reimbursements quantities based on final approved plans and will add the appropriate City costs (Engineering/Inspection/Testing) and present the petition to City Council's Physical Development Committee (PDC) for the approval and authorization of the necessary funds.
3. Upon completion of the development and acceptance of the petitioned items, the developer shall submit a formal written "Request for Reimbursement" for the accepted items to the City Engineer. The "Request" will include an itemized list or table of each petitioned item, its proposed quantity, and its actual, installed quantity. The Developer must also submit Affidavit of Release of Liens.
4. The City Engineering Division and City Construction Coordinator will review the "Request" for accuracy. If approved, the "Request" will be processed for payment in accordance with the City Ordinances. No payment will be issued until adequate as-built drawings are received.

Items of Reimbursement:

Curb and Gutter at 50% of the construction cost (up to the City current Annual Services Contract price)
Concrete Sidewalk at 50% of the construction cost (up to the City current Annual Services Contract price)
Water Service Connections at 100% of the construction cost (up to the City current Annual Services Contract price)
Sewer Service Connections at 100% of the construction cost (up to the City current Annual Services Contract price)
Sewer Line to the Boundary of the Subdivision
Water Line to the Boundary of the Subdivision

From: Manual of Specifications & Standard Details / Appendix C

Water & Sewer

Existing homes that want new service: If at least 50% of the potential new customers want to become customers, city will construct an extension and charge only connection and availability fees. If greater

than 50% of property owners want to participate, discounts are applied to availability charges. If less than 50%, then same as vacant lots. 34-4.(c)(2)a.; 39-27.(c)(2)a.

New residential subdivisions of five or more lots: City will pay for 100 feet of new line per new single family lot, or pay for 50 feet of new line per new townhome for the line from the existing main to the property boundary. 24.1-31.

Developer pays 100% for all lines within subdivision. 24.1-31.

City pays 100% of cost of service connections. MOSSD

Then developer pays reduced availability fees. 34-4.(h); 39-27.(h)

Commercial, Industrial, Vacant Residential: City will pay for 50% of the cost of an extension. Code actually states "the cost of the project will be apportioned by council between the city and the benefitted property owners". For at least the past 10 years this has been administered as a 50/50 apportionment. 34-4.(d)(2)i; 39-27.(d)(2)b.

LYNCHBURG CITY COUNCIL

Agenda Item Summary

MEETING DATE: **April 8, 2014 (Physical Development Committee)**

AGENDA ITEM NO.:

CONSENT:

REGULAR:

WORK SESSION:

CLOSED SESSION:

(Confidential)

ACTION:

INFORMATION: **X**

ITEM TITLE: Follow-up Report: Lynchburg Area Food Council request to have water connection fee waived at 904 Cabell Street

RECOMMENDATION: Hear a follow-up report on the October 8, 2013 Lynchburg Area Food Council request to have a water connection fee waived at 904 Cabell Street.

SUMMARY: On October 8, 2013 the Physical Development Committee considered a request from the Lynchburg Area Food Council for a waiver for a water connection fee for a community garden located at 904 Cabell Street in the amount of \$1,045..

Following discussion, the Committee directed staff to explore the possibility of using Community Development Block Grant (CDBG) funds to pay for the connection rather than approve a fee waiver.

City staff has explored this issue and the Department of Housing and Urban Development has approved the use of CDBG funds for the water connection (\$1,045) as well as the cost of installing the water line to the property, the bib and backflow preventer (not to exceed \$954) on the property which is owned by the non-profit, Lynchburg Grows. The total cost is estimated at less than \$2,000. If costs of installation exceed this amount, Lynchburg Grows or the Food Council will be asked to pay the additional cost.

This reallocation of funds is considered a minor amendment in the Council adopted Citizen Participation Plan for CDBG and does not require public review or any additional action by the City.

Lynchburg Grows has agreed to fund the annual inspection fee and monthly utility fees. City staff is preparing an agreement between Lynchburg Grows and the City.

PRIOR ACTION(S): October 8, 2013 Physical Development Committee (action deferred; staff directed to explore other options)

FISCAL IMPACT: Administrative reallocation of up to \$1,999 in CDBG funds from a remaining balance for the completed Analysis Of Impediments to Fair Housing project to the Daniels Hill Community Garden The connection fee is \$1,045. Installation of the water line to the property, the bib, and the backflow preventer are not expected to exceed the remaining allocation of \$954.

CONTACT(S): Bonnie Svrcek, Deputy City Manager – 455-3987

ATTACHMENT(S): None

REVIEWED BY: bms

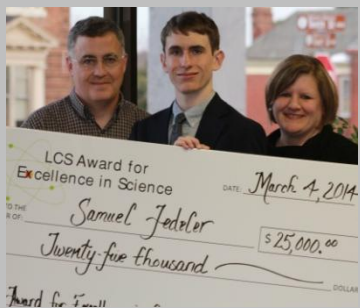


MAINTAINING FINANCIAL SUCCESS

Third straight year of clean audit ◀

No major findings ◀

Financial accountability and operations have strengthened ◀



WHAT'S NEW THIS YEAR?

Requested city increase to school budget is only 1.89 % ◀

Total request of \$723,000 is devoted solely to salary
increase for employees ◀

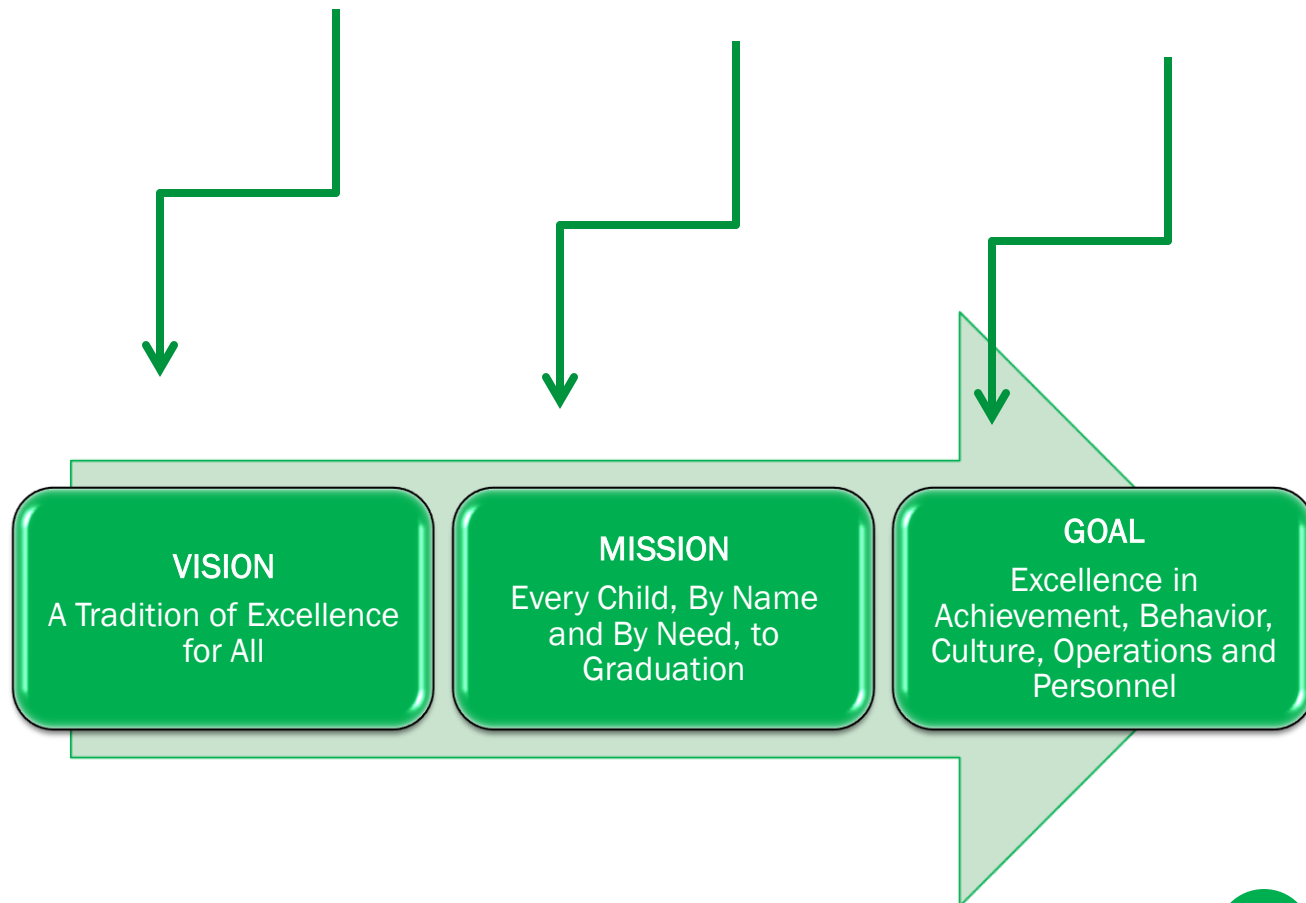
No state funds for salary increases in 2014-15 ◀



Mission: Every Child,
By Name and By
Need, to Graduation

BUDGET PROCESS

Budget ties directly to the implementation of the division's Comprehensive Plan



Mission: Every Child,
By Name and By
Need, to Graduation



Mission: Every Child,
By Name and By
Need, to Graduation

Superintendent's proposed 2014-15 Budget

BUDGET PROCESS

Total operating budget

	FY2014-15	FY2013-14	Total operating budget		
	Proposed Budget	Approved Budget	Amount	Change	%
ADM	8,113.30	8,024.40	88.90		0.011
REVENUES					
State	\$37,121,852	\$33,958,285	\$3,163,567		9.32%
State Sales Tax	9,915,121	9,771,846	143,275		1.47%
Total State	47,036,973	43,730,131	3,306,842		7.56%
Federal	426,000	476,000	(50,000)		-10.50%
Other	1,832,220	1,842,140	(9,920)		-0.54%
Total	\$49,295,193	\$46,048,271	\$3,246,922		7.05%
City Funds	38,201,147	38,201,147	0		0.00%
TOTAL OPERATING REVENUE	\$87,496,340	\$84,249,418	\$3,246,922		3.85%
EXPENDITURES					
Instruction	64,152,508	62,481,847	1,670,661		2.67%
Administration	5,729,197	5,202,980	526,217		10.11%
Pupil Transportation	5,116,157	4,653,591	462,566		9.94%
Operations & Maintenance	10,409,526	9,479,445	930,081		9.81%
Facilities	42,178	41,743	435		1.04%
Debt Service & Fund Transfers	109,199	109,199	0		0.00%
Technology	2,660,575	2,280,613	379,962		16.66%
TOTAL OPERATING EXPENDITURES	88,219,340	84,249,418	3,969,922		4.71%

Funding Gap

723,000

LOCAL
FUNDING
REQUESTS

Current Funding

38,201,147

Additional Funding Requests

723,000

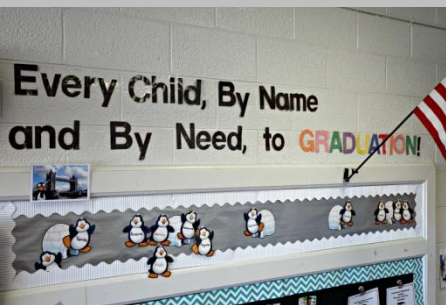
TOTAL LOCAL FUNDING REQUESTS

\$ 38,924,147

Superintendent's proposed 2014-15 Budget

BUDGET PROCESS

Total operating budget



Mission: Every Child,
By Name and By
Need, to Graduation

FY2014-2015 BUDGET REQUESTS

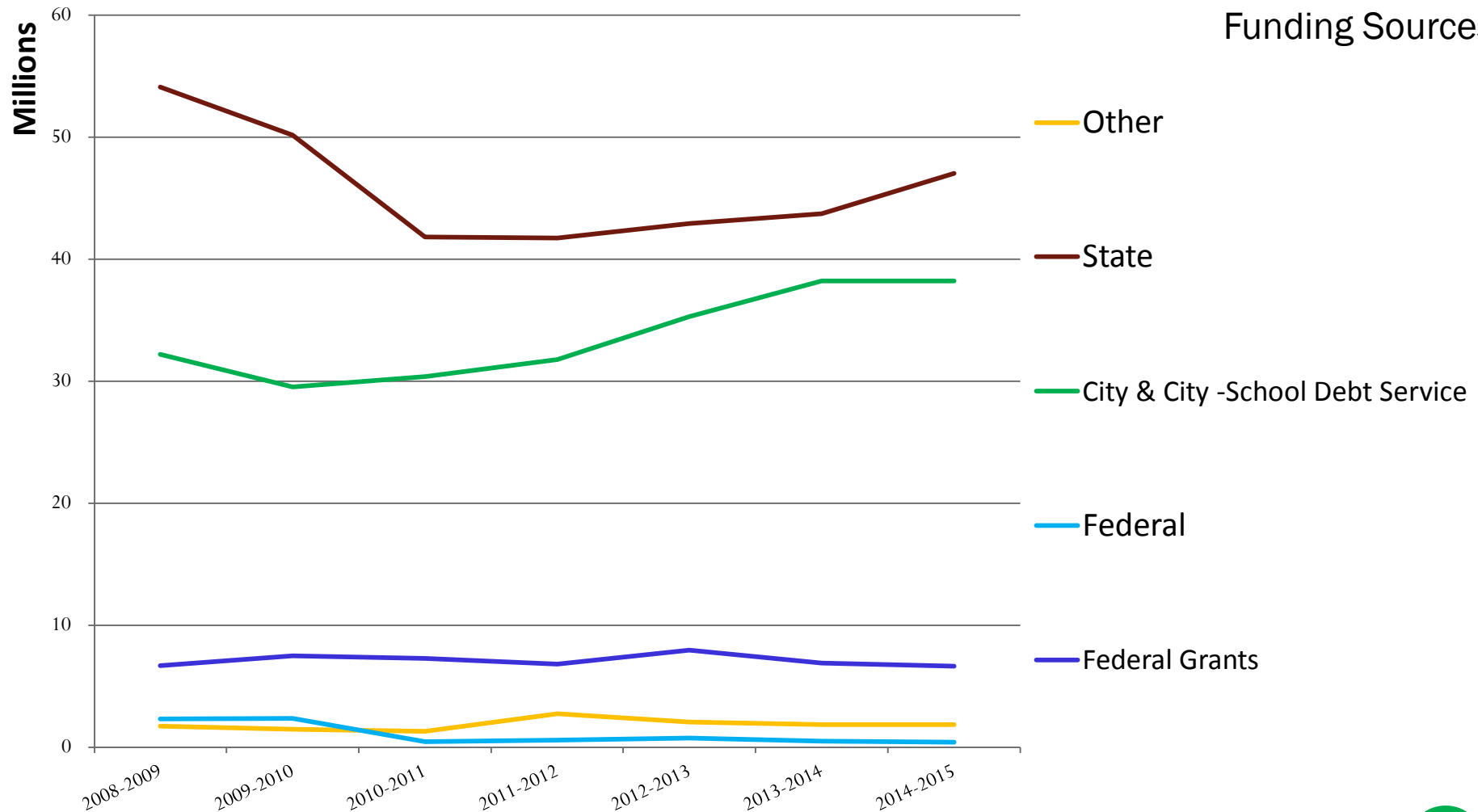
Operating Budget	\$ 723,000
Capital Projects Budget	
Building Projects (excluding Heritage High School)	2,035,000
School Bus Replacement	1,040,000
	\$ 3,798,000

FY2014-2015 PROPOSED BUDGETS

Operating Budget	\$88,219,340
Capital Projects Budget	3,075,000
	\$91,294,340

BUDGET PROCESS

Funding Sources



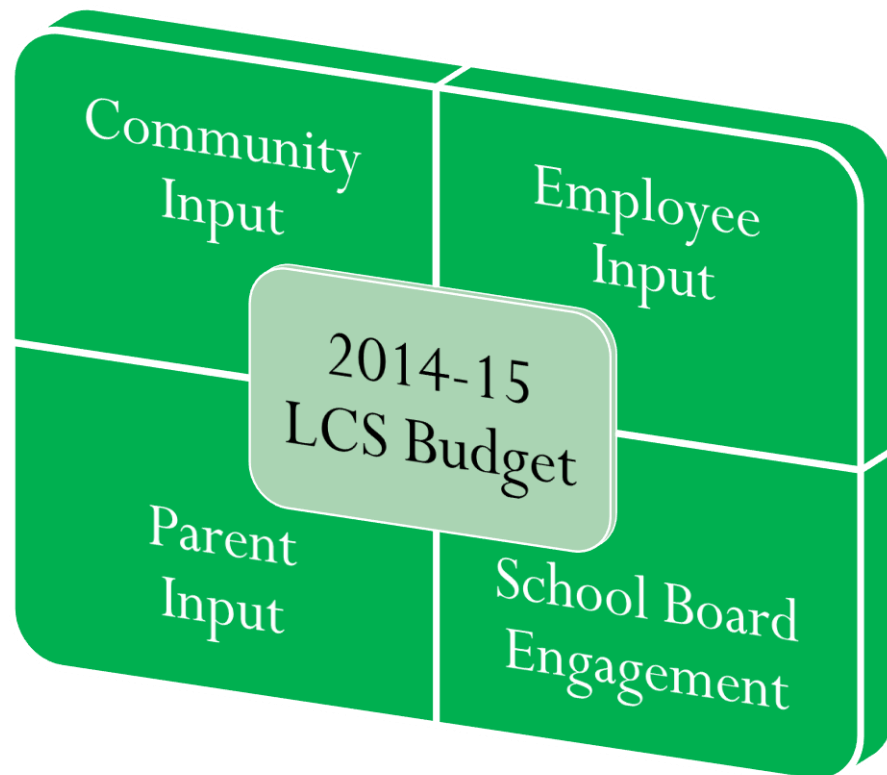


Mission: Every Child,
By Name and By
Need, to Graduation

Superintendent's proposed 2014-15 Budget

BUDGET PROCESS

- ▶ Two Community Budget Forums
- ▶ One Employee Budget Forum
- ▶ Review with Superintendent's Parent Advisory Council
- ▶ Principal meetings
- ▶ Online input using website, Facebook and Twitter
- ▶ Board member budget meetings and work sessions



LCS TEACHER SALARY vs. Region

0 Years		5 Years		10 Years	
Albemarle Co	44,050	Albemarle Co.	46,555	Charlottesville City	49,660
Charlottesville City	43,507	Charlottesville City	46,050	Albemarle Co.	49,058
Nelson Co.	43,000	Nelson Co.	45,000	Botetourt Co.	47,171
Roanoke City	39,037	Botetourt Co.	42,377	Nelson Co.	47,000
Appomattox Co.	38,512	Roanoke City	40,092	Roanoke Co.	42,178
Botetourt Co.	38,350	Roanoke Co.	38,824	Roanoke City	41,926
Amherst Co.	38,138	Charlotte Co.	38,760	Amherst Co.	41,826
Charlotte Co.	38,000	Amherst Co.	38,667	Lynchburg City	40,338
Campbell Co.	37,118	Campbell Co.	38,612	Campbell Co.	39,778
Pittsylvania Co.	36,723	Appomattox Co.	38,512	Bedford Co.	39,741
Bedford Co.	36,627	Bedford Co.	37,973	Charlotte Co.	39,630
Roanoke Co.	36,000	Pittsylvania Co.	37,458	Appomattox Co.	39,386
Lynchburg City	35,738	Lynchburg City	36,999	Pittsylvania Co.	38,498

15 Years		20 Years		Top	
Charlottesville City	53,813	Charlottesville City	57,968	Lynchburg City	67,333
Albemarle Co.	53,473	Albemarle Co.	57,884	Albemarle Co.	66,885
Botetourt Co.	52,923	Botetourt Co.	57,526	Charlottesville City	66,503
Nelson Co.	49,000	Roanoke City	55,669	Roanoke Co.	63,366
Roanoke City	45,341	Nelson Co.	51,000	Campbell Co.	62,026
Roanoke Co.	45,178	Amherst Co.	48,362	Roanoke City	61,559
Amherst Co.	45,094	Roanoke Co.	48,176	Nelson Co.	60,000
Lynchburg City	43,993	Lynchburg City	47,980	Amherst Co.	58,818
Bedford Co.	42,098	Bedford Co.	45,441	Botetourt Co.	58,621
Charlotte Co.	41,768	Appomattox Co.	45,061	Appomattox Co.	57,503
Appomattox Co.	41,568	Charlotte Co.	44,142	Charlotte Co.	56,957
Campbell Co.	41,322	Campbell Co.	43,226	Bedford Co.	53,600
Pittsylvania Co.	39,539	Pittsylvania Co.	41,100	Pittsylvania Co.	50,985

LCS TEACHER SALARY vs. STATE

Out of 132 school divisions in Virginia,
 where does LCS teacher salary rank?

STEP	RANK	Teachers on Step
0	105	61
5	106	25
10	89	34
15	75	33
20	71	12
25	66	9
30	18	6
34	9	51



Mission: Every Child,
 By Name and By
 Need, to Graduation



Mission: Every Child,
By Name and By
Need, to Graduation

LCS EMPLOYEE TURNOVER

Turnover Rate for 13-14

CERTIFIED

22.52%

Reasons for Certified Staff Turnover	
Reason	Percentage
Other Job Opportunity	36%
Retire	31%
Relocation	15%
Household Responsibilities	8%
Resignation (in lieu of termination)	3%
Other	7%

Reasons for Classified Staff Turnover	
Reason	Percentage
Accepted a Teaching Position	2%
Better Benefits/Salary	25%
Retire	25%
Continuing Education	10%
Relocation	7%
Household Responsibilities	9%
Resignation (in lieu of termination)	7%
Other	15%

CLASSIFIED

18%

Reasons for Transportation Staff Turnover	
Reason	Percentage
Better Benefits/Salary	50%
Retire	10%
Relocation	5%
Household Responsibilities	10%
Resignation (in lieu of termination)	15%
Other	10%

TRANSPORTATION

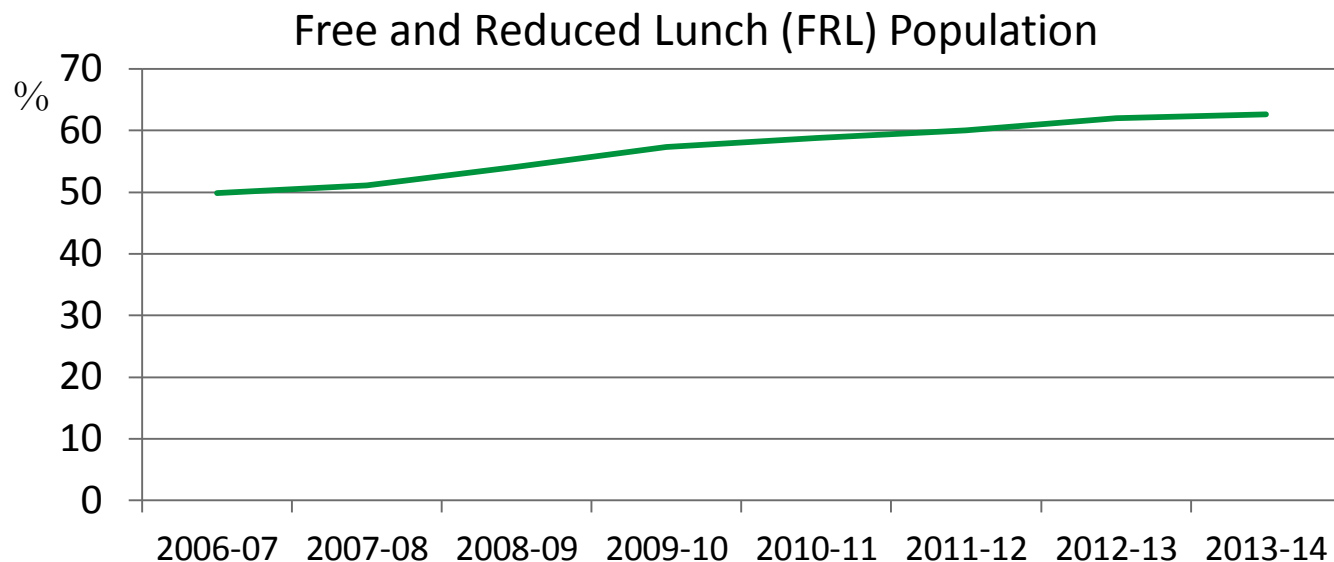
16%



Mission: Every Child,
By Name and By
Need, to Graduation

Superintendent's proposed 2014-15 Budget

Rising numbers of economically disadvantaged students



62 %
FRL

In 2013-14, 62 percent of Lynchburg City Schools students are eligible for FRL

Last Year's Mission-driven Budget

Serving Every Child, By Name and By Need



Mission: Every Child,
By Name and By
Need, to Graduation

- Elementary Alternative Education
- Elementary Security & Truancy Attendants
- Gifted Services
- Special Education and ELL services
- Naviance program
- Career guidance counselor
- Instructional tools

The Success Stories for Alternative Education



Elementary Alternative Education Program

- 88% of students made honor roll first semester



Secondary Alternative Education Program

- Only 8 discipline referrals have been issued at FHCS during this school year

Renovated Hutcherson Early Learning Center is being fully utilized to better serve students with special needs.

- Community Garden
- Parent Resource Center
- Community Playgroups
- Partnership with Amazement Square



Effective PBIS implementation at all schools.

Early Intervention is Working

22.49 %
DECREASE in
total number of
students with
at least one
short term
suspension for
Semester 1.

Mission: Every Child,
By Name and By
Need, to Graduation

Elementary Security & Truancy Attendants

New position at each elementary school

- Implemented Raptor program for visitor and volunteer screening
- Provided early intervention for truancy concerns

Early Intervention is Working

31.84 %
DECREASE in
total number of
elementary
students with 7
or more
unexcused
absences for
Semester 1.



Mission: Every Child,
By Name and By
Need, to Graduation



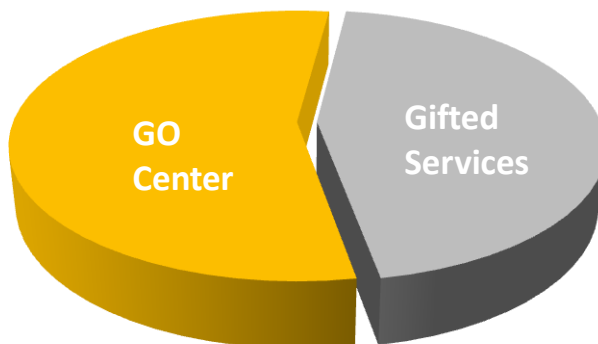
Mission: Every Child,
By Name and By
Need, to Graduation

Superintendent's proposed 2014-15 Budget

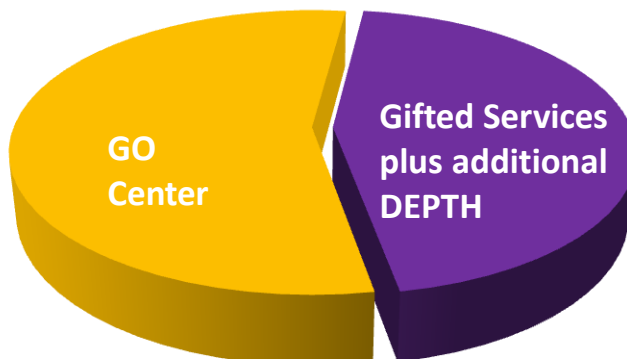
Gifted Services

A GO Center Education for Every Gifted Child

Elementary Gifted Students
served in School Year **2012-13**



Elementary Gifted Students
served in School Year **2013-14**



“We are thrilled, first of all, because we haven’t had anything like this. My kids come home and literally the first thing they talk about is what they did with [gifted resource teacher] Ms. Lewis that day.”

-- **Sheffield Elementary School parent Dacy Ayers**, whose children were previously on the waiting list for the GO Center and are now served by the DEPTH Program.

Special Education and ELL Services



2

Additional
social workers

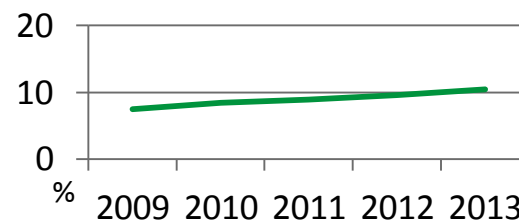
954

Contacts made
with families

113

Home
visits

New teachers and assistants
for Autism program are
serving the rising number of
students with autism.



Mission: Every Child,
By Name and By
Need, to Graduation



Mission: Every Child,
By Name and By
Need, to Graduation

Superintendent's proposed 2014-15 Budget

Naviance Program

College and career research

Goal Setting

Interest Inventories

Tracking of college applications and acceptances



Mission: Every Child,
By Name and By
Need, to Graduation

Superintendent's proposed 2014-15 Budget

Career Guidance Counselor

**NEW BUSINESS INTERNSHIP
PROGRAM**

**NURSING AIDES WITH GENERATION
SOLUTIONS**

**CRIMINOLOGY WITH LYNCHBURG
POLICE DEPARTMENT**

**CYBER SECURITY WITH LIBERTY
UNIVERSITY (proposed)**

With our ever-growing Career Tech program, the career guidance counselor is vital in communicating with middle and high school students about opportunities by hosting Middle School CTE fairs, 10th grade CTE tours, working with high school seniors to create resumes and prepare for interviews and increase community and school knowledge of the CTE program. Expanding CTE

Instructional Tools

i-Ready & Interactive Achievement

‘These tools
have changed
the way we
teach.’

Paula Ryan and Elizabeth
Cook, 4th grade teachers
at Paul Munro

New assessment tools communicate information about students' progress to their teachers.

Teachers use these tools to learn more about each of their students' deficits and strengths.

Tools are used for determining both remediation and acceleration.

Mission: Every Child,
By Name and By
Need, to Graduation

Superintendent's proposed 2014-15 Budget

● We are continuing to make progress in our Comprehensive Plan.



● We are continuing to have initiatives in place for next year that support our plan.

● We are continuing on the path from Good to Great.



A TRADITION OF EXCELLENCE FOR ALL



LYNCHBURG CITY SCHOOLS

CIP Needs

April 8, 2014

Ben W. Copeland

Assistant Superintendent of Operations and Administration

2015-19 Bus Fleet Modernization

Year	Funding Request	Buses
2015	\$1,040,000	12
2016	\$950,000	11
2017	\$988,000	11
2018	\$670,000	8
2019	\$696,800	8

2015-19 Paving, Fencing & Playground

Year	Funding Request
2015	\$260,000
2016	\$270,400
2017	\$281,216
2018	\$292,464
2019	\$170,331

2015-19 Roof Funding

Year	Funding Request	Location
2015	\$650,000	EC Glass (Phase 2) Admin Bldg.
2016-19	\$3,500,000 Deferred	Heritage ES Bass Es Paul Munro ES Linkhorne MS Linkhorne ES EC Glass (Phase 3)

HES Thermographic Roof Survey



2015-19 Athletics

Year	Funding Request	Location
2015	\$510,000	DMS Tennis Courts EC Glass Turf
2016	\$680,000	ECG Turf/Track RS Payne Gym Floor
2017	\$80,000	EC Glass Track
2018	\$0	
2019	\$60,000	Bass Gym Floor

2015-19 Repair & Improvement

Year	Funding Request	Location
2015	\$615,000	Numerous
2016	\$1,070,000	Numerous
2017	\$900,000	Admin HVAC
2018	\$380,000	DMS/TCM HVAC
2019	\$700,000	RS Payne HVAC

2016-19 Deferred Requests

SCHOOL	PROJECT	FUNDING
Sandusky ES	Renovation	\$8,400,000
Linkhorne ES	Renovation	\$9,800,000
Paul Munro ES	Renovation	\$8,000,000
5 Elementary School	Gymnasiums	\$2,500,000
Numerous	Roof Replacements	\$3,500,000

LCS and CVGS

- CVGS is raising tuition by \$500/year for the 2014-15 year.
 - Increase from \$4200 to \$4700.
- CVGS currently has 120 students and the tuition increase generates \$60,000
- LCS has 32 students which equals \$16,000 in additional tuition
- LCS has been offered 10 additional student slots (5 Junior & 5 Senior) tuition free forever(valued at \$47,000)

LCS and CVGS

- Currently Bedford County has the most students at CVGS (40)
- 10 additional students will place LCS first in the number of students at CVGS
 - 42 students in the 2015-16
- LCS has housed the CVGS at HHS since its inception and will continue to do so

LCS and CVGS

- LCS Waitlist for the past three years
 - 15 in 2013-14
 - 20 in 2012-13
 - 15 in 2011-12
- If LCS selects 5 additional juniors for next year the wait list is still **18** students

2016-19 Deferred Requests

March 11, 2014

019

// A regular meeting of the Council of the City of Lynchburg was held on the 11th day of March, 2014, at 4:00 P.M. in the Council Chamber, City Hall, Michael Gillette, President, presiding. The following Members were present:

Present: Cary, Foster, Helgeson, Johnson, Nelson, Perrow, Gillette

7

Absent:

0

// City Manager Kimball Payne presented an overview of the Proposed FY 2015 Budget for the City of Lynchburg. Mr. Payne stated this year's budget totaled \$392.5 million, the increase is mainly attributable to the appropriation for the construction of the new Heritage High School (\$75.1 million). Mr. Payne stated the Proposed FY 2015 Budget represents only modest change from the current year. It is characterized by stable revenues and lower than anticipated costs in some areas. The most significant new expenditures are for debt service for the new Heritage High School and other necessary capital projects and an across-the-board pay increase of one and a half percent (1.5%) for City and Schools employees. The proposed budget also funds increases in the cost of employee benefits, provides for some enhanced services and continues to support important infrastructure projects. The Proposed FY 2015 Budget demonstrates that sound fiscal management, good planning, and discipline in execution can produce positive results. Mr. Payne went on to say that the City can take pride in the accomplishment which funded the largest General Fund capital project in City history, Heritage High School, without a tax increase or a significant reduction in our ability to provide necessary services to the citizens of Lynchburg. The confirmation of the City's AA+ bond rating by Standard & Poor's validated the approach followed by City Council. Mr. Payne further stated that on October 8, 2013, City Council adopted a new vision statement and strategic plan for the Lynchburg community. The strategic plan was a natural evolution from the Sustainable Lynchburg Initiative that had been underway for several years and includes both a foundation and strategic pillars (core areas) that support the vision of Lynchburg as, "A Great Place to Live, Work and Play."

Mr. Payne concluded that the Proposed FY 2015 Budget is offered for City Council consideration, deliberation, amendment, and adoption. Over the next several weeks, Council will have the opportunity to hear from and question the representatives of the various departments and agencies seeking funding in the FY 2015 Budget.

// Director of Human Resources Margaret Schmitt provided a Workforce Data Follow-Up to Council with Updated Market Comparisons and Turnover by Departments. Ms. Schmitt stated that the overall turnover rates have increased slightly with 6.94% voluntary which are resignations and 11.16% total for other reasons (Resignation, Resignation in lieu of Dismissal, Release during Initial Employment Period (IEP), Dismissal, Retirement, Death). Ms. Schmitt shared information about Departments with 25 or more full time employees. The Market Comparison Trend which included Market Data and Salaries as of January 2014 was also explained. In conclusion, Ms. Schmitt explained examples of Department Market Comparisons as of January 2014.

// Water Resources Director Tim Mitchell presented an overview of the FY 2015 Rate Study and Annual Report which includes information on the following:

- Drinking Water, Wastewater and Stormwater Overview
- Financial Overview including: Revenues and expenditures by fund and division, rate analysis and comparisons
- Projection Letter from PJ Sun, LLC
- Water, Sewer, and Stormwater Projections
- Statistical data

Mr. Mitchell stated that the utility rate strategy developed for this year continues with the guiding principles of:

- Minimize the impact of rate adjustments on residential and other small customers
- Ensure necessary funding is provided for increases in operating and debt service costs
- Ensure compliance with the Special Order for Combined Sewer Overflow (CSO)
- Ensure compliance with adopted Fund Balance and Debt Management Financial Policies
- Provide an equitable distribution of costs based on actual services provided

Mr. Mitchell went on to say the proposed increases include increasing the monthly service charge by \$2.00 per month per equivalent meter size which was done last year to continue to help stabilize revenues to cover the fixed costs of operating the water and sewer systems. In addition it is recommended to increase the water volume rate by 2% in order to cover rising costs associated with chemicals and power and to be able to continue water distribution system improvements. Mr. Mitchell stated this will result in an increase to a typical residential water and sewer bill of 3.8%. The actual percent increase will vary depending upon actual consumption. City of Lynchburg customers' water and sewer bills are now 10% below the statewide average. Other proposed increases include a 5% increase in industrial surcharges and septic hauler charges, and a 3% increase for sewer only customers. In conclusion, Mr. Mitchell stated that Water Resources' mission is to "provide excellent water, wastewater, and stormwater services that promote the health, safety, and prosperity of the community." Basically, we want to produce the cleanest water possible while being good stewards of the environment and provide these services at a reasonable and equitable cost.

// During roll call Council Member Nelson stated that on Court Street in the stairs coming down to Church Street there is a lot of trash that needs to be cleaned up.

// Council Member Cary stated that procedures should be put in place about closing schools when there has been a robbery nearby.

// Vice Mayor Johnson stated that he received a complaint from a citizen on Grove Street and he would get with Deputy City Manager Bonnie Svrcek on this issue. He also mentioned that two community leaders in Lynchburg had passed away, Dr. L. Garnell Stamps and Dr. William F. Quillian, Jr.

// Mayor Gillette made the following announcements:

Lynchburg Public Library's Story Time Reading Room Groundingbreaking Ceremony - Thursday, March 20th at 10:00 A.M.

Civic Engagement Meetings – 6:00 P.M. – 8:00 P.M.

March 18, 2014 – Sandusky Middle School Cafeteria

March 24, 2014 – Linkhorne Middle School Cafeteria

March 31, 2014 – Dunbar Middle School Cafeteria

// City Council recessed the meeting at 6:25 p.m.

// City Council reconvened the meeting at 7:30 p.m.

The following Members were present:

Present: Cary, Foster, Helgeson, Johnson, Nelson, Perrow, Gillette 7

Absent: 0

Council Member Nelson gave the Invocation, followed by the Pledge of Allegiance from Boy Scout Troop 180 from Forest, Virginia.

// Mayor Gillette presented a Proclamation for Social Services Work Month, to Human Services Director Tamara Rosser and staff on a job well done and for providing valuable services to the community.

// Copies of the minutes of the January 28, 2014 meeting, having been previously furnished Council, reading was dispensed with, and on motion of Council Member Nelson, seconded by Council Member Cary, Council by the following recorded vote approved the minutes as presented:

Ayes: Cary, Foster, Helgeson, Johnson, Nelson, Perrow, Gillette 7

Noes: 0

// Copies of the minutes of the February 11, 2014 meeting, having been previously furnished Council, reading was dispensed with, and on motion of Council Member Nelson, seconded by Council Member Cary, Council by the following recorded vote approved the minutes as presented:

Ayes: Cary, Foster, Helgeson, Johnson, Nelson, Perrow, Gillette 7

Noes: 0

// In the matter of Communications and Marketing, Resolution #R-14-013 to amend the FY 2014 City/Federal/State Aid Fund budget and appropriate \$85,476 with resources of \$64,107 from a Federal Hazard Mitigation Grant Program award, \$17,095 from the General Fund Reserve for Contingencies, and \$4,274 of in-kind matching service to implement an emergency notification system to provide critical information to the citizens of Lynchburg, laid over from the February 11, 2014 meeting, was again presented and read, and on motion of Council Member Nelson, seconded by Council Member Cary, Council by the following recorded vote adopted the Resolution:

Ayes: Cary, Foster, Helgeson, Johnson, Nelson, Perrow, Gillette 7

Noes: 0

// In the matter of Community Development - Zoning Amendments, a public hearing was held regarding City Council Report #8 (1) to amend the Future Land Use Map (FLUM) from Low Density Residential to Medium Density Residential.

Mayor Gillette made a statement to correct an error in the Planning Commission Report. (On the Agenda Summary Report the vote was recorded incorrect, it should have been 4-2 instead of 6-0 for the

rezoning petition.) City Planner Tom Martin gave a summary of the Future Land Use Map (FLUM) and rezoning at 402 Alta Lane. Mr. Martin stated that the Planning Commission recommended approval of the FLUM and rezoning petitions. Mr. Norm Walton with Perkins & Orrison, Inc. representing the petitioner asked Council for approval of the FLUM and rezoning petitions. There was no one else present who wished to speak to this item, and the public hearing was closed. Following Council discussion and on motion of Council Member Helgeson, seconded by Council Member Cary, Council by the following recorded vote denied the FLUM petition:

Ayes: Cary, Foster, Helgeson, Nelson, Perrow, Gillette, 6

Noes: Johnson 1

On motion of Council Member Helgeson, seconded by Council Member Cary, Council by the following recorded vote denied the rezoning petition at 402 Alta Lane:

Ayes: Cary, Foster, Helgeson, Nelson, Perrow, Gillette 6

Noes: Johnson 1

// In the matter of Community Development - Zoning Amendments, a public hearing was held regarding City Council Report # 9 outlining the petition of American Property Management Corporation to rezone approximately sixteen and six tenths (16.6) acres at 200 and 218 Timbrook Place from R-1, Low Density, Single-Family Residential District to R-4C, Medium-High Density, Multi-Family Residential District (Conditional) to allow the construction of a one hundred ninety-two (192) unit apartment complex and associated parking. City Planner Tom Martin gave a summary of the request and stated that the Planning Commission recommended approval of the rezoning petition. Mr. Doyle Allen with Hurt & Proffitt, Inc., representing the petitioner outlined the request and asked Council to approve the rezoning petition. Four individuals spoke in opposition of the request with concerns that additional apartments in the area would destroy the quiet neighborhood and traffic would increase. There was no one else present who wished to speak to this item, and the public hearing was closed. On motion of Council Member Perrow, seconded by Council Member Cary, Council by the following recorded vote adopted Ordinance #0-14-017, as amended, (adding the following proffer: The developer agrees to construct a chain link fence, which will be five (5) feet high and approximately two hundred fifty (250) feet long, along the Gordon and Sandra Hensley property line that abuts the project. The fence will be constructed on the Hensley property and the Hensley's will own the fence), granting the petition:

Ayes: Cary, Foster, Helgeson, Johnson, Nelson, Perrow, Gillette 7

Noes: 0

// In the matter of Community Development – General, a public hearing was held regarding City Council Report #10 adopting the “*Growing Tinbridge Hill*” Neighborhood Plan as part of the City's *Comprehensive Plan*. The plan establishes a vision for Tinbridge Hill, establishes priority pedestrian corridors, provides recommendations for improving bus amenities and establishes goals for improving neighborhood character, safety and livability. City Planner Tom Martin gave a summary of the request and stated the Planning Commission recommended adopting the Growing Tinbridge Hill Neighborhood Plan. Four individuals spoke in favor of the Plan stating the objective of this planning effort was to prepare a plan that

reflects the character and aspirations of the community, that sets realistic and achievable goals for community improvement, and that establishes a specific action plan for tasks to be pursued to help achieve the goals. There was no one else present who wished to speak to this item, and the public hearing was closed. On motion of Council Member Foster, seconded by Council Member Nelson, Council by the following recorded vote adopted Resolution #R-14-018, as presented, adopting the "Growing Tinbridge Hill" Neighborhood Plan as part of the City's Comprehensive Plan:

Ayes: Cary, Foster, Helgeson, Johnson, Nelson, Perrow, Gillette 7

Noes: 0

// In the matter of City Code/Fire – General, City Council Report #11 was considered. On motion of Council Member Nelson, seconded by Vice Mayor Johnson, Council by the following recorded vote adopted Ordinance #0-14-019, as presented, amending the City Code relating to the provision of Non-Emergency Medical Transportation Services within the City:

Ayes: Cary, Foster, Helgeson, Johnson, Nelson, Perrow, Gillette 7

Noes: 0

// In the matter of Human Resources – Benefits, City Council Report #12 was considered. On motion of Council Member Helgeson, seconded by Council Member Perrow, Council by the following recorded vote adopted Resolution #R-14-020, as presented, amending the City of Lynchburg Employment Policies and Procedures to include the provision that employees hired on or after July 1, 1996, who qualify for City medical and dental coverage into retirement will no longer be eligible for City medical or dental coverage once they become eligible for Medicare:

Ayes: Cary, Foster, Helgeson, Johnson, Nelson, Perrow, Gillette 7

Noes: 0

// The meeting was adjourned at 9:37 P.M.

Clerk of Council

Agenda Item #6

024

March 18, 2014

// An additional scheduled meeting of the Council of the City of Lynchburg was held on the 18th day of March, 2014, at 2:00 P.M. in the Council Chamber, City Hall, Michael Gillette, President, presiding. The purpose of the meeting was to conduct a work session regarding the FY 2015 Proposed Budget. The following Members were present:

Present: Cary, Foster, Helgeson, Johnson, Perrow, Gillette

6

Absent: Nelson

1

// Mayor Gillette made the following announcement:

Civic Engagement Meetings – 6:00 P.M. – 8:00 P.M.

~~March 18, 2014 – Sandusky Middle School Cafeteria~~ Has been cancelled for tonight

March 24, 2014 – Linkhorne Middle School Cafeteria

March 31, 2014 – Dunbar Middle School Cafeteria

// City Manager Kimball Payne reviewed Council's Budget calendar with possible dates for March and April.

// Donna Witt, Director of Financial Services gave an overview of the FY 2015 Revenues. The following are the proposed major revenues:

- Current Real Property Tax - \$54.6 million – proposed to slightly increase
- Current Personal Property Tax - \$15.8 million – projected flat
- Local Sales Tax - \$13.6 million – slight growth realized in FY 2013 is expected to remain stable through FY 2014.
- Consumer Utility Tax Electric - \$3.7 million – a slight increase
- Communications Sales and Use Tax - \$3.5 million – this revenue is expected to continue to fall slightly each year.
- Business Licenses - \$7.8 million – continued slight growth
- Motor Vehicle Licenses - \$1.5 million – expected to remain stable
- Lodging Tax - \$1.8 million – slight growth in FY 2014 that will continue in FY 2015
- Meal Tax – \$12.1 million – a slight increase due to the opening of a new shopping center.
- Ambulance Service Fees - \$2.8 million – the FY 2015 Proposed revenue reflects continued conservative budgeting used to project FY 2014 due to the difficulty in collecting ambulance fees.

Ms. Witt also provided information regarding the Non-Dedicated Revenues (\$3.0 million increase) and the Dedicated Revenues (\$300 thousand decrease). The overall total General Fund Revenues increased \$2.7 million.

// Council took a break at 3:40 P.M. and reconvened at 3:50 P.M.

// City Manager Kimball Payne and Deputy City Manager Bonnie Svrcek provided an overview regarding individual budgets within the following categories: General Government Administration; Judicial Administration; Public Safety; Public Works; Health and Welfare; Parks, Recreation, and Culture; and Community Development. During the budget discussion, Council advised staff to add the following items to "The List".

➤ Revenues

- Real Estate Tax
- Concealed Weapons Permit Fee
- Lynchburg Museum Admission
- Point of Honor Admission

➤ Expenditures:

- Annual cost to outsource City Code
- Eliminate the Museum System
- Eliminate Tourism
- Eliminate the Visitor Information Center
- City employees compensation adjustment
- Schools employees compensation adjustment
- Public Works – Refuse, trash bag education and enforcement – temporary personnel
- Lynch's Landing

// Mr. Payne announced the work session on March 25 would begin at 4:00 P.M. with the continued Proposed FY 2015 Budget Review.

// The meeting was adjourned at 4:44 P.M.

Clerk of Council

// A regular meeting of the Council of the City of Lynchburg was held on the 25th day of March, 2014, at 4:00 P.M. in the Council Chamber, City Hall, Ceasor T. Johnson, Vice-President, presiding. The following Members were present:

Present: Cary, Foster, Helgeson, Johnson, Nelson 5

Absent: Perrow, Gillette 2

// Mayor Gillette arrived at the meeting at 4:15 P.M.

// City Manager Kimball Payne recognized Mr. Edward Haley on his retirement with the City of Lynchburg with 18 years of service.

// Neighborhood Programs Coordinator Keith Wright provided an overview on the Community Code Compliance Team (CCCT) Annual Report. Mr. Wright stated that the City's Community Code Compliance Team was created by City Council to develop and implement "a proactive, coordinated and focused long-term strategy to improve living conditions through consistent code compliance, thereby facilitating a positive impact on the quality of life in Lynchburg." Mr. Wright further stated that the CCCT includes representatives from the neighborhood, City Council, City Manager's Office, Community Development, Billings and Collections, Fire Marshal, Public Works, Police, City Attorney's Office, Social Services, Commissioner of the Revenue, and Lynchburg Redevelopment and Housing Authority. Mr. Wright went on to say that the Team representatives frequently conduct neighborhood walkthroughs as part of its mission to work proactively with residents to identify concerns and raise awareness of local codes and public maintenance needs.

In 2013 the Community Code Compliance Team coordinated six meetings, four of which were conducted in neighborhoods at the request of residents. Representatives typically use the walkthroughs to resolve neighborhood concerns in a variety of ways. By explaining processes, identifying ongoing maintenance needs, working with the property owners to address specific concerns and empowering residents with contacts for follow up and future assistance, team members strive to set clear expectations for progress on each of the items identified during the visit. The Community Code Compliance Team continues to seek new connections with the City's neighborhoods to promote, protect and improve the health, safety and welfare of both the citizens and the environment. The structure of the team allows the members to coordinate action items and responses among the various departments to better address the needs of the residents who live there. By establishing strong working partnerships among the neighborhoods, those neighbors are empowered to not only identify issues on their street but become part of proactive solutions to improve our community as a whole. In conclusion, Mr. Wright stated that the Team believes that rather than simply citing property owners with a notice for every violation, a better approach is to focus on education regarding applicable Codes. The benefit to citizens and government alike is to gain a well-rounded approach to Code compliance.

// Council Member Perrow arrived at the meeting at 5:10 P.M.

// City Manager Kimball Payne gave an overview of items on "The List".

Tourism – Council Member Helgeson made a motion, seconded by Council Member Perrow to eliminate \$800,000 in the Tourism program. The motion failed:

Ayes: Cary, Foster, Johnson, Nelson, Perrow, Gillette

6

Noes: Helgeson

1

Concealed Weapons Permit Fee – Council Member Helgeson made a motion seconded by Council Member Cary to lower the Concealed Weapons Permit Fee from \$50.00 to \$25.00. Several Council Members were not in agreement to lower the fee. The motion to lower the Concealed Weapons Permit Fee Failed:

Ayes: Cary, Helgeson, Perrow

3

Noes: Foster, Johnson, Nelson, Gillette

4

Museum System - Vice Mayor Johnson made a motion seconded by Council Member Foster to keep the museum intact with the budget. Several Council Members suggested finding ways to fund the museum and look into how to operate the Museum more efficiently and do research with other museums in the Region to see how they operate. Council Member Helgeson stated that the Museum only creates \$17,000 in revenue from people that use their own money when they visit. The Museum budget is \$436K and he suggested it should be looked at. The motion passed:

Ayes: Cary, Foster, Johnson, Nelson, Perrow, Gillette

6

Noes: Helgeson

1

City Code - Council Member Perrow made a motion, seconded by Vice Mayor Johnson to outsource the City Code for updates, maintenance, and hosting which will cost \$6,600 annually. The motion passed:

Ayes: Cary, Foster, Helgeson, Johnson, Nelson, Perrow, Gillette

7

Noes:

0

Visitors Information Center - Vice Mayor Johnson made a motion seconded by Council Member Nelson not to close the Visitors Information Center. Several Council Members stated some concern with possibly moving the Visitors Information Center to a different location. Council Member Helgeson stated that the Visitors Information Center is in a poor location and he is not in favor of the status quo. The motion passed:

Ayes: Cary, Foster, Johnson, Nelson, Perrow, Gillette

6

Noes: Helgeson

1

Refuse, trash tag education and enforcement – temporary personnel - A motion was made by Council Member Cary, seconded by Council Member Nelson to support the refuse, trash tag education and enforcement – temporary personnel. Council Member Helgeson stated he would not support this item because of the hiring of another temporary employee. The motion passed:

Ayes: Cary, Foster, Johnson, Nelson, Perrow, Gillette

6

Noes: Helgeson

1

Mayor Gillette stated that there were three remaining items in the Budget for discussion from Council, which are: Real Estate Tax, City and School employee compensation adjustment and Lynch's Landing which will be discussed at a future work session.

// During roll call Council Member Cary stated that the two safety bollards on 5th Street were down again and he would like City staff to possibly find a solution to this problem. He also thanked all City employees that participated in the Civic Engagement Meeting that was held at Linkhorne Middle School on Monday, March 24, 2014.

// Council Member Foster stated that Lynchburg was recognized from a Gallup survey (ranked #37) as one of "The Happiest and Healthiest Cities in America". She also thanked everyone that played a part in the groundbreaking ceremony for the Storytime Room at the Public Library.

// Council Member Perrow thanked Lynn Dodge for starting the process on the Storytime Room at the Library. He also mentioned putting a plan in place for improvements on Timberlake Road at Laxton Road.

// Mayor Gillette announced the last Civic Engagement Meeting will be held on March 31, 2014 at Dunbar Middle School at 6:00 p.m. Congratulations to Amazement Square for being one of the excellent museums in the Nation. Mayor Gillette also recognized Lynchburg College for receiving the Southern Association of Colleges and Schools (SACS) accreditation, which is a great honor.

// On motion of Council Member Foster, seconded by Council Member Cary, Council by the following recorded vote elected to hold a closed meeting for discussion and consideration of the City Manager's performance evaluation, pursuant to Section 2.2-3711(A.)(1) of the Code of Virginia, 1950, as amended:

Ayes: Cary, Foster, Johnson, Nelson, Perrow, Gillette 6

Noes: Helgeson 1

// The meeting was re-opened to the public.

// Council Member Perrow made the following motion:

WHEREAS, the Council of the City of Lynchburg has convened a closed meeting on this date, pursuant to an affirmative recorded vote and in accordance with the provisions of The Virginia Freedom of Information Act; and

WHEREAS, Section 2.2-3712 of the Code of Virginia requires a certification by City Council that such closed meeting was conducted in conformity with Virginia law;

NOW, THEREFORE, BE IT RESOLVED that the Council of the City of Lynchburg certifies that, to the best of each member's knowledge, (i) only public business matters lawfully exempted from open meeting requirements by Virginia law were discussed in the closed meeting to which this certification resolution applies, and (ii) only such public business matters as were identified in the motion convening the closed meeting were heard, discussed or considered by Council.

The Motion was seconded by Council Member Foster, and Council by the following recorded vote adopted the motion:

Ayes: Cary, Foster, Johnson, Nelson, Perrow, Gillette 6

Noes: 0

Absent: Helgeson 1

// City Council recessed the meeting at 6:24 p.m.

// City Council reconvened the meeting at 7:30 p.m.

The following Members were present:

Present: Foster, Helgeson, Johnson, Nelson, Perrow, Gillette

6

Absent: Cary

1

Council Member Perrow gave the Invocation, followed by the Pledge of Allegiance.

// Council Member Cary arrived at the meeting at 7:35 p.m.

// In the matter of Community Development/CDBG, a public hearing was held on City Council Report #6 regarding receiving input regarding the FY 2015 Allocation of Community Development Block Grant (CDBG) and HOME Program Funds. Melva Walker, Grants Manager, gave a summary of the FY 2014/15 allocations for CDBG and HOME Program Funds with recommendations from the Community Development Advisory Committee (CDAC). Six individuals spoke and thanked Council for their past support and asked Council to continue supporting their programs. There was no one else present who wished to speak to this item, and the public hearing was closed. No action was required at this time. This item will be discussed at the April 8, 2014 Work Session.

// In the matter of City Council, Ms. Consuela Mosley asked that this item be pulled from the agenda.

// In the matter of City Code, City Council Report #8 was considered. On motion of Council Member Perrow, seconded by Council Member Cary, Council by the following recorded vote adopted Resolution #R-14-021, as presented, to petition the Circuit Court of the City of Lynchburg to appoint a special commissioner to execute the necessary deed or deeds to convey the tax delinquent real estate at 915 2nd Street to the City in lieu of its sale at public auction:

Ayes: Cary, Foster, Helgeson, Johnson, Nelson, Perrow, Gillette

7

Noes:

0

// In the matter of Public Works – General, City Council Report #9 was considered. On motion of Council Member Foster, seconded by Vice Mayor Johnson, Council by the following recorded vote adopted Resolution #R-14-022, as presented, maintaining access to Whitehall Road when improvements to the Old Forest Road/Lakeside Drive/ Expressway intersection are designed and constructed:

Ayes: Cary, Foster, Helgeson, Johnson, Nelson, Perrow, Gillette

7

Noes:

0

// Council Member Foster made the statement that she would not participate in the discussion or voting in this matter of taxicabs because she is leasing a building from one of the applicants that is requesting a Taxicab certificate. In the matter of Taxicabs, City Council Report #10 was considered. On motion of Council Member Helgeson, seconded by Council Member Cary, Council by the following recorded vote agreed to conditionally approve the issuance of Certificates of Public Convenience and Necessity for the Operation of Taxicabs in the City:

Ayes: Cary, Helgeson, Johnson, Nelson, Perrow, Gillette

6

Noes:

0

Abstention: Foster

1

// The meeting was adjourned at 8:37 P.M.

Agenda Item #8

030

April 1, 2014

// A special meeting of the Council of the City of Lynchburg, recessed from March 25 was held on the 1st day of April, 2014, at 7:00 P.M. in the Council Chamber, City Hall, Michael Gillette, President, presiding. The purpose of the meeting was to conduct a public hearing regarding the FY 2015 Proposed Budget and the FY 2015-2019 Capital Improvement Program. The following Members were present:

Ayes: Cary, Foster, Helgeson, Johnson, Nelson, Perrow, Gillette 7

Noes: 0

// City Manager Kimball Payne provided an overview of the Proposed FY 2015 Budget and the FY 2015-2019 Capital Improvement Program for the City of Lynchburg, which includes the General, Fleet, Capital, Airport, Water, Sewer, Stormwater, and other minor funds. Mr. Payne stated this year's budget totaled \$392.5 million; the increase is mainly attributable to the appropriation for the construction of the new Heritage High School (\$75.1 million).

// In the matter of Budget, a public hearing was held regarding City Council Report #1 on the FY 2015 Proposed Operating Budget and the FY 2015-2019 Capital Improvement Program. During the public hearing seven individuals spoke in support of funding for the following: Lynchburg Public Schools, Horizon Behavioral Health, Water and Sewer Rates and Parks and Recreation Centers. There was no one else present who wished to speak to this item and the public hearing was closed. // The meeting was recessed at 7:30 P.M. to April 8, 2014.

Clerk of Council

LYNCHBURG CITY COUNCIL

Agenda Item Summary

MEETING DATE: **April 8, 2014**

AGENDA ITEM NO.: 9

CONSENT: REGULAR: **X**

WORK SESSION:

CLOSED SESSION:
(Confidential)

ACTION: **X**

INFORMATION:

ITEM TITLE: Rosedale Farm – 1600 and 1220 Graves Mill Road

Rezoning: R-1, Low Density Residential District, and B-5C, General Business District (Conditional), to B-3C, Community Business District (Conditional)

Conditional Use Permit (CUP): Cluster Commercial Development (CCD)

Determination of use of 1220 Graves Mill Road as a venue for outdoor receptions and events as compatible with other uses in B-3, Community Business District.

RECOMMENDATION: Denial of the rezoning and CUP petitions; approval of the petition to deem outdoor receptions compatible with B-3 uses.

SUMMARY: Rosedale Farms LLC and Bella Rose Plantation LLC are petitioning 1) to rezone approximately forty-two (42) acres at 1600 and 1220 Graves Mill Road from R-1, Low Density Residential District, and B-5C, General Business District (Conditional), to B-3C, Community Business District (Conditional), 2) for a Conditional Use Permit (CUP) for a Cluster Commercial Development (CCD) and 3) for the use of the Bella Rose Plantation property as a venue for outdoor receptions to be deemed compatible with uses in B-3. The purpose of these petitions is to allow the construction of a mixed use commercial and residential development at 1600 Graves Mill Road and to allow a variety of uses for the existing historic buildings such as art studios, shops, and space for outdoor receptions and events at 1220 Graves Mill Road. Outdoor receptions and events are not included in the *Zoning Ordinance* and therefore must be deemed compatible within B-3 districts by City Council.

The Planning Commission recommended denial of the rezoning and CUP petitions because:

- The site plan is not compatible with the City's *Comprehensive Plan* because (i) it does not represent an efficient use of Lynchburg's limited land resources and (ii) it does not represent an application of design principles outlined in the *Comprehensive Plan* for this kind of new development.
- The proposed concept plan is not compatible with CCD districts as defined by the City's *Zoning Ordinance* because buildings are not clustered on the site and parking is not shared between uses.
- Facets of the proposal were uncertain, including (i) the status of access in and out of the development using the existing private road, given its narrow width; (ii) the lack of details on the makeup of the developer's proposed Architectural Review Committee; (iii) the proposed architectural renderings did not provide for a cohesive development; (iv) the positioning of the bus pull off; and (v) the parking for Bella Rose Plantation remained undetermined.

The Planning Commission recommended approval of outdoor receptions and events determination for the Bella Rose Plantation because the use appears compatible with other uses included in B-3 zoning. A CUP amendment would still be required to allow events at this location since no parking or access improvements were shown on the concept plan.

PRIOR ACTION(S):

December 3, 2013: The Design Review Board made suggestions to improve the proposal and recommended approval (3-0, 1 member absent, Sale)

February 26, 2014: The Planning Division recommended approval of the rezoning and CUP petitions, as well as the determination that outdoor events are compatible with B-3 uses.

The Planning Commission recommended denial (3-2 with 2 members absent, Coleman/Hooper) of the rezoning request

The Planning Commission recommended denial (3-2 with 2 members absent, Coleman/Hooper) of the CUP request

The Planning Commission recommended approval (4-1 with 2 members absent, Coleman/Hooper) of the request for the use of Bella Rose Plantation as a venue for outdoor receptions as compatible with uses in B-3.

FISCAL IMPACT: Infrastructure improvements to the Graves Mill Road and Lynchburg Expressway ramps will need to be addressed in response to this development. The traffic study indicates the need for dedicated turn lanes for the proposed Rosedale development on Graves Mill Road. The developer has agreed to provide the initial turn lane with the first phase of the development and a second turn lane based on a threshold of 350 left turn trips during the peak hour.

In addition, the study indicates there are existing operational issues at the Expressway interchange. Improvements will be needed to accommodate growth of the City occurring outside of this proposed development; however, the build-out of the Rosedale CCD would likely accelerate, and possibly exacerbate, these issues.

CONTACT(S): Anne Nygaard, Planner – 455-3900
Tom Martin, City Planner - 455-3900
Kent White, Director of Community Development – 455-3900

ATTACHMENT(S):

- Ordinance and Resolutions
- Planning Commission Report and Minutes – February 26, 2014
- Vicinity Zoning Pattern Map
- Vicinity Proposed Land Use Map
- Watershed Location Map
- Planimetric and Topographic Map
- Concept Plan
- Project Narratives
- Architectural Renderings
- Property Photo
- Signup Sheet
- Street Cross Sections, Traffic Study and Addendums (separate attachment due to file size)

REVIEWED BY: bms

UNCODIFIED ORDINANCE:

AN ORDINANCE CHANGING A CERTAIN AREA LOCATED AT 1220 AND 1600 GRAVES MILL ROAD FROM R-1, LOW DENSITY, RESIDENTIAL DISTRICT AND B-5C, GENERAL BUSINESS DISTRICT (CONDITIONAL), TO B-3C, COMMUNITY BUSINESS DISTRICT (CONDITIONAL).

BE IT ORDAINED BY THE COUNCIL OF THE CITY OF LYNCHBURG that in order to promote the public necessity, convenience, welfare and good zoning practice that Chapter 35.1 of the Code of the City of Lynchburg, 1981, as amended, be and the same is hereby further amended by adding thereto Section 35.1-76__, which section shall read as follows:

Section 35.1-76__. Change of a certain area located at 1220 and 1600 Graves Mill Road from R-1, Low Density Residential District, and B-5C, General Business District (Conditional), to B-3C, Community Business District (Conditional). The area embraced within the following boundaries ...

ALL THAT CERTAIN TRACT OR PARCEL OF LAND SITUATED ON THE NORTH SIDE OF OLD GRAVES MILL ROAD IN THE CITY OF LYNCHBURG, VIRGINIA AND FURTHER DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT, WHICH POINT IS LOCATED IN THE CENTERLINE OF TOMAHAWK CREEK ON THE NORTHERLY RIGHT-OF-WAY LINE OF OLD GRAVES MILL ROAD, THENCE, WITH SAID LINE OF OLD GRAVES MILL ROAD, SOUTH 82 DEGREES 02 MINUTES 06 SECONDS WEST FOR A DISTANCE OF 14.07 FEET TO A POINT; THENCE NORTH 56 DEGREES 08 MINUTES 06 SECONDS WEST FOR A DISTANCE OF 14.84 FEET TO A POINT; THENCE SOUTH 68 DEGREES 19 MINUTES 29 SECONDS WEST FOR A DISTANCE OF 29.03 FEET TO A POINT; THENCE SOUTH 35 DEGREES 15 MINUTES 57 SECONDS WEST FOR A DISTANCE OF 39.00 FEET TO A POINT; THENCE ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 1393.13 FEET AND AN ARC LENGTH OF 432.55 FEET, BEING SUBTENDED BY A CHORD OF NORTH 72 DEGREES 46 MINUTES 39 SECONDS WEST FOR A DISTANCE OF 430.81 FEET TO A POINT; THENCE NORTH 63 DEGREES 52 MINUTES 57 SECONDS WEST FOR A DISTANCE OF 78.55 FEET TO A POINT; THENCE NORTH 63 DEGREES 47 MINUTES 35 SECONDS WEST FOR A DISTANCE OF 927.59 FEET TO A POINT; THENCE ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 2320.92 FEET AND AN ARC LENGTH OF 264.00 FEET, BEING SUBTENDED BY A CHORD OF NORTH 67 DEGREES 07 MINUTES 06 SECONDS WEST FOR A DISTANCE OF 263.86 FEET TO A POINT; THENCE, LEAVING SAID RIGHT-OF-WAY AND THROUGH THE PROPERTY OF ROSEDALE FARM, LLC, NORTH 25 DEGREES 06 MINUTES 00 SECONDS EAST FOR A DISTANCE OF 650.90 FEET TO A POINT; THENCE NORTH 79 DEGREES 54 MINUTES 55 SECONDS EAST FOR A DISTANCE OF 209.22 FEET TO A POINT; THENCE SOUTH 68 DEGREES 20 MINUTES 40 SECONDS EAST FOR A DISTANCE OF 428.34 FEET TO A POINT; THENCE ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 658.10 FEET AND AN ARC LENGTH OF 7.79 FEET, BEING SUBTENDED BY A CHORD OF NORTH 14 DEGREES 11 MINUTES 27 SECONDS EAST FOR A DISTANCE OF 7.79 FEET TO A POINT; THENCE NORTH 13 DEGREES 51 MINUTES 06 SECONDS EAST FOR A DISTANCE OF 673.39 FEET TO A POINT; THENCE ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 465.00 FEET AND AN ARC LENGTH OF 200.06 FEET, BEING SUBTENDED BY A CHORD OF NORTH 26 DEGREES 10 MINUTES 38 SECONDS EAST FOR A DISTANCE OF 198.52 FEET TO A POINT; THENCE NORTH 38 DEGREES 30 MINUTES 10 SECONDS EAST FOR A DISTANCE OF 8.46 FEET TO A POINT, WHICH POINT IS LOCATED ON THE COMMON BOUNDARY LINE OF THE PROPERTY OF SAID ROSEDALE AND THE PROPERTY OF CAROLYN S. HUTCHINSON & PHYLLIS S. BREWSTER; THENCE, WITH SAID COMMON LINE, SOUTH 62 DEGREES 43 MINUTES 22 SECONDS EAST FOR A DISTANCE OF 259.54 FEET TO A POINT, WHICH POINT IS A COMMON CORNER WITH SAID ROSEDALE, SAID HUTCHINSON AND THE PROPERTY OF CREEKSIDE OF LYNCHBURG; THENCE, WITH THE COMMON LINE OF SAID ROSEDALE AND SAID CREEKSIDE, SOUTH 17 DEGREES 50 MINUTES 03 SECONDS EAST FOR A DISTANCE OF 211.07 FEET TO A POINT; THENCE SOUTH 44 DEGREES 55 MINUTES 53 SECONDS EAST FOR A DISTANCE OF 586.46 FEET TO A POINT, WHICH POINT IS LOCATED APPROXIMATELY FIFTY FEET FROM THE CENTERLINE OF SAID TOMAHAWK CREEK; THENCE, ALONG THE FOLLOWING FIVE CALLS ALONG A LINE DEFINING THE LIMITS OF THE EXISTING R-C ZONING, WHICH FIVE LINES ARE LOCATED FIFTY FEET WEST OF AND PARALLEL TO THE CENTERLINE OF SAID TOMAHAWK CREEK, SOUTH 56 DEGREES 05 MINUTES 53 SECONDS WEST FOR A DISTANCE OF 57.04 FEET TO A POINT; THENCE SOUTH 03 DEGREES 34 MINUTES 10 SECONDS WEST FOR A DISTANCE OF 84.44 FEET TO A POINT; THENCE SOUTH 25 DEGREES 10 MINUTES 27 SECONDS WEST FOR A DISTANCE OF 535.13 FEET TO A POINT; THENCE SOUTH 28 DEGREES 33 MINUTES 03 SECONDS WEST FOR A DISTANCE OF 199.81 FEET TO A POINT; THENCE SOUTH 14 DEGREES 11 MINUTES 22 SECONDS EAST FOR A DISTANCE OF 229.62 FEET TO A POINT; THENCE NORTH 53 DEGREES 26 MINUTES 30 SECONDS EAST FOR A DISTANCE OF 54.07 FEET TO A POINT, WHICH POINT IS LOCATED IN THE CENTERLINE OF SAID TOMAHAWK CREEK; THENCE, ALONG THE CENTERLINE OF SAID TOMAHAWK CREEK, SOUTH 14 DEGREES 11 MINUTES 22 SECONDS EAST

FOR A DISTANCE OF 258.79 FEET TO THE POINT OF BEGINNING; SAID PROPERTY CONTAINS 42.0 ACRES MORE OR LESS.

... is hereby changed from R-1, Low Density Residential District, and B-5C, General Business District (Conditional), to B-3C, Community Business District (Conditional), subject to the condition set out herein below which was voluntarily proffered in writing by the petitioners, Rosedale Farm LLC and Bella Rose Plantation LLC, to wit:

1. The property will be developed as a Cluster Commercial Development (CCD). With regards to setbacks, the front setback from Graves Mill Road will be 30'. All other setbacks for front, side and rear yards will be zero feet. Excluding Graves Mill Road, the maximum setback shall be 15' from the public right of ways or back of sidewalk on private streets. Buildings labeled "A," "B," "C," "D," "E," and "F" are exempt from the maximum setback.
2. The property will be developed with a combination of sidewalks, bike path and walking trails to promote interconnectivity.
3. The property will be developed with a park area with a combination of lawns and trees.
4. The property will be developed with two public rights of way access to promote connectivity with adjoining properties (PIN 23405002 and 23902005). The connection points are subject to adjustment to accommodate changes with the projects internal layout.
5. The project will be developed to accommodate bus stops for mass transit. The project will include a bus shelter and turn-out.
6. The property will be developed such that all exterior lighting will be glare shielded and designed to prevent illumination beyond the external developments property lines.
7. Turn lanes will be installed along Graves Mill Road as determined necessary by the current traffic study dated January 2014 or as determined by an updated traffic study provided by the developer.
8. Streets will have ornamental street lights.
9. Uses shall be as permitted by right in B-3 and lesser intense districts. However, the following uses will not be included within the development of the site: billboards, building material and construction or farm equipment sales, contractors' establishments, exterminators, kennels, storage, warehouses and yards, manufacturing uses, automobile oriented uses, including automobile, trailer, and truck rentals and sales, tire retail sales, painting/body repair shops and service stations, excluding fueling stations, which will be allowed within the development.
10. The property will be developed in substantial compliance with the approved site plan dated March 24, 2014.

And the Director of Community Development shall forthwith cause the "Official Zoning Map of Lynchburg, Virginia," referred to in Section 35.1-4 of this chapter to be amended in accordance therewith.

Adopted:

Certified: _____
Clerk of Council

049K

RESOLUTION:

A RESOLUTION GRANTING A CONDITIONAL USE PERMIT TO ROSEDALE FARMS LLC AND BELLA ROSE PLANTATION LLC FOR A CLUSTER COMMERCIAL DEVELOPMENT ON APPROXIMATELY FORTY-THREE AND TWO TENTHS ACRES AT 1600 AND 1220 GRAVES MILL ROAD IN A B-3C, COMMUNITY BUSINESS DISTRICT (CONDITIONAL).

BE IT RESOLVED BY THE COUNCIL OF THE CITY OF LYNCHBURG that the petition of Rosedale Farms LLC and Bella Rose Plantation LLC for a conditional use permit to allow the construction of a forty-two (42) acre cluster commercial development is hereby approved subject to the following conditions:

1. The property shall be developed in substantial compliance with the submitted rezoning plan entitled "Concept Plan for Rezoning & Conditional Use Permit for Rosedale Farm , LLC & Tomahawk Mill Development, LLC & Bella Rose Plantation, LLC" dated February 20, 2014 and prepared by Berkley-Howell & Associates, P.C., though where in conflict with conditions outlined below, the conditions will take precedence.
2. Petitioner will construct dual left turn lanes and right in turn lanes on Graves Mill Road required by the approved traffic study when designated threshold of 350 left turn trips within the peak hour is reached.
3. Public right of way will be dedicated along the main corridor through the development to property with PIN: 23405002. Additionally, 50' of public right of way will be dedicated to connect to the property with PIN: 23902005. Private roads will be provided to the east and west of the roundabout.
4. An overall Stormwater Management Plan for Phases 1 and 2, addressing both quality and quantity will be approved prior to individual site plan approval.
5. Stormwater management facilities will be integrated into the overall design of the development and design is subject to the approval of the City's Plan Reviewer.
6. Water quality will be addressed through a combination of Best Management Practices (BMPs) and Low Impact Development (LID) standards. Design of water quality measures is subject to approval of the City's Plan Reviewer.
7. Front loading garages will not be permitted within the development.
8. Buildings will have entrances on public and private street frontages.
9. All amenities in the area designated as a park on the submitted master plan shall be the responsibility of the developer. All park areas shall be connected to the overall development by a series of trails and or sidewalks.
10. Crosswalks will connect sidewalks at all significant intersections and driveways and be ten (10) feet wide, continental, ladder, or decorative style, subject to approval by the City Planner.
11. Streets will have pedestrian oriented lighting.
12. Architecture of the buildings will be in substantial compliance with the renderings submitted in the Sketch Plan Application for Design Review Board.
13. Project will be phased so that the public lawn / park area will be constructed with buildings "C" and "D" as labeled on the rezoning plan.
14. Driveway entrances on public and private roads will be a minimum of 100' apart from curb to curb.

15. Subdivision plat must be submitted for the dedication of any public streets and the approval of any street names.

Adopted:

Certified: _____
Clerk of Council

050K

RESOLUTION:

A RESOLUTION GRANTING THE USE OF 1220 GRAVES MILL ROAD AS A VENUE FOR OUTDOOR RECEPTIONS AND EVENTS.

BE IT RESOLVED BY THE COUNCIL OF THE CITY OF LYNCHBURG that the use of property at 1220 Graves Mill road in the City of Lynchburg for outdoor receptions and events, as described in the Bella Rose Narrative submitted on February 10, 2014, is hereby determined to be similar to and compatible with the other uses permitted in a B-3, Community Business District, and is thereby permitted in that district and at that location.

Adopted:

Certified: _____
Clerk of Council

The Department of Community Development

City Hall, Lynchburg, VA 24504 **434-455-3900**

To: Planning Commission

From: Planning Division

Date: February 26, 2014

Re: **Rosedale Farm – 1600 and 1220 Graves Mill Road**

Rezoning: R-1, Low Density Residential District, and B-5C, General Business District (Conditional), to B-3C, Community Business District (Conditional) Conditional Use Permit (CUP): Cluster Commercial Development (CCD)

I. PETITIONER

Rosedale Farm LLC, 1600 Graves Mill Road, Lynchburg, VA 24502 and
Bella Rose Plantation LLC, 1220 Graves Mill Road, Lynchburg, VA 24502

Representative: Ron Cox and Bryant Hare, Hopkins Brothers Legacy Planning & Development, P.O. Box 753, Lynchburg, VA

II. LOCATION

The subject property includes two (2) tracts totaling approximately seventy and eighty-six thousandths (70.086) acres located at 1600 and 1220 Graves Mill Road. Forty-three and two tenths (43.2) acres are proposed to be rezoned and for Conditional Use Permit (CUP) for the Cluster Commercial Development (CCD).

Property Owner: Rosedale Farm LLC and Bella Rose Plantation LLC

III. PURPOSE

The purpose of this petition is to rezone approximately forty-three and two tenths (43.2) acres to allow for the construction of a mixed use commercial and residential development at 1600 Graves Mill Road and to allow a variety of uses for the existing historic buildings at 1220 Graves Mill Road, such as art studios, shops, and space for outdoor receptions and events, which is not included in the *Zoning Ordinance*.

IV. SUMMARY

- Petition agrees with the *Zoning Ordinance* which permits uses allowed by right in R-3 through B-5 districts in a CCD by approval of a CUP.
- The *Comprehensive Plan 2013-2030's Future Land Use Map* recommends a Mixed Use and a Resource Conservation use for the subject property.
- The proposed development density would be an average of one (1) residential unit per acre plus 165,000 square feet of commercial space (mixed with residential and separate) and approximately eight and eight tenths (8.8) acres of open space. Preserved open space includes onsite amenities of a lawn/park area and a system of trails.
- The site layout follows development principles for connectivity, mixed use, and building placement as called for by the *Comprehensive Plan 2013-2030's Goals and Policies* or *Chapter 6: Land Use Development & Community Design*.
- The property is one of few remaining vacant large tracts of land in the City of Lynchburg.
- The property falls within the Scenic Corridor Overlay District.
- Outdoor events are not mentioned in the zoning ordinance and are therefore not allowed unless deemed compatible with the uses in B-3, B-4, or B-5 by the Lynchburg City Council.

- The petition would exacerbate and accelerate level of service (LOS) issues with the Lynchburg Expressway interchange.

The Planning Division recommends approval of the rezoning and CUP petitions.

V. FINDINGS OF FACT

1. **Comprehensive Plan.** The property is indicated for Mixed Use and Resource Conservation use on the *Future Land Use Map (FLUM)*.

The *Comprehensive Plan 2013-2030* provides that Mixed Use developments do not fit into any single use category as they are planned for a mix of uses carefully designed so as to mitigate any potential land use conflicts. The mixed use areas generally consist of large undeveloped or greenfield areas that are intended to be developed for a balanced mix of residential, neighborhood commercial, civic uses, parks and open spaces. The mix of uses in these areas is intended to be determined at the time of development review and approval. (pg 76)

Land use decisions made by the City should take into account not only the land uses depicted on the FLUM, but also the *Plan Framework Map* and *Goals and Policies* contained within the *Comprehensive Plan*. The *Plan Framework Map* shows the tract of land as within the Graves Mill Business / Technology Area and states that given the size and location of the Graves Mill Area, a mixed use core with higher density residential development and retail uses is appropriate for the area south and west of the interchange of Graves Mill Road and the Lynchburg Expressway. (pg 70)

The Comprehensive Plan contains *goals* specific to new development and *policies* to follow to achieve those goals. Those applicable from the Land Use and Development section are listed here:

Goal LU-1: Land Availability. Make efficient use of land and resources in the City to serve the needs of the region through new development, redevelopment and infill that accomplishes the Plan's goals. (pg 13)

Goal LU-1.4: Consider the Planning Framework, land availability, existing land use and zoning patterns, site constraints, transportation capacity, utility availability and natural systems when evaluating zoning and Future Land Use Map amendments. (pg 14)

Goal LU-1.6: When the FLUM allows for greater density than allowed by existing zoning, determine whether a zoning change would be appropriate pursuant to policy LU-1.4 or whether the site is appropriate for density bonuses based on community benefits specified in the City's zoning ordinance. (pg 14)

Goal LU-3: Compatibility, Character and Design. Reinforce Lynchburg's unique character through public and private strategies that preserve historic elements, enhance transportation options, use existing infrastructure and improve access between land uses. (pg 15)

LU-3.2 Coordinate site and building design with the design of streets and public facilities. (pg 15)

LU-3.5 Facilitate creative residential, commercial and mixed-use development designs that create vibrant, healthy neighborhoods. (pg 15)

LU-3.6 Ensure that developments and public improvements within Scenic Conservation Areas are designed to protect or enhance the areas' scenic and environmental qualities. (pg 16)

LU-3.7 When addressing compatibility and connectivity between adjacent land uses, ensure that building orientation, building location, parking locations, parking design, lighting, walkways and other building and site design factors provide safe and convenient access to sites for drivers, pedestrians, bicyclists and transit riders. [See design discussion in Chapter 6] (pg 16)

LU-3.10 Encourage the development of built environments that support the integration of healthy and active living in day-to-day life and foster human interaction. (pg 16)

Goal NH-2: Neighborhood Character. Promote well-designed mixed-use residential neighborhoods that incorporate a variety of housing types and densities with pedestrian-oriented streets, small-scale neighborhood oriented services and parks to where residents are able to live, work and play close to home. (pg 25)

The proposed Rosedale Development has a desirable mix of land uses that meet the goals of the Comprehensive Plan's FLUM, Framework Map, and text by providing a combination of retail, residential, and office uses within a single site. Mixed use developments called for by the goals in the Comprehensive Plan should follow "Main Street" design conventions. Buildings following this style are pedestrian oriented with facades and main entrances facing streets, human-scale massing and fenestration, and contain a mix of uses within individual buildings, where lower floors are used for commercial uses and the upper floors are used for residential. Buildings should have unified design characteristics with similar height and massing to create a "street wall," an essential component of a walkable design. Parking should be accommodated by on street parking and disguised in the rear of buildings, rather than having large open parking lots depleting the character from a development. Rosedale's site plan meets many of the above concepts and sets the stage for future development of both adjacent undeveloped areas, as well as providing the framework for more density within the existing site plan as the market dictates. The Planning Division sees providing that framework, which involves building a connected street grid with multimodal facilities, and creating a context where buildings are human scale and placed close to the streets as the most crucial goal of site planning. Rosedale meets those goals and it is envisioned that through time, Rosedale will become a hub for this area of the city and the future development of the remaining vacant land on site and off.

Additionally, the proposed development provides both public needs and amenities. These include right of way connections, trails, sidewalks, shared use paths for walkers and bikers, and a bus pull off for potential bus routes, offering a choice of travel modes for trips within and out of the site. The trail and lawn / park area are also highly valued as needed public spaces for recreation and social interaction.

2. **Zoning.** The subject property was annexed into the City in 1976 and the existing R-1, Low-Density Residential zoning was established in 1978 with the adoption of the current *Zoning Ordinance*.

The proposed B-3, Community Business District and Cluster Commercial Development (CCD), would allow for all uses permitted by right in R-3 through B-5 districts and all uses illustrated on the site plan. The *Zoning Ordinance* characterizes CCD districts with three key features: an increased public amenity, shared parking areas between land uses, and a general "clustering" of development on site. The proposed site plan provides for amenity areas, but could make better

use of the provisions for clustering and sharing parking. “Clustering” refers to placing buildings close together on a single site. Clustering buildings automatically leads various uses to share parking. If the mix of land uses work together, then fewer parking spaces would be necessary on site, a desirable outcome for a number of reasons including stormwater management, maintenance, and a general flexibility for future development of the site.

CCDs are permitted in places consistent with the Comprehensive Plan and in areas where public services certified to be adequate for the proposed development by the Director of Planning for the City of Lynchburg. Consideration should be given to the effects of the development on the ramps with the Lynchburg Expressway (see section below on Traffic).

3. Proffers. The petitioner has voluntarily submitted the following proffers:

- The property will be developed as a Cluster Commercial Development (CCD). With regards to setbacks, the front setback from Graves Mill Road will be 30’. All other setbacks for front, side and rear yards will be zero feet. Excluding Graves Mill Road, the maximum setback shall be 15’ from the public right of ways or back of sidewalk on private streets. Buildings labeled “A,” “B,” “C,” “D,” “E,” and “F” are exempt from the maximum setback.
- The property will be developed with a combination of sidewalks, bike path and walking trails to promote interconnectivity.
- The property will be developed with a park area with a combination of lawns and trees.
- The property will be developed with two public rights of way access to promote connectivity with adjoining properties (PIN 23405002 and 23902005). The connection points are subject to adjustment to accommodate changes with the projects internal layout.
- The project will be developed to accommodate bus stops for mass transit. The project will include a bus shelter and turn-out.
- The property will be developed such that all exterior lighting will be glare shielded and designed to prevent illumination beyond the external developments property lines.
- Turn lanes will be installed along Graves Mill Road as determined necessary by the current traffic study dated January 2014 or as determined by an updated traffic study provided by the developer.
- Streets will have ornamental street lights.
- Uses shall be as permitted by right in B-3 and lesser intense districts. However, the following uses will not be included within the development of the site: billboards, building material and construction or farm equipment sales, contractors’ establishments, exterminators, kennels, storage, warehouses and yards, manufacturing uses, automobile oriented uses, including automobile, trailer, and truck rentals and sales, tire retail sales, painting/body repair shops and service stations, excluding fueling stations, which will be allowed within the development.
- The property will be developed in substantial compliance with the approved site plan dated February 20, 2014.

4. Board of Zoning Appeals (BZA). N/A

5. Surrounding Area. There have been several items requiring City Council approval in the immediate area:

- On April 14, 1981, Council approved the petition of Woodrow Iseman and William Milton to rezone approximately eight (8) acres from R-1, Low Density Residential District, to R-2C, Low-Medium Density Residential District (Conditional) to allow the construction of single-family residential homes on smaller lots around the intersection of Omega Drive and Omega Court.
- On August 12, 1986, Council approved the petition of Dreaming Creek Properties to rezone approximately four and half (4.5) acres from I-1, Restricted Industrial District to B-5C, General Business District (Conditional), and for a CUP for a Cluster Commercial Development (CCD) of office, showroom, and warehouse uses at the southwest corner of the intersection of Old Graves Mill and Graves Mill Roads.
- On December 8, 1987, Council approved the petition of Hutter Associates, Inc to rezone approximately thirty and a half (30.5) acres from R-2, Low-Medium Density Residential District to B-5C, General Business District (Conditional) and approximately thirty-two and a half (32.5) acres from R-1, Low Density Residential District to R-4, Medium-High Density Residential District, to allow speculative development with commercial and multi-family uses at the corner of Graves Mill Road and Creekside Drive.
- On December 11, 1990, Council approved the petition of Frank Davidson to amend a previously approved site plan and proffers by rezoning approximately four and a half (4.5) acres from B-5C, General Business District (Conditional), to B-5C, General Business District (Conditional), to allow office, professional, and commercial uses of the property according to a new site plan at the southwest corner of the intersection of Old Graves Mill and Graves Mill Roads.
- On October 13, 1992, Council rezoned fifty four (54) acres to the west of this site along Graves Mill Road from R-1, Low Density Residential District, and R-3, Medium Density Residential District to B-1, Limited Business District as part of the Graves Mill Road / US 221 Area Land Use Study, Growth Management Program.
- On January 12, 1999, Council approved the petition of Petrie, Dierman, and Kughn, to rezone approximately sixty-five (65) acres from R-4, Medium-High Density Residential District, and B-5C, General Business District (Conditional), to B-5C, General Business District (Conditional) and for two (2) Conditional Use Permits (CUP) to fill in a flood plain to allow the construction of a shopping center and parking lot on the properties adjacent to Creekside Drive.
- On July 13, 1999, Council approved the petition of Paul G. Graves to rezone approximately one (1) acre at 1220 Graves Mill Road from R-C, Resource Conservation District, and R-1, Low Density Residential District, to B-5C, General Business District (Conditional) to allow the reconstruction of the historic Graves Mill and its use for various commercial uses, including consignments, antiques, restaurant, gift shop, and the installation of 33 parking spaces.
- On September 12, 2000, Council approved the petition of First Assembly of God for a CUP to allow the construction of a church and parking area in a residential district at 1210 Graves Mill Road.
- On December 12, 2000, Council approved the petition of Lowe's Home Centers for a CUP to allow filling in a flood plain for the construction of a new building and parking lot in a B-5C, General Business District (Conditional), at 1200 Graves Mill Road.

- On August 13, 2002, Council approved the petition of Miller-Motte Technical College for a CUP for a technical college for up to 250 students in a B-5C, General Business District (Conditional), at 1011 Creekside Drive.
- On January 11, 2005, Council approved the petition of Millside Development LLC for a CUP to allow the construction of a Cluster Commercial Development (CCD) in a B-1, Limited Business District at the corner of Graves Mill Road and Lillian Lane.
- On September 13, 2011, Council approved the petition of the Lynchburg Humane Society to amend the FLUM from Resource Conservation and Medium Density Residential to Regional Commercial and to rezone the property from R-2 Low-Medium Density Single Family Residential District to B-5C, General Business District (Conditional) to allow the construction of a new animal shelter and associated parking at 1211 Old Graves Mill Road.

- 6. Site Description.** The subject property is two (2) tracts of land totaling approximately seventy and eighty-six thousandths (70.086) acres located at 1600 and 1220 Graves Mill Road. Forty-three and two tenths (43.2) acres are proposed to be rezoned and for Conditional Use Permit (CUP) for the Cluster Commercial Development (CCD).

The property is bounded to the north by low density residential and currently underdeveloped land, zoned R-1, Low Density Residential, and B-5C, General Business District (Conditional), to the west by the Millside Development Center, to the east by Tomahawk Creek and vacant property owned by First Assembly of God Church, and to the south by Graves Mill Road. Across Graves Mill, property is largely undeveloped and zoned R-C, Resource Conservation District. The site had significant topographic challenges associated with it, rising over 100 feet from the east side of the property where Tomahawk Creek lies to the western ridge designated for future development. As you enter the site from Graves Mill Road, the site rises up and follows the contours of the hillside, parallel to Tomahawk Creek.

- 7. Proposed Use of Property.** The purpose of these petitions is to rezone the property from R-1, Low Density Residential District and B-5C, General Business District (Conditional) to B-3C, Community Business District, and for a CUP to allow the construction of a CCD. The CCD would allow the construction of 165,000 square feet of commercial space, 35 apartments, and a system of trails, parks and open space on the 1600 Graves Mill Road Tract. It would also allow the use of the historic buildings and property at 1220 Graves Mill Road as art studios, shops, and an outdoor reception venue (if Council finds the outdoor reception and event use compatible with B-3 uses).

8. Traffic, Parking and Public Transit.

Expressway. A traffic study was required detailing the internal and external trips, internal and external traffic circulation, necessary travel lane requirements, and impacts on Graves Mill Road. As the property is adjacent to a major city corridor, Graves Mill Road, and approximately a half mile from the Lynchburg Expressway, impacts to these facilities should be closely considered. The provided traffic study indicates there are existing operational issues at the Expressway interchange and that improvements will be needed to accommodate natural growth of the city occurring outside of this proposed development. However, the Rosedale CCD will exacerbate and accelerate issues already projected. All ramp movements currently function at a level of service (LOS) C or better (except for the southbound off ramp right turn which functions at a LOS D). The northbound off ramp will fall to a LOS F in both the AM and PM peak hours, and the southbound off ramp will fall to a LOS E in the PM peak hour. The developer does not intend to address these issues as they will happen naturally over time. The traffic study was also

done for a more intense version of the development, and it is believed that the immediate impacts on the ramps will be reduced due to a reduction of trips created by the revised site plan.

Graves Mill Road. The traffic study also indicates the need for dedicated turn lanes for the Rosedale development on Graves Mill Road. At the build out of the site, two left turn lanes and a right turn lane will be required on Graves Mill Road, which will require widening the road. As this development will be phased, lanes can be added as needed with phases. The developer has agreed to provide the turn lanes as phasing indicates their need.

Internal Traffic. The site plan has gone through numerous iterations, and the proposed internal layout satisfies technical traffic concerns, and illustrates an extra effort to provide pedestrian and cycle infrastructure. Further street connectivity could potentially decrease the demand for such a large intersection at Graves Mill Road, reduce pressure on immediately adjacent intersections, and set the stage for creating a more complete street grid, improving large scale traffic issues over a long term. While pedestrian and cycle facilities are provided on site, the development layout could promote walkability further by clustering uses into one area of the site to create a compact walkable core.

Parking. One tenet of Cluster Commercial Zoning (CCD) is that uses within a development should share parking facilities with the intent of reducing the number of total parking spaces needed. The Planning Division believes this could be met better by a further clustering of buildings and parking. Parking is separated by use on the provided site plan and the excess parking spaces do not represent an efficient use of Lynchburg's limited land resources. It is preferred that parking be accommodated by on-street facilities, as well as in lots placed behind buildings, disguised from the street.

Public Transit. Greater Lynchburg Transit Company Route 7 runs along Graves Mill Road in front of this property. The site plan provides for a bus pull off within the development, though discussions with GLTC will be needed to coordinate potential routing into the development.

9. **Stormwater Management.** A stormwater management plan addressing both quantity and quality of stormwater related to the entire development of the property will be required at time of individual site plan submittal. The stormwater management pond currently shown within the floodplain will need to be adjusted during the site plan review process.
10. **Emergency Services.** The City's Fire Marshal and Police Department had no comments of concern.
11. **Impact.** The submitted rezoning petition would allow the construction of 165,000 square feet of commercial space, 35 apartments, and a system of trails, parks and open space on the 1600 Graves Mill Road tract and allow the use of the historic buildings and property at 1220 Graves Mill Road as art studios, shops, and an outdoor reception venue (if Council finds the reception use compatible with B-3 uses).

The proposed land uses agree with the Comprehensive Plan, which recommends a mix of uses for the site. The site plan both uses design concepts outlined in the Comprehensive Plan and sets the stage for future development to follow those same desired features. The provision for multimodal facilities, park / recreation space, and street connectivity is highly valued by the Planning Division and a desired use for the subject property.

Impacts to the ramps of the Lynchburg Expressway are a critical concern. The ramps will need significant improvements in the long term, and should the proposed development be approved, the ramps will demand costly infrastructure investments sooner. As this development just

happens to be the tipping point and the site plan and land uses are desired by the Comprehensive Plan, the Planning Division recommends approving the rezoning and CUP petition.

12. Design Review Board. CCDs require review by the Design Review Board (DRB) upon a complete submittal of the sketch plan, however the Design Review Board's Review shall be restricted to the following elements by Section 35.1-42.5 (3) of the Zoning Ordinance:

- a. Aesthetic and architectural relationships with the surrounding communities;
- b. Conclusions regarding on-site amenities and improvements;
- c. On-site arrangement of improvements and structures;
- d. Consistency with the Housing Assistance Plan for Federal and/or State funded projects. (*The project is not State or Federally Funded*)

The DRB reviewed the sketch plan on December 3, 2013. The more recently proposed site plans have a reduced footprint from the plans that went through DRB's review, with most of the residential portions of the site being removed from the rezoning. Future development of the portions to remain R-1, Low Density Residential will be determined at a later date. Comments from the DRB centered on the proposed architectural style, phasing concerns, traffic, and parking.

Architecture. It was noted specifically that the architecture of the proposed buildings have severe contrasts. The two glass office buildings seem to be of a modern style while other buildings on site have rustic or neoclassical architecture derived from the historic farm and mill structures. It was noted by board members that the sketches do not necessarily match what is proposed.

Phasing. Phasing was a concern due to the size of the development. With a development this large and the community amenities being part of the agreement of the rezoning, there was fear that part of the development would be built but the amenities would fall by the wayside if the development never reached full completion. The conditions of the CUP should address phasing and when the amenities will be installed.

Parking. The board also noted that the plan appears to have excess surface parking and that it was a large quantity of asphalt concentrated in single locations. The board recommended on-street parking as a way to mitigate the need for that amount of parking. The developer noted that the parking would likely need to be a combination of asphalt and permeable pavers.

Traffic. Though not an explicit subject for DRB comment, board members expressed concern over the single entrance to the development and what kind of traffic that might cause within the development during peak traffic times and on the adjacent Graves Mill Road. The DRB commented on how a connection to Breezewood Drive and other adjacent stubbed right-of-way through the back of the development would improve traffic flow.

13. Technical Review Committee. The Technical Review Committee (TRC) reviewed the preliminary rezoning plan on October 22, 2013. The plans have gone through numerous iterations since TRC review, but all technical comments related to the proposed development have been or will be addressed prior to final approval.

VI. PLANNING DIVISION RECOMMENDATION(s)

Based on the preceding Findings of Fact, the Planning Commission recommends to City Council approval of the petition of Rosedale Farm LLC and Bella Rose Plantation LLC to:

- 1. Waive the twenty-one (21)-day submittal requirement for proffers.**
- 2. Rezone approximately forty-three and two tenths (43.2) acres at 1220 and 1600 Graves Mill Road from R-1, Low Density Residential District, and B-5C, General Business District (Conditional), to B-3C, Community Business District (Conditional), subject to the following voluntarily submitted proffers:**
 - a. The property will be developed as a Cluster Commercial Development (CCD). With regards to setbacks, the front setback from Graves Mill Road will be 30'. All other setbacks for front, side and rear yards will be zero feet. Excluding Graves Mill Road, the maximum setback shall be 15' from the public right of ways or back of sidewalk on private streets. Buildings labeled "A," "B," "C," "D," "E," and "F" are exempt from the maximum setback.**
 - b. The property will be developed with a combination of sidewalks, bike paths and walking trails to promote interconnectivity.**
 - c. The property will be developed with a park area with a combination of lawns and trees.**
 - d. The property will be developed with two public rights of way access to promote connectivity with adjoining properties (PIN 23405002 and 23902005). The connection points are subject to adjustment to accommodate changes with the projects internal layout.**
 - e. The project will be developed to accommodate bus stops for mass transit. The project will include a bus shelter and turn-out.**
 - f. The property will be developed such that all exterior lighting will be glare shielded and designed to prevent illumination beyond the external developments property lines.**
 - g. Turn lanes will be installed along Graves Mill Road as determined necessary by the current traffic study dated January 2014 or as determined by an updated traffic study provided by the developer.**
 - h. Streets will have ornamental street lights.**

- i. **Uses shall be as permitted by right in B-3 and lesser intense districts. However, the following uses will not be included within the development of the site: billboards, building material and construction or farm equipment sales, contractors' establishments, exterminators, kennels, storage, warehouses and yards, manufacturing uses, automobile oriented uses, including automobile, trailer, and truck rentals and sales, tire retail sales, painting/body repair shops and service stations, excluding fueling stations, which will be allowed within the development.**
 - j. **The property will be developed in substantial compliance with the approved site plan dated February 20, 2014.**
- 3. Grant a Conditional Use Permit (CUP) to allow the construction of a Cluster Commercial Development (CCD), subject to the following conditions:**
 - a. **The property shall be developed in substantial compliance with the submitted rezoning plan entitled "Concept Plan for Rezoning & Conditional Use Permit for Rosedale Farm , LLC & Tomahawk Mill Development, LLC & Bella Rose Plantation , LLC" dated February 20, 2014 and prepared by Berkeley-Howell & Associates, P.C., though where in conflict with conditions outlined below, the conditions will take precedence.**
 - b. **Petitioner will construct dual left turn lanes and right in turn lanes on Graves Mill Road required by the approved traffic study when designated threshold of 300 trips within the peak hour is reached.**
 - c. **Public right of way will be dedicated along the main corridor through the development to property with PIN: 23405002. Additionally, 50' of public right of way will be dedicated to connect to the property with PIN: 23902005. Private roads will be provided to the east and west of the roundabout.**
 - d. **An overall Stormwater Management Plan addressing both quality and quantity will be submitted prior to individual site plan approval.**
 - e. **Stormwater management facilities will be integrated into the overall design of the development and design is subject to the approval of the City's Environmental Plan Reviewer.**
 - f. **Water quality will be addressed through a combination of Best Management Practices (BMPs) and Low Impact Development**

(LID) standards. Design of water quality measures is subject to approval of the City's Environmental Plan Reviewer.

- g. Front loading garages will not be permitted within the development.**
 - h. Buildings will have entrances on public and private street frontages.**
 - i. All amenities in the area designated as a park on the submitted master plan shall be the responsibility of the developer. All park areas shall be connected to the overall development by a series of trails and or sidewalks.**
 - j. Crosswalks will connect sidewalks at all significant intersections and driveways and be ten (10) feet wide, high intensity style.**
 - k. Streets will have pedestrian oriented lighting.**
 - l. Architecture of the buildings will be in substantial compliance with the renderings submitted in the Sketch Plan Application for Design Review Board.**
 - m. Project will be phased so that the public lawn / park area will be constructed with buildings "C" and "D" as labeled on the rezoning plan.**
 - n. Driveway entrances on public and private roads will be a minimum of 100' apart.**
 - o. Subdivision plat must be submitted for the dedication of any public streets and the approval of any street names.**
- 4. Declare the use of the Bella Rose Plantation property as a venue for outdoor receptions and events as compatible with B-3, Community Business District uses.**



Anne Leslie Nygaard
Planner

pc: Mr. L. Kimball Payne, III, City Manager
Ms. Bonnie M. Svrcek, Deputy City Manager
Mr. Walter C. Erwin, City Attorney
Mr. Kent L. White, Director of Community Development
Mr. J. Lee Newland, City Engineer
Ms. Cynthia Kozerow, Lynchburg Police Department

Captain Thomas Mack, Acting Fire Marshal
Mr. Donald DeBerry, Transportation Engineer
Mr. Doug Saunders, Building Commissioner
Mr. Robert Fowler, Zoning Administrator
Mr. Jacob Dorman, Environmental Reviewer
Ms. Marjette Upshur, Director of Economic Development

VII. ATTACHMENTS

- 1. Vicinity Zoning Pattern Map**
- 2. Vicinity Proposed Land Use Map**
- 3. Watershed Location Map**
- 4. Planimetric and Topographic Map**
- 5. Proposed Concept Plan**
- 6. Project Narratives (Rosedale Farm and Bella Rose)**
- 7. Architectural Renderings**
- 8. Street Cross Sections**
- 9. Traffic Study and Addendums**
- 10. Property Photo**

MINUTES OF THE FEBRUARY 26, 2014 PLANNING COMMISSION MEETING (MINUTES HAVE BEEN APPROVED):

a. Petition of Rosedale Farm LLC and Bella Rose Plantation LLC to rezone approximately seventy and eighty-six thousandths (70.086) acres at 1220 and 1600 Graves Mill Road from R-1, Low Density, Single-Family Residential District, and B-5C, General Business District (Conditional) to B-3C, Community Business District (Conditional), and for a conditional use permit to allow the construction of a Cluster Commercial Development (CCD) and to allow for the existing historic property and buildings at 1220 Graves Mill Road to be used as art studios, shops, and an outdoor reception venue. Lynchburg City Council will consider approving the reception venue as a compatible use with B-3, Community Business District. The CCD includes 170,000 square feet of commercial space, 59 townhouses, 110 condominiums, 100 apartments, and a system of trails, parks and open space.

Ms. Anne Nygaard presented a summary of the petition. The proposal today is to rezone approximately 43.2 acres of the 70 acres for the above described purposes. The *FLUM* recommends Mixed Use and Resource Conservation uses for the properties. The specific mix of uses for the properties is to be determined at the time of development review. Ms. Nygaard explained that the proposal has gone through several iterations since it was first submitted. Currently, the proposal is requesting 165,000 square feet of commercial space, 35 mixed use apartments and 8.8 acres of open space. The above description was the proposal at the time the legal notice was published.

There will be a central road throughout the development. She indicated on the site plan where there will be right-of-way dedicated to the City for planned roads for future development of the property. The developer is also providing a private road from the Bella Rose property to a proposed roundabout. Ms. Nygaard noted that the rest of the acreage not being proposed for rezoning at this time is intended to be developed in the future. If anything other than R-1 is proposed at that time, the developer will need to come back to Planning Commission and City Council.

The site plan follows planning principles for mixed use. It has a variety of uses on one property. It follows the planning principle of placing buildings close to the street whether they are public or private streets. The developers made significant efforts to provide sidewalks and shared use paths for pedestrians and bicyclists as well as providing a bus pull off area. Implementing these principles provides a framework for successful development of this property over time and over the long term. It also provides the right-of-way for future road connections to adjacent developments.

Traffic issues related directly to this development have been resolved on this site plan or will be resolved with the addition of turn lanes on Graves Mill Road. Ms. Nygaard noted that it is important to consider the effects of traffic from this development on the ramps to the expressway. The traffic study showed that the ramps will drop to a level of service F by 2024 whether or not the Rosedale development takes place. With this development, it may happen a lot sooner and may be a lot worse.

The developers' engineers asked for some clarifications to the conditional use permit conditions. Ms. Nygaard provided clarification in Condition d that the stormwater management plan would need to include both Phase 1 and Phase 2 of the development. She pointed out that this will become a requirement anyway with the new stormwater regulations coming out in July 2014.

They also asked for clarification in Condition j as to what "high intensity" crosswalks means. She clarified that we are looking for the continental style, the ladder style or the decorative style. She provided design examples of each of these types of crosswalks.

With regard to condition n, there was a question on where you would measure the distance between driveway entrances. She clarified that it is from curb to curb rather than center line to center line. With

the clarification of these conditions and the above summary, Ms. Nygaard noted that the Planning Division does recommend approval of both the rezoning and conditional use permit petitions.

Mr. Ron Cox, a partner with Hopkins Brothers, was present to represent the petition for Rosedale Farms. There are others present to represent the Bella Rose portion of the petition. He began by saying that all involved feel that this is a very special piece of property left in the City with great commercial and historic value and a legacy to the area. Their efforts will seek to maximize and preserve this value.

He commented that the commercial area will encompass two to three restaurants, a specialty grocery store, a couple of mixed use commercial buildings with up to 35 apartment units and a convenience store with gas pumps. This area is meant to bring some unique amenities to the Lynchburg area. They do not want this to be another strip mall but to have some stores and restaurants that you might find only in Richmond, Charlottesville or Raleigh. Their early projections show that they may see \$1.5 to \$2 million in annual sales tax revenue not to mention real estate taxes and special equipment taxes as well. They also project it will bring 100 new jobs to the area. They feel their site plan closely supports the recently adopted 2030 *Comprehensive Plan*.

Mr. Cox mentioned that they reached out to a large majority of the surrounding neighbors. They also ran a couple of press releases in the newspaper and have a website devoted to the development. All of these efforts have been received favorably. Mr. Cox also requested some time at the conclusion of the public hearing to further clarify a couple of the conditions contained in the planning division report.

Ms. Vickie Runk came forward to represent the Bella Rose Plantation portion of the petition. She explained that they are very interested in preserving the history of the property. She and her husband have done a similar project in Bedford called the Bedford Columns and it has been a success. Bedford has been very excited to have the community involved with the history of the Walter Reed home and they have hosted over 50 weddings and events there in the past two and a half years.

Ms. Runk explained that there will not be many changes made to the Bella Rose property. The mill will remain and be unchanged. The Christopher Johnson home, which is the oldest structure in Lynchburg built on a slab, will be restored and renovated for an art studio. The upstairs will be a bridal salon and area for the bride and her bridal party to get ready. The back part will be an area for approximately 300 guests. They intend to preserve and beautify the other little houses on the property for conservation pieces. They intend to turn the carriage house into a coffee house and bakery. They feel like it will be a great entryway to the Rosedale development and a place for people to come together as a community. She commented that it will have a vintage Williamsburg style to it. They intend on having the mill wheel turning again and filling up the ponds with a manmade pump.

Mr. Mike Carrington of Creekside of Lynchburg came forward to express their support of this plan. He stated the developers have kept them informed of the project and they fully support it.

Chair Swienton asked if there was anyone else who wished to speak in favor or in opposition to the petition. No one came forward. He closed the public hearing portion of the petition.

Commissioner Johnston asked Mr. Cox about the entrance to the Bella Rose Plantation. Mr. Cox explained that cars will enter through the main entrance and turn to the right. Commissioner Light asked if that would be the existing road that goes across the concrete bridge. Mr. Cox said it will not be the same road. Mr. Bill Berkley of Berkley Howell came forward to explain. He said there is a remnant of Graves Mill Road that goes up and comes out at the stop light. They do not project using that road at this time. It may become a secondary means of egress only in the future. Commissioner Johnston asked if they planned to block the road off. They said they did not plan on blocking it off because they do not think many people will want to use it because it is a one lane road. Commissioner Johnston brings it up because she thinks people may use it when there is a backup on the main road leaving the property and

that creates some concerns for her in terms of the stability of the bridge and the fact that it is a one lane road.

Commissioner Johnston asked if there are any parking plans for the Bella Rose property. Ms. Runk indicated the areas on the site plan where they plan to park vehicles but acknowledged that they are not shown as parking areas on the site plan. Commissioner Johnston explained that the Planning Commission normally is advised as to what type of paving is planned, how much and how stormwater runoff will be managed. Mr. Brian Runk came forward to explain that they plan on using gravel where needed but also mentioned that cars will be able to park on both sides of the main road, as well as possibly in one of the lots of the Rosedale commercial development. They will also have parking attendants present at all events to facilitate the best use of all parking options. There would be a path of some type to get pedestrians from the Rosedale parking area to the Bella Rose property. Mr. Runk indicated that 75 spaces have proven to be sufficient at their site in Bedford and that is what they anticipate needing here as well.

Commissioner Marion asked if the Johnson cottage is on the National Register of Historic Places. Someone from the audience indicated that it is. Commissioner Marion asked for clarification that there will be no external changes to it and Mr. Runk indicated that there will be none. They plan on keeping the exterior of all the buildings relatively unchanged except for beautifying them.

Commissioner Perault had questions about traffic on the ramps to the expressway. Mr. Don DeBerry came forward. Mr. DeBerry said the level of service is based on delay. At signalized intersections, if you have delays of over 50 seconds for a given movement, then it is a level of service F. The ramps are degrading over time as they are now based on the background growth. The traffic study showed that this development will cause a further degradation to the level of service at the ramps. Commissioner Perault asked if the City will have to address the problem. Mr. DeBerry said he does not know if the City has to address, but it is the City's responsibility. Commissioner Perault feels it may be an opportunity to jump start that process and possibly offset some of the cost to the City. Mr. DeBerry said he is not sure how to respond to that point as it would be a Council decision. Commissioner Swienton asked if a level of service F on the ramps would put cars on the expressway. Mr. DeBerry said not on the expressway but very close at that point (within a few hundred feet).

Commissioner Johnston asked if CCDs are exempt from Scenic Corridor regulations. Ms. Nygaard indicated that is correct.

Commissioner Johnston asked Mr. Cox if they plan on using an architectural review board. Mr. Cox indicated that there will be one. She asked how that review committee would interact with the City going forward. Mr. Cox said they really have not gone into that much depth yet but they do plan on coming back with the residential portion in terms of density and layout pretty quickly this year. They could attempt to cover the architectural review board and put it in place at that time. Commissioner Johnston would like to add a condition that there is a City employee on that committee. If it is a voting committee, the City staff member could act as a nonvoting member.

Mr. Berkley felt that the architectural renderings had already gone through a review process with the Design Review Board. Ms. Nygaard acknowledged that but noted that as we all know, things change over time. Mr. Berkley thought that one of the conditions is that the buildings be constructed in substantial compliance with the architectural renderings submitted. Commissioner Johnston indicated that she would like a City staff member to sit on the committee and be privy to the conversations as they move forward and try to mesh the residential phase with the commercial phase. Chair Swienton thought there was some basis and precedence for this with the Cornerstone TND design review board.

Chair Swienton asked the Runks if there was any dialogue or thought or research into whether or not the use of the word "plantation" in the name has any racial insensitivity with it. Ms. Runk explained that in the wedding world the term "plantation" simply means a venue with several buildings on it. If you

research the wedding world, you will see that term used from city to city. It carries with it a vintage, rustic connotation. Normally, a bride either wants a very glamorous setting or a vintage, rustic setting and the feeling that they are a part of history.

Chair Swienton was concerned with their use of pea gravel on the paths because people will be wearing quality shoes, many in high heels. Mr. Runk explained that there is transportation provided for the wedding party and guests. Also, the venue around the mill will be turf and grass. The areas around the other structures will be pea gravel but will be used mostly when it is not being used as a wedding venue. Ms. Runk explained that they really want to give it the historic feel of vintage Williamsburg and that is what many girls are looking for.

Chair Swienton asked if the addition of any parking on the Bella Rose Plantation would be handled through the site plan review process. Ms. Nygaard indicated that they would need to come back through the Planning Commission and City Council because substantial compliance with the submitted concept plan is a proffer of this rezoning. Chair Swienton pointed out to the Runks that this is something they need to consider in terms of whether or not they want to put this petition on hold for now and come back at a later date when they have decided on their parking arrangements.

Chair Swienton asked Mr. Cox why this had not come to them as one development rather than two phases. Mr. Cox said that they did not want to hold up this part of the project while they work out the density and layout of the residential phase on the rest of the property. Chair Swienton pointed out to him the risk of an up or down vote on the latter portion down the road.

Chair Swienton asked how a bus will turn around. Mr. Berkley said the bus will have to turn around in a parking lot or go to the proposed T intersection and turn around. Chair Swienton asked if, in his opinion, this is a safe turning movement. Mr. Berkley thought it would be because there will be little to no traffic at this point. He thinks the issue will work itself out as the future network of roads is developed. Mr. Berkley pointed out that this will have to be worked out for emergency vehicles as well but the way he described previously is how it will be worked out in the short term. Ms. Nygaard explained that this will be worked out in the site plan review process by members of City staff. Mr. Martin said they will either have to construct a temporary cul-de-sac or a hammerhead and that will be done as part of the road, water and sewer plan review process. That would not be considered an amendment to this concept plan as it is a matter of practical review.

Chair Swienton asked about the blue line near the main entrance. Mr. Berkley indicated that the main entrance is to the south or the east of the blue line stream that crosses under Graves Mill Road.

Given the existing topography and the expense of cutting and filling, Chair Swienton would like them to describe what it will look like from Graves Mill Road. Mr. Berkley indicated on the concept plan (right around where the roundabout is proposed) the area that will be graded to a fairly flat area. It will be higher than Graves Mill Road by about eight to ten feet. Then they will climb again to another plateau and then the rest of the road is fairly flat and follows the contour.

Chair Swienton asked Ms. Nygaard how much they are locked into this plan in terms of square footage, uses, etc. Ms. Nygaard said that with the proffers and conditions of these petitions, they are pretty much locked in to what is on the concept plan or they would need to come back before Planning Commission and City Council.

The discussion moved to clarification of conditions as requested by Mr. Cox earlier in the public hearing. Mr. Berkley said that one of the proffers states that at some point they would build two left turn lanes as required by the traffic study or they would initiate a new traffic study to make sure the dual left turn lanes are needed. Condition b says the second left turn lane needs to be constructed when they reach 300 trips (should possibly be clarified as 300 left turns created by this project). Mr. Berkley explained that there will be a left turn lane constructed when they start. Mr. Berkley explained that the

VDOT requirement is to consider a second left turn lane when there are 300 left turns during a peak hour. When you reach 350 left turns during a peak hour, the left turn lane is needed. It is Mr. Berkley's point that the proffer and condition are in conflict at this time. Ms. Nygaard thought the condition is more stringent and would be the one that would apply.

Mr. Berkley also pointed out that after their development is built, it is conceivable that another property that now has access will develop and tip the 300 left turn movements. He does not think that it is fair to Rosedale that they have to construct the second left turn lane when all the traffic is not from its development. Chair Swienton remarked that another project might connect elsewhere and Rosedale users will not be prevented from using that road. Chair Swienton sees the point but the only way they could prevent that is to not allow connectivity.

Chair Swienton asked Mr. DeBerry which one he thought was better, the proffer or the condition. Mr. DeBerry thought that was a point for Planning Commission and Council to decide; however, he pointed out that the City only requires traffic improvements from a development at its connection point. We won't go down the road and require a developer to do work at Graves Mill Road when they are a half a mile away. Therefore, if someone were connecting in the future to Rosedale, we would not ask them for any improvements to Rosedale's connection on Graves Mill Road. Mr. DeBerry said he does foresee the need for the dual left turn lanes should this property continue to develop. Mr. DeBerry did clarify that the condition should say that it is 300 left turns during the peak hour and not just 300 trips. Mr. Martin clarified that the traffic study showed the left turn lane was needed because of this development and not some development in the future on another tract. If the terms of the left turn lane are not dictated now, the City is going to be left to build it or it won't get built at all. It is Mr. Martin's recommendation that the condition say that when 350 left turns have been reached, the developer needs to build a second left turn lane. It needs to be tied to this site and not to Phase 2 of this development or some other development somewhere else. Commissioner Perault thought they were not being consistent with their discussion about the impact of this development on the ramps. Mr. Martin said it is similar but it is different because the condition on the ramps is an existing problem where the need for a turn lane or dual turn lanes here is a direct impact of the overall development of this property. Mr. Martin thinks you tie it to this piece or you tie it to the next piece, but he does not think you ignore it.

Commissioner Johnston asked Mr. Cox what the thought was in requesting a CCD instead of a B-3 zoning for this property. Mr. Cox explained that the developers wanted a mixed use type of concept. The CCD seemed to be the way to go after talking with City staff in order to achieve this objective. Commissioner Johnston asked Ms. Nygaard to talk about the differences between a CCD and the mixed uses allowed in a B-3 zoning. Ms. Nygaard said a CCD allows for uses from R-1 to B-5. Mr. Martin pointed out that residential uses are not allowed in a B-3 zoning by right. Mr. Martin noted that another important distinction is that a CCD can be subdivided into lots that front on private streets rather than public streets. That would not be true for B-3 lots, which have to have frontage on public streets. Ms. Nygaard noted that a CCD also provides for public amenities such as shared parking and the clustering of buildings, which is not required by B-3 zoning.

Commissioner Johnston noted that she is not seeing a lot of shared parking. She also has concerns about pedestrian safety since it appears that a pedestrian has to walk through a parking lot at various points. She would like them to address how they have dealt pedestrian safety and connectivity in general. Mr. Berkley pointed out areas where they have sidewalks and crosswalks. Commissioner Johnston feels that the issue of pedestrian connectivity still has not been fully fleshed out. The way it is set up, there is an excess of surface parking, in her opinion. She is wondering if there is some way to consolidate that by rearranging their site plan or creating better pedestrian connectivity. Commissioner Light asked for clarification that her safety concern is how pedestrians cross from the restaurant to the mixed use buildings. Commissioner Johnston said that it is not just a safety concern. We talk in the *Comprehensive Plan* about a Main Street concept where we have massing and fenestration that causes people to stop and look and slow down and be interested in what is around them. With regard to the commercial buildings that are facing the parking lots, walking along the side of a building does not

encourage people to interact with the space. The *Comprehensive Plan* talks about people interacting with their space and that is not what she is seeing here.

Ms. Nygaard pointed out that she feels that they are definitely calling for a lot of sidewalks and that their exact placement can be fleshed out when they bring in site plans for individual buildings. All those details do not have to be decided today.

Chair Swienton wondered how they would be handling ownership of the lots because shared parking and shared pedestrian access will require shared ownership or agreements between owners. Chair Swienton said that what he sees is an office park with some apartments on top and some sprawl. He does not really see clustering and he really does not see shared parking. How much of this is truly shared parking when they did the design? Mr. Berkley indicated where the parking is shared and said he would take issue with the comment that we have too much parking on the site. Commissioner Johnston remarked that she said there is not enough shared parking and not enough on street parking. For her, the layout is disturbing.

Commissioner Marion noted that the Design Review Board has reviewed this project; however, it seems to her that the architecture of the buildings is all over the place. She likes the three-story buildings with the gables but when you put them on a hill behind a convenience store and fast food restaurant, they kind of lose their appeal. She also noted that it will not be a Scenic Corridor with a convenient store and all the parking out front and remarked that the Scenic Corridor requirements are out the window because it is being developed as a CCD. She is concerned that the architecture is not more cohesive and also noted that they will have no control over the corporate logos and signage of a Sheetz or McDonald's or whatever might come in to the spaces in the front.

Ms. Nygaard noted that the reason for exempting CCDs from the Scenic Corridor requirement is that its requirements can be too restrictive for a CCD and the idea is that we would get something better in return or we should get something better in return.

Commissioner Johnston made a motion that their architectural review committee have at least one City staff member. Ms. Nygaard advised that the way it was done with Cornerstone is that there was an equal number (three) of City staff members and developers. In the event of a tie, it would go to Planning Commission. There was some discussion about how many members would be on the Rosedale board. Mr. Martin said the Cornerstone board had three of each type of member (three City staff and three developers); however he also pointed out that the Cornerstone and Wyndhurst TNDs have design guidelines. The role of the committee was to interpret those guidelines. Mr. Martin said he has no desire for himself or his staff to come in and design the buildings for the Rosedale development. He would hope that with either the proffers or the conditions that the Planning Commission would be comfortable enough with the styles of buildings or the building materials. If they are not, that is not something they should put off on staff to work with the developer on; they should try and figure that out now. We really do not have much to go on other than the pictures provided and they are raising some concerns now. Commissioner Marion asked for clarification that the Design Review Board is fine with them and they do not meet about them again. Mr. Martin said that is correct.

Commissioner Johnston said the intent of her motion was to get some continuity going forward because she is concerned about some of the designs. There are some rustic buildings that look like they will match well with the original Bella Rose plantation and then we have glass wrapped office buildings. If the condition is that they are to comply with the sketches provided today, she has some concerns.

There was discussion about how to word the motion and Commissioner Johnston said maybe she would withdraw the motion if it is Mr. Martin's recommendation that they should not go about it this way. Mr. Martin said he understood where she was going but the TND guidelines are guidelines. They tell you exactly how the buildings will look and be orientated. They have no such guidelines here and this would

throw staff into the mix and tell them to go and work it out with the developers. Mr. Martin doubts that would have a successful outcome because there is no actual document to refer to in the process.

Chair Swienton commented that whether or not he likes the buildings, it is a matter of whether or not the buildings will be attractive to employers and business owners. Will they want to rent or own them? That is part of the developers' capital decision and that tells him there had to be some thought put into whether or not someone would be looking for this style and size. If the developers feel there is a market for this type of building and it adds to the tax base in the most efficient way, then he is comfortable with it. He is using that to separate his opinion from what he sees on the left and the right in the photos provided.

Commissioner Johnston said it sounded like there is no ground for her motion and she withdrew it. Mr. Martin clarified that if this is approved, the first time they bring in a building for approval, if it does not look very similar to the photos provided, then it will not be approved. Chair Swienton asked if these photos show the two-story mixed use buildings. Ms. Nygaard did not think photos had been provided for every building on the site but other buildings would need to follow the style of the other mixed use buildings.

The discussion moved to condition b regarding the construction of the dual left turn lanes. Commissioner Light noted that he is not comfortable with the wording as it is and thinks it needs to be tightened up. The good thing about that is that it will give everyone some certainty. There was consensus from the rest of the commission that the language should be clarified but not to strike the condition completely. Mr. Martin suggested that the wording needs to say that the petitioner will construct dual left turn lanes and right in turn lanes on Graves Mill Road required by the approved traffic study when designated threshold of 350 left turn trips within the peak hour is reached. Mr. Martin clarified that 300 left turns would be when it is considered but 350 left turn trips is when it must be constructed. Mr. DeBerry acknowledged that is the VDOT standard. There was consensus to accept this wording by everyone. It will be formally changed by a motion later in the proceedings.

Chair Swienton asked if there was a motion to either approve or deny this petition. Commissioner Johnston made a motion to deny the petition. She noted that there are certain pillars of planning that they use in determining what is best for the City in the long term. One of those pillars is that good planning must be visionary; she acknowledges that they have a visionary project here. One of the other pillars though is that good planning requires a solid land use plan and a solid implementation plan. Those are the things that she is not seeing with their site plan and petition. There were several times where she heard the term "work itself out" and that causes her great concern. She is not comfortable with doing speculative rezoning and that is what she thinks they are doing here. She thinks they are saying that if they build a McDonald's, a Sheetz and a townhouse, they are fulfilling the requirements of a CCD. There is too much ambiguity with the plan as is for her to vote for it.

Chair Swienton asked if there was a second to this motion. Commissioner Marion asked if there was any middle ground. Can they table it? Can they ask for more information rather than voting it up or down? Chair Swienton said they could do either of those. Chair Swienton did not think there could be any discussion if the matter is tabled but they could put out what additional information they would like from the developer before making the motion.

There was discussion about how to proceed. Mr. Martin commented that they need to see if there is a second to Commissioner Johnston's motion to deny. If they vote to table it, there needs to be a subsequent motion to bring it off the table. Mr. Martin suggested that they could postpone it until the developers can bring back whatever information they are looking for. At this point, Commissioner Perault seconded Commissioner Johnston's motion to deny.

Commissioner Perault agreed with Commissioner Johnston in that there is a lot of vagueness. It is hard to be comfortable that the end result will be the picture perfect scenario that the City is looking for

with these types of projects. He is not comfortable that we are all going to end up on the same page with it.

Commissioner Light asked how many more specific plans will have to be brought back for their consideration that would perhaps address some of the uncertainties. Mr. Martin clarified that the Bella Rose Plantation portion would need to come back and amend the CCD if they decide to add parking. Anything else, if this is approved, is purely a staff review. Chair Swienton pointed out that it would be helpful for the developers to have concrete items for them to address prior to coming back with more information.

There was discussion about how to proceed and it was noted that the motion on the table needs to be voted on. Commissioner Light remarked that what concerns him is that he thinks they would be doing a disservice to City Council and to the developers at this point if they vote no and that is the end of their involvement. Personally, he would like to see the vote postponed and those with concerns about specificities convey to the developers what additional information they would like to have addressed. He suspects that if they vote on the motion to deny that it will pass and he does not think that will be doing a service to City Council or to the Planning Commission or the developers. Commissioner Light would like to make a friendly amendment to Commissioner Johnston's motion or a new motion that the matter is postponed and the developers be told what additional information would be helpful to the commission in making its decision.

Mr. Martin clarified for them that they can either vote on Commissioner Johnston's motion or she could choose to withdraw it and they would have a clean slate. What he is hearing is that there may be some additional information that would be helpful but it sounds like it is a revised layout that some of them want. He is not sure the petitioner is or is not willing to give them a revised layout. Mr. Martin also pointed out that the important thing is not to get caught up in Robert's Rules of Order but that the full commission understands what they are doing. In the interest of allowing everyone to have more information, Commissioner Johnston withdrew her motion to deny.

Commissioner Marion would like to vote to postpone the matter. She knows that sometimes in the past, petitioners have taken the commission on a tour and presented plans to them in an informal setting. This has been a lot of information for them to absorb in a short time. She does not like the parking; she does not like the non-shared parking; she would like more specificity with the architecture. She acknowledged that they do not determine what it looks but would like to be sure the developers know what it will look like. Commissioner Marion asked if they voted to postpone if the developers would be willing to make any modifications and show them any other ideas.

Mr. Cox asked the others present if they needed some time to discuss this request. One commented that they have the option of developing it as single-family detached. They have been at this for about six months and have looked for guidance from planning and the guidance has been great. They understand the position the Planning Commission is in and they all need to do what they are going to do and the developers need to do what they are going to do. Commissioner Marion made a motion, which was seconded by Commissioner Light to table the matter to give the developers some time to discuss the matter. When the developers were finished discussing the matter, Commissioner Johnston made a motion, which was seconded by Commissioner Marion, to reopen the item.

Mr. Cox commented that they have gone to a lot of time and expense to make this development dense and efficient. Without some very specific input that the commission can give them in writing, they do not really know how to change too much. The seventy acres is going to be developed and they would hope they can get a better use for the City than R-1 residential.

Commissioner Light made a motion to approve the petition. There are some uncertainties but he has not heard a great deal of specific uncertainties addressed as far as questions are concerned. There has been a lot of work done with City staff and there are provisions with the conditions outlined for additional

work to be done. For instance, streets will have ornamental street lights. He trusts that staff will work with the developers to get ornamental street lights. Chair Swienton asked if the commission would be comfortable with him seconding the motion for discussion. The rest of the commissioners indicated that would be fine and he seconded the motion.

Chair Swienton remarked that they had started to develop this project with the previous *Comprehensive Plan*, which called for this area to be an Employment use. Technically, a gas station provides employment. He envisioned a use for this property that would provide more jobs; however, technically, it is still employment. He acknowledged that this is not what he would have envisioned either the past or the present *Comprehensive Plan* to put there; however he does not have enough to justify a “no” vote. Going forward, he thinks that keeping marketing names current would be something to consider as well.

Commissioner Marion commented that she has done business with Hopkins Brothers but she does not consider it to be a conflict of interest because there is not a great deal of money involved with the business relationship.

Commissioner Light made a motion to waive the 21-day requirement for submittal of proffers. Commissioner Marion seconded the motion and it passed by the following vote:

AYES:	Johnston, Light, Marion, Perault and Swienton	5
NOES:		0
ABSTENTIONS:		0
ABSENT:	Coleman and Hooper	2

Commissioner Light made the following motion, which was seconded by Chair Swienton:

“That the Planning Commission recommends to City Council approval of the petition of Rosedale Farm LLC and Bella Rose Plantation LLC to Rezone approximately forty-three and two tenths (43.2) acres at 1220 and 1600 Graves Mill Road from R-1, Low Density Residential District, and B-5C, General Business District (Conditional), to B-3C, Community Business District (Conditional), subject to the following voluntarily submitted proffers:

- 1. The property will be developed as a Cluster Commercial Development (CCD). With regards to setbacks, the front setback from Graves Mill Road will be 30'. All other setbacks for front, side and rear yards will be zero feet. Excluding Graves Mill Road, the maximum setback shall be 15' from the public right of ways or back of sidewalk on private streets. Buildings labeled “A,” “B,” “C,” “D,” “E,” and “F” are exempt from the maximum setback.**
- 2. The property will be developed with a combination of sidewalks, bike paths and walking trails to promote interconnectivity.**
- 3. The property will be developed with a park area with a combination of lawns and trees.**
- 4. The property will be developed with two public rights of way access to promote connectivity with adjoining properties (PIN 23405002 and 23902005). The connection points are subject to adjustment to accommodate changes with the projects internal layout.**
- 5. The project will be developed to accommodate bus stops for mass transit. The project will include a bus shelter and turn-out.**

6. The property will be developed such that all exterior lighting will be glare shielded and designed to prevent illumination beyond the external developments property lines.
7. Turn lanes will be installed along Graves Mill Road as determined necessary by the current traffic study dated January 2014 or as determined by an updated traffic study provided by the developer.
8. Streets will have ornamental street lights.
9. Uses shall be as permitted by right in B-3 and lesser intense districts. However, the following uses will not be included within the development of the site: billboards, building material and construction or farm equipment sales, contractors' establishments, exterminators, kennels, storage, warehouses and yards, manufacturing uses, automobile oriented uses, including automobile, trailer, and truck rentals and sales, tire retail sales, painting/body repair shops and service stations, excluding fueling stations, which will be allowed within the development.
10. The property will be developed in substantial compliance with the approved site plan dated February 20, 2014."

The motion failed by the following vote:

AYES:	Light and Swienton	2
NOES:	Johnston, Marion and Perault	3
ABSTENTIONS:		0
ABSENT:	Coleman and Hooper	2

Commissioner Light made the following motion, which was seconded by Chair Swienton:

"That the Planning Commission recommends to City Council approval of the petition of Rosedale Farm LLC and Bella Rose Plantation LLC to grant a Conditional Use Permit (CUP) to allow the construction of a Cluster Commercial Development (CCD), subject to the following conditions:

1. The property shall be developed in substantial compliance with the submitted rezoning plan entitled "Concept Plan for Rezoning & Conditional Use Permit for Rosedale Farm , LLC & Tomahawk Mill Development, LLC & Bella Rose Plantation , LLC" dated February 20, 2014 and prepared by Berkeley-Howell & Associates, P.C., though where in conflict with conditions outlined below, the conditions will take precedence.
2. Petitioner will construct dual left turn lanes and right in turn lanes on Graves Mill Road required by the approved traffic study when designated threshold of 350 left turns within the peak hour is reached.
3. Public right of way will be dedicated along the main corridor through the development to property with PIN: 23405002. Additionally, 50' of public right of way will be dedicated to connect to the property with PIN: 23902005. Private roads will be provided to the east and west of the roundabout.
4. An overall Stormwater Management Plan addressing both quality and quantity will be submitted prior to individual site plan approval.
5. Stormwater management facilities will be integrated into the overall design of the development and design is subject to the approval of the City's Environmental Plan Reviewer.

6. Water quality will be addressed through a combination of Best Management Practices (BMPs) and Low Impact Development (LID) standards. Design of water quality measures is subject to approval of the City's Environmental Plan Reviewer.
7. Front loading garages will not be permitted within the development.
8. Buildings will have entrances on public and private street frontages.
9. All amenities in the area designated as a park on the submitted master plan shall be the responsibility of the developer. All park areas shall be connected to the overall development by a series of trails and or sidewalks.
10. Crosswalks will connect sidewalks at all significant intersections and driveways and be ten (10) feet wide, high intensity style.
11. Streets will have pedestrian oriented lighting.
12. Architecture of the buildings will be in substantial compliance with the renderings submitted in the Sketch Plan Application for Design Review Board.
13. Project will be phased so that the public lawn / park area will be constructed with buildings "C" and "D" as labeled on the rezoning plan.
14. Driveway entrances on public and private roads will be a minimum of 100' apart.
15. Subdivision plat must be submitted for the dedication of any public streets and the approval of any street names."

The motion failed by the following vote:

AYES:	Light and Swienton	2
NOES:	Johnston, Marion and Perault	3
ABSTENTIONS:		0
ABSENT:	Coleman and Hooper	2

Commissioner Light made the following motion, which was seconded by Commissioner Marion:

"That the Planning Commission recommends to City Council to declare the use of the Bella Rose Plantation property as a venue for outdoor receptions and events as compatible with B-3, Community Business District uses."

Staff provided clarification that if they decide to add parking areas later that it would involve amending the conditional use permit and the petitioner would have to go through the public hearing process again. Staff also clarified that it would not change B-3 zoning to include venues for outdoor receptions and events but would only allow it in this instance.

The motion passed by the following vote:

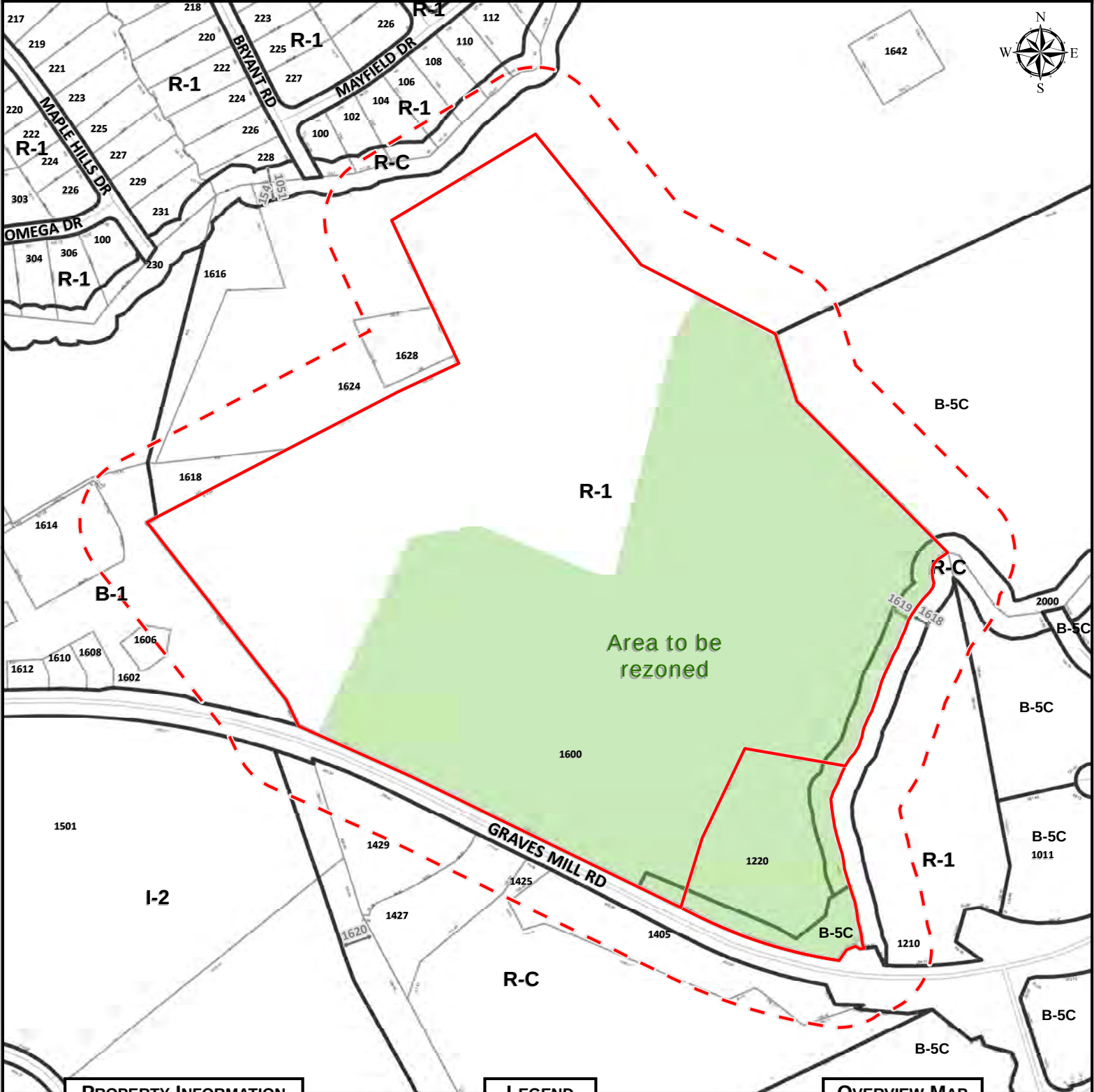
AYES:	Light, Marion, Perault and Swienton	4
NOES:	Johnston	1
ABSTENTIONS:		0
ABSENT:	Coleman and Hooper	2

Zoning Map

REZONING FROM R-1 AND B-5C TO B-3C

Zoning & CUP Request

Rosedale Farms LLC



PROPERTY INFORMATION

PARCEL ID	ADDRESS
23904001	1220 GRAVES MILL RD
23904004	1600 GRAVES MILL RD

LEGEND

- Area To Be Rezoned
- Subject Property
- 200' Buffer
- Zoning Boundary

OVERVIEW MAP



MAP SCALE: 1" to 400' DATE PRINTED: 3/28/2014

DISCLAIMER: THIS MAP IS NEITHER A LEGALLY RECORDED MAP NOR A SURVEY AND IS NOT INTENDED TO BE USED AS SUCH. THE INFORMATION DISPLAYED IS A COMPILATION OF RECORDS, INFORMATION, AND DATA OBTAINED FROM VARIOUS SOURCES. THE CITY OF LYNCHBURG IS NOT RESPONSIBLE FOR ITS ACCURACY OR HOW CURRENT IT MAY BE.

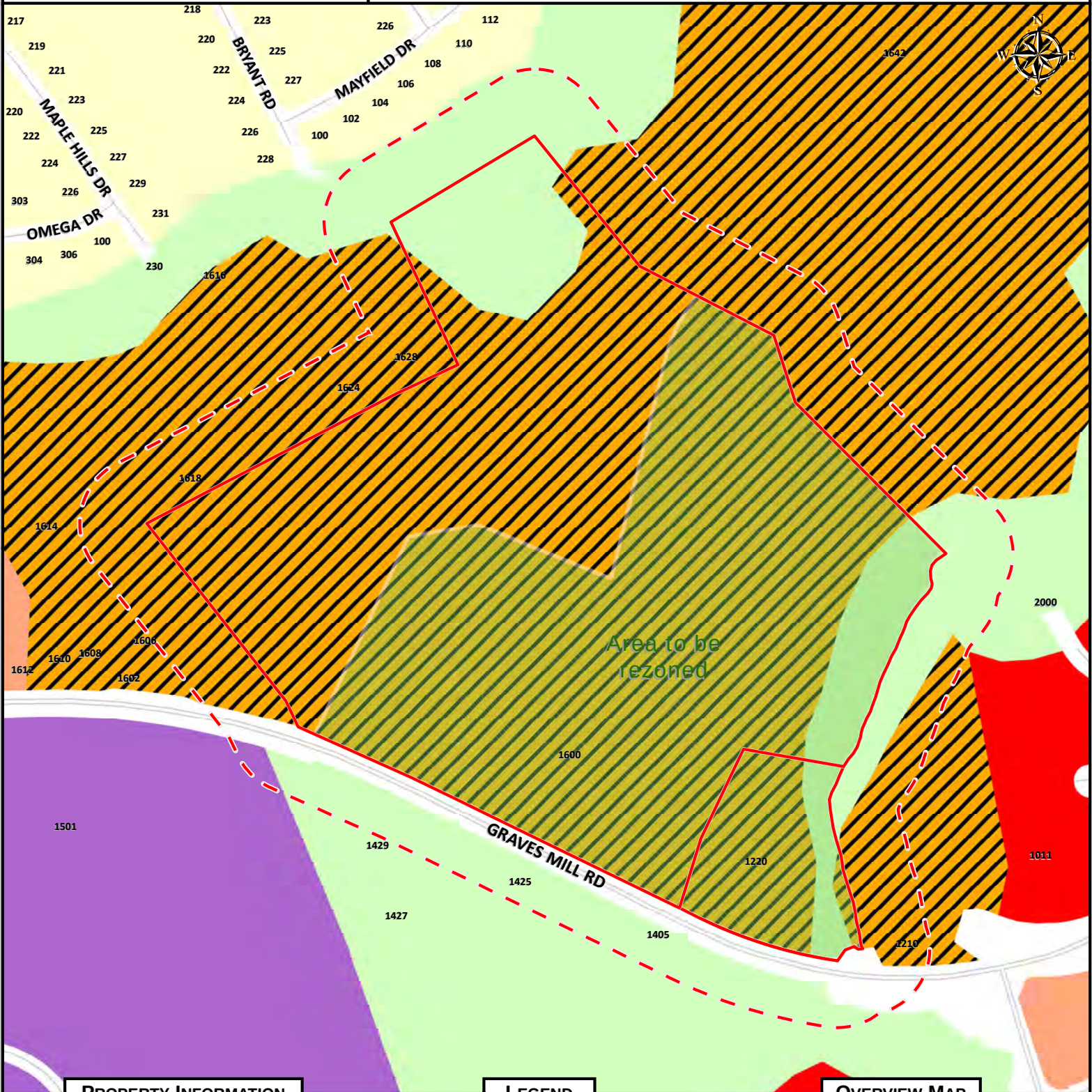
Parcel ID	Address	Owner
24001005	100 MAYFIELD DR	BLANKS, LARRY E & ALYCE C
24001006	102 MAYFIELD DR	GERBRACHT, G ROBERT
24001007	104 MAYFIELD DR	STAHL, BEN H & AGNES J D
24001008	106 MAYFIELD DR	HARRIS, JOHN R & ELIZABETH J
23407001	108 MAYFIELD DR	WATSON, RODGER J & NANCY P
23407002	110 MAYFIELD DR	BRITTON, HAGON & JANE
23407003	112 MAYFIELD DR	BARKER, MICHAEL E & HEATHER L
24016001	1427 GRAVES MILL RD	GRAVES, EDWARD S III & GRAVES, CATHY
24016002	1429 GRAVES MILL RD	GRAVES, EDWARD S III & GRAVES, CATHY
24010004	1501 GRAVES MILL RD	BAUSCH & LOMB INCORPORATED
24010008	1614 GRAVES MILL RD	KHM PROPERTIES - LYNCHBURG LLC
24010013	1606 GRAVES MILL RD	MILLSIDE DEVELOPMENT CENTER
23904002	1405 GRAVES MILL RD	CITY OF LYNCHBURG
23904003	1425 GRAVES MILL RD	ROSEDALE FARM LLC
24008001	230 MAPLE HILLS DR	JAMERSON REAL ESTATE INC
24009002	1618 GRAVES MILL RD	STANBERY, FRED W JR
24009001	1616 GRAVES MILL RD	GOFF, DARRIN E
23905001	1628 GRAVES MILL RD	BREWSTER, RICHARD C & PHYLLIS
23405002	1624 GRAVES MILL RD	HUTCHINSON, CAROLYN S &
23902004	1000 CREEKSIDE LN	CREEKSIDE OF LYNCHBURG
23904005	1210 GRAVES MILL RD	FIRST ASSEMBLY OF GOD CHURCH OF
23902005	2000 CREEKSIDE DR	CREEKSIDE OF LYNCHBURG
23904001	1220 GRAVES MILL RD	BELLA ROSE PLANTATION LLC
23904004	1600 GRAVES MILL RD	ROSEDALE FARM LLC
24010002	1602 GRAVES MILL RD	MILLSIDE DEVELOPMENT CENTER

FLUM Map

REZONING FROM R-1 AND B-5C TO B-3C

Zoning & CUP Request

Rosedale Farms LLC



PROPERTY INFORMATION

PARCEL ID	ADDRESS
23904001	1220 GRAVES MILL RD
23904004	1600 GRAVES MILL RD

LEGEND

- Local Historic District
- Traditional Residential
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Neighborhood Commercial
- Community Commercial
- Employment 1
- Employment 2
- Downtown
- Institution
- Public Use
- Public Parks
- Resource Conservation
- Mixed Use

OVERVIEW MAP



MAP SCALE: 1" to 400' DATE PRINTED: 3/28/2014

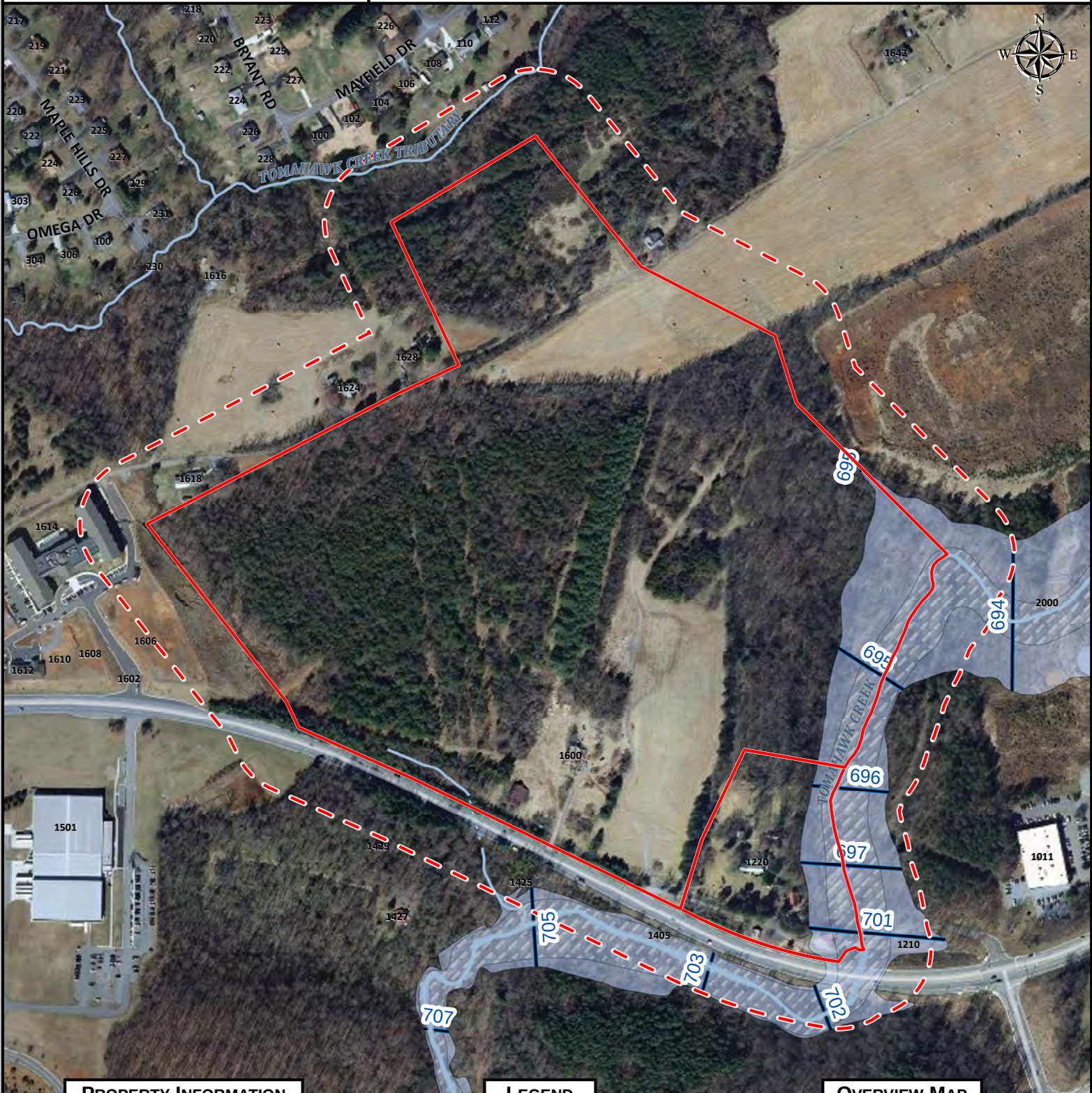
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Watershed Map

REZONING FROM R-1 AND B-5C TO B-3C

Zoning, & CUP Request

Rosedale Farms, LLC



PROPERTY INFORMATION

PARCEL ID	ADDRESS
23904004	1600 GRAVES MILL RD
23904001	1220 GRAVES MILL RD

LEGEND

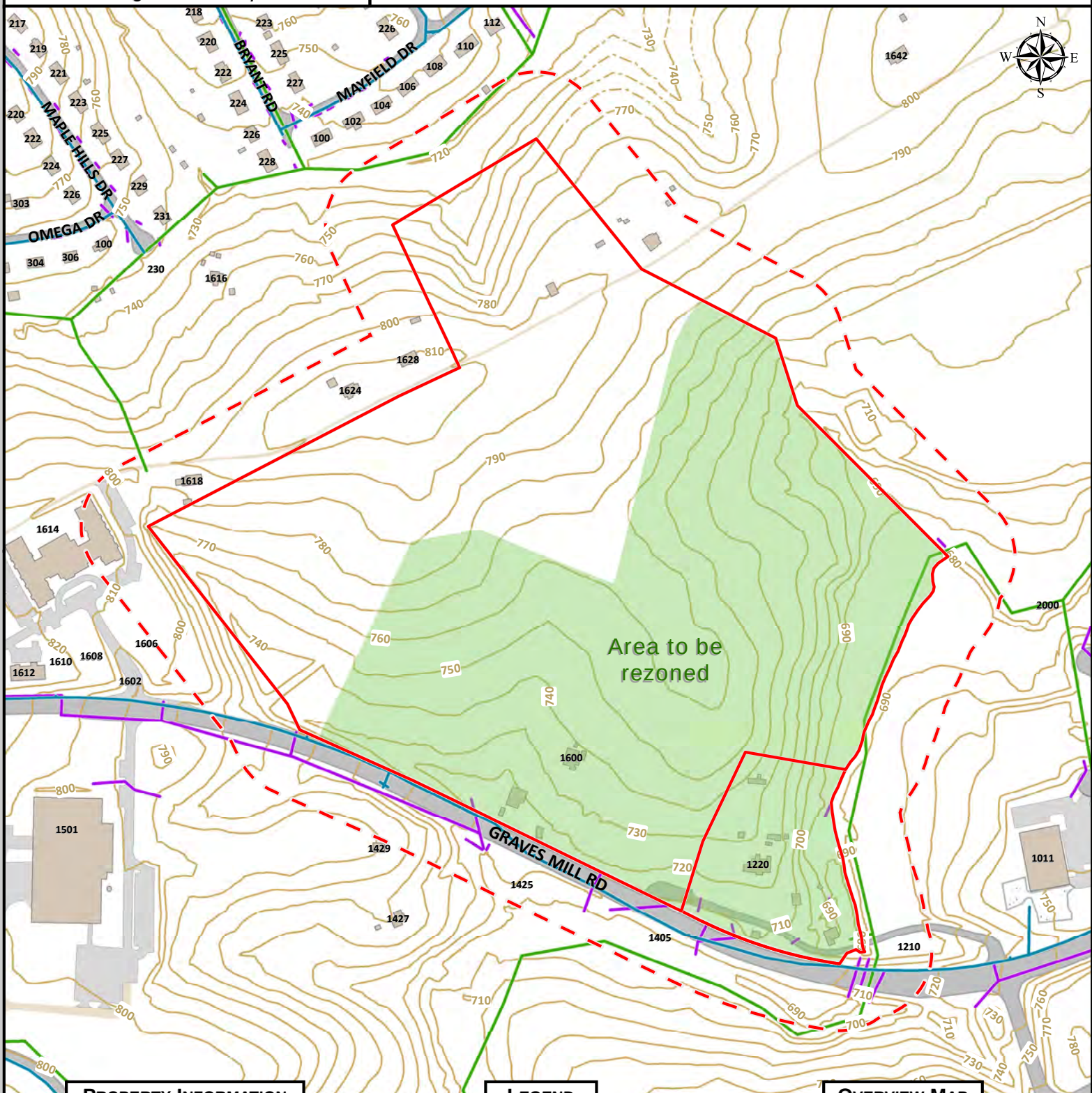
- Subject Property
- Base Flood Elevation
- Floodway
- Floodzone
- River / Lake / Stream

OVERVIEW MAP



MAP SCALE: 1" to 400' DATE PRINTED: 2/21/2014

DISCLAIMER: THIS MAP IS NEITHER A LEGALLY RECORDED MAP NOR A SURVEY AND IS NOT INTENDED TO BE USED AS SUCH. THE INFORMATION DISPLAYED IS A COMPILATION OF RECORDS, INFORMATION, AND DATA OBTAINED FROM VARIOUS SOURCES. THE CITY OF LYNCHBURG IS NOT RESPONSIBLE FOR ITS ACCURACY OR HOW CURRENT IT MAY BE.



PROPERTY INFORMATION

PARCEL ID	ADDRESS
23904001	1220 GRAVES MILL RD
23904004	1600 GRAVES MILL RD

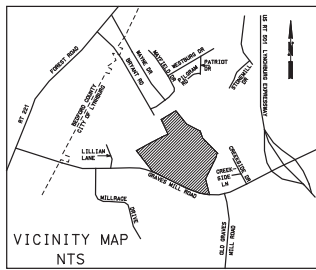
LEGEND

	Active	Proposed	Abandoned
Utilities			
Water			
Sanitary			
Storm			
Planimetrics			
Structure			
Roadway			
Parking			
Sidewalk			
Driveway			
Topography			
Contour			

OVERVIEW MAP



MAP SCALE: 1" to 400' DATE PRINTED: 3/28/2014



- NOTES:
1. THIS PLAN HAS BEEN PREPARED IN ORDER TO DEVELOP THE PROPERTY AS A CDD-CLUSTER COMMERCIAL DEVELOPMENT. THE LOTS AND LAYOUT SHOWN ARE FOR CONCEPT ONLY AND ARE SUBJECT TO CHANGE BASED ON THE FUTURE NEEDS FOR BOTH RESIDENTIAL AND COMMERCIAL USES IN THE LYNCHBURG AREA. ALL PORTION OF THE PROPERTY ARE DEVELOPED. INDIVIDUAL SITE PLANS WILL BE SUBMITTED TO THE CITY OF LYNCHBURG FOR CODE COMPLIANCE AND APPROVAL.
 2. THIS PLAN HAS BEEN PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AND DOES NOT NECESSARILY INDICATE ALL ENCUMBRANCES UPON THE TITLE.
 3. BY GRAPHIC SCALING ONLY, A PORTION OF THIS PROPERTY IS LOCATED IN SHADED ZONE "X" AND ZONE "AL" (DESIGNATED FLOOD HAZARD AREAS) ACCORDING TO THE F.L.M.A. FLOOD INSURANCE RATE MAP FOR THE CITY OF LYNCHBURG, VIRGINIA (JANUARY 2005) DATED JUNE 3, 2005. NO FIELD SURVEYING WAS PERFORMED TO MAKE THIS DETERMINATION.
 4. THIS PLAN DOES NOT PURPORT TO ADDRESS THE EXISTENCE, DETECTION OR DELINEATION OF ANY ENVIRONMENTALLY SENSITIVE AREAS OR ANY ENVIRONMENTAL PROBLEMS LOCATED WITHIN THE PERIMETER OF THE PROPERTY SHOWN.
 5. THIS PLAN IS BASED ON A CURRENT FIELD SURVEY.
 6. PRIOR TO THE DEMOLITION OF ANY BUILDING, UTILITY DISCONNECT FOR ALL SERVICES MUST BE FURNISHED TO THE CITY OF LYNCHBURG REPLETION DIVISION. BEFORE ISSUING A DEMOLITION PERMIT, AN ASBESTOS SURVEY IN ACCORDANCE WITH SECTION 36-99.7 OF THE CODE OF VIRGINIA IS REQUIRED.
 7. THE PROPOSED DEVELOPMENT WILL BE SERVED BY CITY OF LYNCHBURG WATER AND SANITARY SEWER CONNECTIONS.
 8. STORMWATER MANAGEMENT WILL MEET STATE AND LOCAL CODES.
 9. VERTICAL DATUM - NGVD83

CAROLYN S. HUTCHINSON & PHYLLIS S. BREWSTER
INST. #080005488
PIN: 23405002
USE: RESIDENTIAL
ZONED: R-1 & R-C

FRED W. STANBERRY, JR. & SUSAN P. STANBERRY
D.B. 1011, PG. 97
PIN: 24009002
USE: RESIDENTIAL
ZONED: R-1

MILLSIDE DEVELOPMENT CENTER
INST. #04000059
PIN: 24010002
USE: COMMERCIAL-COMMON AREA
ZONED: B-1

RICHARD C. & PHYLLIS S. BREWSTER
D.B. 499, PG. 513
(CAMPELLE CO.)
PIN: 23905001
USE: RESIDENTIAL
ZONED: R-1

CAROLYN S. HUTCHINSON & PHYLLIS S. BREWSTER
INST. #080005488
PIN: 23405002
USE: RESIDENTIAL
ZONED: R-1 & R-C

FUTURE DEVELOPMENT

RESIDUE
±26.9 AC.
CURRENTLY ZONED R-1

FUTURE DEVELOPMENT

PHASE 1

PHASE 2

TOMAHAWK MILL DEVELOPMENT, LLC
INST. #130001342
PIN: 23904001
16.224 AC.

OPEN SPACE
8.8 AC.

FIRST ASSEMBLY OF GOD CHURCH
INST. #110004676
PIN: 23904005
USE: VACANT
ZONED: R-1 & R-C

BELLA ROSE PLANTATION, LLC
INST. #140008359

GRAVES-MILL ROAD (70' R/W)

- LEGEND
- CORNER NEITHER SET NOR FOUND
 - IRON PIN SET
 - IRON PIN FOUND (IPF)
 - FENCE
 - UTILITY POLE
 - OVERHEAD UTILITIES
 - FIRE HYDRANT
 - DUMPSTER
 - HANDICAP PARKING
 - SIDEWALK

PROJECT SCOPE: CDD - CLUSTER COMMERCIAL DEVELOPMENT

OWNER/DEVELOPERS: ROSDALE FARM, LLC
1000 GRAVES MILL ROAD
LYNCHBURG, VA 24002

PLANNER: WILLIAM T. SUGER, L.S.
3801 ENTERPRISE DRIVE
FOREST, VA 24501

PHONE: 434-385-7548
EMAIL: WTSUGER@PLOWELL.COM

PARCEL ID: 10000000000000000000

PROPERTY ADDRESS: 1000 GRAVES MILL ROAD
1000 GRAVES MILL ROAD

TOTAL PROPERTY AREA: 70.000 ACRES

TOTAL AREA TO BE REZONED: 43.2 ACRES

TOTAL AREA REMAINING: 26.8 ACRES

EXISTING A.C. ACREAGE: 1.2 ACRES WITHIN THE 43.2 ACRES (TO REMAIN R-1)

CURRENT ZONING: R-1, R-C, B-1C, B-2C, B-3C, B-4C, B-5C, B-6C, B-7C, B-8C, B-9C, B-10C, B-11C, B-12C, B-13C, B-14C, B-15C, B-16C, B-17C, B-18C, B-19C, B-20C, B-21C, B-22C, B-23C, B-24C, B-25C, B-26C, B-27C, B-28C, B-29C, B-30C, B-31C, B-32C, B-33C, B-34C, B-35C, B-36C, B-37C, B-38C, B-39C, B-40C, B-41C, B-42C, B-43C, B-44C, B-45C, B-46C, B-47C, B-48C, B-49C, B-50C, B-51C, B-52C, B-53C, B-54C, B-55C, B-56C, B-57C, B-58C, B-59C, B-60C, B-61C, B-62C, B-63C, B-64C, B-65C, B-66C, B-67C, B-68C, B-69C, B-70C, B-71C, B-72C, B-73C, B-74C, B-75C, B-76C, B-77C, B-78C, B-79C, B-80C, B-81C, B-82C, B-83C, B-84C, B-85C, B-86C, B-87C, B-88C, B-89C, B-90C, B-91C, B-92C, B-93C, B-94C, B-95C, B-96C, B-97C, B-98C, B-99C, B-100C, B-101C, B-102C, B-103C, B-104C, B-105C, B-106C, B-107C, B-108C, B-109C, B-110C, B-111C, B-112C, B-113C, B-114C, B-115C, B-116C, B-117C, B-118C, B-119C, B-120C, B-121C, B-122C, B-123C, B-124C, B-125C, B-126C, B-127C, B-128C, B-129C, B-130C, B-131C, B-132C, B-133C, B-134C, B-135C, 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Bella Rose Plantation will consist of several different concepts... nested on 6 acres, the estate formally known as the ROSEDALE MANSION will play a very intricate part to be the anchor of this plantation, as it will be used as a 19th century backdrop for weddings and events. The name "Bella Rose Plantation" is derived from Bella meaning 'beautiful' and Rose for the Rosedale Estate. The property truly lends itself to an overall grand Master plan.

It will serve as a designer decor exhibit for furnishings and furniture as well as wall art techniques which will be open to the public Monday thru Friday. On the weekends it will serve as a Bridal Haven for brides to use to make their wedding dreams come true. The top floor of the house will be renovated to have an elaborate expansive wedding suite for brides to use to get ready on their special day, and can be used for wedding portraits taken throughout the week. Caretakers will live on site to manage the plantation.

We will use vintage style themed lighting throughout the estate and the grounds....Circa 18th century design elements will be used to preserve and create a Williamsburg type feel for the property. An EXPERIENCE of the bygone era will attempt to be created on the property while bringing the elements of grandeur to the property with manicured landscaping to include the MILL being operational with the wheel turning by an electric motor. The main house can serve as the anchor for a wedding venue either in the front yard or in the backyard for events that need to serve larger groups. The back of the house will be cleared and re-landscaped to create a large area for larger groups and large tents can be used to cater special events.

There will be water flowing in the ponds that will be flowing over the waterwheel and through tiered garden areas for the brides to be married with an active mill as their backdrop. THE MILL will be used as a fully operational event venue for wedding receptions and several other special occasion rentals. The bottom of the mill will still be used a wood working shop for the furniture that is being sold inside the mansion to be restored and refinished on site. The carriage house will be kept and used as signage again to create the Williamsburg type feel for the plantation and provide great visibility for the venue.

The Christopher Johnson Cottage will be used possibly as a coffee/bakery shop and also an art studio for the caretaker who is an artist to display her work in this beautiful historic cottage. Walkways of pea gravel will be created throughout the grounds to again tie into the 19th century era. We will plan to have an artist exhibit on the estate grounds once a year to reach out to the artist in the area which should be a great response from the artist community. The venue will also hopefully host numerous civic and cultural events throughout the year for the community.

REZONING AND DESIGN REVIEW BOARD NARRATIVE
FOR

ROSEDALE FARM, LLC
1600 GRAVES MILL ROAD
LYNCHBURG, VIRGINIA
AND
TOMAHAWK MILL DEVELOPMENT, LLC
1220 GRAVES MILL ROAD
LYNCHBURG, VIRGINIA
AND
BELLA ROSE PLANTATION, LLC
P.O. BOX 15067
LYNCHBURG, VA 24502

PREPARED FOR:

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LYNCHBURG, VIRGINIA
AND
TOMAHAWK MILL DEVELOPMENT, LLC
1220 GRAVES MILL ROAD
LYNCHBURG, VIRGINIA 24502
AND
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(C/O RON COX)

BY

BERKLEY-HOWELL & ASSOCIATES, P.C.
ENGINEERS-SURVEYORS-PLANNERS

306 ENTERPRISE DRIVE, SUITE C.
FOREST, VIRGINIA 24551
(434) 385-7548

COMM. NO. 120012

SEPTEMBER 24, 2013
REVISED FEBRUARY 21, 2014

PROJECT SCOPE

Request Rezoning from R-1, B-5C, R-C with Scenic Corridor to B-3C, R-C to allow for CCD, Commercial Cluster Development. The CCD will encompass 43.2 acres of the 70 acre property. The property is currently substantially undeveloped, but includes an existing residential house, residential cottage and commercial building (refurbished mill). The proposed Commercial Cluster Development will be multi use with a combination of commercial and residential development. Below are narratives specifically requested by the City of Lynchburg for the Rezoning application and Design Review Board application.

PROJECT DESCRIPTION

Rosedale is a proposed 43.2 acre mixed-use development located on Graves Mill Road. The site is currently a partially wooded farm tract with historic structures dating back to the 1760's. The concept for Rosedale incorporates the modern trends of mixed-use developments that will be attractive to families, young professionals, students, older residents, and businesses that are expanding or considering relocating to the Region 2000 area. It's residential, commercial, and recreational areas will be connected by a shared lawn and attractive, pedestrian-oriented streets, corridors, and walkways.

As per the City of Lynchburg 2030 Comprehensive Plan, this area of Graves Mill Road is listed appropriate for a mixed use core of higher density residential and retail uses. The current development plan has evolved after numerous meetings with City planning staff to insure that the project is on target to satisfy Lynchburg's general plan by utilizing a mix of appropriate residential and commercial uses to meet the predicted needs of the area.

The proposed restaurant, retail, grocery, gas, and convenience sites, etc. in the commercial area are designed to enhance the quality of life for residents and employees of businesses located within the development, as well as the surrounding community.

The proposed buildings in the business and technology center are designed to establish Rosedale's identity as Region 2000's premium location for professional and corporate office space.

The commercial areas provide for upper level residential living. The mixed use concept provides for an urban living experience and allows for efficient use of space and parking.

The proposed lawn and creek side recreational area offer shared open spaces, walking trails, bike paths, and lawn-side commercial establishments that create the social hub of the development. The non vehicular routes promote travel between uses. The user may benefit from healthy exercise while enjoying a walk down a landscaped urban street, across the lawn or through the woods beside a creek. Public walks will be concrete, shared bike paths will be paved, and natural trails will be mulched. The lawn which adjoins the commercial area will provide green space for a Frisbee, or blanket and a good book. A minimum of three lawn benches will offer a moments rest.

Common areas will be owned and maintained by property owners associations.

With regards to community facilities, the project is centrally located and nearby to many schools, fire station, and cultural facilities. Heritage High School, CVCC, Liberty University, and Lynchburg College range from two to four miles away. With a combination of apartments and townhomes, the development will provide a possible residential housing for the college community. The Lynchburg Fire Station number 7 is approximately 2 miles away on Lakeside Drive and is available for timely emergency response. To experience local history or to enjoy a day outside, with a drive of less than 4 miles, a resident can visit to Poplar Forest or Peaks View Park.

The development is planned as an up scale mixed use residential and commercial community. Located on a side slope, the proposed 13 buildings are planned with a scenic combination of landscaping, lawn, open space and wooded areas with connecting roadways, sidewalks, trails, and paths. The buildings architecture will be stylish and upscale. With such a large project scope of 13 buildings a varying palette of materials and colors will be required to produce a unique but tasteful appearance. While the developer is providing several architectural renderings and samples of building materials and colors, the submittal is not intended to limit architectural style and creativity. Architectural integrity will be facilitated and enforced by a diligent Architectural Review Committee.

Hopkins Brothers LP&D sees a potential in this property and the proposed Rosedale development to establish a business and technology center that will attract quality businesses, and the jobs they bring to Lynchburg, Region 2000, and the Lynchburg 2030 vision for many years to come.

WATER/SEWER CAPACITY NARRATIVE:

The property is served by an existing City of Lynchburg Public water via 16" line along Graves Mill Road. The 16" water line will adequately serve the development.

The property is served by an existing 24" sanitary sewer line along Tomahawk Creek. The 24" sanitary sewer line will adequately serve the development.

STORMWATER NARRATIVE FOR ADEQUATE CHANNEL AND STORMWATER MEASURES

The proposed development will require storm water management for both water quality and quantity. Due to the vast size of the project, a variety of storm water management measures will be utilized throughout the project in a combination of both local and regional treatment. The project will be designed to meet state and local codes. During development of individual sites, specific designs will be submitted for City review and approval.

Water quality will be handled by a combination of measures such as Rooftop Disconnection, Rainwater Harvesting, Soil Amendments, Permeable Pavement, Grass Channel, Bio-retention, Infiltration, Dry Swale, Wet Swale, Sheet Flow to Filter/Open Space, Extended Detention Pond, Filtering Practice, and Constructed Wetlands.

In regards to storm water quantity, the development discharges to Tomahawk Creek which is a listed FEMA flood zone. To provide channel protection, the project will satisfy the equation $Q_{dev} \leq I.F.(Q_{predev} * RV_{predev}) / RV_{dev}$ since discharging to an existing natural storm water conveyance. In regards to flood protection, no additional storm water management is required since the project discharges to Tomahawk Creek which is a mapped flood plain.

PARKING

As the end users are defined, parking will be designed to meet the specific needs and exceed the City required minimum. When practical, overflow parking will be designed as "green" parking. Shared parking will be utilized for mixed use areas.

LAWN-SIDE COMMERCIAL BUILDINGS

Description:

These two buildings will be designed to compliment the neighboring historic Rosedale property, while offering a unique, modern commercial setting with a strong identity. The exterior design is reminiscent of Traditional American Timber-Frame Barns build in the 1800s, with an iconic roof line and vertical board and batten exterior. The building design is dominated by glass and unpainted, galvanized, metal roofs. Graves Mill Road-front commercial spaces will have full glass storefronts, designed to maximize business exposure and natural light. The lawn facing side of the buildings will offer commercial spaces with elevated ceilings and patio space. The lawn facing spaces will have prominent glass windows opening up views of the scenic lawn area and adjoining patios.

Exterior Materials:

build on a concrete slab

stacked stone foundation

hardy board (wood-like masonry siding), applied in a vertical board and batten style

galvanized unpainted metal roofing, reflective of traditional barn roofing

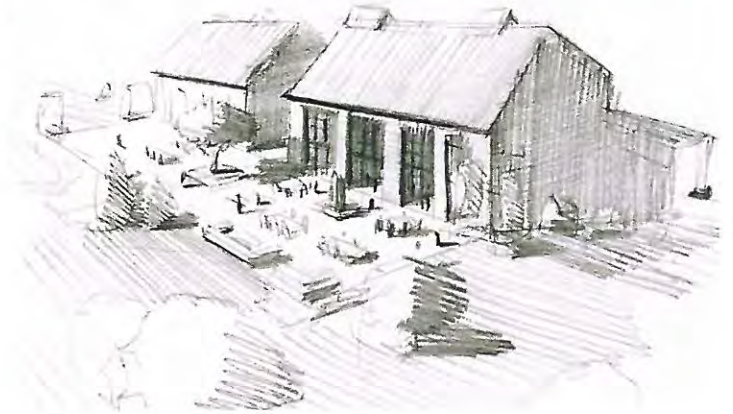
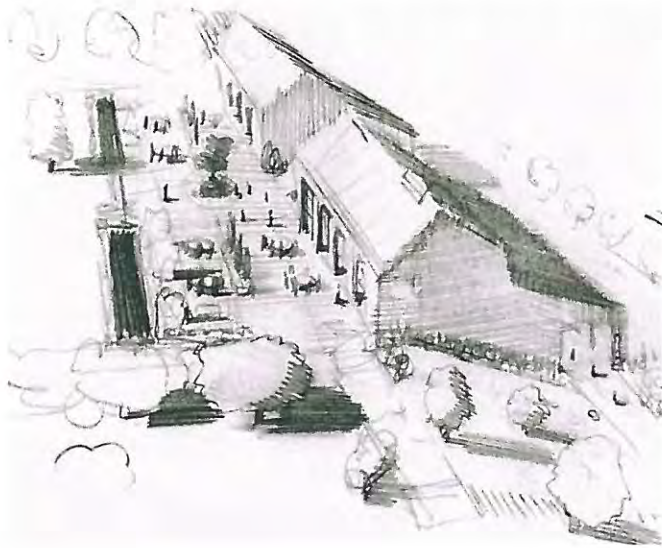
windows:

Large, modern, dominating glass windows for optimal natural light and commercial exposure.

metal frames with powder coat finishes



LAWN-SIDE COMMERCIAL BUILDINGS: SUPPORTING IMAGES



COMMERCIAL PAD SITES ALONG GRAVES MILL ROAD

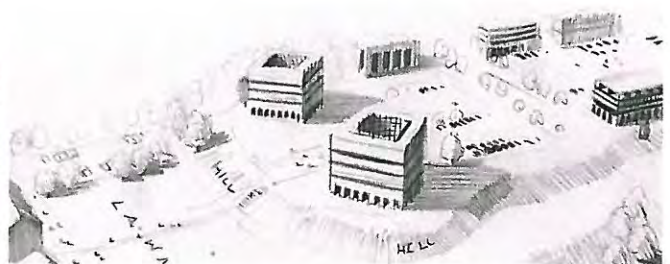
The Graves Mill Road fronting commercial pad sites will likely be purchased by franchise restaurants and retail businesses. We will take every opportunity to influence the architecture of these buildings, but also recognize that many of these businesses guard their brand and building designs closely.



BUSINESS & TECHNOLOGY BUILDINGS

Description:

These buildings will be designed to compliment what we believe will be the premium location for office space in the region 2000 market. The architecture will be of a modern corporate style wrapped in glass.



A
COMMERCIAL

DESIGNED TO BE CONVENIENT AND ACCESSIBLE FOR RESIDENTS, EMPLOYEES & PATRONS

SHOPS, RESTAURANTS, OFFICES & RESIDENTIAL

GROCERY, GAS, DELI & CONVENIENCE

ROAD-FRONT & CORNER COMMERCIAL SPACES

LAWN-SIDE PATIOS

C
THE LAWN & CREEK-SIDE NATURAL AREA

DESIGNED TO ENHANCE CONNECTIVITY & QUALITY OF LIFE

LANDSCAPED OPEN SPACES & NATURAL AREA

TOMAHAWK CREEK RECREATIONAL AREA

BICYCLE & PEDESTRIAN FRIENDLY WALKWAYS & SCENIC BIKE TRAILS

LAWN-SIDE PATIOS

D
BUSINESS & TECHNOLOGY CENTER

DESIGNED TO ATTRACT NEW & EXPANDING BUSINESSES

RESTAURANTS, OFFICES, SPECIALTY RETAIL & RESIDENTIAL

LAWN & NATURAL AREA

LAWN-SIDE PATIOS

LAWN-SIDE COMMERCIAL BUILDINGS

DESIGNED TO BE UPSCALE, UNIQUE, AND CONVENIENT

LAWN & NATURAL AREA

LAWN-SIDE PATIOS

RESTAURANTS, OFFICES, SPECIALTY RETAIL & RESIDENTIAL

THE LAWN

DESIGNED TO BE A CENTRAL HUB CONNECTING RESIDENTS, EMPLOYEES & PATRONS

BICYCLE & PEDESTRIAN-FRIENDLY WALKWAYS

ACCESS TO BIKE TRAILS & CREEK-SIDE RECREATIONAL AREA

LAWN-SIDE PATIOS

OPEN GREEN SPACE



HOPKINS
brothers
Landscape Architecture



LAWN-SIDE COMMERCIAL BUILDINGS

Lawn-side commercial buildings offer a unique, strong identity for businesses seeking the modern trends of an interactive workplace.

**MIXED-USE COMMERCIAL BUILDINGS FRONTING GRAVES MILL ROAD
ARCHITECTURE & DESIGN ELEMENTS**

THE ARCHITECTURE OF THESE BUILDINGS AND THEIR SITE PLAN WILL BE SUBJECT TO DEVELOPER APPROVAL.

DEVELOPER WILL STRIVE TO ENSURE THAT THESE BUILDINGS INCORPORATE DESIGN ELEMENTS THAT WILL REFLECT THE LARGER THEME OF THE PROJECT.

**MIXED-USE BUSINESS & TECHNOLOGY BUILDINGS
ARCHITECTURE & DESIGN ELEMENTS**

THE ARCHITECTURE OF THESE BUILDINGS AND THEIR SITE PLAN WILL BE SUBJECT TO DEVELOPER APPROVAL.

DEVELOPER WILL STRIVE TO ENSURE THAT THESE BUILDINGS INCORPORATE DESIGN ELEMENTS THAT ARE REFLECTIVE OF AN UPSCALE CORPORATE ENVIRONMENT WITH TRADITIONAL ARCHITECTURAL ELEMENTS.

**LAWN-SIDE COMMERCIAL BUILDINGS
ARCHITECTURE & DESIGN ELEMENTS**

STACKED-STOVE EXTERIOR FOUNDATION

POST AND BEAM INTERIOR STRUCTURE

VERTICAL BOARD & BATTEN EXTERIOR

FLOOR-TO-CEILING METAL FRAME WIDE-ORIE

TRADITIONAL AMERICAN TRIMMER FRAME ARCHITECTURAL DETAILS

TRADITIONAL OAK-PAVING METAL BARN ROOF

COVERED FRONT WALKWAYS

FRONT GRAVES MILL ROAD FRONT COMMERCIAL TRACED

ORIENTED TOWARD THE BUSINESS & TECHNOLOGY CENTER (DARK LAWN-SIDE COMMERCIAL SPACES)

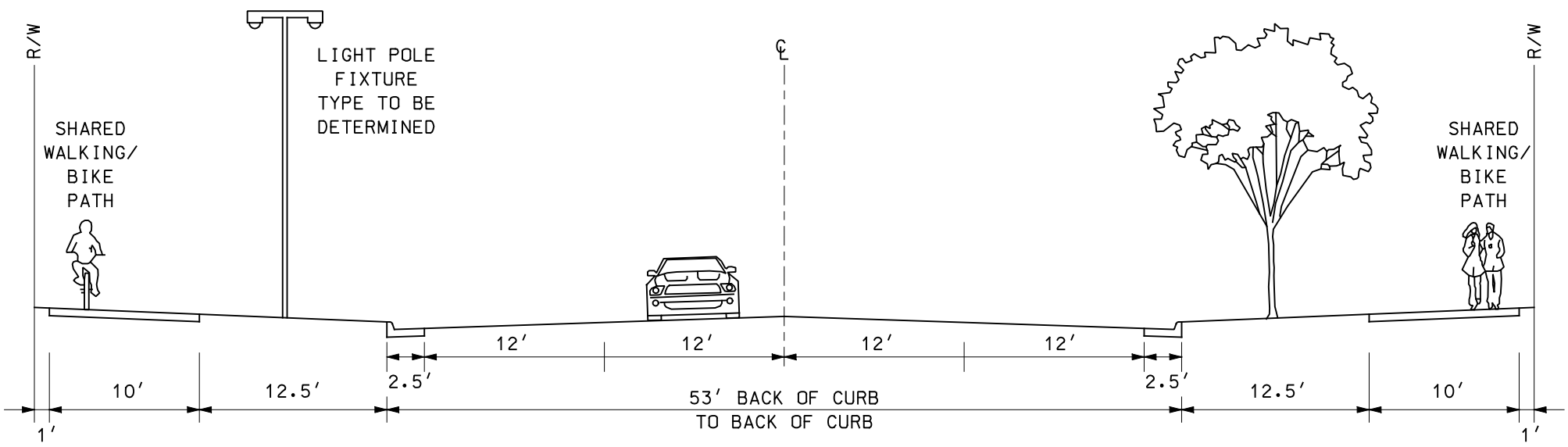
ROSEDALE



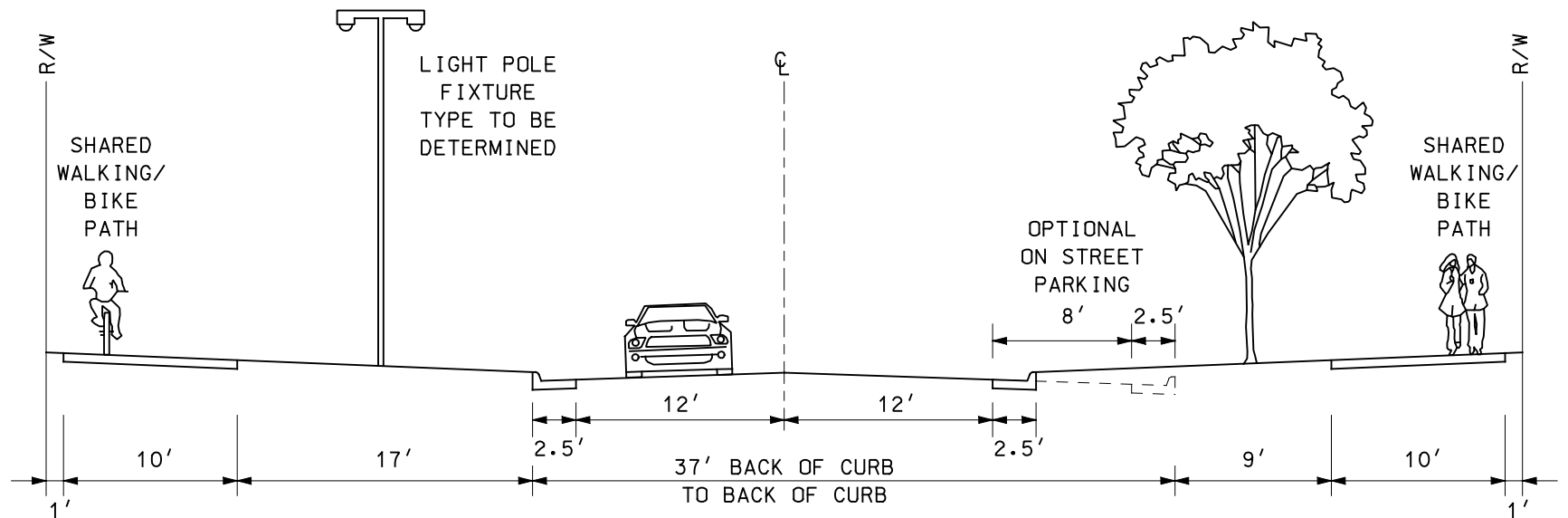
1600 and 1220 Graves Mill Road
Rosedale Farm Cluster Commercial Development
February 26, 2014

PLEASE PRINT

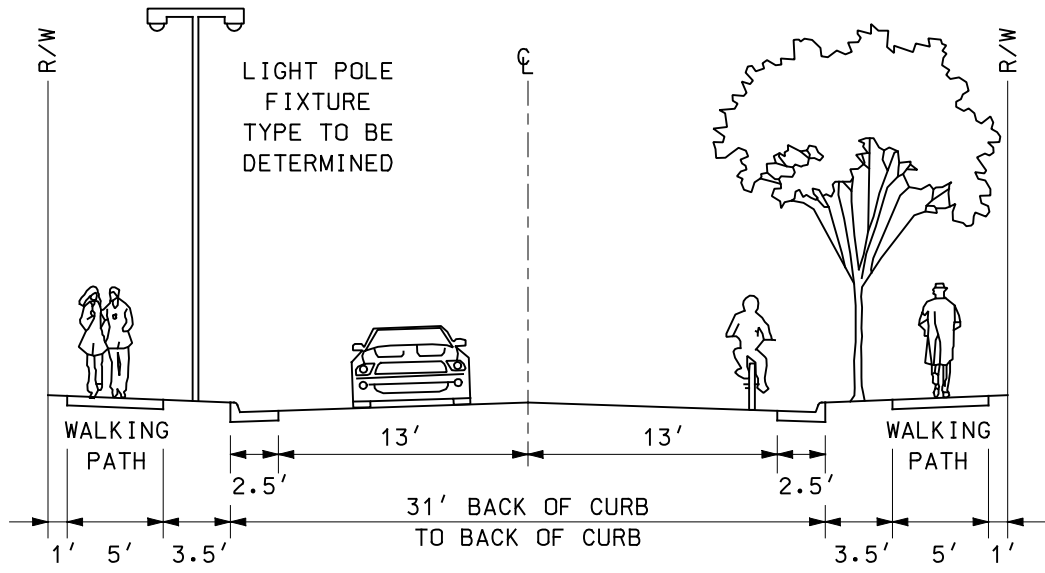
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FOUR LANE
100' R/W CROSS SECTION
NTS



TWO LANE
85' R/W CROSS SECTION
NTS



TWO LANE
50' R/W CROSS SECTION
NTS



Technical Memorandum

Traffic Impact Analysis

**Rosedale Farms
Lynchburg, Virginia**

Prepared for:

**Mr. Ron Cox
Rosedale Farm Development LLC
2217 Surrey Pl.
Lynchburg, VA 24503**

By:

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EPR, P.C.
637 Berkmar Circle
Charlottesville, Virginia 22901**

November, 2013

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Traffic Impact Analysis

Rosedale Farms, Lynchburg, Virginia

1. Introduction

This technical memorandum summarizes the traffic analyses conducted to evaluate potential traffic impacts of a proposed Rosedale Farms development in Lynchburg, VA. The development is generally located north of Graves Mill Road and west of the Expressway.

This memo includes analyses of existing conditions, future no build conditions, and future build conditions for the horizon (full build) year 2024.

2. Description of site, site plan, and the study intersections

The proposed development is located just west of the existing Home Depot side off of Graves Mill Road in Lynchburg, VA. The proposed site includes three entrance locations on Graves Mill Road – one right in only, one right out only and one full entrance. **Figure 1** provides the illustration of the site location and its vicinity. The development concept plan is provided on the aerial map in **Figure 2**.

In the development concept prepared to date, the site is planned to be constructed in three phases with an ultimate build-out year of 2024. Note that this study evaluates one total future build year (Build Year 2024). The proposed development land use is identified in Table 1.

TABLE 1
Proposed Development Land Use

LAND USE	QUANTITY	UNIT
Multi-Family Residential	102	Residential units
Condo / Townhouse	175	Residential units
Office	68,600	Square feet
Retail (Shopping Center)	25,800	Square feet
General Commercial (Use Unknown)	8,100	Square feet
Grocery / Specialty Store	45,000	Square feet
Convenience Store with Gas Pump	12	Vehicle fueling positions
High Turnover (Sit Down) Restaurant	5,000	Square feet
Fast Food Restaurant with Drive-Through	7,000	Square feet

For this study, traffic operations will be examined at the following intersections (see **Figure 3**):

Figure 1 Site Location and Vicinity

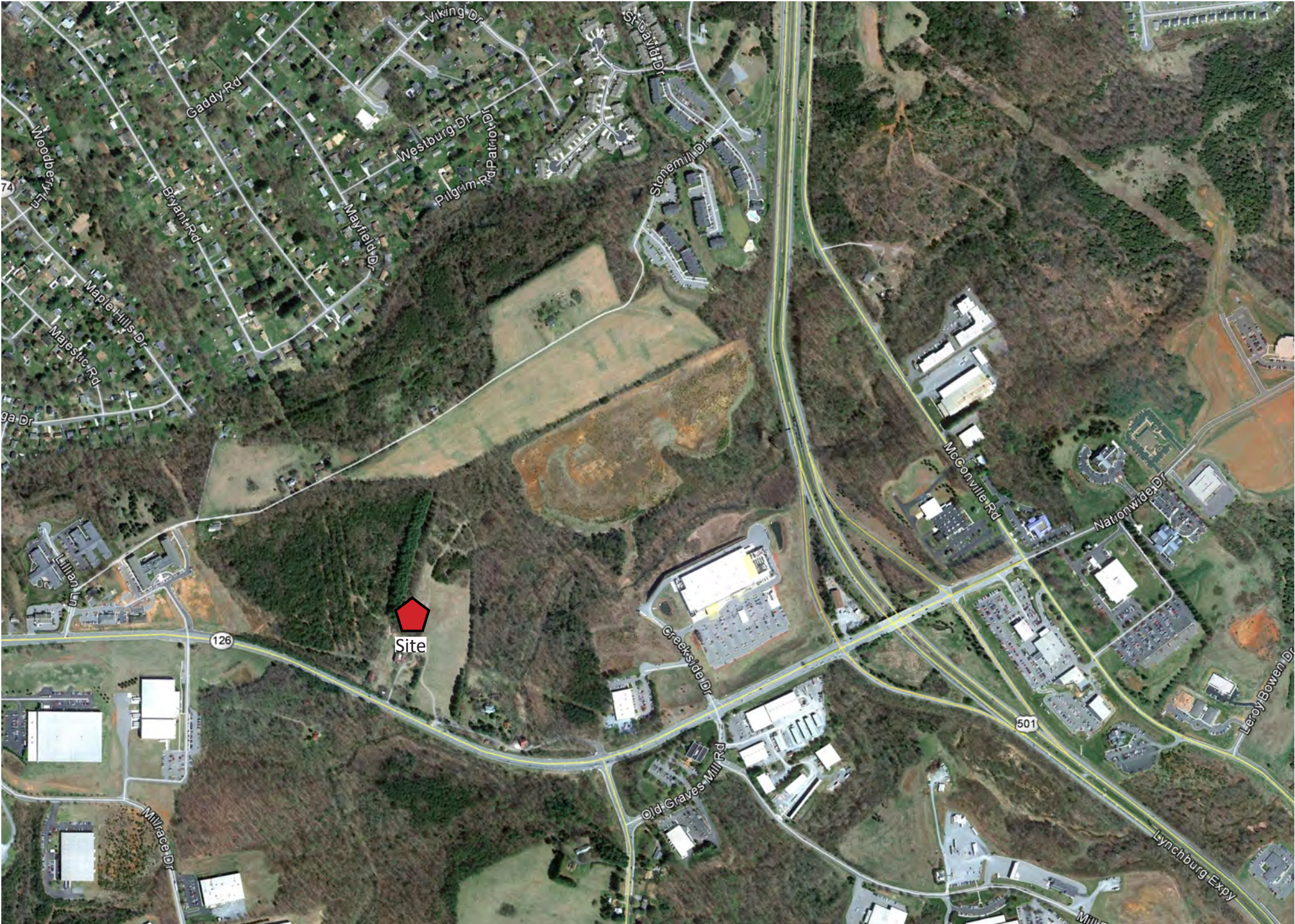


Figure 2 Site Plan



Figure 3 Study Intersections





- Graves Mill Road and Expressway Ramp Intersection (northbound)
- Graves Mill Road and Expressway Ramp Intersection (southbound)
- Graves Mill Road and Creekside Drive (at Home Depot)
- Graves Mill Road and Old Graves Mill Road
- Graves Mill Road and Site Entrance (right in only) [only show future traffic volumes and provide turn lane analysis]
- Graves Mill Road and Site Entrance (full entrance)
- Graves Mill Road and Site Entrance (right out only) [only show future traffic volumes]

3. Existing conditions

AM and PM peak hour (7-9AM and 4-6PM) traffic counts were conducted for the four existing intersections on Tuesday, Wednesday or Thursday between October 9, 2013 and October 16, 2013.

See **Figure 4** for the illustration of the existing traffic volumes at the study intersections. The original traffic count reports are provided in **Appendix A**.

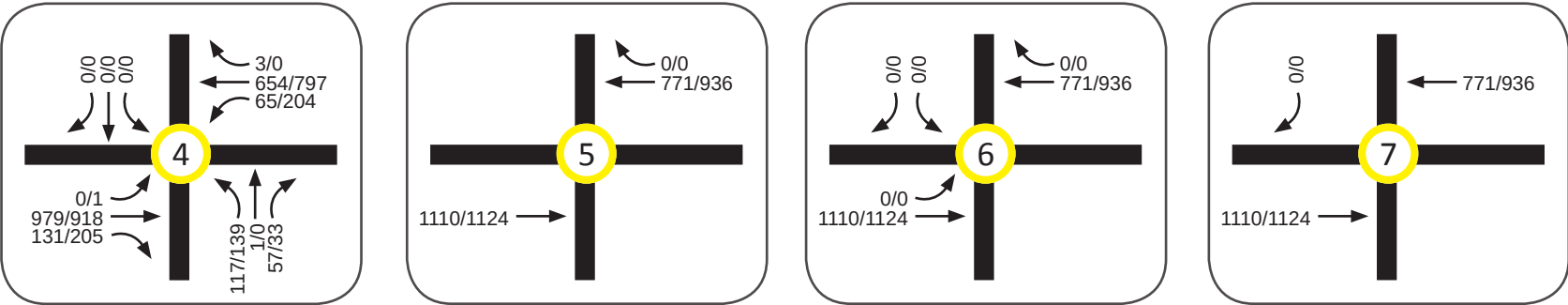
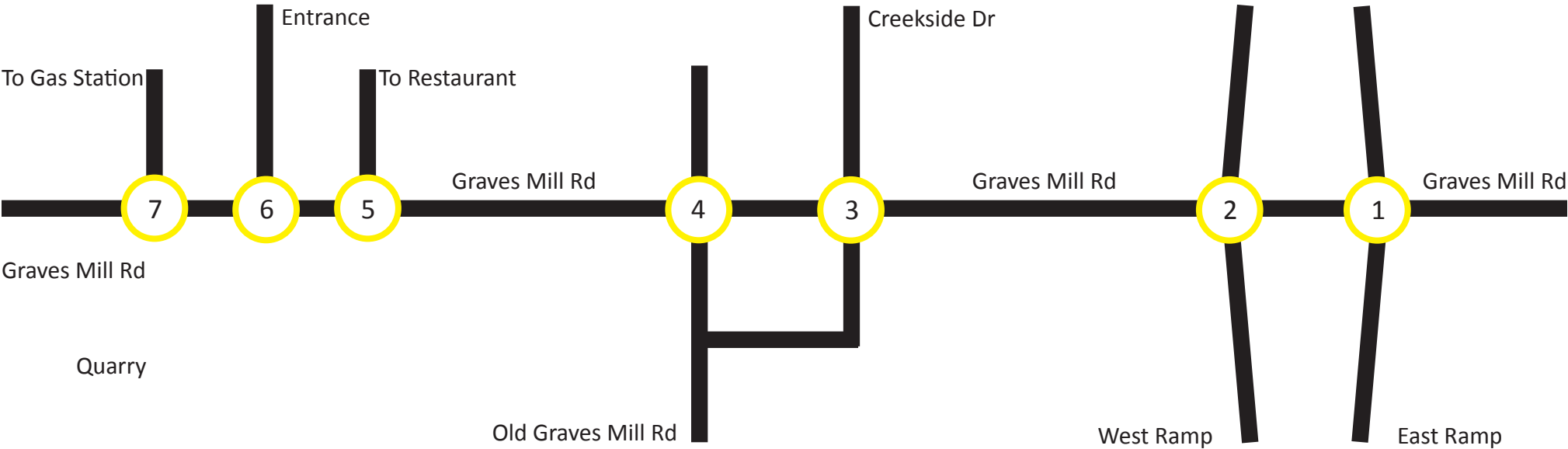
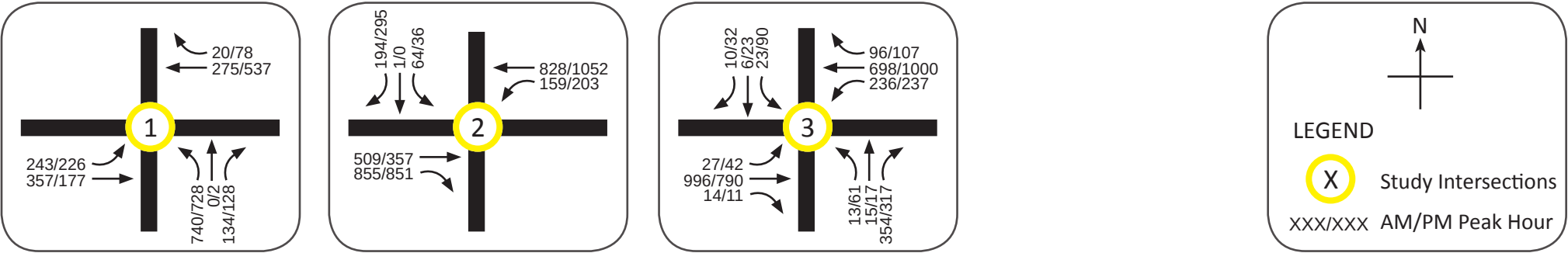
Traffic Analysis

Synchro and SimTraffic models (ver 7) were utilized to evaluate existing traffic operations at the study intersections. For existing conditions, we used optimized timings since we are aware that the field timings will be updated soon. We do however provide a comparison between the optimized and the actual existing timings, within the discussion. The delay, level of service (LOS) and queuing (from both Synchro and SimTraffic) are summarized in a series of tables in **Appendix B**. The Synchro and SimTraffic reports are provided in **Appendix C**.

Graves Mill Road and Expressway Ramps

The analyses indicate that the two ramp junction intersections, from an intersection capacity standpoint, can currently operate at acceptable levels of service with all movements operating at LOS C or better, with the one exception of the southbound exit ramp right turn movement which operates at LOS D during the PM peak hour. *Note that if using existing signal timings then we see LOS F for the northbound off-ramp in both the AM and PM peak hours, and LOS E at the southbound off ramp right turn in the PM peak hour.* While this (southbound) right turn movement is fairly high at 295 vph, the westbound through movement is very high with 1,052 vph thus limiting opportunities for right turns on red. However, the SimTraffic model indicates queuing along the heavy volume approaches, particularly the northbound off ramp, southbound off ramp, eastbound right turn to the on ramp and westbound through movement between the ramps. Field observations indicate that the queuing has negative impacts on the corridor. *Note that under existing timings the northbound queues are shown to be excessively long in the AM and PM peak hours. The northbound left turn queue is 440 feet in the AM and 450 feet in the PM peak hours. The northbound right is 874 feet in the AM and 942*

Figure 4 Existing Traffic Volumes



feet in the PM peak hour. The tables in Appendix C show the optimized queues which are less than these existing condition lengths by approximately 200 feet.

Graves Mill Road and Creekside Drive (Home Depot)

During the AM peak hour, the analyses indicate that all movements currently operate at LOS D or better. The SimTraffic model indicates considerable queuing (547 feet – existing timings result in 200 feet longer queue) in the eastbound direction as motorists are destined for the Expressway. A right lane bias (motorists utilizing the right through lane in anticipation of the right turn downstream onto the Expressway southbound on ramp) increases the queuing at this intersection.

During the PM peak hour, the analyses indicate that all movements currently operate at LOS C or better. Again, the SimTraffic model indicates very heavy queuing (751 feet) in the eastbound direction.

Graves Mill Road and Old Graves Mill Road

During both peak hours, the analyses indicate that all movements operate at LOS D or better. The SimTraffic model indicates the AM and PM peak hour queuing along the eastbound approaches as 177 feet and 415 feet respectively as the lane bias approaching the Expressway starts to affect driver behavior. *Note that under existing (actual existing signal timings) the model indicates the eastbound left to operate at LOS E in the PM peak hour. Also the eastbound approach is 353 feet in the AM and 894 feet in the PM.*

4. No build conditions

Historical traffic volume data from the Virginia Department of Transportation was evaluated to determine a reasonable background traffic growth rate for the study intersections. This evaluation resulted in the following background growth rates:

- Graves Mill Road west of Old Graves Mill Road – 1%
- Graves Mill Road east of and inclusive of Old Graves Mill Road – 1.5%
- All turns to / from Graves Mill Road (except Expressway Ramp movements) – 0.5%
- All turns to / from Expressway Ramps – 2%

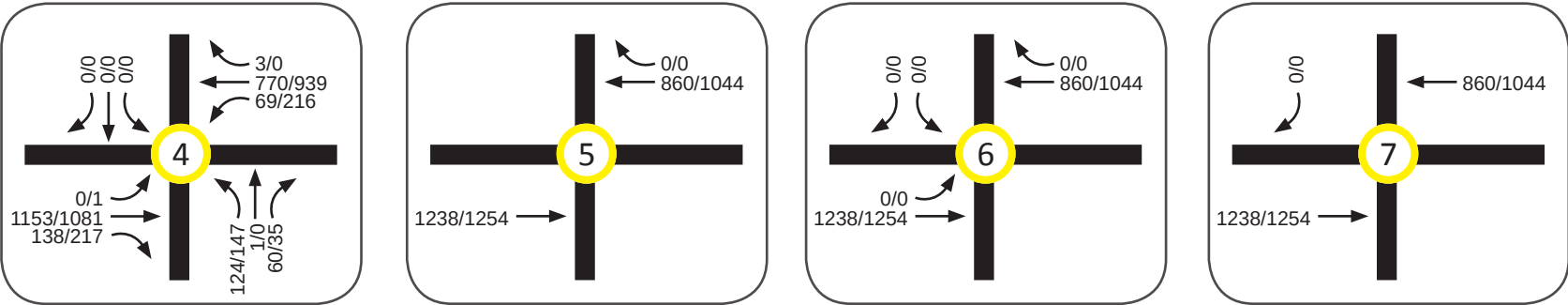
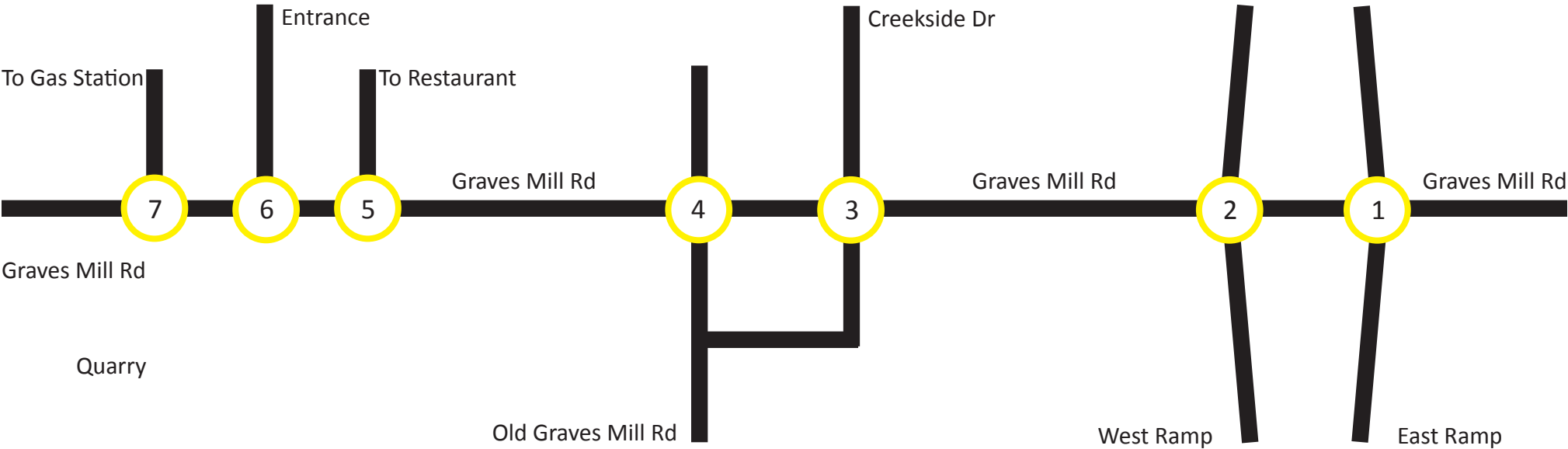
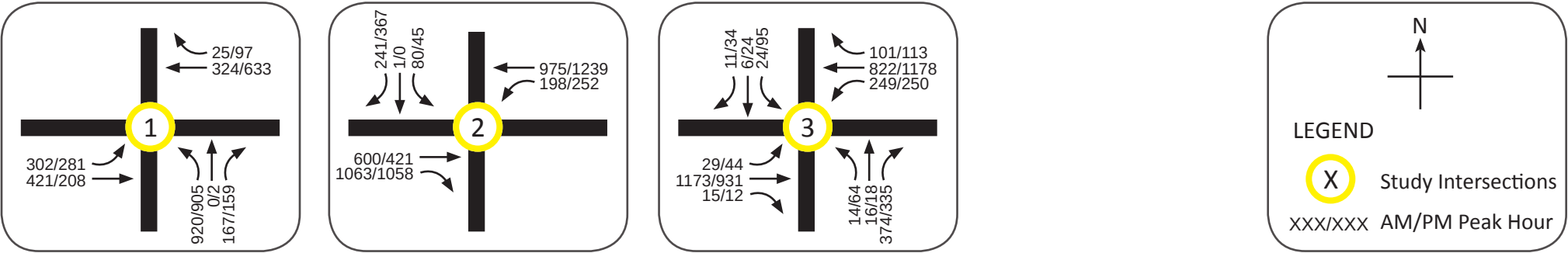
These background growth rates were utilized to increase the background traffic volumes to the horizon year 2024.

See **Figure 5** for the illustration of the no build traffic volumes at the study intersections in 2024.

Traffic Analysis

The Synchro and SimTraffic models were updated to reflect the no-build 2024 traffic volumes. The delay, level of service (LOS) and queuing (from both Synchro and

Figure 5 2024 No Build Traffic Volumes





SimTraffic) are summarized in a series of tables in **Appendix B**. The Synchro and SimTraffic reports are provided in **Appendix D**.

Graves Mill Road and Expressway Ramps – Northbound Ramps on East Side of Interchange

During the AM peak hour, it is projected that all movements will operate at LOS C or better based on the Synchro analysis, which only considers the individual intersection. However, the SimTraffic model projects an increase in queuing, particularly on the northbound off ramp and for the eastbound through movement.

During the PM peak hour, it is projected that all movements will operate at LOS C or better with the exception of the left turn movement from the off ramp that is expected to operate at LOS D. The SimTraffic model projects significant increases in queue lengths, especially for the northbound off ramp (over 900 feet which is near the Expressway mainline) and the westbound through movement (also over 900 feet which queues beyond the next intersection to the east).

Graves Mill Road and Expressway Ramps – Southbound Ramps on West Side of Interchange

During the AM peak hour, it is projected that all movements will operate at LOS C or better with the exception of three movements that are projected to operate at LOS E – the eastbound right turn movement, the southbound shared left / through movement, and the southbound right turn movement. The SimTraffic model projects an increase in queuing, particularly for the eastbound movement (through movement over 600 feet and right turn movement over 400 feet) and the westbound through movement between the ramp intersections (595 feet).

During the PM peak hour, it is projected that all movements will operate at LOS D or better with the exception of two movements. The eastbound right turn movement is projected to operate at LOS E and the southbound right turn movement from the off ramp is projected to operate at LOS F. Again, the SimTraffic model projects an increase in queuing, especially for the westbound through movement. This queue is projected to be 749 feet which results in a queue back to the adjacent ramp intersection.

Graves Mill Road and Creekside Drive (Home Depot)

During the AM peak hour, it is projected that all movements will operate at LOS D or better with the exception of two side street movements. The southbound left movement and the southbound shared through / right movement are both projected to operate at LOS E. These movements are low volume with a total of only 41 vehicles for both lanes for the entire hour and a resulting queue of 70 feet. The SimTraffic model projects an increase in the eastbound queue to total 766 feet which results in a queue back to the Old Graves Mill intersection.

During the PM peak hour, it is projected that all movements will operate at LOS D or better with the exception of three side street movements. The southbound left movement, the southbound shared through / right movement and the northbound shared left / through movement are all projected to operate at LOS E. The southbound movements are low volume with a total of only 153 vehicles for both lanes for the entire hour and a resulting queue of 159 feet. The northbound movement is also low volume



with a total of only 82 vehicles for the entire hour. Again, the SimTraffic model projects considerable queuing in the eastbound direction (665 feet, slightly lower than during the AM peak hour, but still significant).

Graves Mill Road and Old Graves Mill Road

During the AM peak hour, it is projected that all movements will operate at LOS D or better with the exception of two side street movements. The northbound shared left / through movement and the right turn movement are expected to operate at LOS E. These movements are relatively low volume (shared left / through volume is 125 vph combined and the right turn volume is 60 vph) and the projected queues are modest (209 feet and 88 feet respectively). The SimTraffic model projects an increase in eastbound queuing (530 foot total queue) as the heavy movement towards the Expressway plus the right lane bias causes traffic to slow down and queue through the Creekside Drive signal and through the Old Graves Mill Road signal.

During the PM peak hour, it is projected that all movements will operate at LOS D or better with the exception of two movements. The eastbound left turn movement and the northbound shared left / through movement are projected to operate at LOS E. The eastbound left turn movement is very low volume (only 1 vehicle in the PM peak hour) so with a short green time, the average delay (spread over just one vehicle) is high. The northbound movement is also relatively low volume (147 vph) and the resulting queue is only 213 feet.

Queuing Discussion

While most of the individual movements seem to operate at reasonable levels of service from an individual intersection capacity perspective, in the no build 2024 condition the SimTraffic model indicates that the existing queuing issues related to the Expressway interchange will be exacerbated by the background growth in the corridor. The result is significant queuing on the off ramps, on Graves Mill Road between the ramp signals, and eastbound along Graves Mill Road approaching the Expressway (queuing and slow traffic beyond Old Graves Mill Road).

5. Site trip generation

The Institute of Transportation Engineers (ITE) *Trip Generation Manual, 9th Edition*, was utilized to project the new trips associated with the proposed development. In addition to the projected trip generation, per VDOT's Traffic Impact Analysis Regulations Administrative Guidelines, reductions are allowed for internal capture and pass-by. The allowable internal capture rates for this development are 15% of residential trips, and the pass-by rates are 25% of retail trips and 40% of convenience store and food service trips.

Table 2 provides a summary of the projected development trip generation.

**TABLE 2**
Site Trip Generation

Use Description	ITE	Qty	Daily	AM		PM	
				in	out	in	out
Multi-Family Residential	220	102	742	11	43	48	26
Condo/Townhouse	230	175	1,047	14	67	64	31
Office	710	68,600	986	125	17	26	129
Retail (Shopping Center)	820	25,800	2,815	42	26	116	126
General Commercial (Use Unknown)	826	8,100	359	0	0	18	23
Grocery/Specialty Store	850	45,000	4,601	95	58	218	209
Convenience Store with Gas Pump	853	12	6,511	99	99	114	114
High-Turnover (Sit-Down) Restaurant	932	5,000	636	30	24	30	20
Fast Food Restaurant with Drive-Through	934	7,000	3,473	80	77	59	54
	total		21,169	496	412	693	732
internal capture			268	4	17	17	9
Peak Hour Trips After Reductions (driveway trips)			20,901	492	396	676	724
Pass-by			6,096	114	98	165	162
Primary Trips			14,804	378	298	511	562
	total peak		14,804	676		1,073	

6. Site trip distribution and assignment

The site trip distributions used in this study were generated based on the layout of the development plan and evaluation of the existing traffic patterns in the Graves Mill Road corridor.

Given the three entrances (eastern entrance right-in only, center entrance full access, and western entrance right-out only) trips were assigned to entrances based on the site plan. The proposed restaurant uses are near the eastern entrance and the proposed gas station use is near the western entrance so those respective trips are more heavily biased towards those entrances (80 percent of the appropriate trip by direction). All other trips are assigned to the full entrance with a distribution similar to the current distribution in the vicinity.

See **Figures 6-1 through 6-3** for an illustration of the assumed trip distribution percentages and **Figure 7** for an illustration of the projected site related volumes.

7. Build conditions

The trips generated from the development, calculated and assigned to the study intersections as documented in the previous sections, were added to the background no build 2024 traffic volumes.

See **Figure 8** for the illustration of the build traffic volumes in 2024.

Figure 6-1 Site Trip Distribution (Major Part)

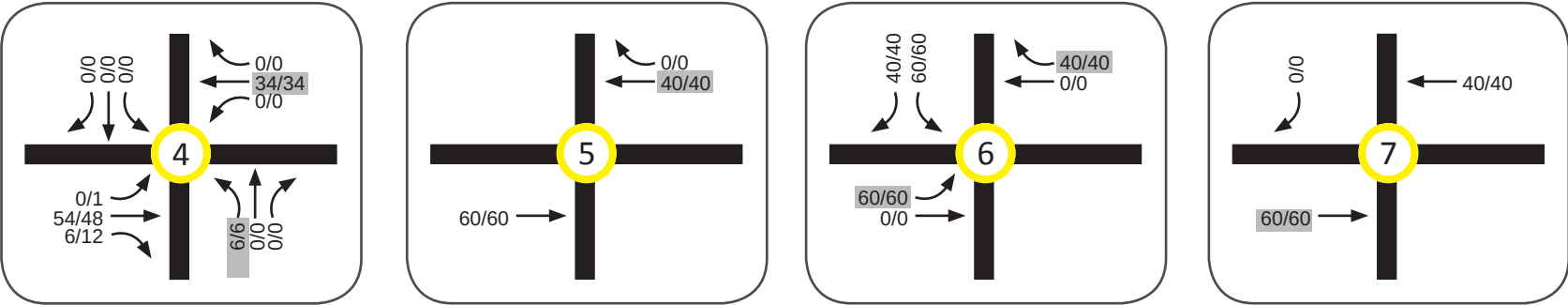
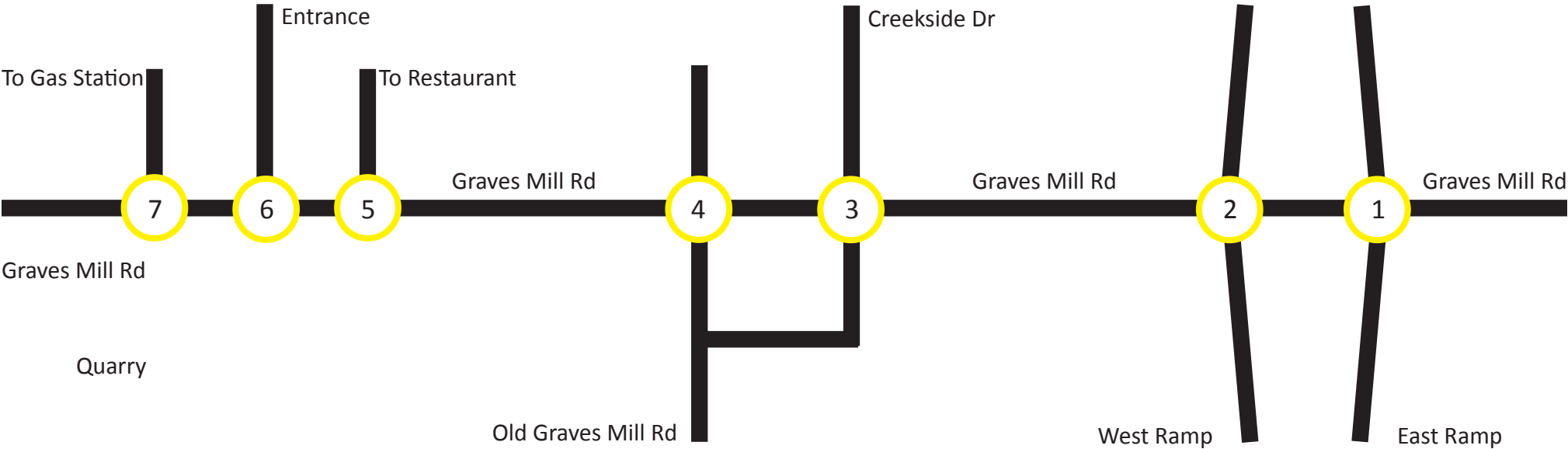
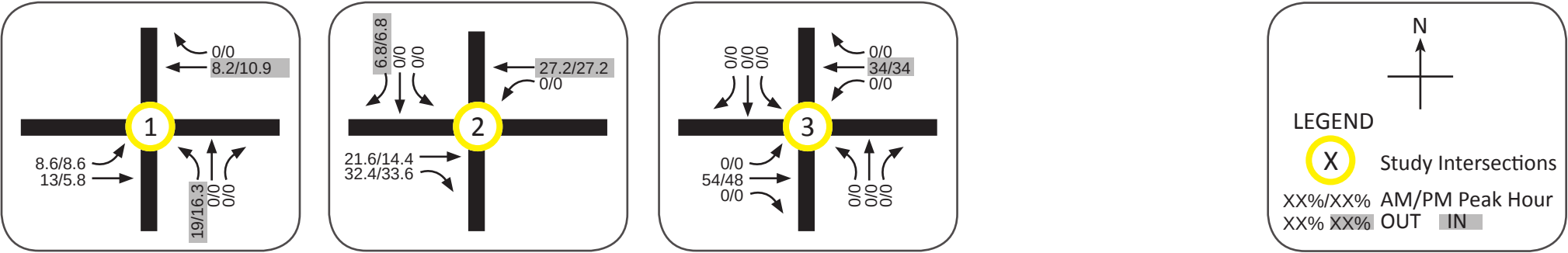


Figure 6-2 Site Trip Distribution (Gas Station Part)

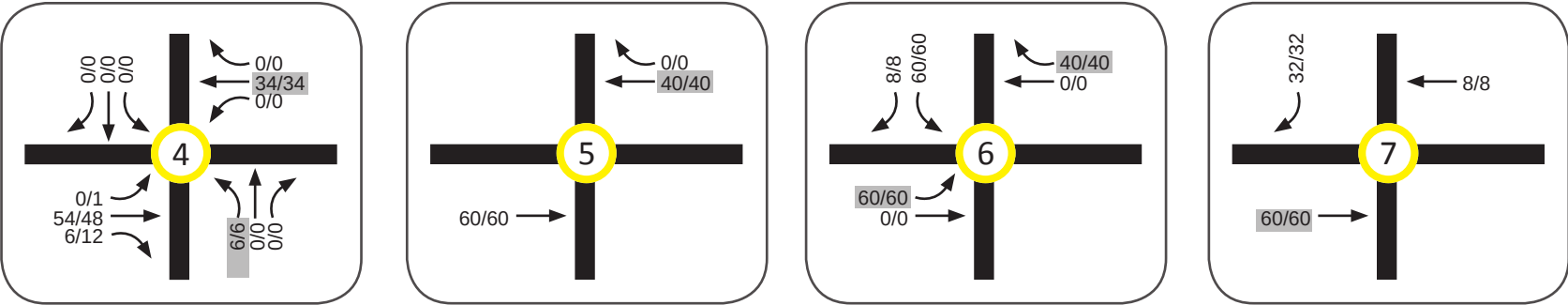
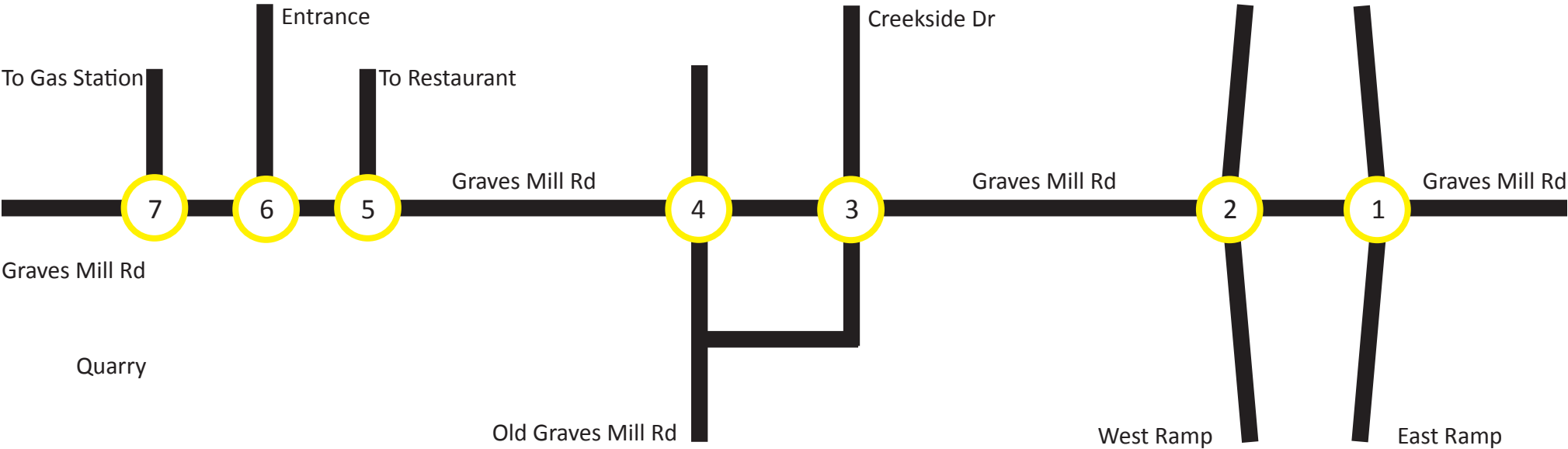
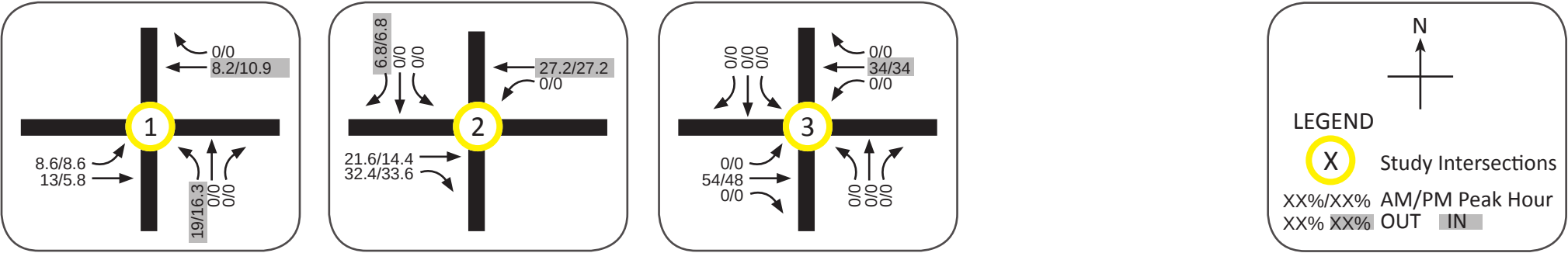


Figure 6-3 Site Trip Distribution (Restaurant Part)

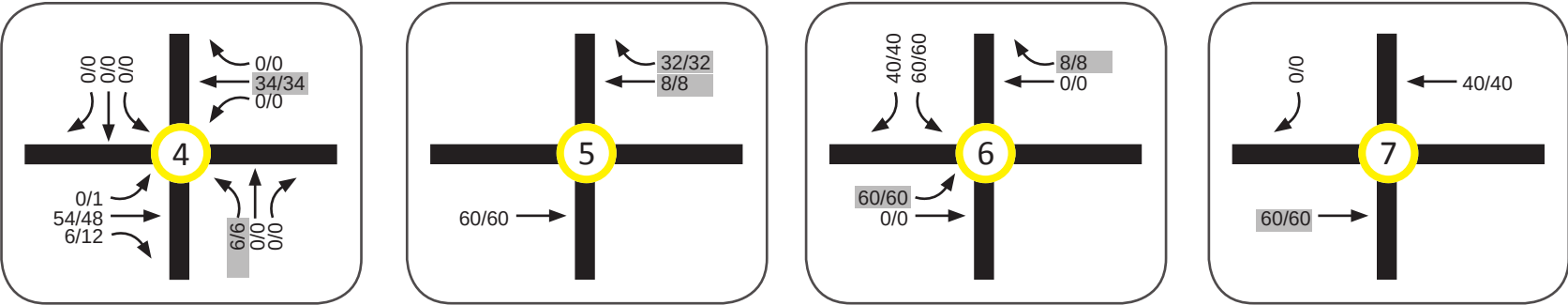
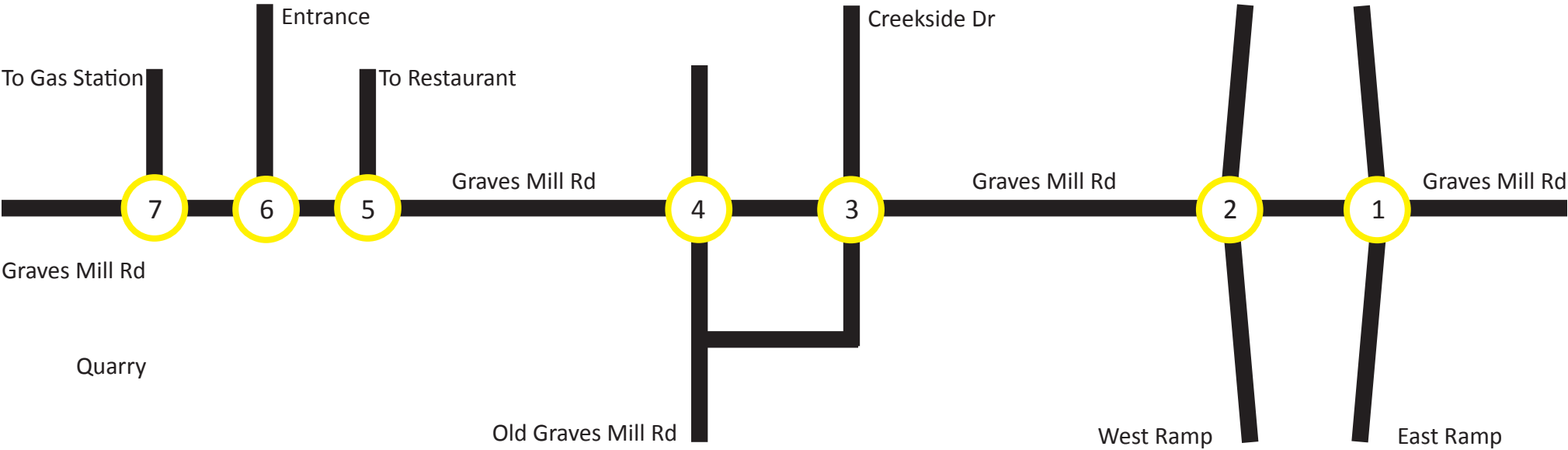
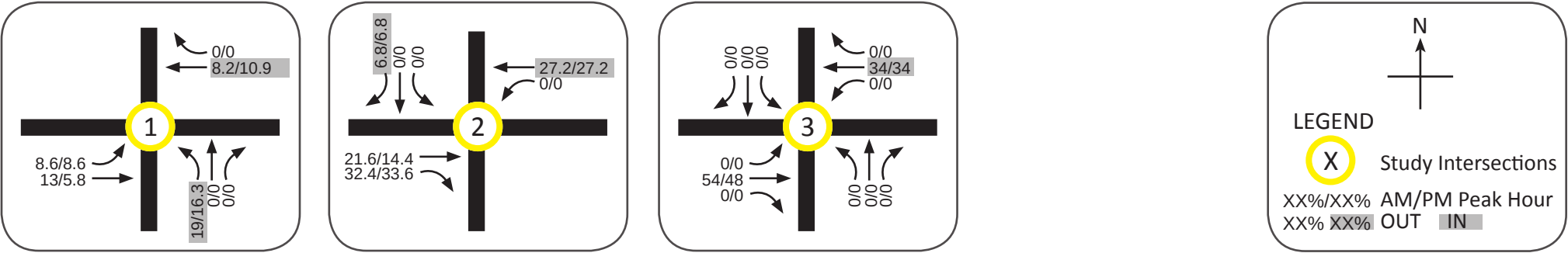


Figure 7 Site Trips

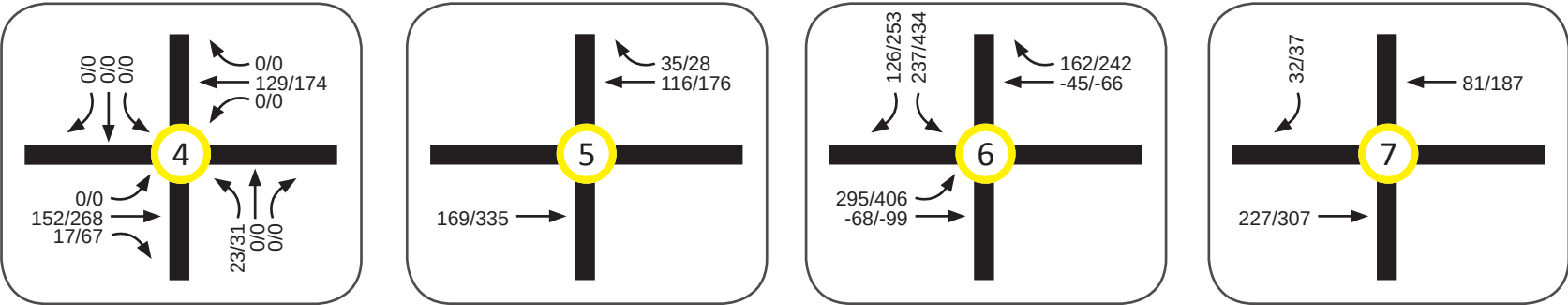
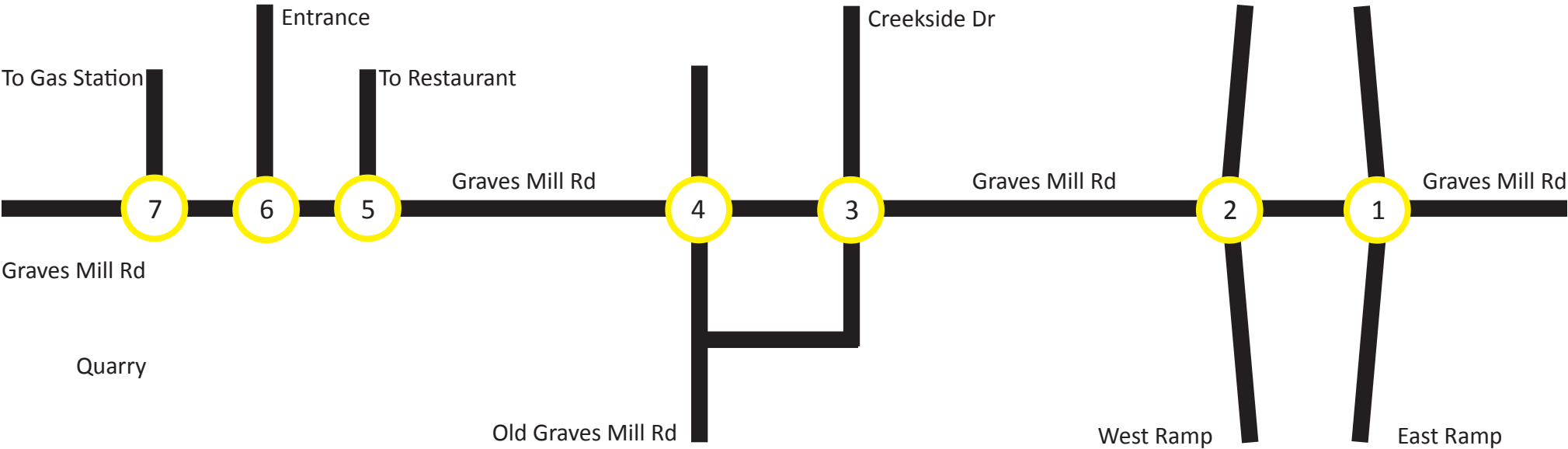
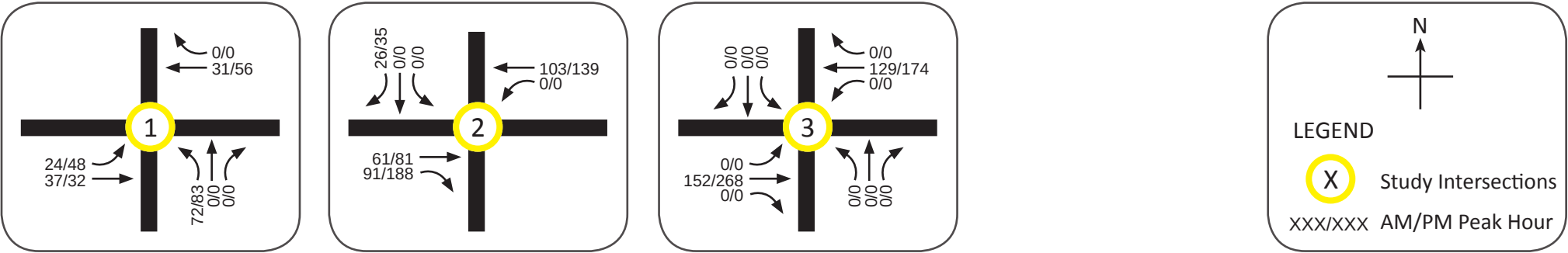
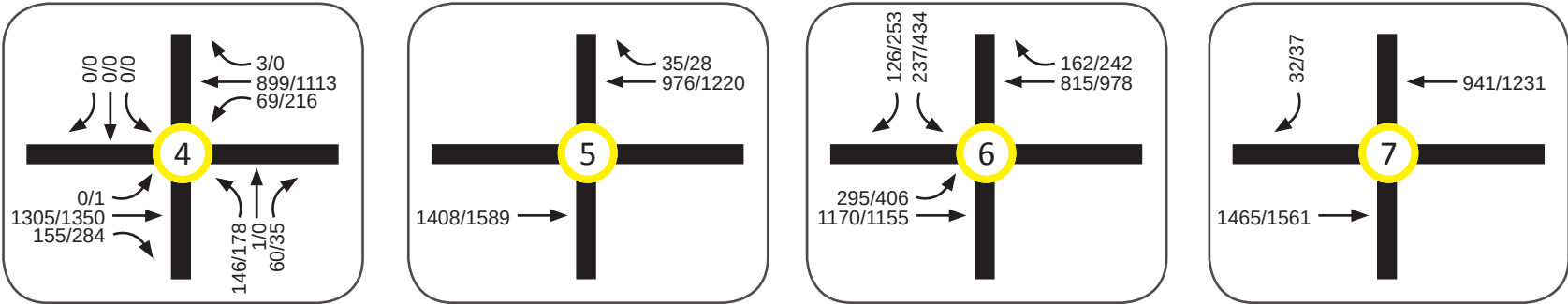
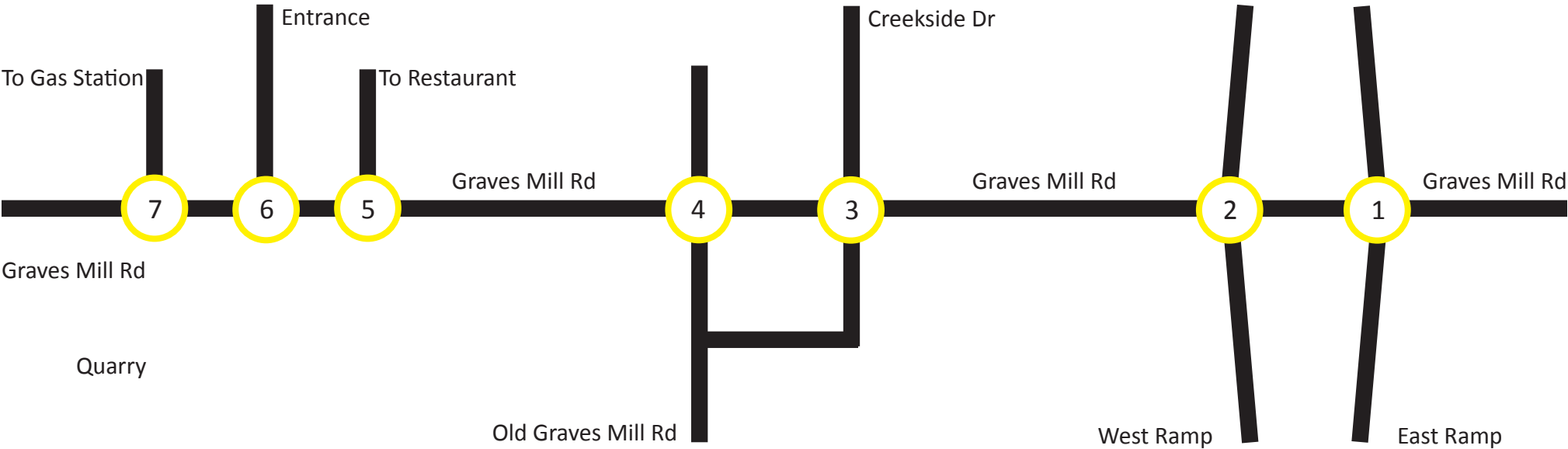
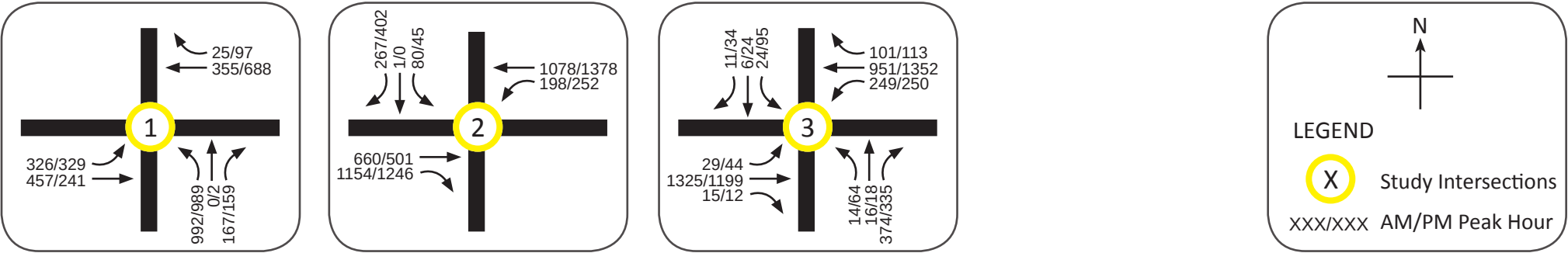


Figure 8 2024 Build Traffic Volumes



Traffic Analysis

The Synchro and SimTraffic models were updated to reflect the build 2024 traffic volumes. The delay, level of service (LOS) and queuing (from both Synchro and SimTraffic) are summarized in a series of tables in **Appendix B**. The Synchro and SimTraffic reports are provided in **Appendix E**.

Except for the site entrance, the build scenario is very similar to the no build scenario. Examination of **Figure 7** indicates that the traffic volumes for the no build and build scenarios are similar near the Graves Mill Road interchange. As would be expected, the projected operations issues are the same as in the no build scenario, related to excessive interchange operations queuing.

Graves Mill Road and Expressway Ramps – Northbound Ramps on East Side of Interchange

For both peak periods, the individual intersection capacity results are projected to be basically the same as the no build scenario with all individual movements operating at LOS D or better. However, also similar to the no build scenario, the SimTraffic model projects significant queuing at this ramp junction, with the same impacts to the northbound off ramp and the westbound through movement.

Graves Mill Road and Expressway Ramps – Southbound Ramps on West Side of Interchange

For both peak periods, the individual intersection capacity results are projected to be basically the same as the no build scenario with the same failing movements. Also similar to the no build scenario, the SimTraffic model projects significant queuing for the same movements – eastbound right turn onto the Expressway on ramp and westbound through between the ramp intersections. The projected queues are basically the same as in the no build condition.

Graves Mill Road and Creekside Drive (Home Depot)

For both peak periods, the individual intersection capacity results are projected to be basically the same as the no build scenario with the same failing movements with one exception – the westbound left turn movement is also projected to operate at LOS E (was LOS D in the no build scenario). Again, the SimTraffic model projects significant queuing in the eastbound direction (only slightly different than the no build scenario with one additional vehicle in the AM peak hour and four additional vehicles in the PM peak hour).

Graves Mill Road and Old Graves Mill Road

For both peak periods, the individual intersection capacity results are projected to be basically the same as the no build scenario. The SimTraffic model does project significant queuing in the eastbound direction, including an increase over the no build condition (approximately 800 additional feet). As with the no build scenario, the additional queuing is related to the heavy movement towards the Expressway plus the right lane bias causing traffic to slow down and queue through the Creekside Drive signal and through the Old Graves Mill Road signal.



Graves Mill Road and Full Site Entrance

Note that the build scenario included signalizing this entrance as the high traffic volumes obviously require signalization. A peak hour signal warrant is provided later in this section. For the build condition, all turn movements were assumed to have a single exclusive turn lane.

During the AM peak hour all movements are expected to operate at LOS C or better. During the PM peak hour, two of the individual movements are expected to operate at LOS E – the eastbound left turn movement (into the site) and the southbound left turn movement (exiting the site).

Graves Mill Road and Right-in Only Entrance

Exclusive right turn lane was not warranted through VDOT Turn Lane Warrant for the Right-in Only Entrance. The turn lane warrant sheets were provided in **Appendix F**.

Queuing Discussion

The SimTraffic model indicates that the queuing issues related to the Expressway interchange will have significant impacts to the Graves Mill Road corridor. Similar to the no build scenario, the result is significant queuing on the off ramps, on Graves Mill Road between the ramp signals, and eastbound along Graves Mill Road approaching the Expressway (queuing and slow traffic beyond Old Graves Mill Road).

Site Entrance MUTCD Peak Hour Signal Warrant

The site entrance was evaluated per the MUTCD peak hour signal warrant. The graph is provided in **Appendix G**. Both the AM and PM peak hour volumes substantially meet the MUTCD peak hour warrant. Note that the southbound right turn volume (exiting the site) was not included in the volume. It is typical practice to not include right turn volume in this analysis if it can be assumed that the right turn traffic would be able to turn right on red.

8. Mitigation

This section identifies mitigation measures to alleviate the traffic operations identified in the various analyses. The issues can be categorized into two main categories – the Expressway interchange (which includes the queuing throughout the corridor) and the site entrance.

Traffic Analysis

The delay, level of service (LOS) and queuing (from both Synchro and SimTraffic) are summarized in a series of tables in **Appendix B**. The Synchro and SimTraffic reports are provided in **Appendix H**.

Expressway Interchange and Related Corridor Queuing Issues

Even in the existing conditions, there are several operational issues at the Expressway interchange that result in queuing throughout the Graves Mill Road corridor. These issues are exacerbated in the no build 2024 scenario, and further reflected in the build scenario. The following improvements can help mitigate the negative impacts documented in the analyses.

Note that overall, it appears that the conventional diamond style interchange, which is adjacent to congested signalized intersections, may need to be substantially modified in the future to keep pace, in terms of providing sufficient traffic capacity, with traffic growth in the area. Specific improvement opportunities identified in this study, for the interchange, include the following:

1. Eastbound to Southbound Expressway Ramp

The very high right turn volumes onto the southbound ramp will necessitate a free flow turn, thus requiring ramp widening and possible extension. We still see extensive queuing in the model, and in fact a dual free flow right turn onto the ramp begins to relieve the queuing. However, feasibility of a dual right turn lane ramp is questionable. This should be more closely examined in a future study of the entire interchange.

2. Northbound Off Ramp

The northbound ramp should be widened to provide for an additional approach lane to the intersection consisting of an exclusive right turn lane, which will then provide an opportunity to implement dual left turns.

3. Southbound Off ramp

The queuing and delay issues could be improved by widening the ramp to allow for a free flow right turn lane onto Graves Mill Road, which then has implications for a downstream receiving lane.

4. Westbound Queuing Between the Ramp Intersections

The two ramp signals should be signalized, with improved adaptive traffic coordination equipment in the future. Modifications to phasing should allow for continuous movements from the heavy ramp movements through the downstream signals.

5. Continued Signal Retiming and Optimization

Into the future, the signal timings should be revisited periodically, and as noted above, traffic adaptive signal coordination should be considered to help maximize travel capacity.

6. Transportation Demand Management (TDM)

Given the high concentration of employment centers near the corridor, it is possible that a specific TDM program could make a significant improvement to peak hour operations in the corridor. Examples include small shifts in arrival and exit times (to spread out the peak hour) and ride sharing.

7. Detailed Interchange Modification Study

Note that a more detailed interchange study would be helpful to identify a full range of improvements that might be needed in the future as a more regional improvement.

Site Entrance

1. Signalization

The analyses assumed that the entrance would be signalized. See **Appendix G** for the peak hour warrant for the full build condition, and also the peak hour warrant for the threshold of when a signal would meet the peak hour requirements. Given the very large volumes on Graves Mill Road, the peak hour warrant is met with just 100 egress left turn lanes out of the site. This equates to a total of approximately 23% of the build program as shown in the trip generation **Table 2** (i.e. 100 egress lefts / 423 peak PM egress lefts per **Figure 7** box 6 = 23%). This would equate to a grocery store, or some combination of the rest of the development that would result in approximately 160-170 total trip in the PM peak hour. Given the uncertainty of when the various elements, as shown in the concept plan, would be constructed, development will need to be monitored and a commitment made to perform a warrant analysis once construction begins on the sections of the development.

Due to the long lead time required for obtaining poles and signal control equipment, the traffic signal should be designed as part of the site plan process, and the infrastructure should be put in place with the entrance intersection improvements. The signal could then be activated once the traffic volumes to the newly opened uses materialize.

2. Dual Left Turn Lanes (Ingress and Egress)

Analyses indicate that dual left turn lanes are needed for ingress (eastbound left turn) and egress (southbound left turn). However, due to environmental constraints, construction of the dual left turn lane for ingress is not feasible. Since this is a "T" intersection, the ingress left turn lane could be configured as a single left turn with 350 feet of storage, and the intersection will operate at a satisfactory level of service, with the left turn operating right at LOS E. If the ingress left turn volume were reduced by just 5%, then the movement would achieve LOS D. Given that internal capture rates are arguably conservatively low using the VDOT standard rates, and considering the gross nature of site trip distribution assumptions, it is likely that the volumes shown for the left turn ingress movements are higher than what might actually occur. Given the constraints and the nature of the volume assumptions, engineering judgment suggests that the long single left turn lane into the site would suffice with all vehicles clearing the queue each cycle. Notice also that the single left turn lane provides an opportunity to utilize permitted/protected phasing, versus the protected only phasing that is required for dual lefts. The permitted/protected phasing will serve traffic more efficiently in the off-peak periods of the day. This mitigation results in satisfactory operations with nearly all movements operating at LOS C or better.

3. For the right-in entrance, exclusive right turn lane was not warranted.



9. Summary of conclusions and recommendations

The analyses conducted for this effort lead to the following principal conclusions:

1. The study area is already experiencing congestion in peak hours.
2. In existing conditions, the eastbound volumes desiring to go southbound at the interchange cause a bias towards heavy traffic in the right lane. This lane bias results in congestion and queuing in the peak hours.
3. In the no-build condition we expect to see the need for substantial improvements at the interchange, in order to manage congestion and mitigate potential gridlock, or queues extending back to the deceleration portion of the off-ramps.
4. For the build condition, the no-build conditions are exacerbated, though mitigation strategies and improvements that are needed for the no-build condition would also relieve the build conditions.
5. The site entrance should be signalized at such time that occupancy of the site generates enough traffic to require activating the signal. The developer should be responsible for conducting a full signal warrant study once the site has been increasing in occupancy and at the request of the City.
6. The site entrance will require a long single left for ingress and dual lefts for egress. The entrance road will need to be designed to consider these laneage needs, and the resulting queuing within the site. Thus, the functional distance for the southbound approach to Graves Mill Road is projected to be 250' (i.e. distance occupied by queuing).
7. The signal design for the site entrance needs to include the required traffic coordination equipment per direction from the City.
8. Exclusive right turn lane is not needed at the development's right-in only entrance.

Recommendations for this Development (i.e. developer driven improvements):

1. Site Entrance – construct with a long single left turn for ingress and dual left turns egress. In the short term, hatch out the 2nd left turn lane on the egress approach. Provide a signal warrant analysis when directed by the City.
2. Construct the intersection to be ready for signalization once warranted (i.e. install conduits, foundations, etc.. with initial intersection construction).
3. Provide an exclusive right turn lane into the site along Graves Mill Road.
4. Look for opportunities to expand the road network for connections to the north and east. This will help to disperse traffic away from Graves Mill Road.



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Appendices



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Appendix A Traffic Count Reports

Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Old Graves Mill AM

Site Code : 00001111

Start Date : 10/9/2013

Page No : 1

Groups Printed- Passenger Veh - Trucks

	Old Graves Mill From North					Graves Mill From East					Old Graves Mill From South					Graves Mill From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	3	92	0	0	95	28	0	5	0	33	0	181	17	0	198	326
07:15 AM	0	0	0	0	0	15	165	0	0	180	27	0	4	0	31	0	207	20	0	227	438
07:30 AM	0	0	0	0	0	10	156	2	0	168	20	0	18	0	38	0	257	26	1	284	490
07:45 AM	0	0	0	0	0	26	187	0	0	213	33	0	14	0	47	0	326	36	0	362	622
Total	0	0	0	0	0	54	600	2	0	656	108	0	41	0	149	0	971	99	1	1071	1876
08:00 AM	0	0	0	0	0	19	161	0	0	180	31	0	13	0	44	0	201	32	0	233	457
08:15 AM	0	0	0	0	0	10	150	1	0	161	33	1	12	0	46	0	195	37	0	232	439
08:30 AM	0	0	0	0	0	10	114	0	0	124	28	0	12	0	40	0	155	45	0	200	364
08:45 AM	0	0	0	0	0	8	125	0	0	133	22	0	11	0	33	0	170	30	0	200	366
Total	0	0	0	0	0	47	550	1	0	598	114	1	48	0	163	0	721	144	0	865	1626
Grand Total	0	0	0	0	0	101	1150	3	0	1254	222	1	89	0	312	0	1692	243	1	1936	3502
Apprch %	0	0	0	0	0	8.1	91.7	0.2	0		71.2	0.3	28.5	0		0	87.4	12.6	0.1		
Total %	0	0	0	0	0	2.9	32.8	0.1	0	35.8	6.3	0	2.5	0	8.9	0	48.3	6.9	0	55.3	
Passenger Veh	0	0	0	0	0	97	1126	3	0	1226	217	1	87	0	305	0	1659	233	1	1893	3424
% Passenger Veh	0	0	0	0	0	96	97.9	100	0	97.8	97.7	100	97.8	0	97.8	0	98	95.9	100	97.8	97.8
Trucks	0	0	0	0	0	4	24	0	0	28	5	0	2	0	7	0	33	10	0	43	78
% Trucks	0	0	0	0	0	4	2.1	0	0	2.2	2.3	0	2.2	0	2.2	0	2	4.1	0	2.2	2.2

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File Name : Old Graves Mill AM

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	Old Graves Mill From North					Graves Mill From East					Old Graves Mill From South					Graves Mill From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	10	156	2	0	168	20	0	18	0	38	0	257	26	1	284	490
07:45 AM	0	0	0	0	0	26	187	0	0	213	33	0	14	0	47	0	326	36	0	362	622
08:00 AM	0	0	0	0	0	19	161	0	0	180	31	0	13	0	44	0	201	32	0	233	457
08:15 AM	0	0	0	0	0	10	150	1	0	161	33	1	12	0	46	0	195	37	0	232	439
Total Volume	0	0	0	0	0	65	654	3	0	722	117	1	57	0	175	0	979	131	1	1111	2008
% App. Total	0	0	0	0	0	9	90.6	0.4	0		66.9	0.6	32.6	0		0	88.1	11.8	0.1		
PHF	.000	.000	.000	.000	.000	.625	.874	.375	.000	.847	.886	.250	.792	.000	.931	.000	.751	.885	.250	.767	.807
Passenger Veh	0	0	0	0	0	63	645	3	0	711	115	1	56	0	172	0	962	125	1	1088	1971
% Passenger Veh	0	0	0	0	0	96.9	98.6	100	0	98.5	98.3	100	98.2	0	98.3	0	98.3	95.4	100	97.9	98.2
Trucks	0	0	0	0	0	2	9	0	0	11	2	0	1	0	3	0	17	6	0	23	37
% Trucks	0	0	0	0	0	3.1	1.4	0	0	1.5	1.7	0	1.8	0	1.7	0	1.7	4.6	0	2.1	1.8

Data Collection Group

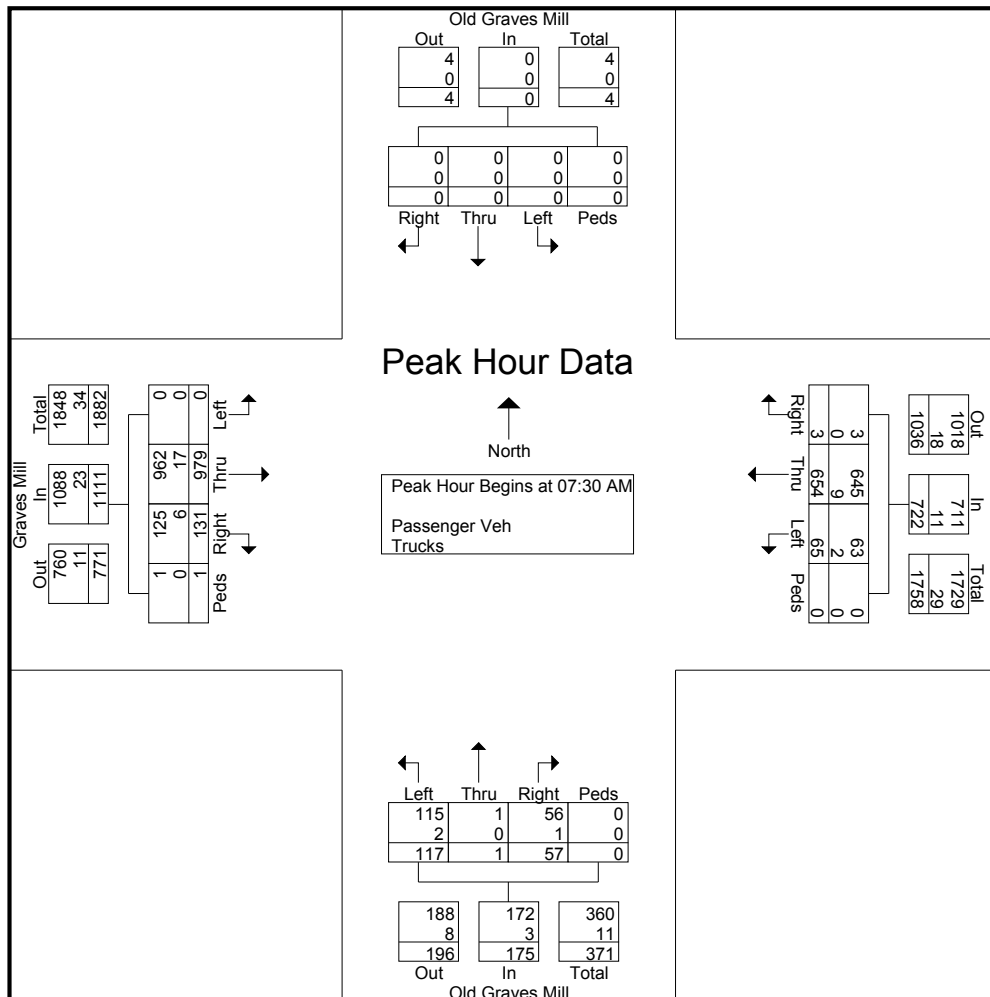
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Site Code : 00001111

Start Date : 10/9/2013

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Data Collection Group

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File Name : Old Graves Mill PM

Site Code : 00000444

Start Date : 10/9/2013

Page No : 1

Groups Printed- Passenger Veh - Trucks

	Old Graves Mill From North					Graves Mill From East					Old Graves Mill From South					Graves Mill From West					
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04:00 PM	0	0	0	0	0	28	184	0	0	212	25	0	5	0	30	0	191	45	0	236	478
04:15 PM	0	0	0	0	0	33	173	0	0	206	33	0	6	0	39	0	162	37	0	199	444
04:30 PM	0	0	0	0	0	35	170	0	0	205	30	0	6	0	36	0	196	47	0	243	484
04:45 PM	0	0	0	0	0	36	201	0	0	237	37	0	8	0	45	0	214	41	0	255	537
Total	0	0	0	0	0	132	728	0	0	860	125	0	25	0	150	0	763	170	0	933	1943
05:00 PM	0	0	0	0	0	66	194	0	0	260	44	0	7	0	51	1	241	56	0	298	609
05:15 PM	0	0	0	0	0	51	198	0	0	249	34	0	11	0	45	0	243	61	0	304	598
05:30 PM	0	0	0	0	0	51	204	0	0	255	24	0	7	0	31	0	220	47	0	267	553
05:45 PM	0	0	0	0	0	33	169	0	0	202	37	0	11	0	48	0	150	43	0	193	443
Total	0	0	0	0	0	201	765	0	0	966	139	0	36	0	175	1	854	207	0	1062	2203
Grand Total	0	0	0	0	0	333	1493	0	0	1826	264	0	61	0	325	1	1617	377	0	1995	4146
Apprch %	0	0	0	0	0	18.2	81.8	0	0		81.2	0	18.8	0		0.1	81.1	18.9	0		
Total %	0	0	0	0	0	8	36	0	0	44	6.4	0	1.5	0	7.8	0	39	9.1	0	48.1	
Passenger Veh	0	0	0	0	0	328	1477	0	0	1805	259	0	61	0	320	1	1601	372	0	1974	4099
% Passenger Veh	0	0	0	0	0	98.5	98.9	0	0	98.8	98.1	0	100	0	98.5	100	99	98.7	0	98.9	98.9
Trucks	0	0	0	0	0	5	16	0	0	21	5	0	0	0	5	0	16	5	0	21	47
% Trucks	0	0	0	0	0	1.5	1.1	0	0	1.2	1.9	0	0	0	1.5	0	1	1.3	0	1.1	1.1

Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Old Graves Mill PM

Site Code : 00000444

Start Date : 10/9/2013

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	Old Graves Mill From North					Graves Mill From East					Old Graves Mill From South					Graves Mill From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	0	0	0	0	36	201	0	0	237	37	0	8	0	45	0	214	41	0	255	537
05:00 PM	0	0	0	0	0	66	194	0	0	260	44	0	7	0	51	1	241	56	0	298	609
05:15 PM	0	0	0	0	0	51	198	0	0	249	34	0	11	0	45	0	243	61	0	304	598
05:30 PM	0	0	0	0	0	51	204	0	0	255	24	0	7	0	31	0	220	47	0	267	553
Total Volume	0	0	0	0	0	204	797	0	0	1001	139	0	33	0	172	1	918	205	0	1124	2297
% App. Total	0	0	0	0	0	20.4	79.6	0	0		80.8	0	19.2	0		0.1	81.7	18.2	0		
PHF	.000	.000	.000	.000	.000	.773	.977	.000	.000	.963	.790	.000	.750	.000	.843	.250	.944	.840	.000	.924	.943
Passenger Veh	0	0	0	0	0	201	788	0	0	989	137	0	33	0	170	1	908	201	0	1110	2269
% Passenger Veh	0	0	0	0	0	98.5	98.9	0	0	98.8	98.6	0	100	0	98.8	100	98.9	98.0	0	98.8	98.8
Trucks	0	0	0	0	0	3	9	0	0	12	2	0	0	0	2	0	10	4	0	14	28
% Trucks	0	0	0	0	0	1.5	1.1	0	0	1.2	1.4	0	0	0	1.2	0	1.1	2.0	0	1.2	1.2

Data Collection Group

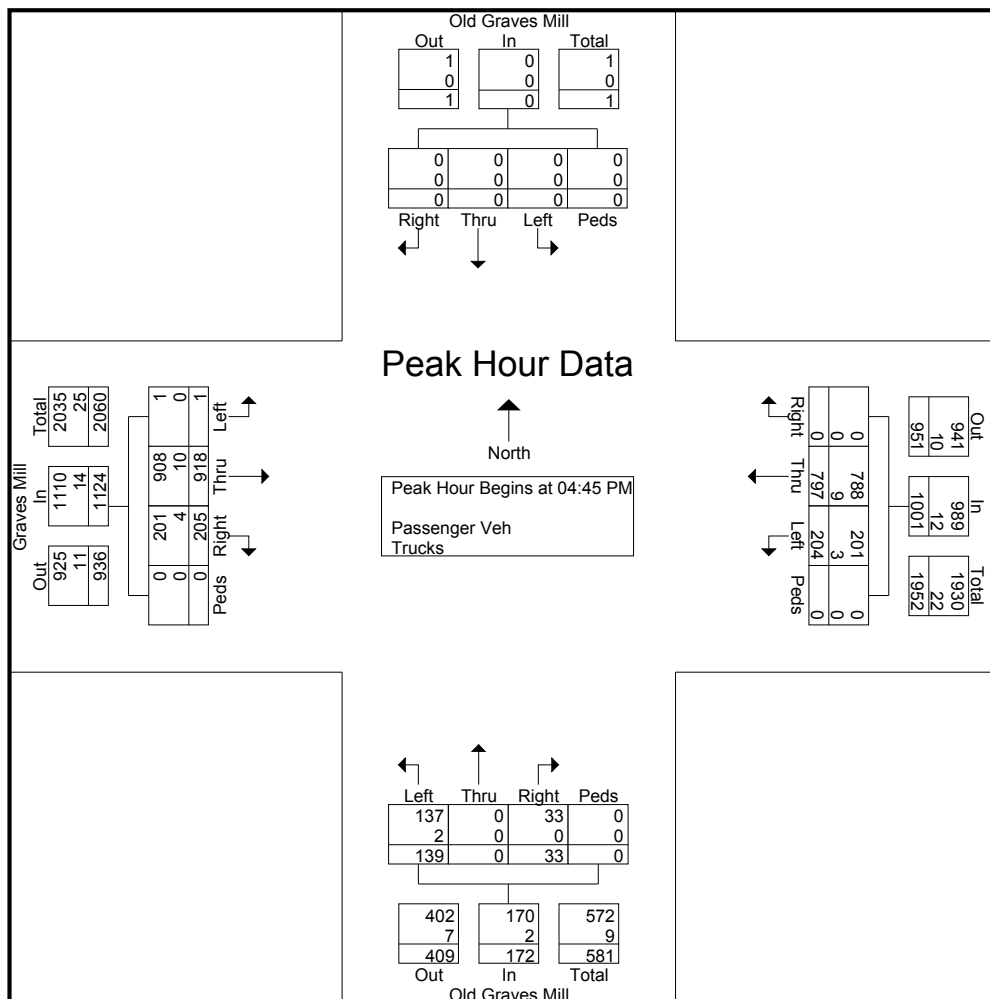
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File Name : Old Graves Mill PM

Site Code : 00000444

Start Date : 10/9/2013

Page No : 3



Data Collection Group

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File Name : Home Depot AM

Site Code : 00006677

Start Date : 10/16/2013

Page No : 1

Groups Printed- Passenger Veh - Trucks

	Creekside Dr (Home Depot) From North					Graves Mill From East					Old Graves Mill From South					Graves Mill From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	1	0	0	0	1	45	89	7	0	141	3	1	45	0	49	1	197	6	0	204	395
07:15 AM	4	1	2	0	7	52	155	14	0	221	5	2	79	0	86	5	202	4	0	211	525
07:30 AM	7	1	4	0	12	58	169	27	0	254	3	2	98	0	103	7	255	2	0	264	633
07:45 AM	4	2	2	0	8	62	229	35	0	326	3	5	90	0	98	12	327	4	0	343	775
Total	16	4	8	0	28	217	642	83	0	942	14	10	312	0	336	25	981	16	0	1022	2328
08:00 AM	8	2	2	0	12	64	145	20	0	229	2	6	87	0	95	3	212	4	0	219	555
08:15 AM	6	3	8	0	17	55	170	21	0	246	1	6	64	0	71	8	160	1	0	169	503
08:30 AM	8	1	6	0	15	37	139	13	0	189	6	6	64	0	76	7	148	5	0	160	440
08:45 AM	15	4	7	0	26	40	124	19	0	183	2	4	53	0	59	8	193	3	0	204	472
Total	37	10	23	0	70	196	578	73	0	847	11	22	268	0	301	26	713	13	0	752	1970
Grand Total	53	14	31	0	98	413	1220	156	0	1789	25	32	580	0	637	51	1694	29	0	1774	4298
Apprch %	54.1	14.3	31.6	0		23.1	68.2	8.7	0		3.9	5	91.1	0		2.9	95.5	1.6	0		
Total %	1.2	0.3	0.7	0	2.3	9.6	28.4	3.6	0	41.6	0.6	0.7	13.5	0	14.8	1.2	39.4	0.7	0	41.3	
Passenger Veh	51	12	30	0	93	398	1205	152	0	1755	15	30	561	0	606	51	1680	28	0	1759	4213
% Passenger Veh	96.2	85.7	96.8	0	94.9	96.4	98.8	97.4	0	98.1	60	93.8	96.7	0	95.1	100	99.2	96.6	0	99.2	98
Trucks	2	2	1	0	5	15	15	4	0	34	10	2	19	0	31	0	14	1	0	15	85
% Trucks	3.8	14.3	3.2	0	5.1	3.6	1.2	2.6	0	1.9	40	6.2	3.3	0	4.9	0	0.8	3.4	0	0.8	2

Data Collection Group

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File Name : Home Depot AM

Site Code : 00006677

Start Date : 10/16/2013

Page No : 2

	Creekside Dr (Home Depot) From North					Graves Mill From East					Old Graves Mill From South					Graves Mill From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	4	1	2	0	7	52	155	14	0	221	5	2	79	0	86	5	202	4	0	211	525
07:30 AM	7	1	4	0	12	58	169	27	0	254	3	2	98	0	103	7	255	2	0	264	633
07:45 AM	4	2	2	0	8	62	229	35	0	326	3	5	90	0	98	12	327	4	0	343	775
08:00 AM	8	2	2	0	12	64	145	20	0	229	2	6	87	0	95	3	212	4	0	219	555
Total Volume	23	6	10	0	39	236	698	96	0	1030	13	15	354	0	382	27	996	14	0	1037	2488
% App. Total	59	15.4	25.6	0		22.9	67.8	9.3	0		3.4	3.9	92.7	0		2.6	96	1.4	0		
PHF	.719	.750	.625	.000	.813	.922	.762	.686	.000	.790	.650	.625	.903	.000	.927	.563	.761	.875	.000	.756	.803
Passenger Veh	23	5	10	0	38	230	690	95	0	1015	7	15	344	0	366	27	989	13	0	1029	2448
% Passenger Veh	100	83.3	100	0	97.4	97.5	98.9	99.0	0	98.5	53.8	100	97.2	0	95.8	100	99.3	92.9	0	99.2	98.4
Trucks	0	1	0	0	1	6	8	1	0	15	6	0	10	0	16	0	7	1	0	8	40
% Trucks	0	16.7	0	0	2.6	2.5	1.1	1.0	0	1.5	46.2	0	2.8	0	4.2	0	0.7	7.1	0	0.8	1.6

Data Collection Group

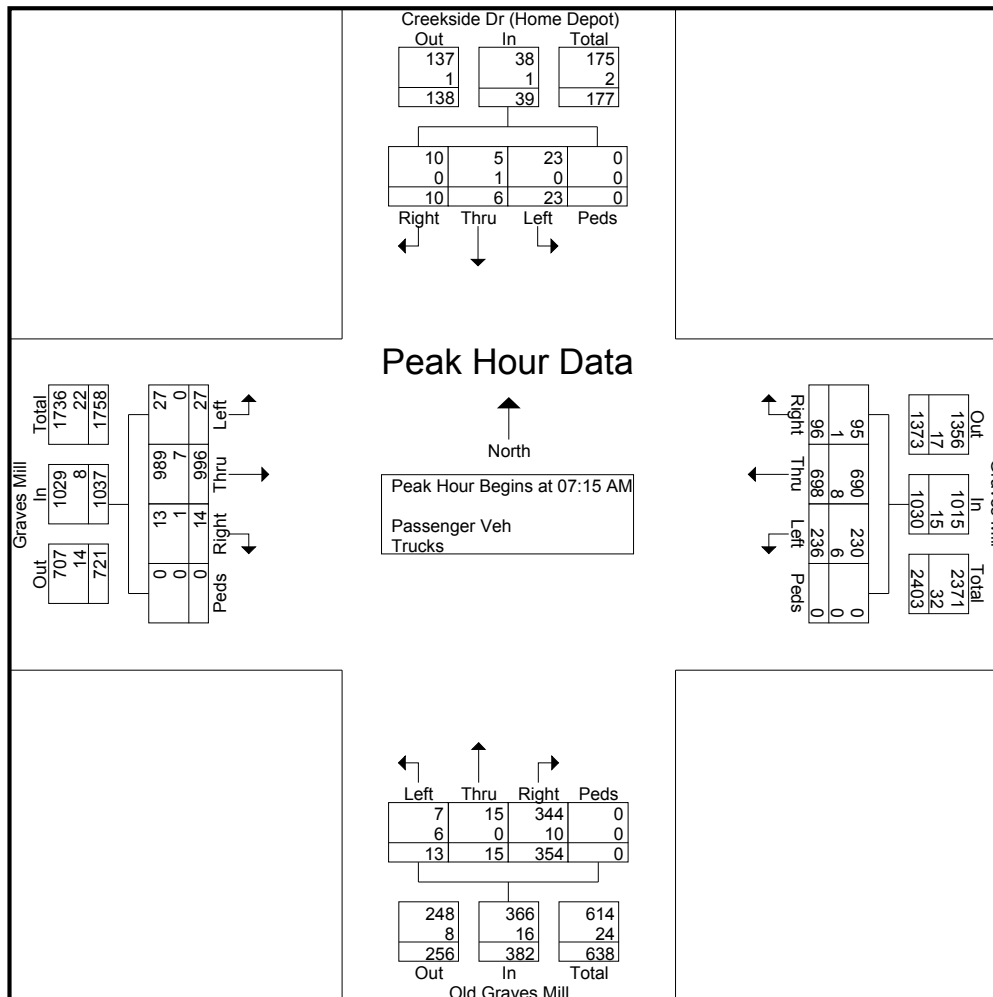
LSmith@DataCollectionGroup.net

File Name : Home Depot AM

Site Code : 00006677

Start Date : 10/16/2013

Page No : 3



Data Collection Group

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File Name : Home Depot PM

Site Code : 00008888

Start Date : 10/16/2013

Page No : 1

Groups Printed- Passenger Veh - Trucks

	Creekside (Home Depot) From North					Graves Mill From East					Old Graves Mill From South					Graves Mill From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	32	3	15	0	50	63	214	12	0	289	12	3	67	0	82	4	176	2	0	182	603
04:15 PM	40	11	14	0	65	62	184	18	0	264	5	5	64	0	74	9	136	2	0	147	550
04:30 PM	23	9	15	0	47	33	238	19	0	290	13	4	80	0	97	5	183	4	0	192	626
04:45 PM	24	6	7	0	37	52	204	26	0	282	16	2	83	0	101	6	160	1	0	167	587
Total	119	29	51	0	199	210	840	75	0	1125	46	14	294	0	354	24	655	9	0	688	2366
05:00 PM	18	7	11	0	36	60	290	21	0	371	18	5	80	0	103	14	213	2	0	229	739
05:15 PM	26	6	9	0	41	63	285	23	0	371	17	7	84	0	108	12	185	4	0	201	721
05:30 PM	22	4	5	0	31	62	221	37	0	320	10	3	70	0	83	10	232	4	0	246	680
05:45 PM	15	4	13	0	32	65	185	35	0	285	4	3	56	0	63	18	149	2	0	169	549
Total	81	21	38	0	140	250	981	116	0	1347	49	18	290	0	357	54	779	12	0	845	2689
Grand Total	200	50	89	0	339	460	1821	191	0	2472	95	32	584	0	711	78	1434	21	0	1533	5055
Apprch %	59	14.7	26.3	0		18.6	73.7	7.7	0		13.4	4.5	82.1	0		5.1	93.5	1.4	0		
Total %	4	1	1.8	0	6.7	9.1	36	3.8	0	48.9	1.9	0.6	11.6	0	14.1	1.5	28.4	0.4	0	30.3	
Passenger Veh	198	50	89	0	337	453	1809	191	0	2453	95	32	574	0	701	78	1422	21	0	1521	5012
% Passenger Veh	99	100	100	0	99.4	98.5	99.3	100	0	99.2	100	100	98.3	0	98.6	100	99.2	100	0	99.2	99.1
Trucks	2	0	0	0	2	7	12	0	0	19	0	0	10	0	10	0	12	0	0	12	43
% Trucks	1	0	0	0	0.6	1.5	0.7	0	0	0.8	0	0	1.7	0	1.4	0	0.8	0	0	0.8	0.9

Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Home Depot PM

Site Code : 00008888

Start Date : 10/16/2013

Page No : 2

	Creekside (Home Depot) From North					Graves Mill From East					Old Graves Mill From South					Graves Mill From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	24	6	7	0	37	52	204	26	0	282	16	2	83	0	101	6	160	1	0	167	587
05:00 PM	18	7	11	0	36	60	290	21	0	371	18	5	80	0	103	14	213	2	0	229	739
05:15 PM	26	6	9	0	41	63	285	23	0	371	17	7	84	0	108	12	185	4	0	201	721
05:30 PM	22	4	5	0	31	62	221	37	0	320	10	3	70	0	83	10	232	4	0	246	680
Total Volume	90	23	32	0	145	237	1000	107	0	1344	61	17	317	0	395	42	790	11	0	843	2727
% App. Total	62.1	15.9	22.1	0		17.6	74.4	8	0		15.4	4.3	80.3	0		5	93.7	1.3	0		
PHF	.865	.821	.727	.000	.884	.940	.862	.723	.000	.906	.847	.607	.943	.000	.914	.750	.851	.688	.000	.857	.923
Passenger Veh	89	23	32	0	144	233	993	107	0	1333	61	17	315	0	393	42	785	11	0	838	2708
% Passenger Veh	98.9	100	100	0	99.3	98.3	99.3	100	0	99.2	100	100	99.4	0	99.5	100	99.4	100	0	99.4	99.3
Trucks	1	0	0	0	1	4	7	0	0	11	0	0	2	0	2	0	5	0	0	5	19
% Trucks	1.1	0	0	0	0.7	1.7	0.7	0	0	0.8	0	0	0.6	0	0.5	0	0.6	0	0	0.6	0.7

Data Collection Group

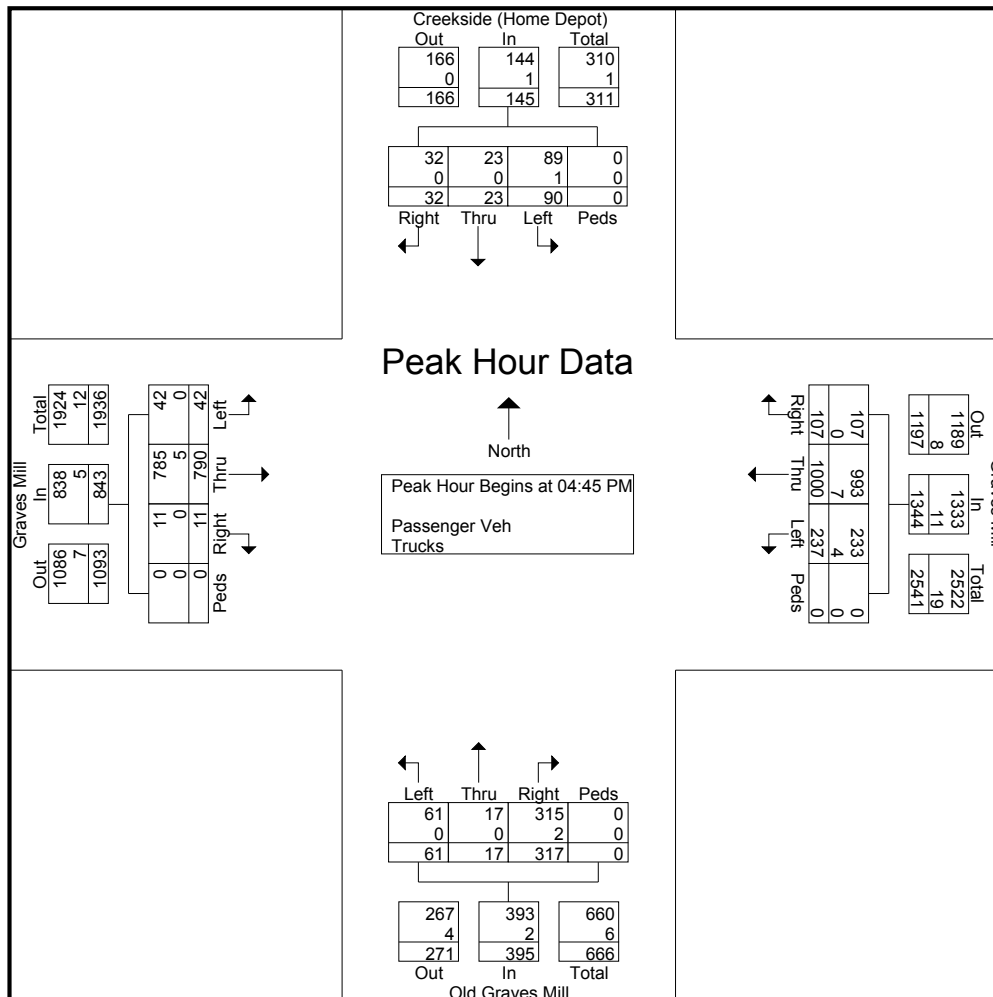
LSmith@DataCollectionGroup.net

File Name : Home Depot PM

Site Code : 00008888

Start Date : 10/16/2013

Page No : 3



Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Graves Mill and Ramp W Side Combined

Site Code : 00003333

Start Date : 10/10/2013

Page No : 1

Groups Printed- Passenger Veh - Trucks

	SB 501 Off Ramp From North					Graves Mill From East					SB 501 On Ramp From South					Graves Mill From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	4	0	22	0	26	26	117	0	0	143	0	0	0	0	0	0	76	165	0	241	410
07:15 AM	8	0	40	0	48	34	179	0	0	213	0	0	0	0	0	0	92	193	0	285	546
07:30 AM	14	0	43	0	57	38	209	0	0	247	0	0	0	0	0	0	137	215	0	352	656
07:45 AM	18	1	57	0	76	47	269	0	0	316	0	0	0	0	0	0	171	247	0	418	810
Total	44	1	162	0	207	145	774	0	0	919	0	0	0	0	0	0	476	820	0	1296	2422
08:00 AM	24	0	54	0	78	40	171	0	0	211	0	0	0	0	0	0	109	200	0	309	598
08:15 AM	19	2	53	0	74	37	189	0	0	226	0	0	0	0	0	0	102	123	0	225	525
08:30 AM	18	2	40	0	60	42	142	0	0	184	0	0	0	0	0	0	77	142	0	219	463
08:45 AM	20	2	47	0	69	46	134	0	0	180	0	0	0	0	0	0	109	145	0	254	503
Total	81	6	194	0	281	165	636	0	0	801	0	0	0	0	0	0	397	610	0	1007	2089
*** BREAK ***																					
04:00 PM	10	0	63	0	73	25	227	0	0	252	0	0	0	0	0	0	93	183	0	276	601
04:15 PM	16	1	71	0	88	37	195	0	0	232	0	0	0	0	0	0	63	178	0	241	561
04:30 PM	10	1	60	0	71	55	232	0	0	287	0	0	0	0	0	0	81	202	0	283	641
04:45 PM	7	0	66	0	73	56	219	0	0	275	0	0	0	0	0	0	77	193	0	270	618
Total	43	2	260	0	305	173	873	0	0	1046	0	0	0	0	0	0	314	756	0	1070	2421
05:00 PM	10	0	98	0	108	68	274	0	0	342	0	0	0	0	0	0	102	212	0	314	764
05:15 PM	12	0	67	0	79	38	303	0	0	341	0	0	0	0	0	0	81	216	0	297	717
05:30 PM	7	0	64	0	71	41	256	0	0	297	0	0	0	0	0	0	97	230	0	327	695
05:45 PM	8	0	59	0	67	30	228	0	0	258	0	0	0	0	0	0	63	160	0	223	548
Total	37	0	288	0	325	177	1061	0	0	1238	0	0	0	0	0	0	343	818	0	1161	2724
Grand Total	205	9	904	0	1118	660	3344	0	0	4004	0	0	0	0	0	0	1530	3004	0	4534	9656
Apprch %	18.3	0.8	80.9	0		16.5	83.5	0	0		0	0	0	0	0	0	33.7	66.3	0		
Total %	2.1	0.1	9.4	0	11.6	6.8	34.6	0	0	41.5	0	0	0	0	0	0	15.8	31.1	0	47	
Passenger Veh	197	9	895	0	1101	651	3313	0	0	3964	0	0	0	0	0	0	1520	2966	0	4486	9551
% Passenger Veh	96.1	100	99	0	98.5	98.6	99.1	0	0	99	0	0	0	0	0	0	99.3	98.7	0	98.9	98.9
Trucks	8	0	9	0	17	9	31	0	0	40	0	0	0	0	0	0	10	38	0	48	105
% Trucks	3.9	0	1	0	1.5	1.4	0.9	0	0	1	0	0	0	0	0	0	0.7	1.3	0	1.1	1.1

Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Graves Mill and Ramp W Side Combined

Site Code : 00003333

Start Date : 10/10/2013

Page No : 2

	SB 501 Off Ramp From North					Graves Mill From East					SB 501 On Ramp From South					Graves Mill From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	8	0	40	0	48	34	179	0	0	213	0	0	0	0	0	0	92	193	0	285	546
07:30 AM	14	0	43	0	57	38	209	0	0	247	0	0	0	0	0	0	137	215	0	352	656
07:45 AM	18	1	57	0	76	47	269	0	0	316	0	0	0	0	0	0	171	247	0	418	810
08:00 AM	24	0	54	0	78	40	171	0	0	211	0	0	0	0	0	0	109	200	0	309	598
Total Volume	64	1	194	0	259	159	828	0	0	987	0	0	0	0	0	0	509	855	0	1364	2610
% App. Total	24.7	0.4	74.9	0		16.1	83.9	0	0		0	0	0	0		0	37.3	62.7	0		
PHF	.667	.250	.851	.000	.830	.846	.770	.000	.000	.781	.000	.000	.000	.000	.000	.000	.744	.865	.000	.816	.806
Passenger Veh	62	1	192	0	255	158	823	0	0	981	0	0	0	0	0	0	506	850	0	1356	2592
% Passenger Veh	96.9	100	99.0	0	98.5	99.4	99.4	0	0	99.4	0	0	0	0	0	0	99.4	99.4	0	99.4	99.3
Trucks	2	0	2	0	4	1	5	0	0	6	0	0	0	0	0	0	3	5	0	8	18
% Trucks	3.1	0	1.0	0	1.5	0.6	0.6	0	0	0.6	0	0	0	0	0	0	0.6	0.6	0	0.6	0.7

Data Collection Group

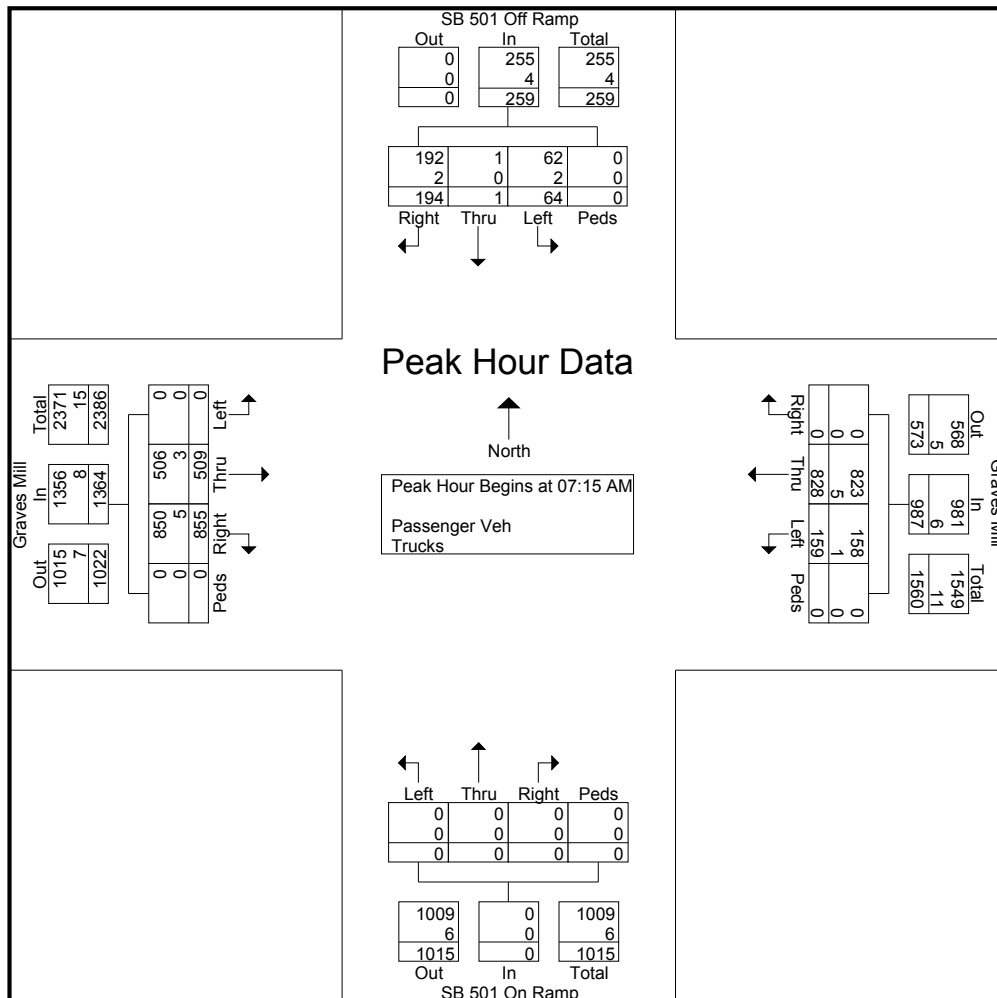
LSmith@DataCollectionGroup.net

File Name : Graves Mill and Ramp W Side Combined

Site Code : 00003333

Start Date : 10/10/2013

Page No : 3



Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Graves Mill and Ramp W Side Combined

Site Code : 00003333

Start Date : 10/10/2013

Page No : 4

	SB 501 Off Ramp From North					Graves Mill From East					SB 501 On Ramp From South					Graves Mill From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	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	7	0	66	0	73	56	219	0	0	275	0	0	0	0	0	0	77	193	0	270	618
05:00 PM	10	0	98	0	108	68	274	0	0	342	0	0	0	0	0	0	102	212	0	314	764
05:15 PM	12	0	67	0	79	38	303	0	0	341	0	0	0	0	0	0	81	216	0	297	717
05:30 PM	7	0	64	0	71	41	256	0	0	297	0	0	0	0	0	0	97	230	0	327	695
Total Volume	36	0	295	0	331	203	1052	0	0	1255	0	0	0	0	0	0	357	851	0	1208	2794
% App. Total	10.9	0	89.1	0		16.2	83.8	0	0		0	0	0	0		0	29.6	70.4	0		
PHF	.750	.000	.753	.000	.766	.746	.868	.000	.000	.917	.000	.000	.000	.000	.000	.000	.875	.925	.000	.924	.914
Passenger Veh	35	0	291	0	326	200	1042	0	0	1242	0	0	0	0	0	0	354	835	0	1189	2757
% Passenger Veh	97.2	0	98.6	0	98.5	98.5	99.0	0	0	99.0	0	0	0	0	0	0	99.2	98.1	0	98.4	98.7
Trucks	1	0	4	0	5	3	10	0	0	13	0	0	0	0	0	0	3	16	0	19	37
% Trucks	2.8	0	1.4	0	1.5	1.5	1.0	0	0	1.0	0	0	0	0	0	0	0.8	1.9	0	1.6	1.3

Data Collection Group

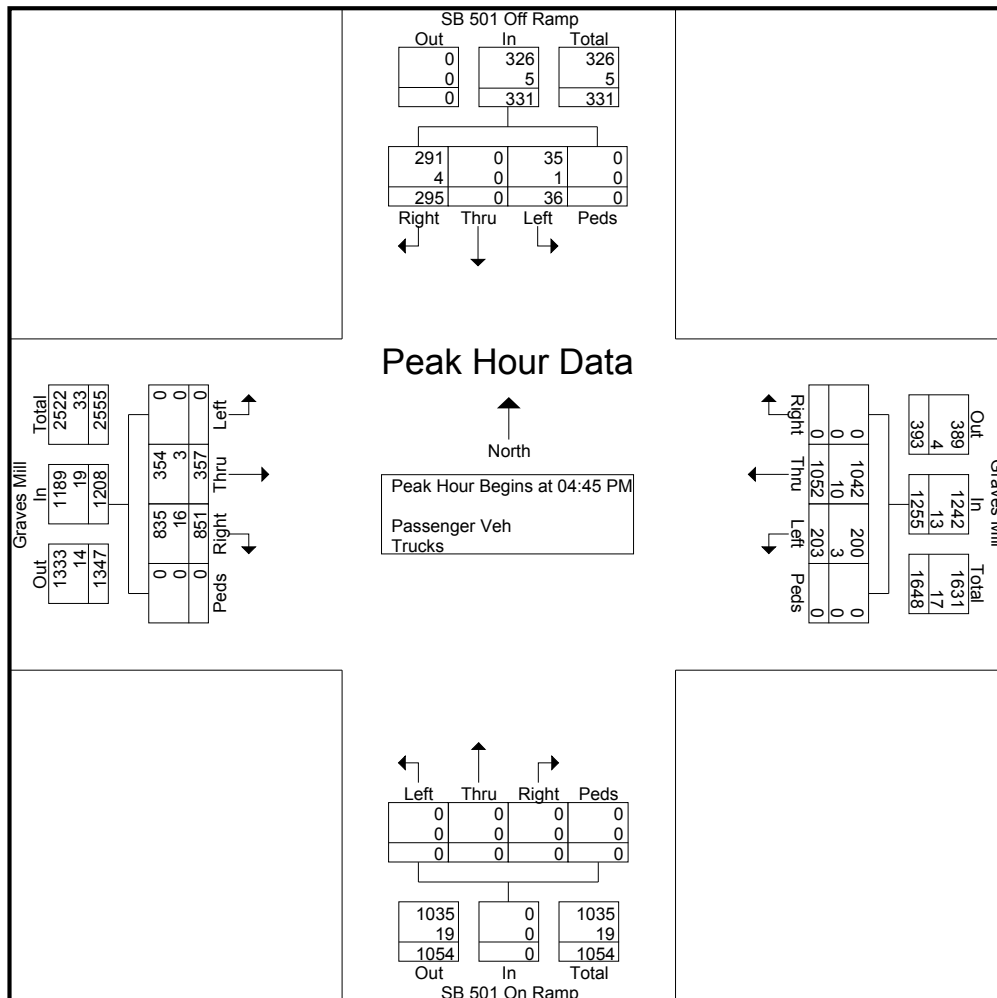
LSmith@DataCollectionGroup.net

File Name : Graves Mill and Ramp W Side Combined

Site Code : 00003333

Start Date : 10/10/2013

Page No : 5



Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Ramp E Side AM

Site Code : 00004444

Start Date : 10/15/2013

Page No : 1

Groups Printed- Passenger Veh - Trucks

	NB 501 On Ramp From North					Graves Mill From East					NB 501 Off Ramp From South					Graves Mill From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	38	4	0	42	108	0	12	0	120	38	43	0	0	81	243
07:15 AM	0	0	0	0	0	0	87	5	0	92	129	0	31	0	160	50	49	0	0	99	351
07:30 AM	0	0	0	0	0	0	48	6	0	54	203	0	22	0	225	68	85	0	0	153	432
07:45 AM	0	0	0	0	0	0	107	3	0	110	213	0	49	0	262	69	121	0	0	190	562
Total	0	0	0	0	0	0	280	18	0	298	653	0	114	0	767	225	298	0	0	523	1588
08:00 AM	0	0	0	0	0	0	45	1	0	46	169	0	33	0	202	54	83	0	0	137	385
08:15 AM	0	0	0	0	0	0	75	10	0	85	155	0	30	0	185	52	68	0	0	120	390
08:30 AM	0	0	0	0	0	0	63	12	0	75	124	1	21	0	146	45	47	0	0	92	313
08:45 AM	0	0	0	0	0	0	49	4	0	53	134	0	35	0	169	51	81	0	0	132	354
Total	0	0	0	0	0	0	232	27	0	259	582	1	119	0	702	202	279	0	0	481	1442
Grand Total	0	0	0	0	0	0	512	45	0	557	1235	1	233	0	1469	427	577	0	0	1004	3030
Apprch %	0	0	0	0	0	0	91.9	8.1	0	84.1	84.1	0.1	15.9	0	42.5	42.5	57.5	0	0	33.1	
Total %	0	0	0	0	0	0	16.9	1.5	0	18.4	40.8	0	7.7	0	48.5	14.1	19	0	0	33.1	
Passenger Veh	0	0	0	0	0	0	501	45	0	546	1208	1	233	0	1442	422	566	0	0	988	2976
% Passenger Veh	0	0	0	0	0	0	97.9	100	0	98	97.8	100	100	0	98.2	98.8	98.1	0	0	98.4	98.2
Trucks	0	0	0	0	0	0	11	0	0	11	27	0	0	0	27	5	11	0	0	16	54
% Trucks	0	0	0	0	0	0	2.1	0	0	2	2.2	0	0	0	1.8	1.2	1.9	0	0	1.6	1.8

Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Ramp E Side AM

Site Code : 00004444

Start Date : 10/15/2013

Page No : 2

	NB 501 On Ramp From North					Graves Mill From East					NB 501 Off Ramp From South					Graves Mill From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	0	48	6	0	54	203	0	22	0	225	68	85	0	0	153	432
07:45 AM	0	0	0	0	0	0	107	3	0	110	213	0	49	0	262	69	121	0	0	190	562
08:00 AM	0	0	0	0	0	0	45	1	0	46	169	0	33	0	202	54	83	0	0	137	385
08:15 AM	0	0	0	0	0	0	75	10	0	85	155	0	30	0	185	52	68	0	0	120	390
Total Volume	0	0	0	0	0	0	275	20	0	295	740	0	134	0	874	243	357	0	0	600	1769
% App. Total	0	0	0	0	0	0	93.2	6.8	0		84.7	0	15.3	0		40.5	59.5	0	0		
PHF	.000	.000	.000	.000	.000	.000	.643	.500	.000	.670	.869	.000	.684	.000	.834	.880	.738	.000	.000	.789	.787
Passenger Veh	0	0	0	0	0	0	269	20	0	289	724	0	134	0	858	240	349	0	0	589	1736
% Passenger Veh	0	0	0	0	0	0	97.8	100	0	98.0	97.8	0	100	0	98.2	98.8	97.8	0	0	98.2	98.1
Trucks	0	0	0	0	0	0	6	0	0	6	16	0	0	0	16	3	8	0	0	11	33
% Trucks	0	0	0	0	0	0	2.2	0	0	2.0	2.2	0	0	0	1.8	1.2	2.2	0	0	1.8	1.9

Data Collection Group

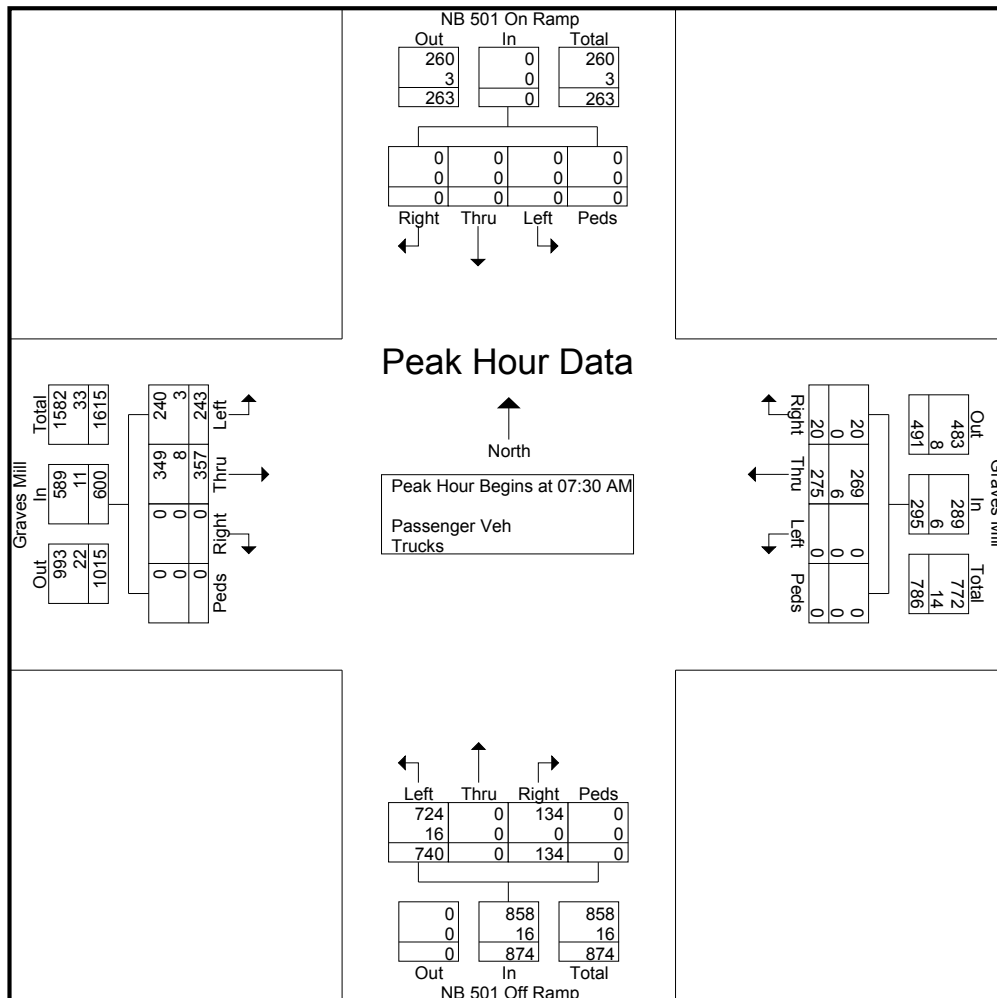
LSmith@DataCollectionGroup.net

File Name : Ramp E Side AM

Site Code : 00004444

Start Date : 10/15/2013

Page No : 3



Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Ramp E Side PM

Site Code : 00006789

Start Date : 10/15/2013

Page No : 1

Groups Printed- Passenger Veh - Trucks

	NB 501 On Ramp From North					Graves Mill From East					NB 501 Off Ramp From South					Graves Mill From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	129	23	0	152	120	1	30	0	151	54	49	0	0	103	406
04:15 PM	0	0	0	0	0	0	97	16	0	113	137	0	23	0	160	45	36	0	0	81	354
04:30 PM	0	0	0	0	0	0	158	16	0	174	131	0	25	0	156	49	41	0	0	90	420
04:45 PM	0	0	0	0	0	0	110	15	0	125	166	2	31	0	199	47	39	0	0	86	410
Total	0	0	0	0	0	0	494	70	0	564	554	3	109	0	666	195	165	0	0	360	1590
05:00 PM	0	0	0	0	0	0	164	22	0	186	181	0	31	0	212	62	56	0	0	118	516
05:15 PM	0	0	0	0	0	0	151	21	0	172	195	0	42	0	237	63	31	0	0	94	503
05:30 PM	0	0	0	0	0	0	112	20	0	132	186	0	24	0	210	54	51	0	0	105	447
05:45 PM	0	0	0	0	0	0	95	21	0	116	166	0	27	0	193	51	19	0	0	70	379
Total	0	0	0	0	0	0	522	84	0	606	728	0	124	0	852	230	157	0	0	387	1845
Grand Total	0	0	0	0	0	0	1016	154	0	1170	1282	3	233	0	1518	425	322	0	0	747	3435
Apprch %	0	0	0	0	0	0	86.8	13.2	0	84.5	0.2	15.3	0	84.5	0.2	56.9	43.1	0	0	21.7	
Total %	0	0	0	0	0	0	29.6	4.5	0	34.1	37.3	0.1	6.8	0	44.2	12.4	9.4	0	0	21.7	
Passenger Veh	0	0	0	0	0	0	1001	153	0	1154	1254	3	232	0	1489	421	308	0	0	729	3372
% Passenger Veh	0	0	0	0	0	0	98.5	99.4	0	98.6	97.8	100	99.6	0	98.1	99.1	95.7	0	0	97.6	98.2
Trucks	0	0	0	0	0	0	15	1	0	16	28	0	1	0	29	4	14	0	0	18	63
% Trucks	0	0	0	0	0	0	1.5	0.6	0	1.4	2.2	0	0.4	0	1.9	0.9	4.3	0	0	2.4	1.8

Data Collection Group

LSmith@DataCollectionGroup.net

File Name : Ramp E Side PM

Site Code : 00006789

Start Date : 10/15/2013

Page No : 2

	NB 501 On Ramp From North					Graves Mill From East					NB 501 Off Ramp From South					Graves Mill From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	0	0	0	0	0	110	15	0	125	166	2	31	0	199	47	39	0	0	86	410
05:00 PM	0	0	0	0	0	0	164	22	0	186	181	0	31	0	212	62	56	0	0	118	516
05:15 PM	0	0	0	0	0	0	151	21	0	172	195	0	42	0	237	63	31	0	0	94	503
05:30 PM	0	0	0	0	0	0	112	20	0	132	186	0	24	0	210	54	51	0	0	105	447
Total Volume	0	0	0	0	0	0	537	78	0	615	728	2	128	0	858	226	177	0	0	403	1876
% App. Total	0	0	0	0	0	0	87.3	12.7	0		84.8	0.2	14.9	0		56.1	43.9	0	0		
PHF	.000	.000	.000	.000	.000	.000	.819	.886	.000	.827	.933	.250	.762	.000	.905	.897	.790	.000	.000	.854	.909
Passenger Veh	0	0	0	0	0	0	528	78	0	606	714	2	127	0	843	222	167	0	0	389	1838
% Passenger Veh	0	0	0	0	0	0	98.3	100	0	98.5	98.1	100	99.2	0	98.3	98.2	94.4	0	0	96.5	98.0
Trucks	0	0	0	0	0	0	9	0	0	9	14	0	1	0	15	4	10	0	0	14	38
% Trucks	0	0	0	0	0	0	1.7	0	0	1.5	1.9	0	0.8	0	1.7	1.8	5.6	0	0	3.5	2.0

Data Collection Group

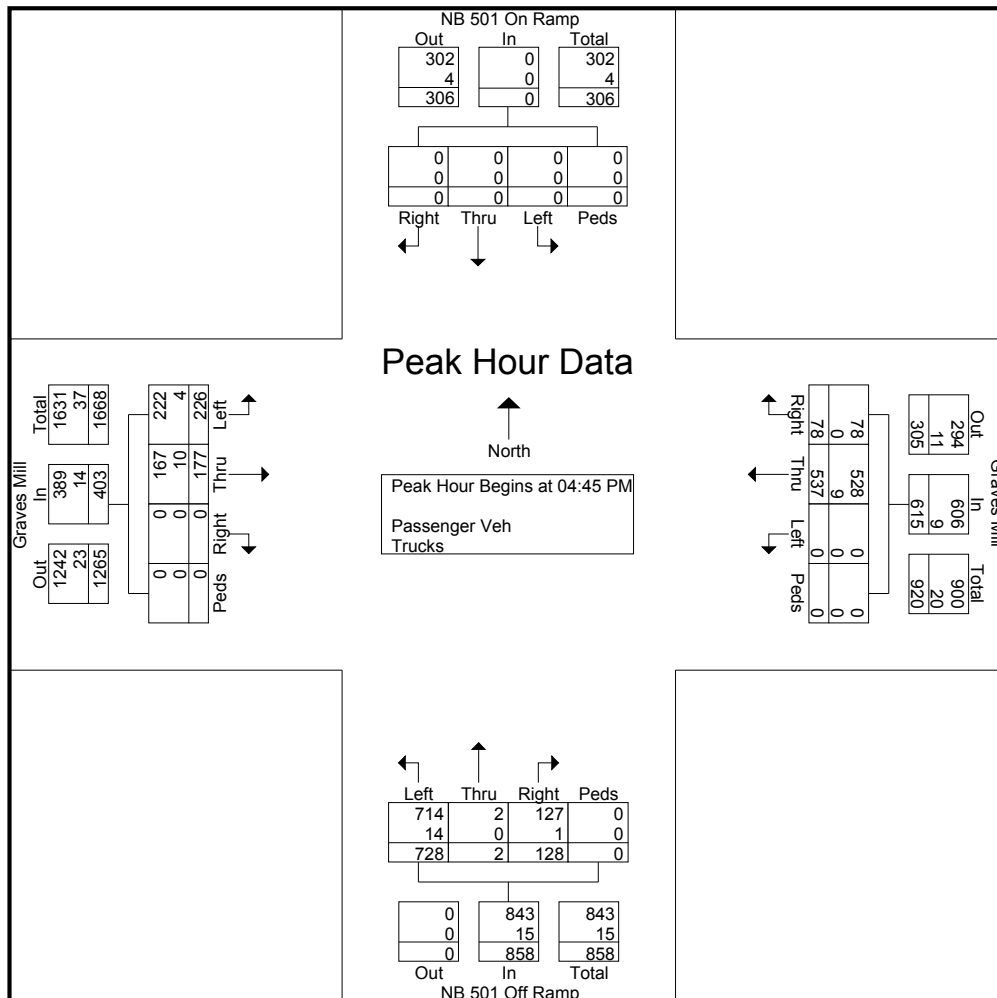
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File Name : Ramp E Side PM

Site Code : 00006789

Start Date : 10/15/2013

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637 BERKMAR CIRCLE, CHARLOTTESVILLE, VA 22901

Appendix B LOS, Delays, and Queues Summary

LOS, Delays, and Queues - Graves Mill Road and Northbound Ramps

			Existing				No Build 2024				Build 2024						Build with Mitigation 2024			
			AM				AM				AM						AM			
No.	Intersection	Movement	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Intersection	Movement	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue
			(sec/veh)		(ft)	(ft)	(sec/veh)		(ft)	(ft)	(sec/veh)		(ft)	(ft)			(sec/veh)		(ft)	(ft)
1	Graves Mill/East Ramp																			
	Graves Mill EB	Left	14.1	B	106	189	22.8	C	170	225	17.3	B	269	224	Graves Mill EB	Left	22.5	C	227	224
	Graves Mill EB	Through	9.8	A	66	103	10.8	A	83	342	11.9	B	155	334	Graves Mill EB	Through	9.4	A	101	268
	Graves Mill WB	Through	17.4	B	68	102	24.4	C	106	125	44.2	D	233	209	Graves Mill WB	Through	25.6	C	123	228
	Graves Mill WB	Right	14.4	B	6	18	20.7	C	18	22	38.5	D	30	40	Graves Mill WB	Right	21.5	C	19	19
	Ramp NB	Left	23.4	C	285	203	33.8	C	436	317	44.6	D	661	444	Ramp NB	Left/Through	32.0	C	403	276
	Ramp NB	Left/Through/Right	19.7	B	31	223	29.4	C	404	352	43.5	D	633	647	Ramp NB	Right	15.3	B	35	85
	Intersection		17.3	B			25.1	C			33.9	C			Intersection		23.9	C		

			Existing				No Build 2024				Build 2024						Build with Mitigation 2024			
			PM				PM				PM						PM			
No.	Intersection	Movement	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Intersection	Movement	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue
			(sec/veh)		(ft)	(ft)	(sec/veh)		(ft)	(ft)	(sec/veh)		(ft)	(ft)			(sec/veh)		(ft)	(ft)
1	Graves Mill/East Ramp																			
	Graves Mill EB	Left	16.0	B	92	203	33.8	C	231	225	40.7	D	355	225	Graves Mill EB	Left	27.8	C	305	224
	Graves Mill EB	Through	7.0	A	27	73	9.7	A	66	318	6.9	A	50	418	Graves Mill EB	Through	9.4	A	75	303
	Graves Mill WB	Through	15.6	B	111	144	31.4	C	225	979	48.1	D	373	812	Graves Mill WB	Through	39.0	D	358	327
	Graves Mill WB	Right	11.5	B	22	25	20.4	C	34	225	34.3	C	71	225	Graves Mill WB	Right	29.8	C	69	224
	Ramp NB	Left	25.9	C	283	200	39.8	D	448	450	51.2	D	708	450	Ramp NB	Left/Through	51.0	D	594	411
	Ramp NB	Left/Through/Right	19.9	B	26	205	33.5	C	414	962	47.7	D	672	950	Ramp NB	Right	25.7	C	45	104
	Intersection		17.8	B			31.7	C			43.3	D			Intersection		38.2	D		

LOS, Delays, and Queues - Graves Mill Road and Southbound Ramps

			Existing				No Build 2024				Build 2024				Build with Mitigation 2024			
			AM				AM				AM				AM			
No.	Intersection	Movement	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue
			(sec/veh)		(ft)	(ft)	(sec/veh)		(ft)	(ft)	(sec/veh)		(ft)	(ft)	(sec/veh)		(ft)	(ft)
2	Graves Mill/West Ramp																	
	Graves Mill EB	Through	7.6	A	91	113	2.9	A	58	602	3.3	A	60	650	3.5	A	141	122
	Graves Mill EB	Right	12.3	B	55	295	65.7	E	403	400	73.0	E	626	400	2.6	A	553	223
	Graves Mill WB	Left	5.5	A	46	209	2.6	A	65	299	3.8	A	59	299	0.6	A	10	134
	Graves Mill WB	Through	4.8	A	111	148	3.4	A	248	595	4.1	A	178	612	0.7	A	44	131
	Ramp SB	Left/Through	20.1	C	16	85	62.2	E	129	177	57.2	E	127	170	71.6	E	142	159
	Ramp SB	Right	21.6	C	82	108	68.6	E	171	183	80.9	F	269	217	0.2	A	0	53
	Intersection		9.3	A			30.7	C			34.2	C			3.5	A		

			Existing				No Build 2024				Build 2024				Build with Mitigation 2024			
			PM				PM				PM				PM			
No.	Intersection	Movement	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue
			(sec/veh)		(ft)	(ft)	(sec/veh)		(ft)	(ft)	(sec/veh)		(ft)	(ft)	(sec/veh)		(ft)	(ft)
2	Graves Mill/West Ramp																	
	Graves Mill EB	Through	9.4	A	66	110	8.9	A	68	343	5.5	A	56	809	2.5	A	38	96
	Graves Mill EB	Right	14.3	B	55	239	70.3	E	477	399	102.7	F	497	400	3.7	A	593	221
	Graves Mill WB	Left	6.7	A	57	276	7.6	A	102	300	1.4	A	14	300	2.2	A	51	151
	Graves Mill WB	Through	7.7	A	158	317	7.8	A	381	749	2.5	A	81	794	4.0	A	299	245
	Ramp SB	Left/Through	17.0	B	9	65	42.6	D	70	110	37.2	D	65	458	56.9	E	76	112
	Ramp SB	Right	35.1	D	154	161	80.8	F	481	266	121.4	F	551	300	0.4	A	0	62
	Intersection		13.2	B			35.9	D			48.4	D			3.9	A		

LOS, Delays, and Queues - Graves Mill Road and Creekside Drive

			Existing				No Build 2024				Build 2024				Build with Mitigation 2024			
			AM				AM				AM				AM			
No.	Intersection	Movement	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue
			(sec/veh)		(ft)	(ft)	(sec/veh)		(ft)	(ft)	(sec/veh)		(ft)	(ft)	(sec/veh)		(ft)	(ft)
3	Graves Mill/Creekside																	
	Graves Mill EB	Left	12.9	B	15	55	16.0	B	19	58	13.1	B	12	200	12.4	B	13	172
	Graves Mill EB	Through/Right	29.4	C	340	547	27.7	C	657	766	29.2	C	798	770	25.9	C	640	775
	Graves Mill WB	Left	35.5	D	216	217	53.0	D	231	378	78.1	E	304	341	62.2	E	326	309
	Graves Mill WB	Through	12.8	B	183	177	10.4	B	236	178	6.4	A	129	160	12.0	B	335	275
	Graves Mill WB	Right	9.8	A	13	40	6.3	A	6	47	1.6	A	4	25	9.3	A	16	43
	Old Graves Mill NB	Left/Through	27.5	C	32	236	47.5	D	58	380	47.5	D	58	397	52.7	D	62	434
	Old Graves Mill NB	Right	20.9	C	108	174	36.8	D	266	175	37.3	D	281	175	41.8	D	315	175
	Creekside SB	Left	38.5	D	33	62	66.8	E	55	70	66.8	E	55	78	72.0	E	58	71
	Creekside SB	Through/Right	36.7	D	20	50	64.7	E	34	64	64.7	E	34	56	69.5	E	35	63
	Intersection		23.1	C			26.0	C			26.7	C			26.7	C		

			Existing				No Build 2024				Build 2024				Build with Mitigation 2024			
			PM				PM				PM				PM			
No.	Intersection	Movement	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue
			(sec/veh)		(ft)	(ft)	(sec/veh)		(ft)	(ft)	(sec/veh)		(ft)	(ft)	(sec/veh)		(ft)	(ft)
3	Graves Mill/Creekside																	
	Graves Mill EB	Left	17.5	B	27	74	8.9	A	13	77	16.1	B	9	78	23.3	C	6	92
	Graves Mill EB	Through/Right	27.3	C	304	751	11.0	B	491	665	21.2	C	647	769	26.8	C	640	773
	Graves Mill WB	Left	26.9	C	198	273	31.2	C	207	312	66.1	E	264	372	50.9	D	315	369
	Graves Mill WB	Through	20.3	C	366	240	14.4	B	332	244	23.6	C	431	515	14.7	B	450	471
	Graves Mill WB	Right	12.7	B	18	48	13.3	B	15	28	18.9	B	20	162	1.3	A	0	44
	Old Graves Mill NB	Left/Through	25.5	C	53	119	58.9	E	136	375	46.3	D	118	337	45.5	D	118	302
	Old Graves Mill NB	Right	18.2	B	92	169	46.3	D	300	175	35.2	D	262	175	35.5	D	189	174
	Creekside SB	Left	34.1	C	85	117	68.4	E	153	159	56.0	E	132	164	56.0	E	132	160
	Creekside SB	Through/Right	30.5	C	40	79	59.2	E	68	96	49.9	D	61	100	49.9	D	61	99
	Intersection		23.1	C			21.7	C			28.4	C			25.5	C		

LOS, Delays, and Queues - Graves Mill Road and Old Graves Mill Road

			Existing				No Build 2024				Build 2024				Build with Mitigation 2024			
			AM				AM				AM				AM			
No.	Intersection	Movement	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue
			(sec/veh)		(ft)	(ft)	(sec/veh)		(ft)	(ft)	(sec/veh)		(ft)	(ft)	(sec/veh)		(ft)	(ft)
4	Graves Mill/Old Graves Mill																	
	Graves Mill EB	Left	0.0	A	0	0	0.0	A	0	0	0.0	A	0	0	0.0	A	0	0
	Graves Mill EB	Through	10.4	B	195	177	11.6	B	385	530	10.6	B	457	1177	10.9	B	484	1167
	Graves Mill EB	Right	6.2	A	26	50	7.8	A	42	325	3.5	A	29	500	4.6	A	13	500
	Graves Mill WB	Left	33.2	C	60	98	50.5	D	117	147	52.4	D	122	142	52.4	D	123	154
	Graves Mill WB	Through/Right	2.8	A	74	140	0.4	A	12	73	0.4	A	14	69	0.6	A	18	106
	Old Graves Mill NB	Left/Through	28.7	C	24	131	67.6	E	186	209	68.3	E	211	231	74.3	E	225	267
	Old Graves Mill NB	Right	23.8	C	23	59	55.3	E	44	88	53.7	D	43	98	57.8	E	44	114
	Old Graves Mill SB	Left/Through/Right	0.0	A	0	0	0.0	A	0	0	0.0	A	0	0	0.0	A	0	0
	Intersection		10.1	B			13.0	B			12.0	B			12.7	B		

			Existing				No Build 2024				Build 2024				Build with Mitigation 2024			
			PM				PM				PM				PM			
No.	Intersection	Movement	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue
			(sec/veh)		(ft)	(ft)	(sec/veh)		(ft)	(ft)	(sec/veh)		(ft)	(ft)	(sec/veh)		(ft)	(ft)
4	Graves Mill/Old Graves Mill																	
	Graves Mill EB	Left	39.7	D	3	63	70.7	E	7	10	47.6	D	1	4	68.2	E	1	104
	Graves Mill EB	Through	19.9	B	247	415	22.6	C	471	382	17.1	B	367	1180	18.0	B	461	1161
	Graves Mill EB	Right	13.8	B	32	208	16.5	B	90	91	6.5	A	32	500	7.3	A	48	500
	Graves Mill WB	Left	24.0	C	149	292	44.8	D	315	266	47.7	D	299	362	32.3	C	280	359
	Graves Mill WB	Through/Right	5.7	A	138	237	1.0	A	35	88	1.2	A	50	299	1.7	A	52	291
	Old Graves Mill NB	Left/Through	28.8	C	29	183	67.9	E	211	213	54.7	D	212	238	54.7	D	212	247
	Old Graves Mill NB	Right	23.7	C	17	52	53.5	D	33	52	42.9	D	30	56	42.9	D	30	55
	Old Graves Mill SB	Left/Through/Right	0.0	A	0	0	0.0	A	0	0	0.0	A	0	0	0.0	A	0	0
	Intersection		15.9	B			19.2	B			15.1	B			14.7	B		

LOS, Delays, and Queues - Graves Mill Road and Site Entrance

			Existing				No Build 2024				Build 2024				Build with Mitigation 2024			
			AM				AM				AM				AM			
No.	Intersection	Movement	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue
			(sec/veh)		(ft)	(ft)	(sec/veh)		(ft)	(ft)	(sec/veh)		(ft)	(ft)	(sec/veh)		(ft)	(ft)
6	Graves Mill/Entrance																	
	Graves Mill EB	Left	-	-	-	-	-	-	-	-	19.8	B	178	196	33.1	C	253	197
	Graves Mill EB	Through	-	-	-	-	-	-	-	-	10.0	B	215	229	9.2	A	212	215
	Graves Mill WB	Through	-	-	-	-	-	-	-	-	17.9	B	195	202	21.8	C	250	194
	Graves Mill WB	Right	-	-	-	-	-	-	-	-	20.9	C	32	88	12.8	B	18	115
	Entrance SB	Left	-	-	-	-	-	-	-	-	31.3	C	172	250	26.3	C	85	125
	Entrance SB	Right	-	-	-	-	-	-	-	-	21.7	C	40	161	24.1	C	42	88
	Intersection		-	-			-	-			16.3	B			17.7	B		

			Existing				No Build 2024				Build 2024				Build with Mitigation 2024			
			PM				PM				PM				PM			
No.	Intersection	Movement	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue	Synchro Delay	LOS	Synchro Queue	SimTraffic Queue
			(sec/veh)		(ft)	(ft)	(sec/veh)		(ft)	(ft)	(sec/veh)		(ft)	(ft)	(sec/veh)		(ft)	(ft)
6	Graves Mill/Entrance																	
	Graves Mill EB	Left	-	-	-	-	-	-	-	-	68.0	E	487	231	42.7	D	436	240
	Graves Mill EB	Through	-	-	-	-	-	-	-	-	15.3	B	352	267	7.2	A	223	261
	Graves Mill WB	Through	-	-	-	-	-	-	-	-	28.3	C	479	233	19.6	B	381	225
	Graves Mill WB	Right	-	-	-	-	-	-	-	-	8.0	A	25	102	5.2	A	7	138
	Entrance SB	Left	-	-	-	-	-	-	-	-	61.4	E	544	349	59.6	E	256	350
	Entrance SB	Right	-	-	-	-	-	-	-	-	32.6	C	65	238	44.3	D	77	324
	Intersection		-	-			-	-			31.7	C			25.7	C		



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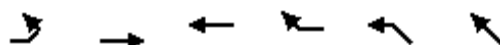
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Appendix C Existing Syncho and SimTraffic Reports

Queues

2: Graves Mill Rd & East Ramp

11/14/2013



Lane Group	EBL	EBT	WBT	WBR	NWL	NWT
Lane Group Flow (vph)	276	482	430	40	536	512
v/c Ratio	0.55	0.29	0.41	0.08	0.82	0.76
Control Delay	18.5	10.6	18.4	6.7	27.8	21.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.5	10.6	18.4	6.7	27.8	21.7
Queue Length 50th (ft)	61	55	66	0	166	134
Queue Length 95th (ft)	106	66	68	6	#285	31
Internal Link Dist (ft)		689	899			900
Turn Bay Length (ft)	125			125	300	
Base Capacity (vph)	502	1666	1049	507	732	746
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.29	0.41	0.08	0.73	0.69

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

2: Graves Mill Rd & East Ramp

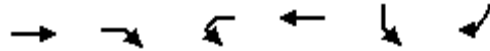
11/14/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	243	357	0	0	275	20	0	0	0	740	0	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0				4.0	4.0	
Lane Util. Factor	1.00	0.95			0.95	1.00				0.95	0.95	
Frt	1.00	1.00			1.00	0.85				1.00	0.94	
Flt Protected	0.95	1.00			1.00	1.00				0.95	0.97	
Satd. Flow (prot)	1787	3539			3539	1615				1681	1630	
Flt Permitted	0.46	1.00			1.00	1.00				0.95	0.97	
Satd. Flow (perm)	862	3539			3539	1615				1681	1630	
Peak-hour factor, PHF	0.88	0.74	0.25	0.25	0.64	0.50	0.25	0.25	0.25	0.87	0.25	0.68
Adj. Flow (vph)	276	482	0	0	430	40	0	0	0	851	0	197
RTOR Reduction (vph)	0	0	0	0	0	28	0	0	0	0	39	0
Lane Group Flow (vph)	276	482	0	0	430	12	0	0	0	536	473	0
Heavy Vehicles (%)	1%	2%	0%	0%	2%	0%	0%	0%	0%	2%	0%	0%
Turn Type	pm+pt					Perm					Split	
Protected Phases	5	2			6						8	8
Permitted Phases	2					6						
Actuated Green, G (s)	27.1	27.1			17.1	17.1				22.5	22.5	
Effective Green, g (s)	27.1	27.1			17.1	17.1				22.5	22.5	
Actuated g/C Ratio	0.47	0.47			0.30	0.30				0.39	0.39	
Clearance Time (s)	4.0	4.0			4.0	4.0				4.0	4.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0	3.0	
Lane Grp Cap (vph)	502	1665			1051	479				657	637	
v/s Ratio Prot	c0.06	0.14			0.12					c0.32	0.29	
v/s Ratio Perm	c0.20					0.01						
v/c Ratio	0.55	0.29			0.41	0.02				0.82	0.74	
Uniform Delay, d1	12.8	9.3			16.2	14.3				15.7	15.1	
Progression Factor	1.00	1.00			1.00	1.00				1.00	1.00	
Incremental Delay, d2	1.2	0.4			1.2	0.1				7.7	4.7	
Delay (s)	14.1	9.8			17.4	14.4				23.4	19.7	
Level of Service	B	A			B	B				C	B	
Approach Delay (s)		11.3			17.1			0.0			21.6	
Approach LOS		B			B			A			C	
Intersection Summary												
HCM Average Control Delay			17.3		HCM Level of Service					B		
HCM Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			57.6		Sum of lost time (s)					8.0		
Intersection Capacity Utilization			75.4%		ICU Level of Service					D		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

3: Graves Mill Rd & West Ramp

11/14/2013



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	688	983	187	1075	100	228
v/c Ratio	0.35	0.75	0.35	0.45	0.31	0.60
Control Delay	8.7	6.0	7.8	5.6	21.1	18.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.7	6.0	7.8	5.6	21.1	18.5
Queue Length 50th (ft)	61	5	17	66	28	36
Queue Length 95th (ft)	91	55	46	111	16	82
Internal Link Dist (ft)	795			689	505	
Turn Bay Length (ft)		200	200			150
Base Capacity (vph)	1970	1306	537	2384	520	545
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.75	0.35	0.45	0.19	0.42

Intersection Summary

HCM Signalized Intersection Capacity Analysis

3: Graves Mill Rd & West Ramp

11/14/2013

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations		↑↑	↗	↖	↑↑			↘	↗		
Volume (vph)	0	509	855	159	828	0	64	1	194	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0			4.0	4.0		
Lane Util. Factor		0.95	1.00	1.00	0.95			1.00	1.00		
Flt		1.00	0.85	1.00	1.00			1.00	0.85		
Flt Protected		1.00	1.00	0.95	1.00			0.95	1.00		
Satd. Flow (prot)		3574	1599	1787	3574			1754	1599		
Flt Permitted		1.00	1.00	0.36	1.00			0.95	1.00		
Satd. Flow (perm)		3574	1599	683	3574			1754	1599		
Peak-hour factor, PHF	0.25	0.74	0.87	0.85	0.77	0.25	0.67	0.25	0.85	0.25	0.25
Adj. Flow (vph)	0	688	983	187	1075	0	96	4	228	0	0
RTOR Reduction (vph)	0	0	432	0	0	0	0	0	83	0	0
Lane Group Flow (vph)	0	688	551	187	1075	0	0	100	145	0	0
Heavy Vehicles (%)	0%	1%	1%	1%	1%	0%	3%	0%	1%	0%	0%
Turn Type		Perm		pm+pt			Split		Perm		
Protected Phases		2		1	6		4	4			
Permitted Phases			2		6					4	
Actuated Green, G (s)		29.9	29.9	37.0	37.0			10.0	10.0		
Effective Green, g (s)		29.9	29.9	37.0	37.0			10.0	10.0		
Actuated g/C Ratio		0.54	0.54	0.67	0.67			0.18	0.18		
Clearance Time (s)		4.0	4.0	4.0	4.0			4.0	4.0		
Vehicle Extension (s)		3.0	3.0	3.0	3.0			3.0	3.0		
Lane Grp Cap (vph)		1943	869	522	2404			319	291		
v/s Ratio Prot		0.19		0.02	c0.30			0.06			
v/s Ratio Perm			c0.34	0.22					c0.09		
v/c Ratio		0.35	0.63	0.36	0.45			0.31	0.50		
Uniform Delay, d1		7.1	8.7	5.0	4.2			19.5	20.2		
Progression Factor		1.00	1.00	1.00	1.00			1.00	1.00		
Incremental Delay, d2		0.5	3.5	0.4	0.6			0.6	1.4		
Delay (s)		7.6	12.3	5.5	4.8			20.1	21.6		
Level of Service		A	B	A	A			C	C		
Approach Delay (s)		10.3			4.9			21.1		0.0	
Approach LOS		B			A			C		A	
Intersection Summary											
HCM Average Control Delay			9.3			HCM Level of Service			A		
HCM Volume to Capacity ratio			0.56								
Actuated Cycle Length (s)			55.0			Sum of lost time (s)			8.0		
Intersection Capacity Utilization			75.4%			ICU Level of Service			D		
Analysis Period (min)			15								
c Critical Lane Group											

Queues

4: Graves Mill Rd & Creekside Dr

11/14/2013



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	48	1327	257	918	139	44	393	32	24
v/c Ratio	0.15	0.89	0.80	0.47	0.15	0.14	0.50	0.20	0.15
Control Delay	9.6	31.5	37.0	13.9	3.0	28.3	7.8	36.9	22.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.6	31.5	37.0	13.9	3.0	28.3	7.8	36.9	22.5
Queue Length 50th (ft)	10	331	78	166	0	18	33	15	4
Queue Length 95th (ft)	15	340	#216	183	13	32	108	33	20
Internal Link Dist (ft)		697		795		450			535
Turn Bay Length (ft)	225		400		300		125	125	
Base Capacity (vph)	323	1489	321	1936	930	321	793	377	350
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.89	0.80	0.47	0.15	0.14	0.50	0.08	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

4: Graves Mill Rd & Creekside Dr

11/14/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	996	14	236	698	96	13	15	354	23	6	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3565		1752	3574	1599		1537	1568	1805	1618	
Flt Permitted	0.29	1.00		0.11	1.00	1.00		0.98	1.00	0.95	1.00	
Satd. Flow (perm)	548	3565		195	3574	1599		1537	1568	1805	1618	
Peak-hour factor, PHF	0.56	0.76	0.88	0.92	0.76	0.69	0.65	0.63	0.90	0.72	0.75	0.63
Adj. Flow (vph)	48	1311	16	257	918	139	20	24	393	32	8	16
RTOR Reduction (vph)	0	1	0	0	0	67	0	0	198	0	15	0
Lane Group Flow (vph)	48	1326	0	257	918	72	0	44	195	32	9	0
Heavy Vehicles (%)	0%	1%	7%	3%	1%	1%	46%	0%	3%	0%	17%	0%
Turn Type	pm+pt			pm+pt		Perm	Split		pm+ov	Split		
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases	2			6		6			8			
Actuated Green, G (s)	36.2	33.9		48.0	41.7	41.7		16.1	26.2	4.4	4.4	
Effective Green, g (s)	36.2	33.9		48.0	41.7	41.7		16.1	26.2	4.4	4.4	
Actuated g/C Ratio	0.45	0.42		0.60	0.52	0.52		0.20	0.33	0.05	0.05	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	282	1501		312	1851	828		307	588	99	88	
v/s Ratio Prot	0.00	0.37		c0.10	0.26			0.03	c0.04	c0.02	0.01	
v/s Ratio Perm	0.07			c0.39		0.05			0.08			
v/c Ratio	0.17	0.88		0.82	0.50	0.09		0.14	0.33	0.32	0.10	
Uniform Delay, d1	12.6	21.5		19.6	12.6	9.8		26.5	20.5	36.6	36.2	
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	7.9		16.0	0.2	0.0		1.0	0.3	1.9	0.5	
Delay (s)	12.9	29.4		35.5	12.8	9.8		27.5	20.9	38.5	36.7	
Level of Service	B	C		D	B	A		C	C	D	D	
Approach Delay (s)		28.8			16.9			21.5			37.7	
Approach LOS		C			B			C			D	
Intersection Summary												
HCM Average Control Delay			23.1			HCM Level of Service			C			
HCM Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			80.5			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			63.2%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

5: Graves Mill Rd & Old Graves Mill Rd

11/14/2013



Lane Group	EBT	EBR	WBL	WBT	NBT	NBR
Lane Group Flow (vph)	1305	147	103	760	135	72
v/c Ratio	0.63	0.15	0.60	0.28	0.47	0.23
Control Delay	11.4	2.7	46.4	3.6	30.0	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.4	2.7	46.4	3.6	30.0	8.6
Queue Length 50th (ft)	167	3	40	42	49	0
Queue Length 95th (ft)	195	26	60	74	24	23
Internal Link Dist (ft)	1366			697	768	
Turn Bay Length (ft)		200	250			300
Base Capacity (vph)	2078	956	171	2733	464	467
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.15	0.60	0.28	0.29	0.15
Intersection Summary						

HCM Signalized Intersection Capacity Analysis

5: Graves Mill Rd & Old Graves Mill Rd

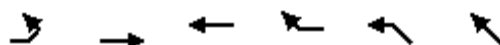
11/14/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	979	131	65	654	3	117	1	57	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0			4.0	4.0			
Lane Util. Factor		0.95	1.00	1.00	0.95			1.00	1.00			
Frt		1.00	0.85	1.00	1.00			1.00	0.85			
Flt Protected		1.00	1.00	0.95	1.00			0.95	1.00			
Satd. Flow (prot)		3539	1538	1752	3569			1778	1583			
Flt Permitted		1.00	1.00	0.95	1.00			0.95	1.00			
Satd. Flow (perm)		3539	1538	1752	3569			1778	1583			
Peak-hour factor, PHF	0.25	0.75	0.89	0.63	0.87	0.38	0.89	0.25	0.79	0.25	0.25	0.25
Adj. Flow (vph)	0	1305	147	103	752	8	131	4	72	0	0	0
RTOR Reduction (vph)	0	0	54	0	0	0	0	0	62	0	0	0
Lane Group Flow (vph)	0	1305	93	103	760	0	0	135	10	0	0	0
Heavy Vehicles (%)	0%	2%	5%	3%	1%	0%	2%	0%	2%	0%	0%	0%
Turn Type	Prot		Perm	Prot			Split		Perm	Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2						8			
Actuated Green, G (s)		36.4	36.4	6.1	46.5			8.4	8.4			
Effective Green, g (s)		36.4	36.4	6.1	46.5			8.4	8.4			
Actuated g/C Ratio		0.58	0.58	0.10	0.74			0.13	0.13			
Clearance Time (s)		4.0	4.0	4.0	4.0			4.0	4.0			
Vehicle Extension (s)		3.0	3.0	3.0	3.0			3.0	3.0			
Lane Grp Cap (vph)		2048	890	170	2638			237	211			
v/s Ratio Prot		c0.37		c0.06	0.21			c0.08				
v/s Ratio Perm			0.06						0.01			
v/c Ratio		0.64	0.10	0.61	0.29			0.57	0.05			
Uniform Delay, d1		8.8	5.9	27.2	2.7			25.6	23.8			
Progression Factor		1.00	1.00	1.00	1.00			1.00	1.00			
Incremental Delay, d2		1.5	0.2	6.0	0.1			3.1	0.1			
Delay (s)		10.4	6.2	33.2	2.8			28.7	23.8			
Level of Service		B	A	C	A			C	C			
Approach Delay (s)		9.9			6.4			27.0			0.0	
Approach LOS		A			A			C			A	
Intersection Summary												
HCM Average Control Delay			10.1			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			62.9			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			47.2%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2: Graves Mill Rd & East Ramp

11/14/2013



Lane Group	EBL	EBT	WBT	WBR	NWL	NWT
Lane Group Flow (vph)	251	224	655	88	493	466
v/c Ratio	0.64	0.13	0.57	0.15	0.85	0.77
Control Delay	21.9	7.4	16.2	4.4	31.7	23.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	7.4	16.2	4.4	31.7	23.2
Queue Length 50th (ft)	41	17	82	0	132	103
Queue Length 95th (ft)	#92	27	111	22	#283	26
Internal Link Dist (ft)		689	903			891
Turn Bay Length (ft)	125			125	300	
Base Capacity (vph)	393	1672	1158	588	619	640
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.13	0.57	0.15	0.80	0.73

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

2: Graves Mill Rd & East Ramp

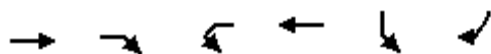
11/14/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		 			 						 	
Volume (vph)	226	177	0	0	537	78	0	0	0	728	2	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0				4.0	4.0	
Lane Util. Factor	1.00	0.95			0.95	1.00				0.95	0.95	
Frt	1.00	1.00			1.00	0.85				1.00	0.95	
Flt Protected	0.95	1.00			1.00	1.00				0.95	0.97	
Satd. Flow (prot)	1770	3406			3539	1615				1681	1630	
Flt Permitted	0.33	1.00			1.00	1.00				0.95	0.97	
Satd. Flow (perm)	608	3406			3539	1615				1681	1630	
Peak-hour factor, PHF	0.90	0.79	0.25	0.25	0.82	0.89	0.25	0.25	0.25	0.93	0.25	0.76
Adj. Flow (vph)	251	224	0	0	655	88	0	0	0	783	8	168
RTOR Reduction (vph)	0	0	0	0	0	59	0	0	0	0	41	0
Lane Group Flow (vph)	251	224	0	0	655	29	0	0	0	493	425	0
Heavy Vehicles (%)	2%	6%	0%	0%	2%	0%	0%	0%	0%	2%	0%	1%
Turn Type	pm+pt					Perm					Split	
Protected Phases	5	2			6						8	8
Permitted Phases	2					6						
Actuated Green, G (s)	24.0	24.0			16.0	16.0				16.9	16.9	
Effective Green, g (s)	24.0	24.0			16.0	16.0				16.9	16.9	
Actuated g/C Ratio	0.49	0.49			0.33	0.33				0.35	0.35	
Clearance Time (s)	4.0	4.0			4.0	4.0				4.0	4.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0	3.0	
Lane Grp Cap (vph)	393	1672			1158	528				581	563	
v/s Ratio Prot	c0.05	0.07			0.19					c0.29	0.26	
v/s Ratio Perm	c0.26					0.02						
v/c Ratio	0.64	0.13			0.57	0.05				0.85	0.75	
Uniform Delay, d1	12.6	6.8			13.6	11.3				14.8	14.2	
Progression Factor	1.00	1.00			1.00	1.00				1.00	1.00	
Incremental Delay, d2	3.4	0.2			2.0	0.2				11.1	5.7	
Delay (s)	16.0	7.0			15.6	11.5				25.9	19.9	
Level of Service	B	A			B	B				C	B	
Approach Delay (s)		11.8			15.1			0.0			23.0	
Approach LOS		B			B			A			C	
Intersection Summary												
HCM Average Control Delay			17.8			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			48.9			Sum of lost time (s)				8.0		
Intersection Capacity Utilization			77.3%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

3: Graves Mill Rd & West Ramp

11/14/2013



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	406	915	271	1209	48	393
v/c Ratio	0.24	0.74	0.42	0.55	0.11	0.86
Control Delay	9.9	5.4	9.3	8.2	17.4	37.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	5.4	9.3	8.2	17.4	37.5
Queue Length 50th (ft)	43	0	40	120	13	108
Queue Length 95th (ft)	66	55	57	158	9	#154
Internal Link Dist (ft)	795			689	509	
Turn Bay Length (ft)		200	200			150
Base Capacity (vph)	1701	1233	638	2187	476	489
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.74	0.42	0.55	0.10	0.80

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: Graves Mill Rd & West Ramp

11/14/2013

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations		↑↑	↗	↖	↑↑			↘	↗		
Volume (vph)	0	357	851	203	1052	0	36	0	295	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0			4.0	4.0		
Lane Util. Factor		0.95	1.00	1.00	0.95			1.00	1.00		
Flt		1.00	0.85	1.00	1.00			1.00	0.85		
Flt Protected		1.00	1.00	0.95	1.00			0.95	1.00		
Satd. Flow (prot)		3574	1583	1770	3574			1752	1599		
Flt Permitted		1.00	1.00	0.51	1.00			0.95	1.00		
Satd. Flow (perm)		3574	1583	952	3574			1752	1599		
Peak-hour factor, PHF	0.25	0.88	0.93	0.75	0.87	0.25	0.75	0.25	0.75	0.25	0.25
Adj. Flow (vph)	0	406	915	271	1209	0	48	0	393	0	0
RTOR Reduction (vph)	0	0	479	0	0	0	0	0	55	0	0
Lane Group Flow (vph)	0	406	436	271	1209	0	0	48	338	0	0
Heavy Vehicles (%)	0%	1%	2%	2%	1%	0%	3%	0%	1%	0%	0%
Turn Type		Perm		pm+pt			Split		Perm		
Protected Phases		2		1	6		4	4			
Permitted Phases			2	6					4		
Actuated Green, G (s)		28.0	28.0	36.0	36.0			14.8	14.8		
Effective Green, g (s)		28.0	28.0	36.0	36.0			14.8	14.8		
Actuated g/C Ratio		0.48	0.48	0.61	0.61			0.25	0.25		
Clearance Time (s)		4.0	4.0	4.0	4.0			4.0	4.0		
Vehicle Extension (s)		3.0	3.0	3.0	3.0			3.0	3.0		
Lane Grp Cap (vph)		1702	754	639	2188			441	402		
v/s Ratio Prot		0.11		0.03	c0.34			0.03			
v/s Ratio Perm			0.28	0.23					c0.21		
v/c Ratio		0.24	0.58	0.42	0.55			0.11	0.84		
Uniform Delay, d1		9.1	11.1	6.2	6.7			16.9	20.9		
Progression Factor		1.00	1.00	1.00	1.00			1.00	1.00		
Incremental Delay, d2		0.3	3.2	0.5	1.0			0.1	14.3		
Delay (s)		9.4	14.3	6.7	7.7			17.0	35.1		
Level of Service		A	B	A	A			B	D		
Approach Delay (s)		12.8			7.5			33.2		0.0	
Approach LOS		B			A			C		A	
Intersection Summary											
HCM Average Control Delay			13.2			HCM Level of Service			B		
HCM Volume to Capacity ratio			0.64								
Actuated Cycle Length (s)			58.8			Sum of lost time (s)			8.0		
Intersection Capacity Utilization			77.3%			ICU Level of Service			D		
Analysis Period (min)			15								
c Critical Lane Group											

Queues

4: Graves Mill Rd & Creekside Dr

11/14/2013



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	56	945	252	1163	149	100	337	103	72
v/c Ratio	0.28	0.82	0.78	0.73	0.19	0.24	0.42	0.44	0.27
Control Delay	15.1	30.8	34.0	22.9	3.9	26.6	7.3	35.3	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.1	30.8	34.0	22.9	3.9	26.6	7.3	35.3	17.2
Queue Length 50th (ft)	13	208	64	249	0	38	28	44	11
Queue Length 95th (ft)	27	#304	#198	#366	18	53	92	85	40
Internal Link Dist (ft)		697		795		463			536
Turn Bay Length (ft)	225		400		300		125	125	
Base Capacity (vph)	200	1156	322	1583	798	413	795	403	423
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.82	0.78	0.73	0.19	0.24	0.42	0.26	0.17

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

4: Graves Mill Rd & Creekside Dr

11/14/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	42	790	11	237	1000	107	61	17	317	90	23	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3566		1770	3574	1615		1834	1599	1787	1726	
Flt Permitted	0.16	1.00		0.14	1.00	1.00		0.97	1.00	0.95	1.00	
Satd. Flow (perm)	304	3566		257	3574	1615		1834	1599	1787	1726	
Peak-hour factor, PHF	0.75	0.85	0.69	0.94	0.86	0.72	0.85	0.61	0.94	0.87	0.82	0.73
Adj. Flow (vph)	56	929	16	252	1163	149	72	28	337	103	28	44
RTOR Reduction (vph)	0	1	0	0	0	85	0	0	158	0	39	0
Lane Group Flow (vph)	56	944	0	252	1163	64	0	100	179	103	33	0
Heavy Vehicles (%)	0%	1%	0%	2%	1%	0%	0%	0%	1%	1%	0%	0%
Turn Type	pm+pt			pm+pt		Perm	Split		pm+ov	Split		
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases	2			6		6			8			
Actuated Green, G (s)	27.3	25.0		38.0	31.7	31.7		16.1	25.1	8.0	8.0	
Effective Green, g (s)	27.3	25.0		38.0	31.7	31.7		16.1	25.1	8.0	8.0	
Actuated g/C Ratio	0.37	0.34		0.51	0.43	0.43		0.22	0.34	0.11	0.11	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	159	1203		316	1529	691		398	628	193	186	
v/s Ratio Prot	0.01	0.26		c0.10	0.33			0.05	c0.03	c0.06	0.02	
v/s Ratio Perm	0.12			c0.31		0.04			0.08			
v/c Ratio	0.35	0.78		0.80	0.76	0.09		0.25	0.28	0.53	0.18	
Uniform Delay, d1	16.2	22.1		13.9	18.0	12.6		24.0	17.9	31.3	30.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.3	5.2		13.1	2.3	0.1		1.5	0.3	2.8	0.5	
Delay (s)	17.5	27.3		26.9	20.3	12.7		25.5	18.2	34.1	30.5	
Level of Service	B	C		C	C	B		C	B	C	C	
Approach Delay (s)		26.7			20.6			19.9			32.6	
Approach LOS		C			C			B			C	
Intersection Summary												
HCM Average Control Delay			23.1			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			74.1			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			57.0%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

5: Graves Mill Rd & Old Graves Mill Rd

11/14/2013



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR
Lane Group Flow (vph)	4	977	244	265	813	176	44
v/c Ratio	0.04	0.66	0.30	0.68	0.34	0.55	0.14
Control Delay	31.0	18.6	3.4	34.3	5.8	31.4	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	18.6	3.4	34.3	5.8	31.4	8.8
Queue Length 50th (ft)	2	160	0	97	52	65	0
Queue Length 95th (ft)	3	247	32	149	138	29	17
Internal Link Dist (ft)		1366			697	761	
Turn Bay Length (ft)	200		200	250			300
Base Capacity (vph)	111	1486	800	409	2415	440	431
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.66	0.30	0.65	0.34	0.40	0.10
Intersection Summary							

HCM Signalized Intersection Capacity Analysis

5: Graves Mill Rd & Old Graves Mill Rd

11/14/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	918	205	204	797	0	139	0	33	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0			
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00			
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85			
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00			
Satd. Flow (prot)	1805	3574	1583	1770	3574			1787	1615			
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00			
Satd. Flow (perm)	1805	3574	1583	1770	3574			1787	1615			
Peak-hour factor, PHF	0.25	0.94	0.84	0.77	0.98	0.25	0.79	0.25	0.75	0.25	0.25	0.25
Adj. Flow (vph)	4	977	244	265	813	0	176	0	44	0	0	0
RTOR Reduction (vph)	0	0	147	0	0	0	0	0	37	0	0	0
Lane Group Flow (vph)	4	977	97	265	813	0	0	176	7	0	0	0
Heavy Vehicles (%)	0%	1%	2%	2%	1%	0%	1%	0%	0%	0%	0%	0%
Turn Type	Prot		Perm	Prot			Split		Perm	Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2						8			
Actuated Green, G (s)	0.7	27.1	27.1	17.6	44.0			11.6	11.6			
Effective Green, g (s)	0.7	27.1	27.1	17.6	44.0			11.6	11.6			
Actuated g/C Ratio	0.01	0.40	0.40	0.26	0.64			0.17	0.17			
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0			
Lane Grp Cap (vph)	18	1418	628	456	2302			304	274			
v/s Ratio Prot	0.00	c0.27		c0.15	0.23			c0.10				
v/s Ratio Perm			0.06						0.00			
v/c Ratio	0.22	0.69	0.15	0.58	0.35			0.58	0.03			
Uniform Delay, d1	33.5	17.1	13.2	22.1	5.6			26.1	23.6			
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00			
Incremental Delay, d2	6.2	2.8	0.5	1.9	0.1			2.7	0.0			
Delay (s)	39.7	19.9	13.8	24.0	5.7			28.8	23.7			
Level of Service	D	B	B	C	A			C	C			
Approach Delay (s)		18.7			10.2			27.8			0.0	
Approach LOS		B			B			C			A	
Intersection Summary												
HCM Average Control Delay			15.9			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			68.3			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			54.4%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

SimTraffic Simulation Summary

Existing AM

11/14/2013

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	6:57	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intvls	1	1	1	1	1	1	1
Vehs Entered	3166	3160	3180	3248	3099	3156	3226
Vehs Exited	3155	3140	3185	3243	3102	3183	3209
Starting Vehs	101	85	100	89	104	111	86
Ending Vehs	112	105	95	94	101	84	103
Denied Entry Before	6	0	3	4	2	1	1
Denied Entry After	2	5	0	2	5	4	6
Travel Distance (mi)	2282	2282	2289	2308	2196	2288	2308
Travel Time (hr)	98.8	99.2	97.8	100.7	94.0	98.9	104.5
Total Delay (hr)	35.8	36.4	34.8	37.2	33.1	36.1	40.9
Total Stops	4062	4136	3972	4167	3873	4189	4400
Fuel Used (gal)	90.9	91.3	91.6	92.4	87.5	91.4	93.2

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intvls	1	1	1	1
Vehs Entered	3190	3135	3218	3179
Vehs Exited	3193	3132	3224	3176
Starting Vehs	83	106	107	93
Ending Vehs	80	109	101	97
Denied Entry Before	1	0	0	2
Denied Entry After	2	0	0	2
Travel Distance (mi)	2290	2252	2308	2280
Travel Time (hr)	99.8	98.4	98.9	99.1
Total Delay (hr)	36.7	36.5	35.4	36.3
Total Stops	4130	4129	4059	4113
Fuel Used (gal)	91.3	90.5	92.3	91.2

Interval #0 Information Seeding

Start Time	6:57
End Time	7:07
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

SimTraffic Simulation Summary

Existing AM

11/14/2013

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	3166	3160	3180	3248	3099	3156	3226
Vehs Exited	3155	3140	3185	3243	3102	3183	3209
Starting Vehs	101	85	100	89	104	111	86
Ending Vehs	112	105	95	94	101	84	103
Denied Entry Before	6	0	3	4	2	1	1
Denied Entry After	2	5	0	2	5	4	6
Travel Distance (mi)	2282	2282	2289	2308	2196	2288	2308
Travel Time (hr)	98.8	99.2	97.8	100.7	94.0	98.9	104.5
Total Delay (hr)	35.8	36.4	34.8	37.2	33.1	36.1	40.9
Total Stops	4062	4136	3972	4167	3873	4189	4400
Fuel Used (gal)	90.9	91.3	91.6	92.4	87.5	91.4	93.2

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	3190	3135	3218	3179
Vehs Exited	3193	3132	3224	3176
Starting Vehs	83	106	107	93
Ending Vehs	80	109	101	97
Denied Entry Before	1	0	0	2
Denied Entry After	2	0	0	2
Travel Distance (mi)	2290	2252	2308	2280
Travel Time (hr)	99.8	98.4	98.9	99.1
Total Delay (hr)	36.7	36.5	35.4	36.3
Total Stops	4130	4129	4059	4113
Fuel Used (gal)	91.3	90.5	92.3	91.2

2: Graves Mill Rd & East Ramp Performance by movement

Movement	EBL	EBT	WBT	WBR	NWL	NWR	All
Total Delay (hr)	1.3	1.0	1.0	0.0	3.9	0.6	7.8
Delay / Veh (s)	19.8	10.0	12.3	6.4	19.3	16.2	16.0
Total Stops	182	136	140	10	468	93	1029
Travel Dist (mi)	33.6	50.4	50.6	3.6	129.5	24.9	292.7
Travel Time (hr)	2.3	2.2	2.2	0.1	8.1	1.5	16.5
Avg Speed (mph)	15	23	23	31	18	18	19
Fuel Used (gal)	1.3	2.1	1.9	0.1	4.1	0.7	10.2
HC Emissions (g)	10	30	25	1	37	3	106
CO Emissions (g)	613	1486	1257	75	1236	121	4789
NOx Emissions (g)	38	101	86	4	111	11	351
Vehicles Entered	235	354	282	20	733	142	1766
Vehicles Exited	234	354	283	20	734	141	1766
Hourly Exit Rate	234	354	283	20	734	141	1766
Input Volume	243	357	275	20	740	134	1769
% of Volume	96	99	103	100	99	105	100
Denied Entry Before	0	0	0	0	1	0	1
Denied Entry After	0	0	0	0	1	0	1

3: Graves Mill Rd & West Ramp Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL2	SBL	SBR	All
Total Delay (hr)	1.0	3.2	1.8	1.1	0.4	0.0	0.6	8.1
Delay / Veh (s)	7.3	13.6	39.0	4.4	21.8	11.3	11.8	11.1
Total Stops	113	396	165	108	49	1	157	989
Travel Dist (mi)	84.4	143.6	24.7	126.6	6.1	0.1	19.4	404.9
Travel Time (hr)	3.2	8.3	2.7	4.7	0.6	0.0	1.4	20.8
Avg Speed (mph)	27	17	9	27	11	15	18	20
Fuel Used (gal)	4.5	5.6	1.5	7.5	0.3	0.0	0.7	20.1
HC Emissions (g)	65	50	14	110	3	0	6	249
CO Emissions (g)	3564	2358	806	6052	104	1	280	13165
NOx Emissions (g)	225	197	49	378	8	0	18	876
Vehicles Entered	510	858	166	851	60	1	190	2636
Vehicles Exited	510	857	166	853	60	1	190	2637
Hourly Exit Rate	510	857	166	853	60	1	190	2637
Input Volume	518	855	159	856	64	1	194	2647
% of Volume	98	100	104	100	94	100	98	100
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0

4: Graves Mill Rd & Creekside Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.1	7.7	0.1	1.9	1.8	0.1	0.1	0.1	2.1	0.3	0.1	0.0
Delay / Veh (s)	14.3	28.0	29.3	29.2	9.4	2.5	30.1	29.4	20.7	42.8	37.3	7.3
Total Stops	22	695	12	224	226	35	9	12	231	22	6	9
Travel Dist (mi)	3.9	141.3	1.9	36.9	113.4	15.5	1.0	1.5	33.2	2.5	0.7	1.0
Travel Time (hr)	0.2	11.0	0.2	3.0	4.6	0.6	0.1	0.2	3.4	0.4	0.1	0.1
Avg Speed (mph)	17	13	11	12	25	28	8	9	12	8	8	17
Fuel Used (gal)	0.2	6.4	0.1	1.5	4.5	0.6	0.0	0.1	1.3	0.1	0.0	0.0
HC Emissions (g)	1	60	2	17	46	9	4	0	15	0	0	0
CO Emissions (g)	87	2576	45	744	2610	444	69	20	532	19	10	6
NOx Emissions (g)	5	222	5	55	181	28	8	1	40	1	1	1
Vehicles Entered	27	995	13	229	700	96	11	16	361	23	7	10
Vehicles Exited	27	995	13	230	698	96	11	16	360	23	7	10
Hourly Exit Rate	27	995	13	230	698	96	11	16	360	23	7	10
Input Volume	27	1006	14	236	698	96	13	15	354	23	6	10
% of Volume	100	99	93	97	100	100	85	107	102	100	117	100
Denied Entry Before	0	0	0	0	0	0	0	0	1	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	1	0	0	0

4: Graves Mill Rd & Creekside Dr Performance by movement

Movement	All
Total Delay (hr)	14.4
Delay / Veh (s)	20.8
Total Stops	1503
Travel Dist (mi)	352.8
Travel Time (hr)	23.7
Avg Speed (mph)	15
Fuel Used (gal)	14.9
HC Emissions (g)	156
CO Emissions (g)	7161
NOx Emissions (g)	548
Vehicles Entered	2488
Vehicles Exited	2486
Hourly Exit Rate	2486
Input Volume	2498
% of Volume	100
Denied Entry Before	1
Denied Entry After	1

5: Graves Mill Rd & Old Graves Mill Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	All
Total Delay (hr)	2.1	0.1	0.6	0.9	0.0	0.8	0.0	0.2	4.6
Delay / Veh (s)	7.8	2.6	30.8	4.9	2.8	24.2	26.8	12.6	8.4
Total Stops	262	36	63	86	0	97	1	47	592
Travel Dist (mi)	265.2	35.6	9.7	95.7	0.5	17.2	0.2	8.5	432.7
Travel Time (hr)	8.1	1.1	0.9	3.1	0.0	1.4	0.0	0.5	15.0
Avg Speed (mph)	33	33	11	31	28	13	14	20	29
Fuel Used (gal)	6.5	0.9	0.5	4.2	0.0	0.7	0.0	0.3	13.1
HC Emissions (g)	77	23	6	53	0	5	0	5	170
CO Emissions (g)	2231	637	272	2739	11	261	3	173	6327
NOx Emissions (g)	321	68	19	207	1	18	0	15	650
Vehicles Entered	969	130	67	653	4	114	1	56	1994
Vehicles Exited	969	130	66	654	4	114	1	56	1994
Hourly Exit Rate	969	130	66	654	4	114	1	56	1994
Input Volume	979	131	65	658	3	117	1	57	2011
% of Volume	99	99	102	99	133	97	100	98	99
Denied Entry Before	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0

Total Network Performance

Total Delay (hr)	36.3
Delay / Veh (s)	41.1
Total Stops	4113
Travel Dist (mi)	2280.1
Travel Time (hr)	99.1
Avg Speed (mph)	24
Fuel Used (gal)	91.2
HC Emissions (g)	1087
CO Emissions (g)	49924
NOx Emissions (g)	4035
Vehicles Entered	3179
Vehicles Exited	3176
Hourly Exit Rate	3176
Input Volume	13940
% of Volume	23
Denied Entry Before	2
Denied Entry After	2

Queuing and Blocking Report
Existing AM

11/14/2013

Intersection: 2: Graves Mill Rd & East Ramp

Movement	EB	EB	EB	WB	WB	WB	NW	NW
Directions Served	L	T	T	T	T	R	L	LR
Maximum Queue (ft)	189	85	103	102	89	18	203	223
Average Queue (ft)	88	33	42	41	32	4	124	132
95th Queue (ft)	158	70	82	81	65	15	185	195
Link Distance (ft)		717	717	937	937			928
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	125					125	300	
Storage Blk Time (%)	2	0			0			
Queuing Penalty (veh)	4	0			0			

Intersection: 3: Graves Mill Rd & West Ramp

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	T	T	R	L	T	T	<L	R
Maximum Queue (ft)	110	113	295	209	144	148	85	108
Average Queue (ft)	35	26	126	89	33	36	36	50
95th Queue (ft)	81	77	228	174	101	95	73	87
Link Distance (ft)	799	799			717	717	539	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			200	200				150
Storage Blk Time (%)			1	2	0			0
Queuing Penalty (veh)			2	9	0			0

Intersection: 4: Graves Mill Rd & Creekside Dr

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LT	R	L	TR
Maximum Queue (ft)	55	417	547	217	165	177	40	236	174	62	50
Average Queue (ft)	17	143	272	103	61	80	14	32	114	18	12
95th Queue (ft)	45	310	472	181	125	143	32	128	182	48	36
Link Distance (ft)		702	702		799	799		480			557
Upstream Blk Time (%)			0								
Queuing Penalty (veh)			0								
Storage Bay Dist (ft)	225			400			300		125	125	
Storage Blk Time (%)		1							6		
Queuing Penalty (veh)		0							2		

Queuing and Blocking Report

Existing AM

11/14/2013

Intersection: 5: Graves Mill Rd & Old Graves Mill Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	R	L	T	TR	LT	R
Maximum Queue (ft)	169	177	50	98	113	140	131	59
Average Queue (ft)	59	77	13	40	23	40	56	19
95th Queue (ft)	125	149	33	80	76	104	105	44
Link Distance (ft)	1380	1380			702	702	790	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			200	250				300
Storage Blk Time (%)	0	0						
Queuing Penalty (veh)	0	0						

Network Summary

Network wide Queuing Penalty: 17

SimTraffic Simulation Summary
Existing PM

11/14/2013

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	6:57	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intvls	1	1	1	1	1	1	1
Vehs Entered	3573	3732	3752	3617	3657	3581	3752
Vehs Exited	3551	3705	3665	3628	3651	3542	3717
Starting Vehs	106	107	117	127	114	87	103
Ending Vehs	128	134	204	116	120	126	138
Denied Entry Before	1	4	7	4	5	1	4
Denied Entry After	1	0	3	2	2	4	3
Travel Distance (mi)	2451	2561	2559	2500	2510	2452	2554
Travel Time (hr)	119.8	147.8	182.2	123.2	123.8	132.3	126.2
Total Delay (hr)	51.8	76.7	111.4	53.9	54.0	64.4	55.3
Total Stops	5492	7056	8965	5636	5673	6123	5737
Fuel Used (gal)	102.1	112.2	120.8	104.0	105.1	105.2	106.9

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intvls	1	1	1	1
Vehs Entered	3669	3676	3686	3669
Vehs Exited	3637	3663	3656	3643
Starting Vehs	118	123	124	111
Ending Vehs	150	136	154	138
Denied Entry Before	2	2	3	2
Denied Entry After	10	1	2	1
Travel Distance (mi)	2515	2506	2513	2512
Travel Time (hr)	155.3	128.1	123.9	136.3
Total Delay (hr)	85.4	58.6	54.1	66.6
Total Stops	7338	5969	5750	6374
Fuel Used (gal)	112.3	106.2	104.7	108.0

Interval #0 Information Seeding

Start Time	6:57
End Time	7:07
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

SimTraffic Simulation Summary
Existing PM

11/14/2013

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	3573	3732	3752	3617	3657	3581	3752
Vehs Exited	3551	3705	3665	3628	3651	3542	3717
Starting Vehs	106	107	117	127	114	87	103
Ending Vehs	128	134	204	116	120	126	138
Denied Entry Before	1	4	7	4	5	1	4
Denied Entry After	1	0	3	2	2	4	3
Travel Distance (mi)	2451	2561	2559	2500	2510	2452	2554
Travel Time (hr)	119.8	147.8	182.2	123.2	123.8	132.3	126.2
Total Delay (hr)	51.8	76.7	111.4	53.9	54.0	64.4	55.3
Total Stops	5492	7056	8965	5636	5673	6123	5737
Fuel Used (gal)	102.1	112.2	120.8	104.0	105.1	105.2	106.9

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	3669	3676	3686	3669
Vehs Exited	3637	3663	3656	3643
Starting Vehs	118	123	124	111
Ending Vehs	150	136	154	138
Denied Entry Before	2	2	3	2
Denied Entry After	10	1	2	1
Travel Distance (mi)	2515	2506	2513	2512
Travel Time (hr)	155.3	128.1	123.9	136.3
Total Delay (hr)	85.4	58.6	54.1	66.6
Total Stops	7338	5969	5750	6374
Fuel Used (gal)	112.3	106.2	104.7	108.0

2: Graves Mill Rd & East Ramp Performance by movement

Movement	EBL	EBT	WBT	WBR	NWL	NWT	NWR	All
Total Delay (hr)	1.5	0.4	1.9	0.2	4.2	0.0	0.6	8.7
Delay / Veh (s)	25.1	7.4	12.7	7.6	20.4	27.2	15.7	16.7
Total Stops	200	54	270	45	520	2	91	1182
Travel Dist (mi)	32.3	25.3	96.1	14.3	128.5	0.4	22.3	319.2
Travel Time (hr)	2.5	1.0	4.2	0.6	8.3	0.0	1.3	18.0
Avg Speed (mph)	13	26	23	29	17	15	18	19
Fuel Used (gal)	1.4	1.1	3.5	0.5	4.1	0.0	0.6	11.3
HC Emissions (g)	12	21	50	5	37	0	4	130
CO Emissions (g)	675	935	2404	372	1245	3	137	5771
NOx Emissions (g)	42	66	162	17	112	0	13	411
Vehicles Entered	223	177	534	79	735	2	128	1878
Vehicles Exited	222	176	532	79	736	2	128	1875
Hourly Exit Rate	222	176	532	79	736	2	128	1875
Input Volume	226	178	537	78	728	2	128	1877
% of Volume	98	99	99	101	101	100	100	100
Denied Entry Before	0	0	0	0	2	0	0	2
Denied Entry After	0	0	0	0	1	0	0	1

3: Graves Mill Rd & West Ramp Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL2	SBR	All
Total Delay (hr)	0.8	3.1	3.7	1.9	0.2	1.3	11.0
Delay / Veh (s)	8.2	13.2	65.6	6.5	21.1	15.2	14.2
Total Stops	98	412	240	182	27	234	1193
Travel Dist (mi)	59.1	140.4	30.4	158.8	3.5	30.4	422.6
Travel Time (hr)	2.3	8.1	4.8	6.3	0.3	2.4	24.2
Avg Speed (mph)	25	17	6	25	11	15	18
Fuel Used (gal)	3.3	5.8	2.1	8.9	0.1	1.0	21.3
HC Emissions (g)	37	59	17	123	1	8	245
CO Emissions (g)	2501	2699	837	6519	48	363	12967
NOx Emissions (g)	135	219	61	436	3	23	876
Vehicles Entered	355	840	205	1064	34	296	2794
Vehicles Exited	355	839	203	1062	34	296	2789
Hourly Exit Rate	355	839	203	1062	34	296	2789
Input Volume	357	851	203	1063	36	295	2805
% of Volume	99	99	100	100	94	100	99
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

4: Graves Mill Rd & Creekside Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.3	17.5	0.3	2.6	4.7	0.1	0.4	0.1	1.6	0.9	0.2	0.1
Delay / Veh (s)	23.7	71.3	100.6	38.6	17.0	3.7	25.3	25.0	18.3	37.4	32.9	10.7
Total Stops	40	1290	25	267	504	54	46	12	195	79	18	28
Travel Dist (mi)	6.0	119.7	1.7	38.8	161.9	17.2	5.7	1.6	30.2	9.5	2.3	3.6
Travel Time (hr)	0.5	20.2	0.4	3.8	8.7	0.7	0.6	0.2	2.8	1.3	0.3	0.2
Avg Speed (mph)	13	6	4	10	19	26	10	10	13	8	9	15
Fuel Used (gal)	0.3	8.5	0.1	1.8	6.7	0.7	0.3	0.1	1.2	0.5	0.1	0.1
HC Emissions (g)	2	48	0	19	65	6	1	0	8	3	0	1
CO Emissions (g)	163	2323	16	848	3382	450	76	24	453	140	28	37
NOx Emissions (g)	9	193	2	61	241	22	5	1	28	10	2	2
Vehicles Entered	42	887	12	240	1001	106	61	17	319	89	22	33
Vehicles Exited	42	880	12	239	999	106	60	17	319	89	22	34
Hourly Exit Rate	42	880	12	239	999	106	60	17	319	89	22	34
Input Volume	42	898	11	237	1004	107	61	17	317	90	23	32
% of Volume	100	98	109	101	100	99	98	100	101	99	96	106
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

4: Graves Mill Rd & Creekside Dr Performance by movement

Movement	All
Total Delay (hr)	28.9
Delay / Veh (s)	36.8
Total Stops	2558
Travel Dist (mi)	398.3
Travel Time (hr)	39.7
Avg Speed (mph)	10
Fuel Used (gal)	20.4
HC Emissions (g)	155
CO Emissions (g)	7939
NOx Emissions (g)	576
Vehicles Entered	2829
Vehicles Exited	2819
Hourly Exit Rate	2819
Input Volume	2839
% of Volume	99
Denied Entry Before	0
Denied Entry After	0

5: Graves Mill Rd & Old Graves Mill Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBR	All
Total Delay (hr)	0.0	10.2	0.6	2.6	1.7	1.2	0.2	16.5
Delay / Veh (s)	26.6	40.2	11.1	45.6	6.9	30.1	20.0	24.9
Total Stops	1	832	127	202	130	120	29	1441
Travel Dist (mi)	0.2	249.2	57.1	30.2	124.1	21.0	5.1	487.0
Travel Time (hr)	0.0	15.8	2.2	3.5	4.6	1.9	0.4	28.4
Avg Speed (mph)	16	16	25	9	27	11	15	17
Fuel Used (gal)	0.0	7.5	1.5	1.7	6.6	1.0	0.2	18.6
HC Emissions (g)	0	49	21	16	72	7	1	165
CO Emissions (g)	3	1682	802	721	4288	356	89	7941
NOx Emissions (g)	0	216	69	55	290	23	5	658
Vehicles Entered	1	913	208	205	885	140	34	2386
Vehicles Exited	1	907	208	204	888	140	34	2382
Hourly Exit Rate	1	907	208	204	888	140	34	2382
Input Volume	1	918	205	204	891	139	33	2391
% of Volume	100	99	101	100	100	101	103	100
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0

Total Network Performance

Total Delay (hr)	66.6
Delay / Veh (s)	65.5
Total Stops	6374
Travel Dist (mi)	2512.0
Travel Time (hr)	136.3
Avg Speed (mph)	19
Fuel Used (gal)	108.0
HC Emissions (g)	1154
CO Emissions (g)	54902
NOx Emissions (g)	4320
Vehicles Entered	3669
Vehicles Exited	3643
Hourly Exit Rate	3643
Input Volume	15420
% of Volume	24
Denied Entry Before	2
Denied Entry After	1

Intersection: 2: Graves Mill Rd & East Ramp

Movement	EB	EB	EB	WB	WB	WB	NW	NW
Directions Served	L	T	T	T	T	R	L	LTR
Maximum Queue (ft)	203	73	67	144	123	25	200	205
Average Queue (ft)	94	14	22	67	52	13	124	125
95th Queue (ft)	164	50	55	118	97	25	180	186
Link Distance (ft)		718	718	941	941			919
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	125					125	300	
Storage Blk Time (%)	5				0			
Queuing Penalty (veh)	4				0			

Intersection: 3: Graves Mill Rd & West Ramp

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	T	T	R	L	T	T	<L	R
Maximum Queue (ft)	110	64	239	276	317	304	65	161
Average Queue (ft)	36	17	121	139	76	62	22	76
95th Queue (ft)	83	46	201	267	260	205	54	130
Link Distance (ft)	799	799			718	718	542	
Upstream Blk Time (%)					0	0		
Queuing Penalty (veh)					0	0		
Storage Bay Dist (ft)			200	200				150
Storage Blk Time (%)			0	13				0
Queuing Penalty (veh)			1	69				0

Intersection: 4: Graves Mill Rd & Creekside Dr

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LT	R	L	TR
Maximum Queue (ft)	74	751	732	273	238	240	48	119	169	117	79
Average Queue (ft)	25	391	525	124	135	149	20	40	91	54	26
95th Queue (ft)	58	878	854	225	214	226	37	87	158	100	59
Link Distance (ft)		698	698		799	799		490			558
Upstream Blk Time (%)		4	12								
Queuing Penalty (veh)		18	57								
Storage Bay Dist (ft)	225			400			300		125	125	
Storage Blk Time (%)		0						0	2	0	0
Queuing Penalty (veh)		0						0	2	0	0

Queuing and Blocking Report
Existing PM

11/14/2013

Intersection: 5: Graves Mill Rd & Old Graves Mill Rd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	R	L	T	TR	LT	R
Maximum Queue (ft)	63	383	415	208	292	226	237	183	52
Average Queue (ft)	2	190	218	75	133	41	58	71	14
95th Queue (ft)	50	533	582	306	266	149	167	145	36
Link Distance (ft)		1381	1381			698	698	783	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	200			200	250				300
Storage Blk Time (%)		11	16		4	0		0	
Queuing Penalty (veh)		0	32		15	0		0	

Network Summary

Network wide Queuing Penalty: 200



EPR, P.C. "ENGINEERING & PLANNING RESOURCES"

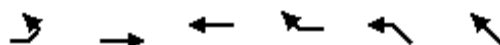
637 BERKMAR CIRCLE, CHARLOTTESVILLE, VA 22901

Appendix D 2024 No Build Syncho and SimTraffic Reports

Queues

2: Graves Mill Rd & East Ramp

11/11/2013



Lane Group	EBL	EBT	WBT	WBR	NWL	NWT
Lane Group Flow (vph)	328	458	352	27	600	582
v/c Ratio	0.76	0.30	0.43	0.07	0.89	0.85
Control Delay	28.1	11.1	24.9	9.6	37.6	32.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.1	11.1	24.9	9.6	37.6	32.1
Queue Length 50th (ft)	93	60	68	0	238	211
Queue Length 95th (ft)	#170	83	106	18	#436	#404
Internal Link Dist (ft)		689	909			889
Turn Bay Length (ft)	125			125	300	
Base Capacity (vph)	430	1516	827	398	696	703
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.30	0.43	0.07	0.86	0.83

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

2: Graves Mill Rd & East Ramp

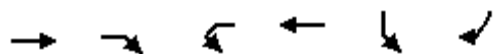
11/11/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		 			 						 	
Volume (vph)	302	421	0	0	324	25	0	0	0	920	0	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0				6.0	6.0	
Lane Util. Factor	1.00	0.95			0.95	1.00				0.95	0.95	
Frt	1.00	1.00			1.00	0.85				1.00	0.95	
Flt Protected	0.95	1.00			1.00	1.00				0.95	0.97	
Satd. Flow (prot)	1787	3539			3539	1615				1681	1641	
Flt Permitted	0.39	1.00			1.00	1.00				0.95	0.97	
Satd. Flow (perm)	738	3539			3539	1615				1681	1641	
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)	328	458	0	0	352	27	0	0	0	1000	0	182
RTOR Reduction (vph)	0	0	0	0	0	21	0	0	0	0	24	0
Lane Group Flow (vph)	328	458	0	0	352	6	0	0	0	600	558	0
Heavy Vehicles (%)	1%	2%	0%	0%	2%	0%	0%	0%	0%	2%	0%	0%
Turn Type	pm+pt					Perm					Split	
Protected Phases	5	2			6						8	8
Permitted Phases	2					6						
Actuated Green, G (s)	30.0	30.0			16.4	16.4				28.0	28.0	
Effective Green, g (s)	30.0	30.0			16.4	16.4				28.0	28.0	
Actuated g/C Ratio	0.43	0.43			0.23	0.23				0.40	0.40	
Clearance Time (s)	6.0	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	
Lane Grp Cap (vph)	430	1517			829	378				672	656	
v/s Ratio Prot	c0.08	0.13			0.10					c0.36	0.34	
v/s Ratio Perm	c0.24					0.00						
v/c Ratio	0.76	0.30			0.42	0.02				0.89	0.85	
Uniform Delay, d1	15.3	13.1			22.8	20.6				19.6	19.1	
Progression Factor	0.99	0.79			1.00	1.00				1.00	1.00	
Incremental Delay, d2	7.7	0.5			1.6	0.1				14.2	10.3	
Delay (s)	22.8	10.8			24.4	20.7				33.8	29.4	
Level of Service	C	B			C	C				C	C	
Approach Delay (s)		15.8			24.1			0.0			31.6	
Approach LOS		B			C			A			C	
Intersection Summary												
HCM Average Control Delay			25.1		HCM Level of Service					C		
HCM Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			70.0		Sum of lost time (s)					12.0		
Intersection Capacity Utilization			96.3%		ICU Level of Service					F		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

3: Graves Mill Rd & West Ramp

11/11/2013



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	652	1155	215	1060	88	262
v/c Ratio	0.25	0.82	0.34	0.36	0.51	0.82
Control Delay	3.1	18.5	3.4	3.8	69.0	40.2
Queue Delay	0.0	0.9	0.0	0.0	0.0	0.0
Total Delay	3.1	19.3	3.4	3.8	69.0	40.2
Queue Length 50th (ft)	50	411	24	124	78	73
Queue Length 95th (ft)	58	403	m65	248	129	171
Internal Link Dist (ft)	795			689	507	
Turn Bay Length (ft)		200	200			150
Base Capacity (vph)	2557	1407	628	2916	250	383
Starvation Cap Reductn	0	78	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.87	0.34	0.36	0.35	0.68

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

3: Graves Mill Rd & West Ramp

11/11/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations		↑↑	↑	↑	↑↑			↓	↑		
Volume (vph)	0	600	1063	198	975	0	80	1	241	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0			6.0	6.0		
Lane Util. Factor		0.95	1.00	1.00	0.95			1.00	1.00		
Frt		1.00	0.85	1.00	1.00			1.00	0.85		
Flt Protected		1.00	1.00	0.95	1.00			0.95	1.00		
Satd. Flow (prot)		3574	1599	1787	3574			1753	1599		
Flt Permitted		1.00	1.00	0.37	1.00			0.95	1.00		
Satd. Flow (perm)		3574	1599	693	3574			1753	1599		
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
Adj. Flow (vph)	0	652	1155	215	1060	0	87	1	262	0	0
RTOR Reduction (vph)	0	0	262	0	0	0	0	0	162	0	0
Lane Group Flow (vph)	0	652	893	215	1060	0	0	88	100	0	0
Heavy Vehicles (%)	0%	1%	1%	1%	1%	0%	3%	0%	1%	0%	0%
Turn Type		Perm		pm+pt			Split		Perm		
Protected Phases		2		1	6		4	4			
Permitted Phases			2	6					4		
Actuated Green, G (s)		100.2	100.2	114.2	114.2			13.8	13.8		
Effective Green, g (s)		100.2	100.2	114.2	114.2			13.8	13.8		
Actuated g/C Ratio		0.72	0.72	0.82	0.82			0.10	0.10		
Clearance Time (s)		6.0	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		
Lane Grp Cap (vph)		2558	1144	628	2915			173	158		
v/s Ratio Prot		0.18		0.02	c0.30			0.05			
v/s Ratio Perm			c0.56	0.26					c0.06		
v/c Ratio		0.25	0.78	0.34	0.36			0.51	0.63		
Uniform Delay, d1		6.9	12.8	3.1	3.4			59.9	60.7		
Progression Factor		0.39	4.83	0.77	0.95			1.00	1.00		
Incremental Delay, d2		0.2	3.8	0.2	0.2			2.3	8.0		
Delay (s)		2.9	65.7	2.6	3.4			62.2	68.6		
Level of Service		A	E	A	A			E	E		
Approach Delay (s)		43.1			3.3			67.0		0.0	
Approach LOS		D			A			E		A	

Intersection Summary

HCM Average Control Delay	30.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	96.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Queues

4: Graves Mill Rd & Creekside Dr

11/11/2013



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	32	1291	271	893	110	32	407	26	19
v/c Ratio	0.10	0.80	0.84	0.42	0.11	0.11	0.57	0.27	0.19
Control Delay	9.5	27.3	52.6	10.1	1.3	51.0	21.0	69.6	40.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.5	27.4	52.6	10.1	1.3	51.0	21.0	69.6	40.8
Queue Length 50th (ft)	12	534	160	243	4	25	156	23	6
Queue Length 95th (ft)	m19	657	231	236	m6	58	266	55	34
Internal Link Dist (ft)		697		795		461			536
Turn Bay Length (ft)	225		400		300		125	125	
Base Capacity (vph)	325	1607	369	2144	1003	292	757	206	196
Starvation Cap Reductn	0	3	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.80	0.73	0.42	0.11	0.11	0.54	0.13	0.10

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

4: Graves Mill Rd & Creekside Dr

11/11/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	1173	15	249	822	101	14	16	374	24	6	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0		6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3565		1752	3574	1599		1527	1568	1805	1619	
Flt Permitted	0.32	1.00		0.06	1.00	1.00		0.98	1.00	0.95	1.00	
Satd. Flow (perm)	606	3565		120	3574	1599		1527	1568	1805	1619	
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)	32	1275	16	271	893	110	15	17	407	26	7	12
RTOR Reduction (vph)	0	1	0	0	0	47	0	0	124	0	11	0
Lane Group Flow (vph)	32	1290	0	271	893	63	0	32	283	26	8	0
Heavy Vehicles (%)	0%	1%	7%	3%	1%	1%	46%	0%	3%	0%	17%	0%
Turn Type	pm+pt			pm+pt		Perm	Split		pm+ov	Split		
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases	2			6		6			8			
Actuated Green, G (s)	64.3	61.9		88.8	80.4	80.4		26.8	47.7	6.4	6.4	
Effective Green, g (s)	64.3	61.9		88.8	80.4	80.4		26.8	47.7	6.4	6.4	
Actuated g/C Ratio	0.46	0.44		0.63	0.57	0.57		0.19	0.34	0.05	0.05	
Clearance Time (s)	6.0	6.0		6.0	6.0	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	
Lane Grp Cap (vph)	299	1576		320	2052	918		292	601	83	74	
v/s Ratio Prot	0.00	0.36		c0.13	0.25			0.02	c0.07	c0.01	0.00	
v/s Ratio Perm	0.05			c0.41		0.04			0.11			
v/c Ratio	0.11	0.82		0.85	0.44	0.07		0.11	0.47	0.31	0.10	
Uniform Delay, d1	20.8	34.1		42.7	16.9	13.2		46.7	36.2	64.7	64.0	
Progression Factor	0.76	0.68		0.84	0.61	0.47		1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	4.3		17.1	0.1	0.0		0.8	0.6	2.2	0.6	
Delay (s)	16.0	27.7		53.0	10.4	6.3		47.5	36.8	66.8	64.7	
Level of Service	B	C		D	B	A		D	D	E	E	
Approach Delay (s)		27.4			19.1			37.6			65.9	
Approach LOS		C			B			D			E	
Intersection Summary												
HCM Average Control Delay			26.0			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			74.4%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

5: Graves Mill Rd & Old Graves Mill Rd

11/11/2013



Lane Group	EBT	EBR	WBL	WBT	NBT	NBR
Lane Group Flow (vph)	1253	150	75	840	136	65
v/c Ratio	0.52	0.14	0.58	0.29	0.67	0.27
Control Delay	12.5	3.5	60.8	0.6	75.2	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.5	3.5	60.8	0.6	75.2	14.6
Queue Length 50th (ft)	278	13	66	9	121	0
Queue Length 95th (ft)	385	42	117	12	186	44
Internal Link Dist (ft)	1366			697	749	
Turn Bay Length (ft)		200	250			300
Base Capacity (vph)	2419	1084	150	2858	248	277
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	70	0	0	0	0	1
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.14	0.50	0.29	0.55	0.24
Intersection Summary						

HCM Signalized Intersection Capacity Analysis

5: Graves Mill Rd & Old Graves Mill Rd

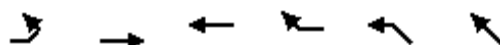
11/11/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1153	138	69	770	3	124	1	60	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0			6.0	6.0			
Lane Util. Factor		0.95	1.00	1.00	0.95			1.00	1.00			
Frt		1.00	0.85	1.00	1.00			1.00	0.85			
Flt Protected		1.00	1.00	0.95	1.00			0.95	1.00			
Satd. Flow (prot)		3539	1538	1752	3572			1775	1583			
Flt Permitted		1.00	1.00	0.95	1.00			0.95	1.00			
Satd. Flow (perm)		3539	1538	1752	3572			1775	1583			
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)	0	1253	150	75	837	3	135	1	65	0	0	0
RTOR Reduction (vph)	0	0	33	0	0	0	0	0	58	0	0	0
Lane Group Flow (vph)	0	1253	117	75	840	0	0	136	7	0	0	0
Heavy Vehicles (%)	0%	2%	5%	3%	1%	0%	2%	0%	2%	0%	0%	0%
Turn Type	Prot		Perm	Prot			Split		Perm	Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2						8			
Actuated Green, G (s)		95.7	95.7	10.3	112.0			16.0	16.0			
Effective Green, g (s)		95.7	95.7	10.3	112.0			16.0	16.0			
Actuated g/C Ratio		0.68	0.68	0.07	0.80			0.11	0.11			
Clearance Time (s)		6.0	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			
Lane Grp Cap (vph)		2419	1051	129	2858			203	181			
v/s Ratio Prot		c0.35		c0.04	0.24			c0.08				
v/s Ratio Perm			0.08						0.00			
v/c Ratio		0.52	0.11	0.58	0.29			0.67	0.04			
Uniform Delay, d1		10.9	7.6	62.8	3.7			59.5	55.2			
Progression Factor		1.00	1.00	0.71	0.08			1.00	1.00			
Incremental Delay, d2		0.8	0.2	6.1	0.1			8.1	0.1			
Delay (s)		11.6	7.8	50.5	0.4			67.6	55.3			
Level of Service		B	A	D	A			E	E			
Approach Delay (s)		11.2			4.5			63.6			0.0	
Approach LOS		B			A			E			A	
Intersection Summary												
HCM Average Control Delay			13.0			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			57.6%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2: Graves Mill Rd & East Ramp

11/11/2013



Lane Group	EBL	EBT	WBT	WBR	NWL	NWT
Lane Group Flow (vph)	305	226	688	105	590	569
v/c Ratio	0.82	0.15	0.78	0.22	0.92	0.88
Control Delay	40.3	9.8	32.4	6.4	44.4	37.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.3	9.8	32.4	6.4	44.4	37.0
Queue Length 50th (ft)	105	25	146	0	246	217
Queue Length 95th (ft)	#231	66	#225	34	#448	#414
Internal Link Dist (ft)		689	904			897
Turn Bay Length (ft)	125			125	300	
Base Capacity (vph)	370	1529	881	481	648	654
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.15	0.78	0.22	0.91	0.87

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

2: Graves Mill Rd & East Ramp

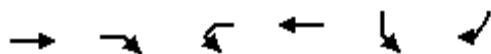
11/11/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		 			 						 	
Volume (vph)	281	208	0	0	633	97	0	0	0	905	2	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0				6.0	6.0	
Lane Util. Factor	1.00	0.95			0.95	1.00				0.95	0.95	
Fr't	1.00	1.00			1.00	0.85				1.00	0.95	
Flt Protected	0.95	1.00			1.00	1.00				0.95	0.97	
Satd. Flow (prot)	1770	3406			3539	1615				1681	1637	
Flt Permitted	0.27	1.00			1.00	1.00				0.95	0.97	
Satd. Flow (perm)	502	3406			3539	1615				1681	1637	
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)	305	226	0	0	688	105	0	0	0	984	2	173
RTOR Reduction (vph)	0	0	0	0	0	79	0	0	0	0	23	0
Lane Group Flow (vph)	305	226	0	0	688	26	0	0	0	590	546	0
Heavy Vehicles (%)	2%	6%	0%	0%	2%	0%	0%	0%	0%	2%	0%	1%
Turn Type	pm+pt				Perm				Split			
Protected Phases	5	2			6					8	8	
Permitted Phases	2				6							
Actuated Green, G (s)	31.4	31.4			17.4	17.4				26.6	26.6	
Effective Green, g (s)	31.4	31.4			17.4	17.4				26.6	26.6	
Actuated g/C Ratio	0.45	0.45			0.25	0.25				0.38	0.38	
Clearance Time (s)	6.0	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	
Lane Grp Cap (vph)	370	1528			880	401				639	622	
v/s Ratio Prot	c0.09	0.07			0.19					c0.35	0.33	
v/s Ratio Perm	c0.28					0.02						
v/c Ratio	0.82	0.15			0.78	0.07				0.92	0.88	
Uniform Delay, d1	21.2	11.4			24.5	20.1				20.7	20.2	
Progression Factor	0.95	0.83			1.00	1.00				1.00	1.00	
Incremental Delay, d2	13.7	0.2			6.9	0.3				19.1	13.3	
Delay (s)	33.8	9.7			31.4	20.4				39.8	33.5	
Level of Service	C	A			C	C				D	C	
Approach Delay (s)		23.5			29.9			0.0			36.7	
Approach LOS		C			C			A			D	
Intersection Summary												
HCM Average Control Delay			31.7		HCM Level of Service				C			
HCM Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			70.0		Sum of lost time (s)			12.0				
Intersection Capacity Utilization			97.8%		ICU Level of Service			F				
Analysis Period (min)			15									
c Critical Lane Group												

Queues

3: Graves Mill Rd & West Ramp

11/11/2013



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	458	1150	274	1347	49	399
v/c Ratio	0.22	0.86	0.43	0.55	0.12	0.93
Control Delay	9.2	17.3	8.3	8.1	41.9	72.0
Queue Delay	0.0	1.8	0.0	0.3	0.0	0.0
Total Delay	9.2	19.1	8.3	8.4	41.9	72.0
Queue Length 50th (ft)	75	738	77	214	35	295
Queue Length 95th (ft)	68	477	m102	m381	70	#481
Internal Link Dist (ft)	795			689	526	
Turn Bay Length (ft)		200	200			150
Base Capacity (vph)	2105	1334	644	2437	438	455
Starvation Cap Reductn	0	79	0	415	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.92	0.43	0.67	0.11	0.88

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

3: Graves Mill Rd & West Ramp

11/11/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations		↑↑	↑	↑	↑↑			↓	↑		
Volume (vph)	0	421	1058	252	1239	0	45	0	367	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0			6.0	6.0		
Lane Util. Factor		0.95	1.00	1.00	0.95			1.00	1.00		
Frt		1.00	0.85	1.00	1.00			1.00	0.85		
Flt Protected		1.00	1.00	0.95	1.00			0.95	1.00		
Satd. Flow (prot)		3574	1583	1770	3574			1752	1599		
Flt Permitted		1.00	1.00	0.47	1.00			0.95	1.00		
Satd. Flow (perm)		3574	1583	880	3574			1752	1599		
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
Adj. Flow (vph)	0	458	1150	274	1347	0	49	0	399	0	0
RTOR Reduction (vph)	0	0	401	0	0	0	0	0	56	0	0
Lane Group Flow (vph)	0	458	749	274	1347	0	0	49	343	0	0
Heavy Vehicles (%)	0%	1%	2%	2%	1%	0%	3%	0%	1%	0%	0%
Turn Type		Perm		pm+pt			Split		Perm		
Protected Phases		2		1	6		4	4			
Permitted Phases			2	6					4		
Actuated Green, G (s)		82.5	82.5	95.5	95.5			32.5	32.5		
Effective Green, g (s)		82.5	82.5	95.5	95.5			32.5	32.5		
Actuated g/C Ratio		0.59	0.59	0.68	0.68			0.23	0.23		
Clearance Time (s)		6.0	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		
Lane Grp Cap (vph)		2106	933	645	2438			407	371		
v/s Ratio Prot		0.13		0.02	c0.38			0.03			
v/s Ratio Perm			c0.47	0.27					c0.21		
v/c Ratio		0.22	0.80	0.42	0.55			0.12	0.92		
Uniform Delay, d1		13.5	22.4	11.5	11.3			42.5	52.5		
Progression Factor		0.64	2.86	0.64	0.64			1.00	1.00		
Incremental Delay, d2		0.2	6.3	0.2	0.5			0.1	28.3		
Delay (s)		8.9	70.3	7.6	7.8			42.6	80.8		
Level of Service		A	E	A	A			D	F		
Approach Delay (s)		52.8			7.7			76.6		0.0	
Approach LOS		D			A			E		A	
Intersection Summary											
HCM Average Control Delay			35.9			HCM Level of Service			D		
HCM Volume to Capacity ratio			0.79								
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			12.0		
Intersection Capacity Utilization			97.8%			ICU Level of Service			F		
Analysis Period (min)			15								

c Critical Lane Group

Queues

4: Graves Mill Rd & Creekside Dr

11/11/2013



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	48	1025	272	1280	123	90	364	103	63
v/c Ratio	0.23	0.61	0.72	0.62	0.12	0.36	0.64	0.63	0.33
Control Delay	7.3	11.4	29.5	14.9	2.5	60.8	34.6	77.5	32.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Total Delay	7.3	11.4	29.5	14.9	2.5	60.8	34.6	77.6	32.9
Queue Length 50th (ft)	6	353	127	315	5	76	211	92	22
Queue Length 95th (ft)	m13	491	m207	332	m15	136	300	153	68
Internal Link Dist (ft)		697		795		453			535
Turn Bay Length (ft)	225		400		300		125	125	
Base Capacity (vph)	212	1677	483	2073	988	250	671	204	231
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	4	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.61	0.56	0.62	0.12	0.36	0.54	0.52	0.27

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

4: Graves Mill Rd & Creekside Dr

11/11/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	44	931	12	250	1178	113	64	18	335	95	24	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0		6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3568		1770	3574	1615		1829	1599	1787	1733	
Flt Permitted	0.16	1.00		0.16	1.00	1.00		0.96	1.00	0.95	1.00	
Satd. Flow (perm)	313	3568		290	3574	1615		1829	1599	1787	1733	
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)	48	1012	13	272	1280	123	70	20	364	103	26	37
RTOR Reduction (vph)	0	1	0	0	0	53	0	0	76	0	34	0
Lane Group Flow (vph)	48	1024	0	272	1280	70	0	90	288	103	29	0
Heavy Vehicles (%)	0%	1%	0%	2%	1%	0%	0%	0%	1%	1%	0%	0%
Turn Type	pm+pt			pm+pt		Perm	Split		pm+ov	Split		
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases	2			6		6			8			
Actuated Green, G (s)	69.8	65.8		90.0	80.0	80.0		19.1	37.3	12.9	12.9	
Effective Green, g (s)	69.8	65.8		90.0	80.0	80.0		19.1	37.3	12.9	12.9	
Actuated g/C Ratio	0.50	0.47		0.64	0.57	0.57		0.14	0.27	0.09	0.09	
Clearance Time (s)	6.0	6.0		6.0	6.0	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	
Lane Grp Cap (vph)	199	1677		379	2042	923		250	495	165	160	
v/s Ratio Prot	0.01	0.29		c0.09	0.36			0.05	c0.08	c0.06	0.02	
v/s Ratio Perm	0.11			c0.37		0.04			0.10			
v/c Ratio	0.24	0.61		0.72	0.63	0.08		0.36	0.58	0.62	0.18	
Uniform Delay, d1	19.1	27.6		18.1	20.0	13.4		54.9	44.6	61.2	58.7	
Progression Factor	0.44	0.35		1.45	0.69	0.99		1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	1.4		5.0	0.5	0.0		4.0	1.8	7.2	0.6	
Delay (s)	8.9	11.0		31.2	14.4	13.3		58.9	46.3	68.4	59.2	
Level of Service	A	B		C	B	B		E	D	E	E	
Approach Delay (s)		10.9			17.0			48.8			64.9	
Approach LOS		B			B			D			E	
Intersection Summary												
HCM Average Control Delay			21.7			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			67.1%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

5: Graves Mill Rd & Old Graves Mill Rd

11/11/2013



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR
Lane Group Flow (vph)	1	1175	236	235	1021	160	38
v/c Ratio	0.01	0.56	0.24	0.82	0.37	0.70	0.16
Control Delay	65.0	20.7	6.9	62.9	1.1	74.1	16.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.0	20.7	6.9	62.9	1.1	74.1	16.0
Queue Length 50th (ft)	1	344	35	226	26	142	0
Queue Length 95th (ft)	7	471	90	315	35	211	33
Internal Link Dist (ft)		1366			697	762	
Turn Bay Length (ft)	200		200	250			300
Base Capacity (vph)	73	2083	984	329	2749	251	260
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.56	0.24	0.71	0.37	0.64	0.15
Intersection Summary							

HCM Signalized Intersection Capacity Analysis

5: Graves Mill Rd & Old Graves Mill Rd

11/11/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	1081	217	216	939	0	147	0	35	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0			6.0	6.0			
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00			
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85			
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00			
Satd. Flow (prot)	1805	3574	1583	1770	3574			1787	1615			
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00			
Satd. Flow (perm)	1805	3574	1583	1770	3574			1787	1615			
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)	1	1175	236	235	1021	0	160	0	38	0	0	0
RTOR Reduction (vph)	0	0	66	0	0	0	0	0	33	0	0	0
Lane Group Flow (vph)	1	1175	170	235	1021	0	0	160	5	0	0	0
Heavy Vehicles (%)	0%	1%	2%	2%	1%	0%	1%	0%	0%	0%	0%	0%
Turn Type	Prot		Perm	Prot			Split		Perm	Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2						8			
Actuated Green, G (s)	1.2	76.8	76.8	27.3	102.9			17.9	17.9			
Effective Green, g (s)	1.2	76.8	76.8	27.3	102.9			17.9	17.9			
Actuated g/C Ratio	0.01	0.55	0.55	0.20	0.74			0.13	0.13			
Clearance Time (s)	6.0	6.0	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			
Lane Grp Cap (vph)	15	1961	868	345	2627			228	206			
v/s Ratio Prot	0.00	c0.33		c0.13	0.29			c0.09				
v/s Ratio Perm			0.11						0.00			
v/c Ratio	0.07	0.60	0.20	0.68	0.39			0.70	0.02			
Uniform Delay, d1	68.8	21.2	16.0	52.3	6.9			58.5	53.4			
Progression Factor	1.00	1.00	1.00	0.77	0.13			1.00	1.00			
Incremental Delay, d2	1.9	1.4	0.5	4.4	0.1			9.4	0.0			
Delay (s)	70.7	22.6	16.5	44.8	1.0			67.9	53.5			
Level of Service	E	C	B	D	A			E	D			
Approach Delay (s)		21.6			9.2			65.1			0.0	
Approach LOS		C			A			E			A	
Intersection Summary												
HCM Average Control Delay			19.2			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			65.0%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

SimTraffic Simulation Summary

2024 No Build AM

11/11/2013

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	6:57	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intvl's	1	1	1	1	1	1	1
Vehs Entered	3791	3879	3812	3803	3824	3796	3874
Vehs Exited	3742	3884	3810	3815	3812	3762	3807
Starting Vehs	114	166	123	143	140	136	114
Ending Vehs	163	161	125	131	152	170	181
Denied Entry Before	8	0	3	8	4	5	2
Denied Entry After	15	13	3	4	2	5	18
Travel Distance (mi)	2657	2701	2677	2682	2693	2654	2683
Travel Time (hr)	159.7	158.3	148.9	144.5	147.2	149.5	166.2
Total Delay (hr)	86.2	83.6	74.8	70.8	73.2	76.0	92.2
Total Stops	6209	6219	5485	5390	5471	5598	6257
Fuel Used (gal)	113.9	115.4	112.0	111.6	112.5	111.3	116.8

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intvl's	1	1	1	1
Vehs Entered	3828	3814	3894	3831
Vehs Exited	3811	3804	3831	3808
Starting Vehs	129	142	128	134
Ending Vehs	146	152	191	158
Denied Entry Before	5	2	5	5
Denied Entry After	1	4	3	5
Travel Distance (mi)	2689	2665	2726	2683
Travel Time (hr)	145.9	151.9	176.6	154.9
Total Delay (hr)	71.8	78.5	101.4	80.8
Total Stops	5439	5581	6982	5864
Fuel Used (gal)	111.9	112.3	119.8	113.7

Interval #0 Information Seeding

Start Time	6:57
End Time	7:07
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

SimTraffic Simulation Summary

2024 No Build AM

11/11/2013

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	3791	3879	3812	3803	3824	3796	3874
Vehs Exited	3742	3884	3810	3815	3812	3762	3807
Starting Vehs	114	166	123	143	140	136	114
Ending Vehs	163	161	125	131	152	170	181
Denied Entry Before	8	0	3	8	4	5	2
Denied Entry After	15	13	3	4	2	5	18
Travel Distance (mi)	2657	2701	2677	2682	2693	2654	2683
Travel Time (hr)	159.7	158.3	148.9	144.5	147.2	149.5	166.2
Total Delay (hr)	86.2	83.6	74.8	70.8	73.2	76.0	92.2
Total Stops	6209	6219	5485	5390	5471	5598	6257
Fuel Used (gal)	113.9	115.4	112.0	111.6	112.5	111.3	116.8

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	3828	3814	3894	3831
Vehs Exited	3811	3804	3831	3808
Starting Vehs	129	142	128	134
Ending Vehs	146	152	191	158
Denied Entry Before	5	2	5	5
Denied Entry After	1	4	3	5
Travel Distance (mi)	2689	2665	2726	2683
Travel Time (hr)	145.9	151.9	176.6	154.9
Total Delay (hr)	71.8	78.5	101.4	80.8
Total Stops	5439	5581	6982	5864
Fuel Used (gal)	111.9	112.3	119.8	113.7

2: Graves Mill Rd & East Ramp Performance by movement

Movement	EBL	EBT	WBT	WBR	NWL	NWR	All
Total Delay (hr)	3.7	1.2	2.1	0.1	7.5	1.2	15.8
Delay / Veh (s)	42.3	10.8	23.3	8.4	29.6	26.7	26.5
Total Stops	399	154	222	19	677	128	1599
Travel Dist (mi)	44.2	58.0	58.1	4.4	159.4	28.8	352.9
Travel Time (hr)	5.0	2.6	3.5	0.2	12.7	2.2	26.2
Avg Speed (mph)	9	22	17	28	14	15	15
Fuel Used (gal)	1.9	2.2	2.4	0.2	5.6	0.9	13.3
HC Emissions (g)	10	29	31	2	46	3	121
CO Emissions (g)	537	1388	1611	120	1474	125	5255
NOx Emissions (g)	39	100	99	6	136	11	390
Vehicles Entered	312	410	320	24	914	165	2145
Vehicles Exited	310	407	317	24	920	166	2144
Hourly Exit Rate	310	407	317	24	920	166	2144
Input Volume	302	421	324	25	920	167	2159
% of Volume	103	97	98	96	100	99	99
Denied Entry Before	0	0	0	0	2	0	2
Denied Entry After	0	0	0	0	2	0	2

3: Graves Mill Rd & West Ramp Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL2	SBL	SBR	All
Total Delay (hr)	1.6	9.8	7.3	2.3	1.5	0.0	1.2	23.6
Delay / Veh (s)	9.4	33.4	137.2	7.9	65.5	65.6	18.3	26.5
Total Stops	96	605	290	151	75	1	212	1430
Travel Dist (mi)	98.0	171.6	29.0	151.2	8.3	0.1	24.8	483.0
Travel Time (hr)	4.0	15.8	8.3	6.7	1.8	0.0	2.2	38.8
Avg Speed (mph)	27	12	3	23	5	5	13	13
Fuel Used (gal)	5.1	7.2	2.9	9.2	0.6	0.0	1.1	26.1
HC Emissions (g)	70	39	15	123	4	0	10	262
CO Emissions (g)	3534	1506	728	6588	172	1	518	13046
NOx Emissions (g)	261	162	54	442	12	0	34	966
Vehicles Entered	606	1054	198	1040	81	1	242	3222
Vehicles Exited	605	1047	188	1029	82	1	242	3194
Hourly Exit Rate	605	1047	188	1029	82	1	242	3194
Input Volume	606	1063	198	1046	80	1	241	3235
% of Volume	100	98	95	98	102	100	100	99
Denied Entry Before	0	1	0	0	0	0	1	2
Denied Entry After	1	2	0	0	0	0	0	3

4: Graves Mill Rd & Creekside Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.2	15.5	0.2	4.1	2.2	0.1	0.2	0.2	3.7	0.4	0.1	0.0
Delay / Veh (s)	23.3	47.7	52.6	62.3	9.2	2.5	53.9	49.5	34.8	73.1	66.3	11.7
Total Stops	26	1004	17	219	177	26	12	12	266	21	5	11
Travel Dist (mi)	4.0	165.5	2.3	39.0	136.5	16.3	1.3	1.5	35.9	2.3	0.6	1.2
Travel Time (hr)	0.3	19.3	0.3	5.3	5.5	0.6	0.3	0.3	5.1	0.5	0.1	0.1
Avg Speed (mph)	13	9	8	7	25	28	5	6	8	5	5	15
Fuel Used (gal)	0.2	9.4	0.1	2.1	5.8	0.6	0.1	0.1	1.9	0.2	0.0	0.0
HC Emissions (g)	1	73	3	22	57	8	6	0	17	0	2	0
CO Emissions (g)	93	2668	47	789	3237	401	96	28	597	21	28	9
NOx Emissions (g)	6	269	7	63	234	26	11	2	48	1	3	1
Vehicles Entered	28	1165	16	241	864	101	14	16	380	22	6	11
Vehicles Exited	29	1175	16	237	859	101	14	16	380	22	6	11
Hourly Exit Rate	29	1175	16	237	859	101	14	16	380	22	6	11
Input Volume	29	1184	15	249	870	101	14	16	374	24	6	11
% of Volume	100	99	107	95	99	100	100	100	102	92	100	100
Denied Entry Before	0	0	0	0	0	0	0	0	1	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

4: Graves Mill Rd & Creekside Dr Performance by movement

Movement	All
Total Delay (hr)	27.0
Delay / Veh (s)	34.0
Total Stops	1796
Travel Dist (mi)	406.5
Travel Time (hr)	37.8
Avg Speed (mph)	11
Fuel Used (gal)	20.5
HC Emissions (g)	188
CO Emissions (g)	8015
NOx Emissions (g)	670
Vehicles Entered	2864
Vehicles Exited	2866
Hourly Exit Rate	2866
Input Volume	2893
% of Volume	99
Denied Entry Before	1
Denied Entry After	0

5: Graves Mill Rd & Old Graves Mill Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	All
Total Delay (hr)	8.2	0.2	1.0	0.6	0.0	2.2	0.0	0.6	12.8
Delay / Veh (s)	25.8	6.0	57.1	2.9	2.8	61.2		34.7	20.0
Total Stops	725	47	62	34	0	119	0	52	1039
Travel Dist (mi)	313.2	38.9	9.5	113.5	0.4	19.1	0.1	8.8	503.3
Travel Time (hr)	15.2	1.3	1.3	3.2	0.0	2.9	0.0	0.9	24.8
Avg Speed (mph)	21	30	7	35	30	7	9	11	20
Fuel Used (gal)	8.5	1.0	0.5	4.5	0.0	1.2	0.0	0.5	16.3
HC Emissions (g)	96	24	5	54	0	10	0	7	196
CO Emissions (g)	2749	765	185	2549	5	417	2	260	6933
NOx Emissions (g)	351	70	15	229	0	30	0	19	714
Vehicles Entered	1148	142	64	769	2	130	0	59	2314
Vehicles Exited	1133	142	66	776	2	131	0	60	2310
Hourly Exit Rate	1133	142	66	776	2	131	0	60	2310
Input Volume	1153	138	69	775	3	124	1	60	2323
% of Volume	98	103	96	100	67	106	0	100	99
Denied Entry Before	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0

Total Network Performance

Total Delay (hr)	80.8
Delay / Veh (s)	76.2
Total Stops	5864
Travel Dist (mi)	2682.7
Travel Time (hr)	154.9
Avg Speed (mph)	18
Fuel Used (gal)	113.7
HC Emissions (g)	1234
CO Emissions (g)	53738
NOx Emissions (g)	4601
Vehicles Entered	3831
Vehicles Exited	3808
Hourly Exit Rate	3808
Input Volume	16493
% of Volume	23
Denied Entry Before	5
Denied Entry After	5

Intersection: 2: Graves Mill Rd & East Ramp

Movement	EB	EB	EB	WB	WB	WB	NW	NW
Directions Served	L	T	T	T	T	R	L	LR
Maximum Queue (ft)	225	342	195	121	125	22	317	352
Average Queue (ft)	147	80	57	63	55	8	195	206
95th Queue (ft)	240	251	132	108	100	21	291	322
Link Distance (ft)		718	718	947	947			917
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	125					125	300	
Storage Blk Time (%)	23	0			0		1	1
Queuing Penalty (veh)	48	0			0		5	4

Intersection: 3: Graves Mill Rd & West Ramp

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	T	T	R	L	T	T	<L	R
Maximum Queue (ft)	149	602	400	299	595	518	177	183
Average Queue (ft)	44	187	347	216	167	120	74	75
95th Queue (ft)	105	555	464	343	548	449	143	137
Link Distance (ft)	800	800			718	718	541	
Upstream Blk Time (%)		0			1	0		
Queuing Penalty (veh)		0			5	1		
Storage Bay Dist (ft)			200	200				150
Storage Blk Time (%)			23	38			2	1
Queuing Penalty (veh)			68	184			4	1

Intersection: 4: Graves Mill Rd & Creekside Dr

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LT	R	L	TR
Maximum Queue (ft)	58	766	738	378	148	178	47	380	175	70	64
Average Queue (ft)	18	459	608	178	67	84	13	131	151	21	13
95th Queue (ft)	47	893	877	307	123	144	34	352	208	56	43
Link Distance (ft)		698	698		800	800		489			558
Upstream Blk Time (%)		5	12					0			
Queuing Penalty (veh)		32	71					0			
Storage Bay Dist (ft)	225			400			300		125	125	
Storage Blk Time (%)		5		0				0	22		
Queuing Penalty (veh)		1		1				1	7		

Intersection: 5: Graves Mill Rd & Old Graves Mill Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	R	L	T	TR	LT	R
Maximum Queue (ft)	428	530	325	147	59	73	209	88
Average Queue (ft)	179	261	42	61	9	20	108	31
95th Queue (ft)	380	505	222	119	39	58	185	67
Link Distance (ft)	1382	1382			698	698	771	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			200	250				300
Storage Blk Time (%)	5	17						
Queuing Penalty (veh)	0	24						

Network Summary

Network wide Queuing Penalty: 457

SimTraffic Simulation Summary

2024 No Build PM

11/11/2013

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	6:57	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intvls	1	1	1	1	1	1	1
Vehs Entered	3841	4117	3700	3760	3873	3834	3847
Vehs Exited	3806	3993	3629	3716	3783	3747	3779
Starting Vehs	179	142	176	184	152	157	148
Ending Vehs	214	266	247	228	242	244	216
Denied Entry Before	2	6	8	6	3	4	3
Denied Entry After	535	380	607	662	436	508	639
Travel Distance (mi)	2550	2690	2391	2490	2524	2518	2480
Travel Time (hr)	465.1	344.4	507.6	509.7	370.2	422.5	467.0
Total Delay (hr)	394.5	269.7	440.6	440.7	299.9	352.7	397.8
Total Stops	8103	8460	8100	8908	7995	8255	7893
Fuel Used (gal)	181.7	157.9	186.6	189.6	159.0	170.3	179.8

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intvls	1	1	1	1
Vehs Entered	3713	3825	3862	3837
Vehs Exited	3699	3726	3777	3765
Starting Vehs	182	176	160	164
Ending Vehs	196	275	245	235
Denied Entry Before	7	5	2	3
Denied Entry After	781	597	516	566
Travel Distance (mi)	2422	2498	2512	2507
Travel Time (hr)	569.5	509.1	437.7	460.3
Total Delay (hr)	501.7	439.6	367.9	390.5
Total Stops	7974	8612	8087	8241
Fuel Used (gal)	201.5	190.2	174.0	179.1

Interval #0 Information Seeding

Start Time	6:57
End Time	7:07
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

SimTraffic Simulation Summary

2024 No Build PM

11/11/2013

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	3841	4117	3700	3760	3873	3834	3847
Vehs Exited	3806	3993	3629	3716	3783	3747	3779
Starting Vehs	179	142	176	184	152	157	148
Ending Vehs	214	266	247	228	242	244	216
Denied Entry Before	2	6	8	6	3	4	3
Denied Entry After	535	380	607	662	436	508	639
Travel Distance (mi)	2550	2690	2391	2490	2524	2518	2480
Travel Time (hr)	465.1	344.4	507.6	509.7	370.2	422.5	467.0
Total Delay (hr)	394.5	269.7	440.6	440.7	299.9	352.7	397.8
Total Stops	8103	8460	8100	8908	7995	8255	7893
Fuel Used (gal)	181.7	157.9	186.6	189.6	159.0	170.3	179.8

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	3713	3825	3862	3837
Vehs Exited	3699	3726	3777	3765
Starting Vehs	182	176	160	164
Ending Vehs	196	275	245	235
Denied Entry Before	7	5	2	3
Denied Entry After	781	597	516	566
Travel Distance (mi)	2422	2498	2512	2507
Travel Time (hr)	569.5	509.1	437.7	460.3
Total Delay (hr)	501.7	439.6	367.9	390.5
Total Stops	7974	8612	8087	8241
Fuel Used (gal)	201.5	190.2	174.0	179.1

2: Graves Mill Rd & East Ramp Performance by movement

Movement	EBL	EBT	WBT	WBR	NWL	NWT	NWR	All
Total Delay (hr)	3.6	0.5	89.8	8.6	184.2	0.4	30.6	317.7
Delay / Veh (s)	46.9	9.2	676.4	422.9	1214.5	697.0	1123.8	680.8
Total Stops	318	71	1504	193	1722	4	271	4083
Travel Dist (mi)	40.0	28.9	85.7	13.2	96.3	0.3	17.2	281.6
Travel Time (hr)	4.9	1.2	91.9	9.0	187.3	0.4	31.2	325.9
Avg Speed (mph)	8	24	2	4	3	4	4	3
Fuel Used (gal)	1.9	1.1	23.4	2.4	45.0	0.1	7.5	81.4
HC Emissions (g)	13	20	105	3	139	0	21	301
CO Emissions (g)	546	770	3063	282	4034	5	646	9347
NOx Emissions (g)	41	62	198	16	202	0	32	551
Vehicles Entered	278	204	502	75	561	2	99	1721
Vehicles Exited	280	205	454	72	531	2	96	1640
Hourly Exit Rate	280	205	454	72	531	2	96	1640
Input Volume	281	208	633	97	905	2	159	2285
% of Volume	100	99	72	74	59	100	60	72
Denied Entry Before	0	0	0	0	2	0	0	2
Denied Entry After	0	0	137	20	350	1	58	566

3: Graves Mill Rd & West Ramp Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL2	SBR	All
Total Delay (hr)	0.9	6.9	19.4	11.6	0.7	2.4	41.8
Delay / Veh (s)	7.8	23.0	475.0	49.9	61.2	23.7	52.3
Total Stops	71	394	581	537	36	310	1929
Travel Dist (mi)	67.3	172.8	21.6	123.0	4.4	38.0	427.2
Travel Time (hr)	2.6	13.1	20.1	14.9	0.9	3.8	55.4
Avg Speed (mph)	27	14	1	8	5	12	8
Fuel Used (gal)	3.2	6.3	5.2	9.4	0.3	1.6	26.0
HC Emissions (g)	32	49	19	100	2	10	213
CO Emissions (g)	2069	1825	532	4764	86	559	9835
NOx Emissions (g)	128	167	43	361	6	34	739
Vehicles Entered	418	1075	149	836	42	358	2878
Vehicles Exited	420	1076	145	834	41	358	2874
Hourly Exit Rate	420	1076	145	834	41	358	2874
Input Volume	421	1058	252	1286	45	367	3429
% of Volume	100	102	58	65	91	98	84
Denied Entry Before	0	1	0	0	0	0	1
Denied Entry After	0	0	0	0	0	0	0

4: Graves Mill Rd & Creekside Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.2	5.7	0.1	2.8	2.8	0.1	1.2	0.3	3.6	1.8	0.3	0.2
Delay / Veh (s)	18.8	19.4	21.6	59.2	11.0	2.3	64.6	63.3	37.9	70.6	54.7	18.3
Total Stops	41	388	9	170	263	25	63	17	276	87	19	28
Travel Dist (mi)	6.7	142.3	1.9	27.8	143.6	13.5	6.0	1.6	32.2	9.7	2.4	3.3
Travel Time (hr)	0.4	8.9	0.1	3.7	6.4	0.5	1.4	0.4	5.0	2.1	0.4	0.3
Avg Speed (mph)	15	16	13	8	22	27	4	5	7	5	6	12
Fuel Used (gal)	0.3	6.5	0.1	1.8	6.5	0.5	0.5	0.1	1.8	0.7	0.1	0.1
HC Emissions (g)	2	49	0	19	75	5	1	0	9	3	1	1
CO Emissions (g)	149	2433	16	872	4115	369	84	25	506	161	36	45
NOx Emissions (g)	9	206	2	61	281	19	6	2	36	10	2	3
Vehicles Entered	47	1049	13	171	906	83	65	18	347	91	22	31
Vehicles Exited	48	1061	13	171	902	83	66	18	346	92	23	31
Hourly Exit Rate	48	1061	13	171	902	83	66	18	346	92	23	31
Input Volume	44	1060	12	250	1244	113	64	18	335	95	24	34
% of Volume	109	100	108	68	73	73	103	100	103	97	96	91
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

4: Graves Mill Rd & Creekside Dr Performance by movement

Movement	All
Total Delay (hr)	19.1
Delay / Veh (s)	24.1
Total Stops	1386
Travel Dist (mi)	391.0
Travel Time (hr)	29.7
Avg Speed (mph)	13
Fuel Used (gal)	19.2
HC Emissions (g)	165
CO Emissions (g)	8811
NOx Emissions (g)	636
Vehicles Entered	2843
Vehicles Exited	2854
Hourly Exit Rate	2854
Input Volume	3293
% of Volume	87
Denied Entry Before	0
Denied Entry After	0

5: Graves Mill Rd & Old Graves Mill Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBR	All
Total Delay (hr)	0.0	5.1	0.3	1.9	0.7	2.3	0.2	10.5
Delay / Veh (s)	41.9	17.2	5.6	44.1	3.0	59.0	18.1	15.6
Total Stops	1	453	73	139	27	122	28	843
Travel Dist (mi)	0.2	296.5	59.9	22.3	112.0	20.8	5.1	516.8
Travel Time (hr)	0.0	11.8	2.0	2.6	3.3	3.0	0.4	23.1
Avg Speed (mph)	10	25	30	9	34	7	16	22
Fuel Used (gal)	0.0	7.7	1.5	1.1	5.1	1.3	0.2	17.0
HC Emissions (g)	0	58	20	10	57	7	2	154
CO Emissions (g)	1	2085	773	397	3186	414	110	6967
NOx Emissions (g)	0	271	68	30	241	26	6	641
Vehicles Entered	1	1085	219	152	803	139	34	2433
Vehicles Exited	1	1074	219	155	807	140	35	2431
Hourly Exit Rate	1	1074	219	155	807	140	35	2431
Input Volume	1	1081	217	216	1061	147	35	2758
% of Volume	100	99	101	72	76	95	100	88
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0

Total Network Performance

Total Delay (hr)	390.5
Delay / Veh (s)	370.0
Total Stops	8241
Travel Dist (mi)	2507.5
Travel Time (hr)	460.3
Avg Speed (mph)	11
Fuel Used (gal)	179.1
HC Emissions (g)	1281
CO Emissions (g)	53962
NOx Emissions (g)	4333
Vehicles Entered	3837
Vehicles Exited	3765
Hourly Exit Rate	3765
Input Volume	18188
% of Volume	21
Denied Entry Before	3
Denied Entry After	566

Intersection: 2: Graves Mill Rd & East Ramp

Movement	EB	EB	EB	WB	WB	WB	NW	NW
Directions Served	L	T	T	T	T	R	L	LTR
Maximum Queue (ft)	225	318	110	979	974	225	450	962
Average Queue (ft)	150	74	31	759	736	82	428	866
95th Queue (ft)	246	272	76	1237	1235	239	536	1212
Link Distance (ft)		718	718	942	942			925
Upstream Blk Time (%)				47	27			50
Queuing Penalty (veh)				0	0			0
Storage Bay Dist (ft)	125					125	300	
Storage Blk Time (%)	23				55		81	42
Queuing Penalty (veh)	24				53		495	189

Intersection: 3: Graves Mill Rd & West Ramp

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	T	T	R	L	T	T	<L	R
Maximum Queue (ft)	153	343	399	300	743	749	110	266
Average Queue (ft)	37	46	251	298	723	509	39	116
95th Queue (ft)	107	234	435	302	762	995	88	211
Link Distance (ft)	800	800			718	718	560	
Upstream Blk Time (%)					64	16		
Queuing Penalty (veh)					489	120		
Storage Bay Dist (ft)			200	200				150
Storage Blk Time (%)			10	92	2		0	5
Queuing Penalty (veh)			20	569	4		0	2

Intersection: 4: Graves Mill Rd & Creekside Dr

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LT	R	L	TR
Maximum Queue (ft)	77	455	665	312	223	244	28	375	175	159	96
Average Queue (ft)	27	77	253	132	100	124	10	132	144	80	32
95th Queue (ft)	61	270	572	254	189	217	27	313	211	142	72
Link Distance (ft)		698	698		800	800		481			558
Upstream Blk Time (%)			0							0	
Queuing Penalty (veh)			1							0	
Storage Bay Dist (ft)	225			400			300		125	125	
Storage Blk Time (%)		0				0		1	22	3	0
Queuing Penalty (veh)		0				0		4	18	2	0

Intersection: 5: Graves Mill Rd & Old Graves Mill Rd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	R	L	T	TR	LT	R
Maximum Queue (ft)	10	300	382	91	266	73	88	213	52
Average Queue (ft)	0	143	201	27	127	8	15	109	13
95th Queue (ft)	5	266	336	64	231	42	56	185	36
Link Distance (ft)		1382	1382			698	698	784	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	200			200	250			300	
Storage Blk Time (%)		2	6		1	0			
Queuing Penalty (veh)		0	14		3	0			

Network Summary

Network wide Queuing Penalty: 2008



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Appendix E 2024 Build Syncho and SimTraffic Reports

Queues

2: Graves Mill Rd & East Ramp

11/11/2013



Lane Group	EBL	EBT	WBT	WBR	NWL	NWT
Lane Group Flow (vph)	354	497	386	27	636	624
v/c Ratio	0.70	0.30	0.42	0.06	0.86	0.84
Control Delay	21.3	12.6	47.8	18.9	46.7	44.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.3	12.6	47.8	18.9	46.7	44.5
Queue Length 50th (ft)	152	97	158	1	524	495
Queue Length 95th (ft)	269	155	233	30	661	633
Internal Link Dist (ft)		689	906			906
Turn Bay Length (ft)	125			125	300	
Base Capacity (vph)	558	1670	923	440	828	821
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.30	0.42	0.06	0.77	0.76
Intersection Summary						

HCM Signalized Intersection Capacity Analysis

2: Graves Mill Rd & East Ramp

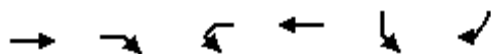
11/11/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		 			 						 	
Volume (vph)	326	457	0	0	355	25	0	0	0	992	0	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0				6.0	6.0	
Lane Util. Factor	1.00	0.95			0.95	1.00				0.95	0.95	
Fr't	1.00	1.00			1.00	0.85				1.00	0.96	
Flt Protected	0.95	1.00			1.00	1.00				0.95	0.97	
Satd. Flow (prot)	1787	3539			3539	1615				1681	1644	
Flt Permitted	0.36	1.00			1.00	1.00				0.95	0.97	
Satd. Flow (perm)	681	3539			3539	1615				1681	1644	
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)	354	497	0	0	386	27	0	0	0	1078	0	182
RTOR Reduction (vph)	0	0	0	0	0	18	0	0	0	0	12	0
Lane Group Flow (vph)	354	497	0	0	386	9	0	0	0	636	612	0
Heavy Vehicles (%)	1%	2%	0%	0%	2%	0%	0%	0%	0%	2%	0%	0%
Turn Type	pm+pt					Perm					Split	
Protected Phases	5	2			6						8	8
Permitted Phases	2					6						
Actuated Green, G (s)	66.1	66.1			36.6	36.6				61.9	61.9	
Effective Green, g (s)	66.1	66.1			36.6	36.6				61.9	61.9	
Actuated g/C Ratio	0.47	0.47			0.26	0.26				0.44	0.44	
Clearance Time (s)	6.0	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	
Lane Grp Cap (vph)	507	1671			925	422				743	727	
v/s Ratio Prot	c0.12	0.14			0.11					c0.38	0.37	
v/s Ratio Perm	c0.21					0.01						
v/c Ratio	0.70	0.30			0.42	0.02				0.86	0.84	
Uniform Delay, d1	25.3	22.7			42.9	38.4				35.0	34.7	
Progression Factor	0.52	0.50			1.00	1.00				1.00	1.00	
Incremental Delay, d2	4.1	0.4			1.4	0.1				9.5	8.8	
Delay (s)	17.3	11.9			44.2	38.5				44.6	43.5	
Level of Service	B	B			D	D				D	D	
Approach Delay (s)		14.1			43.9			0.0			44.0	
Approach LOS		B			D			A			D	
Intersection Summary												
HCM Average Control Delay			33.9			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				12.0		
Intersection Capacity Utilization			101.9%			ICU Level of Service				G		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

3: Graves Mill Rd & West Ramp

11/11/2013



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	717	1254	215	1172	88	290
v/c Ratio	0.29	0.90	0.38	0.42	0.39	0.88
Control Delay	3.4	24.3	4.8	4.4	59.9	57.0
Queue Delay	0.0	3.5	0.0	0.4	0.0	0.0
Total Delay	3.4	27.9	4.8	4.8	59.9	57.0
Queue Length 50th (ft)	55	482	52	157	73	136
Queue Length 95th (ft)	m60	m#626	m59	178	127	#269
Internal Link Dist (ft)	795			689	509	
Turn Bay Length (ft)		200	200			150
Base Capacity (vph)	2460	1389	560	2810	275	371
Starvation Cap Reductn	0	80	0	960	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.96	0.38	0.63	0.32	0.78

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

3: Graves Mill Rd & West Ramp

11/11/2013

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations		↑↑	↑	↑	↑↑			↓	↓		
Volume (vph)	0	660	1154	198	1078	0	80	1	267	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0			6.0	6.0		
Lane Util. Factor		0.95	1.00	1.00	0.95			1.00	1.00		
Flt		1.00	0.85	1.00	1.00			1.00	0.85		
Flt Protected		1.00	1.00	0.95	1.00			0.95	1.00		
Satd. Flow (prot)		3574	1599	1787	3574			1753	1599		
Flt Permitted		1.00	1.00	0.34	1.00			0.95	1.00		
Satd. Flow (perm)		3574	1599	633	3574			1753	1599		
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
Adj. Flow (vph)	0	717	1254	215	1172	0	87	1	290	0	0
RTOR Reduction (vph)	0	0	288	0	0	0	0	0	124	0	0
Lane Group Flow (vph)	0	717	966	215	1172	0	0	88	166	0	0
Heavy Vehicles (%)	0%	1%	1%	1%	1%	0%	3%	0%	1%	0%	0%
Turn Type		Perm		pm+pt			Split		Perm		
Protected Phases		2		1	6		4	4			
Permitted Phases			2	6					4		
Actuated Green, G (s)		96.4	96.4	110.1	110.1			17.9	17.9		
Effective Green, g (s)		96.4	96.4	110.1	110.1			17.9	17.9		
Actuated g/C Ratio		0.69	0.69	0.79	0.79			0.13	0.13		
Clearance Time (s)		6.0	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		
Lane Grp Cap (vph)		2461	1101	561	2811			224	204		
v/s Ratio Prot		0.20		0.02	c0.33			0.05			
v/s Ratio Perm			c0.60	0.28					c0.10		
v/c Ratio		0.29	0.88	0.38	0.42			0.39	0.81		
Uniform Delay, d1		8.5	17.1	4.3	4.8			56.1	59.4		
Progression Factor		0.36	3.89	0.81	0.78			1.00	1.00		
Incremental Delay, d2		0.2	6.4	0.3	0.3			1.1	21.5		
Delay (s)		3.3	73.0	3.8	4.1			57.2	80.9		
Level of Service		A	E	A	A			E	F		
Approach Delay (s)		47.6			4.0			75.4		0.0	
Approach LOS		D			A			E		A	
Intersection Summary											
HCM Average Control Delay			34.2			HCM Level of Service			C		
HCM Volume to Capacity ratio			0.85								
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			18.0		
Intersection Capacity Utilization			101.9%			ICU Level of Service			G		
Analysis Period (min)			15								
c Critical Lane Group											

Queues

4: Graves Mill Rd & Creekside Dr

11/11/2013



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	32	1456	271	1034	110	32	407	26	19
v/c Ratio	0.11	0.90	0.87	0.48	0.11	0.11	0.58	0.27	0.19
Control Delay	7.9	28.3	73.3	6.4	0.5	51.0	22.4	69.6	40.8
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.9	28.3	73.3	6.4	0.5	51.0	22.4	69.6	40.8
Queue Length 50th (ft)	11	524	150	129	1	25	162	23	6
Queue Length 95th (ft)	m12	#798	m#304	129	m4	58	281	55	34
Internal Link Dist (ft)		697		795		460			536
Turn Bay Length (ft)	225		400		300		125	125	
Base Capacity (vph)	283	1618	340	2144	1003	292	732	206	196
Starvation Cap Reductn	0	3	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.90	0.80	0.48	0.11	0.11	0.56	0.13	0.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

4: Graves Mill Rd & Creekside Dr

11/11/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	1325	15	249	951	101	14	16	374	24	6	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0		6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3566		1752	3574	1599		1527	1568	1805	1619	
Flt Permitted	0.27	1.00		0.06	1.00	1.00		0.98	1.00	0.95	1.00	
Satd. Flow (perm)	512	3566		108	3574	1599		1527	1568	1805	1619	
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)	32	1440	16	271	1034	110	15	17	407	26	7	12
RTOR Reduction (vph)	0	1	0	0	0	47	0	0	119	0	11	0
Lane Group Flow (vph)	32	1455	0	271	1034	63	0	32	288	26	8	0
Heavy Vehicles (%)	0%	1%	7%	3%	1%	1%	46%	0%	3%	0%	17%	0%
Turn Type	pm+pt			pm+pt		Perm	Split		pm+ov	Split		
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases	2			6		6			8			
Actuated Green, G (s)	64.7	62.3		88.8	80.4	80.4		26.8	47.3	6.4	6.4	
Effective Green, g (s)	64.7	62.3		88.8	80.4	80.4		26.8	47.3	6.4	6.4	
Actuated g/C Ratio	0.46	0.44		0.63	0.57	0.57		0.19	0.34	0.05	0.05	
Clearance Time (s)	6.0	6.0		6.0	6.0	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	
Lane Grp Cap (vph)	259	1587		309	2052	918		292	597	83	74	
v/s Ratio Prot	0.00	c0.41		c0.13	0.29			0.02	c0.07	c0.01	0.00	
v/s Ratio Perm	0.06			0.43		0.04			0.11			
v/c Ratio	0.12	0.92		0.88	0.50	0.07		0.11	0.48	0.31	0.10	
Uniform Delay, d1	20.6	36.4		45.6	17.9	13.2		46.7	36.7	64.7	64.0	
Progression Factor	0.62	0.57		1.25	0.35	0.12		1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	8.4		21.1	0.2	0.0		0.8	0.6	2.2	0.6	
Delay (s)	13.1	29.2		78.1	6.4	1.6		47.5	37.3	66.8	64.7	
Level of Service	B	C		E	A	A		D	D	E	E	
Approach Delay (s)		28.9			19.7			38.0			65.9	
Approach LOS		C			B			D			E	
Intersection Summary												
HCM Average Control Delay			26.7			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			24.0			
Intersection Capacity Utilization			78.6%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

5: Graves Mill Rd & Old Graves Mill Rd

11/11/2013



Lane Group	EBT	EBR	WBL	WBT	NBT	NBR
Lane Group Flow (vph)	1418	168	75	980	160	65
v/c Ratio	0.59	0.16	0.60	0.35	0.71	0.25
Control Delay	11.4	1.9	63.4	0.6	75.1	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.4	1.9	63.4	0.6	75.1	13.7
Queue Length 50th (ft)	355	2	70	8	142	0
Queue Length 95th (ft)	457	29	122	14	211	43
Internal Link Dist (ft)	1132			697	755	
Turn Bay Length (ft)		200	250			300
Base Capacity (vph)	2385	1070	138	2814	265	291
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	88	0	0	0	0	2
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.16	0.54	0.35	0.60	0.22
Intersection Summary						

HCM Signalized Intersection Capacity Analysis

5: Graves Mill Rd & Old Graves Mill Rd

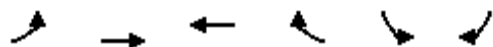
11/11/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1305	155	69	899	3	146	1	60	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0			6.0	6.0			
Lane Util. Factor		0.95	1.00	1.00	0.95			1.00	1.00			
Flt		1.00	0.85	1.00	1.00			1.00	0.85			
Flt Protected		1.00	1.00	0.95	1.00			0.95	1.00			
Satd. Flow (prot)		3539	1538	1752	3573			1775	1583			
Flt Permitted		1.00	1.00	0.95	1.00			0.95	1.00			
Satd. Flow (perm)		3539	1538	1752	3573			1775	1583			
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)	0	1418	168	75	977	3	159	1	65	0	0	0
RTOR Reduction (vph)	0	0	34	0	0	0	0	0	57	0	0	0
Lane Group Flow (vph)	0	1418	134	75	980	0	0	160	8	0	0	0
Heavy Vehicles (%)	0%	2%	5%	3%	1%	0%	2%	0%	2%	0%	0%	0%
Turn Type	Prot		Perm	Prot			Split		Perm	Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2						8			
Actuated Green, G (s)		94.3	94.3	9.9	110.2			17.8	17.8			
Effective Green, g (s)		94.3	94.3	9.9	110.2			17.8	17.8			
Actuated g/C Ratio		0.67	0.67	0.07	0.79			0.13	0.13			
Clearance Time (s)		6.0	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			
Lane Grp Cap (vph)		2384	1036	124	2812			226	201			
v/s Ratio Prot		c0.40		c0.04	0.27			c0.09				
v/s Ratio Perm			0.09						0.01			
v/c Ratio		0.59	0.13	0.60	0.35			0.71	0.04			
Uniform Delay, d1		12.4	8.2	63.2	4.4			58.6	53.6			
Progression Factor		0.78	0.40	0.72	0.07			1.00	1.00			
Incremental Delay, d2		0.9	0.2	7.3	0.1			9.7	0.1			
Delay (s)		10.6	3.5	52.4	0.4			68.3	53.7			
Level of Service		B	A	D	A			E	D			
Approach Delay (s)		9.9			4.1			64.1			0.0	
Approach LOS		A			A			E			A	
Intersection Summary												
HCM Average Control Delay			12.0			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			63.0%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

6: Graves Mill Rd & Entrance

11/11/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	321	1272	886	176	258	137
v/c Ratio	0.77	0.60	0.70	0.26	0.62	0.29
Control Delay	24.9	10.2	18.2	3.8	32.0	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.9	10.2	18.2	3.8	32.0	6.4
Queue Length 50th (ft)	66	160	155	11	100	0
Queue Length 95th (ft)	#178	215	195	32	172	40
Internal Link Dist (ft)		164	153		311	
Turn Bay Length (ft)						100
Base Capacity (vph)	437	2123	1260	688	413	475
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.60	0.70	0.26	0.62	0.29

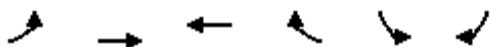
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

6: Graves Mill Rd & Entrance

11/11/2013



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	295	1170	815	162	237	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1805	3539	3539	1615	1805	1615
Flt Permitted	0.16	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	299	3539	3539	1615	1805	1615
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	321	1272	886	176	258	137
RTOR Reduction (vph)	0	0	0	113	0	106
Lane Group Flow (vph)	321	1272	886	63	258	31
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Turn Type	pm+pt			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Actuated Green, G (s)	42.0	42.0	24.9	24.9	16.0	16.0
Effective Green, g (s)	42.0	42.0	24.9	24.9	16.0	16.0
Actuated g/C Ratio	0.60	0.60	0.36	0.36	0.23	0.23
Clearance Time (s)	6.0	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
Lane Grp Cap (vph)	418	2123	1259	574	413	369
v/s Ratio Prot	c0.12	0.36	0.25		c0.14	
v/s Ratio Perm	c0.34			0.04		0.02
v/c Ratio	0.77	0.60	0.70	0.11	0.62	0.08
Uniform Delay, d1	11.6	8.7	19.4	15.1	24.3	21.2
Progression Factor	1.00	1.00	0.76	1.36	1.00	1.00
Incremental Delay, d2	8.2	1.3	3.1	0.4	7.0	0.5
Delay (s)	19.8	10.0	17.9	20.9	31.3	21.7
Level of Service	B	B	B	C	C	C
Approach Delay (s)		12.0	18.4		27.9	
Approach LOS		B	B		C	

Intersection Summary

HCM Average Control Delay	16.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues

2: Graves Mill Rd & East Ramp

11/11/2013



Lane Group	EBL	EBT	WBT	WBR	NWL	NWT
Lane Group Flow (vph)	358	262	748	105	634	616
v/c Ratio	0.85	0.16	0.80	0.22	0.92	0.90
Control Delay	47.4	7.2	49.1	17.1	53.3	49.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.4	7.2	49.1	17.1	53.3	49.4
Queue Length 50th (ft)	194	31	291	25	468	437
Queue Length 95th (ft)	#355	50	#373	71	#708	#672
Internal Link Dist (ft)		689	908			895
Turn Bay Length (ft)	125			125	300	
Base Capacity (vph)	419	1668	937	475	714	709
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.16	0.80	0.22	0.89	0.87

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

2: Graves Mill Rd & East Ramp

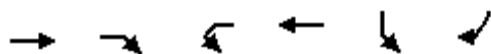
11/11/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		 			 						 	
Volume (vph)	329	241	0	0	688	97	0	0	0	989	2	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0				6.0	6.0	
Lane Util. Factor	1.00	0.95			0.95	1.00				0.95	0.95	
Frt	1.00	1.00			1.00	0.85				1.00	0.96	
Flt Protected	0.95	1.00			1.00	1.00				0.95	0.97	
Satd. Flow (prot)	1770	3406			3539	1615				1681	1641	
Flt Permitted	0.19	1.00			1.00	1.00				0.95	0.97	
Satd. Flow (perm)	346	3406			3539	1615				1681	1641	
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)	358	262	0	0	748	105	0	0	0	1075	2	173
RTOR Reduction (vph)	0	0	0	0	0	47	0	0	0	0	12	0
Lane Group Flow (vph)	358	262	0	0	748	58	0	0	0	634	604	0
Heavy Vehicles (%)	2%	6%	0%	0%	2%	0%	0%	0%	0%	2%	0%	1%
Turn Type	pm+pt				Perm				Split			
Protected Phases	5	2			6					8	8	
Permitted Phases	2				6							
Actuated Green, G (s)	58.8	58.8			31.8	31.8				49.2	49.2	
Effective Green, g (s)	58.8	58.8			31.8	31.8				49.2	49.2	
Actuated g/C Ratio	0.49	0.49			0.27	0.27				0.41	0.41	
Clearance Time (s)	6.0	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	
Lane Grp Cap (vph)	419	1669			938	428				689	673	
v/s Ratio Prot	c0.15	0.08			0.21					c0.38	0.37	
v/s Ratio Perm	c0.27					0.04						
v/c Ratio	0.85	0.16			0.80	0.14				0.92	0.90	
Uniform Delay, d1	37.2	16.9			41.1	33.6				33.5	33.1	
Progression Factor	0.68	0.40			1.00	1.00				1.00	1.00	
Incremental Delay, d2	15.3	0.2			7.0	0.7				17.6	14.7	
Delay (s)	40.7	6.9			48.1	34.3				51.2	47.7	
Level of Service	D	A			D	C				D	D	
Approach Delay (s)		26.4			46.4			0.0			49.5	
Approach LOS		C			D			A			D	
Intersection Summary												
HCM Average Control Delay			43.3		HCM Level of Service					D		
HCM Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			120.0		Sum of lost time (s)					12.0		
Intersection Capacity Utilization			109.4%		ICU Level of Service					H		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

3: Graves Mill Rd & West Ramp

11/11/2013



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	545	1354	274	1498	49	437
v/c Ratio	0.26	1.02	0.51	0.62	0.12	1.08
Control Delay	5.5	42.2	2.6	2.6	38.2	108.0
Queue Delay	0.0	10.6	0.0	0.2	0.0	0.0
Total Delay	5.5	52.8	2.6	2.7	38.2	108.0
Queue Length 50th (ft)	41	~696	14	87	30	~344
Queue Length 95th (ft)	m56	m#497	m14	81	65	#551
Internal Link Dist (ft)	795			689	514	
Turn Bay Length (ft)		200	200			150
Base Capacity (vph)	2085	1329	537	2412	394	403
Starvation Cap Reductn	0	39	0	236	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.26	1.05	0.51	0.69	0.12	1.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

3: Graves Mill Rd & West Ramp

11/11/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations		↑↑	↑	↑	↑↑			↓	↑		
Volume (vph)	0	501	1246	252	1378	0	45	0	402	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0			6.0	6.0		
Lane Util. Factor		0.95	1.00	1.00	0.95			1.00	1.00		
Frt		1.00	0.85	1.00	1.00			1.00	0.85		
Flt Protected		1.00	1.00	0.95	1.00			0.95	1.00		
Satd. Flow (prot)		3574	1583	1770	3574			1752	1599		
Flt Permitted		1.00	1.00	0.39	1.00			0.95	1.00		
Satd. Flow (perm)		3574	1583	731	3574			1752	1599		
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
Adj. Flow (vph)	0	545	1354	274	1498	0	49	0	437	0	0
RTOR Reduction (vph)	0	0	405	0	0	0	0	0	43	0	0
Lane Group Flow (vph)	0	545	949	274	1498	0	0	49	394	0	0
Heavy Vehicles (%)	0%	1%	2%	2%	1%	0%	3%	0%	1%	0%	0%
Turn Type		Perm		pm+pt			Split		Perm		
Protected Phases		2		1	6		4	4			
Permitted Phases			2	6					4		
Actuated Green, G (s)		70.0	70.0	81.0	81.0			27.0	27.0		
Effective Green, g (s)		70.0	70.0	81.0	81.0			27.0	27.0		
Actuated g/C Ratio		0.58	0.58	0.68	0.68			0.22	0.22		
Clearance Time (s)		6.0	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		
Lane Grp Cap (vph)		2085	923	537	2412			394	360		
v/s Ratio Prot		0.15		0.02	c0.42			0.03			
v/s Ratio Perm			c0.60	0.32					c0.25		
v/c Ratio		0.26	1.03	0.51	0.62			0.12	1.09		
Uniform Delay, d1		12.3	25.0	9.6	10.9			37.1	46.5		
Progression Factor		0.43	2.88	0.10	0.17			1.00	1.00		
Incremental Delay, d2		0.2	30.7	0.4	0.6			0.1	74.9		
Delay (s)		5.5	102.7	1.4	2.5			37.2	121.4		
Level of Service		A	F	A	A			D	F		
Approach Delay (s)		74.8			2.3			112.9		0.0	
Approach LOS		E			A			F		A	
Intersection Summary											
HCM Average Control Delay			48.4			HCM Level of Service			D		
HCM Volume to Capacity ratio			1.05								
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			18.0		
Intersection Capacity Utilization			109.4%			ICU Level of Service			H		
Analysis Period (min)			15								

c Critical Lane Group

Queues

4: Graves Mill Rd & Creekside Dr

11/11/2013



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	48	1316	272	1470	123	90	364	103	63
v/c Ratio	0.32	0.92	0.90	0.81	0.14	0.30	0.57	0.58	0.30
Control Delay	17.0	22.4	62.4	24.1	3.6	48.3	25.0	63.7	28.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	17.0	22.4	62.4	24.1	3.6	48.3	25.1	63.7	28.1
Queue Length 50th (ft)	7	331	165	374	9	62	149	77	19
Queue Length 95th (ft)	m9	#647	m#264	m431	m20	118	262	132	61
Internal Link Dist (ft)		697		795		478			542
Turn Bay Length (ft)	225		400		300		125	125	
Base Capacity (vph)	151	1427	314	1847	894	305	650	238	263
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	28	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.92	0.87	0.80	0.14	0.30	0.59	0.43	0.24

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

4: Graves Mill Rd & Creekside Dr

11/11/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	44	1199	12	250	1352	113	64	18	335	95	24	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0		6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3569		1770	3574	1615		1829	1599	1787	1733	
Flt Permitted	0.11	1.00		0.09	1.00	1.00		0.96	1.00	0.95	1.00	
Satd. Flow (perm)	207	3569		170	3574	1615		1829	1599	1787	1733	
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)	48	1303	13	272	1470	123	70	20	364	103	26	37
RTOR Reduction (vph)	0	1	0	0	0	62	0	0	85	0	33	0
Lane Group Flow (vph)	48	1315	0	272	1470	62	0	90	279	103	30	0
Heavy Vehicles (%)	0%	1%	0%	2%	1%	0%	0%	0%	1%	1%	0%	0%
Turn Type	pm+pt			pm+pt		Perm	Split		pm+ov	Split		
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases	2			6		6			8			
Actuated Green, G (s)	47.9	47.9		60.0	60.0	60.0		20.0	36.1	12.0	12.0	
Effective Green, g (s)	47.9	47.9		60.0	60.0	60.0		20.0	36.1	12.0	12.0	
Actuated g/C Ratio	0.40	0.40		0.50	0.50	0.50		0.17	0.30	0.10	0.10	
Clearance Time (s)	6.0	6.0		6.0	6.0	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	
Lane Grp Cap (vph)	136	1425		300	1787	808		305	561	179	173	
v/s Ratio Prot	0.01	c0.37		0.12	c0.41			0.05	c0.07	c0.06	0.02	
v/s Ratio Perm	0.13			0.33		0.04			0.11			
v/c Ratio	0.35	0.92		0.91	0.82	0.08		0.30	0.50	0.58	0.17	
Uniform Delay, d1	38.6	34.3		35.3	25.5	15.6		43.8	34.5	51.6	49.4	
Progression Factor	0.39	0.37		1.26	0.84	1.21		1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.1	8.3		21.7	2.2	0.0		2.5	0.7	4.4	0.5	
Delay (s)	16.1	21.2		66.1	23.6	18.9		46.3	35.2	56.0	49.9	
Level of Service	B	C		E	C	B		D	D	E	D	
Approach Delay (s)		21.0			29.5			37.4			53.7	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM Average Control Delay			28.4			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			24.0			
Intersection Capacity Utilization			74.5%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

5: Graves Mill Rd & Old Graves Mill Rd

11/11/2013



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR
Lane Group Flow (vph)	1	1467	309	235	1210	193	38
v/c Ratio	0.01	0.73	0.32	1.00	0.48	0.69	0.13
Control Delay	42.0	14.7	2.9	91.5	1.5	60.2	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.0	14.7	2.9	91.5	1.5	60.2	13.4
Queue Length 50th (ft)	1	291	11	194	24	143	0
Queue Length 95th (ft)	m1	367	m32	m#299	50	212	30
Internal Link Dist (ft)		1099			697	750	
Turn Bay Length (ft)	200		200	250			300
Base Capacity (vph)	108	2001	966	236	2539	290	294
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.73	0.32	1.00	0.48	0.67	0.13

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

5: Graves Mill Rd & Old Graves Mill Rd

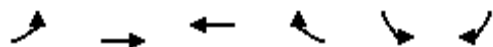
11/11/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	1350	284	216	1113	0	178	0	35	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0			6.0	6.0			
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00			
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85			
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00			
Satd. Flow (prot)	1805	3574	1583	1770	3574			1787	1615			
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00			
Satd. Flow (perm)	1805	3574	1583	1770	3574			1787	1615			
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)	1	1467	309	235	1210	0	193	0	38	0	0	0
RTOR Reduction (vph)	0	0	86	0	0	0	0	0	32	0	0	0
Lane Group Flow (vph)	1	1467	223	235	1210	0	0	193	6	0	0	0
Heavy Vehicles (%)	0%	1%	2%	2%	1%	0%	1%	0%	0%	0%	0%	0%
Turn Type	Prot		Perm	Prot			Split		Perm	Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2						8			
Actuated Green, G (s)	2.7	62.4	62.4	20.8	80.5			18.8	18.8			
Effective Green, g (s)	2.7	62.4	62.4	20.8	80.5			18.8	18.8			
Actuated g/C Ratio	0.02	0.52	0.52	0.17	0.67			0.16	0.16			
Clearance Time (s)	6.0	6.0	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			
Lane Grp Cap (vph)	41	1858	823	307	2398			280	253			
v/s Ratio Prot	0.00	c0.41		c0.13	0.34			c0.11				
v/s Ratio Perm			0.14						0.00			
v/c Ratio	0.02	0.79	0.27	0.77	0.50			0.69	0.02			
Uniform Delay, d1	57.4	23.5	16.1	47.3	9.8			47.8	42.8			
Progression Factor	0.83	0.62	0.36	0.86	0.11			1.00	1.00			
Incremental Delay, d2	0.2	2.7	0.6	7.0	0.1			6.9	0.0			
Delay (s)	47.6	17.1	6.5	47.7	1.2			54.7	42.9			
Level of Service	D	B	A	D	A			D	D			
Approach Delay (s)		15.3			8.8			52.8			0.0	
Approach LOS		B			A			D			A	
Intersection Summary												
HCM Average Control Delay			15.1			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			74.1%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

6: Graves Mill Rd & Entrance

11/11/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	441	1255	1063	263	472	275
v/c Ratio	0.96	0.58	0.88	0.38	0.90	0.41
Control Delay	67.3	15.5	29.1	2.8	62.2	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.3	15.5	29.1	2.8	62.2	6.1
Queue Length 50th (ft)	284	290	368	10	351	2
Queue Length 95th (ft)	#487	352	#479	25	#544	65
Internal Link Dist (ft)		191	182		311	
Turn Bay Length (ft)						
Base Capacity (vph)	469	2174	1210	701	526	663
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.58	0.88	0.38	0.90	0.41

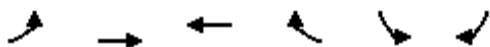
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

6: Graves Mill Rd & Entrance

11/11/2013



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	406	1155	978	242	434	253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1805	3574	3574	1615	1805	1615
Flt Permitted	0.09	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	163	3574	3574	1615	1805	1615
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	441	1255	1063	263	472	275
RTOR Reduction (vph)	0	0	0	154	0	192
Lane Group Flow (vph)	441	1255	1063	109	472	83
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%
Turn Type	pm+pt			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Actuated Green, G (s)	73.0	73.0	40.6	40.6	35.0	35.0
Effective Green, g (s)	73.0	73.0	40.6	40.6	35.0	35.0
Actuated g/C Ratio	0.61	0.61	0.34	0.34	0.29	0.29
Clearance Time (s)	6.0	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
Lane Grp Cap (vph)	460	2174	1209	546	526	471
v/s Ratio Prot	c0.21	0.35	0.30		c0.26	
v/s Ratio Perm	c0.37			0.07		0.05
v/c Ratio	0.96	0.58	0.88	0.20	0.90	0.18
Uniform Delay, d1	36.8	14.2	37.4	28.2	40.8	31.7
Progression Factor	1.00	1.00	0.54	0.26	1.00	1.00
Incremental Delay, d2	31.2	1.1	8.3	0.7	20.7	0.8
Delay (s)	68.0	15.3	28.3	8.0	61.4	32.6
Level of Service	E	B	C	A	E	C
Approach Delay (s)		29.0	24.2		50.8	
Approach LOS		C	C		D	

Intersection Summary

HCM Average Control Delay	31.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	6:57	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intvls	1	1	1	1	1	1	1
Vehs Entered	4456	4589	4492	4621	4510	4583	4625
Vehs Exited	4398	4548	4497	4522	4410	4499	4465
Starting Vehs	174	166	199	192	183	194	156
Ending Vehs	232	207	194	291	283	278	316
Denied Entry Before	1	9	3	5	3	2	4
Denied Entry After	18	26	164	33	37	34	22
Travel Distance (mi)	3046	3107	3056	3109	3051	3082	3060
Travel Time (hr)	234.3	230.0	230.5	265.2	265.8	243.3	230.1
Total Delay (hr)	146.8	140.3	142.4	175.6	178.0	154.3	141.9
Total Stops	9843	9392	8574	11346	11563	10371	9613
Fuel Used (gal)	147.7	148.9	148.4	156.3	155.1	151.2	147.7

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intvls	1	1	1	1
Vehs Entered	4556	4559	4530	4550
Vehs Exited	4416	4479	4454	4470
Starting Vehs	163	183	178	176
Ending Vehs	303	263	254	259
Denied Entry Before	2	8	0	2
Denied Entry After	75	28	29	46
Travel Distance (mi)	3044	3095	3087	3074
Travel Time (hr)	276.9	260.4	230.9	246.7
Total Delay (hr)	189.5	171.5	142.1	158.2
Total Stops	11789	11342	9431	10324
Fuel Used (gal)	158.0	155.2	148.9	151.7

Interval #0 Information Seeding

Start Time	6:57
End Time	7:07
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	4456	4589	4492	4621	4510	4583	4625
Vehs Exited	4398	4548	4497	4522	4410	4499	4465
Starting Vehs	174	166	199	192	183	194	156
Ending Vehs	232	207	194	291	283	278	316
Denied Entry Before	1	9	3	5	3	2	4
Denied Entry After	18	26	164	33	37	34	22
Travel Distance (mi)	3046	3107	3056	3109	3051	3082	3060
Travel Time (hr)	234.3	230.0	230.5	265.2	265.8	243.3	230.1
Total Delay (hr)	146.8	140.3	142.4	175.6	178.0	154.3	141.9
Total Stops	9843	9392	8574	11346	11563	10371	9613
Fuel Used (gal)	147.7	148.9	148.4	156.3	155.1	151.2	147.7

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	4556	4559	4530	4550
Vehs Exited	4416	4479	4454	4470
Starting Vehs	163	183	178	176
Ending Vehs	303	263	254	259
Denied Entry Before	2	8	0	2
Denied Entry After	75	28	29	46
Travel Distance (mi)	3044	3095	3087	3074
Travel Time (hr)	276.9	260.4	230.9	246.7
Total Delay (hr)	189.5	171.5	142.1	158.2
Total Stops	11789	11342	9431	10324
Fuel Used (gal)	158.0	155.2	148.9	151.7

2: Graves Mill Rd & East Ramp Performance by movement

Movement	EBL	EBT	WBT	WBR	NWL	NWR	All
Total Delay (hr)	2.6	2.5	4.5	0.1	11.5	1.8	23.0
Delay / Veh (s)	30.3	20.3	46.0	10.5	42.3	39.4	36.4
Total Stops	243	209	262	16	689	114	1533
Travel Dist (mi)	43.8	63.2	64.1	4.2	174.0	29.2	378.4
Travel Time (hr)	3.9	4.0	6.2	0.2	17.1	2.8	34.2
Avg Speed (mph)	11	16	10	25	11	12	12
Fuel Used (gal)	1.7	2.6	3.3	0.2	6.9	1.1	15.7
HC Emissions (g)	13	33	39	1	52	2	140
CO Emissions (g)	582	1400	1966	111	1621	125	5804
NOx Emissions (g)	44	106	119	5	153	11	438
Vehicles Entered	308	444	354	23	980	165	2274
Vehicles Exited	310	448	357	23	967	163	2268
Hourly Exit Rate	310	448	357	23	967	163	2268
Input Volume	326	457	355	25	992	167	2322
% of Volume	95	98	101	92	97	98	98
Denied Entry Before	0	0	0	0	2	0	2
Denied Entry After	0	0	0	0	1	0	1

3: Graves Mill Rd & West Ramp Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL2	SBL	SBR	All
Total Delay (hr)	2.3	12.3	7.7	2.6	1.4	0.0	1.9	28.2
Delay / Veh (s)	12.9	41.2	144.5	8.1	61.2	62.8	25.1	30.0
Total Stops	105	694	290	179	76	1	228	1573
Travel Dist (mi)	102.8	175.8	29.0	165.9	8.6	0.1	27.5	509.7
Travel Time (hr)	4.8	18.5	8.8	7.4	1.7	0.0	2.9	44.1
Avg Speed (mph)	26	11	3	22	5	5	11	13
Fuel Used (gal)	5.6	7.8	3.0	10.1	0.6	0.0	1.3	28.3
HC Emissions (g)	73	39	11	141	6	0	8	278
CO Emissions (g)	3700	1435	635	7198	200	2	492	13662
NOx Emissions (g)	276	158	48	506	16	0	30	1034
Vehicles Entered	632	1074	195	1129	83	1	267	3381
Vehicles Exited	632	1072	192	1134	84	1	269	3384
Hourly Exit Rate	632	1072	192	1134	84	1	269	3384
Input Volume	665	1154	198	1149	80	1	267	3514
% of Volume	95	93	97	99	105	100	101	96
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	1	0	0	0	0	0	1

4: Graves Mill Rd & Creekside Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.2	21.2	0.3	5.0	2.1	0.1	0.2	0.3	3.7	0.5	0.1	0.0
Delay / Veh (s)	34.0	62.6	73.7	72.8	7.9	2.1	52.4	55.5	35.7	68.7	66.9	10.9
Total Stops	27	1208	17	239	165	22	10	14	263	23	6	10
Travel Dist (mi)	3.6	172.5	1.9	40.2	155.7	17.0	1.2	1.6	35.4	2.5	0.7	1.2
Travel Time (hr)	0.3	25.2	0.3	6.2	5.9	0.6	0.2	0.3	5.2	0.5	0.2	0.1
Avg Speed (mph)	11	7	6	6	26	28	6	5	8	5	5	15
Fuel Used (gal)	0.2	11.4	0.1	2.3	6.6	0.6	0.1	0.1	1.9	0.2	0.0	0.0
HC Emissions (g)	1	77	1	20	71	7	6	0	18	0	1	0
CO Emissions (g)	88	2921	23	769	3831	384	101	29	605	24	17	11
NOx Emissions (g)	6	292	3	60	283	24	12	2	49	2	1	1
Vehicles Entered	26	1218	13	249	979	104	12	17	377	24	6	11
Vehicles Exited	25	1227	13	245	977	105	12	17	376	24	7	11
Hourly Exit Rate	25	1227	13	245	977	105	12	17	376	24	7	11
Input Volume	29	1338	15	249	999	101	14	16	374	24	6	11
% of Volume	86	92	87	98	98	104	86	106	101	100	117	100
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	1	0	0	0

4: Graves Mill Rd & Creekside Dr Performance by movement

Movement	All
Total Delay (hr)	33.7
Delay / Veh (s)	40.0
Total Stops	2004
Travel Dist (mi)	433.5
Travel Time (hr)	45.1
Avg Speed (mph)	10
Fuel Used (gal)	23.5
HC Emissions (g)	202
CO Emissions (g)	8803
NOx Emissions (g)	734
Vehicles Entered	3036
Vehicles Exited	3039
Hourly Exit Rate	3039
Input Volume	3176
% of Volume	96
Denied Entry Before	0
Denied Entry After	1

5: Graves Mill Rd & Old Graves Mill Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	All
Total Delay (hr)	41.2	3.5	0.9	0.6	0.0	2.4	0.0	0.7	49.3
Delay / Veh (s)	123.3	87.6	50.8	2.6	1.3	59.2	53.2	44.8	70.8
Total Stops	2661	221	64	30	0	128	1	50	3155
Travel Dist (mi)	271.2	32.3	9.6	130.5	0.4	21.2	0.1	8.8	474.1
Travel Time (hr)	47.3	4.5	1.2	3.6	0.0	3.1	0.0	1.1	60.7
Avg Speed (mph)	7	9	8	36	31	7	8	9	9
Fuel Used (gal)	16.9	1.9	0.5	4.9	0.0	1.3	0.0	0.5	25.9
HC Emissions (g)	134	41	4	62	0	10	0	6	257
CO Emissions (g)	4380	1059	165	2705	5	441	2	234	8991
NOx Emissions (g)	377	89	13	255	0	31	0	16	782
Vehicles Entered	1227	146	65	887	2	143	1	59	2530
Vehicles Exited	1178	142	67	891	3	144	1	59	2485
Hourly Exit Rate	1178	142	67	891	3	144	1	59	2485
Input Volume	1305	155	69	904	3	146	1	60	2643
% of Volume	90	92	97	99	100	99	100	98	94
Denied Entry Before	0	0	0	0	0	0	0	0	0
Denied Entry After	19	3	0	0	0	0	0	0	22

6: Graves Mill Rd & Entrance Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Total Delay (hr)	1.6	4.4	3.4	0.1	1.9	0.4	11.9
Delay / Veh (s)	20.7	14.2	15.0	3.2	29.6	12.0	15.7
Total Stops	255	506	418	84	204	93	1560
Travel Dist (mi)	12.6	50.3	34.8	6.9	15.1	8.0	127.7
Travel Time (hr)	2.1	5.6	4.2	0.5	2.6	0.8	15.8
Avg Speed (mph)	6	9	8	14	6	12	8
Fuel Used (gal)	0.7	2.4	1.8	0.2	1.0	0.4	6.5
HC Emissions (g)	1	23	13	0	3	2	42
CO Emissions (g)	55	703	430	30	162	112	1493
NOx Emissions (g)	7	78	51	2	16	10	164
Vehicles Entered	282	1125	814	160	236	124	2741
Vehicles Exited	282	1121	815	160	234	123	2735
Hourly Exit Rate	282	1121	815	160	234	123	2735
Input Volume	295	1176	819	162	237	126	2815
% of Volume	96	95	100	99	99	98	97
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

17: Graves Mill Rd & Performance by movement

Movement	EBT	WBT	WBR	All
Total Delay (hr)	2.5	0.9	0.0	3.4
Delay / Veh (s)	6.5	3.4	1.7	5.1
Total Stops	185	10	0	195
Travel Dist (mi)	64.5	226.7	7.4	298.6
Travel Time (hr)	4.2	6.2	0.2	10.7
Avg Speed (mph)	15	36	34	28
Fuel Used (gal)	3.9	6.0	0.2	10.1
HC Emissions (g)	46	75	4	125
CO Emissions (g)	2058	2995	153	5206
NOx Emissions (g)	175	281	12	468
Vehicles Entered	1354	1005	33	2392
Vehicles Exited	1348	1010	33	2391
Hourly Exit Rate	1348	1010	33	2391
Input Volume	1412	1019	35	2466
% of Volume	95	99	94	97
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

19: Graves Mill Rd & Performance by movement

Movement	EBT	WBT	SBR	All
Total Delay (hr)	3.0	0.7	0.1	3.7
Delay / Veh (s)	7.6	2.6	7.6	5.6
Total Stops	180	0	32	212
Travel Dist (mi)	94.3	45.3	1.3	140.8
Travel Time (hr)	5.5	1.9	0.1	7.5
Avg Speed (mph)	17	24	9	19
Fuel Used (gal)	4.5	3.4	0.0	8.0
HC Emissions (g)	66	48	0	114
CO Emissions (g)	3370	2311	9	5690
NOx Emissions (g)	193	184	1	378
Vehicles Entered	1413	938	32	2383
Vehicles Exited	1401	935	32	2368
Hourly Exit Rate	1401	935	32	2368
Input Volume	1465	944	32	2441
% of Volume	96	99	100	97
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

Total Network Performance

Total Delay (hr)	158.2
Delay / Veh (s)	126.3
Total Stops	10324
Travel Dist (mi)	3073.6
Travel Time (hr)	246.7
Avg Speed (mph)	13
Fuel Used (gal)	151.7
HC Emissions (g)	1570
CO Emissions (g)	67945
NOx Emissions (g)	5444
Vehicles Entered	4550
Vehicles Exited	4470
Hourly Exit Rate	4470
Input Volume	26252
% of Volume	17
Denied Entry Before	2
Denied Entry After	46

Intersection: 2: Graves Mill Rd & East Ramp

Movement	EB	EB	EB	WB	WB	WB	NW	NW
Directions Served	L	T	T	T	T	R	L	LR
Maximum Queue (ft)	224	334	252	199	209	40	444	647
Average Queue (ft)	154	107	103	116	107	7	325	349
95th Queue (ft)	240	237	189	190	181	32	446	539
Link Distance (ft)		718	718	943	943			933
Upstream Blk Time (%)								0
Queuing Penalty (veh)								0
Storage Bay Dist (ft)	125					125	300	
Storage Blk Time (%)	13	2			8		9	9
Queuing Penalty (veh)	30	5			2		62	47

Intersection: 3: Graves Mill Rd & West Ramp

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	T	T	R	L	T	T	<L	R
Maximum Queue (ft)	221	650	400	299	612	563	170	217
Average Queue (ft)	49	286	371	219	164	122	77	101
95th Queue (ft)	132	680	453	342	535	429	136	183
Link Distance (ft)	800	800			718	718	543	
Upstream Blk Time (%)		0			1	0		
Queuing Penalty (veh)		0			10	2		
Storage Bay Dist (ft)			200	200				150
Storage Blk Time (%)			26	41	0		1	3
Queuing Penalty (veh)			85	220	0		2	3

Intersection: 4: Graves Mill Rd & Creekside Dr

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LT	R	L	TR
Maximum Queue (ft)	200	770	746	341	142	160	25	397	175	78	56
Average Queue (ft)	25	673	707	195	60	80	10	132	153	24	14
95th Queue (ft)	105	987	798	327	117	140	26	348	206	62	41
Link Distance (ft)		698	698		800	800		488			559
Upstream Blk Time (%)		18	26					0			
Queuing Penalty (veh)		122	175					0			
Storage Bay Dist (ft)	225			400			300		125	125	
Storage Blk Time (%)		7		1				0	22	0	
Queuing Penalty (veh)		2		3				1	7	0	

Intersection: 5: Graves Mill Rd & Old Graves Mill Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	R	L	T	TR	LT	R
Maximum Queue (ft)	1177	1172	500	142	54	69	231	98
Average Queue (ft)	732	813	238	59	7	17	114	35
95th Queue (ft)	1372	1367	639	116	35	54	200	81
Link Distance (ft)	1148	1148			698	698	778	
Upstream Blk Time (%)	7	11						
Queuing Penalty (veh)	51	80						
Storage Bay Dist (ft)			200	250				300
Storage Blk Time (%)	32	60						
Queuing Penalty (veh)	0	92						

Intersection: 6: Graves Mill Rd & Entrance

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	L	T	T	T	T	R	L	R
Maximum Queue (ft)	196	229	226	194	202	88	250	161
Average Queue (ft)	107	128	141	126	144	37	115	37
95th Queue (ft)	176	221	227	192	205	69	197	91
Link Distance (ft)	192	192	192	185	185	185	333	
Upstream Blk Time (%)	1	9	10	1	2		0	
Queuing Penalty (veh)	5	43	51	3	7		0	
Storage Bay Dist (ft)								100
Storage Blk Time (%)							12	0
Queuing Penalty (veh)							15	0

Intersection: 17: Graves Mill Rd &

Movement	EB	EB	WB	WB
Directions Served	T	T	T	T
Maximum Queue (ft)	164	169	37	75
Average Queue (ft)	46	51	2	7
95th Queue (ft)	178	185	19	38
Link Distance (ft)	185	185	1148	1148
Upstream Blk Time (%)	5	5		
Queuing Penalty (veh)	32	38		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 19: Graves Mill Rd &

Movement	EB	EB	EB	B7	B7	WB	SB
Directions Served	T	T	T	T	T	T	R
Maximum Queue (ft)	242	252	272	211	226	24	54
Average Queue (ft)	31	45	46	25	26	1	23
95th Queue (ft)	193	209	212	186	189	23	50
Link Distance (ft)	297	297	297	422	422	192	214
Upstream Blk Time (%)	1	1	2	2	3		
Queuing Penalty (veh)	0	0	0	0	0		
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Network Summary

Network wide Queuing Penalty: 1194

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	6:57	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intvls	1	1	1	1	1	1	1
Vehs Entered	4973	4976	5192	5047	5118	5138	5110
Vehs Exited	4805	4857	5030	4945	5013	4973	4890
Starting Vehs	287	275	269	319	287	289	242
Ending Vehs	455	394	431	421	392	454	462
Denied Entry Before	7	8	9	4	11	7	5
Denied Entry After	772	818	631	752	561	616	717
Travel Distance (mi)	3078	3115	3262	3211	3262	3203	3177
Travel Time (hr)	732.0	702.9	651.0	723.5	599.4	593.3	659.3
Total Delay (hr)	640.8	610.8	554.6	629.1	503.7	498.9	565.7
Total Stops	18467	17213	17544	18587	17468	17604	17539
Fuel Used (gal)	263.4	257.9	251.1	266.0	238.9	235.2	249.0

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intvls	1	1	1	1
Vehs Entered	5170	5102	5124	5093
Vehs Exited	4919	4852	4888	4917
Starting Vehs	240	210	199	258
Ending Vehs	491	460	435	433
Denied Entry Before	7	3	1	3
Denied Entry After	605	666	542	668
Travel Distance (mi)	3162	3133	3179	3178
Travel Time (hr)	573.2	628.5	540.4	640.4
Total Delay (hr)	479.5	536.0	446.8	546.6
Total Stops	16886	17185	15943	17444
Fuel Used (gal)	230.2	240.9	222.5	245.5

Interval #0 Information Seeding

Start Time	6:57
End Time	7:07
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	4973	4976	5192	5047	5118	5138	5110
Vehs Exited	4805	4857	5030	4945	5013	4973	4890
Starting Vehs	287	275	269	319	287	289	242
Ending Vehs	455	394	431	421	392	454	462
Denied Entry Before	7	8	9	4	11	7	5
Denied Entry After	772	818	631	752	561	616	717
Travel Distance (mi)	3078	3115	3262	3211	3262	3203	3177
Travel Time (hr)	732.0	702.9	651.0	723.5	599.4	593.3	659.3
Total Delay (hr)	640.8	610.8	554.6	629.1	503.7	498.9	565.7
Total Stops	18467	17213	17544	18587	17468	17604	17539
Fuel Used (gal)	263.4	257.9	251.1	266.0	238.9	235.2	249.0

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	5170	5102	5124	5093
Vehs Exited	4919	4852	4888	4917
Starting Vehs	240	210	199	258
Ending Vehs	491	460	435	433
Denied Entry Before	7	3	1	3
Denied Entry After	605	666	542	668
Travel Distance (mi)	3162	3133	3179	3178
Travel Time (hr)	573.2	628.5	540.4	640.4
Total Delay (hr)	479.5	536.0	446.8	546.6
Total Stops	16886	17185	15943	17444
Fuel Used (gal)	230.2	240.9	222.5	245.5

2: Graves Mill Rd & East Ramp Performance by movement

Movement	EBL	EBT	WBT	WBR	NWL	NWT	NWR	All
Total Delay (hr)	4.4	0.6	30.7	2.3	131.8	0.2	20.1	190.2
Delay / Veh (s)	55.3	10.1	166.6	85.6	646.3	685.3	609.3	324.1
Total Stops	313	63	1254	167	1454	2	209	3462
Travel Dist (mi)	41.6	29.5	120.7	17.7	129.2	0.2	20.8	359.7
Travel Time (hr)	5.7	1.3	33.8	2.9	135.9	0.2	20.9	200.7
Avg Speed (mph)	7	23	4	7	4	5	5	4
Fuel Used (gal)	2.2	1.2	11.0	1.2	33.8	0.0	5.2	54.5
HC Emissions (g)	15	26	66	5	129	0	14	255
CO Emissions (g)	637	942	2599	359	3486	3	447	8473
NOx Emissions (g)	47	76	194	21	218	0	25	582
Vehicles Entered	288	207	682	99	746	1	120	2143
Vehicles Exited	290	208	647	96	722	1	118	2082
Hourly Exit Rate	290	208	647	96	722	1	118	2082
Input Volume	329	241	688	97	989	2	159	2505
% of Volume	88	86	94	99	73	50	74	83
Denied Entry Before	0	0	0	0	1	0	0	1
Denied Entry After	0	0	9	2	249	0	42	302

3: Graves Mill Rd & West Ramp Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL2	SBR	All
Total Delay (hr)	1.7	13.9	16.8	10.4	0.6	4.6	48.0
Delay / Veh (s)	14.3	48.0	302.6	32.1	47.9	41.4	52.7
Total Stops	108	899	506	631	39	370	2553
Travel Dist (mi)	69.3	167.6	29.8	171.6	4.7	41.8	484.7
Travel Time (hr)	3.5	19.9	17.8	15.0	0.8	6.2	63.1
Avg Speed (mph)	23	9	2	11	6	8	8
Fuel Used (gal)	3.5	8.2	4.9	11.7	0.3	2.2	30.8
HC Emissions (g)	37	60	19	128	2	11	257
CO Emissions (g)	2196	1723	562	6077	94	562	11214
NOx Emissions (g)	143	189	53	488	6	38	917
Vehicles Entered	430	1041	203	1166	45	403	3288
Vehicles Exited	430	1039	197	1159	45	402	3272
Hourly Exit Rate	430	1039	197	1159	45	402	3272
Input Volume	501	1246	252	1425	45	402	3871
% of Volume	86	83	78	81	100	100	85
Denied Entry Before	0	1	0	0	0	0	1
Denied Entry After	1	3	0	0	0	1	5

4: Graves Mill Rd & Creekside Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.4	19.5	0.2	4.3	8.0	0.1	0.9	0.3	2.9	1.6	0.3	0.2
Delay / Veh (s)	48.8	68.4	90.1	73.6	23.8	4.2	47.9	52.1	31.3	59.9	50.2	18.5
Total Stops	34	1158	15	237	620	49	54	17	246	88	20	31
Travel Dist (mi)	4.7	139.5	1.3	33.7	193.1	15.7	6.2	1.9	33.0	10.2	2.4	3.9
Travel Time (hr)	0.6	22.7	0.3	5.3	12.9	0.6	1.1	0.3	4.3	1.9	0.4	0.3
Avg Speed (mph)	8	6	5	6	15	25	6	6	9	6	6	12
Fuel Used (gal)	0.3	10.2	0.1	2.1	8.3	0.6	0.4	0.1	1.7	0.7	0.1	0.2
HC Emissions (g)	2	62	0	17	77	5	1	0	9	4	1	1
CO Emissions (g)	143	2747	8	770	3699	353	85	28	534	194	38	56
NOx Emissions (g)	8	243	1	54	288	19	6	2	35	13	2	3
Vehicles Entered	33	1029	9	208	1217	96	64	20	337	94	23	37
Vehicles Exited	32	1026	9	209	1216	97	64	20	338	95	22	36
Hourly Exit Rate	32	1026	9	209	1216	97	64	20	338	95	22	36
Input Volume	44	1329	12	250	1418	113	64	18	335	95	24	34
% of Volume	73	77	75	84	86	86	100	111	101	100	92	106
Denied Entry Before	0	0	0	0	0	0	0	0	1	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

4: Graves Mill Rd & Creekside Dr Performance by movement

Movement	All
Total Delay (hr)	38.7
Delay / Veh (s)	44.0
Total Stops	2569
Travel Dist (mi)	445.7
Travel Time (hr)	50.7
Avg Speed (mph)	9
Fuel Used (gal)	24.9
HC Emissions (g)	179
CO Emissions (g)	8655
NOx Emissions (g)	674
Vehicles Entered	3167
Vehicles Exited	3164
Hourly Exit Rate	3164
Input Volume	3736
% of Volume	85
Denied Entry Before	1
Denied Entry After	0

5: Graves Mill Rd & Old Graves Mill Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBR	All
Total Delay (hr)	0.0	72.6	10.4	3.8	1.6	2.4	0.3	91.2
Delay / Veh (s)		243.2	168.6	73.8	5.5	48.1	30.4	118.5
Total Stops	1	2909	452	230	45	153	28	3818
Travel Dist (mi)	0.1	236.4	49.2	27.2	151.2	26.2	5.0	495.4
Travel Time (hr)	0.0	78.0	11.9	4.6	5.2	3.3	0.5	103.4
Avg Speed (mph)	7	4	6	6	29	8	12	6
Fuel Used (gal)	0.0	23.3	4.1	1.8	8.2	1.5	0.3	39.0
HC Emissions (g)	0	98	26	14	92	11	2	243
CO Emissions (g)	2	3219	989	563	5276	516	112	10678
NOx Emissions (g)	0	321	83	46	377	34	6	868
Vehicles Entered	0	1100	227	186	1078	178	33	2802
Vehicles Exited	0	1050	220	185	1074	178	34	2741
Hourly Exit Rate	0	1050	220	185	1074	178	34	2741
Input Volume	1	1362	284	216	1235	178	35	3311
% of Volume	0	77	77	86	87	100	97	83
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	41	9	0	0	0	0	50

6: Graves Mill Rd & Entrance Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Total Delay (hr)	4.2	14.3	5.3	0.3	18.3	6.0	48.4
Delay / Veh (s)	46.2	54.8	21.6	4.6	159.6	90.6	57.8
Total Stops	291	798	390	105	418	191	2193
Travel Dist (mi)	16.4	46.5	42.3	10.2	26.5	15.5	157.4
Travel Time (hr)	4.9	15.3	6.2	0.8	19.5	6.8	53.5
Avg Speed (mph)	4	3	7	13	2	9	4
Fuel Used (gal)	1.5	4.8	2.5	0.3	5.2	1.8	16.1
HC Emissions (g)	2	24	16	1	3	2	48
CO Emissions (g)	114	767	490	56	347	162	1936
NOx Emissions (g)	13	80	61	3	25	9	192
Vehicles Entered	330	945	881	211	413	238	3018
Vehicles Exited	333	931	885	213	411	239	3012
Hourly Exit Rate	333	931	885	213	411	239	3012
Input Volume	406	1174	992	242	434	253	3501
% of Volume	82	79	89	88	95	94	86
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	1	4	0	0	27	19	51

17: Graves Mill Rd & Performance by movement

Movement	EBT	WBT	WBR	All
Total Delay (hr)	8.1	1.5	0.0	9.6
Delay / Veh (s)	21.8	4.8	2.3	13.9
Total Stops	583	49	0	632
Travel Dist (mi)	70.5	245.3	6.0	321.8
Travel Time (hr)	10.2	7.3	0.2	17.7
Avg Speed (mph)	7	34	32	18
Fuel Used (gal)	4.9	6.9	0.2	12.0
HC Emissions (g)	40	87	4	131
CO Emissions (g)	1487	3644	155	5286
NOx Emissions (g)	141	313	11	465
Vehicles Entered	1346	1124	27	2497
Vehicles Exited	1337	1129	28	2494
Hourly Exit Rate	1337	1129	28	2494
Input Volume	1609	1275	28	2912
% of Volume	83	89	100	86
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

19: Graves Mill Rd & Performance by movement

Movement	EBT	WBT	SBR	All
Total Delay (hr)	12.0	0.8	0.1	12.9
Delay / Veh (s)	34.0	2.5	9.9	19.1
Total Stops	713	0	39	752
Travel Dist (mi)	58.5	58.7	1.4	118.6
Travel Time (hr)	13.5	2.5	0.2	16.2
Avg Speed (mph)	4	24	8	7
Fuel Used (gal)	5.2	4.0	0.1	9.2
HC Emissions (g)	39	48	0	88
CO Emissions (g)	1436	2426	8	3871
NOx Emissions (g)	133	191	1	325
Vehicles Entered	1274	1125	38	2437
Vehicles Exited	1263	1126	39	2428
Hourly Exit Rate	1263	1126	39	2428
Input Volume	1561	1246	37	2844
% of Volume	81	90	105	85
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

Total Network Performance

Total Delay (hr)	546.6
Delay / Veh (s)	393.2
Total Stops	17444
Travel Dist (mi)	3178.3
Travel Time (hr)	640.4
Avg Speed (mph)	8
Fuel Used (gal)	245.5
HC Emissions (g)	1743
CO Emissions (g)	70228
NOx Emissions (g)	5690
Vehicles Entered	5093
Vehicles Exited	4917
Hourly Exit Rate	4917
Input Volume	30741
% of Volume	16
Denied Entry Before	3
Denied Entry After	668

Intersection: 2: Graves Mill Rd & East Ramp

Movement	EB	EB	EB	WB	WB	WB	NW	NW
Directions Served	L	T	T	T	T	R	L	LTR
Maximum Queue (ft)	225	418	206	809	812	225	450	950
Average Queue (ft)	200	187	38	528	515	82	426	819
95th Queue (ft)	261	451	113	976	967	224	510	1199
Link Distance (ft)		717	717	946	946			923
Upstream Blk Time (%)				5	4			35
Queuing Penalty (veh)				0	0			0
Storage Bay Dist (ft)	125					125	300	
Storage Blk Time (%)	31				57	0	65	46
Queuing Penalty (veh)	37				56	1	424	228

Intersection: 3: Graves Mill Rd & West Ramp

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	T	T	R	L	T	T	<L	R
Maximum Queue (ft)	236	809	400	300	748	794	458	300
Average Queue (ft)	53	344	371	293	666	575	97	209
95th Queue (ft)	144	837	468	336	974	994	319	325
Link Distance (ft)	800	800			717	717	548	
Upstream Blk Time (%)		1			37	7	0	
Queuing Penalty (veh)		6			308	57	0	
Storage Bay Dist (ft)			200	200				150
Storage Blk Time (%)			33	84	0			23
Queuing Penalty (veh)			83	578	0			10

Intersection: 4: Graves Mill Rd & Creekside Dr

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LT	R	L	TR
Maximum Queue (ft)	78	769	746	372	508	515	162	337	175	164	100
Average Queue (ft)	26	679	701	186	230	249	24	110	140	69	30
95th Queue (ft)	59	998	815	332	395	407	106	272	202	133	69
Link Distance (ft)		697	697		800	800		505			564
Upstream Blk Time (%)		16	21		0	0		0			
Queuing Penalty (veh)		113	145		0	0		0			
Storage Bay Dist (ft)	225			400			300		125	125	
Storage Blk Time (%)		0		1	1	4		1	15	2	0
Queuing Penalty (veh)		0		6	3	5		2	12	1	0

Intersection: 5: Graves Mill Rd & Old Graves Mill Rd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	R	L	T	TR	LT	R
Maximum Queue (ft)	4	1180	1164	500	362	299	213	238	56
Average Queue (ft)	0	1030	1037	372	175	29	27	137	16
95th Queue (ft)	4	1474	1420	699	346	189	142	219	42
Link Distance (ft)		1112	1112			697	697	773	
Upstream Blk Time (%)		27	36						
Queuing Penalty (veh)		214	286						
Storage Bay Dist (ft)	200			200	250				300
Storage Blk Time (%)		61	73	0	8	0		0	
Queuing Penalty (veh)		1	207	0	43	1		0	

Intersection: 6: Graves Mill Rd & Entrance

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	L	T	T	T	T	R	L	R
Maximum Queue (ft)	231	267	262	233	233	102	349	238
Average Queue (ft)	192	215	218	149	159	46	331	83
95th Queue (ft)	277	278	274	242	249	80	396	186
Link Distance (ft)	218	218	218	211	211	211	334	334
Upstream Blk Time (%)	18	45	48	3	4		44	1
Queuing Penalty (veh)	93	232	250	12	16		0	0
Storage Bay Dist (ft)								
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 17: Graves Mill Rd &

Movement	EB	EB	WB	WB
Directions Served	T	T	T	T
Maximum Queue (ft)	281	253	180	227
Average Queue (ft)	173	177	17	24
95th Queue (ft)	331	328	102	124
Link Distance (ft)	211	211	1112	1112
Upstream Blk Time (%)	22	27		
Queuing Penalty (veh)	178	216		
Storage Bay Dist (ft)				
Storage Blk Time (%)				0
Queuing Penalty (veh)				0

Intersection: 19: Graves Mill Rd &

Movement	EB	EB	EB	B7	B7	SB
Directions Served	T	T	T	T	T	R
Maximum Queue (ft)	281	261	259	666	689	63
Average Queue (ft)	205	178	169	401	428	26
95th Queue (ft)	363	342	339	882	924	56
Link Distance (ft)	204	204	204	642	642	196
Upstream Blk Time (%)	20	36	26	9	37	
Queuing Penalty (veh)	0	0	0	0	0	
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 3822



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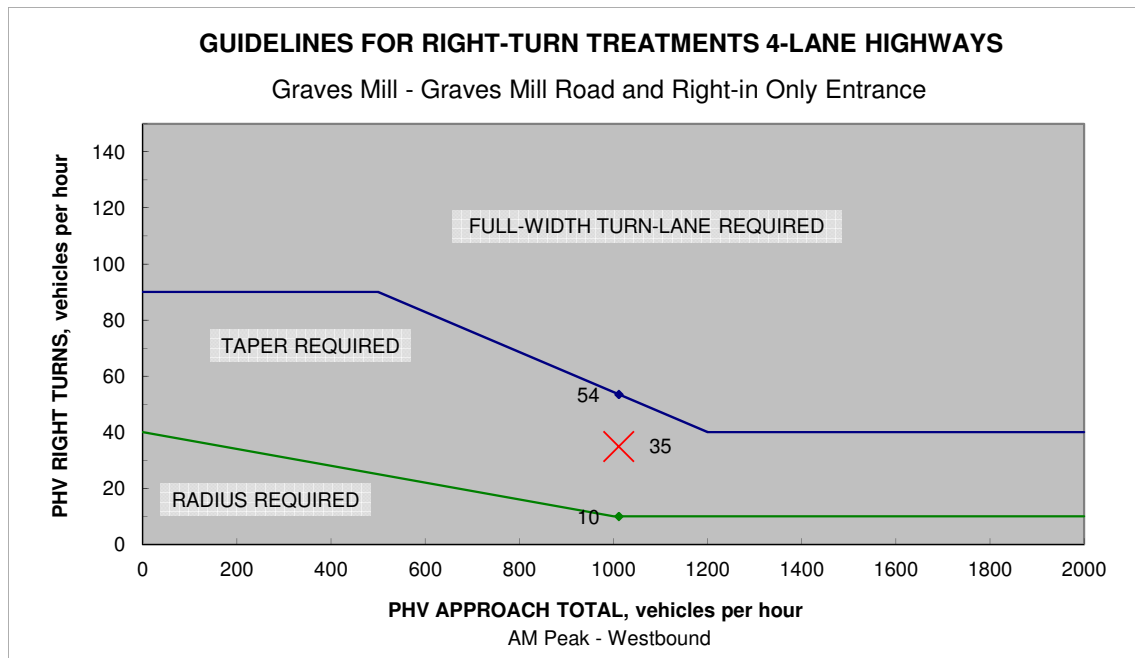
637 BERKMAR CIRCLE, CHARLOTTESVILLE, VA 22901

Appendix F Turn Lane Warrant Sheets

GUIDELINES FOR RIGHT-TURN TREATMENTS ON 4-LANE HIGHWAYS

Project:	Graves Mill		
Intersection:	Graves Mill Road and Right-in Only Entrance		
Approach Direction:	Westbound	Analysis Date:	2013
Peak Hour:	AM Peak	Data Date:	2013
PHV Right Turns:	35	Projection Year:	2024
PHV Approach Total:	1,011		

CONCLUSION: **RIGHT-TURN TAPER REQUIRED**

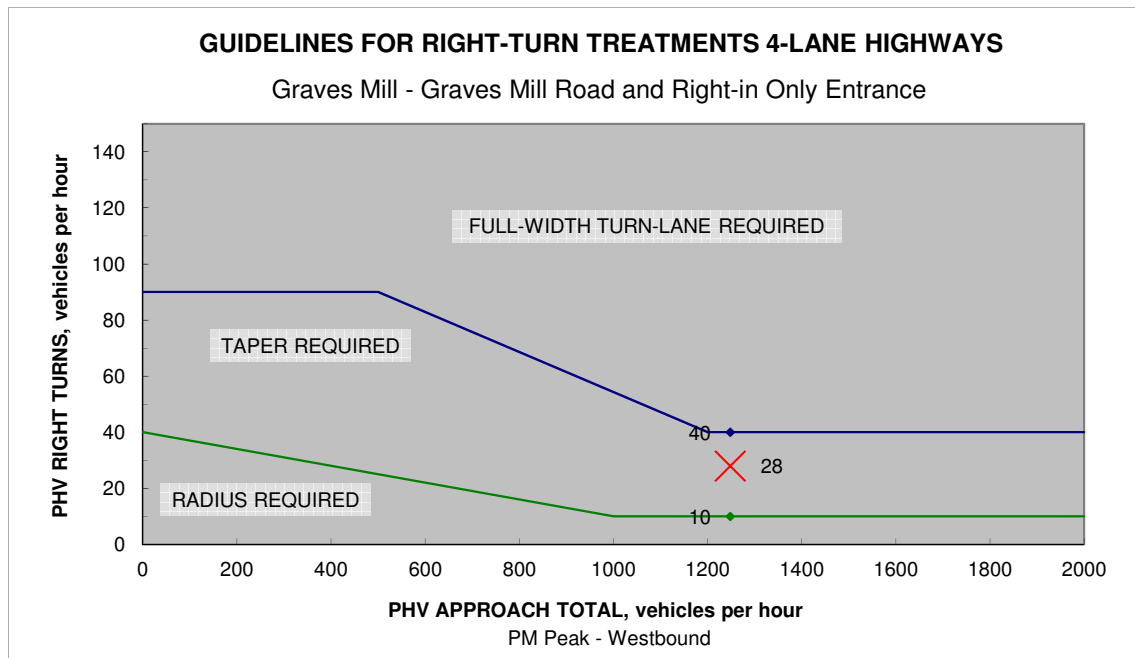


Source: VDOT Minimum Standards of Entrances to State Highways - Figure 6

GUIDELINES FOR RIGHT-TURN TREATMENTS ON 4-LANE HIGHWAYS

Project:	Graves Mill		
Intersection:	Graves Mill Road and Right-in Only Entrance		
Approach Direction:	Westbound	Analysis Date:	2013
Peak Hour:	PM Peak	Data Date:	2013
PHV Right Turns:	28	Projection Year:	2024
PHV Approach Total:	1,248		

CONCLUSION: **RIGHT-TURN TAPER REQUIRED**



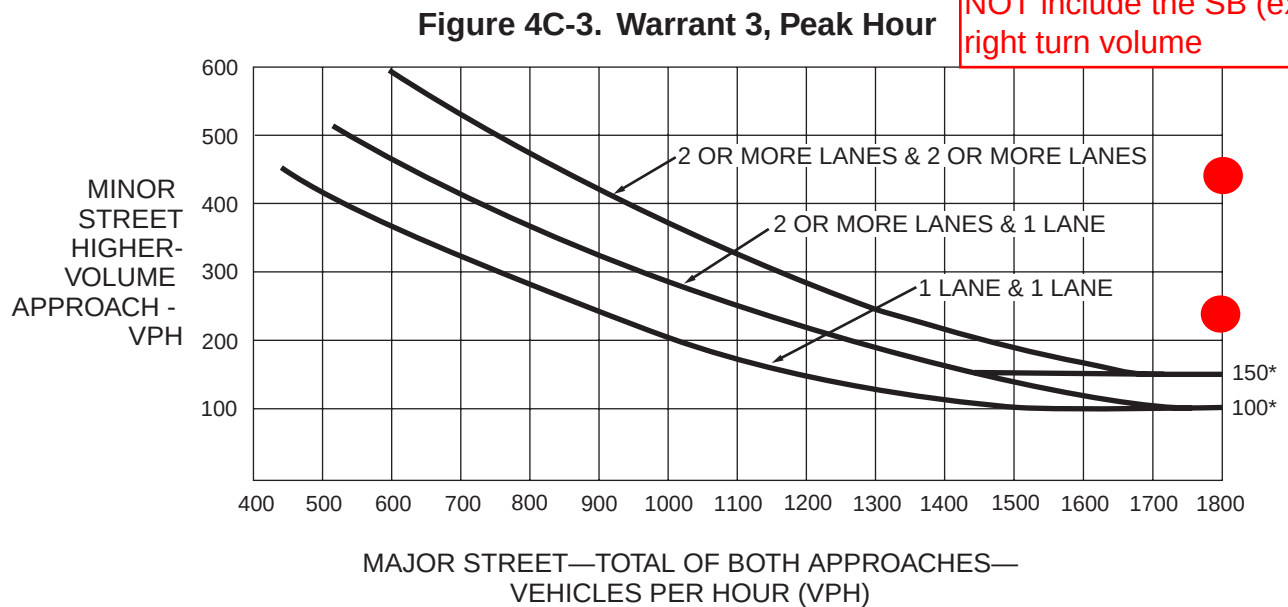
Source: VDOT Minimum Standards of Entrances to State Highways - Figure 6



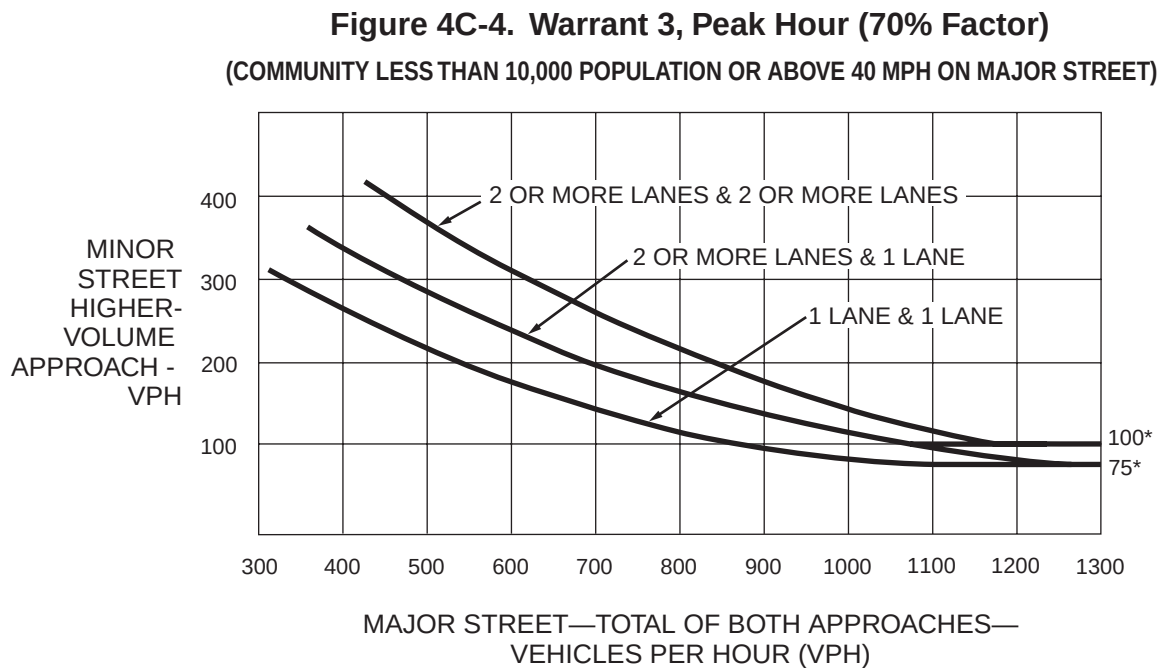
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Appendix G Peak Hour Signal Warrant Sheets



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Section 4C.05 Warrant 4, Pedestrian Volume

Support:

- 01 The Pedestrian Volume signal warrant is intended for application where the traffic volume on a major street is so heavy that pedestrians experience excessive delay in crossing the major street.

Standard:

- 02 **The need for a traffic control signal at an intersection or midblock crossing shall be considered if an engineering study finds that one of the following criteria is met:**
- A. For each of any 4 hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding pedestrians per hour crossing the major street (total of all crossings) all fall above the curve in Figure 4C-5; or
 - B. For 1 hour (any four consecutive 15-minute periods) of an average day, the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding pedestrians per hour crossing the major street (total of all crossings) falls above the curve in Figure 4C-7.

Option:

- 03 If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 35 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, Figure 4C-6 may be used in place of Figure 4C-5 to evaluate Criterion A in Paragraph 2, and Figure 4C-8 may be used in place of Figure 4C-7 to evaluate Criterion B in Paragraph 2.

Standard:

- 04 **The Pedestrian Volume signal warrant shall not be applied at locations where the distance to the nearest traffic control signal or STOP sign controlling the street that pedestrians desire to cross is less than 300 feet, unless the proposed traffic control signal will not restrict the progressive movement of traffic.**
- 05 **If this warrant is met and a traffic control signal is justified by an engineering study, the traffic control signal shall be equipped with pedestrian signal heads complying with the provisions set forth in Chapter 4E.**

Guidance:

- 06 *If this warrant is met and a traffic control signal is justified by an engineering study, then:*
- A. *If it is installed at an intersection or major driveway location, the traffic control signal should also control the minor-street or driveway traffic, should be traffic-actuated, and should include pedestrian detection.*
 - B. *If it is installed at a non-intersection crossing, the traffic control signal should be installed at least 100 feet from side streets or driveways that are controlled by STOP or YIELD signs, and should be pedestrian-actuated. If the traffic control signal is installed at a non-intersection crossing, at least one of the signal faces should be over the traveled way for each approach, parking and other sight obstructions should be prohibited for at least 100 feet in advance of and at least 20 feet beyond the crosswalk or site accommodations should be made through curb extensions or other techniques to provide adequate sight distance, and the installation should include suitable standard signs and pavement markings.*
 - C. *Furthermore, if it is installed within a signal system, the traffic control signal should be coordinated.*

Option:

- 07 The criterion for the pedestrian volume crossing the major street may be reduced as much as 50 percent if the 15th-percentile crossing speed of pedestrians is less than 3.5 feet per second.
- 08 A traffic control signal may not be needed at the study location if adjacent coordinated traffic control signals consistently provide gaps of adequate length for pedestrians to cross the street.

Section 4C.06 Warrant 5, School Crossing

Support:

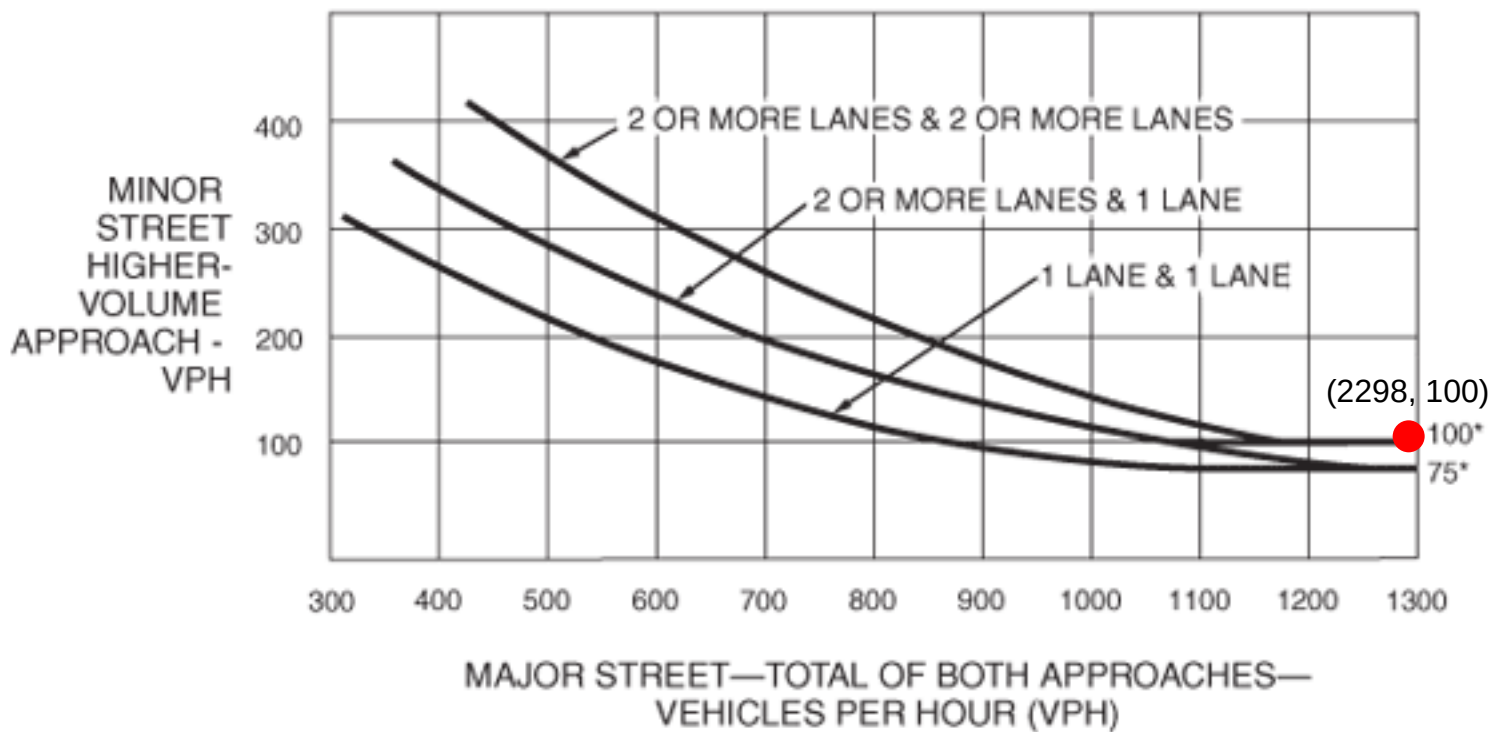
- 01 The School Crossing signal warrant is intended for application where the fact that schoolchildren cross the major street is the principal reason to consider installing a traffic control signal. For the purposes of this warrant, the word "schoolchildren" includes elementary through high school students.

Standard:

- 02 **The need for a traffic control signal shall be considered when an engineering study of the frequency and adequacy of gaps in the vehicular traffic stream as related to the number and size of groups of schoolchildren at an established school crossing across the major street shows that the number of adequate gaps in the traffic stream during the period when the schoolchildren are using the crossing is less than the number of minutes in the same period (see Section 7A.03) and there are a minimum of 20 schoolchildren during the highest crossing hour.**

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.



EPR, P.C. "ENGINEERING & PLANNING RESOURCES"

637 BERKMAR CIRCLE, CHARLOTTESVILLE, VA 22901

Appendix H 2024 Mitigation Syncho and SimTraffic Reports

Queues

2: Graves Mill Rd & East Ramp

11/22/2013



Lane Group	EBL	EBT	WBT	WBR	NWL	NWT	NWR
Lane Group Flow (vph)	354	497	386	27	539	539	182
v/c Ratio	0.75	0.30	0.44	0.06	0.85	0.85	0.25
Control Delay	27.5	9.7	26.6	10.0	35.7	35.7	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.5	9.7	26.6	10.0	35.7	35.7	3.5
Queue Length 50th (ft)	160	103	82	0	226	226	0
Queue Length 95th (ft)	#227	101	123	19	#403	#403	35
Internal Link Dist (ft)		689	906			906	
Turn Bay Length (ft)	125			125	300		300
Base Capacity (vph)	471	1637	868	417	672	672	755
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.30	0.44	0.06	0.80	0.80	0.24

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

2: Graves Mill Rd & East Ramp

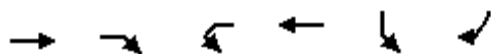
11/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	326	457	0	0	355	25	0	0	0	992	0	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0				6.0	6.0	6.0
Lane Util. Factor	1.00	0.95			0.95	1.00				0.95	0.95	1.00
Frt	1.00	1.00			1.00	0.85				1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00				0.95	0.95	1.00
Satd. Flow (prot)	1787	3539			3539	1615				1681	1681	1615
Flt Permitted	0.37	1.00			1.00	1.00				0.95	0.95	1.00
Satd. Flow (perm)	694	3539			3539	1615				1681	1681	1615
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)	354	497	0	0	386	27	0	0	0	1078	0	182
RTOR Reduction (vph)	0	0	0	0	0	20	0	0	0	0	0	113
Lane Group Flow (vph)	354	497	0	0	386	7	0	0	0	539	539	69
Heavy Vehicles (%)	1%	2%	0%	0%	2%	0%	0%	0%	0%	2%	0%	0%
Turn Type	pm+pt				Perm				Split			
Protected Phases	5	2			6					8	8	
Permitted Phases	2				6							8
Actuated Green, G (s)	34.7	34.7			18.4	18.4				28.3	28.3	28.3
Effective Green, g (s)	34.7	34.7			18.4	18.4				28.3	28.3	28.3
Actuated g/C Ratio	0.46	0.46			0.25	0.25				0.38	0.38	0.38
Clearance Time (s)	6.0	6.0			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
Lane Grp Cap (vph)	471	1637			868	396				634	634	609
v/s Ratio Prot	c0.10	0.14			0.11					c0.32	0.32	
v/s Ratio Perm	c0.24					0.00						0.04
v/c Ratio	0.75	0.30			0.44	0.02				0.85	0.85	0.11
Uniform Delay, d1	14.0	12.6			24.0	21.4				21.4	21.4	15.2
Progression Factor	1.14	0.71			1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2	6.5	0.5			1.6	0.1				10.6	10.6	0.1
Delay (s)	22.5	9.4			25.6	21.5				32.0	32.0	15.3
Level of Service	C	A			C	C				C	C	B
Approach Delay (s)		14.9			25.4			0.0			29.6	
Approach LOS		B			C			A			C	
Intersection Summary												
HCM Average Control Delay			23.9		HCM Level of Service				C			
HCM Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			75.0		Sum of lost time (s)			12.0				
Intersection Capacity Utilization			70.4%		ICU Level of Service			C				
Analysis Period (min)			15									
c Critical Lane Group												

Queues

3: Graves Mill Rd & West Ramp

11/22/2013



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	717	1254	215	1172	88	290
v/c Ratio	0.27	0.78	0.35	0.39	0.59	0.18
Control Delay	3.7	15.7	1.4	0.7	80.8	0.3
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	3.7	15.7	1.4	0.9	80.8	0.3
Queue Length 50th (ft)	65	611	0	0	84	0
Queue Length 95th (ft)	m141	553	m10	44	142	0
Internal Link Dist (ft)	795			689	509	
Turn Bay Length (ft)		200	200			150
Base Capacity (vph)	2622	1599	790	2981	327	1599
Starvation Cap Reductn	0	0	0	820	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.78	0.27	0.54	0.27	0.18

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

3: Graves Mill Rd & West Ramp

11/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations		↑↑	↑	↑	↑↑			↓	↑		
Volume (vph)	0	660	1154	198	1078	0	80	1	267	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	4.0	6.0	6.0			6.0	4.0		
Lane Util. Factor		0.95	1.00	1.00	0.95			1.00	1.00		
Frt		1.00	0.85	1.00	1.00			1.00	0.85		
Flt Protected		1.00	1.00	0.95	1.00			0.95	1.00		
Satd. Flow (prot)		3574	1599	1787	3574			1753	1599		
Flt Permitted		1.00	1.00	0.34	1.00			0.95	1.00		
Satd. Flow (perm)		3574	1599	648	3574			1753	1599		
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
Adj. Flow (vph)	0	717	1254	215	1172	0	87	1	290	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	717	1254	215	1172	0	0	88	290	0	0
Heavy Vehicles (%)	0%	1%	1%	1%	1%	0%	3%	0%	1%	0%	0%
Turn Type			Free	pm+pt			Split		Free		
Protected Phases		2		1	6		4	4			
Permitted Phases			Free	6					Free		
Actuated Green, G (s)		110.0	150.0	125.1	125.1			12.9	150.0		
Effective Green, g (s)		110.0	150.0	125.1	125.1			12.9	150.0		
Actuated g/C Ratio		0.73	1.00	0.83	0.83			0.09	1.00		
Clearance Time (s)		6.0		6.0	6.0			6.0			
Vehicle Extension (s)		3.0		3.0	3.0			3.0			
Lane Grp Cap (vph)		2621	1599	610	2981			151	1599		
v/s Ratio Prot		0.20		0.02	0.33			0.05			
v/s Ratio Perm			c0.78	0.27					0.18		
v/c Ratio		0.27	0.78	0.35	0.39			0.58	0.18		
Uniform Delay, d1		6.7	0.0	2.9	3.1			66.0	0.0		
Progression Factor		0.50	1.00	0.11	0.14			1.00	1.00		
Incremental Delay, d2		0.2	2.6	0.2	0.3			5.6	0.2		
Delay (s)		3.5	2.6	0.6	0.7			71.6	0.2		
Level of Service		A	A	A	A			E	A		
Approach Delay (s)		2.9			0.7			16.9		0.0	
Approach LOS		A			A			B		A	
Intersection Summary											
HCM Average Control Delay			3.5			HCM Level of Service			A		
HCM Volume to Capacity ratio			0.78								
Actuated Cycle Length (s)			150.0			Sum of lost time (s)			0.0		
Intersection Capacity Utilization			70.4%			ICU Level of Service			C		
Analysis Period (min)			15								
c Critical Lane Group											

Queues

4: Graves Mill Rd & Creekside Dr

11/22/2013



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	32	1456	271	1034	110	32	407	26	19
v/c Ratio	0.11	0.85	0.87	0.47	0.11	0.12	0.60	0.28	0.20
Control Delay	7.6	25.5	61.3	12.0	1.7	56.3	26.5	75.4	43.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.6	25.6	61.3	12.0	1.7	56.3	26.5	75.4	43.1
Queue Length 50th (ft)	11	577	198	286	6	27	195	25	7
Queue Length 95th (ft)	m13	640	#326	335	16	62	315	58	35
Internal Link Dist (ft)		697		795		460			536
Turn Bay Length (ft)	225		400		300		125	125	
Base Capacity (vph)	296	1704	351	2192	1023	271	713	193	183
Starvation Cap Reductn	0	6	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.86	0.77	0.47	0.11	0.12	0.57	0.13	0.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

4: Graves Mill Rd & Creekside Dr

11/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	1325	15	249	951	101	14	16	374	24	6	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0		6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3566		1752	3574	1599		1527	1568	1805	1619	
Flt Permitted	0.27	1.00		0.05	1.00	1.00		0.98	1.00	0.95	1.00	
Satd. Flow (perm)	518	3566		96	3574	1599		1527	1568	1805	1619	
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)	32	1440	16	271	1034	110	15	17	407	26	7	12
RTOR Reduction (vph)	0	1	0	0	0	44	0	0	111	0	11	0
Lane Group Flow (vph)	32	1455	0	271	1034	66	0	32	296	26	8	0
Heavy Vehicles (%)	0%	1%	7%	3%	1%	1%	46%	0%	3%	0%	17%	0%
Turn Type	pm+pt			pm+pt		Perm	Split		pm+ov	Split		
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases	2			6		6			8			
Actuated Green, G (s)	73.7	70.5		98.8	89.6	89.6		26.6	48.9	6.6	6.6	
Effective Green, g (s)	73.7	70.5		98.8	89.6	89.6		26.6	48.9	6.6	6.6	
Actuated g/C Ratio	0.49	0.47		0.66	0.60	0.60		0.18	0.33	0.04	0.04	
Clearance Time (s)	6.0	6.0		6.0	6.0	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	
Lane Grp Cap (vph)	282	1676		309	2135	955		271	574	79	71	
v/s Ratio Prot	0.00	0.41		c0.13	0.29			0.02	c0.08	c0.01	0.00	
v/s Ratio Perm	0.05			c0.44		0.04			0.11			
v/c Ratio	0.11	0.87		0.88	0.48	0.07		0.12	0.52	0.33	0.11	
Uniform Delay, d1	19.8	35.6		49.6	17.1	12.7		51.8	41.0	69.6	68.9	
Progression Factor	0.62	0.58		0.80	0.69	0.73		1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	5.4		22.3	0.2	0.0		0.9	0.8	2.4	0.7	
Delay (s)	12.4	25.9		62.2	12.0	9.3		52.7	41.8	72.0	69.5	
Level of Service	B	C		E	B	A		D	D	E	E	
Approach Delay (s)		25.6			21.4			42.6			71.0	
Approach LOS		C			C			D			E	
Intersection Summary												
HCM Average Control Delay			26.7			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			78.6%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

5: Graves Mill Rd & Old Graves Mill Rd

11/22/2013



Lane Group	EBT	EBR	WBL	WBT	NBT	NBR
Lane Group Flow (vph)	1418	168	75	980	160	65
v/c Ratio	0.59	0.16	0.59	0.34	0.72	0.26
Control Delay	11.7	2.6	62.6	0.9	80.9	14.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.8	2.6	62.6	0.9	80.9	14.4
Queue Length 50th (ft)	372	5	69	15	153	0
Queue Length 95th (ft)	484	13	123	18	225	44
Internal Link Dist (ft)	1132			697	755	
Turn Bay Length (ft)		200	250			300
Base Capacity (vph)	2414	1080	152	2842	277	302
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	51	0	0	0	0	1
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.16	0.49	0.34	0.58	0.22
Intersection Summary						

HCM Signalized Intersection Capacity Analysis

5: Graves Mill Rd & Old Graves Mill Rd

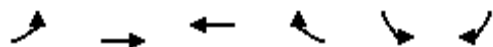
11/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1305	155	69	899	3	146	1	60	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0			6.0	6.0			
Lane Util. Factor		0.95	1.00	1.00	0.95			1.00	1.00			
Frt		1.00	0.85	1.00	1.00			1.00	0.85			
Flt Protected		1.00	1.00	0.95	1.00			0.95	1.00			
Satd. Flow (prot)		3539	1538	1752	3573			1775	1583			
Flt Permitted		1.00	1.00	0.95	1.00			0.95	1.00			
Satd. Flow (perm)		3539	1538	1752	3573			1775	1583			
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)	0	1418	168	75	977	3	159	1	65	0	0	0
RTOR Reduction (vph)	0	0	31	0	0	0	0	0	57	0	0	0
Lane Group Flow (vph)	0	1418	137	75	980	0	0	160	8	0	0	0
Heavy Vehicles (%)	0%	2%	5%	3%	1%	0%	2%	0%	2%	0%	0%	0%
Turn Type	Prot		Perm	Prot			Split		Perm	Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2						8			
Actuated Green, G (s)		102.3	102.3	11.0	119.3			18.7	18.7			
Effective Green, g (s)		102.3	102.3	11.0	119.3			18.7	18.7			
Actuated g/C Ratio		0.68	0.68	0.07	0.80			0.12	0.12			
Clearance Time (s)		6.0	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			
Lane Grp Cap (vph)		2414	1049	128	2842			221	197			
v/s Ratio Prot		c0.40		c0.04	0.27			c0.09				
v/s Ratio Perm			0.09						0.01			
v/c Ratio		0.59	0.13	0.59	0.34			0.72	0.04			
Uniform Delay, d1		12.7	8.3	67.3	4.3			63.2	57.8			
Progression Factor		0.79	0.52	0.69	0.12			1.00	1.00			
Incremental Delay, d2		0.9	0.2	6.0	0.1			11.1	0.1			
Delay (s)		10.9	4.6	52.4	0.6			74.3	57.8			
Level of Service		B	A	D	A			E	E			
Approach Delay (s)		10.2			4.3			69.5			0.0	
Approach LOS		B			A			E			A	
Intersection Summary												
HCM Average Control Delay			12.7			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			63.0%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

6: Graves Mill Rd & Entrance

11/22/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	321	1272	886	176	258	137
v/c Ratio	0.74	0.57	0.82	0.29	0.35	0.30
Control Delay	38.6	9.4	21.9	2.8	26.6	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.6	9.4	21.9	2.8	26.6	7.0
Queue Length 50th (ft)	138	160	183	7	52	0
Queue Length 95th (ft)	#253	212	250	18	85	42
Internal Link Dist (ft)		164	153		311	
Turn Bay Length (ft)						100
Base Capacity (vph)	433	2218	1085	617	747	452
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.57	0.82	0.29	0.35	0.30

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

6: Graves Mill Rd & Entrance

11/22/2013



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	295	1170	815	162	237	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1805	3539	3539	1615	3502	1615
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1805	3539	3539	1615	3502	1615
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	321	1272	886	176	258	137
RTOR Reduction (vph)	0	0	0	122	0	108
Lane Group Flow (vph)	321	1272	886	54	258	29
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Turn Type	Prot			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	18.0	47.0	23.0	23.0	16.0	16.0
Effective Green, g (s)	18.0	47.0	23.0	23.0	16.0	16.0
Actuated g/C Ratio	0.24	0.63	0.31	0.31	0.21	0.21
Clearance Time (s)	6.0	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
Lane Grp Cap (vph)	433	2218	1085	495	747	345
v/s Ratio Prot	c0.18	0.36	c0.25		c0.07	
v/s Ratio Perm				0.03		0.02
v/c Ratio	0.74	0.57	0.82	0.11	0.35	0.08
Uniform Delay, d1	26.3	8.2	24.0	18.7	25.1	23.6
Progression Factor	1.00	1.00	0.64	0.67	1.00	1.00
Incremental Delay, d2	6.7	1.1	6.5	0.4	1.3	0.5
Delay (s)	33.1	9.2	21.8	12.8	26.3	24.1
Level of Service	C	A	C	B	C	C
Approach Delay (s)		14.0	20.3		25.6	
Approach LOS		B	C		C	

Intersection Summary

HCM Average Control Delay	17.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues

2: Graves Mill Rd & East Ramp

11/22/2013



Lane Group	EBL	EBT	WBT	WBR	NWL	NWT	NWR
Lane Group Flow (vph)	358	262	748	105	537	540	173
v/c Ratio	0.83	0.14	0.67	0.19	0.89	0.89	0.25
Control Delay	31.5	9.8	41.0	15.7	53.8	53.9	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.5	9.8	41.0	15.7	53.8	53.9	4.5
Queue Length 50th (ft)	173	49	284	23	392	394	0
Queue Length 95th (ft)	#305	75	358	69	#591	#594	45
Internal Link Dist (ft)		689	908			895	
Turn Bay Length (ft)	125			125	300		300
Base Capacity (vph)	465	1840	1112	552	644	647	720
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.14	0.67	0.19	0.83	0.83	0.24

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

2: Graves Mill Rd & East Ramp

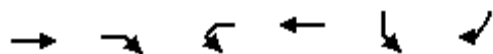
11/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	329	241	0	0	688	97	0	0	0	989	2	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0				6.0	6.0	6.0
Lane Util. Factor	1.00	0.95			0.95	1.00				0.95	0.95	1.00
Flt	1.00	1.00			1.00	0.85				1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00				0.95	0.95	1.00
Satd. Flow (prot)	1770	3406			3539	1615				1681	1686	1599
Flt Permitted	0.17	1.00			1.00	1.00				0.95	0.95	1.00
Satd. Flow (perm)	324	3406			3539	1615				1681	1686	1599
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)	358	262	0	0	748	105	0	0	0	1075	2	173
RTOR Reduction (vph)	0	0	0	0	0	45	0	0	0	0	0	111
Lane Group Flow (vph)	358	262	0	0	748	60	0	0	0	537	540	62
Heavy Vehicles (%)	2%	6%	0%	0%	2%	0%	0%	0%	0%	2%	0%	1%
Turn Type	pm+pt				Perm				Split			
Protected Phases	5	2			6					8	8	
Permitted Phases	2				6							8
Actuated Green, G (s)	64.8	64.8			37.7	37.7				43.2	43.2	43.2
Effective Green, g (s)	64.8	64.8			37.7	37.7				43.2	43.2	43.2
Actuated g/C Ratio	0.54	0.54			0.31	0.31				0.36	0.36	0.36
Clearance Time (s)	6.0	6.0			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
Lane Grp Cap (vph)	429	1839			1112	507				605	607	576
v/s Ratio Prot	c0.15	0.08			0.21					0.32	c0.32	
v/s Ratio Perm	c0.30					0.04						0.04
v/c Ratio	0.83	0.14			0.67	0.12				0.89	0.89	0.11
Uniform Delay, d1	22.9	13.8			35.8	29.3				36.1	36.2	25.6
Progression Factor	0.65	0.67			1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2	13.0	0.2			3.3	0.5				14.7	14.9	0.1
Delay (s)	27.8	9.4			39.0	29.8				50.8	51.0	25.7
Level of Service	C	A			D	C				D	D	C
Approach Delay (s)		20.0			37.9			0.0			47.4	
Approach LOS		C			D			A			D	
Intersection Summary												
HCM Average Control Delay			38.2		HCM Level of Service					D		
HCM Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			120.0		Sum of lost time (s)					12.0		
Intersection Capacity Utilization			75.3%		ICU Level of Service					D		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

3: Graves Mill Rd & West Ramp

11/22/2013



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	545	1354	274	1498	49	437
v/c Ratio	0.21	0.86	0.37	0.49	0.39	0.27
Control Delay	2.8	19.1	3.0	4.3	60.9	0.4
Queue Delay	0.0	0.0	0.0	0.4	0.0	0.0
Total Delay	2.8	19.1	3.0	4.7	60.9	0.4
Queue Length 50th (ft)	26	638	32	255	37	0
Queue Length 95th (ft)	m38	m593	m51	299	76	0
Internal Link Dist (ft)	795			689	514	
Turn Bay Length (ft)		200	200			150
Base Capacity (vph)	2571	1583	863	3060	292	1599
Starvation Cap Reductn	0	0	0	934	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.86	0.32	0.70	0.17	0.27

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

3: Graves Mill Rd & West Ramp

11/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations		↑↑	↑	↑	↑↑			↓	↑		
Volume (vph)	0	501	1246	252	1378	0	45	0	402	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	4.0	6.0	6.0			6.0	4.0		
Lane Util. Factor		0.95	1.00	1.00	0.95			1.00	1.00		
Frt		1.00	0.85	1.00	1.00			1.00	0.85		
Flt Protected		1.00	1.00	0.95	1.00			0.95	1.00		
Satd. Flow (prot)		3574	1583	1770	3574			1752	1599		
Flt Permitted		1.00	1.00	0.42	1.00			0.95	1.00		
Satd. Flow (perm)		3574	1583	775	3574			1752	1599		
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
Adj. Flow (vph)	0	545	1354	274	1498	0	49	0	437	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	545	1354	274	1498	0	0	49	437	0	0
Heavy Vehicles (%)	0%	1%	2%	2%	1%	0%	3%	0%	1%	0%	0%
Turn Type			Free	pm+pt			Split		Free		
Protected Phases		2		1	6		4	4			
Permitted Phases			Free	6					Free		
Actuated Green, G (s)		85.2	120.0	100.4	100.4			7.6	120.0		
Effective Green, g (s)		85.2	120.0	100.4	100.4			7.6	120.0		
Actuated g/C Ratio		0.71	1.00	0.84	0.84			0.06	1.00		
Clearance Time (s)		6.0		6.0	6.0			6.0			
Vehicle Extension (s)		3.0		3.0	3.0			3.0			
Lane Grp Cap (vph)		2538	1583	725	2990			111	1599		
v/s Ratio Prot		0.15		0.03	0.42			0.03			
v/s Ratio Perm			c0.86	0.29					0.27		
v/c Ratio		0.21	0.86	0.38	0.50			0.44	0.27		
Uniform Delay, d1		6.0	0.0	2.2	2.8			54.2	0.0		
Progression Factor		0.41	1.00	0.94	1.31			1.00	1.00		
Incremental Delay, d2		0.1	3.7	0.2	0.4			2.8	0.4		
Delay (s)		2.5	3.7	2.2	4.0			56.9	0.4		
Level of Service		A	A	A	A			E	A		
Approach Delay (s)		3.4			3.7			6.1		0.0	
Approach LOS		A			A			A		A	

Intersection Summary

HCM Average Control Delay	3.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	0.0
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues

4: Graves Mill Rd & Creekside Dr

11/22/2013



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	48	1316	272	1470	123	90	364	103	63
v/c Ratio	0.34	0.94	0.90	0.82	0.14	0.28	0.64	0.58	0.30
Control Delay	13.4	24.5	63.2	15.3	0.6	47.9	21.0	63.7	28.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.4	24.5	63.2	15.3	0.6	47.9	21.0	63.7	28.1
Queue Length 50th (ft)	4	407	167	311	2	62	115	77	19
Queue Length 95th (ft)	m6	#640	#315	450	0	118	189	132	61
Internal Link Dist (ft)		697		795		478			542
Turn Bay Length (ft)	225		400		300		125	125	
Base Capacity (vph)	141	1399	314	1824	876	316	579	238	263
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.94	0.87	0.81	0.14	0.28	0.63	0.43	0.24

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

4: Graves Mill Rd & Creekside Dr

11/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	44	1199	12	250	1352	113	64	18	335	95	24	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0		6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3569		1770	3574	1615		1829	1599	1787	1733	
Flt Permitted	0.09	1.00		0.08	1.00	1.00		0.96	1.00	0.95	1.00	
Satd. Flow (perm)	166	3569		144	3574	1615		1829	1599	1787	1733	
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)	48	1303	13	272	1470	123	70	20	364	103	26	37
RTOR Reduction (vph)	0	1	0	0	0	53	0	0	76	0	33	0
Lane Group Flow (vph)	48	1315	0	272	1470	70	0	90	288	103	30	0
Heavy Vehicles (%)	0%	1%	0%	2%	1%	0%	0%	0%	1%	1%	0%	0%
Turn Type	pm+pt			pm+pt		Perm	Split	pm+ov		Split		
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases	2			6		6			8			
Actuated Green, G (s)	49.9	45.9		69.3	59.3	59.3		20.7	38.1	12.0	12.0	
Effective Green, g (s)	49.9	45.9		69.3	59.3	59.3		20.7	38.1	12.0	12.0	
Actuated g/C Ratio	0.42	0.38		0.58	0.49	0.49		0.17	0.32	0.10	0.10	
Clearance Time (s)	6.0	6.0		6.0	6.0	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	
Lane Grp Cap (vph)	124	1365		319	1766	798		316	508	179	173	
v/s Ratio Prot	0.01	c0.37		c0.12	0.41			0.05	c0.08	c0.06	0.02	
v/s Ratio Perm	0.15			0.37		0.04			0.10			
v/c Ratio	0.39	0.96		0.85	0.83	0.09		0.28	0.57	0.58	0.17	
Uniform Delay, d1	52.3	36.2		43.3	26.1	16.0		43.2	34.1	51.6	49.4	
Progression Factor	0.42	0.38		0.76	0.44	0.08		1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.4	13.2		17.9	3.2	0.0		2.3	1.5	4.4	0.5	
Delay (s)	23.3	26.8		50.9	14.7	1.3		45.5	35.5	56.0	49.9	
Level of Service	C	C		D	B	A		D	D	E	D	
Approach Delay (s)		26.7			19.1			37.5			53.7	
Approach LOS		C			B			D			D	
Intersection Summary												
HCM Average Control Delay			25.5			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			74.5%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

5: Graves Mill Rd & Old Graves Mill Rd

11/22/2013



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR
Lane Group Flow (vph)	1	1467	309	235	1210	193	38
v/c Ratio	0.01	0.73	0.32	1.00	0.47	0.69	0.13
Control Delay	62.0	15.4	3.3	76.6	1.9	60.2	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.0	15.4	3.3	76.6	1.9	60.2	13.4
Queue Length 50th (ft)	0	240	16	181	18	143	0
Queue Length 95th (ft)	m1	461	m48	m#280	52	212	30
Internal Link Dist (ft)		1099			697	750	
Turn Bay Length (ft)	200		200	250			300
Base Capacity (vph)	85	2001	966	236	2584	290	294
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.73	0.32	1.00	0.47	0.67	0.13

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

5: Graves Mill Rd & Old Graves Mill Rd

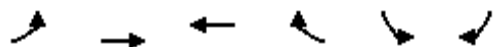
11/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	1350	284	216	1113	0	178	0	35	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0			6.0	6.0			
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00			
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85			
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00			
Satd. Flow (prot)	1805	3574	1583	1770	3574			1787	1615			
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00			
Satd. Flow (perm)	1805	3574	1583	1770	3574			1787	1615			
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)	1	1467	309	235	1210	0	193	0	38	0	0	0
RTOR Reduction (vph)	0	0	86	0	0	0	0	0	32	0	0	0
Lane Group Flow (vph)	1	1467	223	235	1210	0	0	193	6	0	0	0
Heavy Vehicles (%)	0%	1%	2%	2%	1%	0%	1%	0%	0%	0%	0%	0%
Turn Type	Prot		Perm	Prot			Split		Perm	Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2						8			
Actuated Green, G (s)	1.2	62.4	62.4	20.8	82.0			18.8	18.8			
Effective Green, g (s)	1.2	62.4	62.4	20.8	82.0			18.8	18.8			
Actuated g/C Ratio	0.01	0.52	0.52	0.17	0.68			0.16	0.16			
Clearance Time (s)	6.0	6.0	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			
Lane Grp Cap (vph)	18	1858	823	307	2442			280	253			
v/s Ratio Prot	0.00	c0.41		c0.13	0.34			c0.11				
v/s Ratio Perm			0.14						0.00			
v/c Ratio	0.06	0.79	0.27	0.77	0.50			0.69	0.02			
Uniform Delay, d1	58.8	23.5	16.1	47.3	9.1			47.8	42.8			
Progression Factor	1.14	0.64	0.41	0.54	0.18			1.00	1.00			
Incremental Delay, d2	1.1	3.0	0.7	6.9	0.1			6.9	0.0			
Delay (s)	68.2	18.0	7.3	32.3	1.7			54.7	42.9			
Level of Service	E	B	A	C	A			D	D			
Approach Delay (s)		16.2			6.7			52.8			0.0	
Approach LOS		B			A			D			A	
Intersection Summary												
HCM Average Control Delay			14.7			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			74.1%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

6: Graves Mill Rd & Entrance

11/22/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	441	1255	1063	263	472	275
v/c Ratio	0.88	0.48	0.73	0.33	0.81	0.55
Control Delay	60.1	7.3	20.3	1.8	60.0	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.1	7.3	20.3	1.8	60.0	9.7
Queue Length 50th (ft)	321	184	223	4	183	0
Queue Length 95th (ft)	436	223	381	7	#256	77
Internal Link Dist (ft)		191	182		311	
Turn Bay Length (ft)						
Base Capacity (vph)	572	2621	1447	800	584	498
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.48	0.73	0.33	0.81	0.55

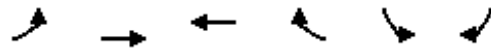
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

6: Graves Mill Rd & Entrance

11/22/2013



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	406	1155	978	242	434	253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Fr _t	1.00	1.00	1.00	0.85	1.00	0.85
Fl _t Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1805	3574	3574	1615	3502	1615
Fl _t Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1805	3574	3574	1615	3502	1615
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	441	1255	1063	263	472	275
RTOR Reduction (vph)	0	0	0	146	0	229
Lane Group Flow (vph)	441	1255	1063	117	472	46
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%
Turn Type	Prot			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	33.4	88.0	48.6	48.6	20.0	20.0
Effective Green, g (s)	33.4	88.0	48.6	48.6	20.0	20.0
Actuated g/C Ratio	0.28	0.73	0.41	0.41	0.17	0.17
Clearance Time (s)	6.0	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
Lane Grp Cap (vph)	502	2621	1447	654	584	269
v/s Ratio Prot	c0.24	0.35	c0.30		c0.13	
v/s Ratio Perm				0.07		0.03
v/c Ratio	0.88	0.48	0.73	0.18	0.81	0.17
Uniform Delay, d ₁	41.4	6.6	30.2	22.9	48.2	42.9
Progression Factor	1.00	1.00	0.55	0.20	1.00	1.00
Incremental Delay, d ₂	15.9	0.6	3.0	0.5	11.5	1.4
Delay (s)	42.7	7.2	19.6	5.2	59.6	44.3
Level of Service	D	A	B	A	E	D
Approach Delay (s)		20.2	16.7		54.0	
Approach LOS		C	B		D	
Intersection Summary						
HCM Average Control Delay			25.7		HCM Level of Service	C
HCM Volume to Capacity ratio			0.80			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	18.0
Intersection Capacity Utilization			76.9%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	6:57	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intvls	1	1	1	1	1	1	1
Vehs Entered	4526	4663	4616	4628	4604	4660	4605
Vehs Exited	4470	4611	4550	4568	4527	4592	4494
Starting Vehs	178	170	192	199	178	161	175
Ending Vehs	234	222	258	259	255	229	286
Denied Entry Before	2	6	16	11	14	6	4
Denied Entry After	35	29	30	33	34	7	42
Travel Distance (mi)	3267	3274	3263	3297	3237	3286	3217
Travel Time (hr)	220.4	222.1	204.4	229.0	235.2	203.9	226.5
Total Delay (hr)	126.9	127.6	110.4	134.0	141.9	109.5	133.7
Total Stops	8882	9119	7959	9084	10136	8173	9331
Fuel Used (gal)	150.1	151.6	146.9	152.9	152.7	148.2	150.7

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intvls	1	1	1	1
Vehs Entered	4561	4620	4542	4598
Vehs Exited	4495	4569	4480	4534
Starting Vehs	171	165	156	171
Ending Vehs	237	216	218	239
Denied Entry Before	8	11	10	9
Denied Entry After	15	33	18	25
Travel Distance (mi)	3258	3300	3266	3266
Travel Time (hr)	200.9	227.4	203.3	217.3
Total Delay (hr)	107.1	132.6	109.5	123.3
Total Stops	7793	9289	7847	8761
Fuel Used (gal)	147.4	153.1	146.9	150.0

Interval #0 Information Seeding

Start Time	6:57
End Time	7:07
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	4526	4663	4616	4628	4604	4660	4605
Vehs Exited	4470	4611	4550	4568	4527	4592	4494
Starting Vehs	178	170	192	199	178	161	175
Ending Vehs	234	222	258	259	255	229	286
Denied Entry Before	2	6	16	11	14	6	4
Denied Entry After	35	29	30	33	34	7	42
Travel Distance (mi)	3267	3274	3263	3297	3237	3286	3217
Travel Time (hr)	220.4	222.1	204.4	229.0	235.2	203.9	226.5
Total Delay (hr)	126.9	127.6	110.4	134.0	141.9	109.5	133.7
Total Stops	8882	9119	7959	9084	10136	8173	9331
Fuel Used (gal)	150.1	151.6	146.9	152.9	152.7	148.2	150.7

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	4561	4620	4542	4598
Vehs Exited	4495	4569	4480	4534
Starting Vehs	171	165	156	171
Ending Vehs	237	216	218	239
Denied Entry Before	8	11	10	9
Denied Entry After	15	33	18	25
Travel Distance (mi)	3258	3300	3266	3266
Travel Time (hr)	200.9	227.4	203.3	217.3
Total Delay (hr)	107.1	132.6	109.5	123.3
Total Stops	7793	9289	7847	8761
Fuel Used (gal)	147.4	153.1	146.9	150.0

2: Graves Mill Rd & East Ramp Performance by movement

Movement	EBL	EBT	WBT	WBR	NWL	NWR	All
Total Delay (hr)	2.8	1.7	2.4	0.1	10.0	1.0	18.0
Delay / Veh (s)	32.4	13.9	23.7	8.2	36.8	22.1	28.3
Total Stops	346	214	245	17	692	93	1607
Travel Dist (mi)	43.6	63.9	64.6	4.4	174.4	28.9	379.8
Travel Time (hr)	4.1	3.3	4.0	0.2	15.7	2.0	29.3
Avg Speed (mph)	11	20	16	27	15	24	16
Fuel Used (gal)	1.7	2.3	2.8	0.2	6.4	1.0	14.5
HC Emissions (g)	12	31	36	2	51	6	138
CO Emissions (g)	553	1378	1858	116	1467	416	5788
NOx Emissions (g)	41	102	114	5	145	19	426
Vehicles Entered	310	450	362	24	981	163	2290
Vehicles Exited	308	450	362	25	982	164	2291
Hourly Exit Rate	308	450	362	25	982	164	2291
Input Volume	326	457	355	25	992	167	2322
% of Volume	94	98	102	100	99	98	99
Denied Entry Before	0	0	0	0	6	0	6
Denied Entry After	0	0	0	0	5	1	6

3: Graves Mill Rd & West Ramp Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL2	SBL	SBR	All
Total Delay (hr)	1.2	5.8	0.6	1.7	1.5	0.0	0.6	11.5
Delay / Veh (s)	6.7	19.1	11.5	5.4	71.1	99.7	8.1	12.1
Total Stops	60	147	116	95	68	1	6	493
Travel Dist (mi)	105.0	171.8	28.9	169.2	7.5	0.1	25.5	508.1
Travel Time (hr)	3.8	11.3	1.6	6.7	1.8	0.0	1.5	26.7
Avg Speed (mph)	29	16	18	25	4	4	22	20
Fuel Used (gal)	5.4	6.0	1.5	9.8	0.6	0.0	0.9	24.4
HC Emissions (g)	75	43	14	148	5	0	11	294
CO Emissions (g)	3798	1698	914	7522	179	2	551	14663
NOx Emissions (g)	274	166	52	512	14	0	34	1052
Vehicles Entered	647	1093	194	1150	74	1	271	3430
Vehicles Exited	647	1092	192	1149	75	1	270	3426
Hourly Exit Rate	647	1092	192	1149	75	1	270	3426
Input Volume	665	1154	198	1149	80	1	267	3514
% of Volume	97	95	97	100	94	100	101	97
Denied Entry Before	0	1	0	0	0	0	0	1
Denied Entry After	0	1	0	0	0	0	0	1

4: Graves Mill Rd & Creekside Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.2	18.9	0.3	3.9	3.8	0.1	0.2	0.3	4.1	0.5	0.1	0.0
Delay / Veh (s)	26.6	54.1	64.9	55.0	13.7	4.2	64.2	62.7	39.6	73.9	71.4	11.0
Total Stops	25	1110	19	228	319	34	13	16	279	23	5	11
Travel Dist (mi)	3.7	177.6	2.2	41.0	158.1	17.1	1.3	1.7	35.2	2.6	0.6	1.3
Travel Time (hr)	0.3	23.0	0.4	5.1	7.6	0.6	0.3	0.4	5.5	0.6	0.1	0.1
Avg Speed (mph)	12	8	6	8	21	27	5	5	7	5	5	15
Fuel Used (gal)	0.2	11.0	0.1	2.0	7.3	0.8	0.1	0.1	2.0	0.2	0.0	0.0
HC Emissions (g)	1	76	1	19	75	12	8	0	20	0	1	0
CO Emissions (g)	86	2949	21	659	4216	675	130	29	640	22	21	10
NOx Emissions (g)	6	288	3	56	290	37	14	2	54	1	2	1
Vehicles Entered	26	1262	16	252	992	105	14	18	373	24	6	12
Vehicles Exited	26	1256	16	252	992	105	14	18	375	24	6	12
Hourly Exit Rate	26	1256	16	252	992	105	14	18	375	24	6	12
Input Volume	29	1338	15	249	999	101	14	16	374	24	6	11
% of Volume	90	94	107	101	99	104	100	112	100	100	100	109
Denied Entry Before	0	1	0	0	0	0	0	0	1	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

4: Graves Mill Rd & Creekside Dr Performance by movement

Movement	All
Total Delay (hr)	32.5
Delay / Veh (s)	37.7
Total Stops	2082
Travel Dist (mi)	442.5
Travel Time (hr)	44.0
Avg Speed (mph)	10
Fuel Used (gal)	23.8
HC Emissions (g)	214
CO Emissions (g)	9460
NOx Emissions (g)	755
Vehicles Entered	3100
Vehicles Exited	3096
Hourly Exit Rate	3096
Input Volume	3176
% of Volume	97
Denied Entry Before	2
Denied Entry After	0

5: Graves Mill Rd & Old Graves Mill Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	All
Total Delay (hr)	30.7	2.2	1.1	1.0	0.0	2.6	0.0	0.8	38.5
Delay / Veh (s)	88.3	54.5	61.5	4.2	3.7	63.3	43.4	50.5	53.9
Total Stops	2041	164	62	56	0	133	1	50	2507
Travel Dist (mi)	281.9	33.1	9.6	132.3	0.3	22.0	0.1	8.8	488.2
Travel Time (hr)	37.1	3.2	1.4	4.0	0.0	3.4	0.0	1.1	50.3
Avg Speed (mph)	8	12	7	33	27	7	9	8	11
Fuel Used (gal)	14.6	1.6	0.6	5.7	0.0	1.4	0.0	0.5	24.4
HC Emissions (g)	112	32	6	73	0	13	0	6	242
CO Emissions (g)	4277	949	221	3375	6	508	2	249	9588
NOx Emissions (g)	357	77	19	295	0	38	0	16	802
Vehicles Entered	1272	149	66	901	2	148	1	58	2597
Vehicles Exited	1231	145	66	901	2	148	1	56	2550
Hourly Exit Rate	1231	145	66	901	2	148	1	56	2550
Input Volume	1305	155	69	904	3	146	1	60	2643
% of Volume	94	94	96	100	67	101	100	93	96
Denied Entry Before	0	0	0	0	0	0	0	0	0
Denied Entry After	16	2	0	0	0	0	0	0	18

6: Graves Mill Rd & Entrance Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Total Delay (hr)	2.5	3.3	4.5	0.3	1.7	0.4	12.7
Delay / Veh (s)	30.2	10.2	19.5	6.9	26.4	11.7	16.3
Total Stops	253	442	440	91	179	92	1497
Travel Dist (mi)	13.0	50.9	34.5	6.4	15.0	8.1	127.9
Travel Time (hr)	3.1	4.5	5.2	0.6	2.4	0.8	16.6
Avg Speed (mph)	4	11	7	10	6	12	8
Fuel Used (gal)	0.9	2.3	2.1	0.2	0.9	0.4	6.8
HC Emissions (g)	1	24	14	0	3	2	44
CO Emissions (g)	73	821	389	34	175	98	1590
NOx Emissions (g)	9	83	53	2	16	8	171
Vehicles Entered	299	1168	826	153	234	125	2805
Vehicles Exited	299	1166	825	153	233	125	2801
Hourly Exit Rate	299	1166	825	153	233	125	2801
Input Volume	295	1176	819	162	237	126	2815
% of Volume	101	99	101	94	98	99	100
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

17: Graves Mill Rd & Performance by movement

Movement	EBT	WBT	WBR	All
Total Delay (hr)	2.1	1.3	0.0	3.4
Delay / Veh (s)	5.3	4.5	2.1	4.9
Total Stops	126	38	0	164
Travel Dist (mi)	68.0	228.5	8.1	304.7
Travel Time (hr)	3.9	6.6	0.2	10.7
Avg Speed (mph)	18	35	33	28
Fuel Used (gal)	4.1	6.3	0.2	10.6
HC Emissions (g)	46	85	5	136
CO Emissions (g)	2194	3334	196	5724
NOx Emissions (g)	182	301	16	499
Vehicles Entered	1397	1017	36	2450
Vehicles Exited	1394	1018	36	2448
Hourly Exit Rate	1394	1018	36	2448
Input Volume	1412	1019	35	2466
% of Volume	99	100	103	99
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

19: Graves Mill Rd & Performance by movement

Movement	EBT	WBT	SBR	All
Total Delay (hr)	1.9	0.7	0.1	2.6
Delay / Veh (s)	4.6	2.8	6.7	3.9
Total Stops	131	0	31	162
Travel Dist (mi)	97.9	46.5	1.3	145.6
Travel Time (hr)	4.5	1.9	0.1	6.6
Avg Speed (mph)	22	24	10	22
Fuel Used (gal)	4.5	3.5	0.0	8.1
HC Emissions (g)	68	49	0	117
CO Emissions (g)	3649	2296	6	5950
NOx Emissions (g)	202	191	1	393
Vehicles Entered	1463	948	31	2442
Vehicles Exited	1460	948	31	2439
Hourly Exit Rate	1460	948	31	2439
Input Volume	1465	944	32	2441
% of Volume	100	100	97	100
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

Total Network Performance

Total Delay (hr)	123.3
Delay / Veh (s)	97.2
Total Stops	8761
Travel Dist (mi)	3266.5
Travel Time (hr)	217.3
Avg Speed (mph)	16
Fuel Used (gal)	150.0
HC Emissions (g)	1614
CO Emissions (g)	70642
NOx Emissions (g)	5621
Vehicles Entered	4598
Vehicles Exited	4534
Hourly Exit Rate	4534
Input Volume	27605
% of Volume	16
Denied Entry Before	9
Denied Entry After	25

Intersection: 2: Graves Mill Rd & East Ramp

Movement	EB	EB	EB	WB	WB	WB	NW	NW	NW
Directions Served	L	T	T	T	T	R	L	LT	R
Maximum Queue (ft)	224	268	184	228	132	19	276	272	85
Average Queue (ft)	143	75	76	76	61	6	187	178	37
95th Queue (ft)	232	186	144	173	111	18	253	253	66
Link Distance (ft)		718	718	931	931			931	
Upstream Blk Time (%)				0					
Queuing Penalty (veh)				0					
Storage Bay Dist (ft)	125					125	300		300
Storage Blk Time (%)	14	0			0		0	0	
Queuing Penalty (veh)	32	1			0		1	0	

Intersection: 3: Graves Mill Rd & West Ramp

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	T	T	R	L	T	T	<L	R
Maximum Queue (ft)	122	97	223	134	109	131	159	53
Average Queue (ft)	29	25	76	53	27	41	68	7
95th Queue (ft)	86	72	188	101	74	94	131	36
Link Distance (ft)	813	813			718	718	524	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			200	200				150
Storage Blk Time (%)			0	0			1	
Queuing Penalty (veh)			1	0			3	

Intersection: 4: Graves Mill Rd & Creekside Dr

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LT	R	L	TR
Maximum Queue (ft)	172	775	742	309	252	275	43	434	175	71	63
Average Queue (ft)	22	597	689	173	113	135	13	162	156	23	13
95th Queue (ft)	91	996	810	284	200	225	34	402	202	57	41
Link Distance (ft)		698	698		813	813	813	488			559
Upstream Blk Time (%)		14	20					0			
Queuing Penalty (veh)		95	136					0			
Storage Bay Dist (ft)	225			400					125	125	
Storage Blk Time (%)		6		0	0			0	25		
Queuing Penalty (veh)		2		0	0			0	7		

Intersection: 5: Graves Mill Rd & Old Graves Mill Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	R	L	T	TR	LT	R
Maximum Queue (ft)	1185	1167	500	154	91	106	267	114
Average Queue (ft)	577	657	165	61	20	30	129	36
95th Queue (ft)	1262	1308	536	122	62	76	224	86
Link Distance (ft)	1148	1148			698	698	778	
Upstream Blk Time (%)	5	8						
Queuing Penalty (veh)	35	56						
Storage Bay Dist (ft)			200	250				300
Storage Blk Time (%)	24	46					0	
Queuing Penalty (veh)	0	71					0	

Intersection: 6: Graves Mill Rd & Entrance

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	L	T	T	T	T	R	L	L	R
Maximum Queue (ft)	197	215	206	194	190	115	112	125	88
Average Queue (ft)	142	113	126	123	138	47	51	61	34
95th Queue (ft)	209	196	203	195	200	91	93	105	65
Link Distance (ft)	186	186	186	179	179	179	334	334	
Upstream Blk Time (%)	6	4	6	3	4				
Queuing Penalty (veh)	29	22	28	8	12				
Storage Bay Dist (ft)									100
Storage Blk Time (%)								1	0
Queuing Penalty (veh)								2	0

Intersection: 14: Bend

Movement	EB
Directions Served	T
Maximum Queue (ft)	435
Average Queue (ft)	31
95th Queue (ft)	251
Link Distance (ft)	562
Upstream Blk Time (%)	0
Queuing Penalty (veh)	1
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 17: Graves Mill Rd &

Movement	EB	EB	WB	WB
Directions Served	T	T	T	T
Maximum Queue (ft)	158	148	116	159
Average Queue (ft)	30	33	12	20
95th Queue (ft)	143	146	64	94
Link Distance (ft)	179	179	1148	1148
Upstream Blk Time (%)	4	5		
Queuing Penalty (veh)	25	33		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 19: Graves Mill Rd &

Movement	EB	EB	EB	B7	B7	SB
Directions Served	T	T	T	T	T	R
Maximum Queue (ft)	168	152	156	61	60	58
Average Queue (ft)	28	26	27	7	8	21
95th Queue (ft)	149	158	158	84	88	48
Link Distance (ft)	297	297	297	422	422	214
Upstream Blk Time (%)	0	1	1	0	0	
Queuing Penalty (veh)	0	0	0	0	0	
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 601

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	6:57	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intvl's	1	1	1	1	1	1	1
Vehs Entered	5461	5332	5402	5324	5296	5200	5390
Vehs Exited	5305	5209	5260	5192	5189	5048	5303
Starting Vehs	240	270	256	265	268	212	283
Ending Vehs	396	393	398	397	375	364	370
Denied Entry Before	15	1	6	3	18	11	7
Denied Entry After	292	452	386	420	289	425	376
Travel Distance (mi)	3607	3532	3614	3541	3548	3465	3629
Travel Time (hr)	439.8	515.7	537.0	528.1	425.3	487.9	489.4
Total Delay (hr)	334.3	412.4	431.2	424.8	321.4	386.6	383.5
Total Stops	14782	15170	15910	14463	14063	13688	15025
Fuel Used (gal)	209.5	224.9	233.3	227.8	204.8	217.1	221.7

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intvl's	1	1	1	1
Vehs Entered	5364	5304	5479	5352
Vehs Exited	5223	5215	5388	5234
Starting Vehs	258	262	269	258
Ending Vehs	399	351	360	381
Denied Entry Before	9	17	4	6
Denied Entry After	382	368	205	358
Travel Distance (mi)	3556	3499	3662	3565
Travel Time (hr)	484.8	499.3	410.1	481.7
Total Delay (hr)	380.6	396.3	303.2	377.4
Total Stops	14469	14649	14765	14697
Fuel Used (gal)	219.5	220.2	204.8	218.3

Interval #0 Information Seeding

Start Time	6:57
End Time	7:07
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	5461	5332	5402	5324	5296	5200	5390
Vehs Exited	5305	5209	5260	5192	5189	5048	5303
Starting Vehs	240	270	256	265	268	212	283
Ending Vehs	396	393	398	397	375	364	370
Denied Entry Before	15	1	6	3	18	11	7
Denied Entry After	292	452	386	420	289	425	376
Travel Distance (mi)	3607	3532	3614	3541	3548	3465	3629
Travel Time (hr)	439.8	515.7	537.0	528.1	425.3	487.9	489.4
Total Delay (hr)	334.3	412.4	431.2	424.8	321.4	386.6	383.5
Total Stops	14782	15170	15910	14463	14063	13688	15025
Fuel Used (gal)	209.5	224.9	233.3	227.8	204.8	217.1	221.7

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	5364	5304	5479	5352
Vehs Exited	5223	5215	5388	5234
Starting Vehs	258	262	269	258
Ending Vehs	399	351	360	381
Denied Entry Before	9	17	4	6
Denied Entry After	382	368	205	358
Travel Distance (mi)	3556	3499	3662	3565
Travel Time (hr)	484.8	499.3	410.1	481.7
Total Delay (hr)	380.6	396.3	303.2	377.4
Total Stops	14469	14649	14765	14697
Fuel Used (gal)	219.5	220.2	204.8	218.3

2: Graves Mill Rd & East Ramp Performance by movement

Movement	EBL	EBT	WBT	WBR	NWL	NWT	NWR	All
Total Delay (hr)	2.1	0.8	6.9	0.3	13.5	0.0	0.9	24.6
Delay / Veh (s)	26.8	13.5	36.6	12.1	50.2	54.5	20.0	36.7
Total Stops	233	95	483	68	734	1	92	1706
Travel Dist (mi)	40.6	31.2	121.2	17.8	169.8	0.4	27.8	408.6
Travel Time (hr)	3.4	1.6	9.9	0.9	19.0	0.0	1.8	36.6
Avg Speed (mph)	12	20	12	23	11	12	25	13
Fuel Used (gal)	1.5	1.2	5.4	0.7	7.2	0.0	1.0	16.9
HC Emissions (g)	12	23	67	6	50	0	11	170
CO Emissions (g)	518	835	3009	446	1499	2	528	6839
NOx Emissions (g)	37	67	200	21	144	0	31	501
Vehicles Entered	284	221	676	99	967	2	159	2408
Vehicles Exited	284	221	682	99	966	2	159	2413
Hourly Exit Rate	284	221	682	99	966	2	159	2413
Input Volume	329	241	688	97	989	2	159	2505
% of Volume	86	92	99	102	98	100	100	96
Denied Entry Before	0	0	0	0	3	0	1	4
Denied Entry After	0	0	0	0	2	0	0	2

3: Graves Mill Rd & West Ramp Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL2	SBR	All
Total Delay (hr)	0.6	4.8	0.8	3.2	0.7	1.0	11.1
Delay / Veh (s)	5.2	16.3	11.2	8.3	61.9	8.9	11.2
Total Stops	37	128	145	197	41	18	566
Travel Dist (mi)	70.5	164.9	37.0	208.4	4.4	37.7	522.8
Travel Time (hr)	2.4	10.2	2.0	9.0	0.9	2.3	26.8
Avg Speed (mph)	30	17	18	23	5	22	20
Fuel Used (gal)	3.8	5.8	1.7	10.3	0.3	1.2	23.1
HC Emissions (g)	41	50	22	132	2	12	257
CO Emissions (g)	2723	2008	921	6108	76	604	12440
NOx Emissions (g)	159	184	78	496	5	35	957
Vehicles Entered	436	1060	247	1401	43	397	3584
Vehicles Exited	437	1060	247	1400	44	397	3585
Hourly Exit Rate	437	1060	247	1400	44	397	3585
Input Volume	501	1246	252	1425	45	402	3871
% of Volume	87	85	98	98	98	99	93
Denied Entry Before	0	0	0	0	0	1	1
Denied Entry After	0	1	0	0	0	1	2

4: Graves Mill Rd & Creekside Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.6	18.7	0.2	3.7	8.3	0.2	0.8	0.3	2.5	1.5	0.4	0.2
Delay / Veh (s)	62.2	64.4	82.2	53.9	21.7	6.1	45.3	47.5	26.2	56.2	52.2	22.9
Total Stops	38	1161	16	263	605	47	52	16	255	86	23	31
Travel Dist (mi)	5.2	142.2	1.5	40.1	221.6	18.9	5.9	1.9	33.3	10.2	2.9	3.7
Travel Time (hr)	0.8	22.0	0.3	4.9	13.7	0.8	1.0	0.3	3.8	1.8	0.5	0.4
Avg Speed (mph)	7	6	5	8	16	24	6	6	10	6	6	10
Fuel Used (gal)	0.4	10.2	0.1	2.2	10.6	1.0	0.4	0.1	1.6	0.7	0.2	0.2
HC Emissions (g)	2	59	0	20	100	10	1	0	9	3	1	1
CO Emissions (g)	154	2670	10	786	5012	759	77	28	522	175	48	55
NOx Emissions (g)	9	239	1	66	385	33	5	2	33	11	3	3
Vehicles Entered	36	1047	11	247	1389	116	61	20	340	94	26	34
Vehicles Exited	36	1047	10	246	1386	116	61	20	342	95	26	34
Hourly Exit Rate	36	1047	10	246	1386	116	61	20	342	95	26	34
Input Volume	44	1329	12	250	1418	113	64	18	335	95	24	34
% of Volume	82	79	83	98	98	103	95	111	102	100	108	100
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	1	0	0	0

4: Graves Mill Rd & Creekside Dr Performance by movement

Movement	All
Total Delay (hr)	37.4
Delay / Veh (s)	39.4
Total Stops	2593
Travel Dist (mi)	487.4
Travel Time (hr)	50.2
Avg Speed (mph)	10
Fuel Used (gal)	27.5
HC Emissions (g)	207
CO Emissions (g)	10294
NOx Emissions (g)	791
Vehicles Entered	3421
Vehicles Exited	3419
Hourly Exit Rate	3419
Input Volume	3736
% of Volume	92
Denied Entry Before	0
Denied Entry After	1

5: Graves Mill Rd & Old Graves Mill Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBR	All
Total Delay (hr)	0.0	79.0	11.2	4.9	2.6	2.3	0.2	100.2
Delay / Veh (s)	62.7	260.7	182.4	82.5	7.6	48.2	30.0	123.0
Total Stops	1	3028	462	275	171	152	26	4115
Travel Dist (mi)	0.1	239.6	49.0	31.1	169.8	25.9	4.5	519.9
Travel Time (hr)	0.0	84.4	12.7	5.8	6.5	3.3	0.4	113.0
Avg Speed (mph)	6	4	6	5	26	8	12	6
Fuel Used (gal)	0.0	25.0	4.3	2.1	9.0	1.4	0.2	42.1
HC Emissions (g)	0	89	30	14	101	11	1	246
CO Emissions (g)	3	3000	1034	542	5722	525	98	10925
NOx Emissions (g)	0	314	91	48	409	35	5	902
Vehicles Entered	1	1107	224	212	1203	175	30	2952
Vehicles Exited	1	1074	217	212	1205	175	30	2914
Hourly Exit Rate	1	1074	217	212	1205	175	30	2914
Input Volume	1	1362	284	216	1235	178	35	3311
% of Volume	100	79	76	98	98	98	86	88
Denied Entry Before	0	1	0	0	0	0	0	1
Denied Entry After	0	39	8	0	0	0	0	47

6: Graves Mill Rd & Entrance Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Total Delay (hr)	3.9	13.7	5.1	0.4	67.4	26.7	117.3
Delay / Veh (s)	40.1	47.2	18.7	6.2	751.1	503.9	135.1
Total Stops	245	824	391	109	521	181	2271
Travel Dist (mi)	17.2	50.3	45.9	11.1	20.6	12.3	157.4
Travel Time (hr)	4.6	14.8	6.1	0.9	68.4	27.4	122.3
Avg Speed (mph)	4	4	8	12	1	8	3
Fuel Used (gal)	1.4	4.8	2.5	0.3	16.3	6.5	31.9
HC Emissions (g)	2	24	19	1	4	1	50
CO Emissions (g)	108	741	565	50	885	356	2705
NOx Emissions (g)	12	85	70	3	26	7	204
Vehicles Entered	354	1049	979	235	333	190	3140
Vehicles Exited	355	1039	980	235	313	191	3113
Hourly Exit Rate	355	1039	980	235	313	191	3113
Input Volume	406	1174	992	242	434	253	3501
% of Volume	87	89	99	97	72	75	89
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	3	0	0	111	67	181

17: Graves Mill Rd & Performance by movement

Movement	EBT	WBT	WBR	All
Total Delay (hr)	12.7	1.6	0.0	14.3
Delay / Veh (s)	34.0	4.6	2.5	19.6
Total Stops	751	43	0	794
Travel Dist (mi)	71.4	272.9	6.5	350.8
Travel Time (hr)	14.7	8.0	0.2	22.8
Avg Speed (mph)	6	34	32	17
Fuel Used (gal)	5.2	8.4	0.2	13.8
HC Emissions (g)	82	106	4	192
CO Emissions (g)	1534	4709	154	6396
NOx Emissions (g)	141	390	12	543
Vehicles Entered	1350	1250	30	2630
Vehicles Exited	1340	1253	29	2622
Hourly Exit Rate	1340	1253	29	2622
Input Volume	1609	1275	28	2912
% of Volume	83	98	104	90
Denied Entry Before	0	0	0	0
Denied Entry After	3	0	0	3

19: Graves Mill Rd & Performance by movement

Movement	EBT	WBT	SBR	All
Total Delay (hr)	11.6	0.8	0.1	12.5
Delay / Veh (s)	30.0	2.3	10.9	17.3
Total Stops	817	0	36	853
Travel Dist (mi)	64.3	62.0	1.4	127.7
Travel Time (hr)	13.3	2.4	0.2	15.9
Avg Speed (mph)	5	26	7	8
Fuel Used (gal)	5.3	3.8	0.1	9.1
HC Emissions (g)	41	48	0	89
CO Emissions (g)	1391	2267	7	3664
NOx Emissions (g)	142	188	1	330
Vehicles Entered	1402	1172	36	2610
Vehicles Exited	1388	1173	36	2597
Hourly Exit Rate	1388	1173	36	2597
Input Volume	1561	1246	37	2844
% of Volume	89	94	97	91
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

Total Network Performance

Total Delay (hr)	377.4
Delay / Veh (s)	256.6
Total Stops	14697
Travel Dist (mi)	3565.4
Travel Time (hr)	481.7
Avg Speed (mph)	10
Fuel Used (gal)	218.3
HC Emissions (g)	1760
CO Emissions (g)	72878
NOx Emissions (g)	6043
Vehicles Entered	5352
Vehicles Exited	5234
Hourly Exit Rate	5234
Input Volume	32239
% of Volume	16
Denied Entry Before	6
Denied Entry After	358

Intersection: 2: Graves Mill Rd & East Ramp

Movement	EB	EB	EB	WB	WB	WB	NW	NW	NW
Directions Served	L	T	T	T	T	R	L	LT	R
Maximum Queue (ft)	224	303	106	327	320	224	406	411	104
Average Queue (ft)	134	50	44	203	189	45	278	268	33
95th Queue (ft)	227	171	87	295	282	160	379	375	78
Link Distance (ft)		717	717	934	934			921	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	125					125	300		300
Storage Blk Time (%)	9	0			20		4	4	
Queuing Penalty (veh)	11	0			19		29	24	

Intersection: 3: Graves Mill Rd & West Ramp

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	T	T	R	L	T	T	<L	R
Maximum Queue (ft)	96	54	221	151	245	210	112	62
Average Queue (ft)	20	11	65	62	38	62	40	18
95th Queue (ft)	64	38	166	122	146	146	88	59
Link Distance (ft)	813	813			717	717	529	
Upstream Blk Time (%)					0			
Queuing Penalty (veh)					0			
Storage Bay Dist (ft)			200	200				150
Storage Blk Time (%)			0	0	0		0	
Queuing Penalty (veh)			1	0	0		1	

Intersection: 4: Graves Mill Rd & Creekside Dr

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LT	R	L	TR
Maximum Queue (ft)	92	773	748	369	446	471	44	302	174	160	99
Average Queue (ft)	34	680	696	182	180	201	16	87	119	80	42
95th Queue (ft)	78	998	821	318	365	391	35	224	191	141	84
Link Distance (ft)		697	697		813	813	813	505			564
Upstream Blk Time (%)		14	18								
Queuing Penalty (veh)		100	123								
Storage Bay Dist (ft)	225			400					125	125	
Storage Blk Time (%)		0		0	0			1	9	2	0
Queuing Penalty (veh)		0		1	1			2	8	1	0

Intersection: 5: Graves Mill Rd & Old Graves Mill Rd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	R	L	T	TR	LT	R
Maximum Queue (ft)	104	1181	1161	500	359	280	291	247	55
Average Queue (ft)	4	1104	1100	386	208	86	93	135	14
95th Queue (ft)	71	1389	1326	706	382	310	289	217	39
Link Distance (ft)		1112	1112			697	697	773	
Upstream Blk Time (%)		35	46			0	0		
Queuing Penalty (veh)		281	362			0	0		
Storage Bay Dist (ft)	200			200	250				300
Storage Blk Time (%)		63	75	0	10			0	
Queuing Penalty (veh)		1	213	0	54			0	

Intersection: 6: Graves Mill Rd & Entrance

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	L	T	T	T	T	R	L	L	R
Maximum Queue (ft)	240	261	246	222	225	138	350	350	324
Average Queue (ft)	200	209	212	148	160	53	305	313	104
95th Queue (ft)	267	285	280	232	237	106	426	422	247
Link Distance (ft)	211	211	211	206	206	206	335	335	335
Upstream Blk Time (%)	18	44	48	4	5		52	66	3
Queuing Penalty (veh)	92	227	249	14	19		0	0	0
Storage Bay Dist (ft)									
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 14: Bend

Movement	EB
Directions Served	T
Maximum Queue (ft)	597
Average Queue (ft)	85
95th Queue (ft)	425
Link Distance (ft)	534
Upstream Blk Time (%)	1
Queuing Penalty (veh)	5
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 17: Graves Mill Rd &

Movement	EB	EB	WB	WB
Directions Served	T	T	T	T
Maximum Queue (ft)	272	248	165	204
Average Queue (ft)	201	199	14	23
95th Queue (ft)	311	297	85	120
Link Distance (ft)	206	206	1112	1112
Upstream Blk Time (%)	34	42		
Queuing Penalty (veh)	268	335		
Storage Bay Dist (ft)				
Storage Blk Time (%)				0
Queuing Penalty (veh)				0

Intersection: 19: Graves Mill Rd &

Movement	EB	EB	EB	B7	B7	WB	SB
Directions Served	T	T	T	T	T	T	R
Maximum Queue (ft)	282	267	259	671	674	25	64
Average Queue (ft)	207	191	186	396	423	1	25
95th Queue (ft)	365	347	343	867	903	25	54
Link Distance (ft)	204	204	204	642	642	211	196
Upstream Blk Time (%)	19	31	25	8	29	0	
Queuing Penalty (veh)	0	0	0	0	0	0	
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Network Summary

Network wide Queuing Penalty: 2441



MEMORANDUM

TO: RON COX AND BILL BERKLEY

FROM: BILL WUENSCH, P.E., PTOE

ORGANIZATION: BERLEY HOWELL

DATE: 12-26-13

PHONE NUMBER:

SENDER'S REFERENCE NUMBER:

RE: ROSEDALE – INTERNAL INTERSECTION GEOMETRY
REQUIREMENTS

YOUR REFERENCE NUMBER:

☐ URGENT☒ FOR YOUR USE☐ PLEASE COMMENT☐ PLEASE REPLY☐ PLEASE RECYCLE

The following information has been prepared to respond to the City's question regarding internal ADTs, internal turning movement projections, and internal intersection laneage requirements. The attached **Figure 1** provides an illustration of the projected internal ADTs for the site. As shown, the first road link from Graves Mill Road has a projected ADT of approximately 19,000 vehicles per day. At the first intersection (intersection #4), we are projecting a heavy left turn volume to the uses along the west side of the site. The mainline (development spine road) volume is then reduced to approximately 7,300 vehicles per day.

Figure 2 illustrates the projected peak hour turning movements, and **Figure 3** is a table with the findings of FHWA turn lane warrant analyses. The Synchro model was utilized to identify recommendations for intersection laneage and traffic control. **Figures 4 and 5** provides an illustrations of the recommended intersection geometry and resulting movement delay and volume to capacity ratios. The recommended traffic control at the first major internal intersection location is a four way STOP configuration. Without the four way STOP, the westbound left turn has an LOS F. With the four way STOP all movements function at LOS D or better. The figures show the 2nd internal intersection also. The recommended geometry provides for intuitive transitions while allowing for the required turn lanes.

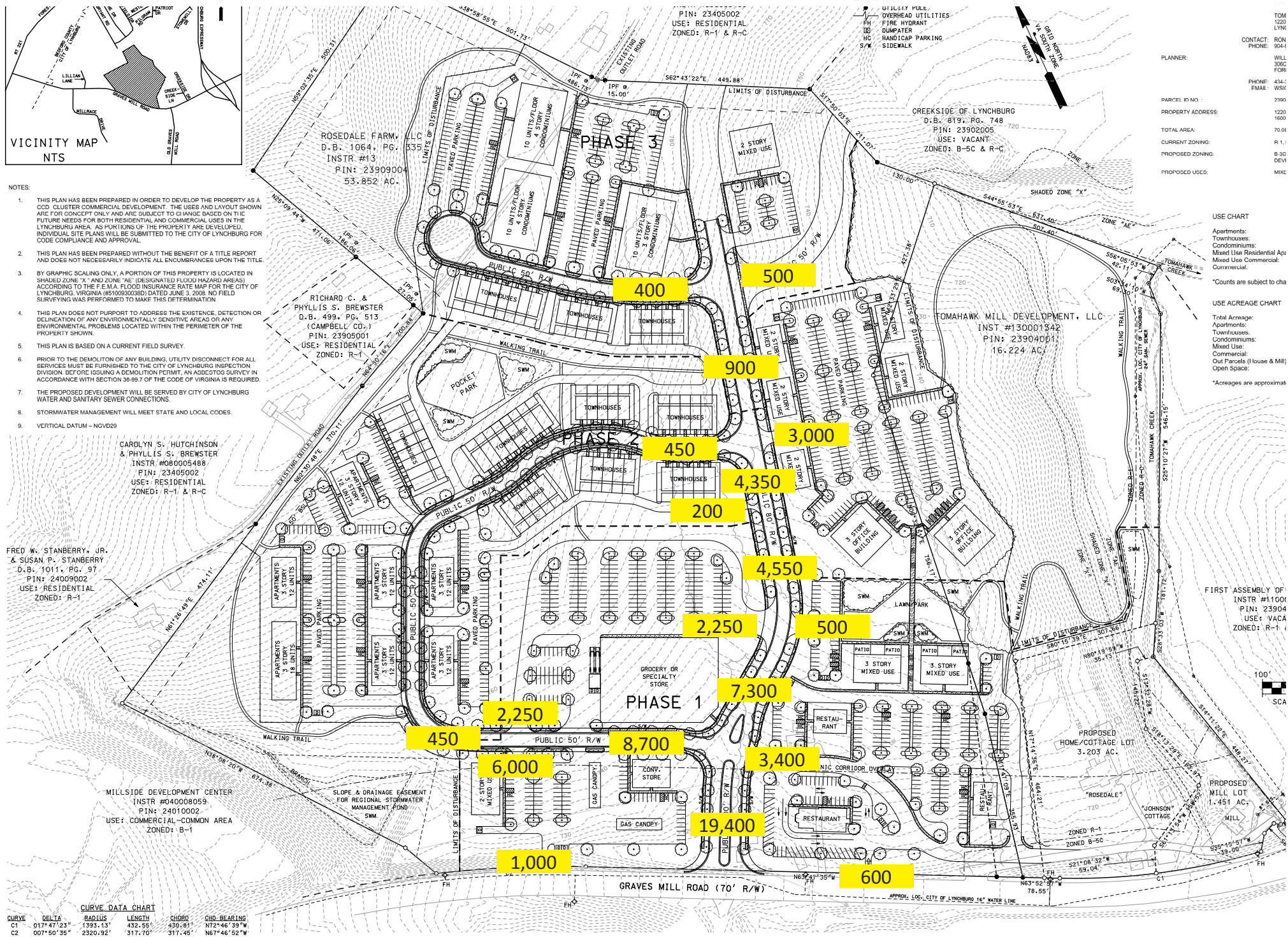
The attached table summarizes the turn lane requirements at the internal intersections.

END OF MEMORANDUM

Attachments

Figures 1 through 5

Figure 1 Graves Mill Internal ADT Estimate

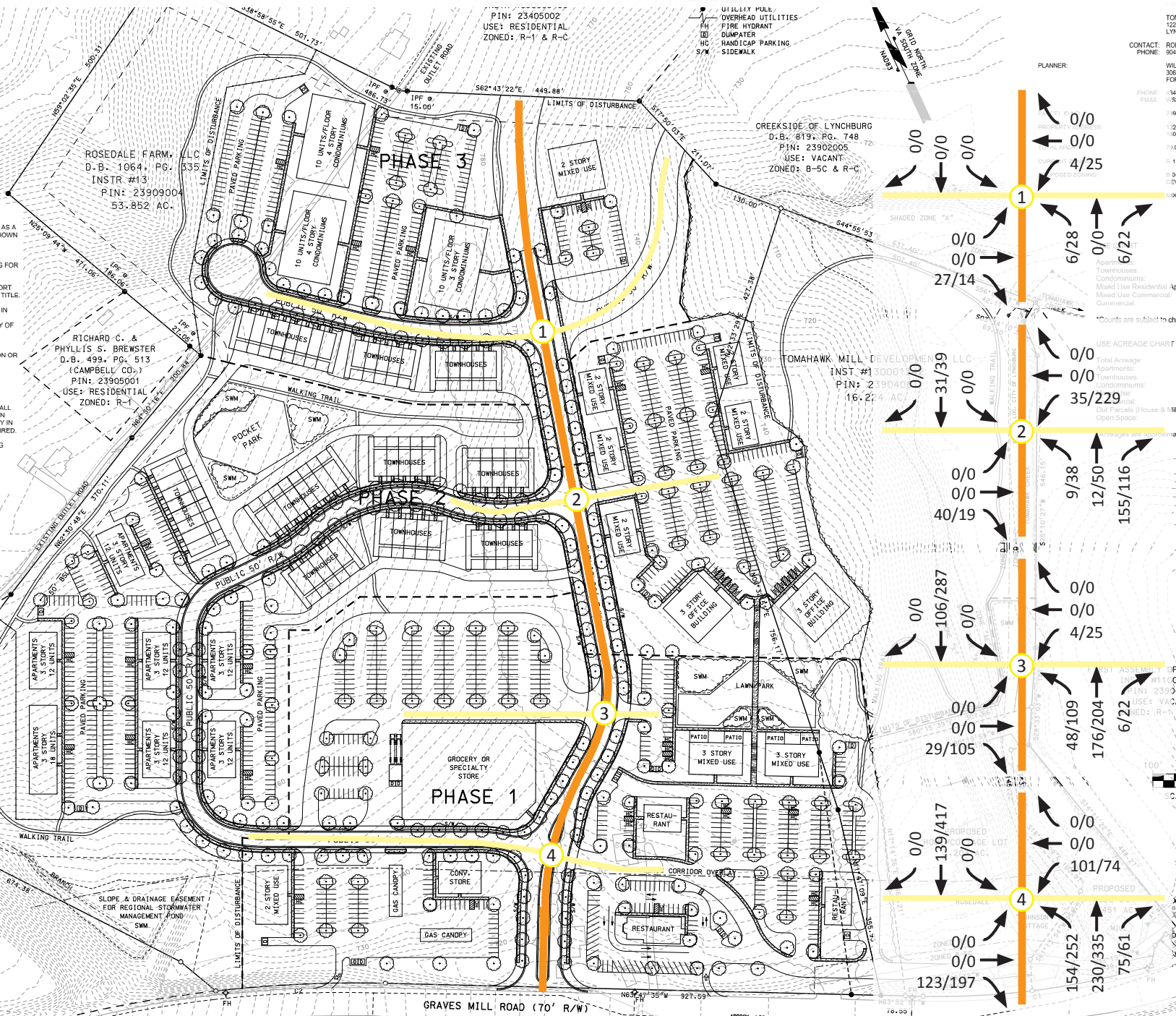


VICINITY MAP
NTS

-
- CAROLYN S. HUTCHINSON
& PHYLLIS S. BREWSTER
INSTR #080005488
PIN: 23405002
USE: RESIDENTIAL
ZONED: R-1 & R-C
- FRED W. STANBERRY, JR.
& SUSAN P. STANBERRY
D.B. 1011, PG. 97
PIN: 24009002
USE: RESIDENTIAL
ZONED: R-1
- Rt. 1A

MILLSIDE DEVELOPMENT CENTER
INSTR #040008059
PIN: 24010002
USE: COMMERCIAL-COMMON AREA
ZONED: B-1

CURVE DATA CHART					
CURVE	DELTA	RADIUS	LENGTH	CHORD	CHD BEARING
C1	017° 47' 23"	1393.13'	432.55'	430.81'	N72° 46' 39" W
C2	007° 50' 35"	2320.92'	317.70'	317.45'	N67° 46' 52" W



XX/XX AM/PM

Figure 3 Graves Mill Internal Intersection Turning Lane Warrants

Intersection (As indicated in Figure 2)	Lane	Graves Mill Internal Roads	
		AM	PM
#1	NBL	No Left-Turn Lane Required	No Left-Turn Lane Required
#1	NBR	Right-Turn Radius Required	Right-Turn Radius Required
#2	NBL	No Left-Turn Lane Required	No Left-Turn Lane Required
#2	NBR	Full-Width Right-Turn Lane And Taper Required	Full-Width Right-Turn Lane And Taper Required
#3	NBL	No Left-Turn Lane Required	75' Left-Turn Storage Required
#3	NBR	Right-Turn Radius Required	Right-Turn Radius Required
#4	NBL	75' Left-Turn Storage Required	150' Left-Turn Storage Required
#4	NBR	Full-Width Right-Turn Lane And Taper Required	Full-Width Right-Turn Lane And Taper Required

first internal intersection
Movement Delay

12/25/2013

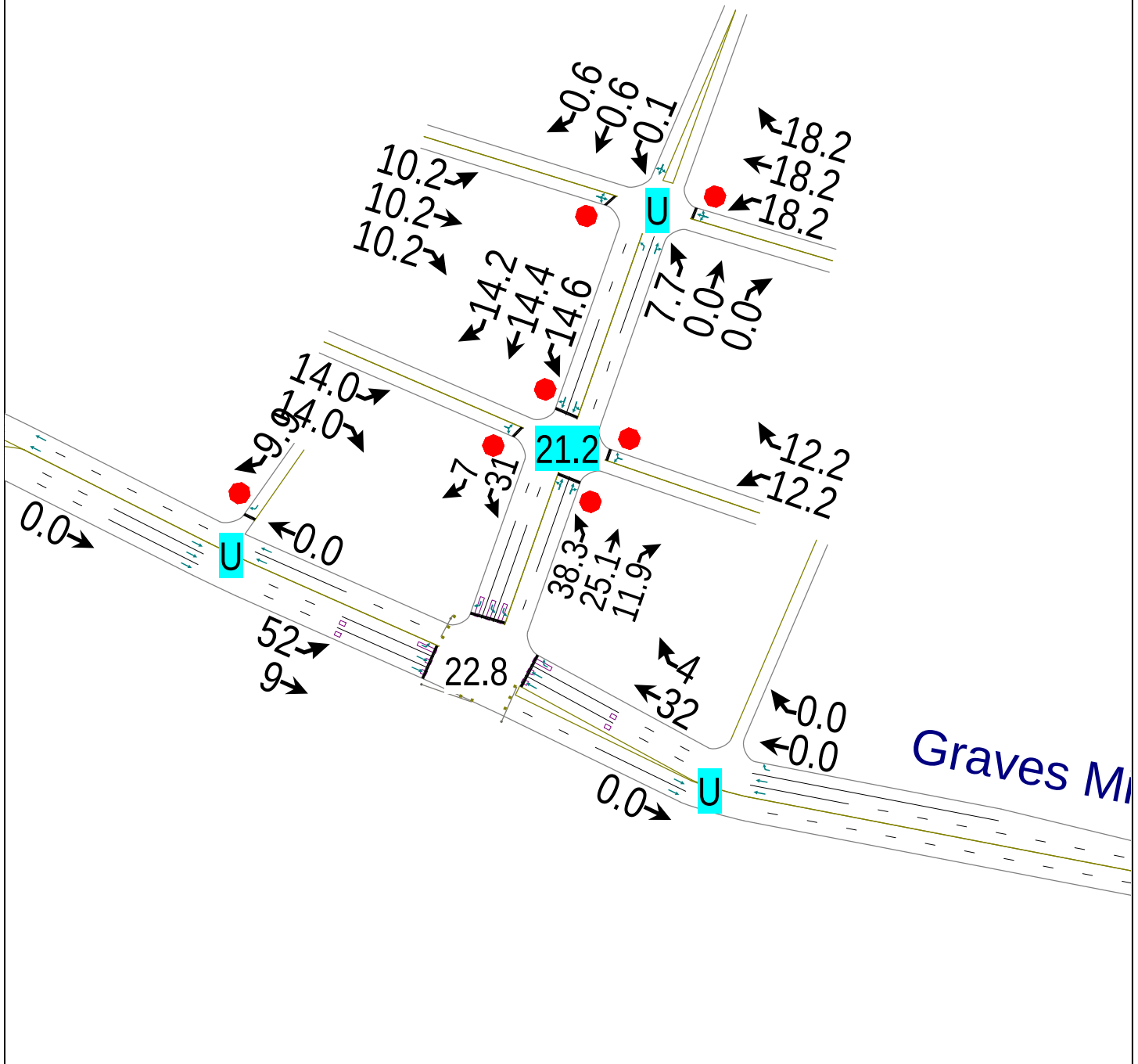
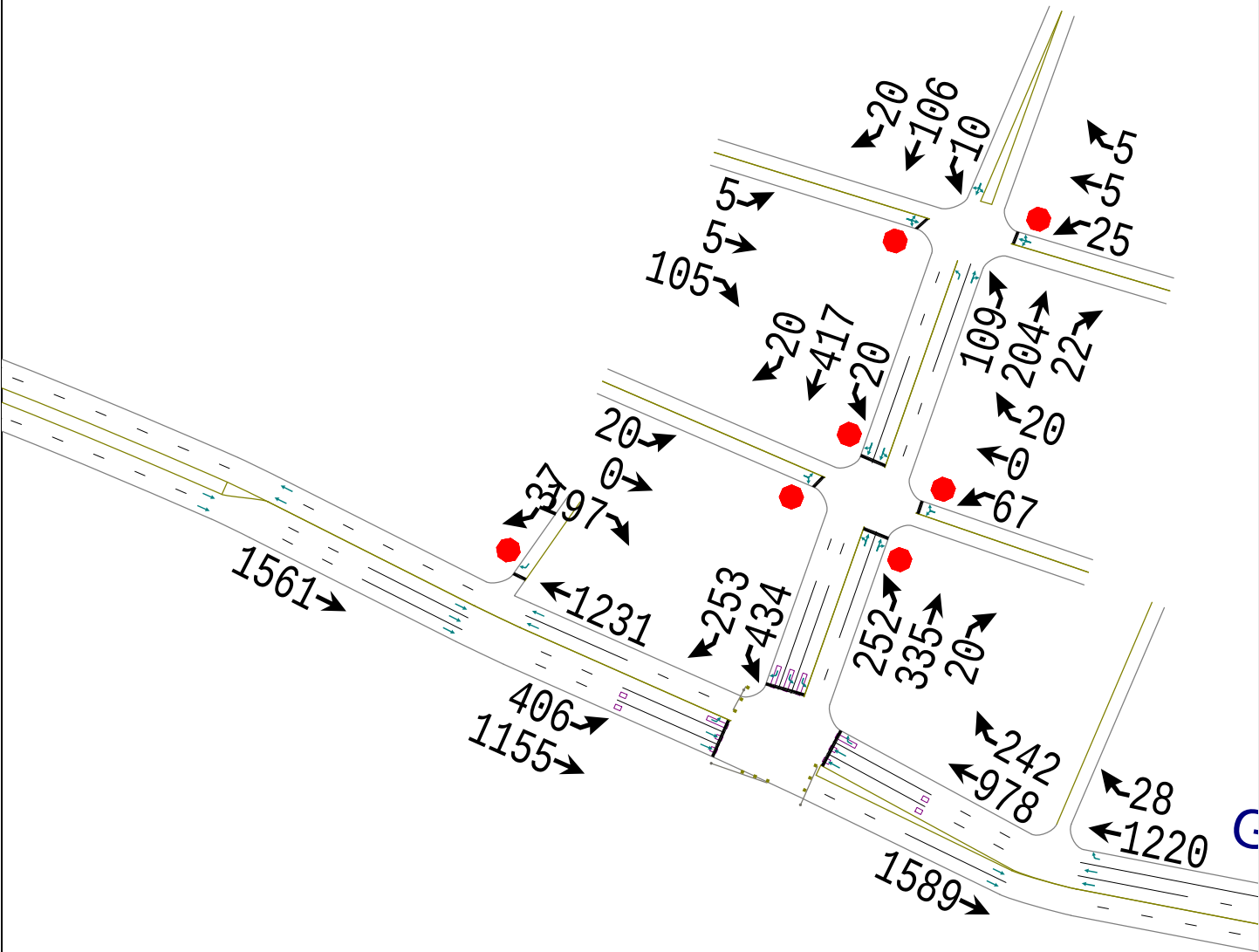


FIGURE 5 - GEOMETRY WITH
VOLUMES

first internal intersection
Volumes

12/25/2013





Technical Memorandum

Traffic Impact Analysis Update

**Rosedale Farms
Lynchburg, Virginia**

Prepared for:

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By:

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637 Berkmar Circle
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January, 2014

Rosedale Farms

Traffic Impact Analysis Update

The purpose of this memorandum is to provide an updated analysis per the latest site plan and proposed land uses for the Rosedale Farm development. This memorandum only addresses the intersection along the site frontage and internal to the site.

1. Site Trip Generation

The latest site plan illustrates generally the same land uses in the development, with some minor differences in intensity and location. **Table 1** shows the areas for each land use in the latest site plan with comparison to those from Rosedale Farm TIA (last version).

Table 1 Site Plan and Land Uses Comparison

Use Description	ITE	Qty from last version	Qty this time
Multi-Family Residential	220	102	100
Condo/Townhouse	230	175	169
Office	710	68,600	51,000
Retail (Shopping Center)	820	25,800	35,000
General Commercial (Use Unknown)	826	8,100	35,000
Grocery/Specialty Store	850	45,000	45,000
Convenience Store with Gas Pump	853	12 (Gas Pumps)	12 (Gas Pumps)
High-Turnover (Sit-Down) Restaurant	932	5,000	5,000
Fast Food Restaurant with Drive-Through	934	7,000	5,000

Table 2 indicates that, with the latest site plan, daily trips generated by Rosedale Farms development are about 500 more than the daily trips from Rosedale Farm TIA, in and out trips in AM peak hour are a little less (49 less, 627 vs. 676), and in

and out trips in PM peak hour are a little more (47 more, 1,120 vs. 1,073).

Table 2 Site Trip Generation

				AM		PM	
Use Description	ITE	Qty	Daily	in	out	in	out
Multi-Family Residential	220	100	730	11	42	47	25
Condo/Townhouse	230	169	1,015	13	65	62	31
Office	710	51,000	787	98	13	23	113
Retail (Shopping Center)	820	35,000	3,432	51	31	142	154
General Commercial (Use Unknown)	826	35,000	1,551	0	0	46	59
Grocery/Specialty Store	850	45,000	4,601	95	58	218	209
Convenience Store with Gas Pump	853	12	6,511	99	99	114	114
High-Turnover (Sit-Down) Restaurant	932	5,000	636	30	24	30	20
Fast Food Restaurant with Drive-Through	934	5,000	2,481	57	55	42	39
	total		21,744	455	389	725	764
internal capture			262	4	16	16	8
Peak Hour Trips After Reductions (driveway trips)			21,482	451	373	708	755
Pass-by			6,152	107	90	172	172
Primary Trips			15,330	344	283	537	584
	total peak		15,330	627		1,120	

A series of traffic volume figures are provided in **Appendix A**.

2. Turn Lane Needs

The analyses indicate the following needs of turn lanes:

(1) Full-Width Right-Turn Lane and Taper Required at:

- Right In/Out Entrance at Graves Mill, Westbound
- Right In/Out Entrance to Gas Station, Northbound spine road
- Full Entrance to Restaurant/Grocery, Northbound

(2) Right-Turn Radius Required at:

- Full Entrance to Restaurant/Grocery, Southbound

(3) 150' Left-Turn Storage Required at:

- Full Entrance to Restaurant/Grocery, Northbound

(4) No Left-Turn Lane Required at:

- Full Entrance to Restaurant/Grocery, Southbound

See **Table 3** for detail turn lane needs. The turn lane warrant sheets are provided in **Appendix B** to this memorandum.

Table 3 Turn Lane Needs

Intersection	Direction	AM	PM
Right In/Out Entrance at Graves Mill	WB Right Turn	Full-Width Right-Turn Lane and Taper Required	Full-Width Right-Turn Lane and Taper Required
Right In/Out Entrance to Gas Station	NB Right Turn	Right-Turn Taper Required	Full-Width Right-Turn Lane and Taper Required
Full Entrance to Restaurant/Grocery	NB Right Turn	Right-Turn Taper Required	Full-Width Right-Turn Lane and Taper Required
Full Entrance to Restaurant/Grocery	NB Left Turn	No Left-Turn Lane Required	150' Left-Turn Storage Required
Full Entrance to Restaurant/Grocery	SB Right Turn	Right-Turn Radius Required	Right-Turn Radius Required
Full Entrance to Restaurant/Grocery	SB Left Turn	No Left-Turn Lane Required	No Left-Turn Lane Required

3. Traffic Operations at Intersections

After adding turn lanes as indicated in the last section in the latest site plan, Synchro and SimTraffic models (ver 8) were utilized to evaluate the build traffic operations at the study intersections in the future (year 2024). The delay and level of service (LOS) from Synchro and queues from SimTraffic were summarized in **Table 4**. The analysis results from Synchro indicate that all movements and intersections will operate at LOS C or better, with the exception of WB movement (the road leading to restaurants) at the intersection of Rosedale Main Road and the roads leading to grocery and restaurants, which will operate at LOS F in PM peak hour, due to a large number of vehicles turning left from that STOP-Sign-Control minor road. The analysis results from SimTraffic show that queues at all movements of the study intersections will be well accommodated by the turn lanes proposed in the site plan and recommended in the last section of

this memo. The Synchro and SimTraffic outputs are provided in **Appendix C** and **Appendix D** to this memorandum.

Table 4 Rosedale LOS Summary

Rosedale LOS Summary		2024 Build AM			2024 Build PM		
		LOS	Delay	Queue	LOS	Delay	Queue
5. Rosedale Main/To Grocery and Restaurant							
From Grocery	EBL/EBT/EBR	A	9.1	60	C	16.9	123
From Restaurant	WBL/WBT/WBR	C	20.7	70	F	929.8	111
Rosedale Main	NBL	A	7.7	55	A	8.9	129
Rosedale Main	NBT	A	0.0	0	A	0.0	50
Rosedale Main	NBR	A	0.0	0	A	0.0	2
Rosedale Main	SBL/SBT/SBR	A	0.0	0	A	0.8	53
Intersection		A	6.6		F	117.1	
2. Rosedale Main/Graves Mill							
Graves Mill	EBL	B	18.6	159	C	27.9	181
Graves Mill	EBT	A	5.2	114	A	6.5	128
Graves Mill	WBT	B	13.3	180	C	20.8	251
Graves Mill	WBR	A	8.8	71	B	11.7	108
Rosedale Main	SBL	B	16.1	96	C	21.0	174
Rosedale Main	SBR	B	14.8	51	B	17.1	148
Intersection		B	10.4		B	16.2	

4. Conclusions and Recommendations

The analyses conducted in this memo lead to the following principal conclusions:

For the updated Rosedale Farms development, full-width right-turn lane and taper will be required at westbound movement at the intersection of right in/out entrance and Graves Mill Rd, northbound movement at the intersection of right in/out entrance and the road to gas station, and northbound movement at the intersection of Rosedale's main road and the roads to Grocery and restaurants; 150' left-turn storage will be required at northbound movement at the intersection

of Rosedale's main road and the roads to Grocery and restaurants; right-turn radius will be required at southbound movement at the intersection of Rosedale's main road and the roads to Grocery and restaurants.

All movements will function well (LOS C or better), except westbound movement at the intersection of Rosedale's main road and the roads to Grocery and restaurants, which will operate at LOS F.

*A solution to mitigate this sidestreet left turn issue, and to provide a safe intersection configuration, is to build a roundabout at this location. Testing of a one lane roundabout indicates that all movements function at LOS B or better. The Sidra output is provided in **Appendix E** to this memorandum.*

Queues at all movements of the study intersections will be accommodated well by the proposed turn lanes in the latest site plan and the recommended turn lanes in this memo.

Recommendations:

1. Construct turn lanes as summarized in the preceding summary table.
2. Eliminate the right out movement for the first connection along the development spine road. This location is shown to be less than 225' from the grocery store intersection, and causes concern relative to weaving and safety.
3. Construct a roundabout at the first major intersection (grocery store entrance) along the spine road.
4. For the development entrance along Graves Mill Road, construct the intersection as shown in the plan with the dual eastbound left turn lanes.



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Appendices



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Appendix A Traffic Volumes

Figure 01 2013 Existing Traffic Volumes

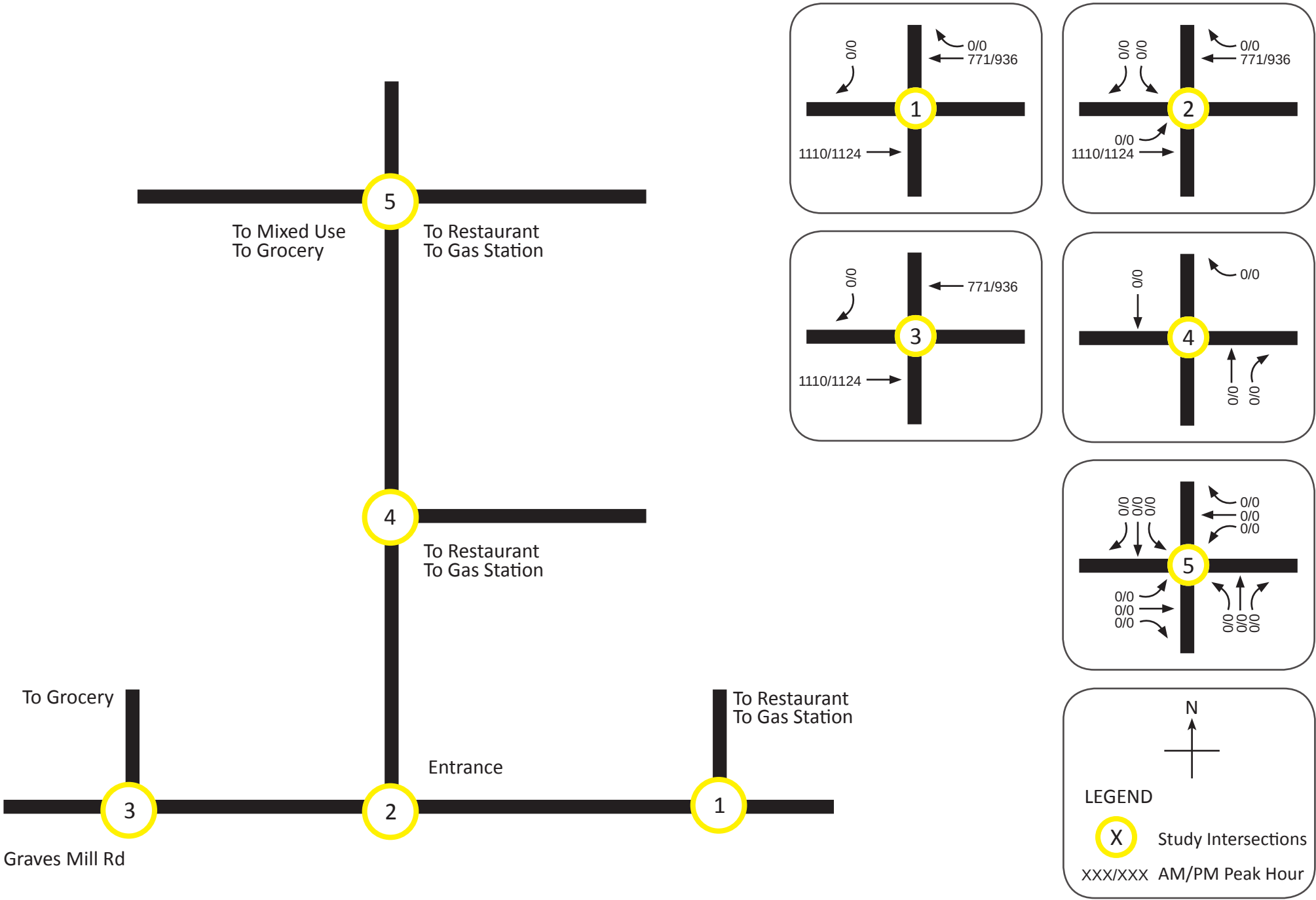


Figure 02 2024 No Build Traffic Volumes

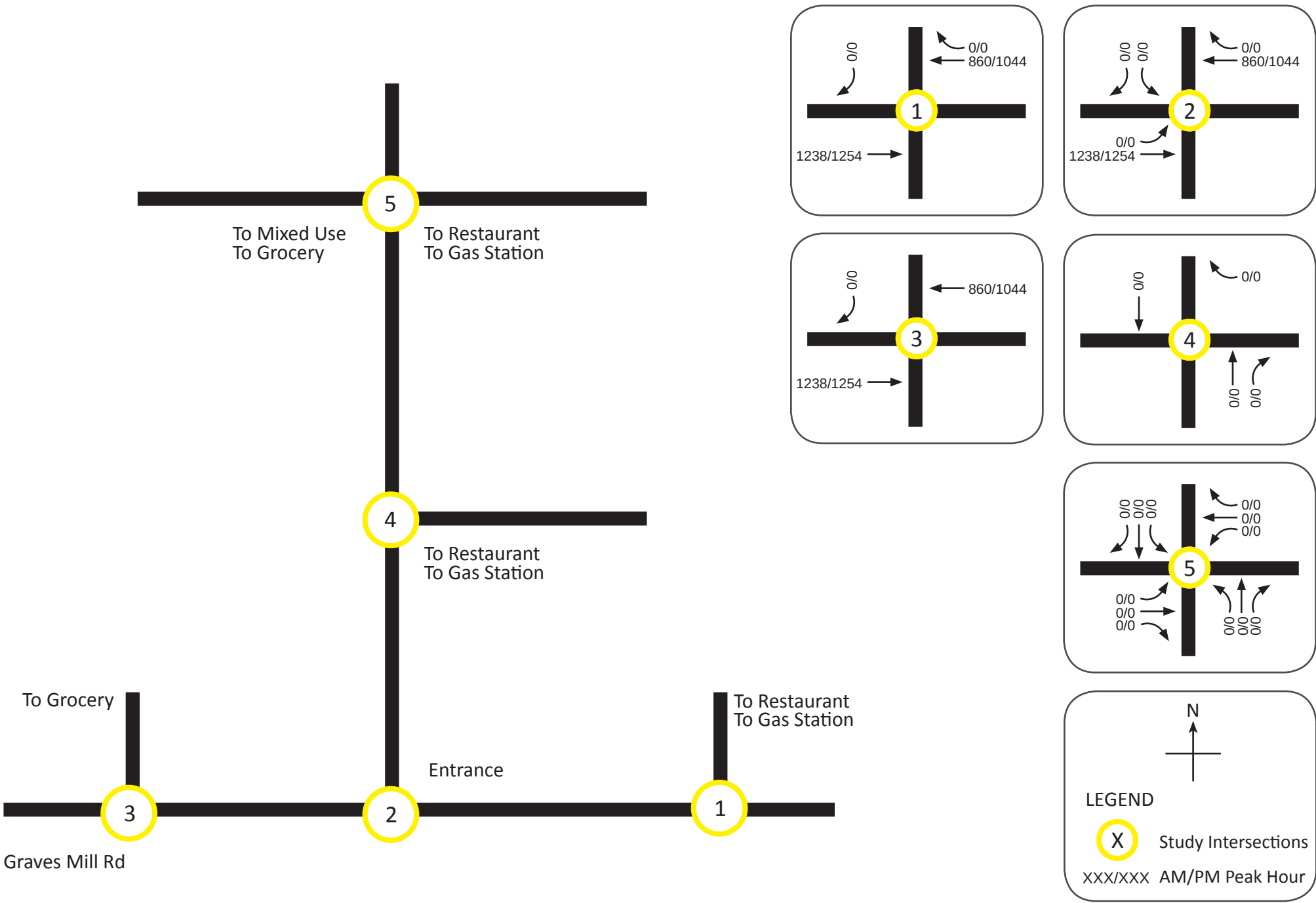


Figure 03 Distribution Percentage Key Map



Figure 04 Distribution Percentage - Zone 1

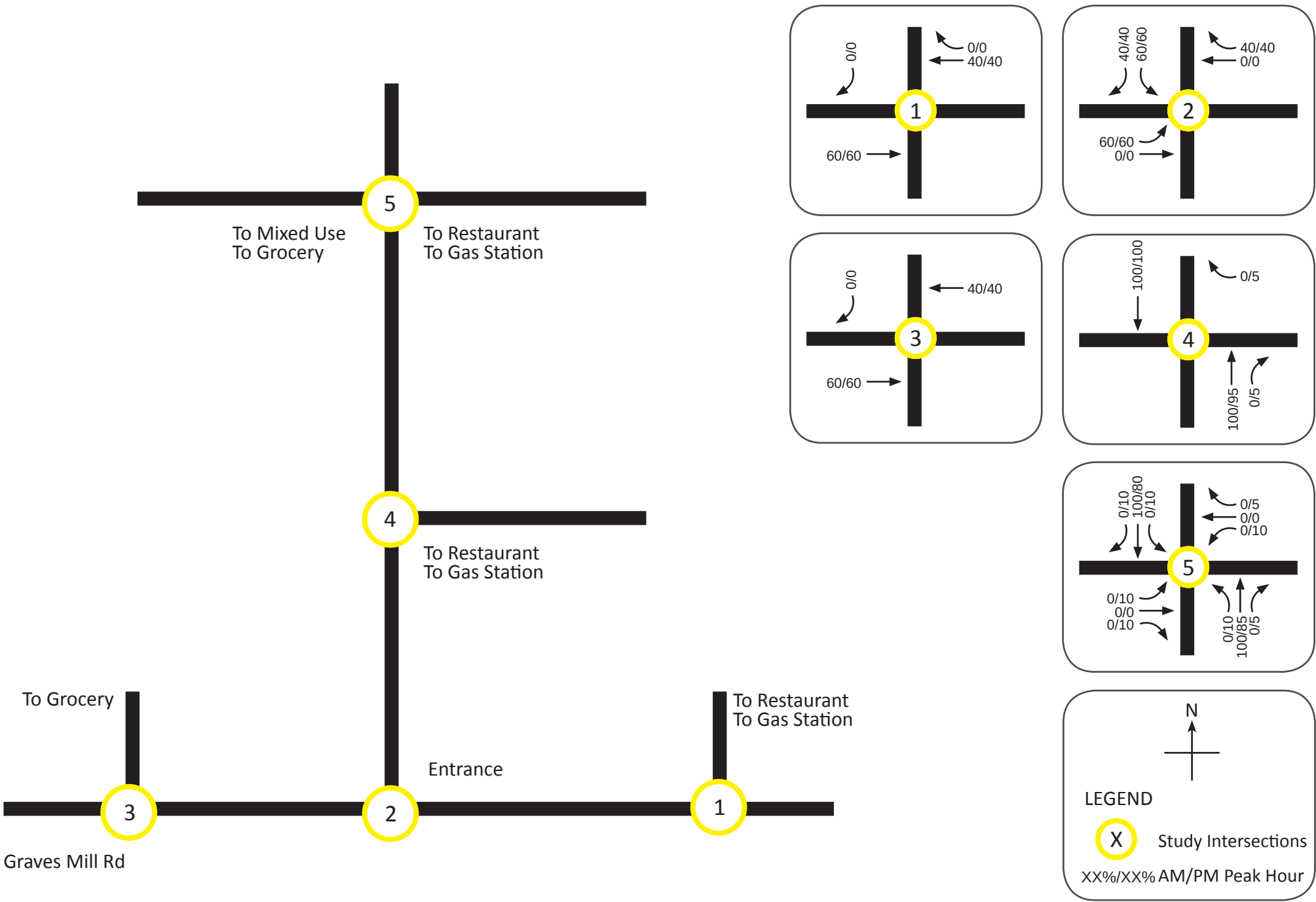


Figure 05 Site Trip - Zone 1

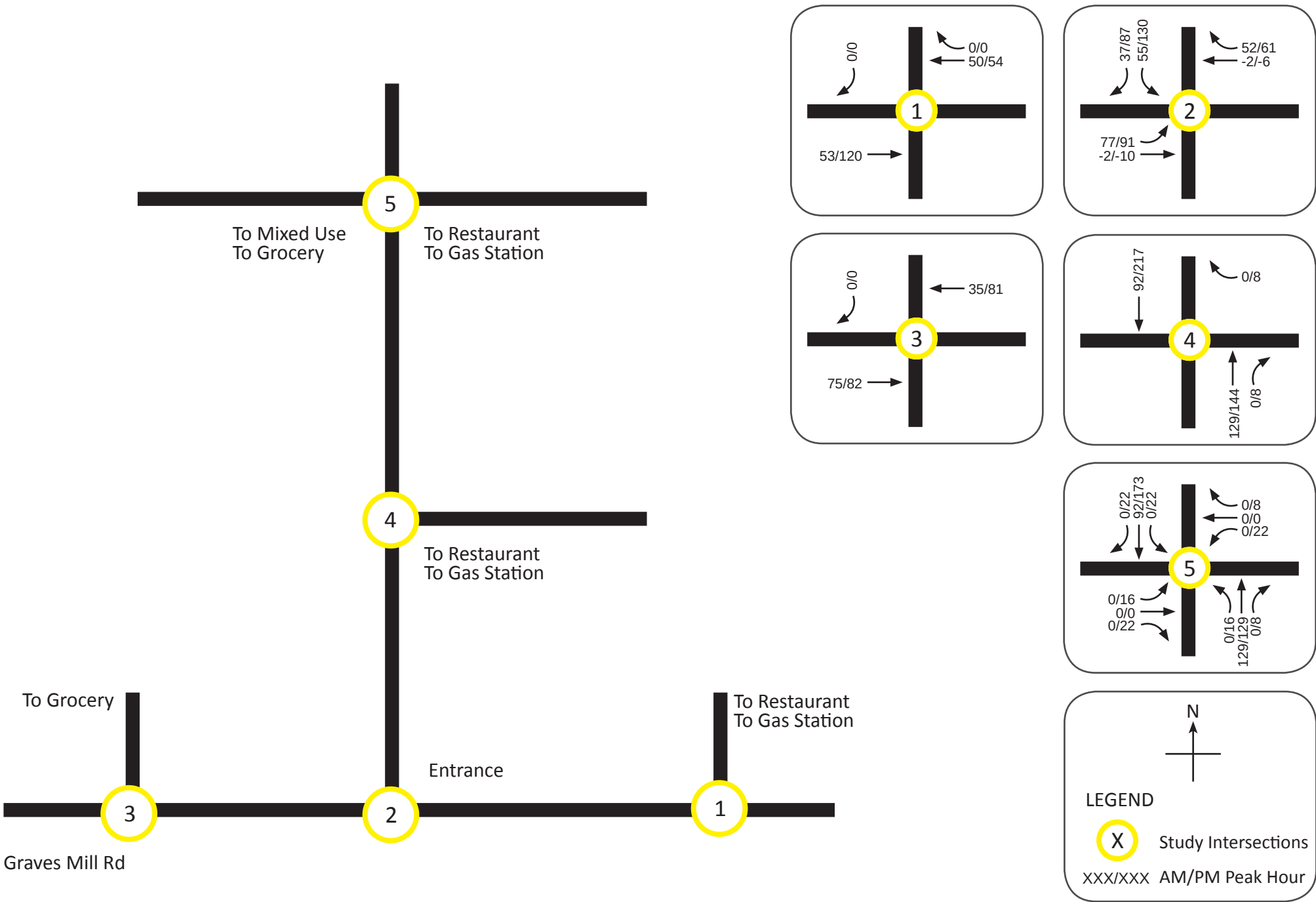


Figure 06 Distribution Percentage - Zone 2

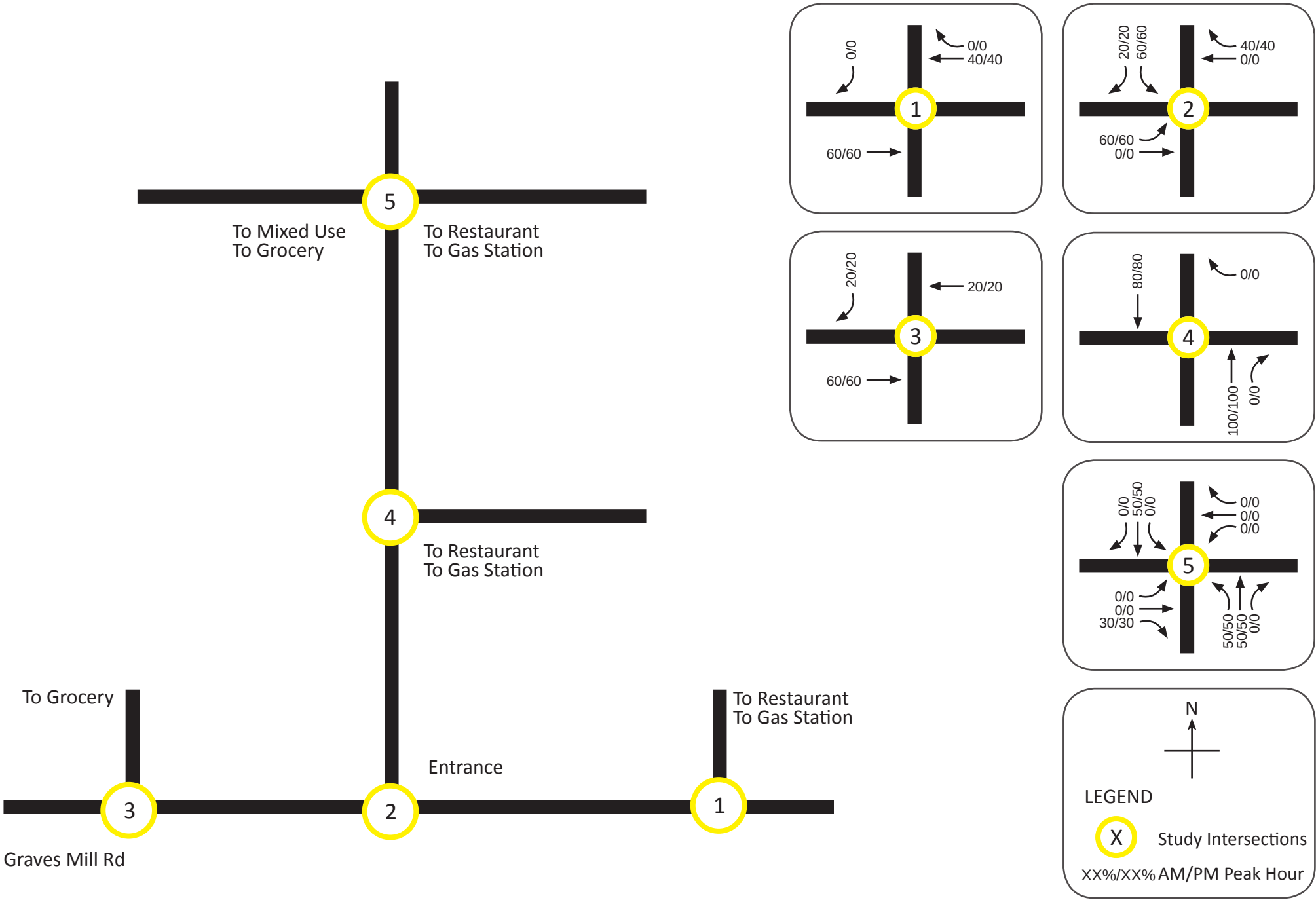


Figure 07 Site Trip - Zone 2

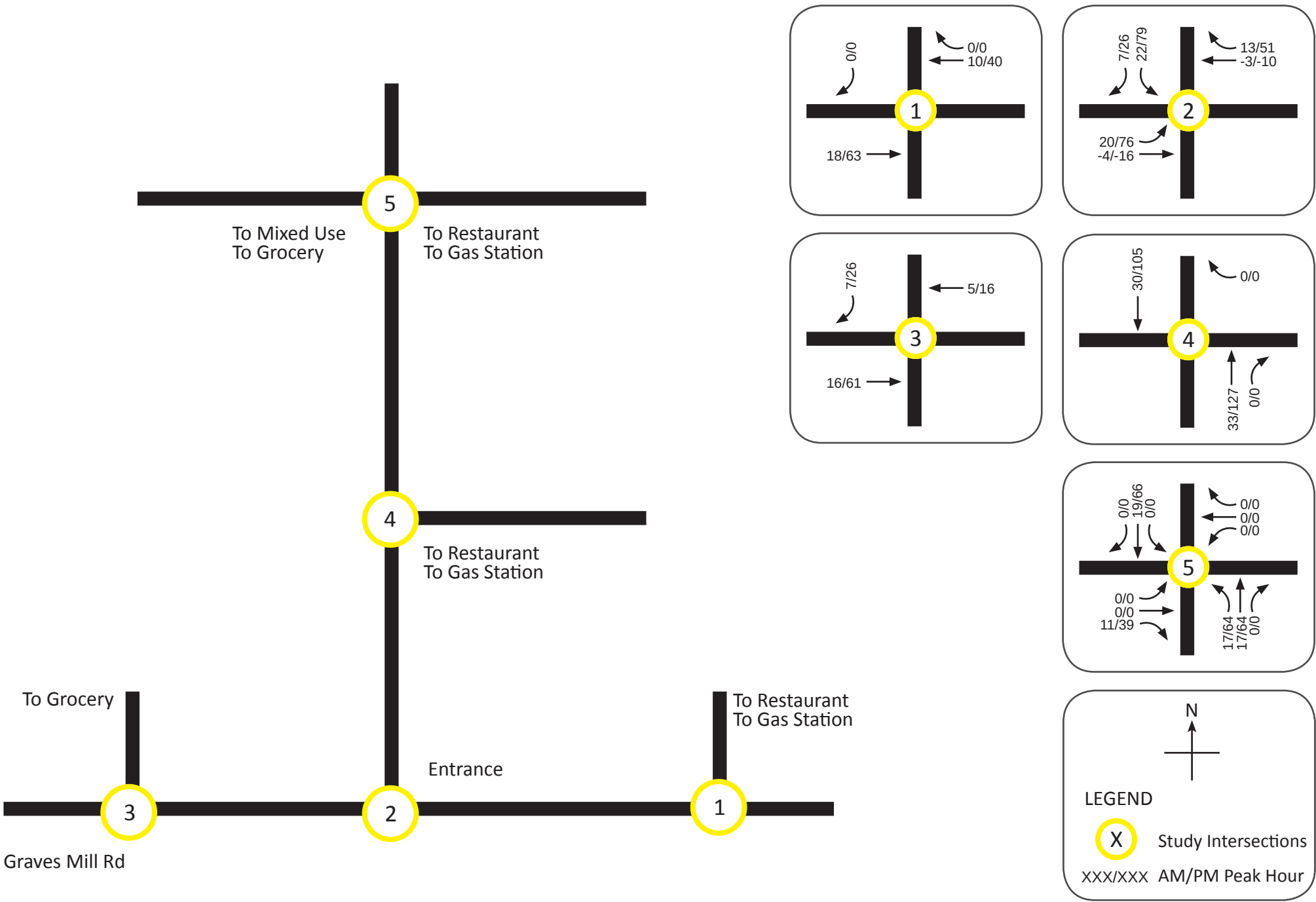


Figure 08 Distribution Percentage - Zone 3

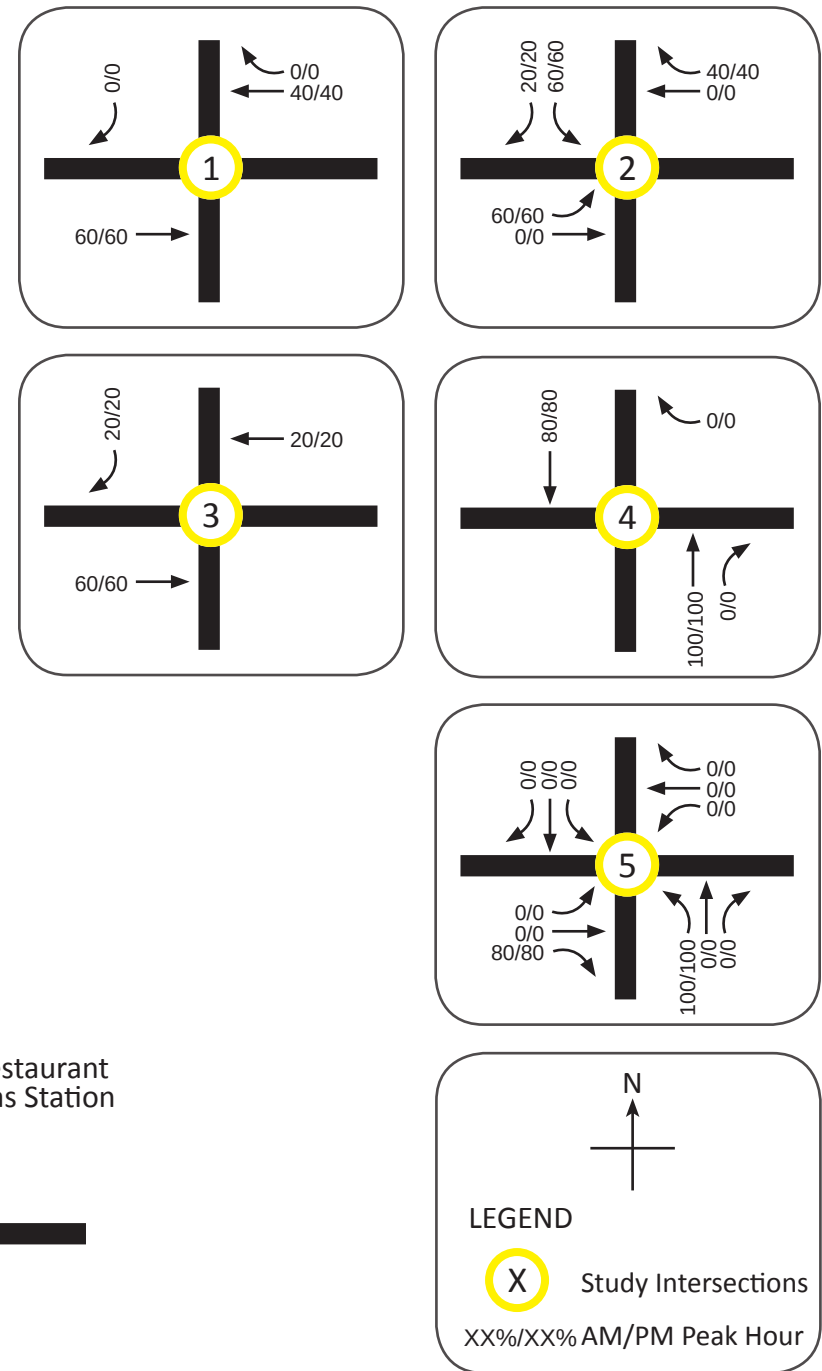
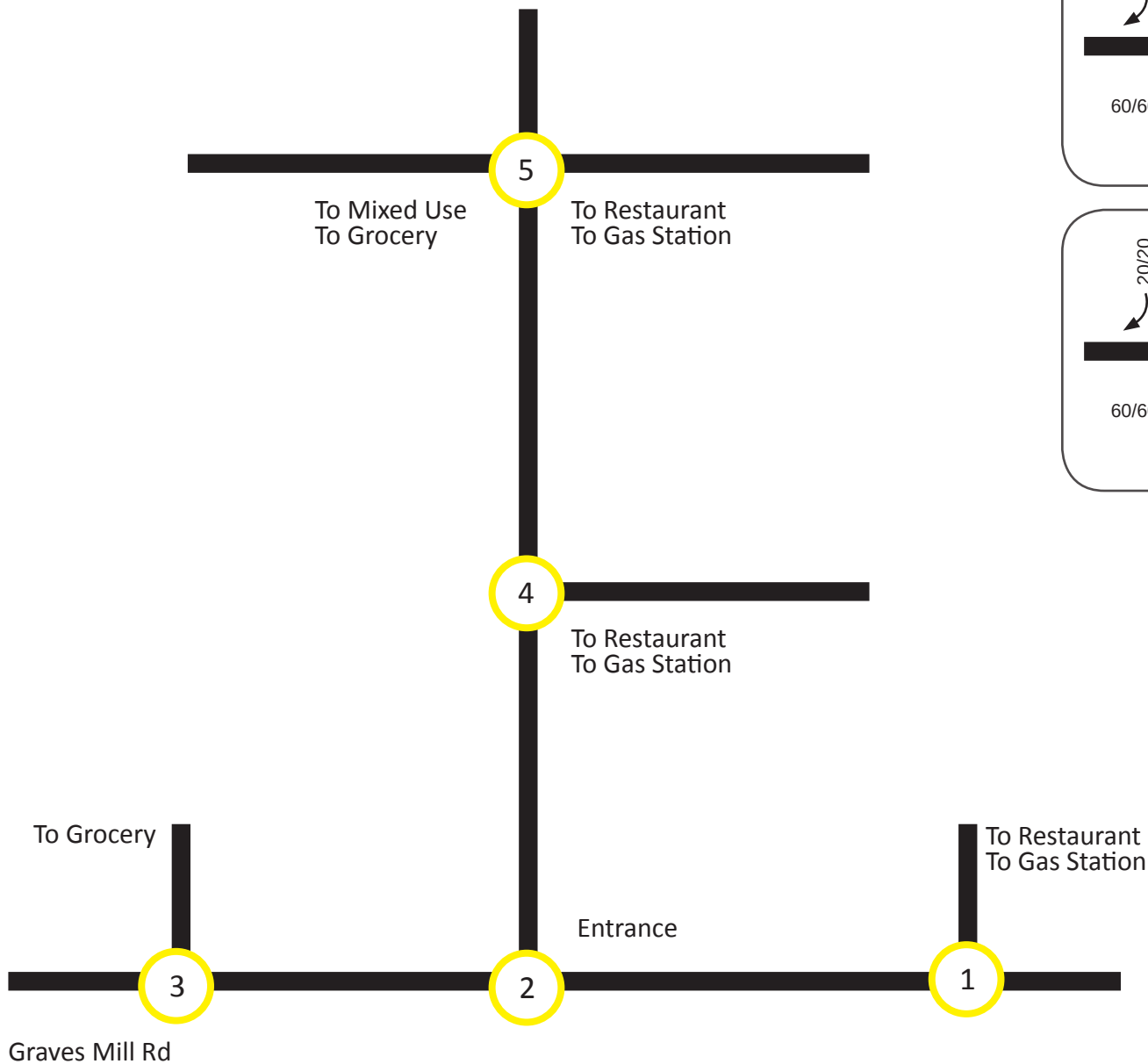


Figure 09 Site Trip - Zone 3

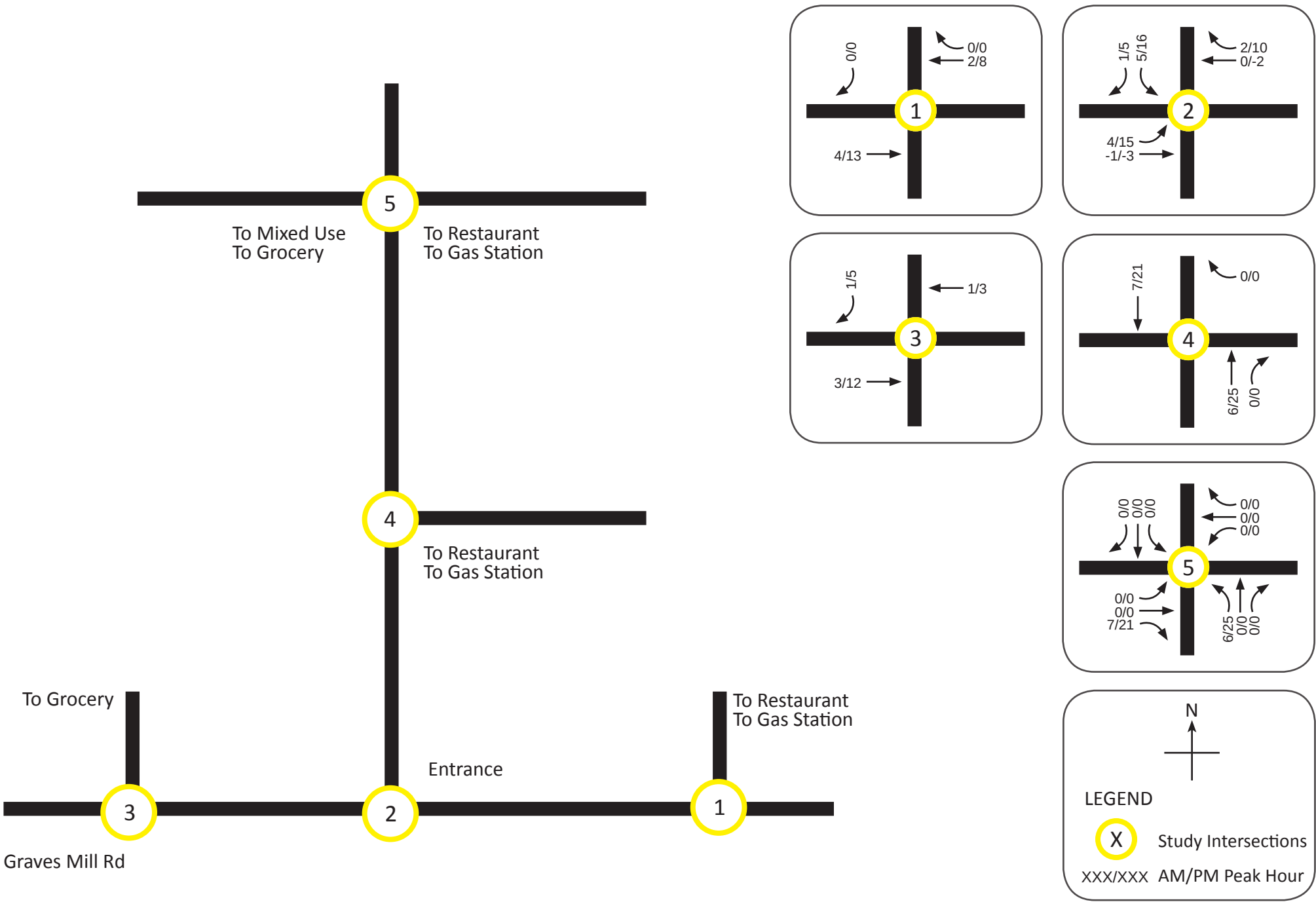


Figure 10 Distribution Percentage - Zone 4

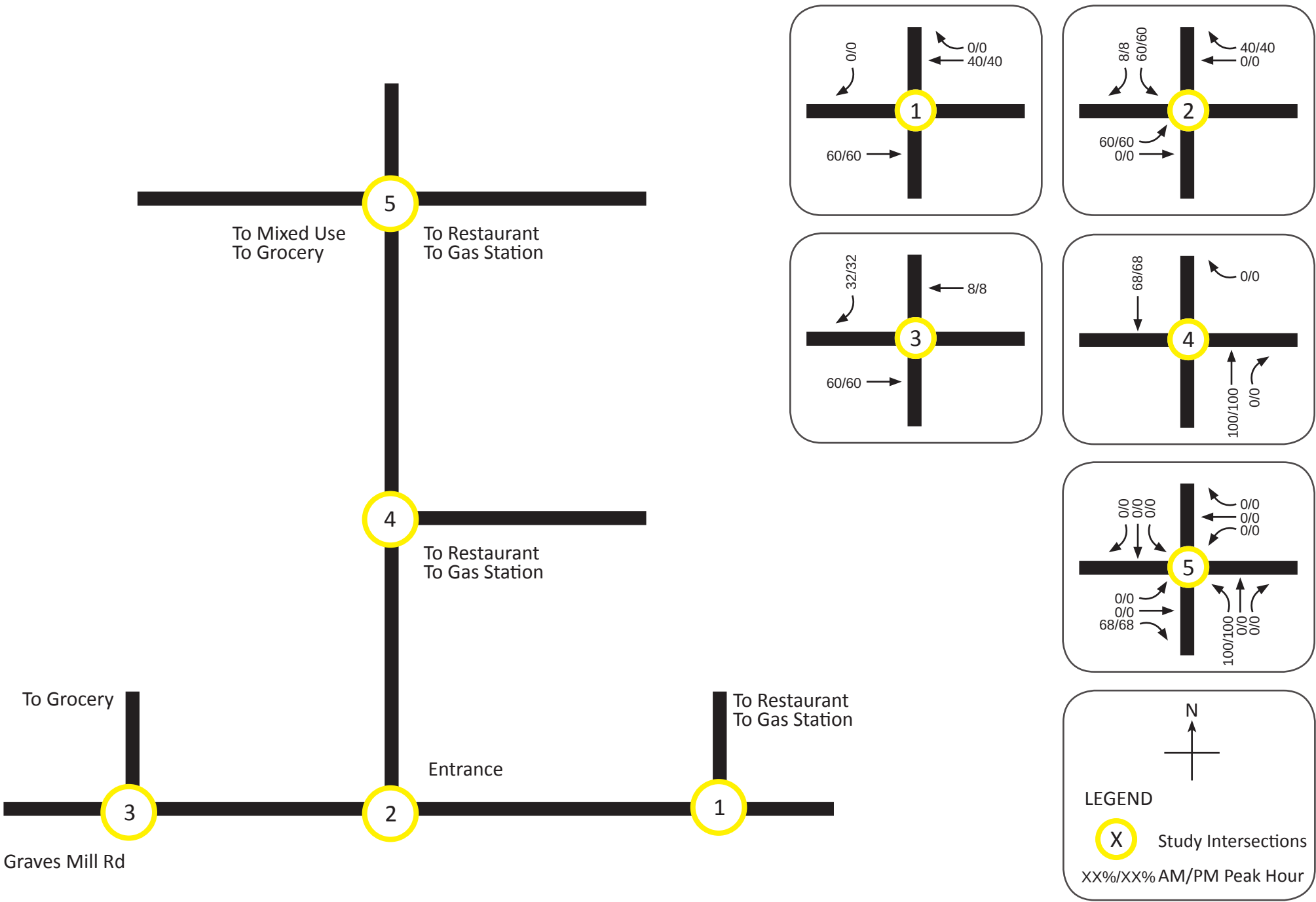


Figure 11 Site Trip - Zone 4

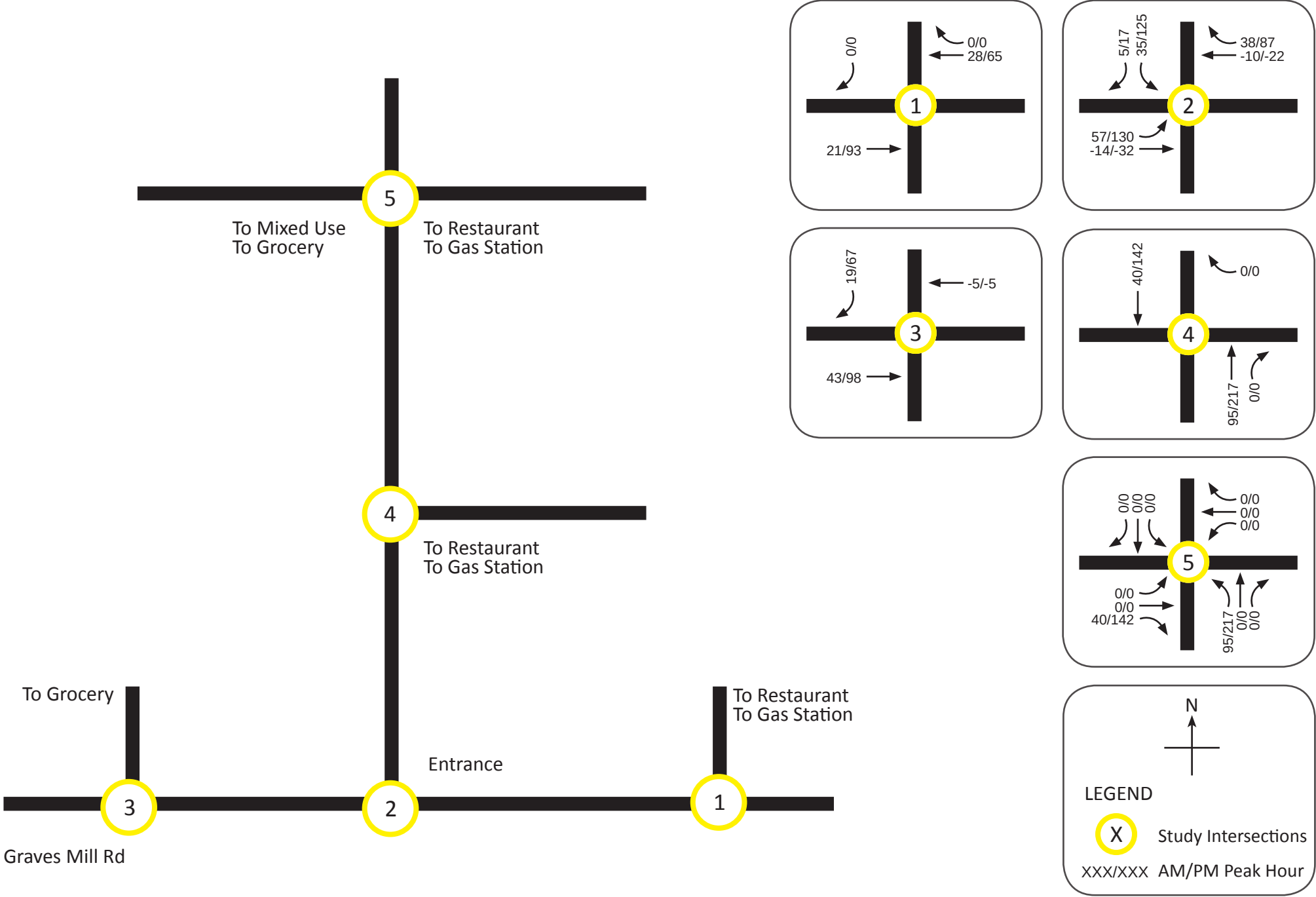


Figure 12 Distribution Percentage - Zone 5

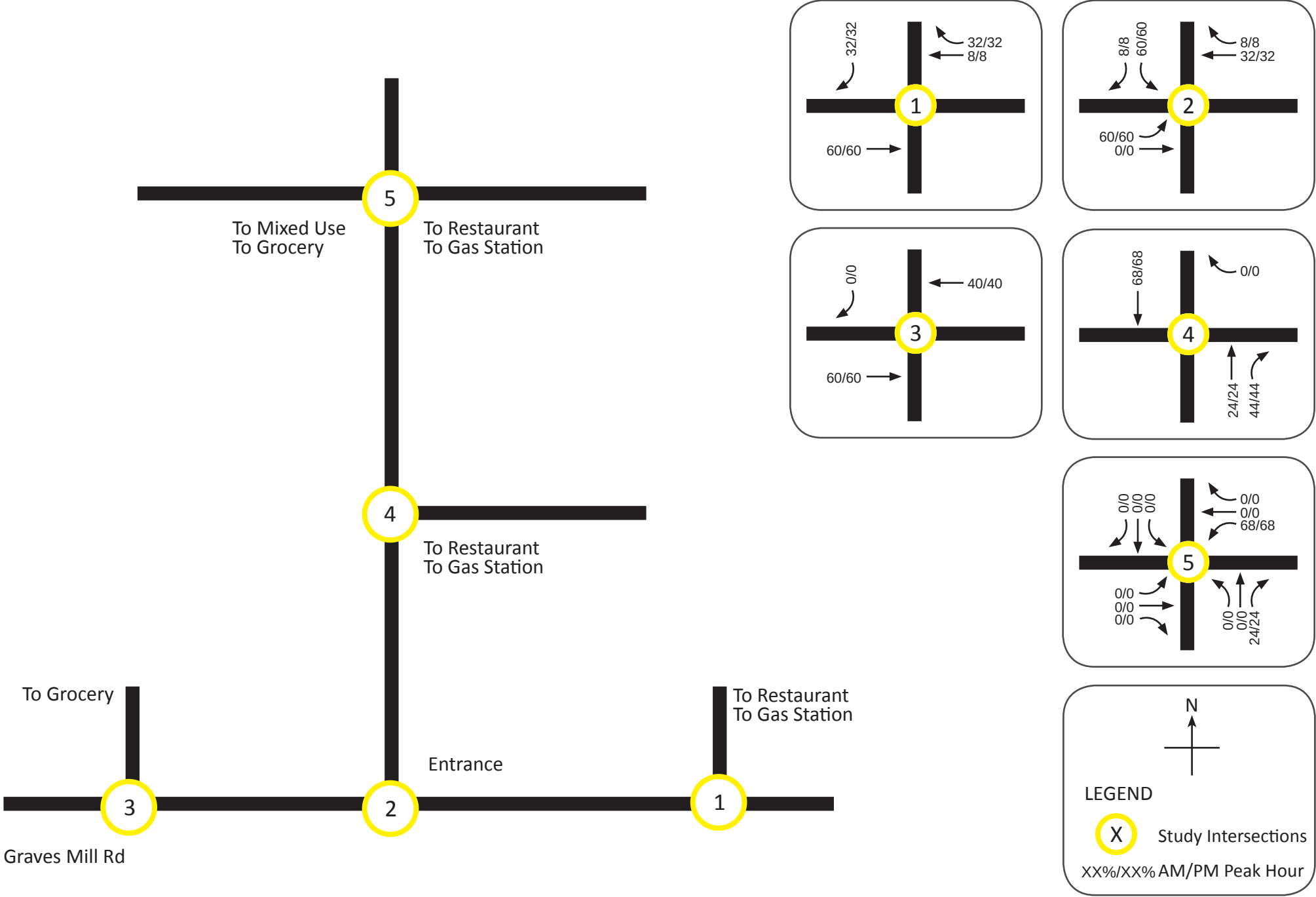


Figure 13 Site Trip - Zone 5

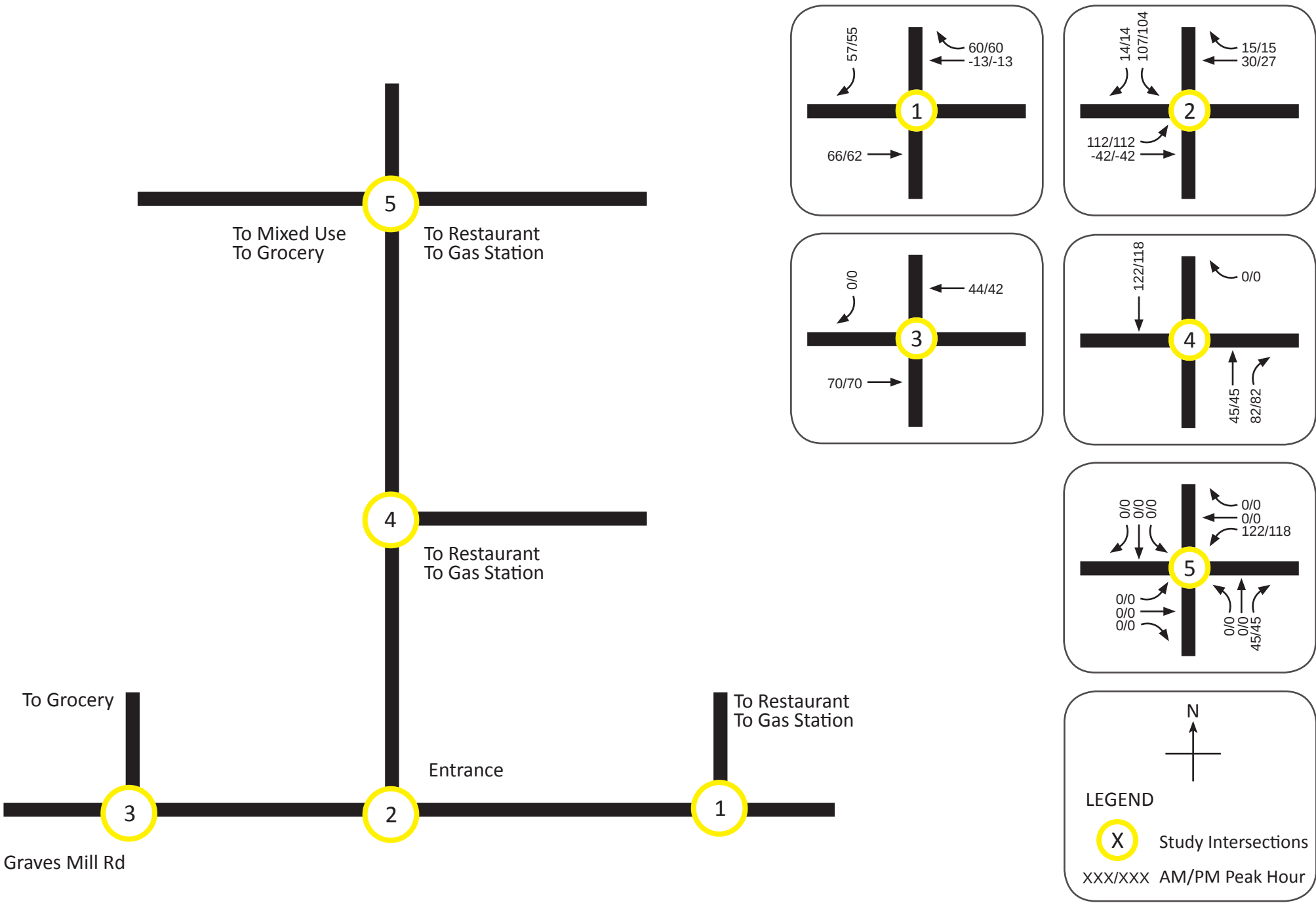


Figure 14 Site Trips

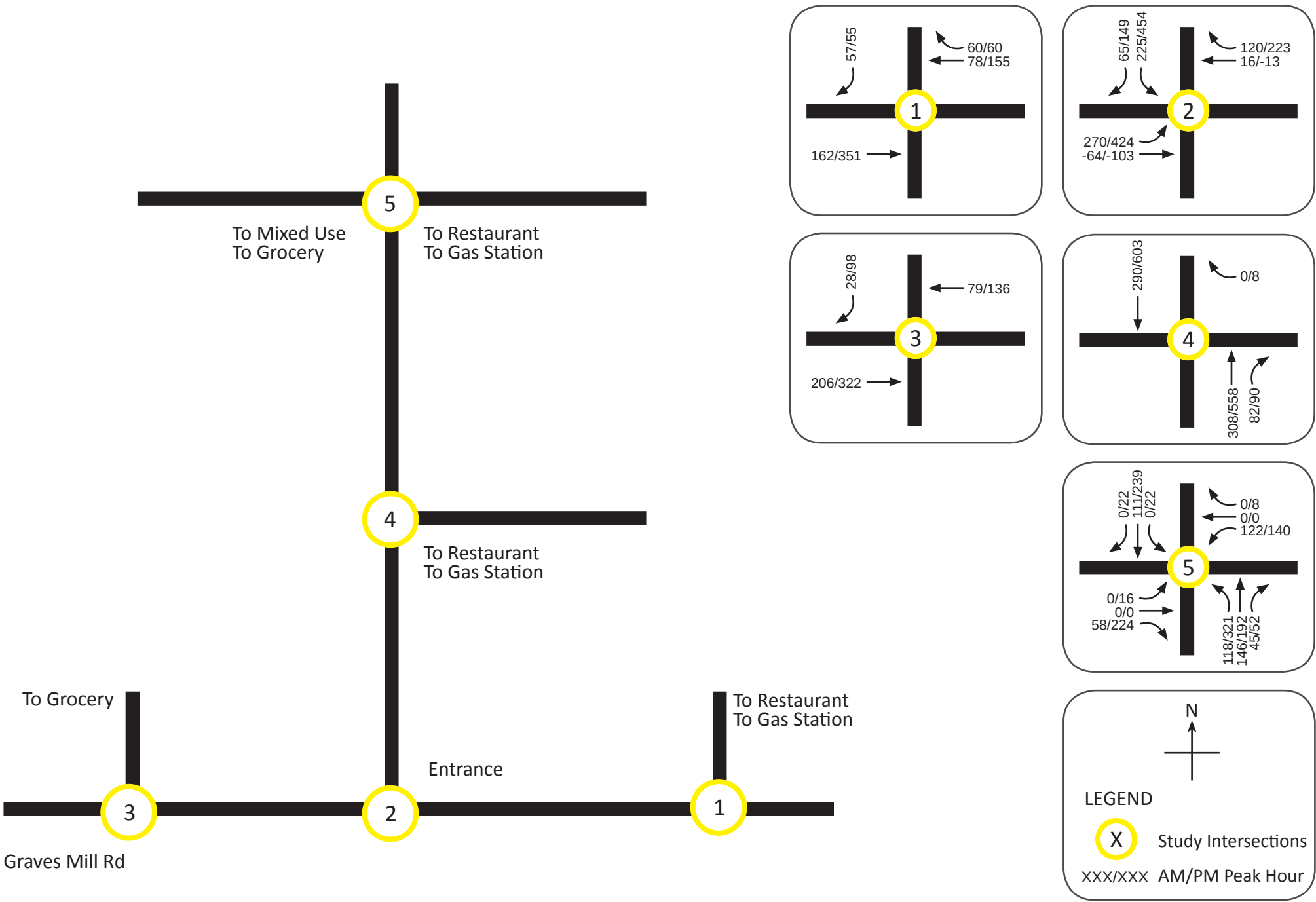
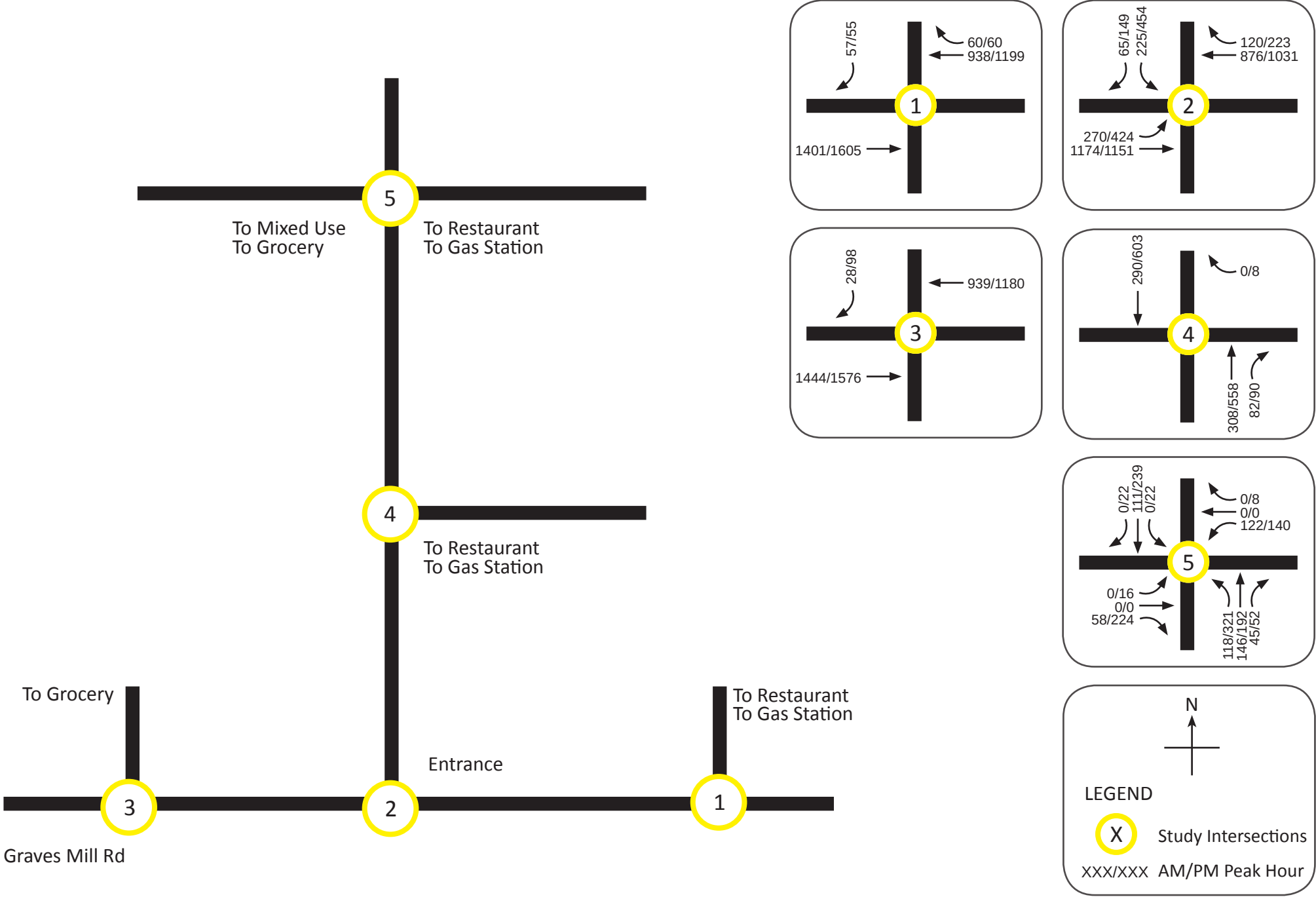


Figure 15 2024 Build Traffic Volumes





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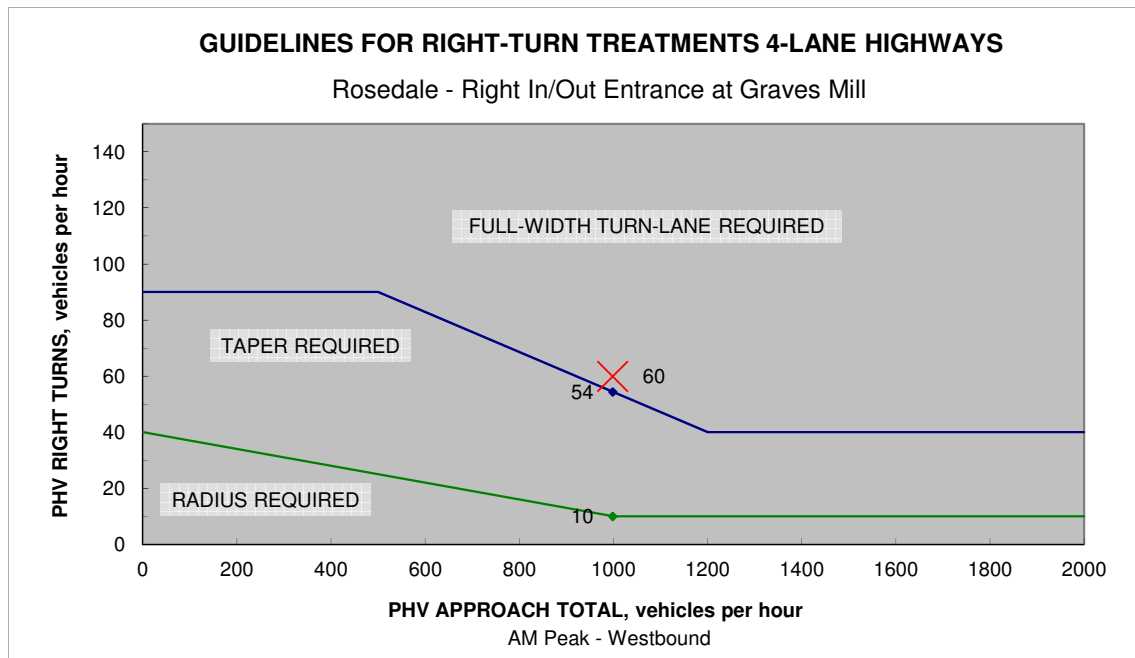
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Appendix B Turn Lane Warrant Sheets

GUIDELINES FOR RIGHT-TURN TREATMENTS ON 4-LANE HIGHWAYS

Project:	Rosedale		
Intersection:	Right In/Out Entrance at Graves Mill		
Approach Direction:	Westbound	Analysis Date:	2014'
Peak Hour:	AM Peak	Data Date:	2013'
PHV Right Turns:	60	Projection Year:	2024
PHV Approach Total:	998		

CONCLUSION: FULL-WIDTH RIGHT-TURN LANE AND TAPER REQUIRED

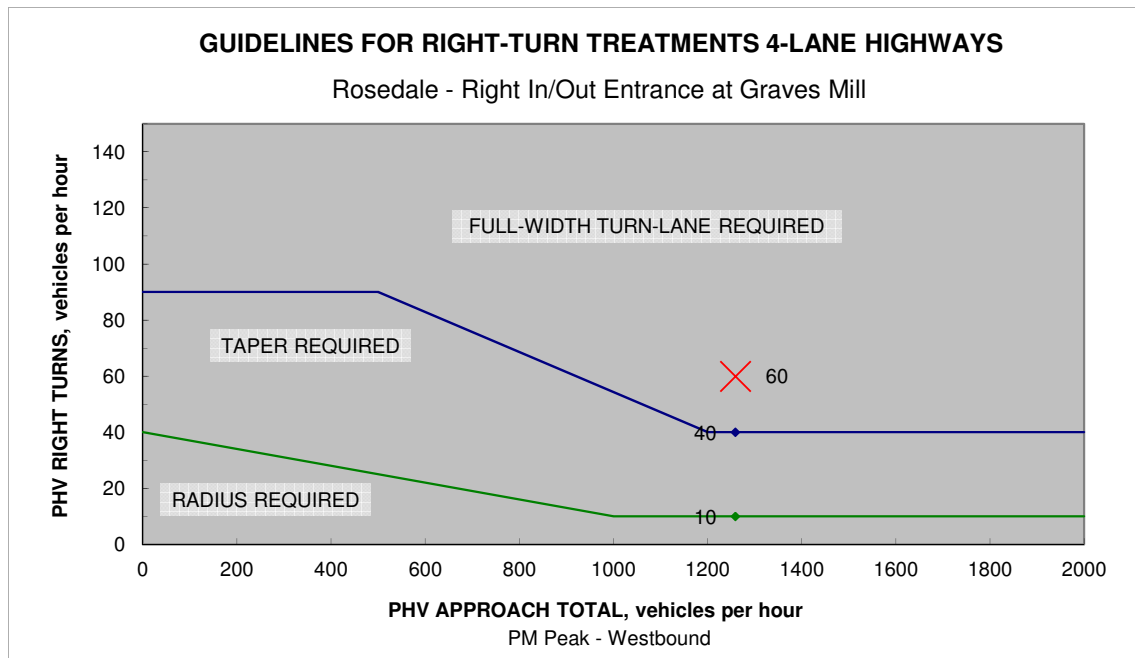


Source: VDOT Minimum Standards of Entrances to State Highways - Figure 6

GUIDELINES FOR RIGHT-TURN TREATMENTS ON 4-LANE HIGHWAYS

Project:	Rosedale		
Intersection:	Right In/Out Entrance at Graves Mill		
Approach Direction:	Westbound	Analysis Date:	2014'
Peak Hour:	PM Peak	Data Date:	2013'
PHV Right Turns:	60	Projection Year:	2024
PHV Approach Total:	1,259		

CONCLUSION: FULL-WIDTH RIGHT-TURN LANE AND TAPER REQUIRED

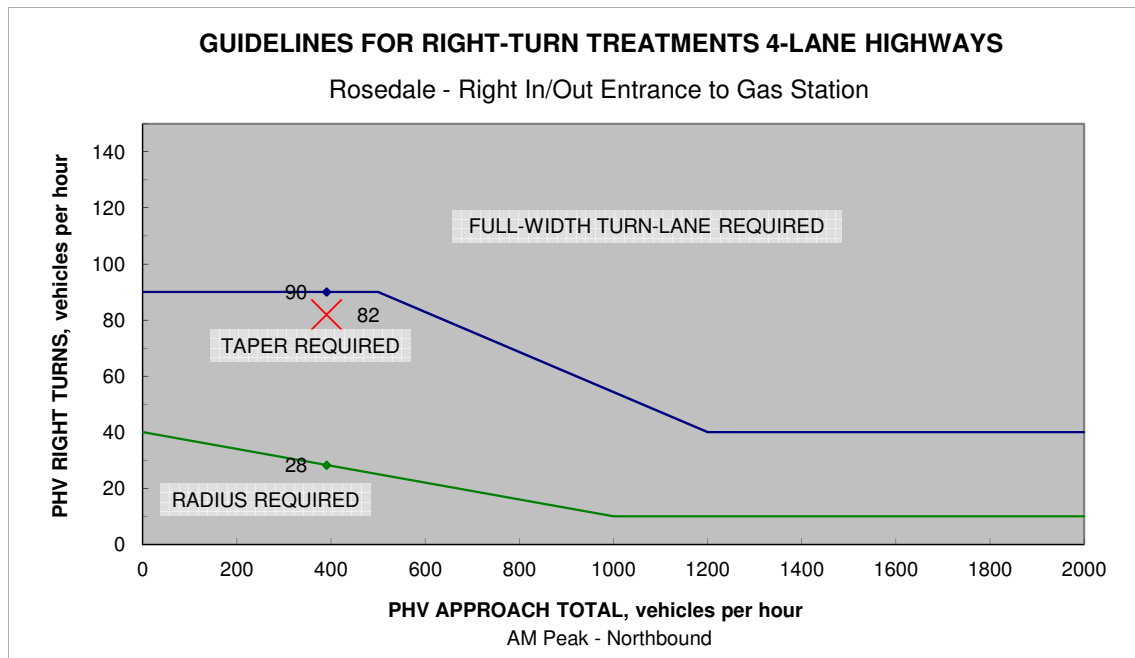


Source: VDOT Minimum Standards of Entrances to State Highways - Figure 6

GUIDELINES FOR RIGHT-TURN TREATMENTS ON 4-LANE HIGHWAYS

Project:	Rosedale		
Intersection:	Right In/Out Entrance to Gas Station		
Approach Direction:	Northbound	Analysis Date:	2014'
Peak Hour:	AM Peak	Data Date:	2013'
PHV Right Turns:	82	Projection Year:	2024
PHV Approach Total:	390		

CONCLUSION: **RIGHT-TURN TAPER REQUIRED**

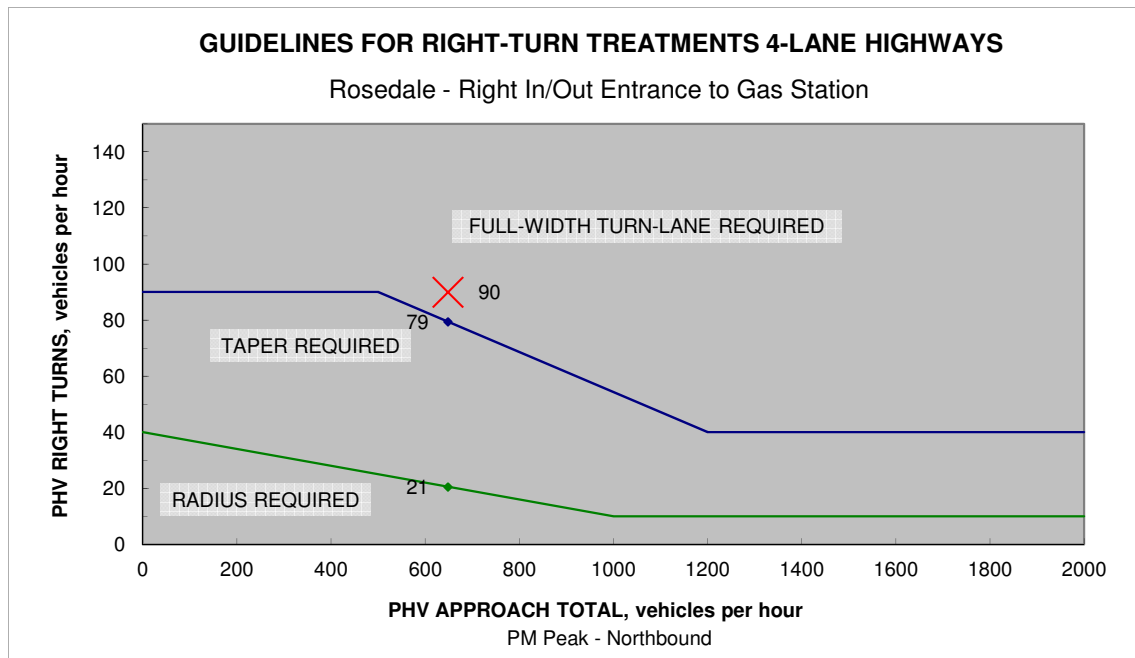


Source: VDOT Minimum Standards of Entrances to State Highways - Figure 6

GUIDELINES FOR RIGHT-TURN TREATMENTS ON 4-LANE HIGHWAYS

Project:	Rosedale		
Intersection:	Right In/Out Entrance to Gas Station		
Approach Direction:	Northbound	Analysis Date:	2014'
Peak Hour:	PM Peak	Data Date:	2013'
PHV Right Turns:	90	Projection Year:	2024
PHV Approach Total:	648		

CONCLUSION: FULL-WIDTH RIGHT-TURN LANE AND TAPER REQUIRED

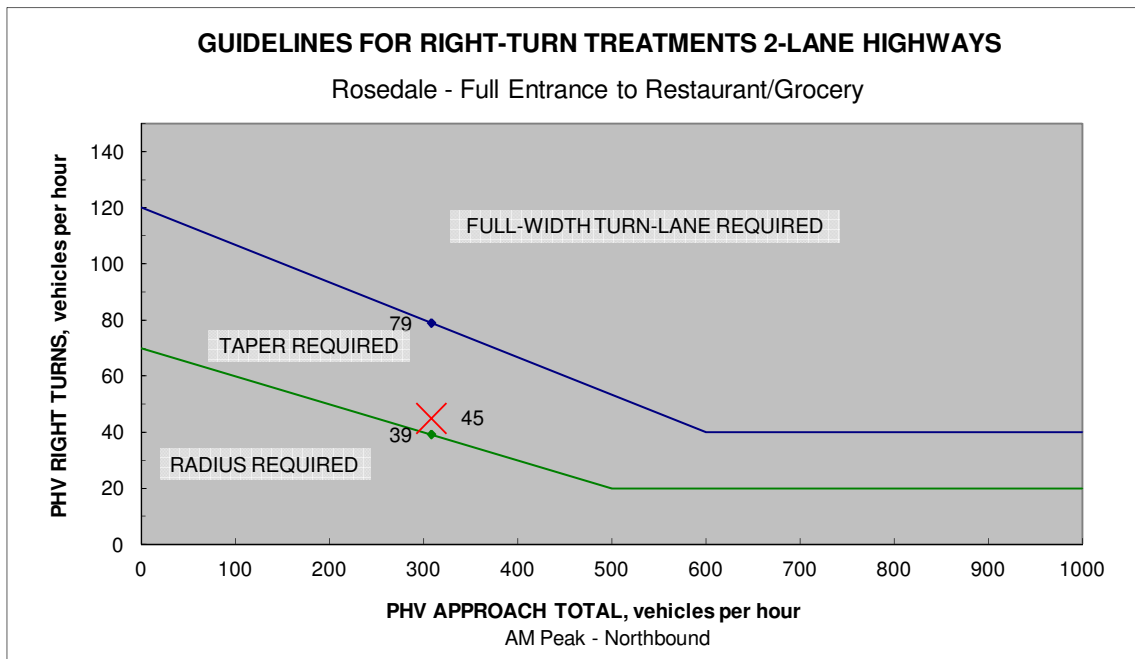


Source: VDOT Minimum Standards of Entrances to State Highways - Figure 6

GUIDELINES FOR RIGHT-TURN TREATMENTS ON 2-LANE HIGHWAYS

Project:	Rosedale		
Intersection:	Full Entrance to Restaurant/Grocery		
Approach Direction:	Northbound	Analysis Date:	2014
Peak Hour:	AM Peak	Data Date:	2013
PHV Right Turns:	45	Projection Year:	2024
PHV Approach Total:	308		

CONCLUSION: **RIGHT-TURN TAPER REQUIRED**

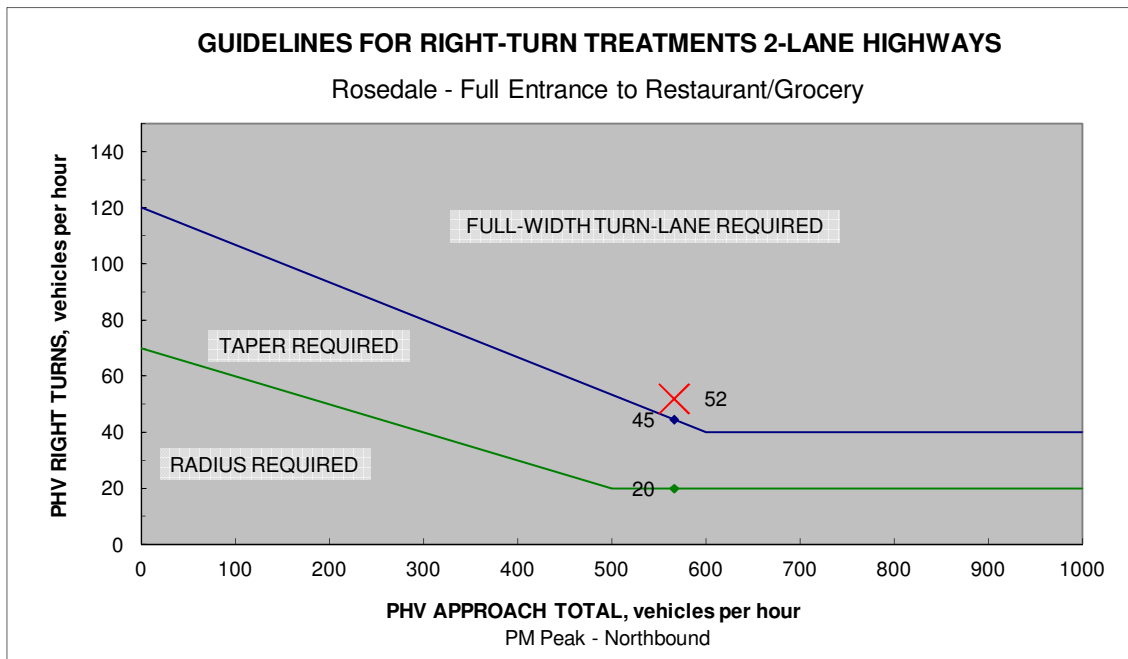


Source: VDOT Minimum Standards of Entrances to State Highways - Figure 5

GUIDELINES FOR RIGHT-TURN TREATMENTS ON 2-LANE HIGHWAYS

Project:	Rosedale		
Intersection:	Full Entrance to Restaurant/Grocery		
Approach Direction:	Northbound	Analysis Date:	2014
Peak Hour:	PM Peak	Data Date:	2013
PHV Right Turns:	52	PHV	Projection Year: 2024
PHV Approach Total:	566	vph	

CONCLUSION: **FULL-WIDTH RIGHT-TURN LANE AND TAPER REQUIRED**



Source: VDOT Minimum Standards of Entrances to State Highways - Figure 5

WARRANT FOR LEFT-TURN STORAGE LANES ON TWO-LANE HIGHWAYS

Rosedale

2014'

Full Entrance to Restaurant/Grocery

2013'

Northbound

2024

AM Peak

118 vph

308 vph (Northbound Approach)

111 vph (Southbound Approach)

40 mph

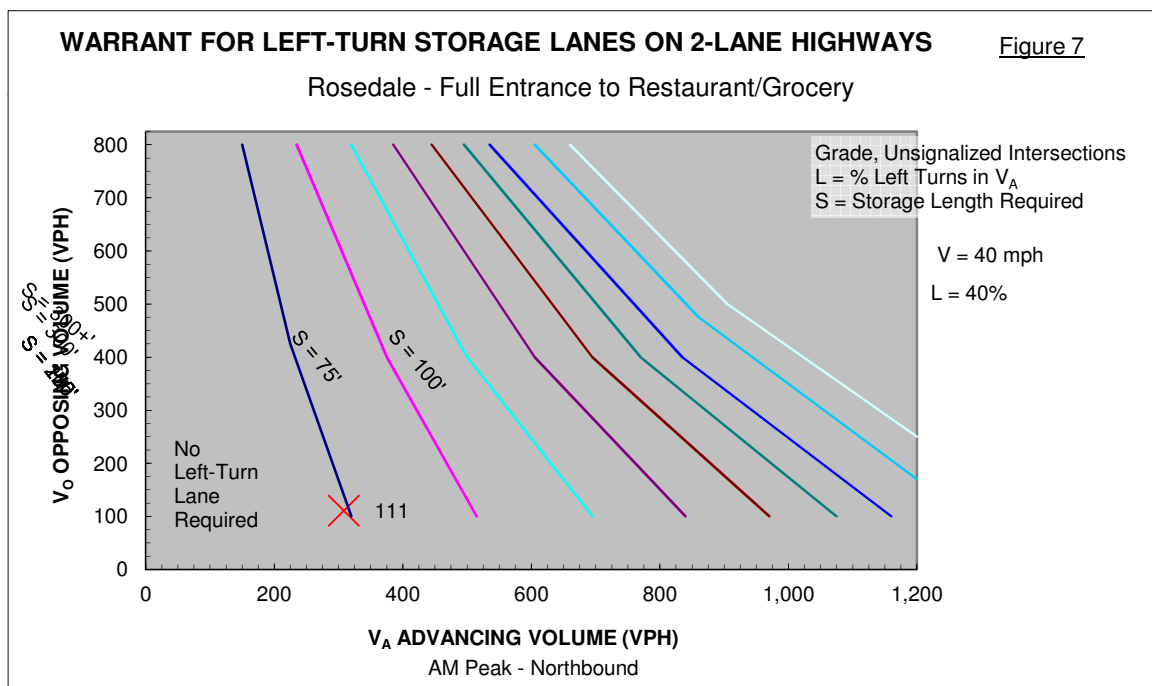
40% (Calculated Value: 38.3%)

(0' storage required based on chart)

0%

(0' additional storage for trucks)

CONCLUSION: No Left-Turn Lane Required

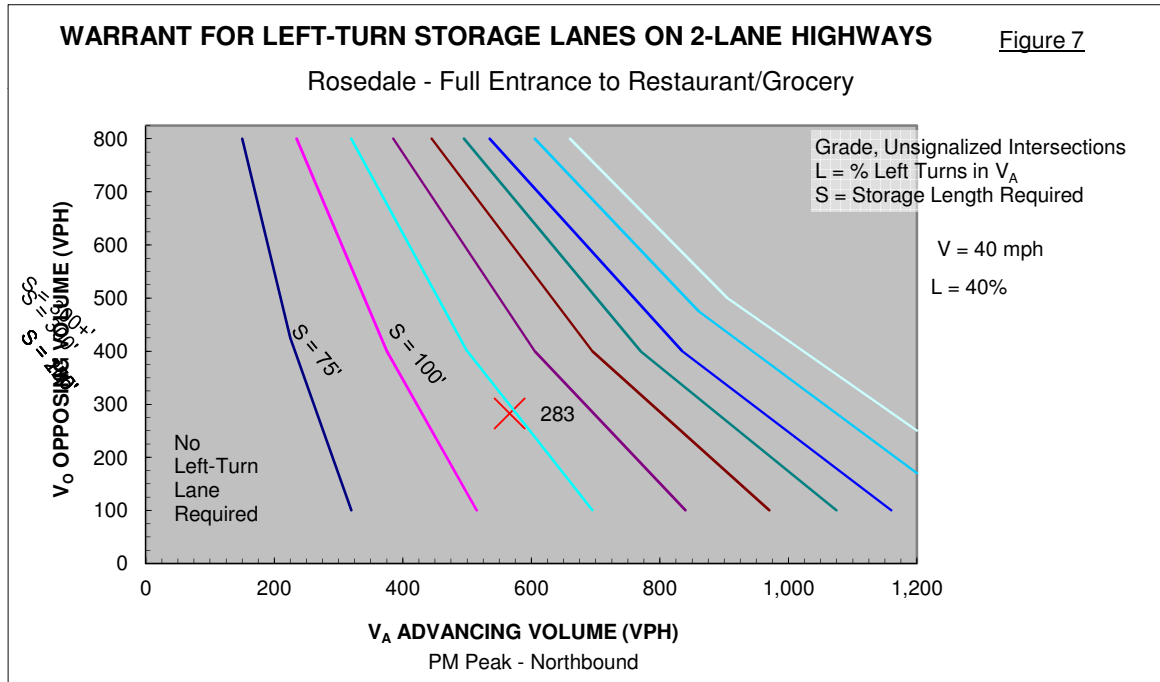


Source: Highway Research Record Number 211 - Figure 7

WARRANT FOR LEFT-TURN STORAGE LANES ON TWO-LANE HIGHWAYS

Project:	Rosedale	Analysis Date:	2014'
Intersection:	Full Entrance to Restaurant/Grocery	Data Date:	2013'
Approach Direction:	Northbound	Projection Year:	2024
Peak Hour:	PM Peak		
Peak Hour Left Turns (V_L):	321	vph	
Advancing Volume (V_A):	566	vph (Northbound Approach)	
Opposing Volume (V_O):	283	vph (Southbound Approach)	
Operating/Design Speed (V):	40	mph	
% Left Turns in V_A (L):	40%	(Calculated Value: 56.7%)	
Optional % Left Turn Override:			
(100' storage required based on chart)			
% Trucks in V_L :	0%	(0' additional storage for trucks)	

CONCLUSION: 100' LEFT-TURN STORAGE REQUIRED

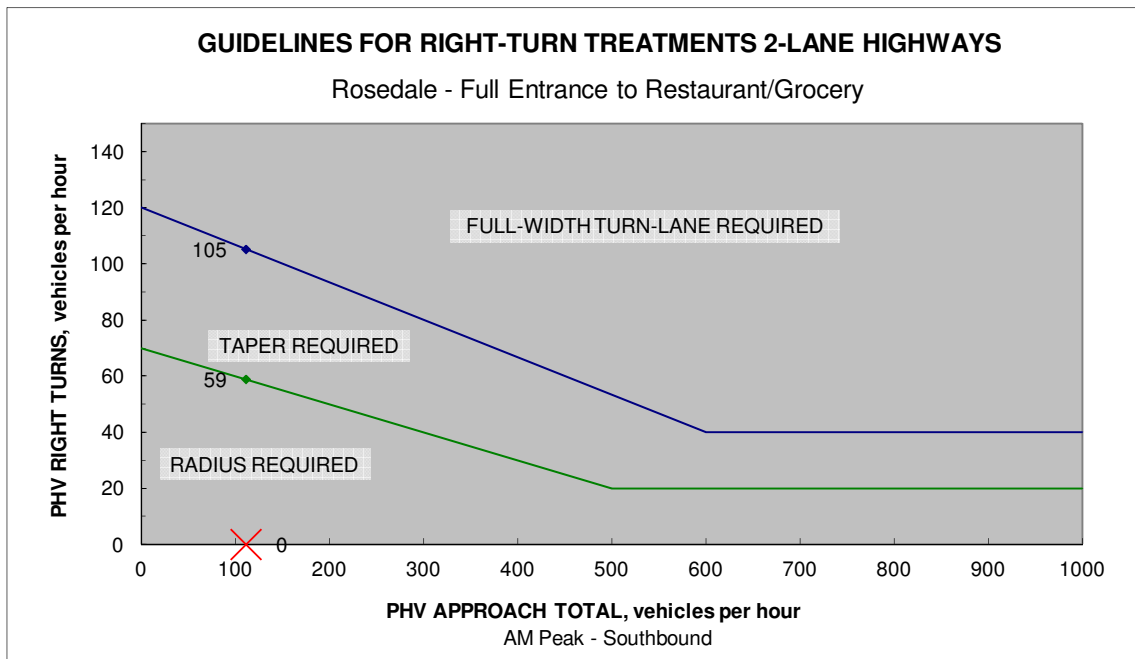


Source: Highway Research Record Number 211 - Figure 7

GUIDELINES FOR RIGHT-TURN TREATMENTS ON 2-LANE HIGHWAYS

Project:	Rosedale		
Intersection:	Full Entrance to Restaurant/Grocery		
Approach Direction:	Southbound	Analysis Date:	2014
Peak Hour:	AM Peak	Data Date:	2013
PHV Right Turns:	0	Projection Year:	2024
PHV Approach Total:	111		

CONCLUSION: **RIGHT-TURN RADIUS REQUIRED**

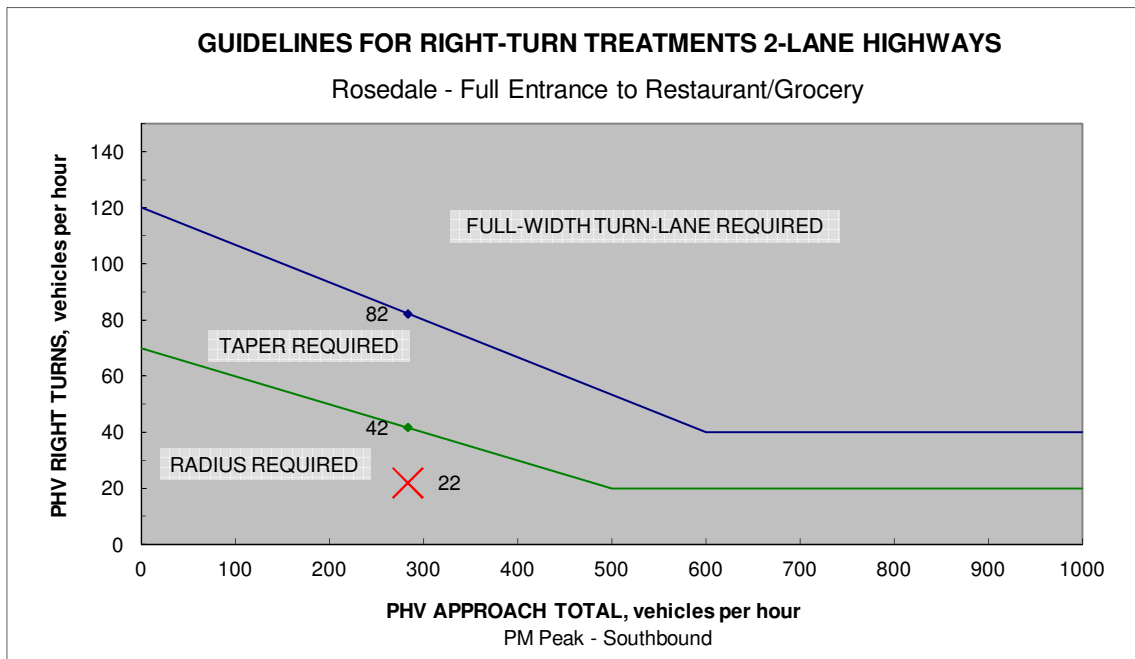


Source: VDOT Minimum Standards of Entrances to State Highways - Figure 5

GUIDELINES FOR RIGHT-TURN TREATMENTS ON 2-LANE HIGHWAYS

Project:	Rosedale		
Intersection:	Full Entrance to Restaurant/Grocery		
Approach Direction:	Southbound	Analysis Date:	2014
Peak Hour:	PM Peak	Data Date:	2013
PHV Right Turns:	22	Projection Year:	2024
PHV Approach Total:	283		

CONCLUSION: **RIGHT-TURN RADIUS REQUIRED**



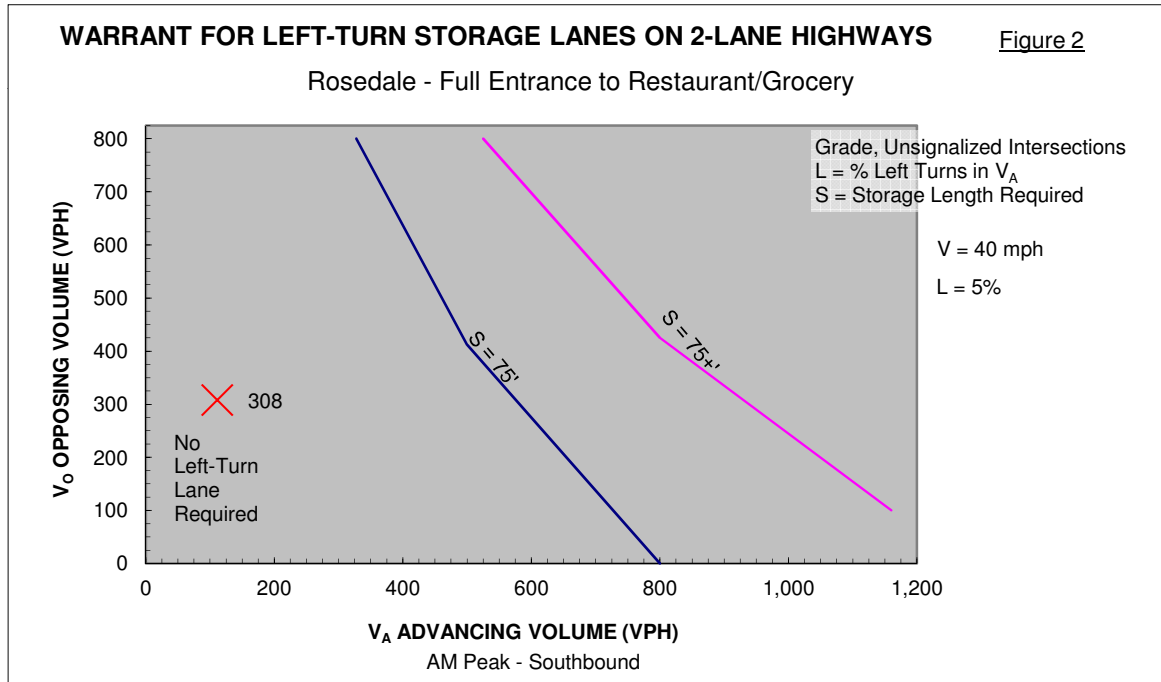
Source: VDOT Minimum Standards of Entrances to State Highways - Figure 5

WARRANT FOR LEFT-TURN STORAGE LANES ON TWO-LANE HIGHWAYS

Project:	Rosedale	Analysis Date:	2014'
Intersection:	Full Entrance to Restaurant/Grocery	Data Date:	2013'
Approach Direction:	Southbound	Projection Year:	2024
Peak Hour:	AM Peak		
Peak Hour Left Turns (V_L):	0	vph	
Advancing Volume (V_A):	111	vph (Southbound Approach)	
Opposing Volume (V_O):	308	vph (Northbound Approach)	
Operating/Design Speed (V):	40	mph	

% Left Turns in V_A (L):	5%	(Calculated Value: 0%)
Optional % Left Turn Override:		
		(0' storage required based on chart)
% Trucks in V_L :	0%	(0' additional storage for trucks)

CONCLUSION: No Left-Turn Lane Required

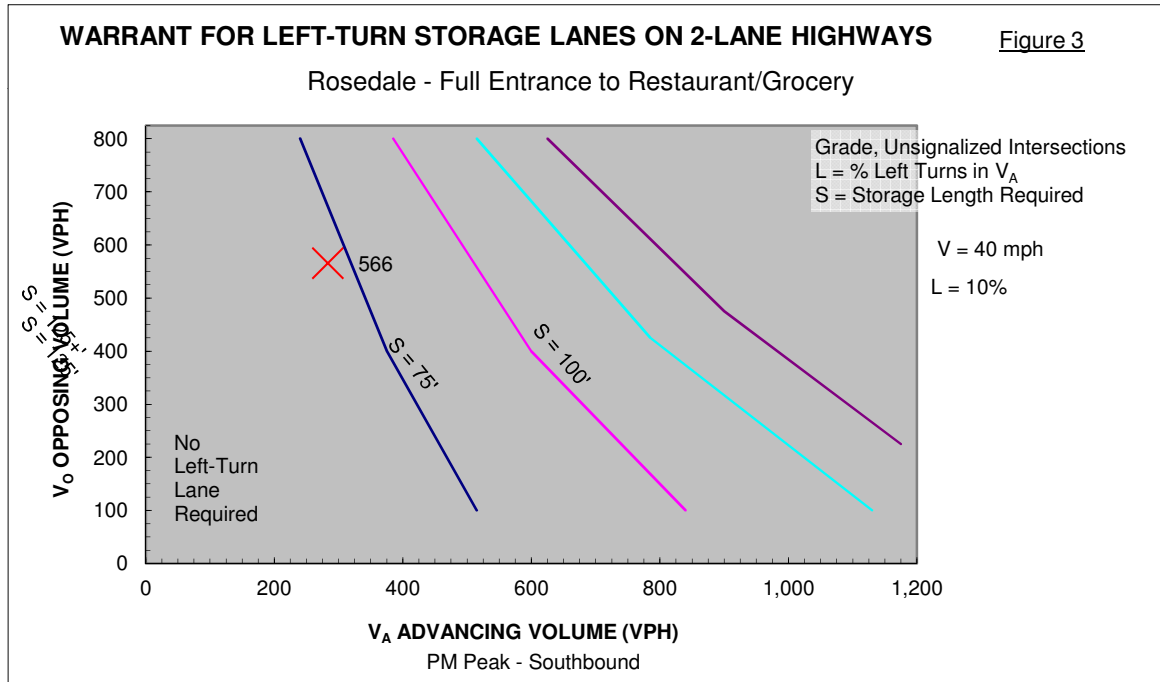


Source: Highway Research Record Number 211 - Figure 2

WARRANT FOR LEFT-TURN STORAGE LANES ON TWO-LANE HIGHWAYS

Project:	Rosedale	Analysis Date:	2014'
Intersection:	Full Entrance to Restaurant/Grocery	Data Date:	2013'
Approach Direction:	Southbound	Projection Year:	2024
Peak Hour:	PM Peak		
Peak Hour Left Turns (V_L):	22	vph	
Advancing Volume (V_A):	283	vph (Southbound Approach)	
Opposing Volume (V_O):	566	vph (Northbound Approach)	
Operating/Design Speed (V):	40	mph	
% Left Turns in V_A (L):	10%	(Calculated Value: 7.8%)	
Optional % Left Turn Override:			
(0' storage required based on chart)			
% Trucks in V_L :	0%	(0' additional storage for trucks)	

CONCLUSION: No Left-Turn Lane Required



Source: Highway Research Record Number 211 - Figure 3



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Appendix C Synchro Output

HCM Unsignalized Intersection Capacity Analysis

4: Rosedale Main & To Grocery/To Restaurant

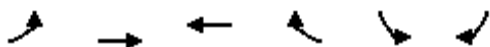
2/3/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	58	122	0	0	118	146	45	0	111	0
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)	0	0	63	133	0	0	128	159	49	0	121	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)								500				
pX, platoon unblocked												
vC, conflicting volume	536	585	121	599	536	159	121			208		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	536	585	121	599	536	159	121			208		
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 %	100	100	93	63	100	100	91			100		
cM capacity (veh/h)	425	386	931	360	412	887	1467			1363		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1						
Volume Total	63	133	128	159	49	121						
Volume Left	0	133	128	0	0	0						
Volume Right	63	0	0	0	49	0						
cSH	931	360	1467	1700	1700	1363						
Volume to Capacity	0.07	0.37	0.09	0.09	0.03	0.00						
Queue Length 95th (ft)	5	41	7	0	0	0						
Control Delay (s)	9.1	20.7	7.7	0.0	0.0	0.0						
Lane LOS	A	C	A									
Approach Delay (s)	9.1	20.7	2.9			0.0						
Approach LOS	A	C										
Intersection Summary												
Average Delay			6.6									
Intersection Capacity Utilization			33.3%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

3: Graves Mill & Rosedale Main

2/3/2014



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰↱	↰↱	↰↱	↰	↰↱↱	↰
Volume (vph)	270	1174	876	120	225	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	0.95	1.00	0.97	0.91
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	3539	3539	1583	3432	1441
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	3539	1583	3432	1441
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	293	1276	952	130	245	71
RTOR Reduction (vph)	0	0	0	80	4	52
Lane Group Flow (vph)	293	1276	952	50	248	12
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Actuated Green, G (s)	7.0	28.2	17.2	17.2	8.6	8.6
Effective Green, g (s)	7.0	28.2	17.2	17.2	8.6	8.6
Actuated g/C Ratio	0.16	0.63	0.38	0.38	0.19	0.19
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	536	2227	1358	607	658	276
v/s Ratio Prot	0.09	c0.36	c0.27		c0.07	
v/s Ratio Perm				0.03		0.01
v/c Ratio	0.55	0.57	0.70	0.08	0.38	0.04
Uniform Delay, d1	17.4	4.8	11.6	8.8	15.8	14.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	0.4	1.7	0.1	0.4	0.1
Delay (s)	18.6	5.2	13.3	8.8	16.1	14.8
Level of Service	B	A	B	A	B	B
Approach Delay (s)		7.7	12.8		15.9	
Approach LOS		A	B		B	

Intersection Summary

HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	44.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis

4: Rosedale Main & To Grocery/To Restaurant

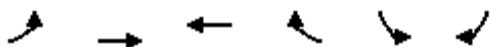
2/3/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	16	0	224	140	0	8	321	192	52	22	239	22
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)	17	0	243	152	0	9	349	209	57	24	260	24
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								500				
pX, platoon unblocked												
vC, conflicting volume	1235	1283	272	1470	1238	209	284			265		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1235	1283	272	1470	1238	209	284			265		
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 %	85	100	68	0	100	99	73			98		
cM capacity (veh/h)	118	118	767	56	125	832	1279			1299		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1						
Volume Total	261	161	349	209	57	308						
Volume Left	17	152	349	0	0	24						
Volume Right	243	9	0	0	57	24						
cSH	561	59	1279	1700	1700	1299						
Volume to Capacity	0.46	2.73	0.27	0.12	0.03	0.02						
Queue Length 95th (ft)	61	410	28	0	0	1						
Control Delay (s)	16.9	929.8	8.9	0.0	0.0	0.8						
Lane LOS	C	F	A			A						
Approach Delay (s)	16.9	929.8	5.0			0.8						
Approach LOS	C	F										
Intersection Summary												
Average Delay			117.1									
Intersection Capacity Utilization			69.2%	ICU Level of Service						C		
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

3: Graves Mill & Rosedale Main

2/3/2014



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	424	1151	1031	223	454	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	0.95	1.00	0.97	0.91
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	3539	3539	1583	3431	1441
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	3539	1583	3431	1441
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	461	1251	1121	242	493	162
RTOR Reduction (vph)	0	0	0	151	4	112
Lane Group Flow (vph)	461	1251	1121	91	505	34
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Actuated Green, G (s)	9.9	35.2	21.3	21.3	13.2	13.2
Effective Green, g (s)	9.9	35.2	21.3	21.3	13.2	13.2
Actuated g/C Ratio	0.18	0.62	0.38	0.38	0.23	0.23
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	602	2208	1336	597	803	337
v/s Ratio Prot	c0.13	0.35	c0.32		c0.15	
v/s Ratio Perm				0.06		0.02
v/c Ratio	0.77	0.57	0.84	0.15	0.63	0.10
Uniform Delay, d1	22.1	6.2	16.0	11.6	19.4	16.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.8	0.3	4.8	0.1	1.6	0.1
Delay (s)	27.9	6.5	20.8	11.7	21.0	17.1
Level of Service	C	A	C	B	C	B
Approach Delay (s)		12.3	19.2		20.1	
Approach LOS		B	B		C	

Intersection Summary

HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	56.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



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Appendix D SimTraffic Output

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	6:57	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded mScheduledIntervals	1	1	1	1	1	1	1
Vehs Entered	2772	2908	2770	2798	2746	2818	2730
Vehs Exited	2767	2917	2767	2783	2744	2796	2744
Starting Vehs	58	66	56	49	47	37	62
Ending Vehs	63	57	59	64	49	59	48
Travel Distance (mi)	1726	1801	1725	1732	1716	1739	1683
Travel Time (hr)	54.2	57.8	54.2	54.8	52.6	56.0	52.8
Total Delay (hr)	11.8	13.4	11.7	12.1	10.6	13.0	11.2
Total Stops	1342	1475	1289	1357	1202	1396	1308
Fuel Used (gal)	58.3	61.7	58.2	58.9	57.3	59.6	56.7

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded mScheduledIntervals	1	1	1	1
Vehs Entered	2881	2818	2768	2801
Vehs Exited	2859	2799	2785	2797
Starting Vehs	40	41	58	48
Ending Vehs	62	60	41	55
Travel Distance (mi)	1781	1732	1707	1734
Travel Time (hr)	57.0	54.8	54.5	54.9
Total Delay (hr)	13.2	12.2	12.1	12.1
Total Stops	1375	1392	1386	1352
Fuel Used (gal)	61.0	59.0	58.3	58.9

Interval #0 Information Seeding

Start Time	6:57
End Time	7:07
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	2772	2908	2770	2798	2746	2818	2730
Vehs Exited	2767	2917	2767	2783	2744	2796	2744
Starting Vehs	58	66	56	49	47	37	62
Ending Vehs	63	57	59	64	49	59	48
Travel Distance (mi)	1726	1801	1725	1732	1716	1739	1683
Travel Time (hr)	54.2	57.8	54.2	54.8	52.6	56.0	52.8
Total Delay (hr)	11.8	13.4	11.7	12.1	10.6	13.0	11.2
Total Stops	1342	1475	1289	1357	1202	1396	1308
Fuel Used (gal)	58.3	61.7	58.2	58.9	57.3	59.6	56.7

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	2881	2818	2768	2801
Vehs Exited	2859	2799	2785	2797
Starting Vehs	40	41	58	48
Ending Vehs	62	60	41	55
Travel Distance (mi)	1781	1732	1707	1734
Travel Time (hr)	57.0	54.8	54.5	54.9
Total Delay (hr)	13.2	12.2	12.1	12.1
Total Stops	1375	1392	1386	1352
Fuel Used (gal)	61.0	59.0	58.3	58.9

3: Graves Mill & Rosedale Main Performance by movement

4: Rosedale Main & To Grocery/To Restaurant Performance by movement

7: Graves Mill & Right Out Entrance Performance by movement

9: Graves Mill & Right In/Out Entrance Performance by movement

12: Rosedale Main & To Gas Station Performance by movement

Total Network Performance

Intersection: 3: Graves Mill & Rosedale Main

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	L	L	T	T	T	T	R	L	LR	R
Maximum Queue (ft)	121	159	106	114	180	175	71	94	96	51
Average Queue (ft)	48	78	57	54	97	88	32	50	48	7
95th Queue (ft)	95	137	96	97	151	149	61	81	83	31
Link Distance (ft)	402	402	402	402	334	334	334	238	238	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)										100
Storage Blk Time (%)									0	0
Queuing Penalty (veh)									0	0

Intersection: 4: Rosedale Main & To Grocery/To Restaurant

Movement	EB	WB	NB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	60	70	55
Average Queue (ft)	27	32	12
95th Queue (ft)	50	58	41
Link Distance (ft)	384	371	125
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Graves Mill & Right Out Entrance

Movement	B1	B1
Directions Served	T	T
Maximum Queue (ft)	66	133
Average Queue (ft)	2	7
95th Queue (ft)	64	115
Link Distance (ft)	648	648
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: Graves Mill & Right In/Out Entrance

Movement

Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 12: Rosedale Main & To Gas Station

Movement

Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	6:57	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded mScheduledIntervals	1	1	1	1	1	1	1
Vehs Entered	3627	3816	3673	3701	3603	3647	3636
Vehs Exited	3626	3810	3667	3712	3607	3647	3617
Starting Vehs	74	76	83	87	67	84	75
Ending Vehs	75	82	89	76	63	84	94
Travel Distance (mi)	2139	2252	2165	2187	2117	2156	2135
Travel Time (hr)	77.8	83.2	78.1	79.4	75.7	78.4	76.5
Total Delay (hr)	22.4	25.1	22.3	23.1	20.9	22.7	21.7
Total Stops	2473	2720	2476	2602	2392	2537	2458
Fuel Used (gal)	76.9	81.9	78.0	79.5	75.9	77.5	77.0

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded mScheduledIntervals	1	1	1	1
Vehs Entered	3712	3642	3584	3665
Vehs Exited	3706	3649	3581	3662
Starting Vehs	85	70	67	77
Ending Vehs	91	63	70	75
Travel Distance (mi)	2193	2147	2121	2161
Travel Time (hr)	80.1	77.7	75.3	78.2
Total Delay (hr)	23.6	22.0	20.7	22.5
Total Stops	2618	2522	2298	2508
Fuel Used (gal)	80.0	76.8	76.0	78.0

Interval #0 Information Seeding

Start Time	6:57
End Time	7:07
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	3627	3816	3673	3701	3603	3647	3636
Vehs Exited	3626	3810	3667	3712	3607	3647	3617
Starting Vehs	74	76	83	87	67	84	75
Ending Vehs	75	82	89	76	63	84	94
Travel Distance (mi)	2139	2252	2165	2187	2117	2156	2135
Travel Time (hr)	77.8	83.2	78.1	79.4	75.7	78.4	76.5
Total Delay (hr)	22.4	25.1	22.3	23.1	20.9	22.7	21.7
Total Stops	2473	2720	2476	2602	2392	2537	2458
Fuel Used (gal)	76.9	81.9	78.0	79.5	75.9	77.5	77.0

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	3712	3642	3584	3665
Vehs Exited	3706	3649	3581	3662
Starting Vehs	85	70	67	77
Ending Vehs	91	63	70	75
Travel Distance (mi)	2193	2147	2121	2161
Travel Time (hr)	80.1	77.7	75.3	78.2
Total Delay (hr)	23.6	22.0	20.7	22.5
Total Stops	2618	2522	2298	2508
Fuel Used (gal)	80.0	76.8	76.0	78.0

3: Graves Mill & Rosedale Main Performance by movement

4: Rosedale Main & To Grocery/To Restaurant Performance by movement

7: Graves Mill & Right Out Entrance Performance by movement

9: Graves Mill & Right In/Out Entrance Performance by movement

12: Rosedale Main & To Gas Station Performance by movement

Total Network Performance

Intersection: 3: Graves Mill & Rosedale Main

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	L	L	T	T	T	T	R	L	LR	R
Maximum Queue (ft)	176	181	125	128	250	251	108	159	174	148
Average Queue (ft)	93	101	75	76	150	147	50	92	105	45
95th Queue (ft)	151	160	115	116	223	223	87	141	155	111
Link Distance (ft)	402	402	402	402	334	334	334	238	238	
Upstream Blk Time (%)						0				
Queuing Penalty (veh)						0				
Storage Bay Dist (ft)										100
Storage Blk Time (%)								8	0	
Queuing Penalty (veh)								6	1	

Intersection: 4: Rosedale Main & To Grocery/To Restaurant

Movement	EB	WB	NB	NB	NB	SB
Directions Served	LTR	LTR	L	T	R	LTR
Maximum Queue (ft)	123	111	129	50	2	53
Average Queue (ft)	60	50	53	2	0	6
95th Queue (ft)	101	94	104	23	2	30
Link Distance (ft)	384	371	125	125	125	319
Upstream Blk Time (%)			0	0		
Queuing Penalty (veh)			0	0		
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 7: Graves Mill & Right Out Entrance

Movement	B1	B1	SB
Directions Served	T	T	R
Maximum Queue (ft)	131	269	23
Average Queue (ft)	4	13	1
95th Queue (ft)	93	168	16
Link Distance (ft)	648	648	228
Upstream Blk Time (%)	0	0	
Queuing Penalty (veh)	0	0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Graves Mill & Right In/Out Entrance

Movement	WB	SB
Directions Served	TR	R
Maximum Queue (ft)	3	6
Average Queue (ft)	0	0
95th Queue (ft)	4	6
Link Distance (ft)	1475	198
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: Rosedale Main & To Gas Station

Movement	NB
Directions Served	T
Maximum Queue (ft)	20
Average Queue (ft)	1
95th Queue (ft)	10
Link Distance (ft)	238
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 7



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Appendix E Sidra Output

MOVEMENT SUMMARY

Site: Rou 4-way 1&2-Lane US

Rosedale
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Spine road											
3	L	349	1.0	0.531	10.1	LOS B	3.3	83.2	0.31	0.71	24.9
8	T	192	1.0	0.531	10.1	LOS B	3.3	83.2	0.31	0.46	27.1
18	R	61	1.0	0.060	4.1	LOS A	0.2	5.2	0.17	0.53	30.3
Approach		602	1.0	0.531	9.5	LOS A	3.3	83.2	0.29	0.61	26.0
East: Eastside											
1	L	161	1.0	0.325	10.1	LOS B	1.3	32.1	0.59	0.91	24.9
6	T	22	5.0	0.325	10.1	LOS B	1.3	32.1	0.59	0.77	26.8
16	R	22	1.0	0.325	10.1	LOS B	1.3	32.1	0.59	0.80	26.6
Approach		204	1.4	0.325	10.1	LOS B	1.3	32.1	0.59	0.88	25.3
North: Spineroad											
7	L	24	1.0	0.472	12.7	LOS B	2.3	58.9	0.65	1.02	24.2
4	T	260	1.0	0.472	12.7	LOS B	2.3	58.9	0.65	0.86	25.9
14	R	24	1.0	0.472	12.7	LOS B	2.3	58.9	0.65	0.89	25.7
Approach		308	1.0	0.472	12.7	LOS B	2.3	58.9	0.65	0.87	25.8
West: Grocery											
5	L	22	1.0	0.404	10.5	LOS B	1.8	46.1	0.59	0.96	25.0
2	T	22	5.0	0.404	10.5	LOS B	1.8	46.1	0.59	0.78	26.9
12	R	243	1.0	0.404	10.5	LOS B	1.8	46.1	0.59	0.82	26.7
Approach		287	1.3	0.404	10.5	LOS B	1.8	46.1	0.59	0.83	26.5
All Vehicles		1401	1.1	0.531	10.5	LOS B	3.3	83.2	0.48	0.75	26.0

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Model used. Geometric Delay not included.

Processed: Monday, February 03, 2014 8:52:01 AM

SIDRA INTERSECTION 5.1.13.2093

Project: C:\Engineering & Planning Resources\Jobs\Fauquier Contracts\Marshall\roundabout analysis\rosedale

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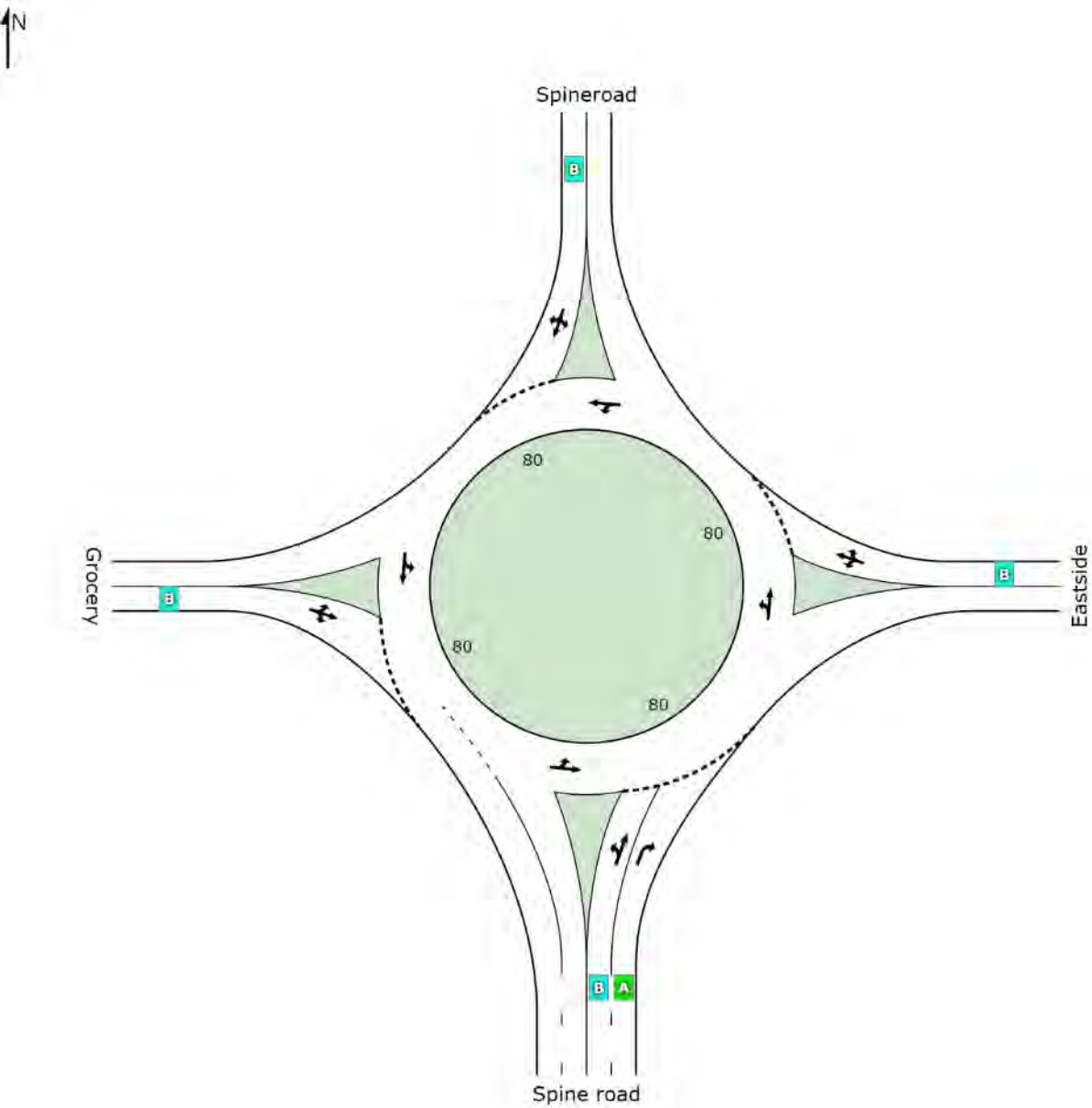
www.sidrasolutions.com

SIDRA
INTERSECTION

LEVEL OF SERVICE SUMMARY

Site: Rou 4-way 1&2-Lane US

Rosedale
Roundabout



	South	East	North	West	Intersection
LOS	A	B	B	B	B

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Model used. Geometric Delay not included.

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LYNCHBURG CITY COUNCIL

Agenda Item Summary

MEETING DATE: **April 8, 2014**

AGENDA ITEM NO.: 10

CONSENT: REGULAR: **X**

WORK SESSION:

CLOSED SESSION:
(Confidential)

ACTION: **X**

INFORMATION:

ITEM TITLE: Rezoning: R-1, Low Density, Single-Family Residential District to B-3C, Community Business District (Conditional) – 7814, 7816, 7822, 7900, 7904 & 7908 Timberlake Road

RECOMMENDATION: Approval of the rezoning petition.

SUMMARY: Belleau Wood Development, LLC is petitioning to rezone approximately three and seven hundred forty-one thousandths (3.741) acres at 7814, 7816, 7822, 7900, 7904 & 7908 Timberlake Road from R-1, Low Density, Single-Family Residential District to B-3C, Community Business District (Conditional) to allow the construction of retail development and associated parking. The Planning Commission recommended approval of the petition because:

- The *Future Land Use Map (FLUM)* recommends Community Commercial and High Density Residential uses for the area.
- A portion of the properties located at 7824 & 7906 Timberlake Road are currently zoned B-3, Community Business District and would be part of the overall development.
- Recommendations of the Traffic Impact Study (TIS) have been incorporated into the submitted site plan.
- Voluntarily submitted proffers adequately address impacts associated with the proposed development.

PRIOR ACTION(S):

March 12, 2014: The Planning Division recommended approval of the rezoning petition.

The Planning Commission waived the twenty-one (21) day submittal requirement for proffers.

The Planning Commission recommended approval (7-0) of the rezoning with proffers voluntarily submitted by the petitioner.

FISCAL IMPACT: N/A

CONTACT(S): Tom Martin, City Planner - 455-3900
Kent White, Director of Community Development – 455-3900

ATTACHMENT(S):

- Ordinance
- Planning Commission Report and Minutes – March 12, 2014
- Vicinity Zoning Pattern Map
- Vicinity Proposed Land Use Map
- Watershed Location Map
- Planimetric and Topographic Map
- Rezoning Plan and Attachment A
- Narrative
- Property Photographs
- Signup Sheet

REVIEWED BY: bms

UNCODIFIED ORDINANCE:

AN ORDINANCE CHANGING A CERTAIN AREA LOCATED AT 7814, 7816, 7822, 7900, 7904 & 7908 TIMBERLAKE ROAD FROM R-1, LOW DENSITY, SINGLE-FAMILY RESIDENTIAL DISTRICT TO B-3C, COMMUNITY BUSINESS DISTRICT (CONDITIONAL).

BE IT ORDAINED BY THE COUNCIL OF THE CITY OF LYNCHBURG that in order to promote the public necessity, convenience, welfare and good zoning practice that Chapter 35.1 of the Code of the City of Lynchburg, 1981, as amended, be and the same is hereby further amended by adding thereto Section 35.1-76__, which section shall read as follows:

Section 35.1-76__. Change of a certain area located at 7814, 7816, 7822, 7900 & 7908 Timberlake Road from R-1, Low Density, Single-Family Residential District to B-3C, Community Business District (Conditional).

The area embraced within the following boundaries:

Beginning at a pipe found in the southern right-of-way of Timberlake Road being the northeastern corner of the property herein described , thence leaving said right-of-way South 30 degrees 43 minutes 54 seconds East 301.91 feet to a pipe found; thence South 52 degrees 50 minutes 20 seconds West 161.26 feet to a spike found; thence North 28 degrees 35 minutes 52 seconds West 106.75 feet to a rebar found; thence South 51 degrees 53 minutes 45 seconds West 159.27 feet to a point; thence South 49 degrees 22 minutes 45 seconds West 400.36 feet to a pipe found; thence North 40 degrees 37 minutes 15 seconds West 200.00 feet to a point in the aforementioned right-of-way of Timberlake Road; thence along said right-of-way the following courses; North 49 degrees 22 minutes 43 seconds East 400.36 feet to a pipe found, North 51 degrees 51 minutes 41 seconds East 215.06 feet to a pipe found, North 55 degrees 28 minutes 28 seconds East 135.61 feet to the point of beginning and containing 3.749 acres.

...is hereby changed from R-1, Low Density, Single-Family Residential District to B-3C, Community Business District (Conditional), subject to the conditions set out herein below which was voluntarily proffered in writing by the petitioner, Belleau Wood Development, LLC, to wit:

1. The project shall be constructed in substantial compliance with the submitted Rezoning Plan with regard to the construction of a new roadway (Candlewood Court Extension), the right-in/right-out entrance on Timberlake Road, the roundabout, the entrance to the fuel/convenience store on the new roadway, and sidewalks and curb & gutter along Timberlake Road and the new roadway. The layout and types of uses shown may change as the site develops.
2. The following uses, which are allowed in B-3, are not permitted within the area to be rezoned.
 - Adult entertainment businesses
 - Funeral homes and undertaking establishments
 - Internet café or on-line gambling businesses
 - Used tire stores
 - Pawn shops
3. Noise: Where music or exterior equipment on a commercial site is utilized it shall be restricted per the ordinance to no more than 52 dBA or it shall be disabled between the hours of 10:00 p.m. and 7:00 a.m.
4. Lighting: All exterior lighting shall be full cut off type. No lighting source shall be aimed above parallel line to the horizon. Fixtures that are not amiable types shall be flat lens type installed parallel to the horizon. Site lighting within 40' of a residential property line shall be Type I, II, III or IV distribution, full cutoff fixtures directed to the interior of the commercial or multi-family residential property. Type V distribution, full cutoff fixtures may only be used 41' or more from any existing residential property line. Further, lighting shall be in accordance with the Lynchburg City Code – Section 35.1-43.26. Lighting. Internally illuminated or back light canopies shall not be allowed.
5. Architecture: The development shall use a master planned material pallet consisting of durable materials including masonry, stucco, architectural block or stone. The predominant material for all buildings shall be regionally selected brick in a color range from hard tan to colonial red. The use of pre-finished metal shall be limited to flush panels or standing seam used appropriately in building canopies. Where appropriate, fiber cement lap siding installed with nor more than a 4" exposed face shall be allowed for no more than

25% of any wall surface and shall not be installed closer than 30" to the adjacent grade. All buildings shall have a minimum of a 30" masonry wainscot/water table at the base of all walls, equipment screens and site walls. All sides of each building shall be finished with the same durable materials. Roof lines shall be appropriate to each building or building element with preference given to colonial, pitched roofs for smaller masses and parapets with a defined cornice for larger footprints. Rooflines shall receive consistent treatment at all sides of each building. No open roof edges shall be allowed on flat roofs. Where ground level equipment is used it shall be screened by landscaping or masonry walls.

6. Site Signage: Signage for the outparcels shown on the Rezoning Plan shall be governed by the Lynchburg City Code, Section 35.1-26. Signs, unless further restricted as follows. Commercial site signage shall be limited to monument style signage. Monument signs shall not exceed 8' in height above the top of the adjacent curb line. Where gas service stations include price message boards, they shall be integrated into the monuments sign and the total sign height may be increased to a maximum of 12'. One free-standing pylon sign shall be used to identify the development.
7. The petitioner will provide a means of ingress/egress across 7906 Timberlake Road as shown on the crosshatched area on the attached rezoning plan (Attachment A) for the Village at Dreaming Creek. The location is subject to approval by the City's Transportation Engineer. The access will be a standard access (two lanes) ingress/egress. The petitioner will provide a surface treatment road. Access will be constructed in conjunction with candlewood Court extension.

And the Director of Community Development shall forthwith cause the "Official Zoning Map of Lynchburg, Virginia," referred to in Section 35.1-4 of this chapter to be amended in accordance therewith.

Adopted:

Certified: _____
Clerk of Council

051K

The Department of Community Development

City Hall, Lynchburg, VA 24504 **434-455-3900**

To: Planning Commission

From: Planning Division

Date: March 12, 2014

Re: Rezoning: R-1, Low Density, Single-Family Residential District to B-3, Community Business District (Conditional) – 7814, 7816, 7822, 7900, 7904 & 7908 Timberlake Road

I. PETITIONER

Belleau Wood Development, LLC, 415 Pisgah Church Street #363, Greensboro, NC 27455

Representative: Mr. Scott Beasley, Hurt & Proffitt, Inc., 2524 Langhorne Road, Lynchburg, VA 24501

II. LOCATION

The subject property includes six (6) tracts totaling approximately three and seven hundred forty-one thousandths (3.741) acres located at 7814, 7816, 7822, 7900, 7904 & 7908 Timberlake Road.

Property Owners:

Mr. Kenley F. & Lucille E. Hahn, 7816 Timberlake Road, Lynchburg, VA 24502

Mr. Thomas H. & Helen R. Hahn, 7822 Timberlake Road, Lynchburg, VA 24502

Ms. Virginia C. & Alfred R. Hahn, 116 Village Road, Lynchburg, VA 24502

Ms. Courtney R. Hahn, 3763 Troutland Avenue, SW, Roanoke, VA 24017

Mr. John P. Cowins, 470 Powtan Drive, Lynchburg, VA 24502

III. PURPOSE

The purpose of the petition is to rezone the property to allow for the construction of retail development and associated parking. The preliminary site plan indicates a convenience store, bank and restaurant; however, any B-3, Community Business use would be permitted with the exception of those excluded by the voluntarily submitted proffers.

IV. SUMMARY

- The *Future Land Use Map (FLUM)* recommends a Community Commercial and High Density Residential use for the area properties. Limited retail and service uses may be established in these areas as part of mixed use developments and within high density developments.
- A portion of the properties located at 7824 & 7906 Timberlake Road are currently zoned B-3, Community Business District. The B-3, Community Business District zoned portions would be part of the overall development.
- The preliminary site plan indicates the construction of a new city street which would connect to Timberlake Road across from existing Candlewood Court. The new street would be located at an existing traffic signal and provide access to properties south of the proposed development. Other ingress/egress to the development would be from a “right-in / right-out” to Timberlake Road.
- The petitioner has conducted a Traffic Impact Study (TIS). Recommendations of the TIS and the City’s Transportation Engineer have been incorporated into the submitted site plan.
- The proposed development will be served by city water and sewer.
- Stormwater will be discharged into an adequate channel south of the proposed development.

- Fill for the proposed development is proposed to be taken from the south side of Dreaming Creek.

The Planning Division recommends approval of the rezoning petition.

V. FINDINGS OF FACT

1. **Comprehensive Plan.** The *FLUM* of the *Comprehensive Plan 2002-2020* recommends a High Density Residential Use and Community Commercial use for the area. “High Density Residential areas are developed or planned to be developed into high density townhouse or multifamily housing. Densities can range up to 30 units per acre. They may include public, institutional, private recreation, and private open space uses. Limited retail and service uses may be established as part of mixed-use developments and within high density residential projects”. (*pg. 75*)

“Community Commercial areas contain retail, personal service, entertainment, and restaurant uses that draw customers from at least several neighborhoods, the entire City or the region. Community Commercial areas contain clusters of businesses, often at major intersections, and shopping centers. Most community shopping centers range from 100,000 to 200,000 square feet and serve 40,000 to 70,000 people. Regional shopping centers would be at least as large as Community Commercial ones, 100,000 to 200,000 square feet, possibly larger, if parcels of sufficient size can be found or assembled. They are intended to serve 70,000 to 100,000 people. Office, research and development, and technology development uses may be permitted in Community Commercial areas as long as traffic and other impacts to the community are mitigated. In particular, conversion of existing vacant retail space to these uses may be appropriate in areas where there is sufficient retail to serve the community and space for employment uses is needed. Residential uses may be established on the upper floors of commercial structures or as transitional structures between residential and commercial buildings”. (*pgs. 75-76*)

2. **Zoning.** The subject property was annexed into the City in 1976. The existing R-1, Low-Density Residential zoning was established in 1978 with the adoption of the current *Zoning Ordinance*.
3. **Proffers.** The petitioner has voluntarily submitted the following proffers:
 - a. The project shall be constructed in substantial compliance with the submitted Rezoning Plan with regard to the construction of a new roadway (Candlewood Court Extension), the right-in/right-out entrance on Timberlake Road, the roundabout, the entrance to the fuel/convenience store on the new roadway, and sidewalks and curb & gutter along Timberlake Road and the new roadway. The layout and types of uses shown may change as the site develops.
 - b. The following uses, which are allowed in B-3, are not permitted within the area to be rezoned.
 - Adult entertainment businesses
 - Funeral homes and undertaking establishments
 - Internet café’ or on-line gambling businesses
 - Used tire stores
 - Pawn shops
 - c. Noise: Where music or exterior equipment on a commercial site is utilized it shall be restricted per the ordinance to no more than 52 dBa or it shall be disabled between the hours of 10:00 p.m. and 7:00 a.m.

- d. **Lighting:** All exterior lighting shall be full cut off type. No lighting source shall be aimed above parallel line to the horizon. Fixtures that are not amiable types shall be flat lens type installed parallel to the horizon. Site lighting within 40' of a residential property line shall be Type I, II, III or IV distribution, full cutoff fixtures directed to the interior of the commercial or multi-family residential property. Type V distribution, full cutoff fixtures may only be used 41' or more from any existing residential property line. Further, lighting shall be in accordance with the Lynchburg City Code – Section 35.1-43.26. Lighting. Internally illuminated or back light canopies shall not be allowed.
 - e. **Architecture:** The development shall use a master planned material pallet consisting of durable materials including masonry, stucco, architectural block or stone. The predominate material for all buildings shall be regionally selected brick in a color range from hard tan to colonial red. The use of pre-finished metal shall be limited to flush panels or standing seam used appropriately in building canopies. Where appropriated, fiber cement lap siding installed with nor more than a 4" exposed face shall be allowed for no more than 25% of any wall surface and shall not be installed closer than 30" to the adjacent grade. All buildings shall have a minimum of a 30" masonry wainscot/water table at the base of all walls, equipment screens and site walls. All sides of each building shall be finished with the same durable materials. Roof lines shall be appropriate to each building or building element with preference given to colonial, pitched roofs for smaller masses and parapets with a defined cornice for larger footprints. Rooflines shall receive consistent treatment at all sides of each building. No open roof edges shall be allowed on flat roofs. Where ground level equipment is used it shall be screened by landscaping or masonry walls.
 - f. **Site Signage:** Signage for the outparcels shown on the Rezoning Plan shall be governed by the Lynchburg City Code, Section 35.1-26. Signs, unless further restricted as follows. Commercial site signage shall be limited to monument style signage. Monument signs shall not exceed 8' in height above the top of the adjacent curb line. Where gas service stations include price message boards, they shall be integrated into the monuments sign and the total sign height may be increased to a maximum of 12'. One free-standing pylon sign shall be used to identify the development.
4. **Board of Zoning Appeals (BZA).** The Zoning Official has determined that no variances would be needed for the development of the property as proposed.
5. **Surrounding Area.** There have been several items requiring City Council approval in the immediate area:
- On April 13, 1982, Council approved the conditional use permit (CUP) petition of Ronnie D. Vaughan to allow the construction of a recreation center at 8131 Timberlake Road.
 - On November 9, 1982, Council approved the petition of Russell Nichols and Clyde Smith to rezoned the property at 8105 Timberlake Road from B-3, Community Business District to B-5, General Business District (Conditional) to allow the operation of a commercial recreation center.
 - On May 14, 1985, Council approved the CUP petition of CHA Construction Company to allow the construction of a recreation center and parking lot in the flood zone at 8022 Timberlake Road.
 - On May 13, 1986, Council approved the CUP petition of First Southern Methodist Church to allow the construction of a pavilion, softball field and signs at 7808 Timberlake Road.

- On December 12, 1986, Council approved the CUP petition of Ted DeHass to allow the construction of a carwash at 8104 Timberlake Road.
- On April 12, 1988, Council approved the petition of Emmett & Hazel Simpson to rezone the property at 203 Timbrook Place from R-1, Low Density, Single-Family Residential District to R-4, Medium-High Density, Multi-Family Residential District (Conditional) to allow the construction of a townhome development.
- On February 14, 1989, Council adopted the Timberlake Road Land Use Study which amended the zoning for the area and established the Commercial Corridor Overlay District.
- On November 12, 1991, Council approved the CUP petition of National Business College to allow the use of an existing building for educational purposes at 104 Candlewood Court.
- On December 10, 1991, Council approved the petition of H&H, Inc. to rezone the property at 8105 Timberlake Road from B-5, General Business District (Conditional) to B-5, General Business District (Conditional) to amend previously approved proffers.
- On December 10, 1991, Council approved the CUP petition of H&H, Inc. to allow a “go-cart” track at 8105 Timberlake Road.
- On June 27, 2006, Council approved the CUP petition of JBO, LLC to allow the construction of a Traditional Neighborhood Development at 1207 & 1226 Greenview Drive.
- On February 12, 2008, Council approved the CUP petition of JBO, LLC to amend the TND Master Plan for Cornerstone at 401 Cornerstone Street and 100, 200 & 300 Capstone Drive.
- On April 13, 2010, Council approved the CUP petition of the Cornerstone Property Owners Association to allow the construction and operation of a community swimming pool at 1100 Greenview Drive.
- On July 13, 2010, Council approved the CUP petition of Brooke’s Brothers, LLC to allow a consolidated sign plan at 7802 Timberlake Road.
- On November 9, 2010, Council approved the petition of Dr. Jeffrey Widmeyer to rezone 7626 Timberlake Road from R-1, Low Density, Single-Family Residential District to B-1, Limited Business District (Conditional) to allow a medical office.
- On April 12, 2011, Council approved the CUP petition of JBO, LLC to amend the TND Master Plan for Cornerstone in Bocks “A, B, C & D”.

6. **Site Description.** The subject property proposed for rezoning is comprised of six (6) tracts totaling approximately three and seven hundred forty-one thousandths (3.741) acres located at 7814, 7816, 7822, 7900, 7904 and 7908 Timberlake Road. The property proposed for development slopes to the south towards dreaming creek. The slope is approximately ten percent (10%) or 10:1. The six (6) properties proposed for rezoning all include single-family dwellings that would be demolished. The remaining property currently zoned B-3, Community Business District is vacant land.

The property is bounded to the north (across Timberlake Road) by commercial uses, to the east by an institutional use (Faith Alliance Church) to the west by a single-family structure converted into apartments and to the south by vacant land.

7. **Proposed Use of Property.** If the rezoning petition is approved, the property would be developed for commercial/retail uses with associated parking.

- 8. Traffic, Parking and Public Transit.** The proposed retail development warranted a Traffic Impact Study (TIS). The recommendations of the TIS and the City's Transportation Engineer have been incorporated into the preliminary site plan.

The development is proposed to be accessed by the construction of a new city street connecting to Timberlake Road at the existing traffic signal. A new right turn lane has been indicated into the new street from Timberlake Road. A left turn lane currently exists at the traffic signal. Other means of ingress/egress to the site would be from a right-in/right-out onto Timberlake Road and from a new city street south of the development.

A total of ninety-five (95) parking spaces would be required for the proposed development. The submitted site plan indicates a total of one hundred fifty-six (156) spaces which exceeds the requirements of the *Zoning Ordinance*.

The development would be served by Greater Lynchburg Transit Company (GLTC) Route 7.

- 9. Stormwater Management.** The proposed project is required to treat stormwater runoff for quantity and quality. The submitted narrative indicates that stormwater quantity will be maintained at "pre-development" conditions by the use of underground detention and/or bio-retention ponds (rain gardens). Water quality will be addressed by the use of bio-retention and/or mechanical devices. Stormwater from the development will be piped into an unnamed tributary of Dreaming Creek south of the proposed development. The proposed development is not located within a flood zone.
- 10. Emergency Services.** The City Fire Marshal provided comments regarding site design requirements of the City of Lynchburg and the Virginia Statewide Fire Prevention Code. The City's Police Department provided general comments related to site safety and security. These comments have or will be addressed by the petitioner prior to final site plan approval.
- 11. Impact.** Timberlake Road is a major four (4) lane arterial roadway with approximately thirty-one thousand (31,000) vehicles per day. The area saw a major transition from a residential to a commercial corridor with the adoption of the Timberlake Land Use Study in 1989.
- The submitted rezoning petition would allow the construction of a variety of retail development and associated parking. The preliminary site plan indicates a convenience store, bank and restaurant; however, any B-3, Community Business use would be permitted with the exception of those excluded by the voluntarily submitted proffers. The voluntarily submitted proffers adequately address potential impacts related to the development by the use of access management, stormwater management, noise mitigation, light trespass and architectural standards.
- 12. Technical Review Committee.** The Technical Review Committee (TRC) reviewed the preliminary rezoning plan on February 18, 2014. Comments related to the proposed use have or will be addressed by the petitioner prior to final site plan approval.

VI. PLANNING DIVISION RECOMMENDATION

As provided in Section 35.1-43.1, Conditional Zone or Zone Approval, waive the twenty-one (21) day submittal requirement for voluntarily submitted proffers.

Based on the preceding Findings of Fact, the Planning Commission recommends to City Council approval of the petition of Belleau Wood Development LLC to:

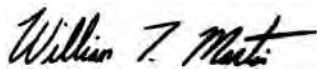
Rezone approximately three and seven hundred forty-one thousandths (3.741) acres located at 7814, 7816, 7822, 7900, 7904 & 7908 Timberlake Road from R-1, Low Density Residential District to B-3, Community Business District (Conditional) subject to the following voluntarily submitted proffers:

- a. The project shall be constructed in substantial compliance with the submitted Rezoning Plan with regard to the construction of a new roadway (Candlewood Court Extension), the right-in/right-out entrance on Timberlake Road, the roundabout, the entrance to the fuel/convenience store on the new roadway, and sidewalks and curb & gutter along Timberlake Road and the new roadway. The layout and types of uses shown may change as the site develops.
- b. The following uses, which are allowed in B-3, are not permitted within the area to be rezoned.
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- d. Lighting: All exterior lighting shall be full cut off type. No lighting source shall be aimed above parallel line to the horizon. Fixtures that are not amiable types shall be flat lens type installed parallel to the horizon. Site lighting within 40' of a residential property line shall be Type I, II, III or IV distribution, full cutoff fixtures directed to the interior of the commercial or multi-family residential property. Type V distribution, full cutoff fixtures may only be used 41' or more from any existing residential property line. Further, lighting shall be in accordance with the Lynchburg City Code – Section 35.1-43.26. Lighting. Internally illuminated or back light canopies shall not be allowed.
- e. Architecture: The development shall use a master planned material pallet consisting of durable materials including masonry, stucco,

architectural block or stone. The predominate material for all buildings shall be regionally selected brick in a color range from hard tan to colonial red. The use of pre-finished metal shall be limited to flush panels or standing seam used appropriately in building canopies. Where appropriated, fiber cement lap siding installed with nor more than a 4" exposed face shall be allowed for no more than 25% of any wall surface and shall not be installed closer than 30" to the adjacent grade. All buildings shall have a minimum of a 30" masonry wainscot/water table at the base of all walls, equipment screens and site walls. All sides of each building shall be finished with the same durable materials. Roof lines shall be appropriate to each building or building element with preference given to colonial, pitched roofs for smaller masses and parapets with a defined cornice for larger footprints. Rooflines shall receive consistent treatment at all sides of each building. No open roof edges shall be allowed on flat roofs. Where ground level equipment is used it shall be screened by landscaping or masonry walls.

- f. Site Signage: Signage for the outparcels shown on the Rezoning Plan shall be governed by the Lynchburg City Code, Section 35.1-26. Signs, unless further restricted as follows. Commercial site signage shall be limited to monument style signage. Monument signs shall not exceed 8' in height above the top of the adjacent curb line. Where gas service stations include price message boards, they shall be integrated into the monuments sign and the total sign height may be increased to a maximum of 12'. One free-standing pylon sign shall be used to identify the development.**

This matter is respectfully offered for your consideration.



William T. Martin, AICP
City Planner

pc: Mr. L. Kimball Payne, III, City Manager
Ms. Bonnie M. Svrcek, Deputy City Manager
Mr. Walter C. Erwin, City Attorney
Mr. Kent L. White, Director of Community Development
Mr. J. Lee Newland, City Engineer
Ms. Cynthia Kozerow, Lynchburg Police Department
Battalion Chief Greg Wormser, Fire Marshal
Mr. Don DeBerry, Transportation Engineer
Mr. Doug Saunders, Building Commissioner
Mr. Robert Fowler, Zoning Administrator
Mr. Ed Tam, Belleau Wood Development, LLC
Mr. Scott Beasley, Hurt & Proffitt, Inc.

VII. ATTACHMENTS

- 1. Vicinity Zoning Pattern Map**
- 2. Vicinity Proposed Land Use Map**
- 3. Watershed Location Map**
- 4. Planimetric and Topographic Map**
- 5. Rezoning Plan**
- 6. Narrative**
- 7. Property Photograph**

MINUTES OF THE MARCH 12, 2014 PLANNING COMMISSION MEETING (MINUTES HAVE NOT BEEN APPROVED):

a. Petition of Belleau Wood Development, LLC to rezone approximately three and seven hundred forty-one thousandths (3.741) acres at 7814, 7816, 7822, 7900, 7904 and 7908 Timberlake Road from R-1, Low Density, Single-Family Residential District and B-3, Community Business District to B-3C, Community Business District (Conditional) to allow the construction of a fuel/convenience center, bank, restaurant, and retail sales.

Mr. Tom Martin explained that a portion of the property to the south is already zoned B-3. The property to the east is currently being used as a church. The property to the west is currently zoned R-1 but Mr. Martin believes it is being used for apartments. The properties across the street are being used for commercial purposes. The property to the rear is part of the property known as the Hahn farm and is currently vacant. A portion of it is zoned R-4 and a portion of it in this location is zoned R-1.

The *Future Land Use Map (FLUM)*, which was recently adopted (this area was amended), recommends a High Density Residential use. Mr. Martin said it was important to note that retail sales and service uses may be established as part of a high density residential development. It is the Planning Division's recommendation that this would be in keeping with what is recommended as part of the *FLUM* because one can tell from the way the site is being laid out that there is going to be future development in the rear of this property.

The development will be accessed from a series of new public streets with sidewalks and a roundabout to the rear. The only other access to Timberlake Road would be via a right in/right out listed as the Candlewood Court extension that comes in at the current light at the existing Candlewood Court. The petitioner conducted a traffic impact study, which was reviewed by the City's Transportation Engineer. Those recommendations have been incorporated into the site plan or they will be done as the property develops and will be worked out during the site plan approval process.

The property would be served by City water, which would come across Timberlake Road. It will also be served by City sewer accessed by an extension to the southwest of the properties. Stormwater management will be handled by either underground detention and/or bioretention basins. Water quality will be addressed by either bioretention and/or mechanical devices. Ultimately, the stormwater will be piped and discharged into an unnamed branch of Dreaming Creek at the south of the property.

The submitted proffers are adequate to address any impacts from the development. Police and Fire departments had no comments of concern. The Planning Division recommends approval of the petition.

Mr. Ed Tam of Belleau Wood Development and Mr. Scott Beasley of Hurt & Proffitt came forward to represent the petition. Mr. Beasley pointed out the Candlewood Court extension and roundabout. He said the first decision point is located about 240 feet off Timberlake Road, shown as the access to the fuel/convenience center (a left in/right in/right out access control). The concept plan shows three lots for various uses such as a restaurant, a bank and a convenience store. There will be curb and gutter and sidewalk down Timberlake Road and the Candlewood Court extension. All the landscaping required cannot be shown on this concept plan but will be shown later on the site plan.

Mr. Beasley explained that the site drains from north to south to Dreaming Creek. There is an old pond located to the southwest on this concept plan. All the runoff from this property will drain through the pond to the creek. Stormwater will be handled via underground detention. Water quality will be handled by bioretention and Filterra systems. Mr. Beasley concluded his summary of the development and said he was available to answer any questions from the commissioners.

Chair Swienton asked if there was anyone else who wished to speak in favor of the petition. No one came forward. He asked if there was anyone who wished to speak in opposition to the petition. Mr. Gary Case came forward. He said he was not opposed but had a concern. He represents Ms. Susan Atkins, the owner of 7912 Timberlake Road (to the right of the new proposed Candlewood Court extension). Mr. Case said they have been communicating with Mr. Tam over the last several days. Ms. Atkins' concern is with her access to Timberlake Road. The turn lane comes right in front of her property. When the light is red, the traffic will back up in front of her property. When the light is green, people will be traveling at 45 mph. It will be difficult for cars exiting her property to cross the turn lane and get onto Timberlake Road. They would like to get some access onto the Candlewood Court extension.

There is a water issue now and the concept plan shows curbing on the other properties. They would hope to work with Mr. Tam to get curbing on the turn lane to keep the water from running down onto Ms. Atkins property more than it already does. Mr. Tam said he would work with them on this issue.

Mr. Tam sent them a sketch showing them a right-in/right out near the concrete median. Mr. Case would like to see the concrete median reduced so cars could exit the Atkins' property, cross Mr. Tam's property and take a left. Mr. Tam has drawn a "hatched" area on a sketch on the B-3 property to the rear of Ms. Atkins' property near the roundabout. Mr. Tam said he would work with them to locate an entrance point along that line. Mr. Case has copies of the email exchange and sketch that he would like to introduce for the record. They hope to have something worked out by the City Council date.

Mr. Joseph Shalev, the pastor of the Faith Alliance Church and owner of 123 Brunswick Drive (Candlewood Court extension will be right by his house) came forward to speak. He is not opposed to this commercial development but would like the Planning Commission to look at the bigger picture. They would be approving a little bit at this point but there is a lot of acreage to the rear yet to be developed. After they approve this, they might not have a choice as to what to do in the back.

Mr. Shalev is also concerned with the traffic impact on Timberlake Road from the future development of this property, as well as from the recently approved 192-unit apartment complex across the road on Timbrook Place. He is concerned because he knows that connectivity is often discussed and he lives at the dead end of Brunswick Drive. What is the bigger plan before they approve this development? Have they seen the entire plan? Mr. Shalev would like to know why the developer did not bring them the entire plan and if he has something to hide. He also wanted to know why there was such a large access road to property currently zoned R-1. Is this property going to be R-1 or apartments? He also wondered about the runoff being dumped into the creek. Is that what the City does now or does the developer not want to pay for some more piping to drain it where it is supposed to go? Chair Swienton commented that they would try to get these questions answered.

Mr. Tam and Mr. Beasley came up to address the comments. Mr. Tam said he does not have anything to hide. His background is as a retail developer. That is why he is just bringing forward the commercial portion of the development at this point. He is in negotiations and discussions with several multi-family developers regarding the back portion of the property but Mr. Tam will not be developing that portion of the property. That phase of development will be brought back to the Planning Commission and City Council at a later date by a residential developer. The reason he is doing a four-lane road going in is forward planning. He does not want to build a two-lane road and then have to shut it down later when the residential portion is developed.

Mr. Beasley commented on stormwater management and piping. It is standard engineering practice to collect and pipe stormwater to streams. The City is spending a lot of money separating the stormwater and sewer systems. The stormwater from these sites will be managed in terms of its quantity and quality and the same will have to be true for the property in the rear when it is developed.

Mr. Tam said he would like to buy Ms. Atkins' property, which will take away all her concerns. They will be good neighbors no matter the outcome.

Mr. Shalev came back and asked how the traffic will flow on the new street and roundabout. He also asked if a fence could be installed between his property and the new road.

Mr. Case asked if the exact uses shown on this concept plan are what will be going into the lots. Mr. Martin said that is covered with the first proffer: "The project shall be constructed in substantial compliance with the submitted Rezoning Plan with regard to the construction of a new roadway (Candlewood Court Extension), the right-in/right-out entrance on Timberlake Road, the roundabout, the entrance to the fuel/convenience store on the new roadway, and sidewalks and curb & gutter along Timberlake Road and the new roadway. The layout and types of uses shown may change as the site develops." Mr. Martin commented that they will have to be uses compatible with B-3 zoning (except those excluded by the second proffer) but will not necessarily be the ones depicted on the concept plan.

Chair Swienton closed the public hearing portion of the petition.

Commissioner Coleman commented that he would like to make sure that Ms. Atkins' concern about access to her property is addressed. Mr. Martin explained that they would like to have a full access entrance to the property. In order to provide that type of access, the median would have to be shortened. When you shorten the median, it gets into how the traffic queues up, storage and all those types of things. Therefore, it is highly unlikely that the City would allow the median to be shortened. Mr. Tam was already required to move the entrance further south. That leaves one or two options—right in/right out, if you wanted full access you would go down to the roundabout and come back out to the light or what is being shown on Mr. Tam's sketch. Mr. Martin explained to the commission that if the access is something they want to have proffered in order to guarantee that it happens, they would need to suggest to Mr. Tam that he proffer it today.

The discussion moved to Mr. Tam's sketch. It shows a "hatched" area wherein Mr. Tam is willing to provide access to Ms. Atkins' property. Mr. Tam said he does not know exactly where the access will be and much of that will be up to City staff. Mr. Case thought it would make sense to "T" it up where the convenience store is going in with the B-3 property across from it. That would be past the concrete median. Chair Swienton commented that it is important that they give a residential property owner safe access to their property but avoid a real estate negotiation at the same time. Mr. Martin suggested that Mr. Tam could agree by a proffer to give access to Ms. Atkins' property across his property subject to the approval of the Transportation Engineer. Chair Swienton suggested to Mr. Tam that he draft some language that he and Ms. Atkins can agree to and that could be submitted to the commission at the appropriate time.

Commissioner Marion asked Mr. Beasley about the plans for fill on the back side of these properties. Mr. Beasley explained that they have not done any grading plans at this point in the process. It is purely speculative but some of the dirt can come from the front parts because there would be cutting done and dirt would be pushed off and leveled off. Those parcels cannot sit too far below Timberlake Road or they would not be attractive to the end user. One source of material is on the south side of Dreaming Creek. The runoff from the dirt disturbed near Dreaming Creek is what concerns Commissioner Marion. Mr. Beasley assured her that they will have to follow state laws and submit an erosion and sediment control plan that will prevent sedimentation into Dreaming Creek. That plan will have to be approved by City staff.

Commissioner Perault asked Mr. Beasley for some clarification on stormwater management. Some of the narrative says "will" do certain things and some of the narrative says "may" do some things. Mr. Beasley assured him that they have to meet state law in terms of both the quality and quantity.

Mr. Martin commented that what they are probably referring to in the narrative are what types of measures they may use and those have not been determined at this time.

Chair Swienton asked Mr. Beasley for some more clarification on the grading and fill. Where the houses are currently located, the elevation is approximately 875 feet and then it drops off to the rear of the property to 845 feet. Chair Swienton asked if it would now be even steeper to the property that we are not talking about yet. Will the change in grade make stormwater runoff an issue to a property that is not a part of this development? Mr. Beasley said there would be a fill slope behind the roundabout and the road. It would slope off at around a 2:1 or 3:1 slope. Erosion and sediment control measures will have to be provided. The runoff will continue to go as it always has been except for the part that they will be piping and discharging as discussed previously.

Chair Swienton commented that the post construction runoff cannot be greater than preconstruction runoff but that is on the property being developed. Is the property that is not being developed taken into consideration in terms of fill that is being taken from it? Is that considered during the environmental review? Mr. Martin commented that we do not know where the fill is coming from yet. It has to be an approved site. Mr. Martin tried to explain a possible scenario to them that might be shown at the time of site plan approval. He indicated a point on the concept plan where they might take the fill dirt from. They would come back; they would show the cuts; they would show it as being seeded and mulched. The grades on that are going to be such that the water will not come off that part any quicker than it is now; however, he reminded them that the erosion and sediment plan will be submitted and reviewed later. Chair Swienton noted that he has seen the effects of construction on Dreaming Creek and does not want to see any further degradation of the stream.

Commissioner Hooper asked about a fence at Mr. Shalev's property. Mr. Martin stated that Mr. Shalev's side property would now front on a City street that would have a sidewalk and street trees. There would be no fence required. Chair Swienton asked if the property was developed by right what its density and use would be. Mr. Martin said it would be 2.9 units by acre and mentioned that any proposed street would be reviewed and built purely as an administrative process. Chair Swienton noted that if the property develops as it is recommended on the *FLUM*, then Mr. Shalev will have a high density residential development right next to his property. Mr. Martin said that it will depend on how the future developer chooses to access the land.

There was discussion that the more appropriate time to discuss any possible fence or other safety measure would be when the second phase of the development comes forward for a public hearing. Mr. Martin noted that at last night's public hearing for the development across the street at Timbrook Place, there was a request for a fence. It was a very similar situation and the developer did proffer to build the requested fence. Chair Swienton asked Mr. Tam if the fence is something to which he would be open. He said he would be selling the property and he has some "say so" as to what the buyer must do to some extent. Chair Swienton clarified for Mr. Shalev that the appropriate time to discuss a fence would be in the second phase of the development.

Chair Swienton noted that the bigger picture is unknown at this point but anything other than an R-1 development on the portion of the property that is zoned R-1 would have to come through a public hearing process. Chair Swienton noted that the 192-unit apartment complex approved last night is separate from this petition. Chair Swienton noted that the stormwater management issues raised have been addressed by the petitioner and his engineer and they have acknowledged that they understand that the post construction runoff cannot be greater than the preconstruction runoff.

Chair Swienton asked Mr. Tam if they had been able to work out some language about the access to Ms. Atkins' property. He said he would be able to work that out in the next couple of days. Commissioner Coleman asked Mr. Tam if he is not comfortable with the language Mr. Martin had proposed earlier. Mr. Tam said he would like to get someone to look at it first. Commissioner Coleman

was not comfortable voting in favor of the petition today if the proffer was not submitted today. Chair Swienton said they could postpone this for two weeks while he works out the language or he could take some time to draft the proffer today. The commissioners need to go into closed session and Mr. Tam and Ms. Atkins could take that time to work out the proffer and then come back.

Commissioner Marion noted that there is more parking being shown than what is required by the ordinance. Is the parking standard very minimal or is this excessive parking? Mr. Martin explained that they revised the parking ordinance several years ago to minimize the amount of off street parking. The requirement is now less than what some people want. The ordinance takes a very minimalistic approach to parking and allows it to become a market driven decision. Mr. Martin pointed out that the parking has to be landscaped and the more parking, the more stormwater management required. Mr. Beasley reminded them that this is a conceptual plan and the tenants that go in there may not want that much parking.

Commissioner Coleman made a motion to go into closed session, which was seconded by Commissioner Johnston. When they came out of closed session, Chair Swienton noted that the only item discussed was appointments to a subcommittee to discuss a conservation easement policy.

Mr. Tam came back after discussing the proffer with Ms. Atkins. Commissioner Marion made the following motion, which was seconded by Commissioner Coleman:

“That the Planning Commission waives the twenty-one (21) day submittal requirement for voluntarily submitted proffers.”

The motion passed by the following vote:

AYES:	Coleman, Hooper, Johnston, Light, Marion, Swienton and Perault	7
NOES:		0
ABSTENTIONS:		0
ABSENT:		0

Mr. Tam offered the following proffer in writing: “The petitioner will provide a means of ingress/egress across 7906 Timberlake Road as shown on the crosshatched area on the attached rezoning plan (Attachment A as amended) for Village at Dreaming Creek location subject to approval by the City Transportation Engineer. The access will be a standard access (two lane) ingress/egress. The petitioner will provide a surface treatment road. Access will be constructed in conjunction with Candlewood Court extension.”

Commissioner Hooper made the following motion, which was seconded by Commissioner Coleman:

“That the Planning Commission recommends to City Council the petition of Belleau Wood Development, LLC, to rezone approximately three and seven hundred forty-one thousandths (3.741) acres located at 7814, 7816, 7822, 7900, 7904 & 7908 Timberlake Road from R-1, Low Density Residential District to B-3, Community Business District (Conditional) subject to the following voluntarily submitted proffers:

- a. **The project shall be constructed in substantial compliance with the submitted Rezoning Plan with regard to the construction of a new roadway (Candlewood Court Extension), the right-in/right-out entrance on Timberlake Road, the roundabout, the entrance to the fuel/convenience store on the new roadway, and sidewalks and curb & gutter along Timberlake Road and the new roadway. The layout and types of uses shown may change as the site develops.**

- b. The following uses, which are allowed in B-3, are not permitted within the area to be rezoned.
- Adult entertainment businesses
 - Funeral homes and undertaking establishments
 - Internet café' or on-line gambling businesses
 - Used tire stores
 - Pawn shops
- c. Noise: Where music or exterior equipment on a commercial site is utilized it shall be restricted per the ordinance to no more than 52 dBa or it shall be disabled between the hours of 10:00 p.m. and 7:00 a.m.
- d. Lighting: All exterior lighting shall be full cut off type. No lighting source shall be aimed above parallel line to the horizon. Fixtures that are not amiable types shall be flat lens type installed parallel to the horizon. Site lighting within 40' of a residential property line shall be Type I, II, III or IV distribution, full cutoff fixtures directed to the interior of the commercial or multi-family residential property. Type V distribution, full cutoff fixtures may only be used 41' or more from any existing residential property line. Further, lighting shall be in accordance with the Lynchburg City Code – Section 35.1-43.26. Lighting. Internally illuminated or back light canopies shall not be allowed.
- e. Architecture: The development shall use a master planned material pallet consisting of durable materials including masonry, stucco, architectural block or stone. The predominate material for all buildings shall be regionally selected brick in a color range from hard tan to colonial red. The use of pre-finished metal shall be limited to flush panels or standing seam used appropriately in building canopies. Where appropriated, fiber cement lap siding installed with nor more than a 4" exposed face shall be allowed for no more than 25% of any wall surface and shall not be installed closer than 30" to the adjacent grade. All buildings shall have a minimum of a 30" masonry wainscot/water table at the base of all walls, equipment screens and site walls. All sides of each building shall be finished with the same durable materials. Roof lines shall be appropriate to each building or building element with preference given to colonial, pitched roofs for smaller masses and parapets with a defined cornice for larger footprints. Rooflines shall receive consistent treatment at all sides of each building. No open roof edges shall be allowed on flat roofs. Where ground level equipment is used it shall be screened by landscaping or masonry walls.
- f. Site Signage: Signage for the outparcels shown on the Rezoning Plan shall be governed by the Lynchburg City Code, Section 35.1-26. Signs, unless further restricted as follows. Commercial site signage shall be limited to monument style signage. Monument signs shall not exceed 8' in height above the top of the adjacent curb line. Where gas service stations include price message boards, they shall be integrated into the monuments sign and the total sign height may be increased to a maximum of 12'. One free-standing pylon sign shall be used to identify the development.
- g. "The petitioner will provide a means of ingress/egress across 7906 Timberlake Road as shown on the crosshatched area on the attached rezoning plan (Attachment A as

amended) for Village at Dreaming Creek location subject to approval by the City Transportation Engineer. The access will be a standard access (two lane) ingress/egress. The petitioner will provide a surface treatment road. Access will be constructed in conjunction with Candlewood Court extension.”

The motion passed by the following vote:

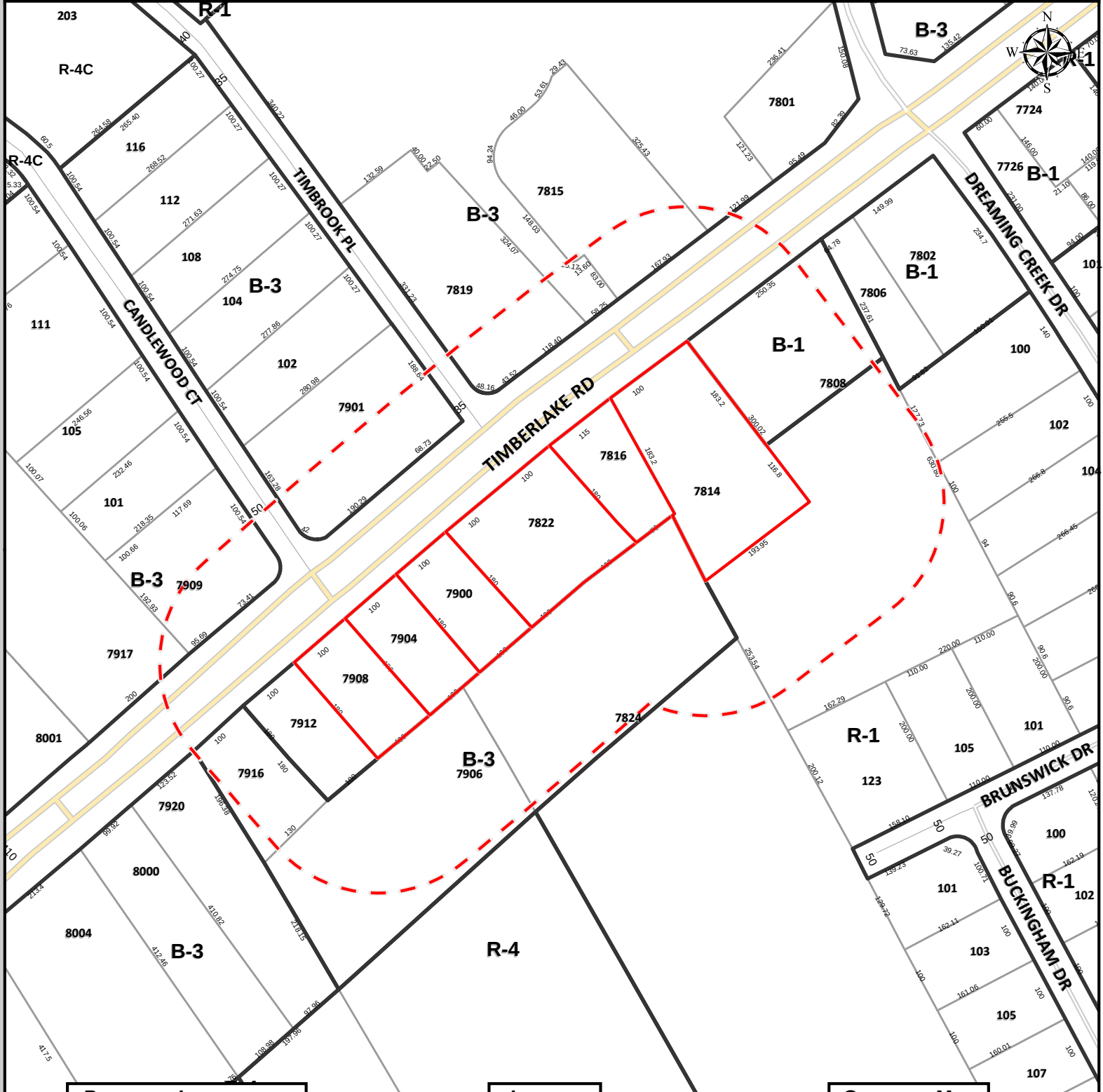
AYES:	Coleman, Hooper, Johnston, Light, Marion, Swienton and Perault	7
NOES:		0
ABSTENTIONS:		0
ABSENT:		0

Zoning Map

VILLAGE AT DREAMING CREEK

Zoning Request

Belleau Wood Development, LLC



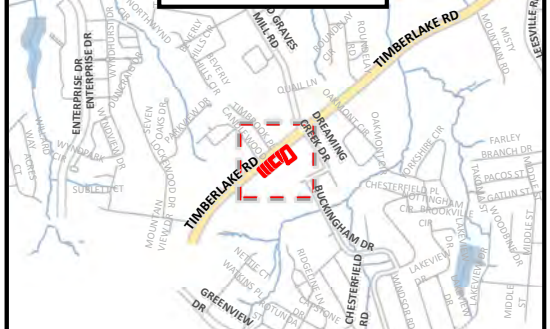
PROPERTY INFORMATION

PARCEL ID	ADDRESS
25413015	7814 TIMBERLAKE RD
25413016	7816 TIMBERLAKE RD
25413017	7822 TIMBERLAKE RD
25413018	7900 TIMBERLAKE RD
25413019	7904 TIMBERLAKE RD
25413020	7908 TIMBERLAKE RD

LEGEND

- Subject Property
- 200' Buffer
- Zoning Boundary

OVERVIEW MAP



MAP SCALE: 1" to 200' DATE PRINTED: 2/27/2014

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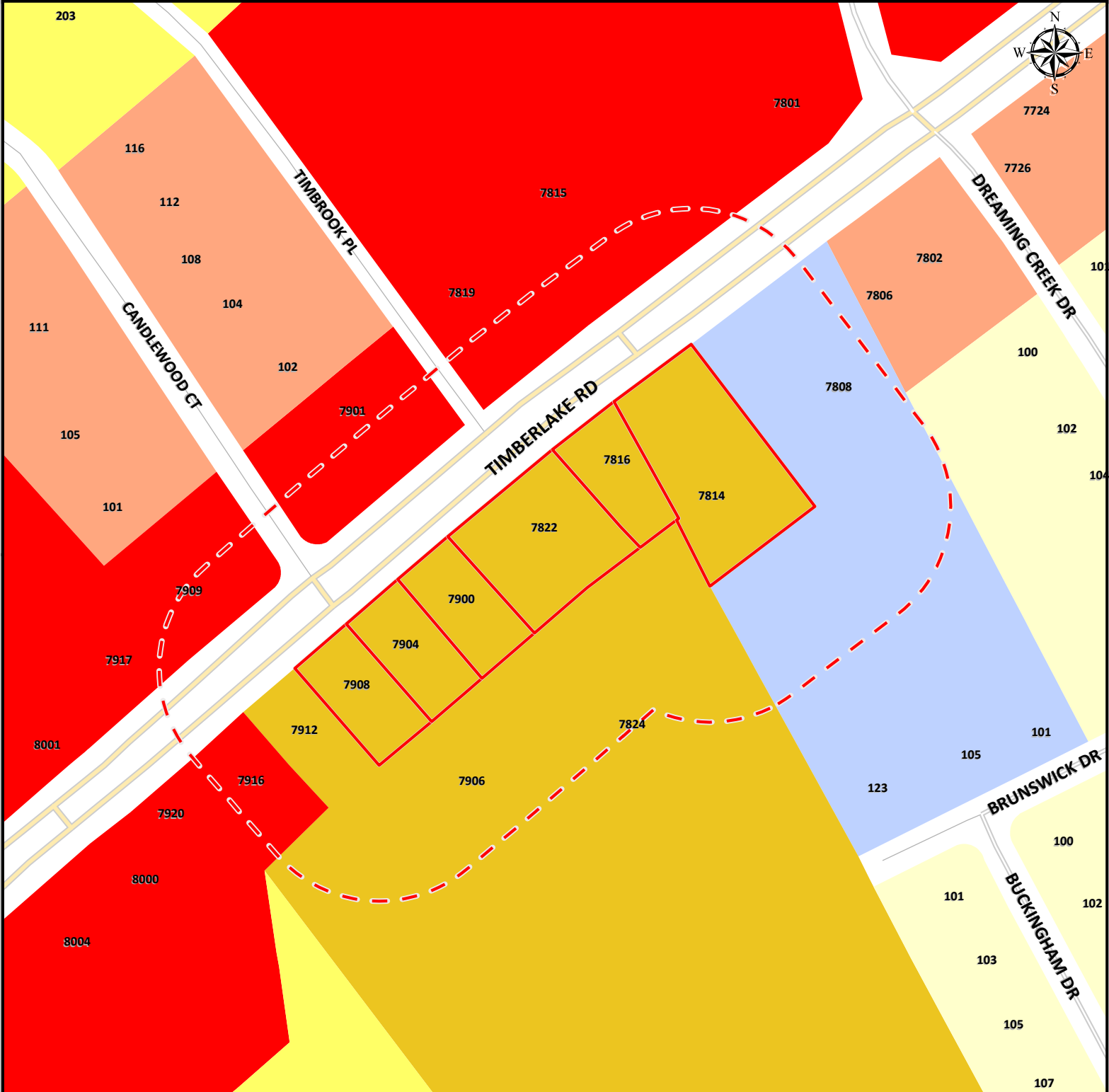
Parcel ID	Address	Owner
25414001	7920 TIMBERLAKE ROAD	ADAMS, ELIZABETH A &
25413021	7912 TIMBERLAKE ROAD	ATKINS, SUSAN P
25413006	100 DREAMING CREEK DRIVE	AXIOTIS, ALEXANDER LIFE ESTATE
25416011	7901 TIMBERLAKE ROAD	BRANCH BANKING & TRUST CO OF VA
25413020	7908 TIMBERLAKE ROAD	COWINS, JOHN P SR &
25413009	7808 TIMBERLAKE ROAD	FAITH ALLIANCE CHURCH
25413005	102 DREAMING CREEK DRIVE	GILLISPIE, ROBERT E
25412007	7819 TIMBERLAKE ROAD	GOBO PROPERTIES LLC
25413019	7904 TIMBERLAKE ROAD	HAHN, COURTNEY R
25413023	7906 TIMBERLAKE ROAD	HAHN, COURTNEY R
25413016	7816 TIMBERLAKE ROAD	HAHN, KENLEY F
25413015	7814 TIMBERLAKE ROAD	HAHN, KENLEY F & LUCILLE E
25413017	7822 TIMBERLAKE ROAD	HAHN, THOMAS H & HELEN R
25413031	7824 TIMBERLAKE ROAD	HAHN, THOMAS H & HELEN R
25413018	7900 TIMBERLAKE ROAD	HAHN, VIRGINIA C & HAHN, ALFRED R
25412003	7805 TIMBERLAKE ROAD	KROGER LIMITED PARTNERSHIP I
25413022	7916 TIMBERLAKE ROAD	MOREY-HINES, ALEX D
25416001	7909 TIMBERLAKE ROAD	RAYMOND A JAEGER LTD PC
25415004	7917 TIMBERLAKE ROAD	TRADEMARK INVESTMENTS CORP
25412002	7815 TIMBERLAKE ROAD	UNITED RESTAURANT GROUP LP

FLUM Map

VILLAGE AT DREAMING CREEK

Zoning Request

Belleau Wood Development, LLC



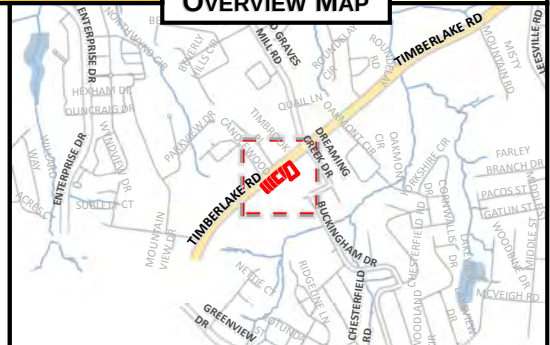
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LEGEND

	Local Historic District		Employment 1
	Traditional Residential		Employment 2
	Low Density Residential		Downtown
	Medium Density Residential		Institution
	High Density Residential		Public Use
	Neighborhood Commercial		Public Parks
	Community Commercial		Resource Conservation
	Mixed Use		

OVERVIEW MAP



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Watershed Map

Zoning Request

VILLAGE AT DREAMING CREEK

Belleau Wood Development, LLC



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LEGEND

- Subject Property
- Base Flood Elevation
- Floodway
- Floodzone
- River / Lake / Stream

OVERVIEW MAP



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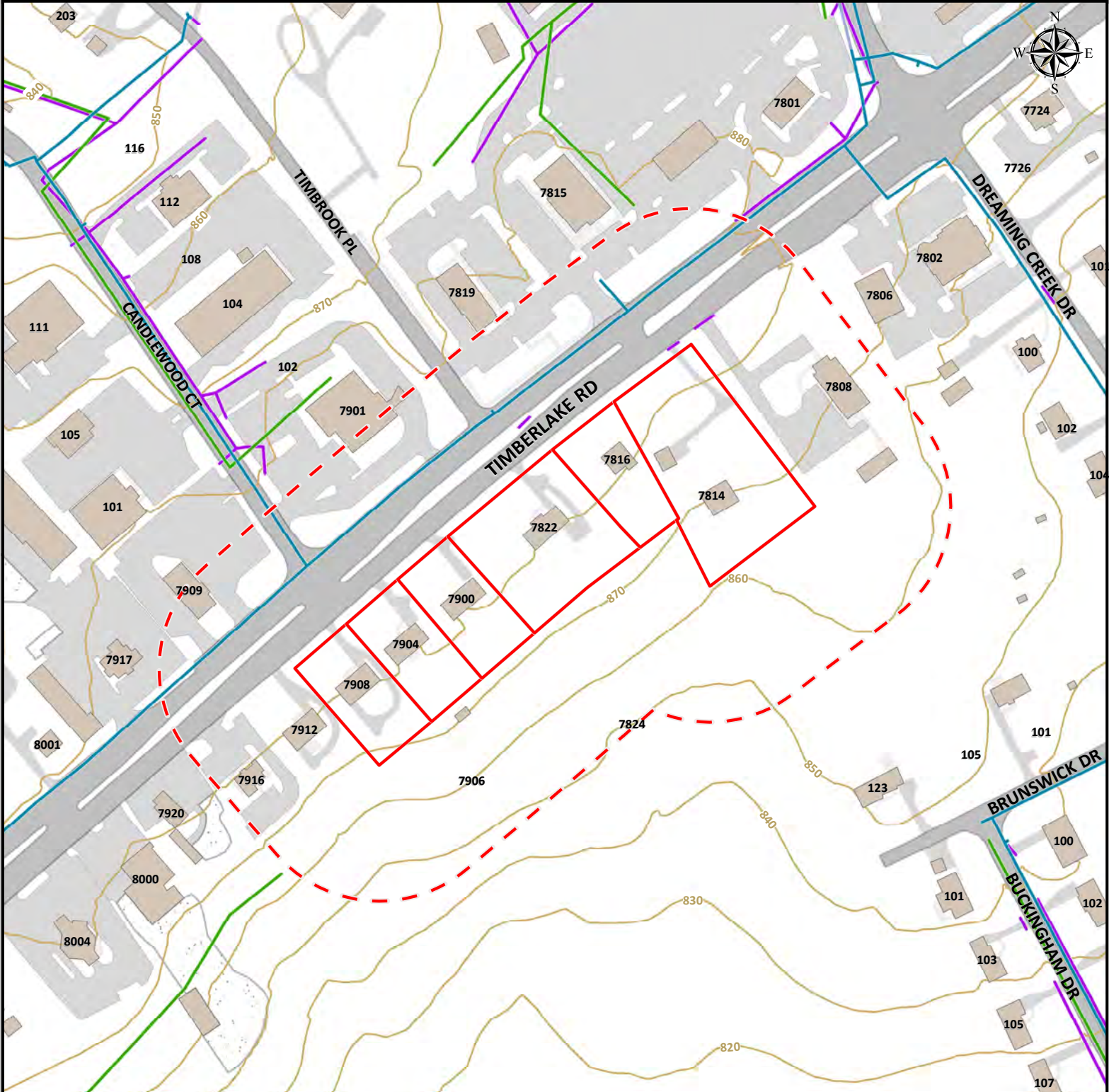
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Planimetric and Topographic Map

VILLAGE AT DREAMING CREEK

Zoning Request

Belleau Wood Development, LLC



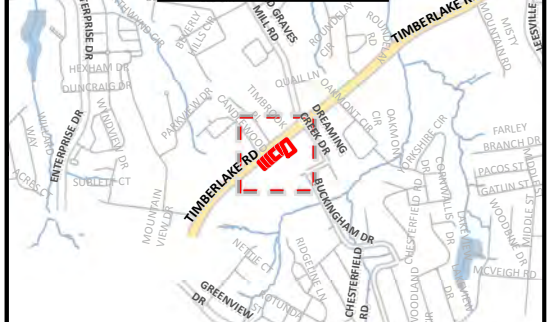
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LEGEND

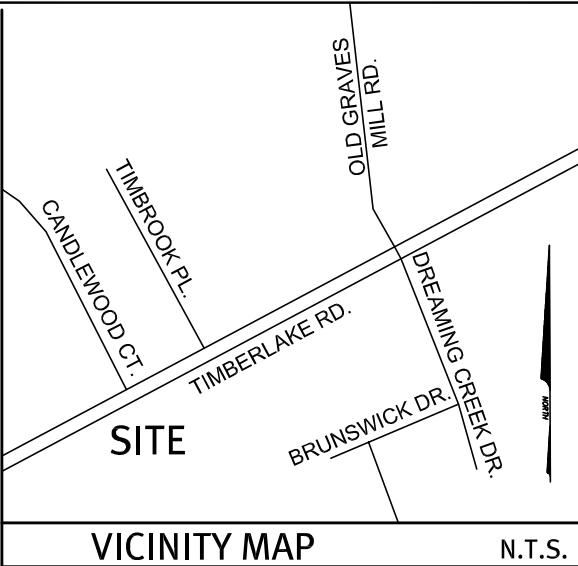
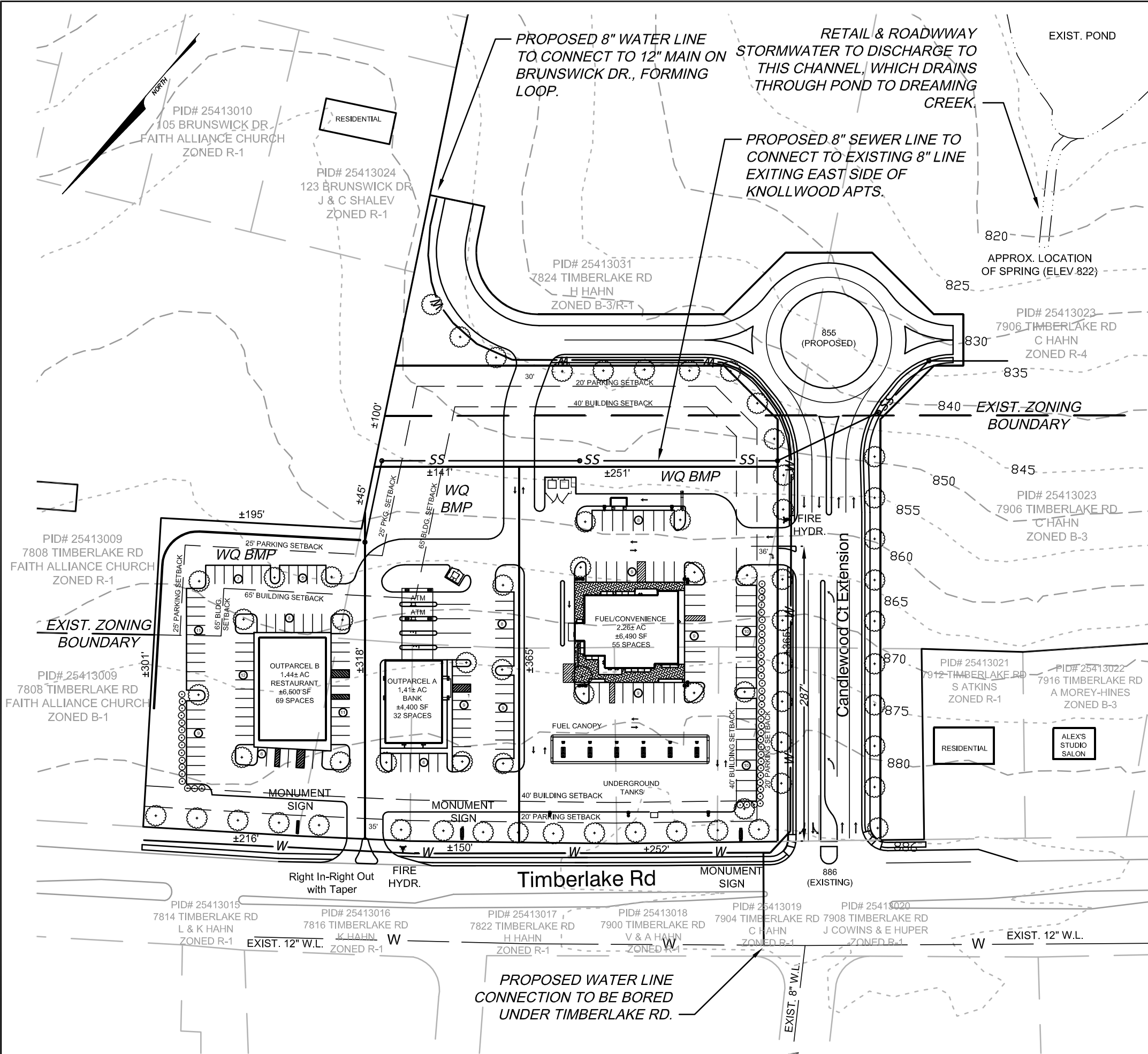
	Active	Proposed	Abandoned
Utilities			
Water			
Sanitary			
Storm			
Structure			
Roadway			
Parking			
Sidewalk			
Driveway			
Topography			
Contour			

OVERVIEW MAP

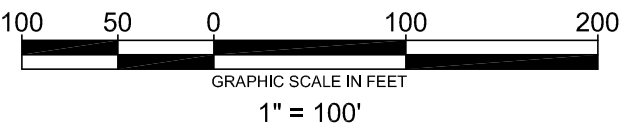


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- NOTES:**
1. SITE PID#: 25413015 - 25413020
SITE OWNERS: 15-L&K HAHN, 16-K HAHN, 17-H HAHN, 18-V&A HAHN, 19-C HAHN, 20-J COWINS & E HUPER
CONTRACT PURCHASER: BELLEAU WOOD DEVELOPMENT, LLC
ADDRESS: 415 PISGAH CHURCH STREET #363, GREENSBORO, NC 24555
 2. PROPOSED USE: COMMERCIAL/RETAIL
 3. EXISTING ZONING: R-1
 4. PROPOSED ZONING: B-3C
 5. **REQUIRED PARKING**
RESTAURANT: 65 SPACES
BANK: 13 SPACES
FUEL/CONVENIENCE: 17 SPACES
TOTAL: 95 SPACES REQUIRED
PROPOSED PARKING
RESTAURANT: 69 SPACES (INCL. 8 HCP SPACES)
BANK: 32 SPACES (INCL. 2 HCP SPACES)
FUEL/CONVENIENCE: 55 SPACES (INCL. 4 HCP SPACES)
TOTAL: 156 SPACES
 6. FOUNDATION PLANTINGS REQUIRED: 1 ORNAMENTAL TREE PER 50' AND 1 LARGE SHRUB PER 10':
630'/50' = 7 ORNAMENTAL TREES
630'/10' = 63 LARGE SHRUBS
 7. PARKING LOT LANDSCAPING REQUIRED: 1 SHADE TREE PER 8 SPACES AND 1 MEDIUM SHRUB PER SPACE:
RESTAURANT: 65/8 = 9 SHADE TREES; 65 MEDIUM SHRUBS
BANK: 32/8 = 4 SHADE TREES; 32 MEDIUM SHRUBS
FUEL/CONVENIENCE: 55 SPACES/8 = 7 SHADE TREES; 55 MEDIUM SHRUBS
 8. STREET TREES REQUIRED: 1 SHADE TREE PER 40' ROAD FRONTAGE:
RESTAURANT: 216'/40' = 6 SHADE TREES
BANK: 270'/40' = 7 SHADE TREES
FUEL/CONVENIENCE: 1,034'/40' = 26 SHADE TREES
 9. EXTERIOR LIGHTING SHALL BE CONTROLLED SO THAT NO DIRECT ILLUMINATION WILL OCCUR BEYOND ANY PROPERTY LINE SHARED WITH A RESIDENTIAL DISTRICT.
 10. THE AREA SHOWN ON THIS REZONING PLAN IS LOCATED IN FLOOD ZONE 'X' ACCORDING TO COMMUNITY-PANEL MAP #5100930101D DATED JUNE 3, 2008.
 11. WATER SYSTEM BACKFLOW AND SEWER F.O.G. REQUIREMENTS WILL BE MET.
 12. CURB & GUTTER AND SIDEWALKS ARE PROPOSED ALONG TIMBERLAKE RD AND THE CANDLEWOOD COURT EXTENSION.
 13. SITE PLAN CONCEPT BY JARED DUCOTE ARCHITECT, PENSACOLA, FL.



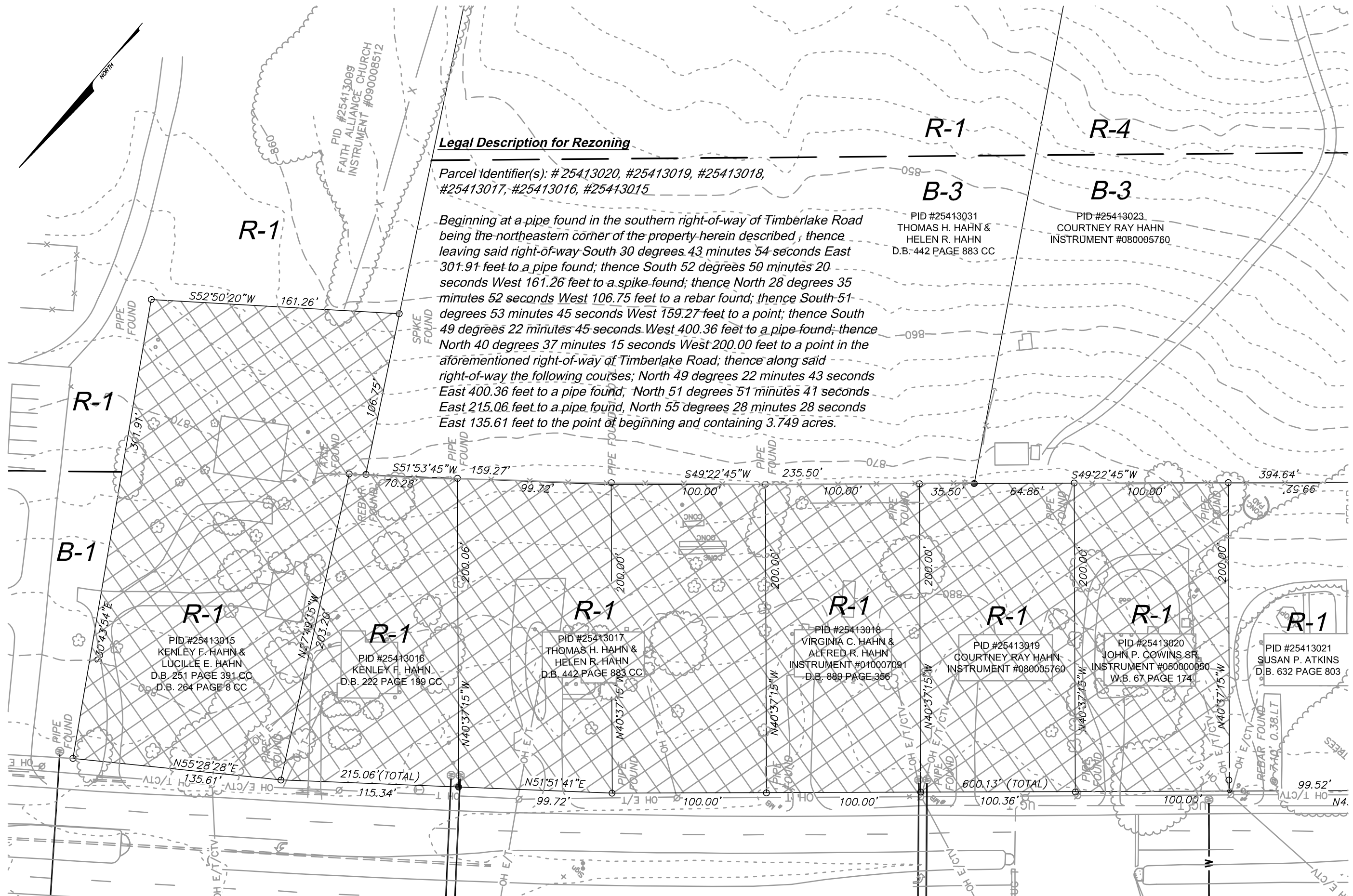
HURT & PROFFITT
INCORPORATED
2524 LANGHORNE ROAD
LYNCHBURG VA 24501
800.242.4906 TOLL FREE
434.847.7796 MAIN
434.847.0047 FAX

* ENGINEERING >> SURVEYING >> PLANNING

REZONING PLAN
FOR
VILLAGE AT DREAMING CREEK
CITY OF LYNCHBURG, VIRGINIA

PROJECT NO.	20130679
G.L. NO.	264-01-A3.3
FILE NO.	
DATE:	3/3/2014
DRAWN BY:	BLH/PSB
CHECKED BY:	PSB

SHEET NO.
1 OF 2



Legal Description for Rezoning

Parcel Identifier(s): # 25413020, #25413019, #25413018, #25413017, #25413016, #25413015

Beginning at a pipe found in the southern right-of-way of Timberlake Road being the northeastern corner of the property herein described, thence leaving said right-of-way South 30 degrees 43 minutes 54 seconds East 301.91 feet to a pipe found; thence South 52 degrees 50 minutes 20 seconds West 161.26 feet to a spike found; thence North 28 degrees 35 minutes 52 seconds West 106.75 feet to a rebar found; thence South 51 degrees 53 minutes 45 seconds West 159.27 feet to a point; thence South 49 degrees 22 minutes 45 seconds West 400.36 feet to a pipe found; thence North 40 degrees 37 minutes 15 seconds West 200.00 feet to a point in the aforementioned right-of-way of Timberlake Road; thence along said right-of-way the following courses; North 49 degrees 22 minutes 43 seconds East 400.36 feet to a pipe found; North 51 degrees 51 minutes 41 seconds East 215.06 feet to a pipe found; North 55 degrees 28 minutes 28 seconds East 135.61 feet to the point of beginning and containing 3.749 acres.

R-1

R-4

B-3

B-3

PID #25413031
THOMAS H. HAHN &
HELEN R. HAHN
D.B. 442 PAGE 883 CC

PID #25413023
COURTNEY RAY HAHN
INSTRUMENT #080005760

PID #25413015
KENLEY F. HAHN &
LUCILLE E. HAHN
D.B. 251 PAGE 391 CC
D.B. 264 PAGE 8 CC

PID #25413016
KENLEY F. HAHN
D.B. 222 PAGE 199 CC

PID #25413017
THOMAS H. HAHN &
HELEN R. HAHN
D.B. 442 PAGE 883 CC

PID #25413018
VIRGINIA C. HAHN &
ALFRED R. HAHN
INSTRUMENT #010007091
D.B. 889 PAGE 356

PID #25413019
COURTNEY RAY HAHN
INSTRUMENT #080005760

PID #25413020
JOHN P. COWINS SR.
INSTRUMENT #050000050
W.B. 67 PAGE 174

PID #25413021
SUSAN P. ATKINS
D.B. 632 PAGE 803

HATCH DENOTES AREA TO BE REZONED



REZONING PLAN
FOR
VILLAGE AT DREAMING CREEK
CITY OF LYNCHBURG, VIRGINIA

PROJECT NO. 20130679
G.L. NO. 264-01-A3.3
FILE NO.
DATE: 3/2/2014
DRAWN BY: BLH/PSB
CHECKED BY: PSB

SHEET NO.
2 OF 2



Hurt & Proffitt, Inc.

Engineering • Surveying • Environmental
Materials Testing • Geotechnical
Site Planning

2524 Langhorne Road • Lynchburg, VA 24501
(434) 847-7796 • FAX (434) 847-0047

REZONING NARRATIVE

February 4, 2014

Revised March 3, 2014

Village at Dreaming Creek

7814, 7816, 7822, 7900, 7904, & 7908 Timberlake Road

Lynchburg, Virginia

Hurt & Proffitt Project #20130679

PROJECT DESCRIPTION

The project consists of the rezoning of seven parcels (PID #25413015, 25413016, 25413017, 25413018, 25413019, & 25413020) from R-1 to B-3C. These parcels will be recombined into three retail parcels along Timberlake Road in addition to a 100' right-of-way allowing Candlewood Court to be extended to the south. Candlewood Court will extend approximately 400 feet to the south where it will tee into a second public roadway that could serve future development to the south. The three proposed parcels would likely be developed into a restaurant, a bank, and a fuel/convenience store. The project would also include parking, landscaping, utilities, and stormwater management facilities.

ARCHITECTURAL DESIGN

Village at Dreaming Creek will be developed with a master planned material pallet consisting of durable materials including masonry, stucco, architectural block or stone. The predominate material for all buildings shall be regionally selected brick in a color range from hard tan to colonial red. Once selected, the same brick shall be used for all subsequent outparcels building, screen walls, etc.. The use of pre finished metal shall be limited to flush panels or standing seam used appropriately in building canopies. Where appropriate, fiber cement lap siding installed with no more than a 4" exposed face shall be allowed for no more than 25% of any wall surface, and shall not be install closer than 30" to the adjacent grade. All building shall have a minimum of a 30" masonry wainscot/water table at the base of all walls, equipment screens, and site walls. All sides of each building shall be finished with the same durable materials.

Roof lines shall be set appropriate to each building or building element, with preference given to colonial, pitched roofs for smaller masses and parapets with a defined cornice for larger footprints. Rooflines shall receive consistent treatment at all sides of each building. No open roof edges shall be allowed on flat roofs. Rooftop equipment shall be screened by parapets at all side of buildings with flat roofs. Where ground level

equipment is used it shall be screened by landscaping or masonry walls to match the building or a combination of the two.

LIGHTING

All exterior lighting shall be full cut off type. No lighting source shall be aimed above a parallel line to the horizon. Fixtures that are not amiable types shall be flat lens type installed parallel to the horizon.

Site lighting within 40' of a residential property line shall be Type I, II, III or IV distribution, full cutoff fixtures directed to the interior of the commercial or multi-family residential property. Type V distribution, full cutoff fixtures may only be used only 41' or more from any existing residential property line. Further, lighting shall be in accordance with the Lynchburg Code of Ordinances - Sec. 35.1-43.26. Lighting.

Internally illuminated or back lite canopies, shall not be allowed.

NOISE

Commercial business shall meet the requirements and restrictions of Chapter 26 of the Lynchburg Code of ordinances. Specific compliance with the sound pressure levels indicated in Sec. 26-56 is required. Where music or exterior equipment on a commercial site is utilized it shall be restricted per the ordinance to no more than 52 dBA or it shall be disabled between the hours of 10:00pm and 7:00am.

SITE SIGNAGE

Signage shall be governed by the Lynchburg Code of Ordinances Sec. 35.1-26. Signs, unless further restricted as follows. Commercial site signage shall be limited to monument style signage. Monuments signs shall not exceed 8' in height above the top of the adjacent curb line. Where gas service stations include price message boards, they shall be integrated into the monuments sign and the total sign height may be increased to a maximum of 12'. 1. One free-standing pylon sign shall be used to identify the development.

STORMWATER MANAGEMENT

Runoff from the development generally flows to the south where it drains into Dreaming Creek. Some of the stormwater flows through unnamed tributaries to the pond, which then drains to Dreaming Creek. Stormwater management will be addressed on the subject parcels with underground storage systems (pipe or chamber systems) to be located under the parking areas or with bioretention systems (rain gardens) in open areas. Water quality treatment will be accomplished using BMP measures such as rain gardens and tree-in-a-box filters. Runoff collected by these stormwater quantity and quality measures will be collected in pipes on each parcel, conveyed to the stormwater collection system in the proposed roadway and discharged to an adequate channel. Based on the impending stormwater regulation changes beginning July 1, 2014, it is assumed that the development will be permitted under the new runoff reduction measures.

Water Quantity

The type of stormwater management facility used to reduce post-development runoff rates below the pre-development rate largely depends on the ultimate size of each development parcel and the amount of area available to use for such measures. The preference would be to utilize rain gardens (bioretention filter) if space is available, because such devices provide management of both stormwater quantity and quality. If open space on a particular site is limited, then underground storage systems (pipe or chamber) will be used to manage water quantity. Low Impact Development (LID) strategies such as porous concrete pavement or concrete paver systems may be considered to reduce the composite runoff factor. Regardless of the measures used, State and City requirements to reduce or maintain the runoff rate will be met.

Water Quality

In addition to small rain gardens (bioretention areas), stormwater quality treatment may be supplemented with mechanical devices such as hydrodynamic separators and above ground tree-in-a-box filter systems. Tree-in-a-box systems will most likely be used on the proposed new roadway to manage water quality.

ADEQUATE CHANNEL

Stormwater from this development area flows into Dreaming Creek. Runoff from the site and roadway will be managed and treated using the methods described in the previous sections, collected in pipes and discharged into the unnamed tributary above the existing pond. From there, the runoff flows through another tributary to Dreaming Creek. The retail portion of this property is located in Flood Zone "X" and is not located in the 100-year floodplain according to Community Panel Map #5100930101D, dated June 3, 2008.

PARKING

The project must meet the current City of Lynchburg parking requirements. For restaurants, the City requires one (1) parking space per every four (4) persons of the rated capacity plus one (1) space for each three (3) employees on duty at any time; for banking, two (2) spaces per 1 thousand (1,000) square feet of GFA are required; for fueling/convenience stores, the City requires two (2) spaces per one thousand (1,000) square feet of gross floor area plus one (1) for each three (3) employees on duty at any one time. Proposed parking spaces for the project are shown on the Rezoning Plan. It should be noted that the proposed number and location of parking spaces may be adjusted during the design process due to site restraints or changes in the site plan. The final parking count, however, will meet the requirements set by the City of Lynchburg's parking ordinance.

Parking Calculations (based on current Rezoning Plan)

Restaurant: $2 \text{ spaces} \times 120/4 + 1 \text{ space} \times 15/3 = 65 \text{ spaces required; } 69 \text{ spaces provided}$

Bank: $2 \times 6,500/1,000 = 13 \text{ spaces required; } 32 \text{ spaces provided}$

Fuel/Convenience: $2 \times 6,490/1,000 + 1 \times 12/3 = 17 \text{ spaces required; } 55 \text{ spaces provided}$

LANDSCAPING/OTHER

The clearing and grading limits are the proposed property lines on the south side of the proposed public street. Grading will be limited to what is needed to construct the buildings, parking, and any required stormwater management features.

In order to achieve the grades shown, fill material will be required. The source of fill will be the land on the south side of Dreaming Creek on parcel numbers 25413023 and 25413031. A permit will have to be obtained from the Army Corps of Engineers and VDEQ to allow the temporary stream crossing. Alternatively, the stream may be crossed using an engineered structural plate arch or other bottomless design that would not impact the stream and would not require permitting.

Landscape plantings will be as provided per the landscape ordinance. Shade trees will be located in interior medians within parking areas and at the ends of all parking rows. No more than fifteen (15) consecutive parking spaces will be located between islands. Street trees will be provided as required along Timberlake Road, Candlewood Court Extension, and the new public street on the south side of the development. Street and shade tree types will be provided at the site plan stage. Foundation plantings will be provided as required.

Trash will be placed in several on-site dumpsters and removed by a commercial trash service.

Exterior lighting shall be controlled so that no direct illumination will occur beyond any property line. A note is provided on the attached plan.



7814 Timberlake Road



7816 Timberlake Road



7822 Timberlake Road



7900 Timberlake Road



7904 Timberlake Road



7908 Timberlake Road

March 12, 2014

PLEASE PRINT

[illegible]

LYNCHBURG CITY COUNCIL

Agenda Item Summary

MEETING DATE: **April 8, 2014**

AGENDA ITEM NO.: 11

CONSENT: REGULAR: **X**

WORK SESSION:

CLOSED SESSION:
(Confidential)

ACTION: **X**

INFORMATION:

ITEM TITLE: **Vacate a portion of right-of-way on Delta Street between 4021 and 4025 Wards Road.**

RECOMMENDATION: Vacate the right-of-way.

SUMMARY: Lynchburg Hotel Group, LLC is petitioning to vacate a portion of right-of-way between 4021 and 4025 Wards Road. This portion of right-of-way currently serves as a “hammerhead” truck turnaround near the terminus of Delta Street. The area is approximately fifty-five thousandths (.055) of an acre and fifty-eight (58) feet in width at the frontage along Delta Street.

The petitioner has requested this portion of right-of-way be vacated in order to accommodate parking at 4021 Wards Road for the hotel use. The petitioner has also proposed a public easement, which would replace the current truck turn-around. The proposed public easement is shown on the plat with a hatching that circles the parking lot. Both property owners who adjoin the portion of right-of-way to be vacated are in agreement with the proposal.

Since an alternative to the “hammerhead” is being provided with the easement through the parking lot, there would be minimal impact with the vacation of this portion of the right-of-way.

PRIOR ACTION(S):

February 21, 2014: The Technical Review Committee [TRC] reviewed the petition. The TRC comments have been incorporated into the proposed ordinance.

March 11, 2014: The Physical Development Committee [PDC] reviewed the petition. The PDC forwarded the petition to City Council.

FISCAL IMPACT: None

CONTACT(S): Kevin Henry, Planner II – 455-3900
Tom Martin, City Planner - 455-3900
Kent White, Director of Community Development – 455-3900

ATTACHMENT(S):

- Ordinance
- Application
- Agreement from neighbor
- Maps
- Copy of Survey

REVIEWED BY: bms

UNCODIFIED ORDINANCE:

AN ORDINANCE VACATING A PORTION OF RIGHT-OF-WAY BETWEEN 4021 AND 4025 WARDS ROAD.

WHEREAS, Lynchburg Hotel Group, LLC are petitioning to vacate a portion of right-of-way located between the properties of 4021 and 4025 Wards Road; and

WHEREAS, City Council finds that no public inconvenience will result from vacating a portion of the unopened right-of-way; and

WHEREAS, City Council determined that the City has no need for the portion of the public right-of-way in question and that the City's continued ownership of such public right-of-way is not necessary or required to serve the best interest of the City;

NOW, THEREFORE, BE IT ORDAINED by the Council of the City of Lynchburg, on its own motion, and in accordance with the provisions of Section 15.2-2006 of the Code of Virginia, 1950, as amended, and Section 35-71 through Section 35-77 of the City Code, 1981, as amended, the following described right-of-way be, and the same hereby is, discontinued and vacated, namely: Beginning at a point in the westernmost corner of current Tax Map No. 260-03-001, at its intersection with the southeastern right-of-way line of Delta Street; thence S 51' 29" 50° E 61.93 feet to a point, being the common corner with current Tax Map No. 260-03-003; thence S 38' 40" 48° W 50.66 feet to a point; thence N 51' 19" 12° W 33.11 feet to a point; thence N 08' 57" 26° E 58.12 feet to the point of beginning, containing 0.055 acre, more or less.

Said vacation is contingent upon the following: that an easement to locate, relocate, repair, replace, maintain and perpetually operate all utilities currently located therein or needed by the City in the future is hereby reserved unto the City of Lynchburg, and the construction of any building or structure or the use of the vacated property in any manner that could interfere with the City's right to locate, relocate, repair, replace, maintain and perpetually operate utilities is prohibited without the prior written approval of the City Manager's Office, City Utilities Division and the City Engineering Division.

BE IT FURTHER ORDAINED that the Clerk of the Council is hereby authorized and directed to deliver a duly-certified copy of this ordinance to the Clerk of the Circuit Court for the City of Lynchburg so that said certified copy of this ordinance may be recorded as deeds are recorded and indexed in the name of the City of Lynchburg.

Adopted:

Certified:

Clerk of Council

047K

APPLICATION FOR THE VACATION OF A

Delta Street
(Street/Alley)

LOCATED BETWEEN

Norfolk and Southern Rail way and Wards Road

The undersigned applicant, Lynchburg Hotel Group LLC, pursuant to the provisions of Section 15.2-2006 of the Code of Virginia, 1950, as amended, and Section 35-71 through Section 35-77 of the City Code, 1981, as amended, respectfully makes application to the Lynchburg City Council for the vacation of that certain Delta St described as follows:

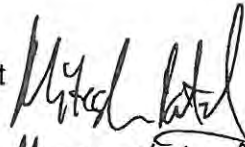
A 0.055 acre parcel shown on the site plan for vacation of a portion of Delta Street and showing the proposed public access easement on the property of Lynchburg Hotel Group, LLC

The applicant further requests the Lynchburg City Council to hold a public hearing on this application at its meeting to be held in the Council Chambers, City Hall, 900 Church Street, Lynchburg, Virginia, on March 11, 2014 , at 7:30 p.m., or as soon

thereafter as the matter may be heard, and at the conclusion of which hearing to consider whether or not to vacate the above described Delta St.

Given under my hand this day of , 20 .

Applicant


Managing Member of Lynchburg Hotel Group, LLC

Address

109 Destination Blvd
Anderson SC 29621

Telephone Number (864) 375-0037

Delta Station 1/29/14

EXP: 5/30/23

WE, THE ADJOINING PROPERTY OWNER(S), ARE IN AGREEMENT TO THE VACATION OF THE ABOVE DESCRIBED PROPERTY:

February 26, 2014

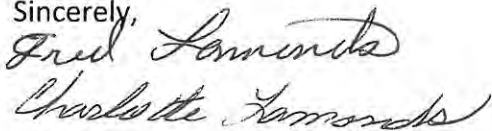
Kevin Henry, City Planner
City of Lynchburg
900 Church Street
Lynchburg Va 24504

RE: 4021 WARDS RD, LYNCHBURG VA

Dear Mr. Henry:

As a follow-up to our telephone conversation of February 25, 2014 regarding removal of Hammer Head located at 4021 Wards Rd, please let this serve as written confirmation granting our permission for this action to be taken.

Sincerely,

The block contains two handwritten signatures in cursive. The first signature is 'Fred Lamonds' and the second is 'Charlotte Lamonds'. Both are written in dark ink.

Fred & Charlotte Lamonds
Property Owners

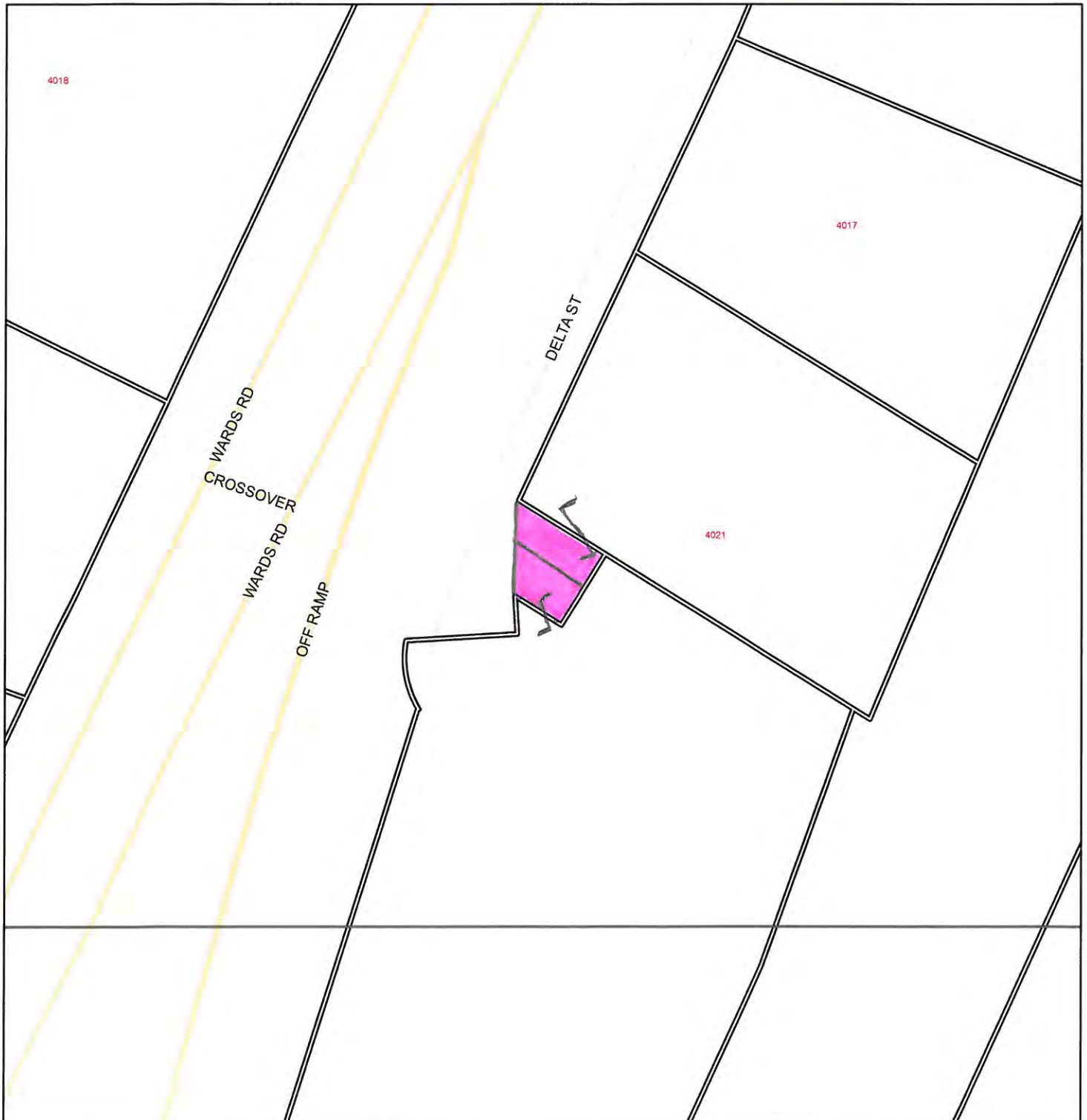
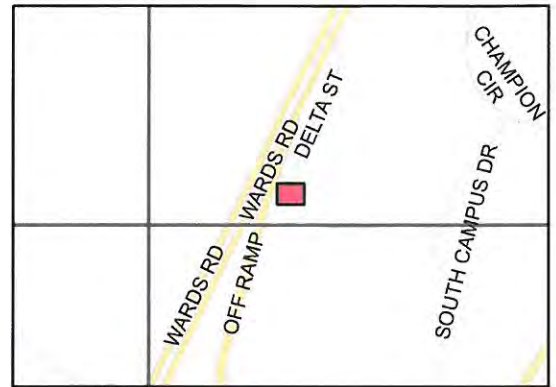
cc: Nixon Land Surveying
RCM, Inc

4021 & 4025 Wards Road

Right-of-Way Vacation



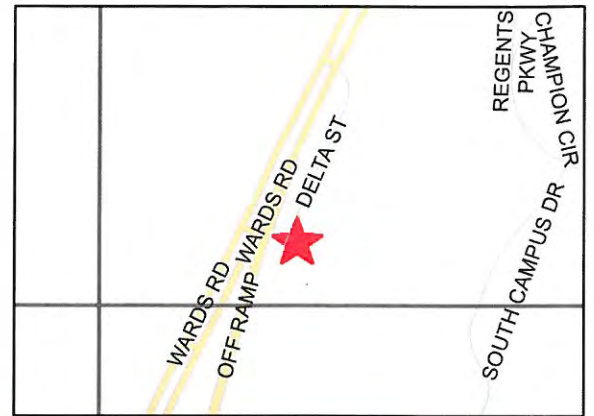
Area to be vacated

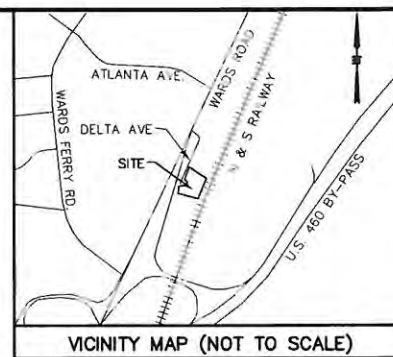
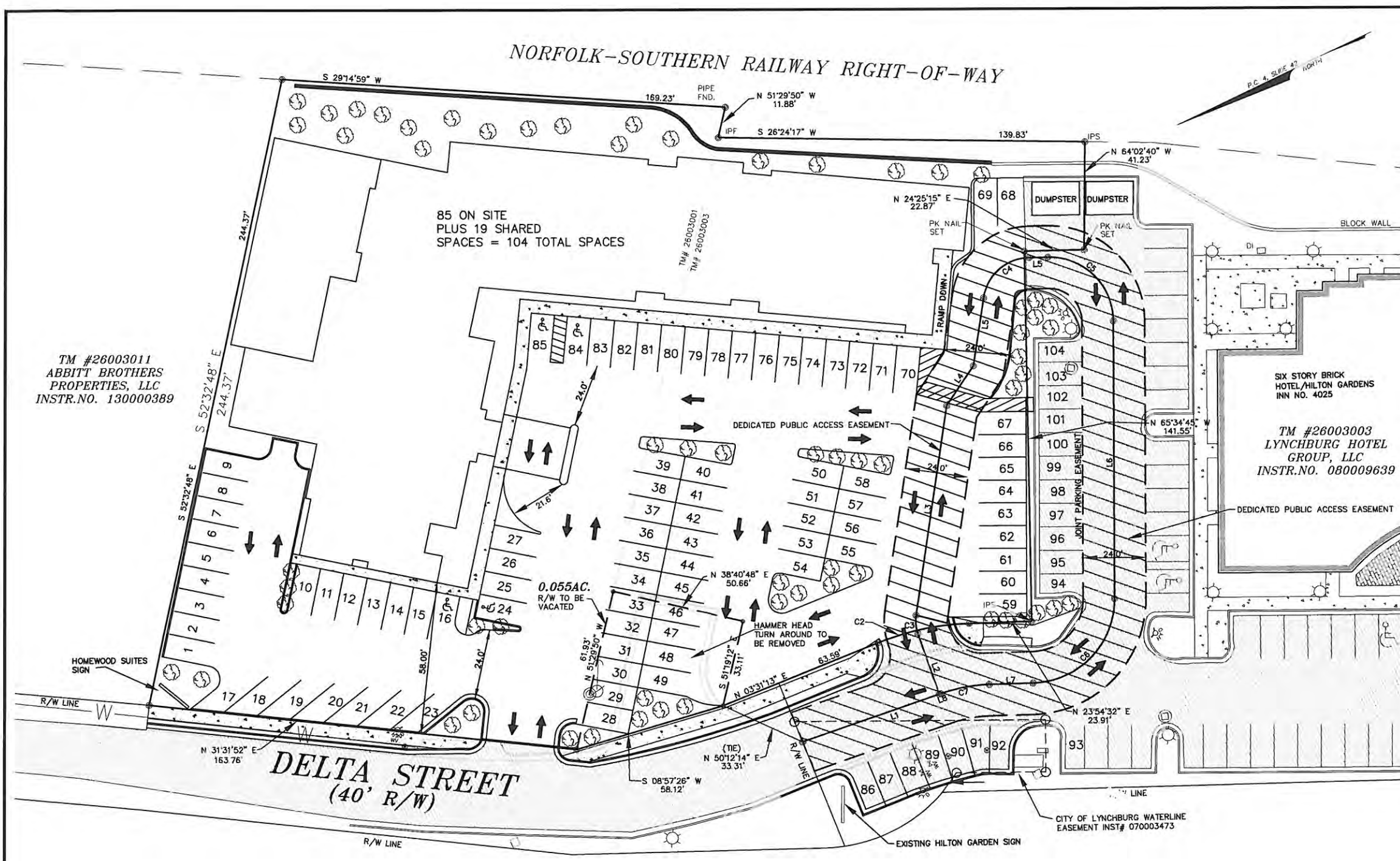


4021 & 4025 Wards Road

Right-of-Way Vacation

★ Location





**TOTAL AREA =
1.570AC.
(EXCLUSIVE OF R/W
TO BE VACATED)**

- GENERAL NOTES:
- 1.) THIS PLAN HAS BEEN PREPARED FROM AN ACTUAL FIELD SURVEY DONE PER DATE OF THIS PLAN AND THERE ARE NO VISIBLE EASEMENTS OR ENCROACHMENTS EXCEPT AS SHOWN HEREON.
 - 2.) THIS SURVEY HAS BEEN PREPARED WITHOUT BENEFIT OF A TITLE REPORT AND DOES NOT, THEREFORE, NECESSARILY INDICATE ALL ENCUMBRANCES UPON THE PROPERTY.
 - 3.) THIS PROPERTY IS NOT IN A FLOOD ZONE THIS PROPERTY IS IN FLOOD ZONE "X" AS SCALED FROM F.E.M.A. FLOOD INSURANCE RATE MAP(S).
 - 4.) THIS PROPERTY IS ZONED B-5C.
 - 5.) THIS PROPERTY WILL BE SERVED BY CITY OF LYNCHBURG WATER AND CITY OF LYNCHBURG SANITARY SEWER.
 6. THE DEDICATED PUBLIC ACCESS EASEMENT IS FOR USE BY THE PUBLIC AND THE CITY OF LYNCHBURG. IT IS DESIGNATED AS A MEANS FOR VEHICULAR TRAFFIC AND UTILITY VEHICLES TO HAVE UNOBSTRUCTED RIGHT TO TRAVEL ALONG ITS PATH. THE DEVELOPER / OWNER UNDERSTANDS THAT THE PUBLIC IS HELD HARMLESS AS TO THE MAINTENANCE OF THE EXISTING AND FUTURE DESIGNATED DRIVE ISLE.

LINE TABLE		
LINE	BEARING	LENGTH
L1	S06°20'15"W	54.88
L2	S83°39'45"E	24.47
L3	S56°11'43"E	80.80
L4	S30°30'16"E	18.33
L5	S55°52'17"E	26.25
L6	N64°39'49"W	106.17
L7	S23°54'32"W	16.78
L8	S24°02'41"W	53.07

CURVE TABLE				
CURVE	DELTA	LENGTH	RADIUS	CHORD
C1	41°06'43"	43.05	60.00	42.13
C2	20°23'20"	35.59	100.00	35.40
C3	27°28'02"	7.19	15.00	7.12
C4	80°17'32"	25.22	18.00	23.21
C5	90°54'56"	38.88	24.50	34.92
C6	88°34'22"	49.47	32.00	44.69
C7	17°34'17"	19.01	62.00	18.94



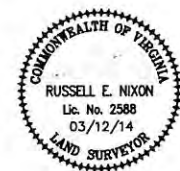
WARDS ROAD
BUSINESS 29 NORTH BOUND LANE
(VARIABLE WIDTH R/W)

RAMP "A"

APPROVED: *[Signature]*
CITY OF LYNCHBURG ENGINEER
DATE: 3/24/14

SOURCE OF TITLE:
TM# 26003001
FRED T. LAMONDS &
CHARLOTTE M. LAMONDS
D.B. 1038 P. 411

TM# 26003003
LYNCHBURG HOTEL GROUP, LLC
INSTR.NO. 080009639



REVISED 03/12/14
REVISED 01/28/14

SURVEYED FOR:
Nixon Land Surveying, L.L.C.
1063C Airport Road
Lynchburg, VA 24502
Phone: (434) 237-3600
Fax: (434) 237-0899
Email: ren@nixonlandsec.com
www.nixonlandsec.com

LYNCHBURG HOTEL GROUP, LLC
SITE PLAN FOR VACATION OF
A PORTION OF DELTA STREET AND SHOWING THE
PROPOSED PUBLIC ACCESS EASEMENT ON
THE PROPERTY OF LYNCHBURG HOTEL GROUP, LLC
CITY OF LYNCHBURG, VIRGINIA

COMM. NO.: 2013176
SCALE: 1"=20'
SHEET: 1 OF 1

REVISED: 01/28/14
DATE: 09/12/13
CHK. BY: REN
DRW. NME/CONCEPT

LYNCHBURG CITY COUNCIL

Agenda Item Summary

MEETING DATE: **April 8, 2014**

AGENDA ITEM NO.: 12

CONSENT: REGULAR: **X**

WORK SESSION:

CLOSED SESSION:
(Confidential)

ACTION: **X**

INFORMATION:

ITEM TITLE: Vacate an alley between 107, 119 and 121 Quinlan Street and 2424 Memphis Avenue.

RECOMMENDATION: Vacate the alley.

SUMMARY: Rivermont Evangelical Presbyterian Church & Mr. & Mrs. Allen Miller are petitioning to vacate an alley between 107, 119 & 121 Quinlan Street and 2424 Memphis Avenue. The alley is approximately two hundred two (202) feet in length and sixteen (16) feet wide. Currently, the alley is unopened. A grassed area exists between two (2) residential properties with the furthest point of the alley from Quinlan Street extending into a small portion of the church's parking lot.

The petitioner submitted a subdivision plat proposing the consolidation of all the internal lot lines on the church property, including the area of the alley. All the adjoining properties have right-of-way access through other means. Since there is no paved open access along Quinlan Street to the alley and the other end of the alley can only be accessed through private property, there is no impact from the vacation of the alley.

The property owner at 119 Quinlan Street (Ms. Mary Stone) has consented to the proposed vacation after staff consulted with her on the matter and all of the other affected owners are willing to accept the vacation.

PRIOR ACTION(S):

January 10, 2014: The Technical Review Committee [TRC] reviewed the petition. The TRC comments have been incorporated into the proposed ordinance.

February 11, 2014: The Physical Development Committee [PDC] reviewed the petition. The PDC recommended staff discuss the petition with the adjoining property owner and forward it to City Council.

FISCAL IMPACT: None

CONTACT(S): Kevin Henry, Planner II – 455-3900
Tom Martin, City Planner - 455-3900
Kent White, Director of Community Development – 455-3900

ATTACHMENT(S):

- Ordinance
- Application
- Certified letter sent to neighbor
- Maps
- Copy of Subdivision Plat
- Photos

REVIEWED BY: bms

UNCODIFIED ORDINANCE:

AN ORDINANCE VACATING RIGHT-OF-WAY BETWEEN 107, 119 & 121 QUINLAN STREET AND 2424 MEMPHIS AVENUE.

WHEREAS, Rivermont Evangelical Presbyterian Church & Mr. & Mrs. Allen Miller are petitioning to vacate right-of-way located between the properties of 107, 119 & 121 Quinlan Street and 2424 Memphis Avenue, which extends two hundred two (202) feet; and

WHEREAS, City Council finds that no public inconvenience will result from vacating a portion of the unopened right-of-way; and

WHEREAS, City Council determined that the City has no need for the portion of the public right-of-way in question and that the City's continued ownership of such public right-of-way is not necessary or required to serve the best interest of the City;

NOW, THEREFORE, BE IT ORDAINED by the Council of the City of Lynchburg, on its own motion, and in accordance with the provisions of Section 15.2-2006 of the Code of Virginia, 1950, as amended, and Section 35-71 through Section 35-77 of the City Code, 1981, as amended, the following described right-of-way be, and the same hereby is, discontinued and vacated, namely:

The right-of-way located between 107, 119 & 121 Quinlan Street and 2424 Memphis Avenue, which extends two hundred two (202) feet.

Said vacation is contingent upon the following: that an easement to locate, relocate, repair, replace, maintain and perpetually operate all utilities currently located therein or needed by the City in the future is hereby reserved unto the City of Lynchburg, and the construction of any building or structure or the use of the vacated property in any manner that could interfere with the City's right to locate, relocate, repair, replace, maintain and perpetually operate utilities is prohibited without the prior written approval of the City Manager's Office, City Utilities Division and the City Engineering Division.

BE IT FURTHER ORDAINED that the Clerk of the Council is hereby authorized and directed to deliver a duly-certified copy of this ordinance to the Clerk of the Circuit Court for the City of Lynchburg so that said certified copy of this ordinance may be recorded as deeds are recorded and indexed in the name of the City of Lynchburg.

Adopted:

Certified:

Clerk of Council

048K



DAY AND LOVELL
ATTORNEYS-AT-LAW

INSPECTIONS DIV

JAN 02 2014

RECEIVED

INSPECTIONS DIV

JAN 02 2014

RECEIVED

Mr. Kevin Henry
Community Development Department
City Hall
900 Church Street
Lynchburg, Va. 24504

Re: Application on behalf of Rivermont Evangelical Presbyterian Church & Allen R. Miller and Prudence T. Miller to vacate unopened alley way.

Dear Mr. Henry:

Enclosed please find an amended application filed on behalf of my clients as well as a copy of our transmittal letter to Mrs. Stone. It is my understanding that there were some erroneous tax parcel numbers in the original application and, further that the City desired that the application itself evidence some notice to the adjoining landowner, Mary G. Stone. Please note the application states that by certified mail, return receipt requested Mrs. Stone is being notified of this application.

I trust should you need anything further you will not hesitate to contact me at your earliest opportunity.

Thank you for your kind assistance in this matter.

Very truly yours,

Sherwood S. Day

SSD/sd
Enclosure

CC:

Mr. Ron Cox, Executive Pastor
Rivermont Evangelical Presbyterian Church
2424 Rivermont Avenue
Lynchburg, Va. 24503

Mr. & Mrs. Allen R. Miller
107 Quinlan Street
Lynchburg, Va. 24503

WWW.DAYANDLOVELL.COM

P.O. BOX 1168, FOREST, VA 24551 - OFFICE: (434) 528 - 8877 - FAX: (434) 846 - 4607

2107 GRAVES MILL ROAD - SUITE B - FOREST, VA 24551

**APPLICATION FOR THE VACATION OF AN UNOPENED ALLEY WAY
LOCATED BETWEEN THE MILLERS' PROPERTY, PARCEL #020-12-002
AND MARY STONE'S PROPERTY, PARCEL #020-12-003 AND ENDING IN
THE RIVERMONT EVANGELICAL PRESBYTERIAN CHURCH'S
PROPERTY, PARCEL #020-12-031 and 020-12-032.**

The undersigned applicants Rivermont Evangelical Presbyterian Church and Allen R. Miller and Prudence T. Miller, husband and wife, by counsel, pursuant to the provisions of Section 51.1-364 of the Code of Virginia, 1950, as amended, and Sections 35-71 to 35-77, both inclusive, of the Lynchburg City Code, 1981, as amended, respectfully make application to the Lynchburg City Council for the vacation of that certain alley way described as follows: the unopened alley way that extends from Quinlan Street and runs between the Miller property, parcel #020-12-002 and Mary Stone's property, parcel #020-12-005 ending at a terminus in the property of Rivermont Evangelical Presbyterian Church, parcel #020-12-031 and #020-12-032.

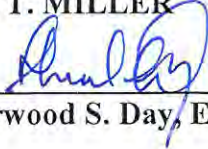
The applicants further request the Lynchburg City Council to hold a public hearing on this application at its meeting to be held in the Council Chamber, City Hall, 900 Church Street, Lynchburg, Virginia, on Tuesday, January 14, 2013, at 7:30 p.m., or as soon thereafter as the matter may be heard, and at the conclusion of which hearing to consider whether or not to vacate the above described alleyway.

The adjoining landowner, Mary G. Stone is given notice of this application by certified mail, return receipt requested, mailed on December 31, 2013.

Given under our hands this 31 day of December, 2013.

RIVERMONT EVANGELICAL PRESBYTERIAN CHURCH

**ALLEN R. MILLER
PRUDENCE T. MILLER**

By: 
Sherwood S. Day, Esq.



DAY AND LOVELL
ATTORNEYS-AT-LAW

December 31, 2013

CERTIFIED MAIL- RRR

Mary G. Stone
PO Box 599
Lynchburg, Va. 24505

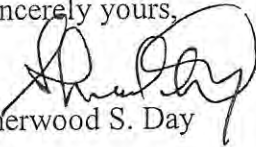
Re: Application on behalf of Rivermont Evangelical Presbyterian Church & Allen R. Miller and Prudence T. Miller to vacate unopened alley way.

Dear Mrs. Stone:

Enclosed please find a copy of the application we are filing on behalf of the captioned clients.

As you can see below I am sending a copy of this transmittal letter to the City as well as my clients.

Sincerely yours,



Sherwood S. Day

SSD/sd
Enclosure

CC:

Mr. Kevin Henry
Community Development Department
City Hall
900 Church Street
Lynchburg, Va. 24504

Mr. Ron Cox, Executive Pastor
Rivermont Evangelical Presbyterian Church
2424 Rivermont Avenue
Lynchburg, Va. 24503

Mr. & Mrs. Allen R. Miller
107 Quinlan Street
Lynchburg, Va. 24503

WWW.DAYANDLOVELL.COM

P.O. BOX 1168, FOREST, VA 24551 - OFFICE: (434) 528 - 8877 - FAX: (434) 846 - 4607

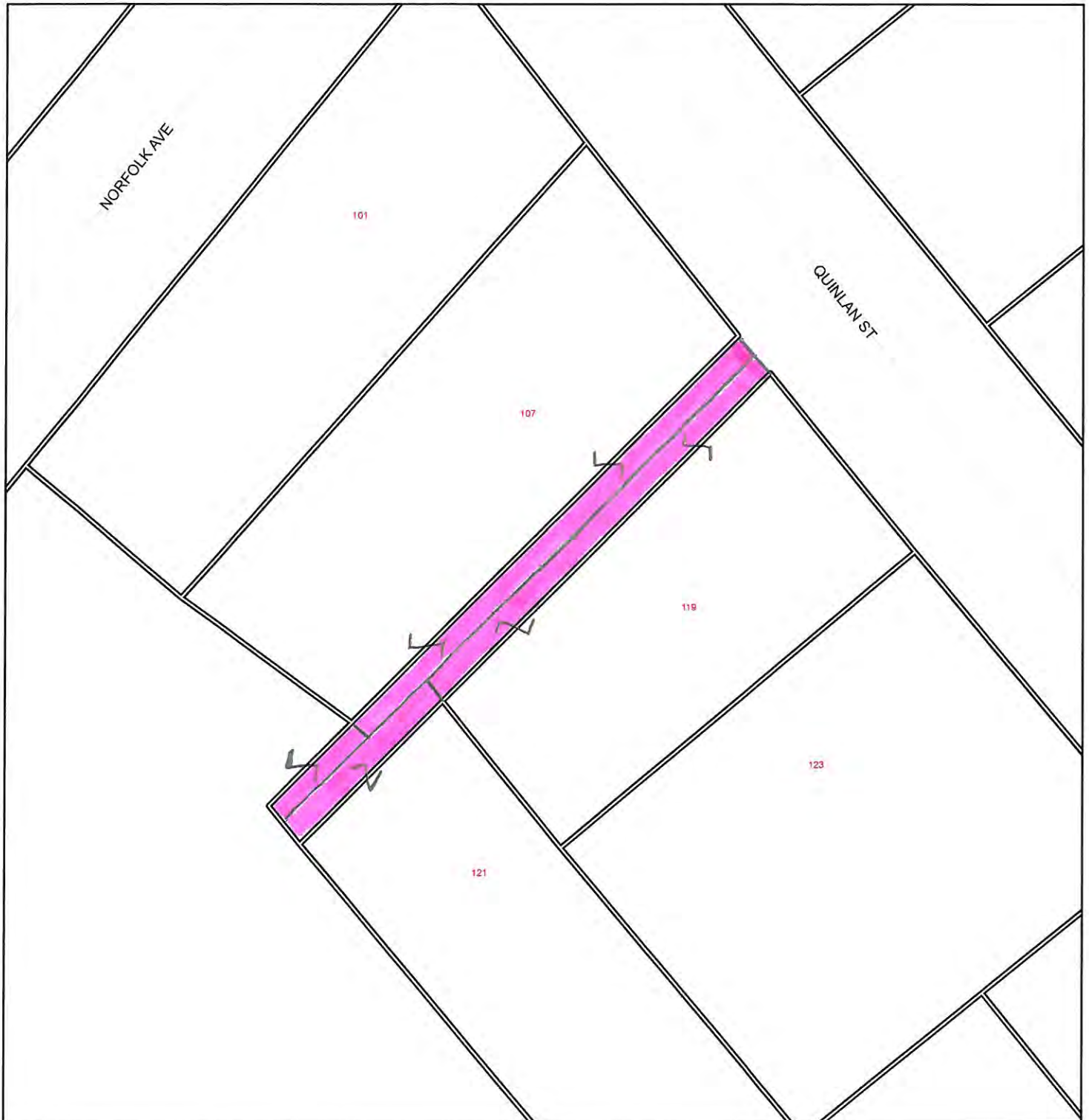
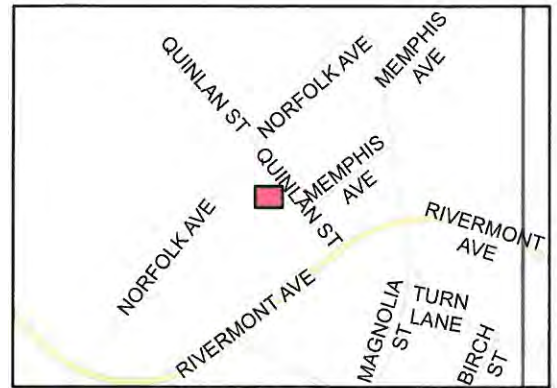
2107 GRAVES MILL ROAD - SUITE B - FOREST, VA 24551

107, 119 & 121 Quinlan Street and 2424 Memphis Avenue

Right-of-Way Vacation



Area to be vacated

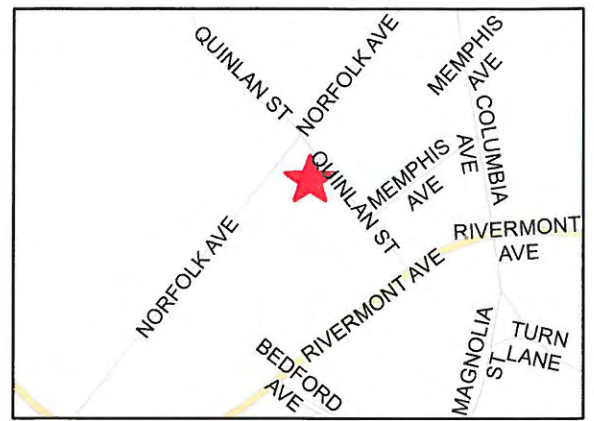


107, 119 & 121 Quinlan Street and 2424 Memphis Avenue

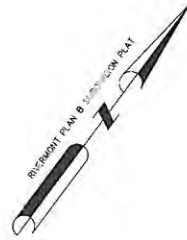
Right-of-Way Vacation



Location



PRELIMINARY
FOR CITY REVIEW ONLY
JANUARY 6, 2014



THIS SHEET IS FOR SHOWING OVERALL EXISTING PARCELS
SEE SHEET 3 OF 3 FOR NEW SUBDIVISION LINES

ALL INTERIOR PARCEL LINES ARE HEREBY VACATED

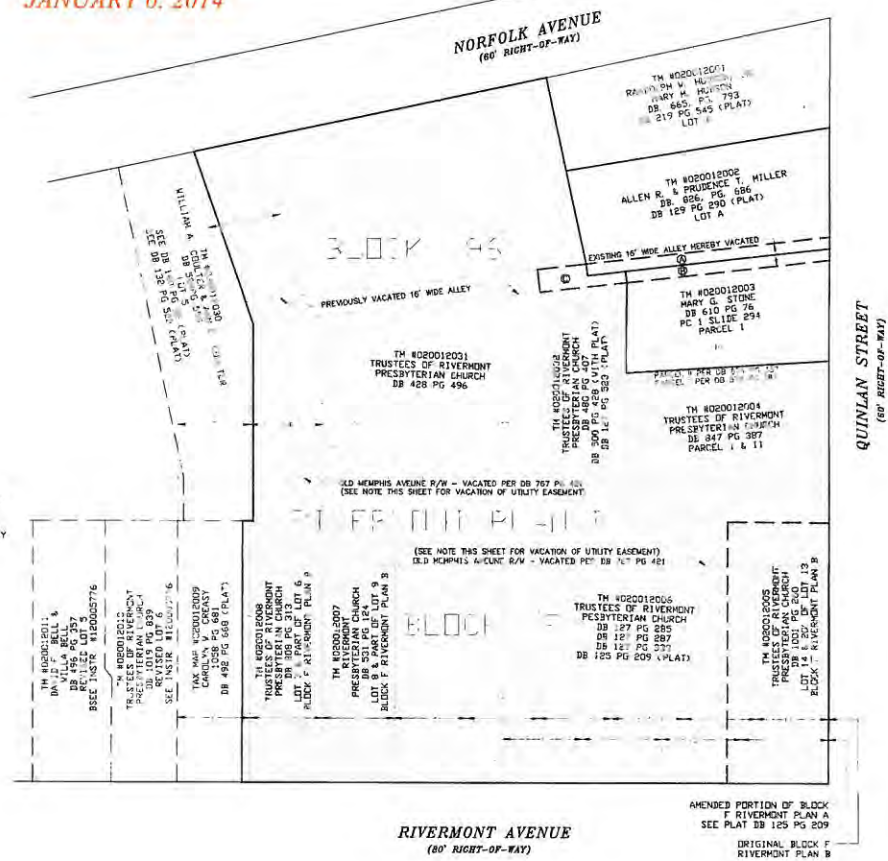
- ③ PART OF EXISTING ALLEY TO BECOME PART OF TH #020012002
D. 031 ACRES
- ③ PART OF EXISTING ALLEY TO BECOME PART OF TH #020012003
D. 026 ACRES
- ③ PART OF EXISTING ALLEY TO BECOME PART OF TH #020012006
D. 017 ACRES

MEMPHIS AVENUE WAS VACATED BY ORDINANCE RECORDED IN DB 767 PG 421.
SAID ORDINANCE READS:
"NOW, THEREFORE BE IT OBTAINED BY THE COUNCIL OF THE CITY OF LYNCHBURG THAT IN
ORDINANCE WITH THE PROVISIONS OF SECTIONS 15.1-364 OF THE CODE OF VIRGINIA, 1950,
AS AMENDED, AND SECTION 35-71 THROUGH SECTION 35-77 OF THE CODE OF LYNCHBURG,
1981, AS AMENDED, THE ABOVE-DESCRIBED PROPERTY BE, AND THE SAME HEREBY IS,
DISCONTINUED AND VACATED, PROVIDED, HOWEVER, THAT AN EASEMENT TO REPAIR, REPLACE,
MAINTAIN AND PERPETUALLY OPERATE ALL UTILITIES CURRENTLY LOCATED THEREIN IS HEREBY
RESERVED UNTO THE CITY OF LYNCHBURG."

THIS SUBDIVISION HEREBY VACATES ABOVE DESCRIBED EASEMENT.

SUBDIVISION PLAT APPROVED

CITY ENGINEER, LYNCHBURG, VIRGINIA	DATE
CITY PLANNER, LYNCHBURG, VIRGINIA	DATE



RIVERMONT AVENUE
(80' RIGHT-OF-WAY)

AMENDED PORTION OF BLOCK
F RIVERMONT PLAN A
SEE PLAT DB 125 PG 209
ORIGINAL BLOCK F
RIVERMONT PLAN B

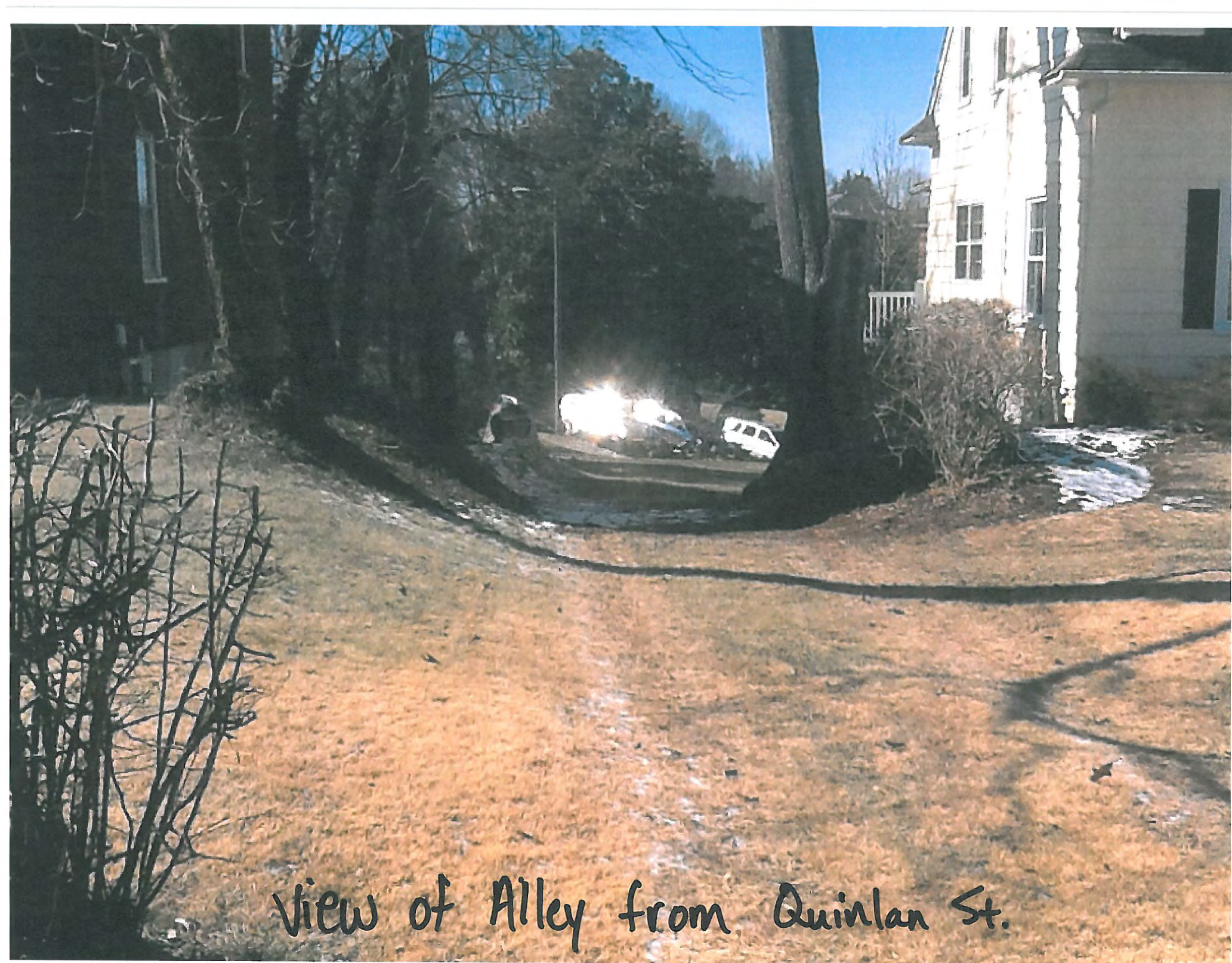


**PIEDMONT
SURVEYORS**

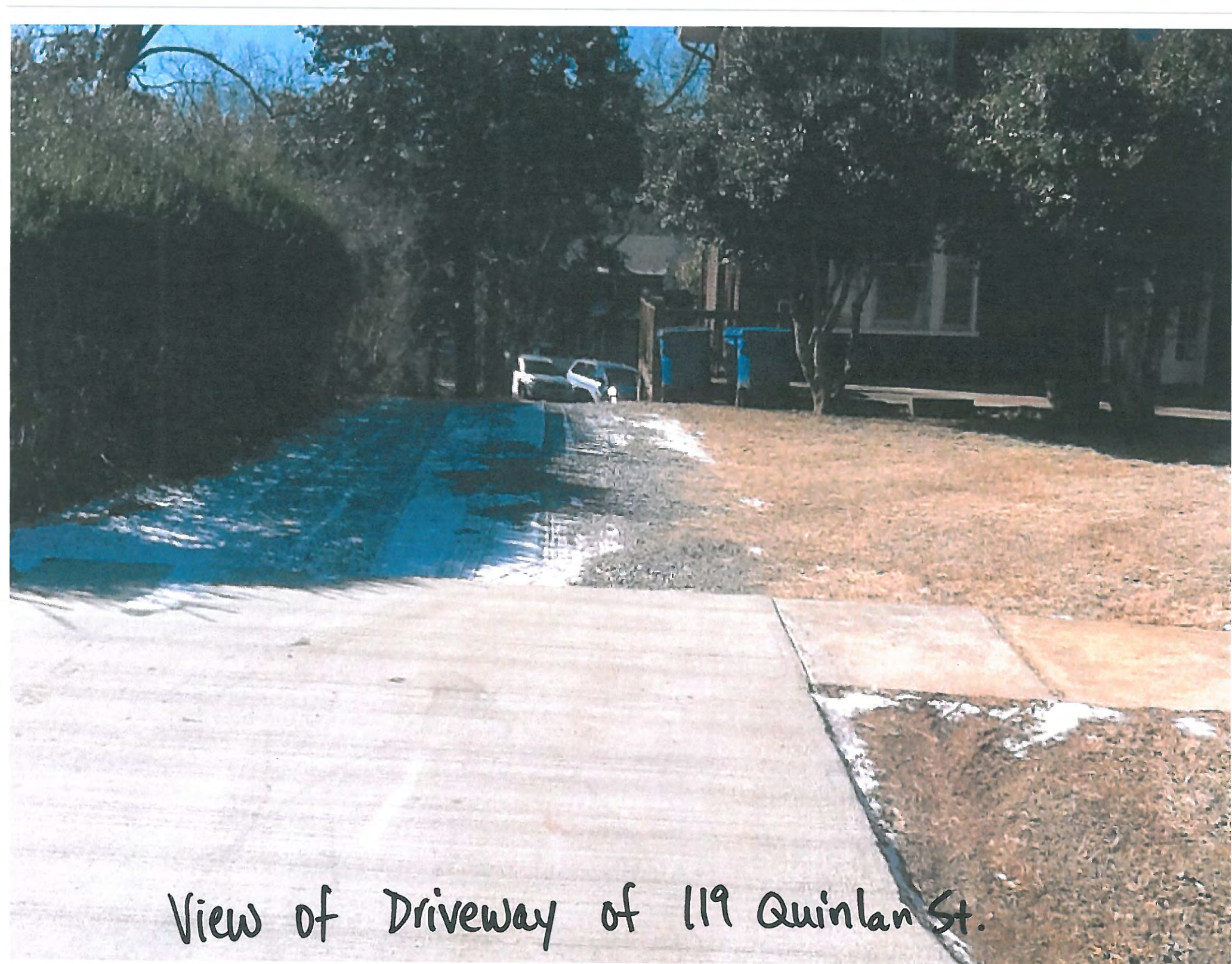
3631 OLD FOREST ROAD - SUITE 6
LYNCHBURG, VA 24501
434-426-2510
WWW.PIEDMONTSURVEYORS.COM

PROJECT NO: 2013-584
DRAWING NO: 2013-584-2
12/31/2013
SCALE: 1" = 50'
SHEET 2 OF 3

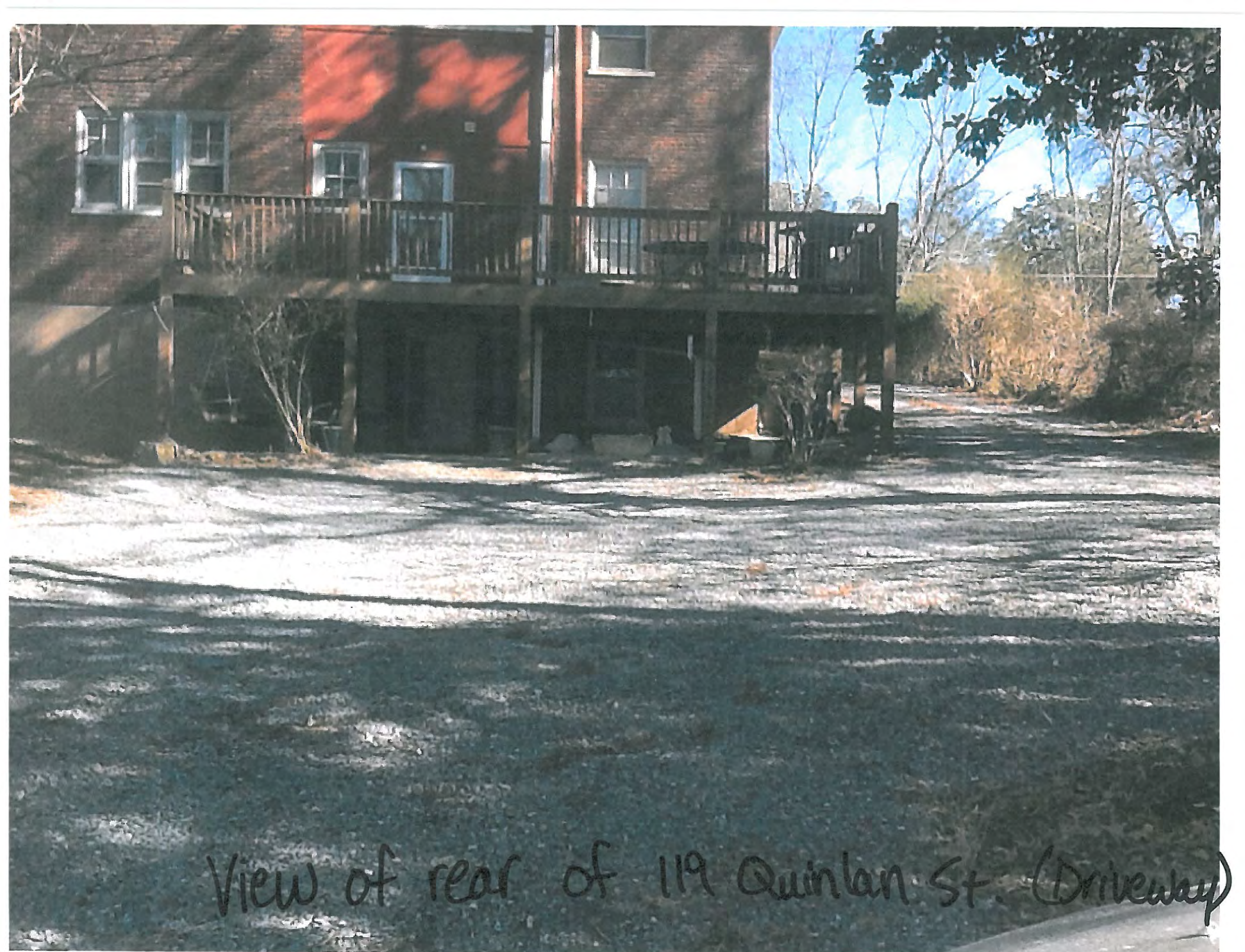
PLAT SHOWING VACATION OF CITY OF LYNCHBURG ALLEY AND
SUBDIVISION FOR PROPERTY OF
RIVERMONT EVANGELICAL PRESBYTERIAN CHURCH,
ALLEN R. MILLER & PRUDENCE T. MILLER AND MARY G. STONE
CITY OF LYNCHBURG, VIRGINIA



view of Alley from Quinlan St.



View of Driveway of 119 Quinlan St.





View of Alley from Parking Lot

LYNCHBURG CITY COUNCIL

Agenda Item Summary

MEETING DATE: **April 8, 2014**

AGENDA ITEM NO.: 13

CONSENT: REGULAR: **X**

WORK SESSION:

CLOSED SESSION:
(Confidential)

ACTION: **X**

INFORMATION:

ITEM TITLE: **License Agreement for Installation of Fiber Optic Cable from 2500 Rivermont Avenue to 2717 Rivermont Avenue**

RECOMMENDATION: After a public hearing, adopt a resolution granting Randolph College a License to bore under Rivermont Avenue and place fiber optic cable in city owned right-of-way as seen on the attached route map.

SUMMARY: Randolph College has submitted a request for the installation of approximately 55 feet of fiber optic cable in city right-of-way from 2500 Rivermont Avenue (college campus) to 2717 Rivermont Avenue. The college plans to begin renovations to 2717 Rivermont Avenue in May to provide residential housing for students this fall. The college will provide the same technology options to the student residential housing at 2717 Rivermont Avenue as would be found on campus. This bore will allow Randolph College to bring fiber optic cable from their campus to the student housing at 2717 Rivermont Avenue.

PRIOR ACTION(S): Physical Development Committee – March 1, 2014

FISCAL IMPACT: None

CONTACT(S): Lee Newland, City Engineer – 455-3947; Gaynelle Hart, Director of Public Works – 455-4406

ATTACHMENT(S): Resolution; Route Map

REVIEWED BY: lkp

RESOLUTION

BE IT RESOLVED That the City Manager is hereby authorized to execute a license agreement with Randolph College allowing the College to install approximately 55 feet of fiber optic cable in the public right-of-way from the College's main campus at 2500 Rivermont Avenue to the College owned property at 2717 Rivermont Avenue.

Adopted:

Certified:

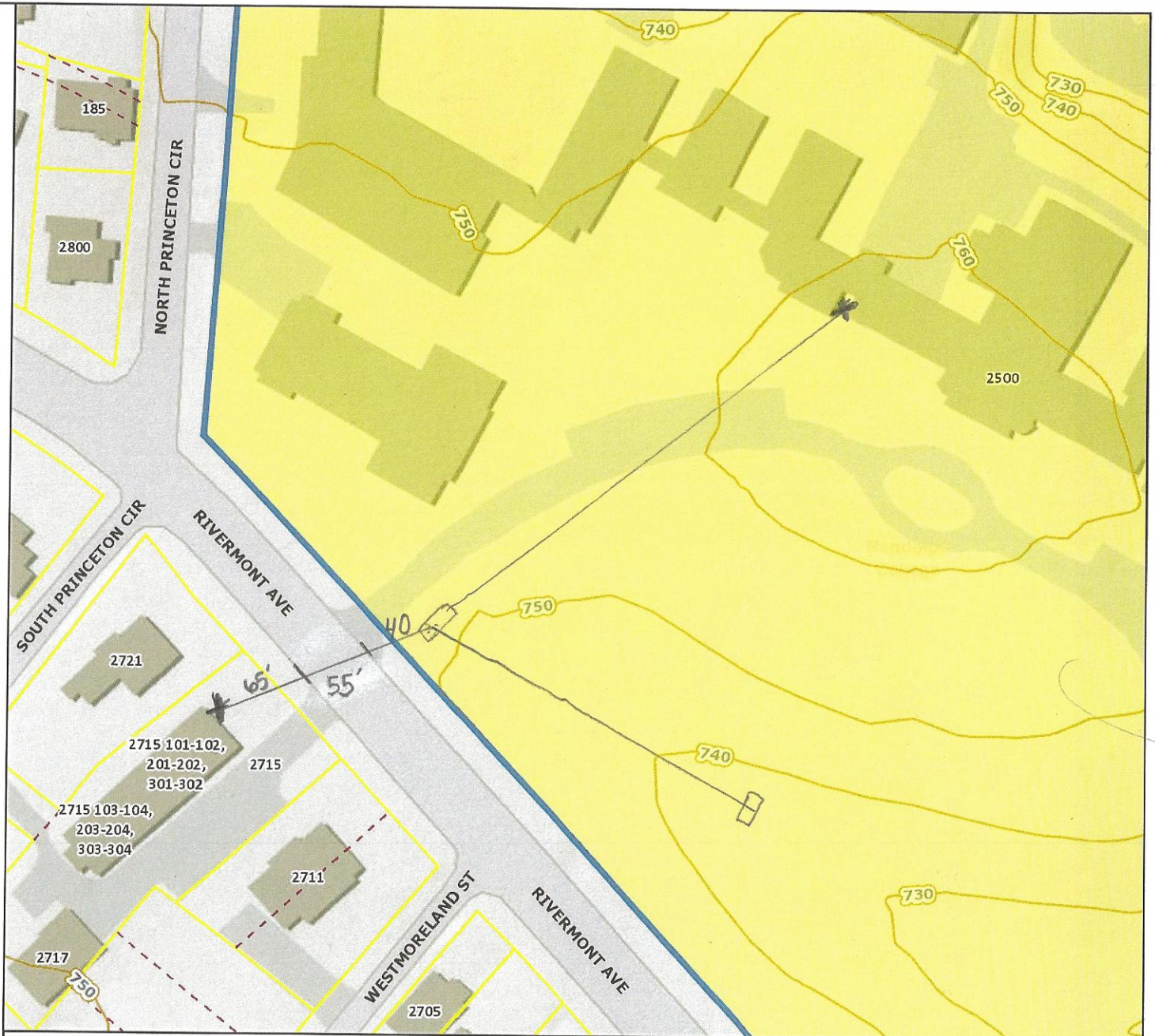
Clerk of Council

046K

The City of Lynchburg, VA

Legend

- Addresses
- Street Labels
- Legal Lot Lines
- Vacated Right of Way
- Parcels
- Owner Unknown
- Survey Gap
- 10ft Contours



Feet
0 20 40 60 80
1:1,200 / 1"=100 Feet

Bore Info

2/27/2014

DISCLAIMER: This drawing is neither a legally recorded map nor a survey and is not intended to be used as such. The information displayed is a compilation of records, information, and data obtained from various sources, and the City of Lynchburg is not responsible for its accuracy or how current it may be.



LYNCHBURG CITY COUNCIL

Agenda Item Summary

MEETING DATE: **April 8, 2014**

AGENDA ITEM NO.: 14

CONSENT:

REGULAR: **X**

CLOSED SESSION:

(Confidential)

ACTION: **X**

INFORMATION:

ITEM TITLE: **Public Hearing and Action Regarding FY 2015 Water and Sewer Rates**

RECOMMENDATION: After a public hearing, adopt the attached ordinance enacting changes in the City Code related to water and sewer rates effective July 1, 2014.

SUMMARY: During the March 11, 2014 Work Session, Department of Water Resources staff presented the FY 2015 Rate Study and Annual Report to City Council. Staff's recommendations and justifications for increases in the fixed "monthly service charge", industrial surcharges, and septic hauler charges were included in the presentation. The following guiding principles and goals were adhered to in the development of the recommended rates and fees:

- Equitable sharing of water and sewer costs based on actual services provided.
- Ensure rates promote sustainable water and sewer operations and infrastructure.
- Minimize future rate spikes.
- Meet the financial obligations related to the CSO Consent Order.
- Meet City Council's financial policies.

In order to stabilize revenues and better cover a greater portion of fixed expenses it is recommended the fee per equivalent meter be increased from \$2.00 per month to \$4.00 per month thereby increasing the total monthly service charge as shown in *Attachment A – Schedule of Water and Sewer Rates*

Also as shown in *Attachment A – Schedule of Water and Sewer Rates*, the recommended rate changes include a 2% increase in the water volume rate from \$2.38 to \$2.43 per hcf. Additionally, the sewer only rate is recommended to increase from \$44.58 to \$45.92 per hcf since it is derived from the sewer volume rate.

Other fees recommended to increase include: a 5% increase in the biological oxygen demand (BOD) charge from \$22.40 to \$23.52 per 100 lbs.; a 5% increase in the total suspended solids (TSS) charge from \$25.33 to \$26.60; a 5% increase in the septic hauler charges from \$204.90 to \$215.15 up to 2,500 gallons of capacity, and for each 500 gallons of capacity over 2,500 gallons, an increase from \$34.74 to \$36.48.

PRIOR ACTION(S): March 11, 2014: City Council Work Session

FISCAL IMPACT: Water Fund revenue increase of approximately \$400,000 annually; Sewer Fund revenue increase of approximately \$450,000 annually.

CONTACT(S):

Tim Mitchell, Director of Water Resources
John Rosser, Financial Professional IV

455-4252
455-4445

ATTACHMENT(S):

ORDINANCE – Water and Sewer Code Amendments
ATTACHMENT A – Schedule of Water and Sewer Rates

REVIEWED BY: lkp

AN ORDINANCE TO AMEND AND REENACT SECTIONS 34-12.1 and 39-54.1 OF THE CODE OF THE CITY OF LYNCHBURG, 1981, AS AMENDED, THE AMENDED SECTIONS RELATING TO WATER AND SEWER RATES.

BE IT ORDAINED BY THE COUNCIL OF THE CITY OF LYNCHBURG:

1. That Sections 34-12.1 and 39-54.1 of the Code of the City of Lynchburg, 1981 are hereby amended and reenacted as follows:

Sec. 34-12.1. Schedule of sewer rates.

(a) The monthly sewer rates for all consumers within the city shall be five dollars and sixty-five cents \$5.65 per h.c.f. of water used provided, however, that the rate of any party discharging industrial waste or processed water into the city system pursuant to an individual contract shall be as provided in such contract.

(b) The monthly sewer rate for customer accounts deemed "sewer only" (customers within the city without a water service connection) shall be ~~forty four dollars and fifty eight cents \$44.58~~ forty five dollars and ninety two cents \$45.92. This rate is derived as follows: (monthly volume charge of \$5.65 per h.c.f. x 7 h.c.f. + a monthly service charge of ~~five dollars and three cents \$5.03~~ six dollars and thirty seven cents \$6.37).

(c) In addition to the sewer rates provided in this section, a high strength waste surcharge is established for all customers with discharges in excess of twenty-five thousand (25,000) gallons per day and having biological oxygen demand and/or suspended solids concentrations in excess of normal wastewater.

The surcharge shall be as follows:

(1) For BOD concentrations in excess of three hundred (300) milligrams per liter (MG/l), ~~twenty two dollars and forty cents (\$22.40)~~ twenty three dollars and fifty two cents (\$23.52) per one hundred (100) pounds.

(2) For suspended solids concentrations in excess of four hundred (400) milligrams per liter (MG/l), ~~twenty five dollars and thirty three cents (\$25.33)~~ twenty six dollars and sixty cents (\$26.60) per one hundred (100) pounds.

(3) Truck hauled wastes disposal charges for residential and restaurant wastes as defined in Section 34-13 will be assessed at the following rates: ~~two hundred four dollars and ninety cents (\$204.90)~~ two hundred fifteen dollars and fifteen cents (\$215.15) up to a limit of two thousand five hundred (2,500) gallons of capacity and ~~thirty four dollars and seventy four cents (\$34.74)~~ thirty six dollars and forty eight cents (\$36.48) for each five hundred (500) gallons of capacity over two thousand five hundred (2,500) gallons. Truck hauled wastes for special contract holders shall be charged in accordance to the terms of the contracting agreement.

(d) Annually, the director of financial services shall compute the average of each residential customer's level of monthly water consumption in hundred cubic feet (h.c.f.) for the most recent period beginning with the first billing in November and ending with the second billing in April. By multiplying this monthly average by 1.25, a seasonal consumption limit for sewer billing shall be derived for each residential account. This limit will apply during the period for the first billing in May through the second billing in October. This adjustment shall apply only to residential bills and shall not apply to any customers using water for the purpose of manufacturing or for commercial or multifamily dwellings.

Sec. 39-54.1. Schedule of water rates.

The monthly water rates for all consumers within the city shall be ~~two dollars and thirty-eight cents (\$2.38)~~ two dollars and forty-three cents (\$2.43) per h.c.f. of water used.

There shall be, in addition to any other charge, a monthly service charge of three dollars and sixty nine cents (\$3.69) plus ~~two dollars (\$2.00)~~ four dollars (\$4.00) per equivalent meter factor per meter for a total monthly service charge as shown in the following table.

Meter Size	Monthly Account Charge	Meter Factor	Fee per Equivalent Meter Factor	Fee per Meter	Total Monthly Service Charge
5/8"	\$3.69	1.0	\$2.00 <u>\$4.00</u>	\$2.00	\$5.69 <u>\$7.69</u>
3/4"	\$3.69	1.5	\$2.00 <u>\$4.00</u>	\$3.00	\$6.69 <u>\$9.69</u>
1"	\$3.69	2.5	\$2.00 <u>\$4.00</u>	\$5.00	\$8.69 <u>\$13.69</u>
1-1/2"	\$3.69	5.0	\$2.00 <u>\$4.00</u>	\$10.00	\$13.69 <u>\$23.69</u>
2"	\$3.69	8.0	\$2.00 <u>\$4.00</u>	\$16.00	\$19.69 <u>\$35.69</u>
3"	\$3.69	15.0	\$2.00 <u>\$4.00</u>	\$30.00	\$33.69 <u>\$63.69</u>
4"	\$3.69	30.0	\$2.00 <u>\$4.00</u>	\$60.00	\$63.69 <u>\$123.69</u>
6"	\$3.69	60.0	\$2.00 <u>\$4.00</u>	\$120.00	\$123.69 <u>\$243.69</u>
8"	\$3.69	90.0	\$2.00 <u>\$4.00</u>	\$180.00	\$183.69 <u>\$363.69</u>
10"	\$3.69	150.0	\$2.00 <u>\$4.00</u>	\$300.00	\$303.69 <u>\$603.69</u>

2. That this ordinance shall become effective July 1, 2014.

Adopted:

Certified:

Clerk of Council

052K

ATTACHMENT A – SCHEDULE OF WATER & SEWER RATES

Water & Sewer Rates

		Proposed	%
	FY 2014	FY 2015	Increase
Water			
Volume charge / hcf	\$2.38	\$2.43	2%
Sewer			
Volume charge / hcf	5.65	5.65	0%
BOD charge / 100 lbs	22.40	23.52	5%
TSS charge / 100 lbs.	25.33	26.60	5%
Septic hauler charge	204.90	215.15	5%
Industrial permit fee	varies	varies	0%
Sewer only	44.58	45.92	3%
Stormwater			
Rater per sfu per month	\$4.00	\$4.00	0%
Fire Protection			
Hydrants & 8" or smaller fire lines	19.79	19.79	0%
10" fire lines	35.53	35.53	0%
12" fire lines	56.38	56.38	0%
Availability Fees			
Water	1220.00	1220.00	0%
Sewer	1950.00	1950.00	0%
Water Connection Fees			
¾" & 5/8" meters	1,045.00	1,045.00	0%
1" service – 5/8' meter	1,100.00	1,100.00	0%
1" service – 1" meter	1,265.00	1,265.00	0%
Greater than 1"- minimum	1,265.00	1,265.00	0%
Sewer Connection Fees			
4" sewer line	1,210.00	1,210.00	0%
Greater than 4"- minimum	1,320.00	1,320.00	0%
Other Charges			
Monthly Service Charge	(See Table A)	(See Table A)	(See Table A)
Cut-on charge	15.00	15.00	0%
Cut-off charge	25.00	25.00	0%
Delinquent account fee	5%	5%	0%

TABLE A**Recommended Service Charge**

Meter Size	Exist. Account Charge	Meter Factor	Fee per Equivalent Meter	Fee per Meter Size	Total Service Charge
5/8"	\$3.69	1.0	\$4.00	\$4.00	\$7.69
3/4"	\$3.69	1.5	\$4.00	\$6.00	\$9.69
1"	\$3.69	2.5	\$4.00	\$10.00	\$13.69
1-1/2"	\$3.69	5.0	\$4.00	\$20.00	\$23.69
2"	\$3.69	8.0	\$4.00	\$32.00	\$35.69
3"	\$3.69	15.0	\$4.00	\$60.00	\$63.69
4"	\$3.69	30.0	\$4.00	\$120.00	\$123.69
6"	\$3.69	60.0	\$4.00	\$240.00	\$243.69
8"	\$3.69	90.0	\$4.00	\$360.00	\$363.69
10"	\$3.69	150.0	\$4.00	\$600.00	\$603.69

LYNCHBURG CITY COUNCIL

Agenda Item Summary

MEETING DATE: **April 8, 2014**

AGENDA ITEM NO.: 15

CONSENT:

REGULAR: **X**

WORK SESSION:

CLOSED SESSION:

(Confidential)

ACTION: **X**

INFORMATION:

ITEM TITLE: **Public Hearing and Action Regarding FY 2014 Third Quarter Budget Adjustments**

RECOMMENDATION: After a public hearing, adopt a resolution to amend the FY 2014 Budget and appropriate or rescind funds to adjust revenue, expenditure, and transfers as identified on Attachment A for the General Operating, Asset Forfeiture, City/Federal/State Aid, Comprehensive Services Act, Fleet Services, LEAF, Regional Detention Home, Water Operating, Sewer Operating, Stormwater Operating, Regional Airport Operating, Regional Airport Capital, School Capital Projects, City Capital Projects, and Sewer Capital Projects Funds.

SUMMARY: In March staff began a review of FY 2014 operating and capital revenues and expenditures of the City's various funds to determine if adjustments were needed prior to the end of the fiscal year. Departments were requested to submit any adjustments that needed to be considered prior to the end of the fiscal year. Attachment A provides a list of proposed expenditure and revenue adjustments based on a third quarter review.

A public hearing is scheduled for April 8, 2014; the public will be notified through an advertisement in *The News and Advance*.

PRIOR ACTION(S): Adoption of the FY 2014 Operating Budget: May 28, 2013

BUDGET IMPACT: As noted on Attachment A, the General Fund third quarter adjustments are funded by the remaining non-departmental appropriation for FY 2014 compensation adjustments.

CONTACT(S): Donna Witt, Director of Financial Services, 455-3968

ATTACHMENT(S): Resolution
Attachment A: FY 2014 Third Quarter Summary by Fund and Detail – Revenues and Expenditures

REVIEWED BY: lkp

RESOLUTION:

BE IT RESOLVED that the FY 2014 Budget is amended and that there be appropriated or rescinded from the funds and resources of the City of Lynchburg the sums for the General Operating, Asset Forfeiture, City/Federal/State Aid, Comprehensive Services Act, Fleet Services, LEAF, Regional Detention Home, Water Operating, Sewer Operating, Stormwater Operating, Regional Airport Operating, Regional Airport Capital, School Capital Projects, City Capital Projects, and Sewer Capital Projects Funds as identified on the FY 2014 Third Quarter Detail by Fund attachment.

Introduced:

Adopted:

Certified:

Clerk of Council

053K

**FY 2014 THIRD QUARTER REQUESTS
SUMMARY BY FUND**

	<u>REVENUES</u>	<u>EXPENDITURES</u>
GENERAL FUND	\$1,027,761	\$1,027,761
COMPREHENSIVE SERVICES ACT FUND	40,757	40,757
LEAF FUND	26,500	26,500
REGIONAL DETENTION HOME FUND	6,705	0
CITY/FEDERAL/STATE AID FUND	950,670	950,670
ASSET FORFEITURE FUND	62,503	62,503
FLEET FUND	33,306	33,306
WATER FUND	8,500	8,500
SEWER FUND	126,734	0
STORMWATER FUND	0	126,734
AIRPORT FUND	605,500	605,500
CITY CAPITAL PROJECTS FUND	479,000	(2,650,635)
AIRPORT CAPITAL FUND	195,000	195,000
SCHOOL CAPITAL PROJECTS FUND	(400,000)	(400,000)
SEWER CAPITAL PROJECTS FUND	<u>(2,000,000)</u>	<u>(2,000,000)</u>
TOTALS	\$1,162,936	(\$1,973,404)

FY 2014 THIRD QUARTER DETAIL

GENERAL FUND

DEPARTMENT/DIVISION	REVENUES	EXPENDITURES	PURPOSE
Fire	\$10,000	\$10,000	Appropriate PIER revenue received to purchase a raft and portable lighting for the Technical Rescue Team.
General District Court		\$22,600	Appropriate funds to replace cashier microphones and speakers, desk chairs and a paper shredder.
Human Services - Social Services	\$1,013,000	\$1,013,000	Appropriate additional State and federal revenue for Title IV-E programs.
Registrar - Electoral Board		\$6,018	Appropriation for election official compensation related to an unexpected recount after the November 2013 election as well as additional funds needed in May 2014.
Remaining appropriation for FY 2014 compensation adjustments		(\$79,555)	Fund difference between General Fund revenues and expenditures with remaining appropriation for FY 2014 compensation adjustments.
TRANSFERS			
Transfer to City Capital Projects Fund		\$125,312	Transfer funds to City Capital Projects Fund to cover expenses for Oak Lane/Rivermont Avenue traffic signal replacement due to damage from Derecho.
Transfer from City/Federal/State Aid Fund	\$4,761		Transfer FY 2013 USDA grant revenue from City Federal State Aid Fund to Detention Fund where expenses were incurred.
Transfer to Airport Operating Fund		(\$70,252)	Reduce General Fund subsidy to airport.
Transfer to City/Federal/State Aid Fund		\$638	Transfer additional local match for Foster Parent Training grant.
GENERAL FUND APPROPRIATION TOTAL	\$1,027,761	\$1,027,761	

FY 2014 THIRD QUARTER DETAIL

DEPARTMENT/DIVISION	REVENUES	EXPENDITURES	PURPOSE
COMPREHENSIVE SERVICES ACT FUND	\$40,757	\$40,757	Appropriate State revenue and local match (from fund balance) for Educational services.
LEAF FUND	\$26,500	\$26,500	Appropriate revenue for landscaping projects.
REGIONAL DETENTION HOME FUND	\$6,705		Transfer FY 2013 USDA grant revenue from City/Federal/State Aid Fund to Detention Fund where expenses were incurred.
CITY/FEDERAL/STATE AID FUND			
Community Corrections	\$2,691	\$2,691	Adjustment based on final grant award letter.
Public Works - Litter Control Grant	\$8,659	\$8,659	Adjustment based on final grant award letter.
Circuit Court Clerk	\$13,884	\$13,884	Appropriate Library of Virginia grant.
Fire - Assistance to Firefighters Grant	\$26	\$26	Adjustment based on final grant award letter.
Fire - Four for Life	\$4,200	\$4,200	Adjustment based on final grant award letter.
Human Services - Juvenile Services	\$11,466	\$11,466	Transfer FY 2013 USDA grant revenue to Detention Fund (\$6,705) and General Fund (\$4,761) where expenses were incurred.
Human Services - Social Services	\$2,667	\$2,667	Adjustment based on final grant award letter for Foster Parent Training grant (\$1,000) and Respite grant (\$1,667).
Arts and Cultural District Program	\$46,627	\$46,627	Transfer from General Fund for Arts and Cultural District program.
Region 2000 - Workforce Investment Act	\$860,450	\$860,450	Increase in federal revenues for Workforce Investment Act Program.
CITY/FEDERAL/STATE AID FUND TOTAL	\$950,670	\$950,670	
ASSET FORFEITURE FUND	\$62,503	\$62,503	Appropriate revenue received for Police Department expenditures.
FLEET FUND	\$33,306	\$33,306	Transfer funds already appropriated in General Fund to Fleet Fund for interest payment related to debt funded vehicle purchases.

FY 2014 THIRD QUARTER DETAIL

DEPARTMENT/DIVISION	REVENUES	EXPENDITURES	PURPOSE
WATER FUND	\$8,500	\$8,500	Transfer grant proceeds from Water Fund to the City Capital Projects Fund for reimbursement of expenditures for College Lake Dam project.
SEWER FUND	\$126,734		Transfer first of three annual installments from the Stormwater Fund to reimburse the Sewer Fund for Stormwater set-up expenditures incurred in FY 2012.
STORMWATER FUND		\$126,734	Transfer first of three annual installments from the Stormwater Fund to reimburse the Sewer Fund for Stormwater set-up expenditures incurred in FY 2012.
AIRPORT FUND	\$605,500	\$605,500	Appropriate additional revenue received for expenditures and reduce General Fund subsidy by \$70,252.
CITY CAPITAL PROJECTS FUND			
Transfer from General Fund - Oak Lane/Rivermont Avenue Traffic Signal	\$125,312		Transfer funds from the General Fund to cover expenses for Oak Lane/Rivermont Avenue traffic signal replacement due to damage from Derecho.
Library Storytime Room	\$24,000	\$24,000	Appropriation donations received for Library Storytime Room.
Bass and Linkhorne Elementary Safe Routes to Schools Grants	\$296,188	\$296,188	Appropriate fully reimbursable Safe Routes to Schools Grants for Bass and Linkhorne Elementary Schools.
College Lake Dam	\$8,500		Transfer grant proceeds from Water Fund to the City Capital Projects Fund for reimbursement of expenditures for College Lake Dam project.
Major Building Repairs	\$25,000	\$25,000	Appropriate contribution from Lynch's Landing to emergency major building repair fund.
Various Building and Transportation Projects		(\$2,995,823)	Rescind unfunded appropriations for various building and transportation projects so appropriations match funding available for projects.
CITY CAPITAL PROJECTS FUND TOTAL	\$479,000	(\$2,650,635)	

FY 2014 THIRD QUARTER DETAIL

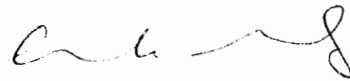
DEPARTMENT/DIVISION	REVENUES	EXPENDITURES	PURPOSE
AIRPORT CAPITAL PROJECTS FUND	\$195,000	\$195,000	Transfer State funds to Airport Operating Fund for maintenance projects.
SCHOOL CAPITAL PROJECTS FUND	(\$400,000)	(\$400,000)	Rescind unfunded appropriation for design of Sandusky Elementary School Renovation project.
SEWER CAPITAL PROJECTS FUND	(\$2,000,000)	(\$2,000,000)	Rescind appropriation for Virginia Clean Water Revolving Loan Fund CSO projects that will not be completed.

3-16-14

Dear Mrs. Valerie Chambers:

My name is Consuela Mosley. Parental Alienation is psychological and emotional abuse on children. April 25 is a National Day Event all around the world. This day is to recognize and bring attention and awareness to this growing problem of child abuse. Thank you for your cooperation.

Sincerely,



Consuela Mosley

Consuela Mosley
357 main Street
Madison Heights, Va 24572
(434) 473-2243



040K

Williams Barber Shop
2108 12th Street
Lynchburg, Va. 24501
(434) 944-7181 (cell)
(434) 845-8005 (work)

RECEIVED
MAR 27 2014
Council/Manager
Offices

To Whom It May Concern:

I, Christopher Oliver Williams, have operated Williams Barber Shop since June 16th, 1996 and still operating presently. I have noticed a rise in Barber Shops not in compliance with State, local and sanitation regulatory boards. I have reached out to all the boards in charge of these regulations and not one was able to address these violations. These violations consist of tax evasion, sanitation violations, D.P.O.R. violations, possibility of spreading life threatening disease, and many other violations. I feel that if my business is going to be taxed, regulated and governed by these regulatory boards, that all competitors in my field of business should be created equally.

Christopher O Williams

LYNCHBURG CITY COUNCIL

Agenda Item Summary

MEETING DATE: **April 8, 2014**

AGENDA ITEM NO.: 18

CONSENT: REGULAR: **X**

WORK SESSION:

CLOSED SESSION:

(Confidential)

ACTION: **X**

INFORMATION:

ITEM TITLE: Allocation of FY 2015 Community Development Block Grant (CDBG) and HOME Program Funds

RECOMMENDATION: Allocate Fiscal Year (FY) 2015 Community Development Block Grant (CDBG) and HOME Program funds to eligible program activities. The final FY 2015 entitlement allocation is \$671,454 in Community Development Block Grant (CDBG) and \$340,925 in HOME Program funds.

SUMMARY: The U.S. Department of Housing and Urban Development (HUD) funds the CDBG and HOME Programs. City staff has received from HUD final allocations for these entitlement programs for FY 2015. The City received a decrease of \$16,042 in CDBG funds and an increase of \$29,130 in HOME Program funds. This is a 2% decrease in CDBG and 9% increase in HOME Program funds from the entitlement funds received in FY 2014.

CDBG AVAILABLE FUNDING/SOURCE	FY 2014 FINAL FUNDS AVAILABLE	FY 2015 ESTIMATED FUNDS AVAILABLE CDAC (3/4/14)	FY 2015 FINAL FUNDS AVAILABLE	INCREASE/ DECREASE (ESTIMATED vs. FINAL)	% CHANGE FY 2014 vs. FY 2015
HUD Entitlement	\$ 687,496.00	\$ 687,496.00	\$ 671,454.00	\$ (16,042.00)	(0.02)
Reprogrammed Funds	148,605.89	94,182.37	94,182.37	0	(0.37)
Program Income	2,030.00	294,234.19	294,234.19	0	143.94
Total CDBG Funding Available	\$ 838,131.89	\$ 1,075,912.56	\$ 1,059,870.56	\$ 221,738.67	0.26

HOME AVAILABLE FUNDING/SOURCE	FY 2014 FINAL FUNDS AVAILABLE	FY 2015 ESTIMATED FUNDS AVAILABLE CDAC (3/4/14)	FY 2015 FINAL FUNDS AVAILABLE	INCREASE/ DECREASE (ESTIMATED vs. FINAL)	% CHANGE FY 2014 vs. FY 2015
HUD Entitlement	\$ 311,795.00	\$ 311,795.00	\$ 340,925.00	\$ 29,130.00	0.09
Reprogrammed Funds	8,176.00	163,727.18	163,727.18	0	19.03
Program Income	0	0	0	0	0
Total HOME Funding Available	\$ 319,971.00	\$ 475,522.18	\$ 504,652.18	\$ 184,681.18	0.58

The Community Development Advisory Committee (CDAC) met on March 4 and reviewed the applications submitted for the CDBG and HOME Programs. Attached are the recommendations of the CDAC.

At the public hearing conducted on March 25 representatives from six (6) agencies spoke to Council regarding their applications. Each representative gave a brief overview of their respective projects and the benefits that the people they serve receive because of the continued financial support from the CDBG and HOME Program funds. These representatives asked Council to support the recommendations of the CDAC.

At the time CDAC met and completed their funding recommendations, the City had not received from HUD the final FY 2015 entitlement amounts for the CDBG and HOME Program. As a result, City staff retained the FY 2014 CDBG and HOME Program entitlement amounts for the CDAC recommendation process. HUD has now provided the final entitlement amounts. The CDBG entitlement amount was reduced by 2% (\$16,042) and the HOME Program entitlement amount was increased by 9% (\$29,130). As directed by CDAC, the final CDBG entitlement amount has been incorporated into the CDAC Funding Recommendation Worksheet for FY 2015 allocations. There was no recommendation from CDAC regarding the HOME Program entitlement amount if there was an increase or decrease. City staff recommends that the additional HOME Program entitlement funds of \$29,130 be allocated to the Lynchburg Redevelopment and Housing Authority (LRHA) Homeownership Development project.

The final City Council allocations will be incorporated into the Program Year 2014 (FY 2015) Annual Action Plan for submittal to HUD.

PRIOR ACTION(S): Community Development Advisory Committee Meeting – March 4, 2014
City Council Public Hearing – March 25, 2014

FISCAL IMPACT: FY 2015 reduction in CDBG and increase in HOME Program funding based on final entitlement award from HUD.

CONTACT(S): Bonnie Svrcek, Deputy City Manager, 455-3987
Melva Walker, Grants Manager, 455-3916

ATTACHMENT(S): Resolution
CDAC Meeting Notes – March 4, 2014 – Attachment A
CDAC Funding Recommendations Worksheet – Attachment B
Summary of CDBG and HOME Applications – Attachment C
CDBG and HOME Reprogrammable Funds – Attachment D
CDBG and HOME Unexpended Balances – Attachment E

REVIEWED BY: bms

RESOLUTION

BE IT RESOLVED that the Community Development Block Grant (CDBG) and HOME Program FY 2015 funding allocations are hereby approved for incorporation into the FY 2015 Operating Budget and Annual Action Plan.

Adopted:

Certified:

Clerk of Council

044K

**Community Development Advisory Committee (CDAC) Meeting
March 4, 2014
City Hall, Second Floor Training Room**

Meeting Notes*

(*MEETING NOTES HAVE BEEN REVIEWED INDIVIDUALLY BY CDAC MEMBERS; WILL NOT HAVE FORMAL APPROVAL UNTIL THEIR NEXT MEETING DATE SCHEDULED FOR FEBRUARY 2015.)

Attendance included:

CDAC Members Present: Council Member Jeff Helgeson, Chair; Council Member Dr. Ceasor T. Johnson, Vice Chair; Mr. Michael Bedsworth (Daniel's Hill representative); Ms. Connie Grant (Tinbridge Hill representative); Ms. Michelle Jackson (College Hill representative); Mr. Jeffery Schneider (Diamond Hill representative); and Ms. Jimmie Stevens (Diamond Hill-South representative)

City Staff: Bonnie Svrcek (Deputy City Manager); Melva Walker (Grants Manager); Rhonda Allbeck (Assistant Director of Financial Services); Toni Butler (Grants Accountant); Kevin Henry (Planner II); Kent White (Director of Community Development); Kay Frazier (Parks and Recreation); Virginia Huntington (Assistant Director of Human Services); Megan Wood (Division of Social Services); Starlette Early (Community Development Program Coordinator)

Guests: Dawn Fagan, Lynchburg Redevelopment and Housing Authority (LRHA); Laurie Vece, LRHA; Cindy Sommers, Lynchburg Neighborhood Development Foundation (LNDF); Donna Vincent, Greater Lynchburg Habitat for Humanity (GLHFH); Greg Tyree, GLHFH; Denise Crews, Lynchburg Community Action Group (Lyn-CAG); Connie Snavelly, Lynchburg Covenant Fellowship (LCF); Susie Kitchen, LCF

The Committee Chair, Council Member Jeff Helgeson, called the meeting to order at 11:00 a.m., noting a quorum was present. (Council Member Johnson and Ms. Jackson arrived later in the meeting, but prior to the Committee's discussion on recommendations for the projects.) Council Member Helgeson introduced the three new members of CDAC: Ms. Grant, Ms. Stevens, and Ms. Jackson, and welcomed everyone attending the meeting.

Council Member Helgeson called for approval of the February 19, 2013 meeting notes, and requested comments, corrections, or a motion for approval. A motion was made by Mr. Bedsworth, and seconded by Mr. Schneider, to approve the notes as submitted. The meeting notes were unanimously approved 5-0.

Ms. Walker presented highlights of the U. S. Department of Housing and Urban Development (HUD) Program Year 2012 (7/1/2012 – 6/30/2013) Consolidated Annual Performance Report (CAPER). She summarized programs and accomplishments in the following areas:

- Housing Ownership, Rehabilitation and Rental Housing
- Support of Neighborhoods
- Economic Development Efforts
- Residential Rental Property Inspections Program and Property Maintenance Inspections
- Demolition and Code Enforcement
- Spot Blight Acquisitions and Rental Rehabilitation Grants

Ms. Walker also reviewed the role of CDAC as it relates to the Citizen Participation Plan for CDBG and HOME Programs:

- Review CDBG and HOME Program applications received by staff;
- Make recommendations to City Council; and
- City Council conducts public hearings (notices are published for the public meetings), reviews CDAC recommendations and gives final approval for project funding.

Ms. Walker noted City Council's direction for Fiscal Year 2015 application funding requests:

- Maximize use of CDBG funds for Capital Improvement Projects;
- Cooperation with the Lynchburg Redevelopment & Housing Authority (LRHA) regarding spot blight, rental rehabilitation and other housing related projects; and
- Focus resources on targeted neighborhood(s) through partnerships with City departments and/or LRHA.

Ms. Walker provided an overview of the Fiscal Year 2015 Annual Action Plan Goals. She noted these goals were approved by CDAC for the 2010-2015 Consolidated Plan and have not changed. Each year City Council reviews the adopted goals at a public hearing and these were approved by City Council on January 14, 2014.

Ms. Walker summarized the most recent CDBG and HOME Allocations Worksheet, directing attention to several updates made since distributed in their application materials:

- Reprogram Funds- \$94,182.37
- Program Income- \$291,234.19 (Disposition of 24 properties)
- Rush Homes letter requesting a revision in their funding request- \$10, 500- CHDO.
- Program Administration- \$90,000 (CDBG); \$18,000 (HOME)

- Bluff Walk- City received repayment of \$1.7 million from developer and is required to reserve for future Section 108 loan payments; therefore, no reserve is necessary for Bluffwalk in the FY 2015 allocation process

Council Member Helgeson explained the process for making recommendations, noting the challenge of balancing funding requests for scarce resources while prioritizing the projects that best meet the adopted goals of the City. He also noted the entitlement amount is estimated pending notification by HUD for final funding. This may result in more/less funding available for allocation than reported at today's meeting.

There was discussion regarding the projects requesting CDBG funds. Ms. Walker provided clarification on two projects receiving funding during Fiscal Year (FY) 2014, at the direction of City Council, with final entitlement funds that exceeded initial staff estimates. The first project, Continuum of Care (COC)- Coordinated Assessment Intake Social Worker, is a HUD requirement for the City, as a participant in the COC, to provide a centralized point of intake for providing housing assistance to the homeless. Funding was directed by Council in FY 2014 to provide support for a staff person to meet this requirement, and the request for funding in FY 2015 is to continue support towards this requirement. The second project, Relocation of Miller Park Basketball Court, was directed by City Council to receive funding in FY 14; however, there is no request for additional funding for this project in FY 15.

Mr. Bedsworth recommended full funding for the Coordinated Assessment Intake Social Worker project. Mr. Schneider recommended, with approximately \$24,000 difference in available funding compared to the total amount requested, to fully fund all remaining projects listed below Tinbridge Hill Neighborhood, and allocate the remaining balance to Tinbridge. This would result in full funding of all projects except Tinbridge, and Tinbridge would receive funding very close to their requested amount. The allocations were updated on the worksheet according to these recommendations for consideration by the committee.

Due to recent changes in leadership at the Lynchburg Redevelopment and Housing Authority (LRHA), Council Member Johnson requested a general update from the organization. Ms. Fagan, serving as interim Executive Director of LRHA for the past 8 months, provided a status of projects she has addressed since her tenure with the LRHA and an overview of upcoming projects, including;

- Managing the disposition of spot blight properties acquired over numerous years, selling all but 12 of the properties and evaluating most effective ways to add housing to the other properties, many of which are blocks of vacant lots.
- Reviving their Homeownership program with funds to build three (3) new accessible homes and providing appropriate education to eligible buyers in homeownership opportunities and responsibilities.
- Rehabilitating portions of their four (4) public housing properties managed by LRHA, including renovations towards compliance with HUD requirements for ADA accessibility.

There was further discussion regarding the operation of LRHA's public housing properties, including derivation of rental fees to tenants, amount subsidized by HUD (currently 83%) as an operating subsidy, and LRHA's ongoing responsibility to meet HUD's accessibility and condition requirements through their annual contributions contract. Mr. Bedsworth asked for clarification on several categories in the LRHA operating budget, noting undocumented abbreviations made it difficult to evaluate and draw observations about the numbers being reported.

Council Member Helgeson requested information regarding the Spot Blight program, managed by LRHA and routinely funded by CDBG each year during this process, since funds were not requested for FY 2015. Ms. Fagan explained there is approximately \$100,000 remaining from prior funding requests for Spot Blight programs. LRHA has recently sold acquired properties, dating back to 1997, that HUD was expecting them to develop and meet a broad national objective. Resources are now being focused towards developing the properties LRHA currently owns so they can meet the HUD objectives. LRHA continues to work with the City and other housing agencies (Habitat for Humanity, LNDF, Lyn-Cag, Rush Homes) to identify high priority spot blight properties and determine best strategies for managing those properties. LRHA is about to finalize the acquisition of two properties on the City's "Top 15 List" that will utilize approximately \$30,000 of their remaining funding.

With no further questions or comments from the committee, Council Member Helgeson called for a vote. A motion to accept the proposed funding as presented for all CDBG projects, excluding the Tinbridge Hill Neighborhood project, was made by Council Member Johnson, seconded by Mr. Bedsworth. The funding was unanimously approved 7-0. A second motion was made to approve funding as presented for the Tinbridge Hill Neighborhood project by Mr. Schneider, and seconded by Council Member Johnson. The motion was approved 6-0, with Ms. Grant (representative for Tinbridge Hill) abstaining.

Discussion regarding how to allocate receipt of any funds (less than \$25,000 or 25% of entitlement amount) different than the estimated CDGB entitlement amount reported during this meeting resulted in an agreement to increase or reduce funding to the Tinbridge Hill Neighborhood project as required.

Council Member Helgeson directed attention to the projects requesting HOME funds, and noted there was a much larger difference in requested versus available funds. He explained HUD's minimum funding requirement for the Community Housing Development Organization (CHDO) and recommended full funding for the two projects meeting this requirement: Rush Homes- Armstrong Place (\$10,500) and Lyn-CAG Homebuyer (\$45,000). Mr. Schneider thanked Rush Homes for coming forward with a reduced funding request after analyzing their needs more closely.

Council Member Helgeson requested additional information from Lynchburg Neighborhood Development Foundation (LNDF) regarding their project request. Ms. Sommers provided details and answered questions regarding the LNDF 5th and Polk Streets Residential Rental project application:

- Project continues the revitalization efforts on 5th Street and surrounding neighborhoods with plans to incorporate one residential rental unit and one commercial unit in each of two buildings owned by LNDF. They have plans to expand by using two adjacent vacant lots on Polk Street to build two (2) additional duplex units, creating four (4) residential rental units.
- To assist with navigating complex requirements surrounding historic renovations, historic tax credits, and securing private investment funding sources, LNDF has partnered with Virginia Community Development Advisory Services. With their assistance, LNDF is expecting to receive approximately \$314,000 in private investment funding, \$450,000 in construction financing, and additional sponsor funding to complete the project. Remaining renovations on 702 and 708 5th Street is expected to cost \$630,000.

Ms. Sommers responded to questions about LNDF's financial statements, noting the 2012 audit was not yet complete due to a change in auditors. Members of the CDAC discussed the importance of continuing the City's investment in 5th Street and how this project might contribute to both housing and non-housing goals for this corridor. Mr. Schneider recommended funding the request for \$123,000 to assist in completing the 5th Street portion of the project only. There was further discussion regarding LNDF's advisory partnership and status of funding sources for the project. Council Member Johnson suggested due to limited funding the committee evaluate funding requirements for the other projects first to determine any amount that might be remaining.

Council Member Helgeson suggested funding Lyn-CAG Rehabilitation for \$75,000 and additional committee comments resulted in full funding allocations for Habitat for Humanity (\$90,000) and Lyn-CAG Down Payment & Closing Cost / Education (\$60,000).

Ms. Snavelly responded on behalf of Lynchburg Covenant Foundation (LCF) to CDAC's request for an overview regarding the Frank Roane Apartments project:

- LCF converted a school located on Federal Street (historic district) into 26 apartments for the elderly in 1980. They have not done any substantial rehabilitation since the conversion.
- They plan to make five (5) apartments ADA compliant, re-work windows, repointing brick work, replace existing elevator, install sprinklers with supporting generator, and perform general renovation updates required by Virginia Housing Development Authority such as new flooring, cabinets, kitchen, and bathroom.
- They have a contract with HUD for subsidized units. Noted displacement of residents during renovation.

Mr. Bedsworth confirmed total cost of the project at \$3 million, with funding request of \$60,000. He supported allocating funding for full \$60,000.

Ms. Fagan responded to questions from Council Member Johnson regarding location of proposed new construction for the LRHA New Construction project and impact these

funds might offer if they received less than their requested amount of \$220,000. She indicated their construction plans were for the Tinbridge neighborhood and they would be able to combine program income from the Homeownership program with a partial funding allocation for this project to move forward with construction.

Ms. Crews responded to questions from Mr. Schneider regarding Lyn-CAG's Down Payment and Closing Cost / Education Program. Ms. Walker clarified that LNDF had previously operated this program for the City for almost twenty (20) years but was not reapplying again this year. Lyn-CAG's program would meet the City's requirement to fund a down payment assistance program as identified in the City's Analysis for Impediments to Fair Housing Choice (AI).

Council Member Johnson recommended allocating the remaining \$117,022.17 for the LRHA New Construction project. He further indicated he was favorable to having LNDF reapply for their funding request once additional funding sources were solidified. There was discussion regarding the impact delayed funding for the LNDF project would create. Ms. Sommers reported a delay would require conversations and agreements with LRHA, 5th Street Community Development Corporation, and development partners to determine continued viability of project. Additional discussion focused on the minimum amount of funding necessary to proceed with the original scope of the project.

With a balanced budget reached, Council Member Helgeson requested a motion to accept the current HOME allocations as presented. Mr. Bedsworth made a motion to accept the allocations, seconded by Council Member Johnson. The committee voted to approve the HOME allocations 6-1, with Mr. Schneider opposed.

Council Member Helgeson reviewed the timeline for the 2015 Fiscal Year Annual Action Plan:

- City Council Public Hearing (CDAC Recommendations) - March 25, 2014 @7:30 p.m.
- City Council Allocation – Work Session – April 8, 2014
- Draft Annual Action Plan – Public Review – April 28, 2014
- City Council Public Hearing (Annual Action Plan) – May 27, 2014 @ 7:30 p.m.
- Annual Action Plan Submittal to HUD – May 28, 2014

With no further business to discuss, Council Member Helgeson accepted a motion to adjourn the meeting.

ATTACHMENT B									
CDBG and HOME Allocations Worksheet 2014-2015									
Total CDBG Available		\$ 1,059,870.56		CHDO Requirement		\$ 51,138.75			
CDBG					HOME				
					Amount Available				
					\$ 504,652.18	Prior Year			City Council
	Prior Year			City Council		13/14	Amount	CDAC	Amount
	13/14	Amount	CDAC	Amount	NAME	Award	Requested	Recommendation	Awarded
	Award	Requested	Recommendation	Awarded					
NAME									
Bluffwalk Section 108*	\$ 284,048.00	\$ -	\$ -		City Administration	\$ 22,000.00	\$ 18,000.00	\$ 18,000.00	
City Administration	88,100.00	90,000.00	90,000.00		Lyn-CAG Homeownership Substantial Rehab	111,201.00	75,000.00	75,000.00	
Continuum of Care-Coordinated Assessment Intake Social Worker	30,000.00	24,585.00	24,585.00		Lyn-CAG Down Payment & Closing Cost/ Education	0.00	60,000.00	60,000.00	
Tinbridge Hill Neighborhood Public Infrastructure **	45,000.00	449,000.00	409,849.56		Lyn-CAG First-time Homebuyer (CHDO)	46,770.00	45,000.00	45,000.00	
Lyn-Cag Fair Housing Education Initiative	0.00	6,800.00	6,800.00		Habitat for Humanity - Homeownership	60,000.00	90,000.00	90,000.00	
LRHA Admin & Delivery Costs	135,277.00	123,636.00	123,636.00		Rush Homes (CHDO)-Armstrong Place	0.00	10,500.00	10,500.00	
LRHA Brookside 4 Unit ADA compliant Renovation	0.00	180,000.00	180,000.00		LNDF 5th&Polk Streets Residential Rental	0.00	205,000.00	0.00	
LRHA Dearington Apartments Window Replacements	0.00	125,000.00	125,000.00		LCF Frank Roane Apartments	0.00	60,000.00	60,000.00	
LRHA Dearington Apartments Community Room	0.00	100,000.00	100,000.00		LRHA Homeownership Development***	0.00	220,000.00	146,152.18	
5th Street CDC Phase II - City	175,490.89	0.00	0.00		LNDF Homeownership Fund	30,000.00	0.00	0.00	
LRHA Rental Rehabilitation	30,000.00	0.00	0.00		LNDF Single Family Dev.	50,000.00	0.00	0.00	
Relocation of Miller Park Basketball Court	50,216.00	0.00	0.00						
Total CDBG	\$ 838,131.89	\$ 1,099,021.00	\$ 1,059,870.56	\$ -	Total HOME	\$ 319,971.00	\$ 783,500.00	\$ 504,652.18	\$ -
Remaining Amount to Award			\$ -	\$ 1,059,870.56	Remaining Amount to Award			\$ -	\$ 504,652.18
						FY 2014	FY 2015	Difference	%
					CDBG				
* For FY 2015, the City is funding the Bluffwalk payments with funds from the Developer and with funds repaid by the Developer for payments missed in prior years. **Per the instructions of the CDAC Committee, should the Entitlement amount received by the City for CDBG be less than amount received last year, the allocation to Tinbridge Hill Neighborhood Infrastructure will be adjusted. The City's CDBG Entitlement amount has been reduced by \$16,042 over last year, therefore, Tinbridge Hill's original CDAC allocation will be reduced from \$425,891.56 to \$409,849.56. ***City staff recommends allocating the additional HOME Program funding of \$29,130 to the LRHA Homeownership Development project.					Entitlement	\$687,496.00	\$671,454.00	(\$16,042.00)	-2.3%
					Reprogrammed Funds	148,605.89	94,182.37	(\$54,423.52)	-36.6%
					Program Income	2,030.00	294,234.19	292,204.19	14394.3%
					TOTAL	\$838,131.89	\$1,059,870.56	\$221,738.67	26.5%
Lyn-CAG - Lynchburg Community Action Group									
LRHA - Lynchburg Redevelopment and Housing Authority					Administration CAP	\$137,499.20	192,537.64	\$55,038.44	40.0%
					Public Service CAP	\$103,124.40	\$100,718.10	(\$2,406.30)	-2.3%
Habitat for Humanity- Greater Lynchburg Habitat for Humanity					HOME				
LNDF - Lynchburg Neighborhood Development Foundation					Entitlement	\$311,795.00	\$340,925.00	\$29,130.00	9.3%
LCF - Lynchburg Covenant Fellowship					Reprogrammed Funds	8,176.00	163,727.18	155,551.18	1902.5%
					Program Income	0.00	0.00	0.00	0.0%
					TOTAL	\$319,971.00	\$504,652.18	\$184,681.18	57.7%
					Administration CAP	\$31,179.50	\$34,092.50	\$2,913.00	9.3%
					CHDO Required	\$46,769.25	\$51,138.75	\$4,369.50	9.3%

Summary of Community Development Block Grant (CDBG) and HOME Program Funding Requests FY 2015

Following is a brief summary of each of the applications received for consideration of CDBG and HOME Program funding. Entire applications are available and can be reviewed in the Grants Administration Office.

Community Development Block Grant Applicants

City Administration

FY 2014 Award	FY 2015 Request	CDAC Recommendation
\$88,100	\$90,000	\$90,000

Funding is requested to fully fund the personnel, operating, and training costs associated with managing the CDBG Program.

Continuum of Care- Coordinated Assessment Intake Social Worker

FY 2014 Award	FY 2015 Request	CDAC Recommendation
\$0	\$24,585	\$24,585

The Continuum of Care (CoC) is requesting a continuation of funding for the position of Homeless Intake Coordinator, located within the Department of Human Services for the City. To achieve compliance with HUD regulations which require a coordinated intake process, the Lynchburg CoC has developed Coordinated Homeless Intake and Access (CHIA). The CoC has worked together to create a uniform intake tool in order to quickly assess individuals and families and insure that they are expeditiously placed in the most appropriate housing for their unique situation. The Homeless Intake Coordinator, a Family Services Specialist with Human Services, has been hired and trained.

CHIA's goals are to understand the client's need and eligibility for existing programs, to document the client's homeless and housing history and barriers, to identify needs through consistent use of a uniform assessment tool, and to capture data about area homelessness in order to better assess and provide for community needs. Gathering such data will also enable the Homeless Intake Coordinator to develop a housing plan for clients, check availability of beds in multiple shelters, and match the client need with existing bed space resulting in the right program for each individual client. Use of the Homeless Management Information System (HMIS) (data tracking and documentation system) will provide real-time knowledge of available beds, allow transfer of client information to the receiving program, provide enrollment status to the Homeless Intake Coordinator, and allow the Homeless Intake Coordinator to monitor the situation to insure the client is successfully enrolled into the selected program.

Tinbridge Hill Neighborhood Infrastructure Improvements

FY 2014 Award	FY 2015 Request	CDAC Recommendation
\$45,000	\$449,000	\$425,891.56

Over the past 3 years, the Tinbridge Hill Neighborhood Council (THNC), in partnership with City staff, and supported by the Friends of Tinbridge Hill (FTH), have targeted the investment of CDBG funds into Tinbridge Hill to assist its residents and community stakeholders to develop a model for a sustainable neighborhood. This Sustainable Neighborhood Strategy uses the elements of Lynchburg's Sustainable City Initiative – Arts and Culture, Citizen Engagement and Social Capital, Economic Development, Infrastructure, Healthy and Active Living, Land Use, Lifelong Learning, Natural and Environmental Resources, Neighborhoods, Safe Community, Social Equity and Transportation – to identify the assets and opportunities in the neighborhood. The goal of this project is, using Tinbridge Hill as a model, to develop a strategy that can be used in other neighborhoods throughout the City.

Priorities for this year's CDBG funding consideration include select sidewalk improvements identified in the *Growing Tinbridge Hill Neighborhood Plan* to improve connectivity, infrastructure and safety of the neighborhood. Although the complete priority list identified in the plan includes improvements to Monroe Street, Hollins Street, 2nd Street, McIvor Street, Jackson Street, Garland Street, 4th Street and Floyd Street, the proposed funding request does not address all of these projects. Based on the approved allocation amount, City staff will refine project estimates and prioritize the scope of the improvements for engineering design, available right-of-way, drainage and topography considerations, and potential efficiencies gained by working with other projects. While a reduction in CDBG funding would limit the scope of this project, it is possible to do some aspects of this project if the full request is not awarded.

Lynchburg Community Action Group (Lyn-CAG) Fair Housing Education Initiative

FY 2014 Award	FY 2015 Request	CDAC Recommendation
\$0	\$6,800	\$6,800

According to HUD, impediments to fair housing choices are any actions, omissions, or decisions taken because of race, color, religion, sex, disability, familial status, or national origin that restrict housing choices, or the availability of housing choices. To directly address the impediments outlined in the Analysis of Impediments for Fair Housing Choice (AI) for the City of Lynchburg, Lynchburg Community Action Group, Inc. is requesting CDBG funds to assist with the expansion of its current offerings of educational opportunities to a broad range of people in the housing industry, renters, homebuyers, real estate professionals, homeowners associations, property managers, Continuum of Care (CoC) members, community partners, institutions, and city and county employees who work with clients regarding housing needs and issues. The primary goal is to provide fair housing education and help targeted groups understand their rights and responsibilities under the Fair Housing Act. Lyn-CAG's outreach and educational efforts will be to develop and distribute educational literature and resources that describe ways to prevent housing injustices and the applicable laws that protect against discrimination.

Lynchburg Redevelopment and Housing Authority (LRHA) – Administration & Direct Costs

FY 2014 Award	FY 2015 Request	CDAC Recommendation
\$135,277	\$123,636	\$123,636

The funds requested enable the Authority staff to undertake various Community Development Block Grant-financed activities. These include activities which were funded in previous years as well as activities to be undertaken during the proposed fiscal year 2014-2015.

Administrative Costs

Payment of pro-rata share of salaries, benefits, travel, communications, etc., attributable to employees' duties for the CDBG program as outlined in the Authority's annual administrative budget.

Direct Costs

- Oversight of the Authority's loan portfolio of amortized and deferred payment residential loans in the College Hill, Daniel's Hill, Diamond Hill, Garland Hill, Grace Street and White Rock neighborhoods; single-family and multi-family rental rehabilitation loans and grants; commercial loans secured by Urban Development Action Grant funds, as well as bond financed loans. Oversight involves the collection of delinquent accounts, monitoring insurance coverage, negotiation of payment plans and participating in foreclosures and deed acquisition in lieu of foreclosure.
- Monitoring the security and maintenance of properties which were acquired under the Spot Blight program.
- Monitoring 8 properties under continuing Rehabilitation Agreements.
- Acquiring property and coordinating work with appraisers and legal counsel under the Spot Blight program.
- Disposal and clearance of improved and unimproved properties acquired under the Spot Blight program.
- Identifying and monitoring blighted properties and the coordinating the required renovations with owners to remove the blight.
- Partnering in joint ventures with other local non-profit organizations.
- Determining best use options for the inventory of lots in LRHA inventory and building homes that create opportunities for disabled low to moderate public housing families.
- Monitoring the renovation of 4 units at Brookside under to meet ADA / 504 guidelines for disabled persons.
- Monitoring the removal of substandard windows and installing energy efficient windows at Dearington Apartments, making utilities more affordable (100 Units)
- Monitoring the renovation of the Dearington Apartments Community Room to meet ADA / 504 guidelines for public buildings.

LRHA – Brookside 4 Unit ADA Compliant Renovation

FY 2014 Award	FY 2015 Request	CDAC Recommendation
\$0	\$180,000	\$180,000

During HUD REAC (Real Estate Assessment Center) on-site inspections and an FHEO (Fair Housing Equal Opportunity) on-site inspection, it was noted that HUD requires public housing authorities to provide 5% of their housing stock as ADA/504 accessible units. For LRHA, this means that 17 units should be accessible in order to provide low-moderate income families equal opportunity to the public housing program. This project is necessary to provide compliance with the requirements of ADA regulations for accessibility and assure that disabled families have equal opportunity to reside in public housing units.

The funds requested in this application will partner with Public Housing Capital Fund monies to allow LRHA to convert four (4) existing units to full ADA/504 compliance. LRHA completed ADA/504 renovations to two (2) units in November 2013. When Brookside was built, there were no units built that meet today's requirements for accessibility. The units will be completely gutted and renovated to comply with these requirements.

LRHA – Dearington Apartments Energy-Efficient Window Replacements

FY 2014 Award	FY 2015 Request	CDAC Recommendation
\$0	\$125,000	\$125,000

Due to the rising cost and the environmental restraints of producing energy, Federal regulations require all public housing agencies to develop and implement energy conservation measures. In April 2013, LRHA contracted with an independent consultant to conduct an energy audit in accordance with the methodology required by HUD. This energy audit evaluated the current energy consumption and conservation measures and identified available conservation opportunities.

The funds requested in this application will be used to remove old substandard windows currently installed in the Dearington Apartments and replace them with new Energy Star vinyl frame/sash, Low-E insulated glass with warm-edge spacer. The windows will be double-hung with tilt-in sashes and exterior screens. All windows in the 100 units at Dearington Apartments will be replaced.

LRHA – Dearington Apartments Community Room Rehabilitation

FY 2014 Award	FY 2015 Request	CDAC Recommendation
\$0	\$100,000	\$100,000

The Community Room at Dearington Apartments provides a public meeting space for residents, organizations and LRHA to conduct meetings and activities that benefit the residents of LRHA. During HUD REAC (Real Estate Assessment Center) on-site inspections and an FHEO (Fair Housing Equal Opportunity) on-site inspection, this Community Room has been determined to not meet the current requirements of the Americans with Disabilities (ADA) Section 504 - Accessibility as required of all public access buildings. This results in a loss of points in the scoring system that HUD uses to determine the performance of the

ATTACHMENT C

Housing Authority as well as FHEO findings of non-compliance. This project is necessary to provide compliance with the requirements of ADA regulations for accessibility and assure the facility can be approached, entered, and used by individuals with physical handicaps.

The funds requested in this application will be used to complete all renovations needed to meet the requirements of the Americans with Disabilities Act for public buildings to provide access as required in the Uniform Federal Accessibility Standards (UFAS) at 24 CFR §8.32(a). LRHA will contract with an architect and builder to review all requirements of the regulations to assure compliance and provide proper access to this community building to all persons.

HOME Program Applicants**City Administration**

FY 2014 Award	FY 2015 Request	CDAC Recommendation
\$22,000	\$18,000	\$18,000

Funding is requested to fully fund the personnel, operating and training costs associated with managing the HOME program.

(Lyn-CAG) – Homeowner Substantial Rehabilitation

FY 2014 Award	FY 2015 Request	CDAC Recommendation
\$111,201	\$75,000	\$75,000

The Homeowner Substantial Rehabilitation Program provides rehabilitation services to existing properties. Eligible properties are brought into code compliance. The program is operated as a forgivable loan program with lien requirements and resale restriction agreements as required by HUD regulations.

Lyn-CAG's Homeowner Substantial Rehabilitation Program activities provide selective rehabilitation services designed to remove health and safety hazards and code violations from the homes of low-income homeowners who live in the City and meet HUD income guidelines for HOME programs. Typical requests for services include electrical, plumbing, structural and roof repair/replacement. All local contractors who provide the services are licensed and insured. Building materials are purchased from local businesses. The Home Rehabilitation Program anticipates providing services to six (6) low-income households during the 2014-2015 program year at an average cost of \$36,000.00 per unit. The HOME Program funds will be leveraged with funds from the Virginia Department of Housing and Community Development (DHCD).

(Lyn-CAG) –Homeownership Down-Payment & Closing Cost / Education

FY 2014 Award	FY 2015 Request	CDAC Recommendation
\$0	\$60,000	\$60,000

Lynchburg Community Action Group, Inc. is seeking funds in the amount of \$60,000 to assist ten (10) first-time home buyers realize the American Dream. With the recent financial crisis in this Country, the obstacles for low- to moderate-income individuals to purchase a home has become a dream deferred. Mortgage regulations and new rules have made it next to impossible for this target population to purchase a home. Currently there are no Down Payment Assistance Programs in our area. In the past other nonprofit agencies offered down payment assistance to qualified buyers using local and state funds to offset the cost of purchasing a home. Lynchburg Community Action Group, Inc. is the only Certified HUD Housing counseling agency in Region 2000. With a staff of three (3) counselors having a combined 20 plus years of counseling experience, the Agency feels that it can best fill this gap that is needed in our area.

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In addition to offering an average of \$5,000 per client to help with down payment of a home purchase, clients will receive homeownership education. Pre and Post purchase education will be part of the criteria to qualify for one of these grants. Studies have shown that clients who have that support on the front end and through the first years of owning a home are more successful in maintaining that ownership. Lynchburg Community Action Group's Housing Counseling Department offers a six (6) hour Virginia Housing Development Authority (VHDA) Certified Homebuyer course which covers the A B C's of owning a home. In addition to the six (6) hour course if a client needs credit repair or not quite ready to purchase, they can enter into the Home Buyer Program to spend up to 12 months working on cleaning up credit, starting a savings account to get them ready for purchase. Each counselor will assess the readiness of a potential buyer, work on a spending plan and review credit worthiness. There are several banks in the area which clients, once ready, can seek a loan to purchase a home. Several of the area banks, SunTrust, Wells Fargo, Citizens Bank currently work with staff to conduct Financial Literacy workshops for residents in Region 2000. Clients are free to choose which bank or credit union they would like to work with. Most of the banks are familiar with the DPA (Down Payment Assistance) Program.

Lyn-CAG – First-time Homebuyer Community Housing Development Organization (CHDO)

FY 2014 Award	FY 2015 Request	CDAC Recommendation
\$46,770	\$45,000	\$45,000*

***The City is required to allocate a minimum of 15% of the HOME entitlement funds to CHDO organizations.**

The Home Program Community Housing Development Organization (CHDO) First Time Homebuyers Program provides for acquisition of vacant properties for rehabilitation or new construction to eligible first time homebuyers. Proceeds from the sale of properties are reinvested in housing program services that benefit eligible low-to-moderate income persons. Lien documents and resale restriction agreements are required for each property.

Greater Lynchburg Habitat for Humanity (GLHFH) – Homeownership Program

FY 2014 Award	FY 2015 Request	CDAC Recommendation
\$60,000	\$90,000	\$90,000

Greater Lynchburg Habitat for Humanity (GLHFH) develops homeownership opportunities for low-income families that would not qualify or be able to afford homeownership through conventional bank mortgages. GLHFH builds good quality, moderately appointed homes and sells them to qualified applicants. The target population for the program is families whose income falls in the range of 40% to 70% of HUD's median family income, adjusted for size of family. To qualify, families must demonstrate need (residing in poor, unsafe, unhealthy, and/or unaffordable housing); they must have the ability to pay a no-interest mortgage (must have a steady income and low debt to income ratio); and must be willing to partner with GLHFH (provide sweat equity, participate in training, and prepare for the responsibilities of homeownership).

GLHFH solicits funding, materials, and volunteer labor from the community and is thereby allowing the organization the ability to maintain low construction costs. GLHFH is therefore

able to sell the home to the qualified family at cost and to offer a no-interest mortgage loan. Families have to provide 300 hours of labor, referred to as “sweat equity,” to the project. The mortgagees must attend GLHFH’s course designed to prepare them for homeownership. The series of classes provide education about financial literacy, budgeting, home maintenance, taxes and insurance, predatory lending, and loss mitigation options.

At mortgage closing, the family is required to pay a processing fee of \$1000 which is applied to the attorney’s fee and recording costs. GLHFH will use HOME funds to provide down payment assistance which will reduce the principal balance so that the family can afford the monthly mortgage payments. GLHFH defines “payment affordability” as not more than 30% of monthly income.

Rush Homes (CHDO) – Armstrong Place Apartments

FY 2014 Award	FY 2015 Request	CDAC Recommendation
\$0	\$10,500	\$10,500*

***The City is required to allocate a minimum of 15% of the entitlement funds to CHDO organizations.**

Rush Lifetime Homes (Rush Homes), a certified CHDO, is developing Armstrong Place Apartments, 28 apartments for people with special needs and low incomes, through historic rehabilitation (adaptive reuse) of Armstrong Elementary School (16 apartments) and new construction (12 apartments), all at 1721 Monsview Place in Lynchburg. Fifty (50) percent of the apartments will achieve accessibility per Section 504 of the Rehabilitation Act of 1973 requirements with the remainder at least easily adaptable for disabilities. In addition, Rush Homes is renovating the gymnasium and will make it available to the City’s Department of Parks and Recreation and the Monsview/Bedford Avenue area community for community activities.

This specific request of \$10,500 is for rehabilitation costs incurred due to vandalism in the Armstrong Elementary School during the term of the Rush Homes’ contract with the City to purchase the property. Costs include those related to significant damage of at least 18 of the internal doors, door frames, hardware and several display cabinet doors in former classrooms as well as associated clean up. These items are necessary to the rehabilitation of the property because Armstrong Elementary School is listed on the Virginia Register of Historic Landmarks and the National Park Service National Register of Historic Places.

Lynchburg Neighborhood Development Foundation (LNDF) – 5th & Polk Streets Residential Rental

FY 2014 Award	FY 2015 Request	CDAC Recommendation
\$0	\$205,000	\$0

This project is an extension of the years of affordable housing development undertaken by LNDF. In the mid-1990s, LNDF became a single-family developer, working primarily in very low-income neighborhoods of Lynchburg where property values are low and overall community revitalization is needed. Since then, LNDF has developed and sold 27 newly renovated or newly built single family homes to qualified low- and moderate-income buyers. Additionally, LNDF has restored and continues to operate 40 buildings, including a total of 100

ATTACHMENT C

apartments, for rent to low-income households. LNDF now proposes to complete renovation of two buildings we own on 5th Street, 702 and 708 5th Street, as well as to build two duplex structures on vacant lots also owned by LNDF, located in very close proximity to 5th Street. The addresses of these vacant lots are 317 and 708 Polk Street. Each of the buildings on 5th Street will be developed to house one residential unit and one commercial unit, and each duplex structure will house two households, resulting in a total of six newly available residential rental units.

The project is an exciting opportunity to revitalize two long-dormant commercial spaces along 5th Street, allowing them, once again, to become productive with potential for creating jobs, while adding two new residential, rental units within these spaces plus four new residential, rental units on nearby Polk Street. It combines the benefits of investing in housing, contributing to stronger neighborhoods through improved living circumstances, with the benefits of investing in local business expansion, enhancing job and income potential and the ability to sustain these home environments. The cumulative outcome is a vibrant downtown surrounded by attractive, safe, and diverse neighborhoods. The requested HOME funds would be applied solely toward renovation/construction costs of the project's residential units.

Development standards for this project include use of sustainable materials, meeting energy-efficiency requirements, and, in the case of the 5th Street properties, conforming to historic architectural review standards. Assuring quality and historically correct construction may cost more to develop than the neighborhood market currently can support. In addition, many areas of the City have suffered from suppressed or reduced property values. Without subsidy to defray costs and make financing accessible, it is unlikely tenant rents could be established at affordable levels.

The project includes identified properties with a timeline of approximately nine months to confirm funding sources and complete construction. This year, LNDF agreed to return HOME funds awarded to us by the City for single family development for fiscal year 2012-2013, in the amount of \$65,424, and for fiscal year 2013-2014, in the amount of \$50,000, for which we had not identified specific activities. This project would allow us to put these funds to an immediate and very productive use in support of the City's development goals for 5th Street and surrounding neighborhoods.

LNDF is supported in the project by a development partner, Virginia Community Development Advisory Services (VCDAS) that brings additional development expertise and financial strength to the initiative. VCDAS' sole member, Virginia Community Development Corporation (V CDC), will serve as an asset to the project as well by facilitating the entry of historic tax credit investors. LNDF also is joined by the 5th Street Community Development Corporation (5th Street CDC) in eventual ownership and management of the two 5th Street properties. This will occur once we form the taxable (management) entity required to accept equity investment in the project in exchange for historic tax credits. The 5th Street CDC intends to occupy commercial space in one of these buildings upon completion of renovations.

Lynchburg Covenant Fellowship (LCF) –Frank Roane Apartments

FY 2014 Award	FY 2015 Request	CDAC Recommendation
\$0	\$60,000	\$60,000

LCF is requesting HOME funds to assist with the renovation of one of the Frank Roane apartments. This beautiful, historic building was built in 1899 and used as a high school and then as an elementary school. LCF purchased the school in 1979 and subsequently converted it into 26 apartments for elderly people age 62 and over. It is comprised of one-efficiency, 21-one bedroom apartments and four-two bedroom units. Frank Roane is a project-based Section 8 community in which the Department of Housing and Urban Development (HUD) provides rental subsidy to low-income elderly.

Since the conversion of the building from a school into apartments in 1980, no additional capital improvements have been done except for a roof replacement about eight years ago and unit turns when a resident moves out. The apartments currently have inefficient baseboard heat, no central air conditioning and extremely drafty old windows. The elevator which is essential for the residents living on the second and third floors is in dire need of replacing. Last year LCF paid \$ 13,000 in repair bills and problems continue with it. Although the brick exterior is beautiful, many sections need repointing. Some of the apartments on the third floor have balconies with deteriorated siding in need of replacing. Flashing repairs are also needed as leaks have caused damage to some of the interior walls and ceilings in a couple of apartments.

Other than grab bars in some of the bathrooms, there are no apartments that meet the Section 504 of the Rehabilitation Act/Americans with Disabilities requirements. Five apartments will be converted to comply with Section 504 of the Rehabilitation Act requirements. These apartments will have wider doors, lower cabinets with work areas that allow a wheelchair to roll under, an accessible shower and bathroom.

Renovations will include installing energy efficient central heat and air conditioning, a sprinkler system, generator, cabinets, dishwashers, energy efficient refrigerators, stoves with fire suppression features, bathroom fixtures, flooring, apartment entry doors, repointing exterior masonry, repairing deteriorated siding and flashing, security system, a new elevator, painting and reworking old windows making them more energy efficient. LCF is applying for Low-Income Housing Tax Credits, federal and state historic tax credits and will secure a mortgage from the Virginia Housing Development Authority (VHDA) to finance the project.

LRHA Homeownership Development

FY 2014 Award	FY 2015 Request	CDAC Recommendation
\$0	\$220,000	\$117,022.18

The Analysis of Impediments to Fair Housing Choice (AI) recently conducted by the City of Lynchburg found that the City has limited housing opportunities for disabled families. The Authority has a 5(h) Homeownership program that provides homeownership opportunities to public housing residents. In a partnership of HOME Program and the 5(h) Homeownership funds, the Authority will develop new ADA/504 accessible homes on three (3) lots from the Authority's Spot Blight inventory. These homes will provide disabled, low to moderate income public housing families the chance to own their own home.

CDBG
updated March 3, 2014

Prior Year Appropriations, Returned Funds and Program Income available to Reprogram:	
Returned Funds - LRHA - 119 I Street	3,000.00
Program Income - LRHA - 701 5th Street	24,100.00
Program Income - LRHA - 703 5th Street	25,000.00
Program Income - LRHA - 42 Hollinsmill Rd	2,000.00
Program Income - LRHA - 1007 Tyree / 1801 Globe St	6,800.00
Program Income - LRHA - 1008 10th Street	1,000.00
Program Income - LRHA - 800 Mansfield Street	500.00
Program Income - LRHA - 808 Dinwiddie Street	5,000.00
Program Income -LRHA - 1015 2nd Street	2,001.00
Program Income- LRHA - 1017 2nd Street	2,001.00
Program Income- LRHA - 1018 2nd Street	2,001.00
Program Income - LRHA - 504 Federal Street	4,800.00
Program Income - LRHA - 510 Federal Street	3,900.00
Program Income - LRHA - 516 Federal Street	2,100.00
Program Income - LRHA - 520 Federal Street	2,100.00
Program Income - LRHA - 524 Federal Street	2,100.00
Program Income - LRHA - 1100 Polk Street	1,501.00
Program Income - LRHA - 1102 Polk Street	1,501.00
Program Income - LRHA - 1104 Polk Street	1,501.00
Program Income - LRHA - 707 Fifth Street	11,000.00
Program Income - LRHA - 709 Fifth Street	40,000.00
Program Income - LRHA - 711 - 715 Fifth Street	15,000.00
Program Income - LRHA - 717 Fifth Street	30,000.00
Program Income - LRHA - 408 Federal Street	40,000.00
Program Income True up - FY 13 (Budget \$2030 Actual \$2000)	(30.00)
Program Income estimate from LRHA	2,400.00
Program Income - Interest on Bluffwalk received from Developer	62,958.19
Reprogram Lyn-Cag Housing Improvement 2010-2011	944.37
Reprogram Bluffwalk 2013-2014	49,738.00
Reprogram Tinbridge Hill Admin 2013-2014	8,500.00
Reprogram LRHA Minor Property Repairs 2010-2011	5,000.00
Reprogram LRHA Rental Rehab 2012-2013	30,000.00
Subtotal Returned Funds	3,000.00
Subtotal Program Income	291,234.19
Subtotal Reprogram Funds	94,182.37
Grand Total	388,416.56

HOME
updated March 3, 2014

Prior Year Appropriations available to Reprogram:	
Reprogram LNDP Homeownership 2011-2012	32,056.58
Reprogram LNDP Homeownership 2012-2013	14,999.60
Reprogram LNDP Single Family Development 2012-2013	65,424.00
Reprogram LNDP Single Family Development 2013-2014	50,000.00
Prior Years Program Income True-up	1,247.00
Total	163,727.18

CDBG Unexpended Balances

updated as of February 28, 2014

Program Description	2009 - 2010	2010 - 2011	2011 - 2012	2012-2013	2013-2014	Total
City Program Administration	-		-		39,926.56	39,926.56
Fifth St - Phase II	-		2,998.00	-	-	2,998.00
Housing Improvement - Lyn-Cag	-	944.37				944.37
Tinbridge Hill -Rebuilding Together Rehab	-		20,000.00	15,000.00		35,000.00
Tinbridge Hill -Admin	-		-	3,917.21	8,500.00	12,417.21
Tinbridge Hill - Rehab Lyn-Cag			-	15,090.95	36,500.00	51,590.95
Relocation - Miller Park Basketball Court					42,498.79	42,498.79
Cont of Care - Social Worker					25,308.37	25,308.37
Bluffwalk					49,738.00	49,738.00
Analysis of Impediments to Fair Housing				9,490.00		9,490.00
Demolition of Substandard Structures				12,000.00		12,000.00
LRHA Spot Blight	-		28,478.61	85,621.98		114,100.59
LRHA Delivery Costs - Property Disposition	-				34,918.82	34,918.82
LRHA Delivery Costs - Acquisition	-				48,279.10	48,279.10
LRHA Delivery - Rehab	-				23,278.58	23,278.58
LRHA Property Maintenance	-	-				-
Subtotal LRHA Spot Blight Program						220,577.09
LRHA Rental Rehab	-			30,000.00	29,781.78	59,781.78
LRHA Minor Property Repairs	-	5,000.00				5,000.00
LRHA Property Demolition	-	10,700.00				10,700.00
LRHA Delivery Costs - Administration	-				8,674.46	8,674.46
Total LRHA						304,733.33
Riverside Park Improvements	-			125,000.00		125,000.00
Fifth St Phase III	-			5,830.81	175,490.89	181,321.70
Total Unexpended CDBG Funds	-	16,644.37	51,476.61	301,950.95	522,895.35	892,967.28

To be reprogrammed in 2014-2015

HOME Fund Unexpended Balances

updated as of February 28, 2014

Program Description	2009 - 2010	2010 - 2011	2011 - 2012	2012-2013	2013-2014	Total
City Program Administration			22,737.48	-	22,000.00	44,737.48
Habitat	-		21,500.00	-	60,000.00	81,500.00
Rush Homes CHDO	-	-	-	50,000.00	-	50,000.00
LNDF - Homeownership	-	-	32,056.58	14,999.60	30,000.00	77,056.18
LNDF - Neighborhood Stabilization	10,020.58	-	-	-	-	10,020.58
LNDF - Single Family Development	-	-	-	65,424.00	50,000.00	115,424.00
Total LNDF						202,500.76
Lyn-CAG CHDO	-		51,779.96	-	46,770.00	98,549.96
Lyn-CAG Substantial Rehab			83,293.46	75,000.00	111,201.00	269,494.46
Total Lyn-CAG						368,044.42
Total HOME Unexpended Funds	10,020.58	-	211,367.48	205,423.60	319,971.00	746,782.66

 To be reprogrammed in 2014-2015

LYNCHBURG CITY COUNCIL

Agenda Item Summary

MEETING DATE: **April 8, 2014**

AGENDA ITEM NO.: 19

CONSENT: REGULAR: **X**

WORK SESSION:

CLOSED SESSION:

(Confidential)

ACTION: **X**

INFORMATION:

ITEM TITLE: **FEMA Assistance to Firefighters Grant**

RECOMMENDATION: Adopt a resolution to amend the FY 2014 City/Federal/State Aid Fund budget and appropriate \$310,650 with resources of \$248,520 from the Federal Emergency Management Agency (FEMA) Assistance to Firefighters Grant and \$62,130 from the General Fund Reserve for Contingencies to purchase new communications equipment to be used by the Fire Department.

SUMMARY: The Fire Department currently uses the Harris model P7100 portable radio for communications during fire operations. This model radio will reach "end of parts" status on September 2, 2015, meaning support and replacement parts for the radio will no longer be guaranteed after that date. In addition to approaching "end of parts" status, the radios are reaching the industry guidance standards for recommended in service time (in service since 2005) and also lack the technology to utilize features of the new 800 MHz P25 Regional Radio System currently being installed.

The three jurisdictions that make up the Region 2000 Radio Communications Board applied for and received a FEMA Assistance to Firefighters Grant to replace this equipment. The total project amount is \$1,032,057; the federal share is 80%, or \$825,646, of the approved amount and the regional share of the costs is 20%, or \$206,411. The Board members have agreed to split the money between the participating agencies based on the system ownership formula established in the Local Government Cooperative Agreement that established the Board. Accordingly, the Lynchburg City share of the grant is \$248,520 and the Lynchburg City share of the 20% match is \$62,130. Matching funds are not available in any department budget; therefore, an appropriation from the General Fund Reserve for Contingencies is needed. Total funds of \$310,650 will be sufficient to replace all of the P7100 portable radios used by the Fire Department.

PRIOR ACTION(S): March 25, 2014 Finance Committee

FISCAL IMPACT: In order to meet the 20% local match requirement, a one-time appropriation of \$62,130 is needed from the General Fund Reserve for Contingencies.

CONTACT(S): William A. Aldrich, Director of Emergency Services, 455-4285

ATTACHMENT(S): Resolution

REVIEWED BY: lkp

RESOLUTION

BE IT RESOLVED that the FY 2014 City/Federal/State Aid Fund budget is amended and \$310,650 is appropriated with resources of \$248,520 from the Federal Emergency Management Agency (FEMA) Assistance to Firefighters Grant and \$62,130 from the General Fund Reserve for Contingencies to fund the purchase of new communications equipment to be used by the Fire Department.

Introduced:

Adopted:

Certified:

Clerk of Council

045K

LYNCHBURG CITY COUNCIL

Agenda Item Summary

MEETING DATE: **April 8, 2014**

AGENDA ITEM NO.: 20

CONSENT: REGULAR: **X**

WORK SESSION:

CLOSED SESSION:

(Confidential)

ACTION: **X**

INFORMATION:

ITEM TITLE: **Urban Project Request for Odd Fellows Road P3 Projects**

RECOMMENDATION: Adopt the attached resolutions to create an urban highway project for Odd Fellows Road and to include Greenview Drive in the Virginia Department of Transportation (VDOT) Public/Private Partnership project.

SUMMARY: In 2009 VDOT created a project to construct an interchange on US Route 460 at Odd Fellows Road (segment A). This project would tie into the existing Odd Fellows Road which is substandard and would need to be improved. The portion from the new interchange to Mayflower Drive was included in the preliminary studies and included a roundabout at Mayflower Drive (segment B1). In 2013, an unsolicited Public/Private Partnership (P3) proposal was submitted to VDOT and included the section of Odd Fellows Road from Mayflower Drive to the Lynchburg Expressway (segment B2) and Greenview Drive (segment C).

Since neither segment B1 or B2 was included in the earlier description of the VDOT Odd Fellows Road project in the Six Year Plan, in order to meet Federal and State requirements, City Council needs to ask VDOT to include these additional segments in the project.

Also, since segment C, Greenview Drive, a City project, has been included in the scope of the P3 proposal Council needs to ask that Greenview Drive be included in the VDOT P3 project and transfer the awarded Revenue Sharing funds to that project. The City has been assured that if the P3 project does not proceed with segment C, the funds previously allocated for Greenview Drive would be returned to the City of Lynchburg for us to complete as a City project.

VDOT personnel will be present on Tuesday to answer any questions from Council.

PRIOR ACTION(S): Physical Development Committee, February 26, 2013 and April 8, 2014.

FISCAL IMPACT: No additional fiscal impact, beyond the Revenue Sharing match already committed, is anticipated at this time.

CONTACT(S): Lee Newland, City Engineer, 455-3947; Gaynelle Hart, Director of Public Works, 455-4406

ATTACHMENT(S): Resolutions

REVIEWED BY: lkp

RESOLUTION

WHEREAS, in accordance with Virginia Department of Transportation construction allocations procedures, it is necessary that a request by Council resolution be made in order that the Department program an Urban Highway project in the City of Lynchburg;

NOW, THEREFORE, BE IT RESOLVED That the Lynchburg City Council requests the Virginia Department of Transportation to establish an urban system highway project for the improvement of Odd Fellows Road from 460 to Mayflower Drive, a distance of approximately 0.7 miles, as Segment B1 of UPC 105515 and Mayflower Drive to the Lynchburg Expressway, a distance of approximately 0.6 miles, as Segment B2 of UPC 105515.

BE IT FURTHER RESOLVED That the Lynchburg City Council hereby agrees to work with the Virginia Department of Transportation to partner with and participate in the procurement of the project under the Public-Private Transportation Act of 1995, VA Code §56-556, as amended to fully develop and construct the Odd Fellows Road Project (UPC 105515), including Segments A, B1, B2, and C.

Adopted:

Certified:

Clerk of Council

041K

RESOLUTION

WHEREAS, the City established a construction project for Greenview Drive Phase 2 (VDOT UPC 87145) to widen Greenview Drive from 2 lanes to 4 lanes; and

WHEREAS, the City has performed preliminary engineering for the improvements for this project; and

WHEREAS, the City has received and is a party to a State Revenue Sharing Grant for the partial acquisition of Right of Way for this project; and

WHEREAS, the City wishes to add the Greenview Drive project, as Segment "C," to the Odd Fellows Road Interchange at US Route 29/460 and Roadway Improvements Project/Odd Fellows Road Extension Project (VDOT UPC 105515) which VDOT is procuring under the Public-Private Transportation Act of 1995, VA Code § 56-556, as amended;

NOW, THEREFORE, BE IT RESOLVED That the Lynchburg City Council requests that the Odd Fellows Road Project (UPC 105515) be designated as a Revenue Sharing Project and that the Greenview Drive Revenue Sharing Project (UPC 87145) be incorporated into UPC 105515 as Segment "C"; and

BE IT FURTHER RESOLVED That the Council hereby reallocates all Revenue Sharing Funds, totaling \$1,700,000, from the Greenview Drive Revenue Sharing Project (UPC 87145) to the Odd Fellows Road Project (UPC 105515) upon approval of a P3 agreement for the Odd Fellows Road project that includes Greenview Drive as Segment "C."

Adopted:

Certified:

Clerk of Council

042K

LYNCHBURG CITY COUNCIL

Agenda Item Summary

MEETING DATE: **April 8, 2014**

AGENDA ITEM NO.: 21

CONSENT: REGULAR: **X**

WORK SESSION:

CLOSED SESSION:

(Confidential)

ACTION: **X**

INFORMATION:

ITEM TITLE: **Change in Status of Main Street Bridge Project**

RECOMMENDATION: Adopt the attached resolution to reclassify the current Main Street Bridge Revenue Sharing Project from a maintenance project to a construction project.

SUMMARY: In 2012, City Council approved an application for FY2014 Revenue Sharing Funds from VDOT for maintenance work on the Main Street Bridge over the Lynchburg Expressway. A portion of those funds were approved and made available July 1, 2013. Staff has performed further evaluation on the concrete crib walls along the expressway at the bridge and has determined that their condition is poor and they need to be rehabilitated. To minimize disruption to the travelling public, it is recommended that these walls be rehabilitated when the bridge is being worked on. With the additional work that is required, the project is no longer a maintenance effort and will be a construction project. Council approved an additional application for construction funds in November 2013. To be able to transfer the maintenance funds to the more in-depth construction project, the attached resolution is required.

PRIOR ACTION(S): Physical Development Committee, April 8, 2014; City Council, November 27, 2012; City Council, November 12, 2013

FISCAL IMPACT: None

CONTACT(S): Lee Newland, City Engineer, 455-3947; Gaynelle Hart, Director of Public Works, 455-4406

ATTACHMENT(S): Resolution

REVIEWED BY: lkp

RESOLUTION

WHEREAS, the Lynchburg City Council submitted a FY 2014 Revenue Sharing Program Application for maintenance activities to be performed on the Main Street Bridge over the Lynchburg Expressway; and,

WHEREAS, the project was approved by the Commonwealth Transportation Board and set up as a project (UPC 104173); and,

WHEREAS, upon further engineering evaluation the crib retaining walls at the abutments are in such poor condition that they need to be rehabilitated as part of the bridge project to minimize disruption to the travelling public.

NOW, THEREFORE, BE IT RESOLVED That the Lynchburg City Council hereby requests that the Main Street Bridge maintenance project (UPC 104173) be reclassified by the Virginia Department of Transportation as a construction project.

BE IT FURTHER RESOLVED THAT: L. Kimball Payne, III, City Manager, is authorized to execute the City State Agreements and to execute any other documents for agreements that may be needed for this project.

Adopted:

Certified:

Clerk of Council

043K

LYNCHBURG CITY COUNCIL

Agenda Item Summary

MEETING DATE: **April 8, 2014**

AGENDA ITEM NO.: 22

CONSENT:

REGULAR: **X**

WORK SESSION:

CLOSED SESSION:

(Confidential)

ACTION: **X**

INFORMATION:

ITEM TITLE: **Certificates of Public Convenience and Necessity for the Operation of Taxicabs in the City**

RECOMMENDATION: Adopt a resolution approving the issuance of certificates of public convenience and necessity for nineteen (19) new taxicabs to operate in the City of Lynchburg.

SUMMARY: The operation of taxicabs in the City of Lynchburg is governed by the City Code and regulations promulgated under its authority. A copy of the relevant code sections is attached for reference. Section 37-54 stipulates that no person shall operate a taxicab in the City without first having obtained a Certificate of Public Convenience and Necessity from City Council. Subsequent sections of the Code establish the procedure for applying for, considering and approving new certificates.

Six (6) individuals have applied for a total of nineteen (19) certificates, as follows:

Mark Garrison, 115 Camp Avenue, two (2) certificates, Central Virginia Yellow Cab
Tony D. West, 2600 Memorial Ave. Suite LL1, ten (10) certificates, Central Virginia Yellow Cab
Alphonso C. Reid, 414 Woodway Drive, three (3) certificates, Central Virginia Yellow Cab
Robin G. Wilson, 909 Brentwood Avenue, two (2) certificates, Central Virginia Yellow Cab
Marcus Antione Wright, 96 Willow Street, one (1) certificate, Grey Top
Brandon L. Timmons, 2075 Langhorne Rd. Apt. 106, one (1) certificate, Grey Top

Most of the requested certificates are for the operation of a new taxicab service in the City, Central Virginia Yellow Cab, which is currently operating out of Rustburg.

One of the requirements of the City Code (Section 37-56) when considering granting new certificates of public convenience and necessity is that the City Manager conduct a public hearing and make a recommendation to Council. Notes from the public hearing are attached. After the public hearing copies of a letter signed individually by twelve taxicab owners were delivered to the City Manager. The letter (copy attached) requests that the City conduct a market study to determine if additional certificates of public convenience and necessity are needed. Such a study has never been conducted by the City to staff's knowledge.

Please note that the City Code, in Section 37-62, provides that, on or before the next regular meeting of City Council, an applicant for a certificate or another interested party may file with the Clerk of Council a written exception to the City Manager's recommendation regarding the issuance of new certificates. That individual shall then be given an opportunity to be heard at a time fixed by Council for that purpose. **Note: There has been no written exception filed to Council's conditional approval of the certificates.**

PRIOR ACTION(S): February 26, 2014, Public hearing by City Manager re taxicab certificates; March 25, 2015 City Council granted conditional approval of the certificates.

FISCAL IMPACT: No immediate impact. Taxicab operators are required to obtain a business license from the Commissioner of the Revenue and to pay taxes if gross receipts exceed a minimum amount.

CONTACT(S): Kimball Payne, 455-3990

ATTACHMENT(S): Excerpt from the Lynchburg City Code re Taxicabs; Notes from the February 26, 2014 Public Hearing; Letter signed by taxicab owners.

REVIEWED BY: lkp

RESOLUTION

BE IT HEREBY RESOLVED THAT The Lynchburg City Council hereby grants Certificates of Public Convenience and Necessity for the operation of taxicabs in the City of Lynchburg to the following individuals, subject to the requirements of the City Code (Section 37-56) and regulations promulgated thereunder:

Mark Garrison, 115 Camp Avenue, two (2) certificates
Tony D. West, 2600 Memorial Ave. Suite LL1, ten (10) certificates
Alphonso C. Reid, 414 Woodway Drive, three (3) certificates
Robin G. Wilson, 909 Brentwood Avenue, two (2) certificates
Marcus Antione Wright, 96 Willow Street, one (1) certificate
Brandon L. Timmons, 2075 Langhorne Rd. Apt. 106, one (1) certificate

Adopted:

Certified:

Clerk of Council

055K

Lynchburg City Code

Chapter: Chapter 37
Title: Taxicabs, Rental Cars

***Charter reference**—Authority to regulate the use of vehicles for hire, § 38(26).

Cross references—Buses, Ch. 12; police, Ch. 31; license taxes, § 36-16 et seq.

Cross references—License fee for advertising on taxicabs, § 36-44; for taxicabs, § 36-100.

- Art.I. In General, §§ 37-1—37-15
- Art.II. Taxicabs, §§ 37-16—37-122
 - Div. 1. Generally, §§ 37-16—37-43
 - Div. 2. Overall Taxicab Service, §§ 37-44—37-53
 - Div. 3. Certificates of Public Convenience and Necessity, §§ 37-54—37-83
 - Div. 4. Registration of Drivers, §§ 37-84—37-104
 - Div. 5. Taximeters, Rates and Charges, §§ 37-105—37-122
- Art.III. Rental Vehicles, §§ 37-123—37-125

ARTICLE I. IN GENERAL

ARTICLE II. TAXICABS

DIVISION 1. GENERALLY

Sec. 37-16. Definitions.

For the purposes of this article, the following words shall have the meanings respectively ascribed to them by this section:

Certificate: A certificate of public convenience and necessity issued by the city council, under the provisions of this article, authorizing the holder thereof to conduct a taxicab business in the city.

Driver: The person in control of or driving a taxicab.

Holder: A person to whom a certificate of public convenience and necessity has been issued.

Manifest: A daily record prepared by a taxicab driver of all trips made by such driver, showing time and place of origin, destination, number of passengers and the amount of fare of each trip.

Owner: The purchaser of any vehicle under reserved title contracts as well as the actual owner.

Taxicab: A motor vehicle or motorcar operated for hire, in charge of a chauffeur or driver, for the transportation of passengers, which does not operate over a fixed or definite route.

Taximeter: A meter instrument or device attached to a taxicab which measures mechanically the distance driven and the waiting time upon which the fare is based. (Tax Code 1959, § 31-2; Ord. No. O-96-136, 5-14-96)

Sec. 37-17. Authority of city manager generally.

The inspection of taxicabs, the sealing of taximeters and the examination of applicants for certificates shall be under the control and jurisdiction of the city manager. (Tax Code 1959, § 31-2)

Sec. 37-18. Appointment of taxicab inspector.

The city manager may designate a person from the personnel of the department of police to act as taxicab inspector as may be necessary to carry out the provisions of this article. (Tax Code 1959, § 31-3)

Sec. 37-19. Compliance with article generally.

It shall be unlawful for any person to drive or cause to be driven on the streets of the city any taxicab without complying with the conditions, regulations and restrictions set out in this article. (Tax Code 1959, § 31-27)

Sec. 37-20. Compliance with article prerequisite to advertisement as taxicab operator.

No person shall use the term taxi or taxicab in advertising, nor shall any person hold himself out to the public as a taxi or taxicab owner, or represent himself to be

such by means of advertisement, sign, trade name, or otherwise, unless such person shall have previously thereto complied with the regulations and requirements of this article. (Tax Code 1959, § 31-28)

Sec. 37-21. Application of traffic, etc., laws of city and state.

All the traffic and other laws of the city and the state applicable thereto shall apply to owners and drivers of taxicabs. (Tax Code 1959, § 31-29)

Sec. 37-22. Penalty.

Any person who shall violate any of the provisions of this article for which no other penalty is provided shall be deemed guilty of a class 2 misdemeanor, in addition to the revocation or suspension of such person's certificate or registration by the city manager or the chief of police, as provided in this article. (Tax Code 1959, § 31-30)

Sec. 37-23. Receipt and discharge of passengers on sidewalk.

Drivers shall not receive or discharge passengers in the roadway, but shall pull up to the right-hand sidewalk as nearly as possible or, in the absence of a sidewalk, to the extreme right-hand side of the street and there receive or discharge passengers; provided, that upon one-way streets, passengers may be discharged at either the right-hand or left-hand sidewalk or side of the street in the absence of a sidewalk. (Tax Code 1959, § 31-10)

Sec. 37-24. Additional passengers.

No driver shall permit any person other than the person first employing the taxicab to occupy or ride in a taxicab, unless the person first employing the taxicab shall consent to the acceptance of an additional passenger. (Tax Code 1959, § 31-11)

Sec. 37-25. Restriction on number of passengers.

No driver shall permit more than five (5) persons, other than the driver, to be carried in a taxicab. A child in arms shall not be counted as an additional person. (Tax Code 1959, § 31-12)

Sec. 37-26. Drivers bearing evidence of intoxicating beverages.

No owner of a taxicab shall permit any driver to work if he reports for duty with any evidence of intoxicating beverages upon his person or upon his breath. (Tax Code 1959, § 31-14)

Sec. 37-27. Equipment and condition of vehicles.

Every taxicab operated within the city must meet all the requirements of the provisions of this Code and other ordinances of the city and the laws of the state as to lights, brakes, horn and inspection, and must be kept in a good, clean, neat and safe condition and appearance. (Tax Code 1959, § 31-15)

Sec. 37-28. Type of vehicle required.

Taxicabs operated within the city shall be of a closed or sedan type with at least four (4) doors and of not less than five (5) passenger capacity. (Tax Code 1959, § 31-16)

Sec. 37-29. Disposition of money or property left in cab.

The driver in charge of any taxicab operated within the city shall carefully preserve any money or other property left in such vehicle by any passenger and such money or other property shall be promptly deposited with the owner of the vehicle, who shall deliver a receipt for the same. The owner shall promptly notify the passenger, if known, of the money or property found and return the same upon request. In the event such passenger is unknown, the owner shall file in writing a report to the chief of police and shall keep the money or property at some convenient place within the city where the same may be called for by the owner. When such money or other property shall have been identified and ownership established, the same shall be delivered to the owner. Any property, money or other thing which shall not have been called for within sixty (60) days shall be disposed of according to law. (Tax Code 1959, § 31-17)

Sec. 37-30. Establishment and use of open stands on streets.

(a) The city manager may establish open stands in such places upon the streets of the city as he deems necessary for the use of taxicabs operated in the city. Such stands shall not be created without taking into consideration the need for such stands by the taxicab owners and the convenience of the general public. The city manager shall prescribe the number of taxicabs that shall occupy such open stands

and shall not create an open stand in front of any place of business where the abutting property owner objects to same or where such stand would tend to create a traffic hazard.

(b) Open stands shall be used by the different drivers on a first-come-first-serve basis. The driver shall pull onto the open stand from the rear and shall advance forward as the taxicab ahead pulls off. Drivers shall stay within five (5) feet of their taxicabs in such stands and shall not engage in loud or boisterous talk while occupying an open stand. Nothing in this section shall be construed as preventing a passenger from boarding a taxicab of his choice that is parked at any such open stand. No vehicle, other than taxicabs, shall at any time occupy a space in a taxicab stand. (Tax Code 1959, § 31-18)

Sec. 37-31. Drivers' manifests.

(a) Every driver shall maintain a daily manifest upon which is recorded all trips made each day, showing the time and place of origin and destination of each trip and amount of fare. All such completed manifests shall be returned to the owner by the driver at the conclusion of his hours of duty. The forms for each manifest shall be furnished to the driver by the owner and shall be of a character approved by the city manager.

(b) Every holder of a certificate shall retain and preserve all drivers' manifests in a safe place for at least one year and such manifests shall be subject to inspection by the city manager and by personnel of the division of police. (Tax Code 1959, § 31-19)

Sec. 37-32. Records as to receipts, expenses, etc.

Every holder of a certificate shall keep accurate records of receipts and operating expenses, capital expenditures and such other operating information as may be required by the city manager. Every such holder shall maintain the records containing such information and other data required by this section at a place readily accessible for examination by the city manager, or his designated representative. (Tax Code 1959, § 31-20)

Sec. 37-34. Accident reports.

All accidents arising from or in connection with the operation of taxicabs which result in death or injury to any person or in damage to any vehicle or to any

property shall be reported within twenty-four (24) hours from the date of occurrence to the police division on a form of report to be furnished or approved by the chief of police. (Tax Code 1959, § 31-22)

Sec. 37-35. Rules and regulations.

The city manager may from time to time make such additional rules and regulations not in conflict with the provisions of this article as he may deem proper to regulate the operation of taxicabs within the city. The city manager shall give written notice of such additional rules and regulations to all holders of certificates and such additional rules and regulations shall become effective at the time specified in such notice. Failure to comply with any such additional rules and regulations shall be grounds for the revocation or suspension of the certificate held by the person who fails, or whose employees willfully or continuously fail, to comply with the same. (Tax Code 1959, § 31-24)

Sec. 37-36. Police to watch certificate holders and drivers; report, etc., of violations.

The members of the police department shall watch and observe the conduct of holders of certificates and of drivers operating under this article. Upon discovering a violation of the provisions of this article, a member of the police department shall report such violation to the city manager who will order or take appropriate action. (Tax Code 1959, § 31-25)

Sec. 37-37. Repealed by Ord. No. O-05-103, 8-9-05.

DIVISION 2. OVERALL TAXICAB SERVICE

Sec. 37-44. Refusal to accept calls or passengers; failure or refusal to give overall service.

The holder of a certificate who shall refuse to accept a call anywhere within the city or refuse to accept a passenger for delivery to any place within the city or within one mile of the city when such holder has available a taxicab or who shall fail or refuse to give overall service shall be guilty of a misdemeanor and the certificate granted to such holder shall be suspended or revoked at the discretion of the city manager subject to the provisions of sections 37-74 through 37-77, unless driver can

articulate a reasonable concern for his/her personal safety or unless repeated incidences of a taxi having been previously called to that address which calls turned out to be false calls for a fare. (Tax Code 1959, § 31-31; Ord. No. O-05-103, 8-9-05)

Sec. 37-44.1. Violation by passengers; misdemeanor, objection.

Any passengers in a taxicab who fail to act in a orderly manner so as to permit the safe operation of the taxicab by the driver, or who fail to obey the directions of the driver or person in charge of the taxicab, to act in an orderly manner, shall be deemed guilty of a class 4 misdemeanor. Furthermore, such persons may be ejected from any taxicab by the driver or person in charge of the taxicab, or by any police officer or other conservator of the peace; and in case such persons ejected have paid their fares, they shall not be entitled to the return of any part of the same. For the refusal of any passenger to abide by the direction of the driver or person in charge of the taxicab, and his consequent ejection from such taxicab, neither the driver, owner, manager or company operating or owning the taxicab shall be liable for damages in any court. (Ord. No. O- 96-136, 5-14-96)

Sec. 37-45. Refusal to respond to telephone call or to transport passenger.

No driver shall refuse to respond to any telephone call or refuse to transport an orderly passenger to any place within the city or within one mile of the limits thereof, provided he is not otherwise engaged. (Tax Code 1959, § 31-13)

Sec. 37-46. Answering calls.

Holders of certificates shall answer all calls received by them for service inside the city as soon as they can do so and, if such service cannot be rendered within a reasonable time, they shall then notify the prospective passenger how long it will be before service can be given. (Tax Code 1959, § 31-34)

Sec. 37-47. Solicitation of passengers; cruising.

Taxicabs shall not be permitted to stand or cruise, seeking employment, nor shall any person solicit, by word, signal or otherwise, patronage for such vehicles on any street or public property, other than at taxicab stands so designated or assigned for the purpose. (Tax Code 1959, § 31-9)

Secs. 37-48—37-53. Reserved.

DIVISION 3. CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY

Sec. 37-54. Required.

No person shall operate or cause to be operated any taxicab upon the streets of the city without first having obtained a certificate from the city council. (Tax Code 1959, § 31-36)

Sec. 37-55. Application generally.

An application for a certificate shall be filed in duplicate with the city manager and shall be verified under oath and shall furnish the following information.

- (a) The name, and address of the applicant and shall state that the applicant is at least twenty-one (21) years of age.
- (b) The trade name under which the applicant does or proposes to do business.
- (c) If the applicant is a corporation, the officers, directors and principal stockholders of the corporation.
- (d) The financial status of the applicant, including the amounts of all unpaid judgments against the applicant and the nature of the transaction or acts giving rise to such judgments.
- (e) The experience of the applicant in the transportation of passengers.
- (f) Any facts which the applicant believes tend to prove that public convenience and necessity require the granting of a certificate.
- (g) The number of vehicles desired to be operated by the applicant, the location of proposed depots and terminals, and the parking or garage facilities thereat.
- (h) The color scheme or insignia to be used to designate the vehicle or vehicles of the applicant.
- (i) Such further information required by the city manager and which may be relevant and pertinent to the matter of the issuance of a certificate.
- (j) In the event two (2) or more persons, not operating as a corporation or partnership and who own or propose to own individually one or more taxicabs,

associate together for the purpose of operating taxicabs under one trade name, each such person shall file an application for a certificate with the city manager and shall, in addition to the information required above, give the names and addresses of the other person or persons who are associating together to operate under such trade name, and the number of cabs to be operated by each such person. (Tax Code 1959, § 31-37; Ord. No. O-96-136, 5-14-96)

Sec. 37-56. Public hearings on applications.

Within sixty (60) days after receipt of an application for a certificate, the city manager shall conduct a public hearing thereon, after giving at least fifteen (15) days' notice thereof, in writing, to the applicant and to holders of outstanding certificates. Such written notice shall be mailed to the applicant and to holders of outstanding certificates at the addresses as shown on the application and outstanding certificates. In addition to such written notice, due notice of such hearing shall be given to the general public by publishing, once each week for two (2) successive weeks immediately preceding the week in which the hearing will be held, in a daily newspaper published in the city, a notice of the time and place of such hearing. All applications filed within the sixty (60) day period and prior to the issuance of the notice fixing the date of such hearing shall be considered at the same time, together with the recommendations of the city manager relative thereto. Any interested person may appear in support of or in opposition to the application for a certificate. (Tax Code 1959, § 31-38)

Sec. 37-57. Fee for publication of notice of public hearing.

In order to cover the cost of publication of the notice of public hearing required by Section 37-56, a deposit of one hundred (\$100.00) dollars shall be paid into the city treasury and receipt attached to the application when filed. (Tax Code 1959, § 31-39; Ord. No. O-84-141, § 1, 6-12-84, eff. 7-1-84; Ord. No. O-88-062, § 1, 3-22-88, eff. 7-1-88; Ord. No. O-96-136, 5-14-96)

Sec. 37-58. City manager's recommendations to council as to issuance or denial.

If the city manager finds that further taxicab service in the city is required by the public convenience and necessity and that the applicant for a certificate is of good moral character, fit, willing and able to perform such public transportation and to conform to the provisions of this article and the rules and regulations promulgated by the city manager, and has complied with the provisions of sections 37-68 and 37-69, the city manager shall recommend to the city council that the city council issue a certificate to the applicant; otherwise, the city manager shall recommend to the

city council that the application be denied. The city manager shall include a complete report of his findings in his recommendation to the council. (Tax Code 1959, § 31-40)

Sec. 37-59. Factors considered in making findings.

In making the findings referred to in Section 37-58, the city manager shall take into consideration the following:

(a) The adequacy of existing taxicab service and other forms of transportation for passengers already in existence in the city.

(b) The probable permanence and quality of the services to be offered by the applicant for the certificate.

(c) The probable effect of increased service on local traffic conditions.

(d) The character and responsibility of the applicant for the certificate. (Tax Code 1959, § 31-41)

Sec. 37-60. Applicants to whom city manager may not recommend issuance.

The city manager shall not recommend the issuance of a certificate to any applicant for a certificate under the age of twenty-one (21) years, or who is not of good moral character or personally fit to conduct a taxicab business, or who shall have been convicted within five (5) years prior to the date of the hearing of violating any provision of Code of Virginia, Title 4, relating to transportation of liquors or relating to the sale, transportation, possession or distribution of any other controlled substance, or who shall have been convicted of a serious misdemeanor or felony within a period of five (5) years prior to the date of the hearing provided for in section 37-56. (Tax Code 1959, § 31-42; Ord. No. O-96-136 5-14-96)

Sec. 37-61. To be granted only to owner.

No certificate shall be granted to any person unless he is the owner of the taxicab or taxicabs proposed to be operated pursuant to the certificate for which application is made. (Tax Code 1959, § 31-43)

Sec. 37-62. Exceptions to city manager's report to council; finality of council's decisions.

At or before the next succeeding regular meeting of the city council after the meeting at which the report of the city manager, made pursuant to section 37-58, is presented to the city council, any applicant for a certificate or other interested party may file written exceptions thereto with the clerk of council. Such applicant or interested party shall have an opportunity to be heard on the exceptions to the report at such time as may be fixed by the city council for the purpose. The decisions of the city council with regard to such exceptions and the report shall be final. (Tax Code 1959, § 31-44)

Sec. 37-63. Form and content; disposition of copies.

The certificate shall be filled out in duplicate and shall contain the name and address of the applicant, the number of vehicles authorized under the certificate and the date of issuance. One copy shall be retained in the files of the city manager and the applicant shall receive the other copy. (Tax Code 1959, § 31-45)

Sec. 37-64. Term; expiration for thirty-day failure to operate business.

Certificates shall be effective until canceled and shall expire when the holder thereof fails for a period of thirty (30) days to operate a taxicab business within the city in accordance with such certificate. (Tax Code 1959, § 31-46)

Sec. 37-65. Transfer.

Certificates shall not be transferable, except upon the written consent of the city manager endorsed on any such certificate. (Tax Code 1959, § 31-47)

Sec. 37-66. License for operation of business—Certificate prerequisite to issuance.

No license to operate a taxicab business within the city shall be issued to any person unless such person shall first have obtained a certificate from the city council. No additional certificate shall be required for the purpose of obtaining licenses so long as the original certificate remains in effect. (Tax Code 1959, § 31-4)

Sec. 37-67. Same—Procedure as to issuance.

Upon presentation of a certificate within thirty (30) days of its date to the commissioner of the revenue and upon satisfactory evidence that the holder of such

certificate has complied with the provisions of sections 37-68 and 37-69 and upon payment of the license fee required under the applicable section of the tax code of the city, the commissioner of the revenue shall issue to the holder of such certificate a license to operate a taxicab business within the city. (Tax Code 1959, § 31-5)

Sec. 37-68. Insurance or bond—Required.

No certificate shall be issued until the applicant therefor shall submit satisfactory evidence to the city manager that he has filed with the state corporation commission such insurance policy, letter of credit or bond covering such liability or property damage as may be required by state law. (Tax Code 1959, § 31-6; Ord. No. O-96-136, 5-14-96)

Sec. 37-70. Same—No liability on city.

Nothing contained in sections 37-68 or 37-69 shall have the effect of fixing any liability on the city by reason of the maintenance and operation of any taxicab. (Tax Code 1959, § 31-8)

Sec. 37-71. Procedure when additional taxicabs required.

If the city manager shall determine, after investigation, although no application for any certificate may be pending, that public convenience and necessity requires the operation of additional taxicabs within the city, then the city manager may give such notice as he deems advisable that applications for additional certificates will be received, or he may, in his discretion, require the holders of outstanding certificates, or any one or more of them, to provide and operate additional taxicabs within the city. In the event that the holder of any such certificate shall refuse to do so, such refusal shall be grounds for the revocation or suspension of the certificate held by him. In the event of such revocation, the holder of any such certificate shall have the right of appeal to the city council to review the action of the city manager. (Tax Code 1959, § 31-48)

Sec. 37-72. No vested rights granted by this article.

No person operating a taxicab business under the provisions of this article shall acquire any vested rights in the streets of the city or any vested rights to use the same. Certificates may be suspended or revoked at any time by repeal or

amendment of the applicable section or sections of this article. (Tax Code 1959, § 31-49)

Sec. 37-73. Revocation and suspension—Causes for action.

(a) A certificate may be revoked or suspended by the city manager for the following causes:

- (1) Failure to operate the taxicab or taxicabs specified in the certificate in such manner as to serve the public adequately.
- (2) Failure to maintain such taxicabs in good order and repair.
- (3) Failure to keep in force the bond or insurance as required under sections 37-68 and 37-69.
- (4) Repeated and persistent violation of traffic and safety ordinances by drivers.
- (5) Willful or continued failure to comply with the provisions of this article or willful or continued failure to comply with any of the provisions of this Code or other ordinances of the city or laws of the state or federal governments, the violation of which reflects unfavorably on the suitability of the holder of the certificate to offer public transportation.
- (6) Failure of any operator to operate regularly the number of taxicabs authorized by his certificate.
- (7) Failure to operate additional taxicabs when directed so to do by the city manager under the provisions of section 37-71.
- (8) Failure to comply with any rule or regulation promulgated by the city manager under the provisions of section 37-35.

(b) In case of proceeding under item (6) above, the city manager shall revoke the certificate to the extent that such certificate authorized the operation of a number of taxicabs in excess of the number regularly operated by such operator. (Tax Code 1959, § 31-50)

Sec. 37-74. Same—Notice and hearing.

Prior to suspension or revocation, the holder of the certificate involved shall be given notice of the proposed action to be taken and shall have an opportunity to be heard. (Tax Code 1959, § 31-51)

Sec. 37-75. Same—Right of appeal.

In the event of suspension or revocation of a certificate by the city manager, the holder thereof shall have the right of appeal to the city council at either of its next two (2) regular meetings following the date of such revocation or suspension. In the event of such appeal, the city council shall review the findings of the city manager and his action with regard to such revocation or suspension. (Code 1959, § 31-52)

Sec. 37-76. Same—Term of suspension.

Any certificate suspended shall not be suspended for less than ten (10) days nor more than thirty (30) days. (Code 1959, § 31-53)

Sec. 37-77. Same—Reissue after revocation.

Any certificate revoked shall not be reissued to the same person under any circumstances for a term of at least one (1) year after the effective date of such revocation. (Code 1959, § 31-54)

Secs. 37-78—37-83. Reserved.

DIVISION 4. REGISTRATION OF DRIVERS

Sec. 37-84. Required.

Every driver shall be registered by the chief of police before driving any taxicab upon the streets of the city. (Code 1959, § 31-55)

Sec. 37-85. Penalty.

Any person who shall violate any of the provisions of this division shall, for a first violation, be deemed guilty of a class 4 misdemeanor; for each second or subsequent conviction under this division, committed within twelve (12) months from the date of a prior conviction hereunder, any such person shall be deemed guilty of a class 3 misdemeanor. (Code 1959, § 31-61)

Sec. 37-86. Fee.

A fee of fifty dollars (\$50.00) shall be paid to the city for processing and investigating the applicant, which fee shall be nonrefundable. (Code 1959, § 31-55; Ord. No. O-90-093, 3-27-90, eff. 7-1-90; Ord. No. O-95-206, 7-11-95, eff. 9-1-95)

Sec. 37-87. Term; renewal.

Original registration of a driver shall expire one year from date of issue, unless sooner revoked. All such registrations shall be renewed annually on or before the driver's date of birth each year. Such renewal registration shall continue for one year following, unless sooner revoked. (Code 1959, § 31-55; Ord. No. O-91-050, 3-26-91)

Sec. 37-88. Application.

Application for original and renewal registration shall be made to the chief of police on forms prescribed by the city manager for that purpose. The fee for such registration shall accompany each application for registration. It shall be unlawful for any applicant to willfully omit any information called for on such application form or to give any false information thereon. (Code 1959, § 31-56)

Sec. 37-89. Fingerprinting of applicants.

The chief of police shall cause each applicant for registration to be fingerprinted for the purpose of clearing convictions, if any. (Code 1959, § 31-59)

Sec. 37-90. Mandatory denial.

No applicant for original or renewal registration required by this division shall be registered by the chief of police if such applicant:

- (a) Does not have in force a valid license issued by the department of motor vehicles of the state; or,
- (b) Has, within the past three (3) years prior to the date of application, been convicted of a felony or petit larceny under the laws of the United States or any state; or,

(c) Has, within three (3) years prior to the date of application, been convicted of driving a motor vehicle while under the influence of intoxicants or any narcotic drug under the laws of any state or municipality; or,

(d) Has, within one (1) year prior to the date of application, been convicted of a violation of any of the provisions of the Code of Virginia, Title 4, relating to the transportation or sale of alcoholic beverages, or has, within one (1) year prior to the date of the application, been convicted of a violation of any state law or municipal ordinance relating to the sale, transportation, possession or distribution of intoxicating liquors or relating to the sale, transportation, possession or distribution of any other controlled substance; or

(e) Has, within one (1) year prior to the date of application, been convicted of using or allowing the use of a vehicle to aid or promote prostitution or illicit sexual intercourse, or of violating any of the provisions of the Code of Virginia, Section 18.2-349, or any amendment thereof.

(f) Has, any pending charges for any of the criminal offenses identified in paragraphs (b), (c), (d) or (e) of this section. (Code 1959, § 31-57; Ord. No. O-91-050, 3-26-91; Ord. No. O-96-136, 5-14-96)

Sec. 37-91. Authority to deny; appeal from denial.

The chief of police, except in cases where denial of registration is mandatory, after due hearing and upon not less than (5) days' notice in writing to the applicant, such notice to be sent by registered mail to the address given by the applicant in his application or by personal service upon the applicant, either of which shall constitute sufficient form of notice, may deny registration to any applicant, for good cause shown, including the conviction of the applicant for the violation of any of the provisions of this division or of any state law or municipal ordinance. Except in cases where denial of registration is mandatory, the applicant shall have the right, within twenty (20) days from the day registration is denied, to appeal to the judge of the municipal court from the decision of the chief of police denying registration. The decision of the judge of the municipal court after hearing relevant evidence shall be final. (Code 1959, § 31-58)

Sec. 37-92. Registration cards.

Every taxicab driver registered by the chief of police under the provisions of this division shall be furnished with a card signed by the chief of police certifying to his registration, which card shall contain a photograph of the taxicab driver made by

the police division. Such card shall be conspicuously displayed in a manner directed by the chief of police in the taxicab at all times that the same is in charge of such driver. No driver shall drive a taxicab upon the streets of the city until he shall have secured a registration card from the chief of police. (Code 1959, § 31-60)

Sec. 37-93. Revocation or suspension—mandatory revocation generally.

The chief of police shall forthwith revoke and seize the registration of any taxicab driver upon ascertaining that such driver:

- (a) Has, within the preceding three (3) years, been convicted of a felony or petit larceny under the laws of the United States or any state; or,
- (b) Has, within the preceding three (3) years, been convicted of driving a motor vehicle while under the influence of intoxicants or any narcotic drug under the laws of any state or municipality; or,
- (c) Has, within the preceding year, been convicted of any of the provisions of Code of Virginia, Title 4, relating to the transportation or sale of alcoholic beverages, or has been convicted of violating any state law or municipal ordinance relating to the sale or transportation of intoxicating liquors or relating to the sale, transportation, possession or distribution of any other controlled substance; or,
- (d) Has, within the preceding year, been convicted of using or allowing the use of a vehicle to aid or promote prostitution or illicit sexual intercourse, or of violating any of the provisions of Code of Virginia, Section 18.2-349; or,
- (e) Has, within the preceding year, been convicted of two (2) offenses of reckless driving under the laws of any state or municipality; or,
- (f) Has, within the preceding year, been convicted of one (1) offense of reckless driving and two (2) offenses of exceeding the speed limit under the laws of any state or municipality; or,
- (g) Has, within the preceding year, been convicted of three (3) offenses of exceeding the speed limit under the laws of any state or municipality.
- (h) Does not have in force a valid operators license issued by the Virginia Department of Motor Vehicles.

When any taxicab driver is charged with any criminal offense that would result in the mandatory revocation of the driver's registration, if convicted, the chief of police

shall suspend the driver's registration until such time as the criminal charges have been resolved. (Ord. No. O-96-136, 5-14-96)

Sec. 37-94. Same—Authority of chief of police; notice; appeal from action by chief of police.

The chief of police, except in cases where revocation is mandatory under section 37-93, after due hearing and upon not less than five (5) days' notice in writing to the taxicab driver, such notice to be sent by registered mail to the address given by the taxicab driver when applying for registration, or by personal service upon the taxicab driver, either of which shall constitute sufficient form of notice, may suspend or revoke the registration of any taxicab driver for good cause shown, including the conviction of the taxicab driver for the violation of any of the provisions of this division or any state law or municipal ordinance. Except in cases where revocation is mandatory under section 37-93, any taxicab driver shall have the right of appeal to the judge of the municipal court within twenty (20) days from the date of suspension or revocation. The decision of the judge of the municipal court after due hearing of relevant evidence shall be final. (Tax Code 1959, § 31-63)

Sec. 37-95. Same—Term.

In the event of revocation or suspension of registration of a driver, other than mandatory revocation, such suspension or revocation shall be for a period fixed by the chief of police or the judge of the municipal court upon appeal, but not exceeding one (1) year. (Tax Code 1959, § 31-64)

Sec. 37-96. Same—Registration after mandatory revocation.

In the event of mandatory revocation, registration shall not again be granted until such time as registration could be granted under the provisions of section 37-90. (Tax Code 1959, § 31-65)

Sec. 37-97. Same—Surrender and restoration of registration card.

In the event of any revocation or suspension of registration, the registration card of the driver shall forthwith be surrendered to the chief of police. In case of suspension only, the registration card shall be restored to the driver at the expiration of the period of suspension. (Tax Code 1959, § 31-66)

Sec. 37-98. Same—Driving during time of revocation or suspension.

It shall be unlawful for any person to drive a taxicab upon the streets of the city during the time his registration is revoked or suspended. (Tax Code 1959, § 31-67)

DIVISION 5. TAXIMETERS, RATES AND CHARGES

Sec. 37-105. Required.

All taxicabs operating under this article shall be equipped with taximeters fastened to the taxicab in front of the passengers, visible to them at all times of the day and night; and, after sundown, the face of the taximeter shall be illuminated. (Tax Code 1959, § 31-68)

Sec. 37-106. Signal device.

Each taximeter shall have thereon a dome light or similar electronic device to denote when the vehicle is employed and when it is not employed. It shall be the duty of the driver to engage the dome light or similar electronic device of such taximeter into a recording position at a time when such vehicle is employed and such device shall remain in such recording position at all times during the transportation of passengers and at a nonrecording position at the termination of each trip. It shall be unlawful for a driver to fail, refuse or neglect to put the taximeter in operation when such vehicle is employed and to keep the device in a recording position at all times during such employment. (Tax Code 1959, § 31-69; Ord. No. O-96-136, 5-14-96)

37-107. Inspection generally; procedure in case of inaccuracy.

Taximeters shall be subject to inspection from time to time by the department of public safety. Any inspector or other officer of such department or any officer designated by the city manager, may either on complaint of any person or without such complaint, inspect any such taximeter and, upon discovery of any inaccuracy therein, shall notify the person operating such taxicab to cease operation. Thereupon, such taxicab shall be kept off the streets until the taximeter is repaired and in the required working condition or until such taximeter has been replaced in the taxicab by a properly working taximeter. (Code 1959, § 31-70)

Sec. 37-108. Rules and regulations as to inspection and sealing.

The city manager may promulgate additional rules and regulations regarding the inspection of taximeters and the sealing of such taximeters if he deems it in the public interest to do so. (Code 1959, § 31-71)

Sec. 37-109. Rates.

The rates to be charged passengers by owners or drivers of taxicabs shall be as provided in this section and it shall be unlawful for an owner to permit or a driver to make any greater or lesser charges for the transportation of passengers and luggage than the following charges:

(a) Trip rates.

(1) Mileage basis.

For the first one-ninth mile, or fraction thereof--\$1.80

For each succeeding one-ninth mile, or fraction thereof--0.25

(2) Waiting time. For each minute of waiting time, or fraction thereof, after the first three (3) minutes--0.50 or \$30.00 per hour waiting time

(b) Hourly rates. When hired on an hourly basis for one (1) or more passengers, per hour--30.00

(c) Trunks or footlockers. For transporting trunks or footlockers along with passengers, each piece--1.00

(d) Hand luggage.

(1) For each hand baggage in excess of two (2) bags per passenger, each additional bag--0.10

(2) For packages without a passenger, each--1.00

(e) Bags weighing one hundred (100) pounds, or over.

For each piece of baggage weighing one hundred (100) pounds, or over--1.00

(f) For transporting pets, other than seeing-eye dogs, an additional charge for each pet--1.50

(g) Two (2) or more passengers. An extra charge of twenty cents (\$0.20) per passenger shall be made for each additional passenger traveling together and discharged along the route or at the same destination.

(1) Should the first person taken into a taxicab for transportation permit the driver to allow another or others traveling in the same direction to be transported in the same taxicab with him, pursuant to Section 37-24, the passenger first arriving at his destination shall pay in accordance with the meter charge at that point, plus an extra charge of twenty cents (\$0.20) for each additional passenger transported and discharged at that destination, whereupon the driver of the taxicab shall immediately clear his meter and set the same for immediate operation for the next passenger, who shall pay the meter charge upon arrival at his destination, plus an extra charge of twenty cents (\$0.20) for each additional passenger transported and discharged at that destination. The same method shall be followed for each succeeding passenger.

(2) When two (2) or more passengers are bona fide traveling together and engage a taxicab to different destinations, the charge shall be made as if the taxicab were hired for one (1) passenger for the last destination, plus an extra charge of twenty cents (\$0.20) for each additional passenger transported.

(h) Passengers to points beyond city limits. For transportation of passengers from the city to points beyond the city limits, the rates set out in this section shall be applicable only to so much of such trip as is within the city limits.

(i) In order to ensure payment of fares, drivers may request a security deposit of no more than five dollars (\$5.00) prior to accepting a passenger. The difference between such deposit and the actual fare shall be refunded to the passenger.

(j) Fuel cost surcharge. Effective July 1, 2008, a surcharge of one dollar (\$1.00) shall be added to the current meter charge for each trip. (Ord. of 7-22-75, § 31-72; Ord. of 6-26-79; Ord. No. O-82-213, § 1, 10-12-82; Ord. No. O-90-284, 9-11-90; Ord. No. O-99-091, 5-11-99, eff. 6-1-99; Ord. No. O-05-103, 8-9-05; Ord. No. O-08-088, 6-10-08, eff. 7-1-08)

Sec. 37-110. Receipt showing payment of fare.

A driver shall, upon request, deliver to the person paying the fare a receipt in legible type or writing showing the date, amount of fare paid, the name of the owner and driver, and the city license tag number of the taxicab. (Code 1959, § 31-73)

Sec. 37-111. Failure to pay fare.

It shall be unlawful for any person who has been transported in a taxicab to willfully to fail, refuse or neglect to pay the driver of the taxicab the fare provided for under this division at the rates prescribed therefor immediately upon termination of the transportation, unless satisfactory arrangements are otherwise made with the driver for the payment of such fare. Every person who violates the provisions of this section shall be guilty of a class 2 misdemeanor for each offense. (Code 1959, § 31-74; Ord. No. O-96-136, 5-14-96)

Secs. 37-112—37-122. Reserved.

ARTICLE III. RENTAL VEHICLES*

***Cross Reference**—License fee for rental car agencies, § 36-114(a)(15).

Sec. 37-123. Definition.

Wherever used in this article, the term “U-Drive-It” shall be construed to apply to all automobiles or motorcars offered for rent, hire or lease, or which are rented, hired or leased for operation without a chauffeur. (Code 1959, § 31-75)

Sec. 37-124. Renting to person without driver's permit.

It shall be unlawful for any person engaged in the business of offering automobiles or motorcars for rent, hire or lease, to be driven by the person hiring same, to hire, rent or lease such automobiles or motorcars to any person, unless such person exhibits to the owner or person in charge of such business a permit from a duly authorized authority permitting him to drive or operate a motor vehicle under the laws of the city and state in which such permit is issued. (Code 1959, § 31-76)

Sec. 37-125. Penalty.

Any person violating the provisions of this article shall be deemed guilty of a class 4 misdemeanor. (Code 1959, § 31-77)

March 7, 2014

Kimball Payne, III
Lynchburg City Manager

Dear Mr. Payne,

This letter is written in response to the hearing on the requests for 19 additional taxi cab certificates of convenience and necessity in the City of Lynchburg. We are requesting that the City of Lynchburg conduct a market study to determine if additional certificates of convenience and necessity are needed according to:

Section 37-59 Factors considered in making findings

- a. The adequacy of existing taxi cab service and other forms of transportation for passengers already in existence in the City.*

Section 37-71 Procedure when additional taxi cabs are required

... after investigation ... if public convenience and necessity requires the operation of additional taxi cabs ...

We are concerned that the number of requests will flood a limited service area the size and population of Lynchburg. We, along with the City Manager's Office have only the best interest for the City of Lynchburg's existing taxi cab services and its citizens. We sincerely hope that all factors including study findings will be taken into consideration before final decisions are made concerning this matter.

Respectfully submitted – Lynchburg City Taxi Cab Owners

JAY THOMAS
Printed Name

03/07/14
Date

Jay Thomas
Signature

NOTES

PUBLIC HEARING REGARDING THE ISSUANCE OF NEW CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY FOR TAXICAB OPERATIONS IN THE CITY OF LYNCHBURG

February 26, 2014

City Manager Kimball Payne made opening comments and explained the process and requirements for Certificates of Public Convenience and Necessity for Taxicabs. He reported that he had received applications for nineteen (19) new certificates and read off the names of the applicants. Mr. Payne advised that he planned to take his recommendations to City Council on March 25th in a public meeting. He mentioned that Officer Blankenship was present if there were any questions regarding the Lynchburg Police Department's role in the process of taxicab regulation. He then opened the public hearing for comments.

Mark Garrison, with Yellow Cab and applicant for two (2) certificates, stated that he had petitions signed by 40 businesses supporting the need for additional service. He said that the City has grown and needs good, reliable transportation.

Danny Johnson, with Allied Cab, stated that his concern is not about more taxicabs but that they don't want to flood the City with so many taxicabs that no one makes any money.

Tony West, applicant for ten (10) certificates, stated that we live in a country of free enterprise and the market will determine businesses success.

Uziel Wilson, with Central Va. Yellow Cab, stated that the aim is to offer timely, respectful and clean service to Lynchburg citizens and guests. He noted that a customer should not have to wait an hour for a taxi. Mr. Wilson said that he had previously been in business for 25 years at Allied Cab with his wife (an applicant for two certificates) and that there is a demand for quicker service and more and updated taxis. He said that there is a high demand in Lynchburg and the surrounding counties, from hotels, the AmTrak station, the airport and colleges, that people are overwhelmingly satisfied with Yellow Cab and that he doesn't have enough cabs to respond to demand. The company offers non-smoking taxis, credit card machines in each cab and a number of things that customers have requested but some companies are not providing. Mr. Wilson said that he is seeking more vehicles with certificates for his company because he is turning away many calls for service because he cannot respond in a timely manner. He also said that it would be a great thing for the City of Lynchburg to award more certificates as the City grows. Mr. Wilson mentioned numerous businesses, schools and other entities that rely on taxis and further stressed the need.

Jay Thomas, with Allied Cab, was present he said not to oppose the issuance of more certificates but to suggest that there might need to be some sort of cap put on the total number of certificates issued. He too doesn't want to see the market flooded which might lead to rate increases. He asked if there had been any research or market study done to determine the extent of the need for taxi service. Mr. Payne responded that there had been no market study conducted.

No one else present indicated a desire to speak so Mr. Payne closed the public hearing. Mr. Payne repeated his intention to take his recommendation to City Council on March 25th. He noted that if

anyone had comments they would like included with his report, they would need to get them to him by March 12th so they could be included in the packet to City Council.

LYNCHBURG CITY COUNCIL

Agenda Item Summary

MEETING DATE: **April 8, 2014**

AGENDA ITEM NO.: 23

CONSENT:

REGULAR: **X**

WORK SESSION:

CLOSED SESSION:

(Confidential)

ACTION: **X**

INFORMATION:

ITEM TITLE: **Resolution Urging the Virginia General Assembly and the Governor to Adopt a FY 2015 Budget for the Commonwealth**

RECOMMENDATION: Adopt the attached resolution urging the Virginia General Assembly and the Governor to adopt a FY 2015 budget for the Commonwealth.

SUMMARY: The Virginia General Assembly has failed to pass a budget in either its regular session or the most recent special session. Although the General Assembly is scheduled to reconvene on April 7th, it is not clear that a budget compromise is imminent.

The City receives significant funding in the areas of public education, public safety and human services, and others to support the delivery of state-mandated, locally delivered services. The failure of the General Assembly to pass and the Governor to sign a budget for FY 2015 in a timely manner will put that funding in jeopardy and could lead to the suspension of important services in the community.

The attached resolution, suggested by Council Member Cary, urges the General Assembly and the Governor to adopt a FY 2015 Budget in a timely manner.

PRIOR ACTION(S): None

FISCAL IMPACT: The failure of the General Assembly to pass and the Governor to sign a budget prior to July 1st could have unprecedented negative fiscal impacts on the City and its ability to deliver important services.

CONTACT(S): Kimball Payne, 455-3990

ATTACHMENT(S): Proposed resolution.

REVIEWED BY: lkp

**RESOLUTION URGING THE VIRGINIA GENERAL ASSEMBLY & THE GOVERNOR OF
VIRGINIA TO ADOPT A FY 2015 BUDGET**

WHEREAS, each year the foremost duty of the Virginia General Assembly is to pass a budget or budget amendments that serve as Virginia's financial blueprint for each fiscal year; and

WHEREAS, Virginia is consistently recognized for its sound fiscal management and budgetary practices as illustrated by its AAA Bond rating and the strong bond ratings of many local governments throughout the Commonwealth, including the City of Lynchburg; and

WHEREAS, the City of Lynchburg is currently in the process of developing and adopting its budget for the 2015 fiscal year; and

WHEREAS, the City of Lynchburg relies on the timely passage of a Virginia budget to allocate funding to local government services; and

WHEREAS, the almost 76,000 residents of Lynchburg depend on City government to provide critical services such as education and public safety; and

WHEREAS, failure to pass a timely budget will result in uncertainty for the City of Lynchburg, which receives 28.5% of its funding from the Commonwealth; and

WHEREAS, the Lynchburg City School Board relies on the timely passage of the state budget in order to set its budget and make staffing decisions, including teacher contracts; and

WHEREAS, the Virginia General Assembly has failed to adopt a budget for the two year biennium beginning July 1, 2014 in both its regular and special sessions;

NOW, THEREFORE, BE IT RESOLVED by the Lynchburg City Council, that the Virginia General Assembly and the Governor of Virginia are urged to come to the table to negotiate their differences and to adopt a budget as soon as possible to ensure the continued sound fiscal management of the Commonwealth and local governments; and

BE IT FURTHER RESOLVED that a copy of this resolution shall be transmitted to the Honorable Terence R. McAuliffe, Governor of the Commonwealth of Virginia, and to City's local delegation of the General Assembly.

Adopted:

Certified:

Clerk of Council

054K