

City Council of Hyattsville, Maryland

AGENDA

**City Council Regular Meeting
Monday, November 5, 2018
8:00 PM**



**Council Chambers
Hyattsville Municipal Building
4310 Gallatin Street, 3rd Floor
Hyattsville, MD 20781
(301) 985-5000 www.hyattsville.org**

CITY COUNCIL

[Mayor Candace B. Hollingsworth](#)
[Edouard Haba, Council President, Ward 4](#)
[Kevin Ward, Council Vice President, Ward 1](#)
[Bart Lawrence, Ward 1](#)
[Robert S. Croslin, Ward 2](#)
[Shani N. Warner, Ward 2](#)
[Carrianna Suiter, Ward 3](#)
[Thomas Wright, Ward 3](#)
[Paula J. Perry, Ward 4](#)
[Joseph Solomon, Ward 5](#)
[Erica Spell, Ward 5](#)

ADMINISTRATION

Tracey E. Nicholson, City Administrator
Laura Reams, City Clerk, 301-985-5009, lreams@hyattsville.org

WELCOME TO THE CITY OF HYATTSVILLE CITY COUNCIL MEETING! Your participation at this public meeting is valued and appreciated.

Agenda/Packet: The Agenda/Packet is available for review at the Hyattsville Municipal Building and online at www.hyattsville.org prior the scheduled meeting (generally available no later than the Friday prior to the scheduled Monday meeting). Please note, times given for agenda items are estimates only. Matters other than those indicated on the agenda may also be considered at Council discretion.

Americans with Disabilities Act: In compliance with the ADA, if you need special assistance to participate in this meeting or other services in conjunction with this meeting, please contact the City Clerk's Office at (301) 985-5009. Notification 48 hours prior to the meeting will enable the City to make reasonable arrangements to ensure accessibility to this meeting.

Audible Devices: Please ensure all audible devices are turned off or otherwise not audible when the City Council is in session. Thank you.

Consent Agenda: Items listed on the Consent agenda are considered to be routine in nature, and are normally approved by one motion. Please note that most items on the Consent agenda have been discussed at a previous meeting. If a Councilmember wishes to comment on a particular item, that item shall be removed from the Consent agenda to "action" to allow for additional discussion.

Public Input: If you wish to address the Council during the Public Comment period, please submit an Audience Participation Form to the City Clerk prior to the beginning of the meeting. Matters identified during Public Comment that are not on that meeting's agenda will be referred to staff for follow-up or considered on a future agenda. Issues that require a response will be addressed publically at the next regular Council meeting. Speakers are requested to keep their comments to no more than two (2) minutes per speaker. Written comments or supporting documents may be turned in to the City Clerk for distribution to the Mayor and Council.

Ways to Watch the Meetings Live: City Council meetings are broadcast live on cable television channel 71 (Comcast) and channel 12 (Verizon). You may also view meetings live online at hyattsville-md.granicus.com/MediaPlayer.php?camera_id=2

Replay Schedule: The meetings will be re-broadcast on cable television, channel 71 (Comcast) and channel 12 daily at 7:00 a.m., 1 p.m., and 8 p.m. Meetings are also able for replay online at www.hyattsville.org/councilagendas.

City Information: Sign up to receive text and email notifications about Hyattsville events, government, police and programs at www.hyattsville.org/list.aspx

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1. **Call to Order and Council Roll Call**

2. **Pledge of Allegiance to the Flag**

3. **Approval of Agenda**

4. **Public Comment (8:10 p.m. – 8:20 p.m.) Limit 2 minutes per speaker**

5. **Presentations (8:20 p.m. - 8:30 p.m.)**

5.a) City Administrator Update (5 minutes)

HCC-127-FY19

Lead Sponsor: At the Request of the City Administrator

Co-Sponsor(s): N/A

5.b) FY17 Audit Update (5 minutes)

HCC-124-FY19

Lead Sponsor: At the Request of the City Administrator

Co-Sponsor(s): N/A

6. **Consent Items (8:30 p.m. - 8:35 p.m.)**

6.a) Schedule Public Hearing for Traffic Calming Petition - Maryhurst Drive

HCC-116-FY19

I move that the City Council schedule a Public Hearing for Monday, December 17, 2018 at 7:30 PM, to consider public testimony regarding the Traffic Calming Petition for the 5800 block of Maryhurst Drive between 31st Avenue and Madison Place.

Lead Sponsor: At the Request of the City Administrator

Co-Sponsor(s): N/A

[Petition for Traffic Calming Maryhurst Drive Final Redacted.pdf](#)

[Traffic Calming Device Map Maryhurst Dr & Madison Pl Signage 10292018\[69683\].pdf](#)

[114-8 Traffic Calming Devices.pdf](#)

6.b) Appointments to Police and Public Safety Citizens' Advisory Committee

HCC-117-FY19

I move that the Mayor and Council appoint Mariel Alper (Ward 1), William Auchter (Ward 1), and Mai Abdul Rahman (Ward 2) to the Police and Public Safety Citizens' Advisory Committee for terms of 2 years, ending on November 5, 2020.

Lead Sponsor: Perry

Co-Sponsor(s):

[Committee Application PPSAC Mariel Alper W1.pdf](#)

[Committee Application PPSAC William Auchter W1.pdf](#)

[Committee Application PPSAC Mai Abdul Rahman W2.pdf](#)

**6.c) Zoning Variance Request V-103-18: 5829 36th Avenue, Hyattsville
HCC-108-FY19**

I move the City Council authorize the City Administrator to issue correspondence to the Prince George's County Board of Zoning Appeals stating the City of Hyattsville's support of V-103-18, a zoning variance application for the subject property at 5829 36th Avenue, Hyattsville to permit a variance of 30.1% total lot coverage, 50 feet front street line setback for an accessory building, and a waiver of the parking area location requirement.

Lead Sponsor: At the Request of the City Administrator

Co-Sponsor(s): N/A

[V-103-18 Memo to Council \(1\).docx](#)

[V-103-18 SOJ.docx](#)

[V-103-18 Photo.pdf](#)

[V-103-18.pdf](#)

[City of Hyattsville Zoning Variance Policy Statement & Variance Process ENGLISH.pdf](#)

**6.d) Zoning Variance Request V-107-18: 4210 Longfellow Street, Hyattsville
HCC-109-FY19**

I move that the City Council authorize the City Administrator to issue correspondence to the Prince George's County Board of Zoning Appeals stating the City of Hyattsville's support of V-107-18, a zoning variance application for the subject property at 4210 Longfellow Street, Hyattsville to permit a variance of 0.4 feet side yard width and 20 feet rear yard depth for a fence over 6 feet in height in the rear yard, subject to the following conditions:

- The height of additional fencing materials is no greater than 36" above the existing fence line and shall include vegetative materials;
- Any approved variance is not transferable 'by-right' to any future Prince George's County fence permit.

Lead Sponsor: At the Request of the City Administrator

Co-Sponsor(s): N/A

[V-107-18 Narrative Description.pdf](#)

[V-107-18.pdf](#)

[V-107-18 Memo - Final](#)

**6.e) Replacement of Streets Vehicle 66
HCC-112-FY19**

I move that the Mayor and Council authorize the expenditure of FY19 Capital Improvement Funds in an amount not to exceed \$54,000 for the purpose of purchasing a Chevrolet Silverado from Criswell Chevrolet, utilizing the Montgomery County Contract Rider, Contract Number 1065341.

Lead Sponsor: At the Request of the City Administrator

Co-Sponsor(s):

[Chevrolet MC-OTL 2016.pdf](#)

[CHEVROLET Term Renewal 2018-06-03 thru 2019-06-02.pdf](#)

[City of Hyattsville 3500 Silverado sales proposal.pdf](#)

6.f) FY19 Budget Appropriation: Maryland DHCD Community Legacy Grant Award

HCC-119-FY19

I move the Mayor and Council amend the FY2019 budget to accept and appropriate the FY2019 Community Legacy Grant of \$50,000 from the Maryland Department of Housing & Community Development.

Lead Sponsor: At the Request of the City Administrator

Co-Sponsor(s): N/A

[Memo - 2018 Community Legacy Award Acceptance - 10.26.2018.doc](#)

6.g) Bottle Filling Stations - Exterior

HCC-121-FY19

I move that the Mayor and Council approve the purchase of 5 (five) exterior water fountains with bottle filling stations from Pro-Fountains, cost NTE \$20,000.

Lead Sponsor: At the Request of the City Administrator

Co-Sponsor(s): N/A

[Global - Water Fountains 2018.pdf](#)

[Plumber Stock - Water Fountains 2018.pdf](#)

[Pro Dry - Water Fountains 2018.pdf](#)

6.h) Holiday Decorations

HCC-122-FY19

I move that the Mayor and Council approve the purchase of Holiday Decorations for City Corridors from Mosca Design at a cost NTE \$12,000.

Lead Sponsor: At the Request of the City Administrator

Co-Sponsor(s): N/A

[holiday deco quotes.pdf](#)

6.i) Renaissance Square Condominium Board Appointments

HCC-123-FY19

I move that the Mayor and Council appoint Maryann Dillon to serve as Housing Initiative Partnership's representative on the Renaissance Square Condominium Board for a period not to exceed twelve (12) calendar months.

Lead Sponsor: At the Request of the City Administrator

Co-Sponsor(s): N/A

[Memo - Renaissance Square Condo Board Appointment.docx](#)

**6.j) FY19 Budget Appropriation: Maryland Heritage Area Authorities Non-Capital Grant
HCC-129-FY19**

I move the Mayor and Council amend the FY2019 budget to accept and appropriate the FY2019 MHAA Non-Capital Grant off \$29,339 from the Maryland Department of Planning's Maryland Historical Trust, and authorize the City Administrator to sign the contract, upon the review and approval by the City Attorney for legal sufficiency.

Lead Sponsor: At the Request of the City Administrator

Co-Sponsor(s): N/A

**6.k) FY19 Budget Amendment: Adjusting Appropriations for Salaries in Community Services
HCC-131-FY19**

I move that the Mayor and Council amend the FY19 Community Services Budget by adjusting various salary line-item appropriations to cover proposed changes in Teen Center Programming.

Lead Sponsor: At the Request of the City Administrator

Co-Sponsor(s): N/A

**6.l) FY19 Capital Budget Amendment: Department of Public Works
HCC-130-FY19**

I move that the Mayor and Council amend the FY19 DPW Capital Budget and transfer \$23,000 from Sanitation Operation Capital Budget to Streets Capital Budget to cover the cost of a new truck for use in Street Operations.

Lead Sponsor: At the Request of the City Administrator

Co-Sponsor(s): N/A

6.m) Proclamation: Veterans Day

HCC-133-FY19

I move that the Mayor and Council proclaim November 11, 2018, to be Veterans Day in the City of Hyattsville.

Lead Sponsor: At the Request of the City Administrator

Co-Sponsor(s): N/A

[Veterans Day 2018 Final \(1\).docx](#)

6.n) Proclamation: American Education Week

HCC-134-FY19

I move that the Mayor and Council declare the week of November 12 - 16, 2018, to be American Education Week in the City of Hyattsville.

Lead Sponsor: At the Request of the City Administrator

Co-Sponsor(s): N/A

[American Education Week 2018 \(Final\).docx](#)

6.o) Proclamation: Native American Heritage Month

HCC-135-FY19

I move that the Mayor and Council recognize November 2018 as Native American Heritage Month in the City of Hyattsville.

Lead Sponsor: At the Request of the City Administrator

Co-Sponsor(s): N/A

[Native American Heritage Month 2018 \(Final\).docx](#)

6.p) Proclamation: Municipal Government Works Month**HCC-136-FY19**

I move that the Mayor and Council recognize November 2018 as Municipal Government Works Month in the City of Hyattsville.

Lead Sponsor: At the Request of the City Administrator

Co-Sponsor(s): N/A

[Municipal Government Works Month 2018 \(Final\).docx](#)

7. Action Items (8:35 p.m. - 8:55 p.m.)**7.a) Commercial Façade Improvement Program – 2018 Grant Awards (5 minutes)****HCC-126-FY19**

I move that the Mayor and Council accept the recommendations of the staff and approve 2018 Commercial Façade Improvement program grant awards for the following improvement projects:

- Will's Home Decorating (Former TESST Building), 5122 Baltimore Avenue, Hyattsville MD 20781: \$50,000
- Queens Chapel Town Center, 5400 Queens Chapel Road, Hyattsville 20782: \$21,125
- J. Richard Lilly, MD and Associates, 5804 and 5806 Baltimore Avenue, Hyattsville 20781: \$6,125
- Susie Rhabb, Owner, 5126 Baltimore Avenue, Hyattsville: \$7,750

Lead Sponsor: At the Request of the City Administrator

Co-Sponsor(s): N/A

[Memo - CFI 2018 Award Recommendations - 10.29.2018.docx](#)

7.b) PPS 4-17008: Hyattsville Armory Apartments (10 minutes)**HCC-110-FY19**

I move that the City Council authorize the Mayor to submit correspondence on behalf of the City of Hyattsville to the Maryland-National Capital Park & Planning Commission in support of the preliminary plan of subdivision for the Armory Apartments development (PPS 4-17008), subject to the following conditions:

- o Access to the property from Jefferson Street shall be maintained through a public dedication of the driveway to the City;
- o Desired BPIS improvements include some combination of the following pieces of infrastructure: (1) Rhode Island Avenue Trolley Trail way-finding signage (2) a Capital Bikeshare on, or adjacent to, publicly accessible property south of the subject site (3)

crosswalk improvements and (4) a new bus shelter dedicated to and maintained by Prince George's County DPW&T.

Lead Sponsor: At the Request of the City Administrator

Co-Sponsor(s): N/A

[Armory Apartments PPS Action Memo FINAL.docx](#)

[Hyattsville-UIP-Elevations-180717 \(1\).pdf](#)

[PPS 4-17008 DevelopmentExhibit.pdf](#)

[Planning Committee Minutes- 07.17.18.docx](#)

7.c) Hyattsville Ordinance 2018-08: Introduction of Resolution to Issue 2018 General Obligation Bonds to renovate the Public Works Facility and 3505 Hamilton Street (5 minutes) HCC-125-FY19

I move that the Mayor and Council introduce Hyattsville Resolution 2018-08 for the Issuance of (1)(A) General Obligation Bonds and (B) General Obligation Bond Anticipated Notes, each in an original aggregate principal amount not exceeding Thirteen Million Eight Hundred Twenty-Five Thousand Dollars (\$13,825,000), and (2) General Obligation Refunding Bonds, provided that the original aggregate principal amount of any series of refunding bonds shall not exceed one hundred thirty percent (130%) of the aggregate principal amount of the bonds refunded. The proceeds of the sale are to be used and applied for the public purpose of financing, reimbursing or refinancing costs (as defined in the ordinance) of the projects identified as Public Works Facility and 3505 Hamilton Street together with related costs. In accordance with applicable budgetary procedures or law the authorized bonds, bond anticipation notes and refunding bonds shall be sold at private sale, unless by resolution City Council provides for the sale of the obligations by another permissible manner and authorizes the City Council to pledge the City's Full Faith and Credit and unlimited taxing power to the prompt payment of Debt Service on each series of the obligations (INTRODUCTION/FIRST READING).

Lead Sponsor: At the Request of the City Administrator

Co-Sponsor(s): N/A

[Bond Ordinance DOCS- 206299-v2-2018 Hyattsville Ordinance 1 .docx](#)

8. Discussion Items (8:55 p.m. - 10:00 p.m.)

8.a) Hyattsville Transportation Study (15 minutes)

HCC-113-FY19

Lead Sponsor: At the Request of the City Administrator

Co-Sponsor(s): N/A

[Transportation Study Adoption Memo - Discussion.docx](#)

[Hyattsville Comments on Final Report TDG Response.xlsx](#)

[Draft Final Report HVL Clean revised 092018.pdf](#)

[Appendix A: Hyattsville Transportation Study - Existing Conditions Memo](#)

[Appendix B: 2037 AM Build](#)

[Appendix B: 2037 AM No Build](#)

[Appendix B: 2037 PM Build](#)

[Appendix B: 2037 PM No Build](#)

[Appendix C: Wayfinding Submittal](#)

[Appendix D: Hyattsville TS Planning Level Cost Estimate](#)

[2018-09-26 Final Report Presentation to City Council.pdf](#)

8.b) Rhode Island Avenue Trolley Trail Extension (15 minutes)

HCC-128-FY19

Lead Sponsor: At the Request of the City Administrator

Co-Sponsor(s): N/A

[Trolley Trail 30% Design Discussion Memo](#)

[Planning Committee Minutes - 10.16.18.docx](#)

[Rhode Island Trolley Trail Presentation.pdf](#)

8.c) Proposed Changes to City Election Policies (20 minutes)

HCC-97-FY19

Lead Sponsor: At the Request of the City Administrator

Co-Sponsor(s): N/A

[Ch. 8 Election Code Revisions Presentation FINAL \(1\).pptx](#)

[Chapter 8 Revisions 11.2.18.pdf](#)

[Ethics Ordinance Amendment Re. Chapter 8 Changes 10.11.18\[67917\].docx](#)

[BOE Rules and Regulations 11.2.18\[70084\].pdf](#)

8.d) Educational Facilities Task Force (15 minutes)

HCC-111-FY19

I move that the Mayor and Council establish the Educational Facilities Task Force. The mission of this task force is to ensure that the County addresses the local school infrastructure needs as reported in the 2017 Facilities Master Plan or as needs develop, and does so in a timely manner informed by local needs and conditions. The initial focus of the task force will be Cycle 1 of the Approved FY17 Educational Facilities Master Plan as it relates to local school facilities. The task force shall meet at least 6 times a year and be composed of up to 9 members knowledgeable in, for example, local public school needs, architecture, land use/acquisition, urban planning, and Prince George's Public Schools policy. Members shall

serve two-year terms. The task force shall have up to two Council liaisons. At least once a year, the task force shall present to the Council progress made on its mission and any recommendations for Council action. If there comes a time that the task force members feel that its mission is fulfilled, they may recommend the task force's dissolution to the Mayor and Council.

Lead Sponsor: Hollingsworth

Co-Sponsor(s): Lawrence, Ward

[Education Facilities Task Force Worksheet.docx](#)

9. Council Dialogue

10. Community Notices and Meetings

10.a) City Calendar: November 6 - November 19, 2018

HCC-115-FY19

Lead Sponsor: At the Request of the City Administrator

Co-Sponsor(s):

[Main City Calendar Nov 6 - Nov 19 2018.docx](#)

11. Motion to Adjourn



Hyattsville City Council Agenda Item Report

Meeting Date: November 5, 2018

Submitted by: Nicola Konigkramer

Submitting Department: Administration

Item Type: Report

Agenda Section: Presentations (8:20 p.m. - 8:30 p.m.)

SUBJECT

City Administrator Update (5 minutes)

HCC-127-FY19

Recommendation:

Sponsor(s):

At the Request of the City Administrator

Co-Sponsor(s):

N/A

ATTACHMENTS

Summary Background:

City Administrator Nicholson-Douglas will provide the Mayor, Council, and Residents a brief update on City initiatives.

Next Steps:

N/A

Fiscal Impact:

N/A

City Administrator Comments:

N/A

Community Engagement:

N/A

Strategic Goals:

Goal 1 - Ensure Transparent & Accessible Governance

Legal Review Required?

N/A



Hyattsville City Council Agenda Item Report

Meeting Date: November 5, 2018

Submitted by: Ron Brooks

Submitting Department: Finance

Item Type: Audit

Agenda Section: Presentations (8:20 p.m. - 8:30 p.m.)

SUBJECT

FY17 Audit Update (5 minutes)

HCC-124-FY19

Recommendation:

Sponsor(s):

At the Request of the City Administrator

Co-Sponsor(s):

N/A

ATTACHMENTS

Summary Background:

The FY17 audit continues to progress. Auditors are completing their review of appropriations associated with contracts and the City's procurement process and are beginning the review of budget versus actual for all funds. Our goal is to complete this audit by the end of this calendar year.

Next Steps:

Continue to work through the audit until completion.

Fiscal Impact:

Late audit filings can result in loss of State Grants and loss of revenues from the State of Maryland.

City Administrator Comments:

See summary above.

Community Engagement:

N/A

Strategic Goals:

Goal 1 – Ensure Transparent and Accessible Governance

Legal Review Required?

N/A



Hyattsville City Council Agenda Item Report

Meeting Date: November 5, 2018

Submitted by: Nicola Konigkramer

Submitting Department: City Clerk

Item Type: Legislative

Agenda Section: Consent Items (8:30 p.m. - 8:35 p.m.)

SUBJECT

Schedule Public Hearing for Traffic Calming Petition - Maryhurst Drive

HCC-116-FY19

Recommendation:

I move that the City Council schedule a Public Hearing for Monday, December 17, 2018 at 7:30 PM, to consider public testimony regarding the Traffic Calming Petition for the 5800 block of Maryhurst Drive between 31st Avenue and Madison Place.

Sponsor(s):

At the Request of the City Administrator

Co-Sponsor(s):

N/A

ATTACHMENTS

[Petition for Traffic Calming_Maryhurst Drive_Final_Redacted.pdf](#)

[Traffic Calming Device Map_Maryhurst Dr & Madison Pl_Signage_10292018\[69683\].pdf](#)

[114-8 Traffic Calming Devices.pdf](#)

Summary Background:

The City received a petition for a traffic calming device for the 5800 block of Maryhurst Drive between 31st Avenue and Madison Place on August 22, 2018. The petition did not meet the signature requirement upon submission and was returned to the petitioner with guidance on meeting the requirements. The petition was resubmitted on September 19, 2018 with the required signatures of at least 60% of residents in the unit block.

Per Section 114-8 of the Hyattsville Charter and Code, the City began a traffic study to determine if a traffic calming device is in the interests of both best traffic engineering practice and public safety.

Next Steps:

The City of Hyattsville Mayor & Council will conduct a Public Hearing on Monday, December 17, 2018 at 7:30 p.m. (prior to the City Council Meeting).

The Mayor & Council will announce their decision to approve, approve with modifications, or deny the requested traffic calming device within fifteen (15) days of the close of the hearing, unless, due to extraordinary circumstances, the time limit is extended by a majority vote of the City Council. The petitioners will be notified of the decision of the Mayor and City Council by the City Clerk and the decision will be published in the Hyattsville City Council Meeting Minutes.

Fiscal Impact:

N/A

City Administrator Comments:

Recommend Support

Community Engagement:

N/A

Strategic Goals:

Goal 1 – Ensure Transparent and Accessible Governance

Legal Review Required?

Complete

Summary and Background Information:

There has always been a speeding issue on Maryhurst Drive, but with the opening of the new elementary school, Felegy, on Nicholson Street, our street is being used by many neighborhood commuters dropping off and picking up their children at the school. There have been instances of speeding vehicles creating dangerous situations to the pedestrians, the school children and the street residents.

We have experienced speeding vehicles almost hitting us entering and emerging from our park vehicles on the street. Parents walking with their children must carefully watch for vehicles coming up Maryhurst from Madison Street and 31st Avenue. There have been car damages, such as broken side mirrors, car dents and scratches due to speeding vehicles.

Action Petitioned for:

To avoid unnecessary accidents and to foster traffic safety, the residents on Maryhurst Drive petition to a traffic calming device be installed on the lower half, two-way portion, of Maryhurst Drive.

PETITION TO THE CITY OF HYATTSVILLE FOR A TRAFFIC CALMING DEVICE

RECEIVED

Petition Summary & Background Information:

(Please print, attach additional sheets as needed)

SEP 19 2018

City of Hyattsville

Action petitioned for:

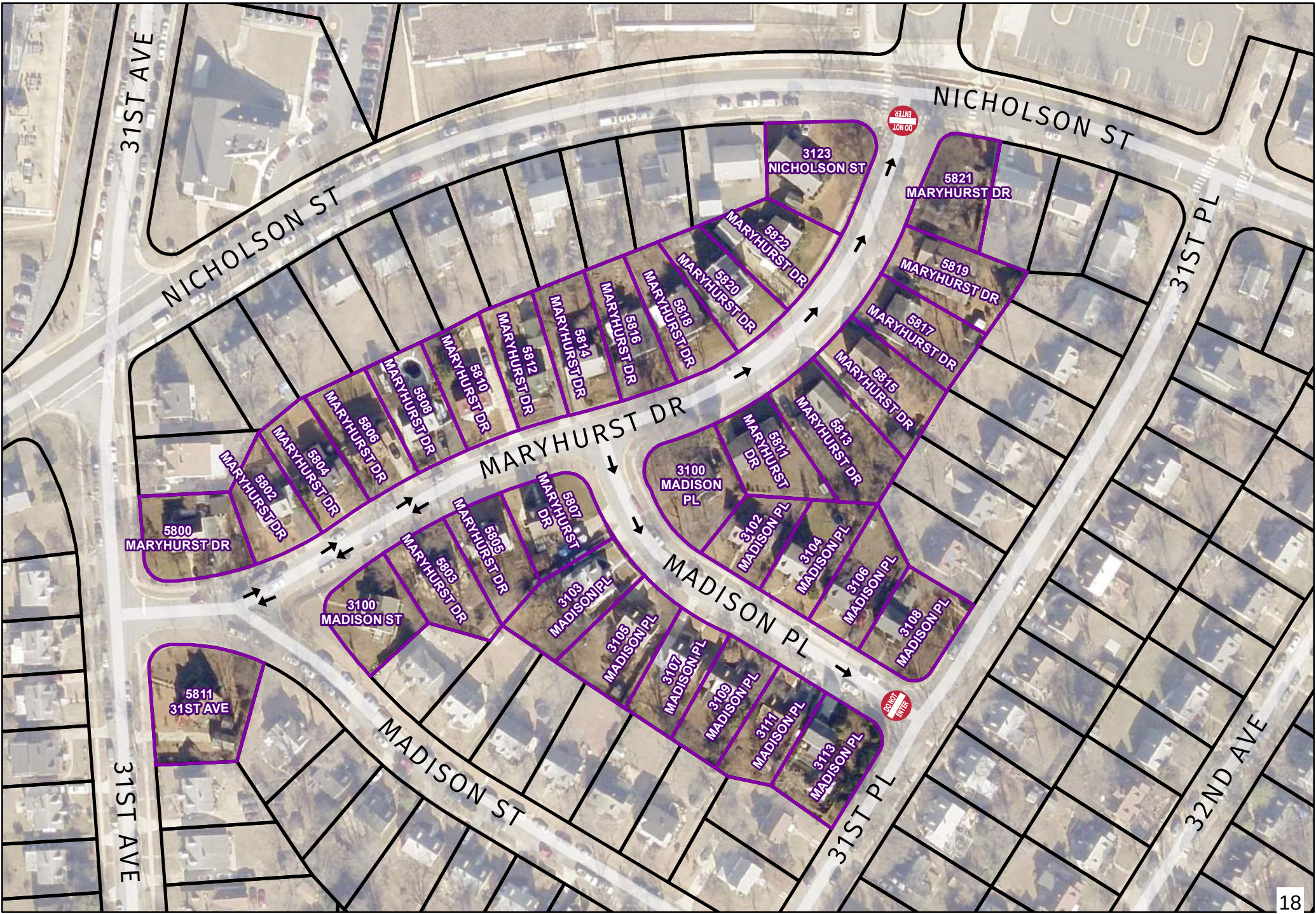
(Please print)

Contact Person	Address	Phone Number	Email Address
CAROLYN Fowler-Smith			

#	Date	Name (Please Print)	Signature	Address	Phone #
1	8/17/18	CAROLYN Fowler-Smith			
2	8/18/18	NAPOLION GUINDO			
3	8-18-18	Michael Tays			
4	8-18-18	Moussa Diaby			
5	8/18/18	Mark E. Moore			
6	8/18/18	Deborah Holmes			
7		Maria HIGGINS			
8	8-19	Beverly Spence			

PETITION TO THE CITY OF HYATTSVILLE FOR A TRAFFIC CALMING DEVICE

[illegible]



§ 114-8. Traffic calming devices. [Added 8-1-94 by HB No. 8-94, Amended 2-21-95 by HB No. 8-94, 2-21-95 by HB No. 01-95, Amended on 3-27-11 by HO-2011-01]

A. Definitions: As used in this Ordinance, all terms shall have the definitions and meanings provided in the Maryland Code Annotated, Transportation Article, unless otherwise indicated. The following terms shall have the meanings indicated:

(1) "Traffic calming device" is a physical device used to regulate, guide, slow, and/or control traffic, for the purpose of pedestrian and traffic safety. The term traffic calming device includes but is not limited to the following devices:

(a) Speed zones: an identifiable area of reduced speed, indicated by signage or otherwise.

(b) Speed humps: a raised or manually installed section of asphalt or other construction material constructed on a roadway, with a dip and crown shaped as viewed in cross section, on a base ordinarily twenty-two feet (22'), measured parallel to the curb of the roadway, and with a height not less than three (3) inches nor more than four (4) inches.

(c) Raised intersections: contrasting surfaces such as brick, cobblestones, concrete, or other construction material in place of street surfaces at the intersection of two streets.

(d) Traffic islands, circles and lateral shifts: physical barriers placed in the street to direct traffic in a specific direction including both temporary and permanent structures which do or do not contain landscaping.

(e) Rumble strips: physical devices attached to, or constructed in the road surface to provide contrast to the road surface in order to slow traffic.

(f) Chokers: a portion of the sidewalk extending out approximately six (6) to eight (8) feet into the street.

(2) "Unit block": unit block shall mean a subsection of, or a separate and distinct, but attached portion of a street, of no specific length or width, but which has been numerically designated and identified a part of that street. Each street may consist of numerous unit blocks.

(3) "Dwelling unit": one (1) or more rooms arranged for the use of one (1) or more individuals living together as a single housekeeping unit, with cooking, living, sanitary and sleeping facilities as defined by the Prince George's County Housing Code.

(4) "Eligible signature": the signature of an individual, over the age of eighteen (18), residing in a dwelling unit located on a street:

(A) upon which the installation of a traffic calming device is being considered, or

(B) within one (1) unit block of such streets upon where the installation of a traffic calming device is being considered for only a portion of such street, or

(C) that is only accessible over a street for which the installation of the traffic calming device is being considered and provides the only means of ingress and egress, or

(D) or in an area which the City Clerk pursuant to the discretion granted in subsection B (2) (b) determines should be surveyed.

Only one eligible signature per dwelling unit will be considered for any of the purposes set forth in this Ordinance.

HYATTSVILLE CHARTER AND CODE

B. Request for traffic calming device installation:

Requests for the installation of a traffic calming device may be made by petition subject to the following conditions.

(1) Residents of a street may request the installation of a traffic calming device by submitting a petition to the City Administrator containing eligible signatures from at least sixty percent (60%) of dwelling units located on the street, stating that such individuals want a traffic calming device. Such petition need not conform to the requirements in the Charter for petitions.

(2) If the traffic calming device is being requested for only a portion of a street, the petition containing at least sixty percent (60%) of eligible signatures must be circulated to individuals residing in dwelling units located on the unit block on which the traffic calming device will be installed and to individuals residing in dwelling units located within one (1) unit block of the block containing the requested installation site.

(a) If the street upon which the traffic calming device is to be installed provides the only means of ingress and/or egress for other streets, the petition containing at least sixty (60%) of eligible signatures must be circulated to the residents of such other streets.

(b) The City Clerk retains sole discretion to determine if residents of additional streets will be surveyed, based upon circumstances that could impact such residents.

(3) The City Clerk will validate petitions submitted to the City Administrator to determine that said petitions are in compliance with applicable provision of this Article. The City Clerk shall inform the City Council, petitioners, the City Administrator, Director of Public Works and the Police Chief, as to whether the petition complies with this Article. If the petition is in compliance, the department heads will jointly undertake to assess the location of the request and determine if a traffic calming device is in the interests of both best traffic engineering practice and public safety; and the Mayor who will schedule a public hearing in accordance with subsection C, below.

(4) The City Clerk shall develop and distribute a standardized “request for traffic calming device” petition form sufficient for use in accordance with this subsection.

C. Procedures for public hearings on traffic calming device installations:

(1) Conduct of Public Hearing: the Mayor shall schedule a public hearing after being notified by the City Clerk in accordance with subsection B. (3) that the petition is valid.

(a) Notice of the hearing will be given to all residents of the street upon which the proposed traffic calming device is to be installed; and

(b) If the traffic calming device is being requested for only a portion of the street, notice will be given to residents of dwelling units located on the unit block on which the traffic calming device will be installed and also to individuals residing in dwelling units located within one (1) unit block of the block containing the requested installation site; and

(c) If the traffic calming device is to be installed on a street which provides the only means of ingress and/or egress for other streets, the notice will be given to residents of such other streets, by the following means:

(i) Publication in the Hyattsville Reporter or in a paper having circulation in the City.

(ii) Advertisement on the City of Hyattsville’s cable television channel.

HYATTSVILLE CHARTER AND CODE

(2) Factors considered: The following factors shall be taken into consideration as guidance in determining whether to install a traffic calming device. The factors listed below shall not be considered exclusive.

(a) Whether the street where installation of a traffic calming device is proposed has a speeding problem, which has been identified through a combination of residents' complaints, police radar surveillance and ticketing practices, accident statistics, electronic traffic counts and/or a history of previous efforts to control speeding which cannot be alleviated in any way other than a traffic calming device. The Department of Public Works shall provide a report of the electronic traffic count data of the proposed street to determine the traffic and speed issues.

(b) Whether the street carries a sufficient volume of non-residential traffic in addition to the general residential traffic, so that the requested traffic calming device is appropriate.

(c) The impact of a traffic calming device on public transportation, police and fire apparatus.

(d) The impact of a traffic calming device on adjacent neighborhoods.

(3) Decision: The Mayor and City Council will announce their decision to approve, approve with modifications, or deny the requested traffic calming device within fifteen (15) days of the close of the hearing unless, due to extraordinary circumstances, the time limit is extended by majority vote of the City Council.

(4) Notification of decision: The petitioners will be notified of the decision of the Mayor and City Council by the City Clerk and the decision will be published in the Hyattsville City Council Meeting Minutes.

D. Procedures for removing a traffic calming device installation:

(1) A request for removal of a traffic calming device, installed pursuant to subsection C above, may be by petition containing eligible signatures from sixty percent (60%) of the dwelling units located on the street upon which the traffic calming device has been installed or

(2) If the traffic calming device has been installed for only a portion of the street, the petition requesting removal may be signed by eligible signatures from sixty percent (60%) of the dwelling units located on the unit block on which the traffic calming device was installed and dwelling units located within one (1) unit block of the requested removal site; or

(3) If the traffic calming device has been installed on a street that provides the only means of ingress and/or egress for other streets, the petition requesting removal may be signed by eligible signatures from sixty percent (60%) of the dwelling units located on the street and such other streets.

(4) No petition will be considered until six (6) months have elapsed since the initial installation of the traffic calming device.

E. Miscellaneous:

(1) Placement of traffic calming device near schools, parks and playgrounds: the Mayor and Council may initiate the installation of traffic calming device on streets adjacent to neighborhood parks, playgrounds, and schools or on commercial areas.

(2) Authority of City over traffic calming devices.

HYATTSVILLE CHARTER AND CODE

(a) Nothing in these guidelines shall be construed as preempting the City, at its initiative, from installing, altering, maintaining or removing a traffic calming device installation. The City Administrator will notify, pursuant to the notice provisions stated in subsection c. above, the appropriate affected residents of the proposed changes regarding a traffic calming device.

F. Installation and maintenance:

(1) In the regulation and supervision of traffic, the Public Works Director is authorized to construct, install, place, erect, and maintain upon the public highways of the City those traffic calming device installations and proper signage as the Mayor and Council have or may direct at the locations designated by the Mayor and Council.

(2) All speed humps installed pursuant with this Ordinance shall ordinarily:

(A) Consist of one (1) or more speed humps spaced every two hundred (200) to five hundred (500) feet along public street or alley;

(B) Not be placed within two hundred (200) feet of a stop sign unless required by special circumstances as determined by the Director of Public Works; and

(C) Be painted with distinctive markings which should include reflective paint or tape.

(3) Warning signs marked “speed humps” shall be placed on the right hand side of the street at the approach to each speed hump.

§ 114-9. Speed monitoring systems. [Rewritten on 3-27-11 by HO-2011-01, Amended 3-18-13 by HO-39-03-13, Amended 8-4-14 by HO 2014-06]

A. A “speed monitoring system,” as defined in Maryland law, means a device with one or more motor vehicle sensors producing recorded images of motor vehicles traveling at least twelve (12) miles per hour above the posted speed limit.

B. No more than ten (10) school zone speed monitoring systems as outlined in §21-809 of the Transportation Article of the Annotated Code of Maryland are hereby authorized at locations, determined by the Chief of Police or his/her designee after consultation with and agreement of the City Administrator, in school zones within the City, as established under §21-803.1 of the Transportation Article of the Annotated Code of Maryland.

C. Before activating a speed monitoring system in any school zone at any location where such a system had not been previously moved or placed, the City shall:

1. Publish notice of the location(s) of the speed monitoring system(s) on the City website and in a newspaper of general circulation within the City; and

2. Ensure that each sign that designates a school zone has in close proximity to it a sign that indicates that speed monitoring systems are in use in the school zone and that the signage is in accordance with the manual for and that the specifications for a uniform system of traffic control devices adopted by the State Highway Administration.

D. The City shall name a City employee as Program Administrator to oversee the contract with the speed monitoring system contractor and shall also name another City employee who has not been involved in monitoring system citations, to investigate and respond to questions or concerns about the City’s speed monitoring systems as outlined in §21-809(b)(1)(ix) of the Transportation Article.

E. Unless otherwise provided by law, the school zone speed monitoring system may operate



Hyattsville City Council Agenda Item Report

Meeting Date: November 5, 2018
Submitted by: Nicola Konigkramer
Submitting Department: Legislative
Item Type: Appointment
Agenda Section: Consent Items (8:30 p.m. - 8:35 p.m.)

SUBJECT

Appointments to Police and Public Safety Citizens' Advisory Committee

HCC-117-FY19

Recommendation:

I move that the Mayor and Council appoint Mariel Alper (Ward 1), William Auchter (Ward 1), and Mai Abdul Rahman (Ward 2) to the Police and Public Safety Citizens' Advisory Committee for terms of 2 years, ending on November 5, 2020.

Sponsor(s):

Perry

Co-Sponsor(s):

ATTACHMENTS

[Committee Application_PPSAC_Mariel Alper W1.pdf](#)

[Committee Application_PPSAC_William Auchter W1.pdf](#)

[Committee Application_PPSAC_Mai Abdul Rahman W2.pdf](#)

Summary Background:

See attached applications.

Next Steps:

Upon appointment, the staff liaison will reach out to the appointees to inform them of their appointment. Please note all meetings of the committee are open to the public.

Fiscal Impact:

N/A

City Administrator Comments:

Recommend approval.

Community Engagement:

Agendas for the Police and Public Safety Advisory Committee Meetings will be posted on the City's website. Meetings are open to the public and all are encouraged to attend.

Strategic Goals:

Goal 1 - Ensure Transparent and Accessible Governance

Action 1.1 - Provide information and opportunities for resident participation in civic endeavors.

Legal Review Required?

N/A

Board, Committee and Commission Application

Profile

Mariel

First Name

Alper

Last Name

Email Address

Street Address

City

Suite or Apt
State

Postal Code

To find your City Ward, click on this link! <http://www.hyattsville.org/538/Residency-Verification-Page>

*

☒ Ward 1

Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Police & Public Safety Citizens' Advisory Committee: Submitted

Referred By:

Biographical Statement

As a current homeowner in Hyattsville and a previous resident of Cheverly, Greenbelt, and Adelphi, I am knowledgeable about the local and surrounding areas and am invested in the safety and quality of life for residents of Hyattsville. I also have a background in criminology and have both academic and practical knowledge of issues related to community policing and public safety. If appointed to this committee, I will seek to apply my experience and expertise of the local area and the field of criminology to improve policing and public safety in the city.

Board, Committee and Commission Application

Profile

William

First Name

Auchter

Last Name

Email Address

Street Address

City

Suite or Apt

State

Postal Code

To find your City Ward, click on this link! <http://www.hyattsville.org/538/Residency-Verification-Page>

*

☒ Ward 1

Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Police & Public Safety Citizens' Advisory Committee: Submitted

Referred By:

Biographical Statement

I am a 40 year resident of Hyattsville and raised our 3 children in the community public schools. I am a graduate of the Hyattsville Police Academy and a CERT (Community Emergency Response Team) member. I am retired after 43 years in the transportation industry holding positions dealing with safety in the workplace, security for our buildings, equipment and employees and environmental programs. I participated in the federally funded Mid-Atlantic Supply Chain Resilience Project which was completed in the Spring of 2014. Between 2005 and 2011 I attended various workshops dealing with emergency response put on by Homeland Security, FEMA, The Red Cross and the State of Maryland.

Board, Committee and Commission Application

Profile

mai

First Name

Abdul Rahman

Last Name

Email Address

Street Address

City

Suite or Apt

State

Postal Code

To find your City Ward, click on this link! <http://www.hyattsville.org/538/Residency-Verification-Page>

*

☒ Ward 2

Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Police & Public Safety Citizens' Advisory Committee: Submitted

Education Advisory Committee: Submitted

Kevin Ward

Referred By:

Biographical Statement

I am an educational researcher and last April I joined the HVF volunteer squad. I received my doctorate degree in Educational Leadership, Policy & Administration from Howard University's School of Education, M.A. degree in Education from Trinity University, and B.A. degree in Political Science from Drake University. As a former human rights commissioner, I recognize the value of citizen advisory committees and their value in meeting and addressing the needs of local communities. To that end, I look forward to your response. All the best, mai



Hyattsville City Council Agenda Item Report

Meeting Date: November 5, 2018

Submitted by: Katie Gerbes

Submitting Department: Community & Economic Development

Item Type: Planning & Development

Agenda Section: Consent Items (8:30 p.m. - 8:35 p.m.)

SUBJECT

Zoning Variance Request V-103-18: 5829 36th Avenue, Hyattsville

HCC-108-FY19

Recommendation:

I move the City Council authorize the City Administrator to issue correspondence to the Prince George's County Board of Zoning Appeals stating the City of Hyattsville's support of V-103-18, a zoning variance application for the subject property at 5829 36th Avenue, Hyattsville to permit a variance of 30.1% total lot coverage, 50 feet front street line setback for an accessory building, and a waiver of the parking area location requirement.

Sponsor(s):

At the Request of the City Administrator

Co-Sponsor(s):

N/A

ATTACHMENTS

[V-103-18_Memo_to_Council \(1\).docx](#)

[V-103-18 SOJ.docx](#)

[V-103-18_Photo.pdf](#)

[V-103-18.pdf](#)

[City of Hyattsville Zoning Variance Policy Statement & Variance Process_ENGLISH.pdf](#)

Summary Background:

The applicants, Juan Juarez and Amy Ochoa, have applied to the Prince George's County Board of Zoning Appeals for a zoning variance of 3.5 feet front yard depth for the dwelling, 30.1% net lot coverage, 50 feet front street line setback for an accessory building and a waiver of the parking area location requirement in order to construct an extension to their driveway. Staff recommends support of this variance request.

Next Steps:

Correspondence should be sent to the Board of Zoning Appeals prior to their hearing on November 14, 2018.

Fiscal Impact:

N/A

City Administrator Comments:

Recommend Approval

Community Engagement:

N/A

Strategic Goals:

Goal 3 – Promote a Safe and Vibrant Community

Legal Review Required?

N/A



Memo

To: City Council
From: Katie Gerbes, City Planner
CC: Tracey Nicholson, City Administrator
Jim Chandler, Assistant City Administrator and Director, Community & Economic Development
Date: October 24, 2018
Re: Zoning Variance Request V-103-18: 5829 36th Avenue
Attachments: V-103-18 Supporting Documentation

The purpose of this memorandum is to provide the Director of Community & Economic Development with a briefing on the Zoning Variance request V-103-18, for the property located at 5829 36th Avenue, Hyattsville.

- The applicants are requesting a zoning variance of 3.5 feet front yard depth for the dwelling, for 30.1% net lot coverage, 50 feet street line setback for an accessory building and a waiver of the parking area location requirement.
- The residential dwelling pre-dates modern zoning codes, and therefore automatically require a variance of 3.5 front yard depth to be in compliance with the current code.
- It is the opinion of City staff that the additional 8.5% in net lot coverage will have minimal impact on the surrounding properties and should be permitted.
- Staff recommends the City's support of the zoning variance request, as it complies with City policy.

Summary of Variance Conditions

The applicants, Juan Juarez and Amy Ochoa, have applied to the Prince George's County Board of Zoning Appeals for a zoning variance of 3.5 feet front yard depth for the dwelling, 30.1% net lot coverage, 50 feet front street line setback for an accessory building and a waiver of the parking area location requirement.

The property in question is an end unit of a triplex located in Ward 4. The property has an existing curb cut and small driveway pad on site. The applicant is seeking to extend their driveway pad to accommodate an additional car in the driveway. The proposed extension would be 12.5 feet in width and 21 feet long.

The homeowners have adequately addressed the City's Variance Policy, (see attached).

Many of the site conditions requiring a variance on this property are pre-existing conditions as a result of the age of the structure on site. The dwelling pre-dates modern zoning codes, and therefore automatically requires a variance of 3.5 front yard depth to be in compliance with the current code. Similarly, due to the orientation and dimensions of the property, there is technically no back yard to the property. This anomaly is a result of definitions within the current zoning code. The location of the shed on the property would ordinarily not be an issue, but in this case, it is considered to be located within the front yard. Consequently, the variance request for 50 feet front street line setback for an accessory building is required to bring their existing shed into compliance.

Variances of 30.1% net lot coverage and a waiver of the parking area location requirement are requested to expand the driveway. Since this property is a triplex, the lot is quite small, and the existing structure and driveway violate the 30% net lot coverage requirement by constituting approximately 51.6% of the lot. It is the opinion of City staff that the additional 8.5% in net lot coverage will have minimal impact on the surrounding properties and should be permitted. The variance of the parking location requirement is supported, as the configuration of the property does not allow for parking to take place anywhere else on the lot except in front of the structure. Staff recommends the City's support of the zoning variance request, as it complies with City policy.

Recommendation

Staff recommends the City Council support the applicant's variance request. The variances for front yard depth and front street line setback are pre-existing conditions of the property. The variances for lot coverage and parking area waivers are necessary to construct the addition to the driveway, which will improve quality of life for the residents, help combat the existing high demand for on-street parking in that neighborhood and will not adversely affect the surrounding homes or environment.

Statement of Justification

The current driveway is 8 feet and we need it to be wider. There is a little hill in the front lawn and when it is snowing in the wintertime, it is dangerous and people can fall on it. It is not flat and people can fall. I need to get a larger vehicle, like a van, because I have daughters and a family, so I need a larger car with a wider parking area. We will be able to fit two cars in the driveway.

Juan Juarez

5829 36th Avenue
Hyattsville, MD
V-103-18



BOARD OF APPEALS
HEARING
FOR INFORMATION
301-952-3220
V-103-18
10-10-18 6:00 p.m.
COUNTY ADMINISTRATION BUILDING
UPPER MARLBOROUGH, MD
www.ppr.state.md.gov

BOARD OF APPEALS
HEARING
FOR INFORMATION
301-952-3220
V-103-18
10-10-18 6:00 p.m.
COUNTY ADMINISTRATION BUILDING
UPPER MARLBOROUGH, MD
www.ppr.state.md.gov



THE PRINCE GEORGE'S COUNTY GOVERNMENT

BOARD OF ZONING APPEALS

BOARD OF ADMINISTRATIVE APPEALS

COUNTY ADMINISTRATION BUILDING, UPPER MARLBORO, MARYLAND 20772

TELEPHONE (301) 952-3220

NOTICE OF HEARING

Date: September 25, 2018

Petitioners: Juan Juarez and Amy Ochoa

Appeal No.: V-103-18

Hearing Date: WEDNESDAY, OCTOBER 10, 2018, AT 6:00 P.M. **EVENING**

Place: Zoning Hearing Room #2190
County Administration Building, Upper Marlboro, Md.

Appeal has been made to this Board for permission to validate existing conditions (dwelling, development, shed) and construct a driveway extension in the front yard of a triple-attached dwelling on the premises known as Lot 62, Block B, Wood Manor Subdivision being 5829 36th Avenue, Hyattsville, Prince George's County, Maryland, contrary to the requirements of the Zoning Ordinance.

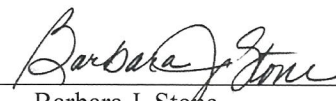
The specific violation resides in the fact that Zoning Ordinance Section 27-442(e)(Table IV) prescribes that each lot shall have a front yard at least 25 feet in depth. Section 27-442(c)(Table II) prescribes that not more than 30% of the net lot area shall be covered by buildings and off-street parking. Section 27-442(i)(Table VIII) prescribes that accessory buildings shall be set back 60 feet from the front street line. Section 27-120.01(c) prescribes that no parking space, parking area, or parking structure other than a driveway no wider than its associated garage, carport, or other parking structure may be built in the front yard of a dwelling in the area between the front street line and the sides of the dwelling. Variances of 3.5 feet front yard depth for the dwelling, 30.1% net lot coverage, 50 feet front street line setback for an accessory building and a waiver of the parking area location requirement are requested.

Public hearing on this Appeal is set for the time and place above stated. **Petitioner, or counsel representing Petitioner, should be present at the hearing. A Petitioner which is a corporation, limited liability company, or other business entity *MUST* be represented by counsel, licensed to practice in the State of Maryland, at any hearing before the Board. Any non-attorney representative present at the hearing on behalf of the Petitioner (or any other person or entity) shall not be permitted to advocate.**

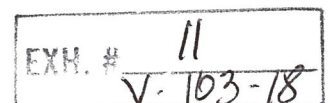
Adjoining property owners, who are owners of premises either contiguous to or opposite the property involved, are notified of this hearing in order that they may express their views if they so desire. However, their presence is not required unless they have testimony to offer the Board.

If inclement weather exists on hearing date, please contact the office to ascertain if hearing is still scheduled.

BOARD OF ZONING APPEALS

By: 
Barbara J. Stone
Administrator

cc: Petitioners
Adjoining Property Owners
Park and Planning Commission
City of Hyattsville



(USE BLACK INK ONLY)

**PLEASE READ ALL INSTRUCTIONS
BEFORE FILLING OUT APPLICATION**

**TO: BOARD OF ZONING APPEALS FOR PRINCE
GEORGE'S COUNTY, MARYLAND**

County Administration Building, Room 2173
14741 Governor Oden Bowie Drive
Upper Marlboro, Maryland 20772
(301) 952-3220



Filing Fee Paid: \$ 200
CK/M.O. # 24821049082
By: Juan Suarez
5829 36th Avenue
Hyattsville, MD 20782
Sign Posting Fee Paid: \$ 60
CK/M.O. # 24821049071
By: Juan Suarez
5829 36th Avenue
Hyattsville, MD 20782
APPEAL NO. V-103-18
(OFFICE USE ONLY)

**APPLICATION FOR A VARIANCE
FROM STRICT APPLICATION OF THE ZONING ORDINANCE**

(If variance is being applied for due to receipt of a Violation Notice, a copy of the notice is required.)

Owner(s) of Property JUAN S. JUAREZ & Amy E. Ochoa
(AS SHOWN ON DEED)
Address of Owner(s) 5829 36th Ave,
City Hyattsville State MD Zip Code 20782
Telephone Number (home) _____ (cell) 240-993-9017 (work) 240-529-8341
E-mail address: morroportillo@outlook.com

Attorney/engineer/contractor name, address and telephone number (applicant if different from above): (circle one)
JAYE PITTJ 3704 GULL RD, TEMPLE HILLS Md 20748
240 422 2913

For assistance in completing questions below, see corresponding paragraphs on *Instructions to Applicants*, which is designed to help you fill out this form. **SUBMITTED SITE PLANS/PLATS MUST BE DRAWN TO SCALE BY A CERTIFIED ENGINEER, SURVEYOR OR ARCHITECT (WITH OFFICIAL SEAL OR STATE OF MARYLAND REGISTRATION NUMBER SHOWN ON THE SITE PLAN/PLAT) AND MUST SHOW ALL STRUCTURES (TO INCLUDE ALL DIMENSIONS AND NUMBER OF STORIES) AS WELL AS OFF-STREET PARKING AND ANY PROPOSED CONSTRUCTION ON THE PROPERTY. THE PLAN MUST NOTE THE SCALE, THE LOT SIZE, THE LEGAL DESCRIPTION AND A NORTH ARROW.**

Location of Property involved: a) Street Address 5829 36th Ave,
City Hyattsville MD 20782

b) Lot(s) 62 Block B Parcel _____
Subdivision Name Wood Manor

c) Association Name(s) & Address(es) (Homeowners/Citizens/Civic and/or Community):
None

d) Municipality (Incorporated City/Town) Name Hyattsville

What will be/has been constructed on the property? (Variance(s) Required) proposed Extension
D/W (12.5 X 21) in One-Family Triple-Attached Residential

LOT COVERAGE WORKSHEET

NET LOT SIZE 3112 SQUARE FEET

30 % LOT COVERAGE ALLOWED 933.6 SQUARE FEET

<u>STRUCTURE/PARKING</u>	<u>MEASUREMENTS</u>	<u>SQUARE FOOTAGE</u>
HOUSE	<u>18.1 X 30.8</u>	<u>557.48</u>
GARAGE/CARPORT		
DRIVEWAY	<u>7.5 X 57</u>	<u>427.5</u>
	<u>6 X 24.5</u>	<u>147.5</u>
	<u>18 X 19</u>	<u>342</u>
	<u>12.5 X 21</u>	<u>262.5</u>
PORCH/SUNROOM		
SHED(S)	<u>11 X 12</u>	<u>132</u>
ADDITION(S)		
OTHER: <u>Cherry</u>	<u>1 X 1.5</u>	<u>1.5</u>

TOTAL LOT COVERAGE

EXH. # 10
V-103-18

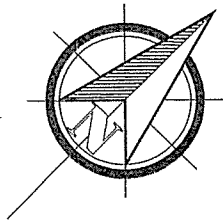
TOTAL % NET LOT COVERAGE

TOTAL % OVER NET LOT COVERAGE

1869.98

60.1 %

30.1 % (936 S.F.)

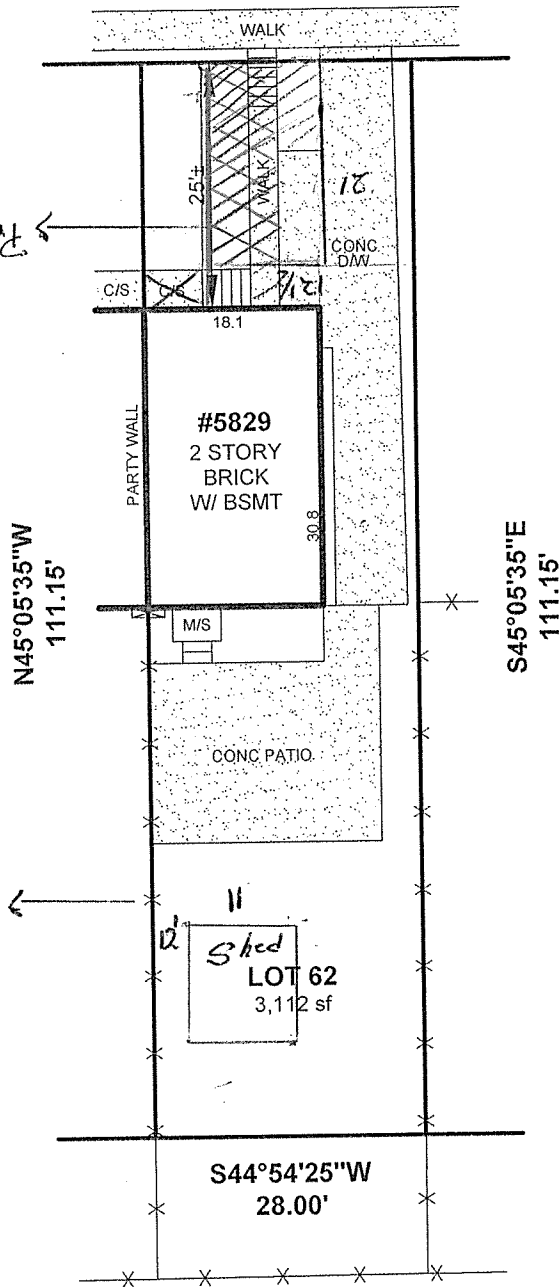


"36TH" AVENUE

N44°54'25"E

28.00'

12.5 x 21
D/W
Proposed Extension



NOTE:
ENCROACHMENTS
MAY EXIST

QUEENS CHAPEL ROAD

LOCATION DRAWING OF:

#5829 "36TH" AVENUE

LOT 62

BLOCK B

LEGEND:

- X- - FENCE
- B/E - BASEMENT ENTRANCE
- B/W - BAY WINDOW
- BR - BRICK
- BRL - BLDG. RESTRICTION LINE
- BSMT - BASEMENT
- C/S - CONCRETE STOOP

A Land Surveying Company

DULEY

and



City of Hyattsville

Zoning Variance Policy Statement and Variance Process

The Mayor and Council adopted the following City of Hyattsville Policy and Process for Zoning Variance Requests: City of Hyattsville Zoning Variance Policy Statement:

The City of Hyattsville affirms the role of the Prince George's County Planning Board zoning authority and "the purposes, intent, standards and design criteria set forth in the Zoning Ordinance and appropriate County policies."

The City of Hyattsville affirms the current zoning policy within the City limits and as a matter of policy does not support zoning variances as a normal business practice.

The City's support of a zoning variance ordinarily be granted only after the Mayor and City Council acknowledge that the granting of a variance:

1. remedies a unique situation that zoning did not anticipate;
2. remedies that which creates a significant hardship on the property-owner that can be documented and clearly demonstrated;
3. will result in benefits to the residents and improve the quality of the environment of the City.

Citizens requesting such support shall submit:

1. current plat of site with all existing conditions;
2. photos of all existing site conditions;
3. scale plans and elevations of existing conditions and proposed changes;
4. narrative description of the proposed changes, specifics of the zoning variance requirements and an explanation of how the zoning variance request responds to:
 - a. a unique situation that zoning did not anticipate;
 - b. a significant hardship on the property owner;
 - c. benefits to the residents and improve the environment of the City

The City shall as a matter of policy provide letters of support for residents to document a "non-conforming lot" as part of the normal permitting process for projects complying with all other aspects of zoning regulations, unless the matter at hand is the certification of a non-conforming use on a non-conforming lot. The standard for the support of the certification of a non-conforming use on a non-conforming lot would revert to the instant aforementioned requirements for City support of a zoning variance.

The City will not support variance requests for additional lot coverage when the intention of the request is to add off-street parking on the lot, except in extraordinary circumstances.

City of Hyattsville Zoning Variance Process

Requests for zoning variances shall be processed by the Office of Code Enforcement and reviewed by the staff for technical issues. The Office of Code Enforcement shall determine if the request complies with all of the requirements of City of Hyattsville Zoning Variance Policy or to document a "non-conforming lot". The Supervisor shall then issue a report for the City Administrator citing one of the following "Actions":

- A. The request for the City's support of the zoning variance does not comply with City's policy, Do Not Recommend Approval
- B. The request for the City's support of the zoning variance does comply with City's policy, Recommend Approval - Zoning Variance
- C. The request for the City's support of the zoning variance does comply with City's policy for "non-conforming lots", Recommend Approval - Non Conforming Lot

The City Administrator shall review the Office of Code Enforcement Supervisor's Report and determine which of the following actions is applicable and execute accordingly:

- A. Do Not Recommend Approval - The City Administrator shall draft a letter detailing the City's opposition for the proposed request for a zoning variance for the Mayor's consideration and signature. The City letter opposing the proposed request for a zoning variance shall be placed on the Consent Items Agenda for approval by the City Council.
- B. Recommend Approval - Zoning Variance - The City Administrator shall forward the Office of Code Enforcement Supervisor's Report for the proposed request for a zoning variance to the (Planning Committee for review and comment along with any other City staff comments) the Mayor and City Council for action.
- C. Recommend Approval - Non Conforming Lot - The City Administrator shall draft a letter detailing the City's support for the proposed request for a zoning variance for a "non-conforming lot" to the Mayor for his review and signature. The City letter supporting the proposed request for a zoning variance shall be placed on the Consent Items Agenda for approval by the City Council.

Adopted by the Mayor and Council on February 13, 2006

Amended by the Mayor and Council on October 3, 2011



Hyattsville City Council Agenda Item Report

Meeting Date: November 5, 2018

Submitted by: Katie Gerbes

Submitting Department: Community & Economic Development

Item Type: Planning & Development

Agenda Section: Consent Items (8:30 p.m. - 8:35 p.m.)

SUBJECT

Zoning Variance Request V-107-18: 4210 Longfellow Street, Hyattsville

HCC-109-FY19

Recommendation:

I move that the City Council authorize the City Administrator to issue correspondence to the Prince George's County Board of Zoning Appeals stating the City of Hyattsville's support of V-107-18, a zoning variance application for the subject property at 4210 Longfellow Street, Hyattsville to permit a variance of 0.4 feet side yard width and 20 feet rear yard depth for a fence over 6 feet in height in the rear yard, subject to the following conditions:

- The height of additional fencing materials is no greater than 36" above the existing fence line and shall include vegetative materials;
- Any approved variance is not transferable 'by-right' to any future Prince George's County fence permit.

Sponsor(s):

At the Request of the City Administrator

Co-Sponsor(s):

N/A

ATTACHMENTS

[V-107-18 Narrative Description.pdf](#)

[V-107-18.pdf](#)

[V-107-18_Memo_-_Final](#)

Summary Background:

The applicants, Dominick Dale and Jennifer Beddor, have applied to the Prince George's County Board of Zoning Appeals for zoning variances of 0.4-foot side yard width for the dwelling, and 20 feet rear yard depth/width for a fence over 6 feet in height in the rear yard.

Next Steps:

Correspondence should be sent to the Board of Zoning Appeals prior to their hearing on November 14, 2018.

Fiscal Impact:

N/A

City Administrator Comments:

Recommend Approval

Community Engagement:

The Community & Economic Development staff has met with the applicant and conducted an on-site assessment of the existing conditions. The site was posted for a variance, per Prince George's County Board of Zoning Appeals requirements.

Strategic Goals:

Goal 3 – Promote a Safe and Vibrant Community

Legal Review Required?

N/A

Narrative Description of Proposed Changes – V-107-18 - back fence extension, 4210 Longfellow St

Directly adjacent to the northern property line of 4210 Longfellow St is a parking lot, belonging to the First Baptist Church, which is elevated roughly 7-8 feet above the backyard of 4210 Longfellow St. Due to the topography of the area, the top of the 6-foot fence on the northern property line of 4210 Longfellow is well below the base of this parking lot. As a result, anyone in the parking lot has an unobstructed view into the backyard, anyone in the backyard has an unobstructed view into the parking lot, and lighting from the parking lot shines directly into the backyard at night. The owners of 4210 Longfellow St are requesting permission to extend the height of the existing backyard wooden fence, located on the northern property line running east to west, from 6 to 9 feet in height for the following reasons.

- 1) Privacy: Since moving into the property on 6/1/18, I (Dominick Matthew Dale, owner) have witnessed on 4 separate occasions, vehicles, with multiple people inside, parked idle in the far corner of the parking lot (southeast, directly behind my property) late at night (10pm or later). On some occasions, the people in these cars have shined their headlights directly into my property for extended periods of time, gotten out of their car to smoke, or have gotten into loud arguments or played loud music. This parking lot belongs to a church, and of course on Sundays the lot will fill and vehicles will park near my property, which is entirely appropriate and not the reason for this request to extend the height of my fence. The vehicles that park in the farthest corner of the lot late at night, as far from the church as you can get with the rest of the lot empty, are clearly not affiliated with the church, and can create a very disruptive and unsettling environment with no privacy whatsoever between this parking lot and my property. A 3-foot extension of the current fence will not provide complete privacy from these vehicles, but it will make it much more difficult for anyone in the parking lot to be able to see into my backyard.

Similarly, due to the fact that there is a walking path that connects Macaroy Alley and the church's parking lot, there is a regular amount of foot traffic directly behind my property. Most of this traffic is a non-issue, but I've noticed, on 2 separate occasions, people looking into my property from the parking lot at night, which can be rather unsettling. Additionally, my neighbor had an incident last spring where people standing in the parking lot threw rocks into her backyard at her dogs. Again, a 3-foot extension to the existing fence will not provide complete privacy, but it will make it much more difficult for people to see into my property from the parking lot.

I emailed the church asking for permission to plant some bushes or trees on their property to provide more privacy, but they have not granted such permission and have not responded to my requests since August.

- 2) Light pollution: Directly north of the church parking lot is an adjoining parking lot for Friendship Arms Apartments. This parking lot is elevated even higher than the church parking lot, and 11 spotlights in that lot shine directly, or nearly directly, into my property at night. I spoke to the front office of the apartments, and they informed me that they had experienced many car break-ins and the lights have helped to prevent them. I asked if it would be possible to adjust the angle of the lights or place blinders on them, they said they would look into it, but no action has been taken and I have not heard from them since that initial conversation in July. If the lights help improve safety in the neighborhood, I'm in full support, but I request permission to extend the height of my fence in order to block the lights from coming into my property at night. Due to the topography, a 3-foot addition to my fence should block most of the light from coming into my property.

A 6-foot fence in front of a 7 to 8-foot hill provides an extremely limited amount of privacy. A 3-foot extension of the fence will provide at least a basic level of privacy. Additionally, the fence in question is partially visible from the sidewalk on Longfellow St. If given permission to build a 3-foot extension on top of the current fence, my plan is to add 3 feet of framed lattice, and then grow vines along those 3-foot sections to create a "green wall" effect that should result in a more aesthetically pleasing environment for everyone.

The following pages explain in greater detail the existing conditions and what I would like to do. Please also note that I have explained my plans to my neighbors who have given me verbal confirmation that they do not have any objections.

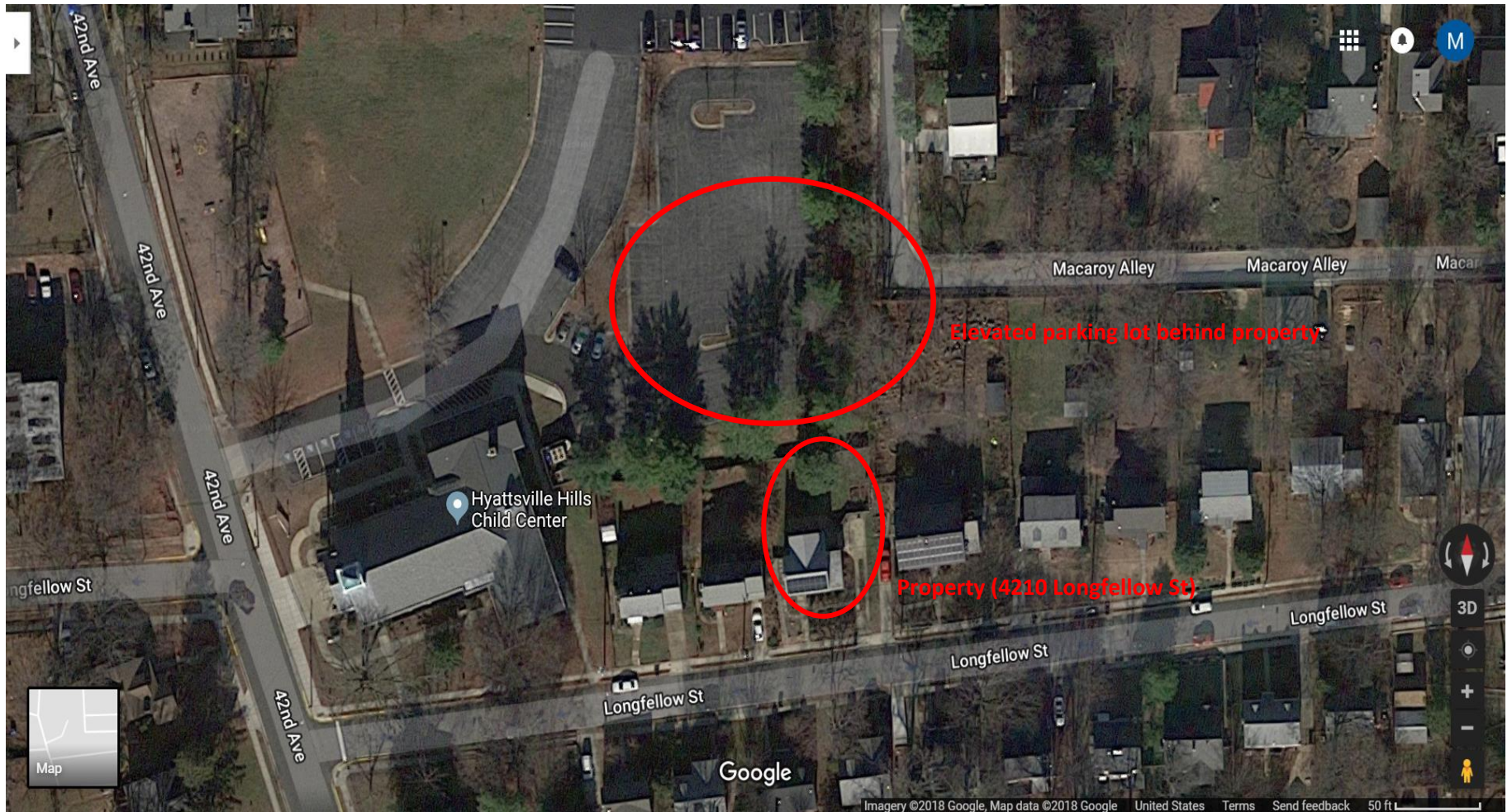
DocuSign Envelope ID: 5B2E4F5B-F193-4774-8CA9-62D2F36D35DA



Current fence is 6 feet high and approximately 63.5 feet long. There are 9 posts with cedar planks in-between each post. From left to right (based on the orientation of the picture) posts are spaced apart as follows: 8 feet, 7.5 feet, 7.5 feet, 7.25 feet, 8 feet, 8 feet, 8 feet, 9.25 feet.



The parking lot behind the property is elevated roughly 1 - 2 feet higher than the top of the existing 6-foot fence.



These pictures were taken from the back porch of the property facing the parking lot.





The following picture was taken from the parking lot, facing the property.



At night, lights from Friendship Arms Apartments shine directly into the property, slightly above the existing 6-foot-high fence.



Property owner requests extension of existing 6-foot fence by 3 feet (black line on wood represents 9-foot height from base).



Property owner is working with licensed contractor to add 3 feet of lattice to existing 6-foot fence. The plan is to add 3-foot-high posts on top of current posts and secure them with metal brackets.













Once posts have been secured, lattice will be framed in-between each post.



Once the extension is complete, the owner plans to grow vine plants through the latticed portion of the fence (the top 3 feet only), in order to provide a greater level of privacy, limit the amount of light pollution coming into the backyard, and provide a more aesthetically pleasing environment for the neighborhood. The following picture has been included to give you a basic understanding of what it will look like once completed. This is not exactly what it will look like, but generally speaking, it will look similar.





THE PRINCE GEORGE'S COUNTY GOVERNMENT⁶⁰

BOARD OF ZONING APPEALS

BOARD OF ADMINISTRATIVE APPEALS

COUNTY ADMINISTRATION BUILDING, UPPER MARLBORO, MARYLAND 20772
TELEPHONE (301) 952-3220

NOTICE OF HEARING

Date: October 9, 2018

Petitioners: Dominick Dale and Jennifer Beddor

Appeal No.: V-107-18

Hearing Date: WEDNESDAY, OCTOBER 24, 2018, AT 6:00 P.M. EVENING

Place: Council Committee Room #2027
County Administration Building, Upper Marlboro, Md.

Appeal has been made to this Board for permission to validate an existing condition (dwelling) and to construct a 3-foot extension to the existing 6-foot wooden fence along the rear lot line on the premises known as Lot 4A, Re-Subdivision of Ellaville Subdivision, being 4210 Longfellow Street, Hyattsville, Prince George's County, Maryland, contrary to the requirements of the Zoning Ordinance.

The specific violation resides in the fact that Zoning Ordinance Section 27-442(e)(Table IV) prescribes that each lot shall have a side yard at least 8 feet in width and a rear yard at least 20 feet in depth/width. Section 27-420(a) prescribes that fences and walls more than 6 feet high shall not be located in any required yard, and shall meet the setback requirements for main buildings. Petitioners propose to validate an existing condition (dwelling) and to construct a 3-foot extension to the existing 6-foot wooden fence along the rear lot line. Variances of .4 foot side yard width for the dwelling and 20 feet rear yard depth/width for a fence over 6 feet in height in the rear yard are requested.

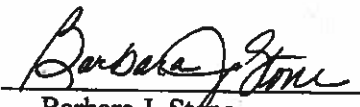
Public hearing on this Appeal is set for the time and place above stated. **Petitioner, or counsel representing Petitioner, should be present at the hearing. A Petitioner which is a corporation, limited liability company, or other business entity MUST be represented by counsel, licensed to practice in the State of Maryland, at any hearing before the Board. Any non-attorney representative present at the hearing on behalf of the Petitioner (or any other person or entity) shall not be permitted to advocate.**

Adjoining property owners, who are owners of premises either contiguous to or opposite the property involved, are notified of this hearing in order that they may express their views if they so desire. However, their presence is not required unless they have testimony to offer the Board.

If inclement weather exists on hearing date, please contact the office to ascertain if hearing is still scheduled.

BOARD OF ZONING APPEALS

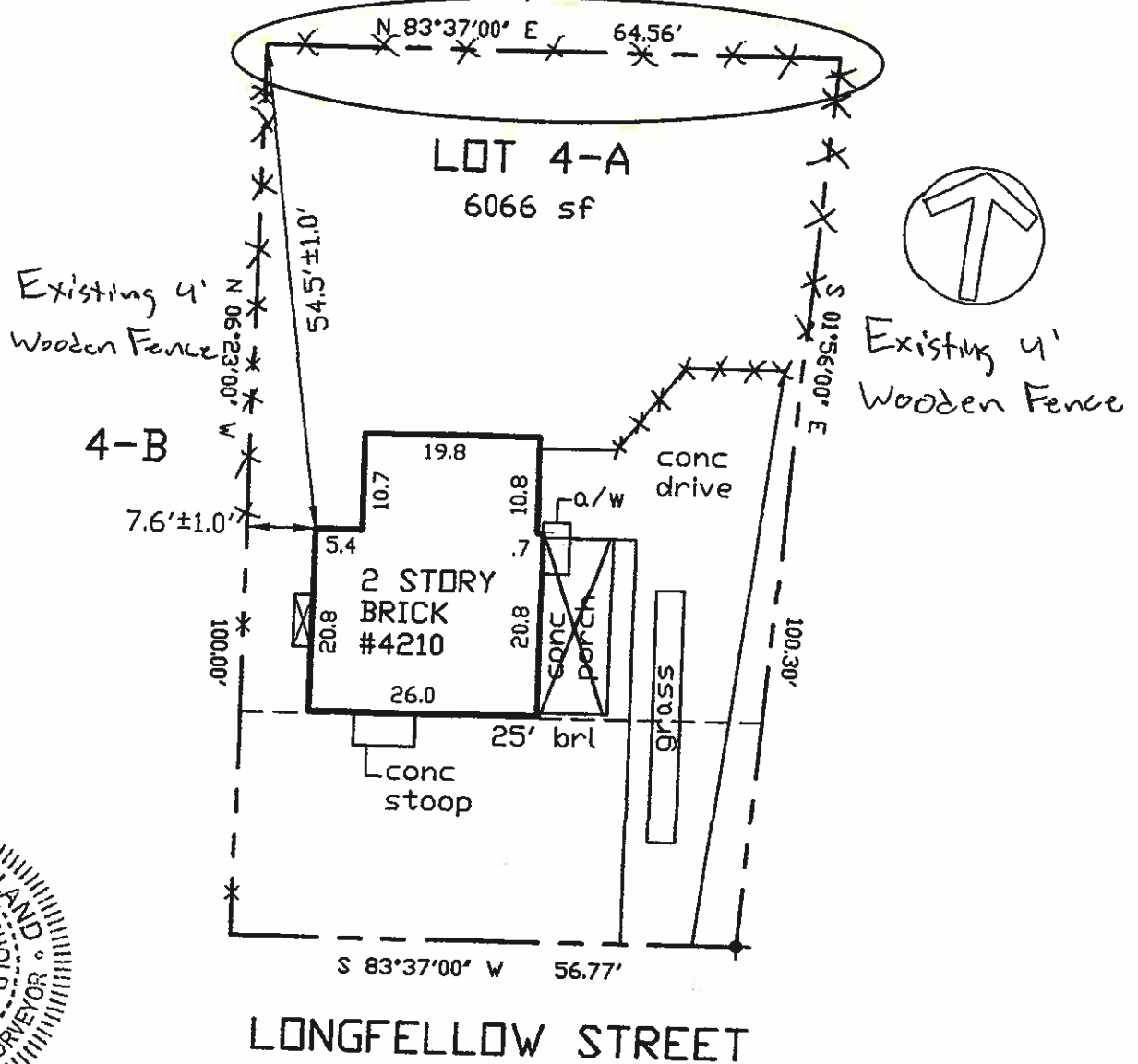
By:


Barbara J. Stone
Administrator

cc: Petitioners
Adjoining Property Owners
Park and Planning Commission
City of Hyattsville

Proposed increase existing (wooden) fence from 6' to 9'

61



No evidence of property corners was found.
Apparent occupation is shown

Date: 2-11-13 Scale: 1"=20' Dm: R.C.D.
Plat Book: 7
Plat No.: 82 NO TITLE REPORT FURNISHED
Work Order: 13-1042
Address: 4210 LONGFELLOW STREET
District: 16
Jurisdiction: PRINCE GEORGES COUNTY, MD

LOCATION DRAWING
LOT 4-A
ELLAVILLE

NOTE: This plat is of benefit to a consumer only insofar as it is required by a lender or a title insurance company or its agent in connection with contemplated transfer, financing or refinancing. This plat is not to be relied upon for the establishment or location of fences, garages, buildings, or other existing or future improvements. This plat does not provide for the accurate identification of property boundary lines, but such identification may not be required for the transfer of title or securing financing or refinancing.

Surveyor's Certification

My License expires February 10, 2014

I hereby certify that the survey shown hereon is correct to the best of my knowledge and that, unless noted otherwise, it has been prepared utilizing description of record. This survey is not a boundary survey and the location or existence of property corners is neither guaranteed nor implied. Fence lines, if shown, are approximate in location. Building restriction lines shown are per available information and are subject to the interpretation of the originator.

Stephen Wenthold

Meridian Surveys, Inc.
PO BOX 549
FREDERICK, MD 21705
(301) 721-9400



(USE BLACK INK ONLY)
PLEASE READ ALL INSTRUCTIONS
BEFORE FILLING OUT APPLICATION

TO: BOARD OF ZONING APPEALS FOR PRINCE
 GEORGE'S COUNTY, MARYLAND
 County Administration Building, Room 2173
 14741 Governor Oden Bowie Drive
 Upper Marlboro, Maryland 20772
 (301) 952-3220



Filing Fee Paid: \$ 200
 CKM.O. # 276
 By: Dominick Dale
 4210 Longfellow Street
 Hyattsville MD 20781
 Sign Posting Fee Paid: \$ 30
 CKM.O. # 277
 By: Dominick Dale
 4210 Longfellow Street
 Hyattsville MD 20781
 APPEAL NO. V-107-18
 (OFFICE USE ONLY)

APPLICATION FOR A VARIANCE
FROM STRICT APPLICATION OF THE ZONING ORDINANCE

(If variance is being applied for due to receipt of a Violation Notice, a copy of the notice is required.)

Owner(s) of Property Dominick M Dale & Jennifer Beddor
(AS SHOWN ON DEED)
 Address of Owner(s) 4210 Longfellow St

City Hyattsville State MD Zip Code 20781

Telephone Number (home) _____ (cell) 302-981-5302 (work) _____
 E-mail address: mdale4@gmail.com

Attorney/engineer/contractor name, address and telephone number (applicant if different from above): (circle one)
Dionicio Lopez Delgado 240-353-4187, P.O. Box 1754 Hyattsville, MD 20781
 Please contact owner, not contractor, if necessary.

For assistance in completing questions below, see corresponding paragraphs on *Instructions to Applicants*, which is designed to help you fill out this form. **SUBMITTED SITE PLANS/PLATS MUST BE DRAWN TO SCALE BY A CERTIFIED ENGINEER, SURVEYOR OR ARCHITECT (WITH OFFICIAL SEAL OR STATE OF MARYLAND REGISTRATION NUMBER SHOWN ON THE SITE PLAN/PLAT) AND MUST SHOW ALL STRUCTURES (TO INCLUDE ALL DIMENSIONS AND NUMBER OF STORIES) AS WELL AS OFF-STREET PARKING AND ANY PROPOSED CONSTRUCTION ON THE PROPERTY. THE PLAN MUST NOTE THE SCALE, THE LOT SIZE, THE LEGAL DESCRIPTION AND A NORTH ARROW.**

Location of Property involved: a) Street Address 4210 Longfellow St
 City Hyattsville

b) Lot(s) 4A Block _____ Parcel _____
 Subdivision Name Ellaville

c) Association Name(s) & Address(es) (Homeowners/Citizens/Civic and/or Community):
No

d) Municipality (Incorporated City/Town) Name Hyattsville

What will be/has been constructed on the property? (Variance(s) Required) Property owner is
requesting a variance to increase the height of
backyard fence from 6' to 9' feet.
wooden



Memo

To: Mayor and City Council
Tracey Nicholson, City Administrator

From: Jim Chandler, Assistant City Administrator and Director, Community & Economic Development
Katie Gerbes, Community Planner

Date: October 30, 2018

Re: Zoning Variance Request V-107-18: 4210 Longfellow Street, Hyattsville

Attachments: City of Hyattsville Variance Policy

The purpose of this memorandum is to provide the Mayor, Council, and City Administrator with a briefing on Zoning Variance request V-107-18, for the property located at 4210 Longfellow Street, Hyattsville.

- The applicant is requesting a variance to permit overage for lot coverage is minimal and the accessory structure is a pre-existing condition of the property. It is staff's opinion that the proposed addition will not adversely affect the surrounding homes or environment.
- The applicant is also requesting a zoning variance to permit the construction of a nine (9) foot tall fence along the rear of the property.
- The applicable Gateway Arts District Development Plan standard is as follows: 'Rear and side-yard fences and walls shall be a minimum of six feet in height'. The six-foot height standard established is intentionally limiting and applies only to the TRN Character Area.
- Staff opinion is that a visual barrier with the use of landscaping materials, in lieu of a fence, may achieve similar results sought by the applicant. Staff recommends the City Council approve support, with conditions, to the applicant's variance request for a fence structure exceeding 6' in height.

Summary of Variance Conditions

The applicants, Dominick Dale and Jennifer Beddor, have applied to the Prince George's County Board of Zoning Appeals for zoning variances of 0.4-foot side yard width for the dwelling, and 20-foot rear yard depth/width for a fence over 6 feet in height in the rear yard.

The applicants have an existing 6-foot tall fence along the rear edge of their property. The subject property abuts to the parking lot of First Baptist Church, which is located on the corner of Longfellow Street and 42nd Avenue. Due to a grade change, the surface of the First Baptist Church parking lot is approximately 8-9 feet

above the grade of the dwelling. As a result, when vehicles are idling, headlights of vehicles shine into the windows of the applicant. Additionally, when groups congregate in the parking lot, often after daylight hours, they have a direct line of sight into the applicant's residential dwelling unit. The applicant is requesting a zoning variance to permit the construction of a nine (9) foot tall fence along the rear of the property.

The homeowners have provided adequate information required for consideration per the City's Variance Policy, (see attached).

Gateway Arts District Development Standards

The subject property is located within the Traditional Residential Neighborhood of the Gateway Arts District (GAD) Sector Plan. The standards established within the Plan are intended to:

"Delineate and protect private property while allowing for surveillance of public and private areas to increase safety. Improve the appearance of the character areas by screening unsightly elements, restricting inappropriate materials, and creating utilitarian and decorative walls. Protect the character of adjacent traditional one-family neighborhoods."

The applicable development standard is as follows: 'Rear and side-year fences and walls shall be a minimum of six feet in height'. The six-foot height standard established is intentionally limiting and applies only to the TRN Character Area.

City of Hyattsville Variance Policy

The City of Hyattsville affirms the current zoning policy within the City limits and does not normally support zoning variances as a matter of policy. The City's support of a zoning variance ordinarily be granted only after the Mayor and City Council acknowledge that the granting of a variance:

1. remedies a unique situation that zoning did not anticipate;
2. remedies that which creates a significant hardship on the property-owner that can be documented and clearly demonstrated;
3. will result in benefits to the residents and improve the quality of the environment of the City.

Variance Review

The variance overage for lot coverage is minimal and the accessory structure is a pre-existing condition of the property. The proposed addition will not adversely affect the surrounding homes or environment.

The introduction of a rear fence of 8'-9' in height is generally only permissible on industrial or specific commercial properties and is not permitted per the standards of the Gateway Arts District Sector Plan.

The applicant's primary purpose for requesting a variance is to permit a rear fence on the property is create privacy by reducing line-of-sight between the subject property and the abutting property. It is staff's opinion that given the significant change in grade, the applicant's request is generally reasonable. The conditions by which the City and County Board of Zoning Appeals permit the applicant to proceed with resolving this demonstrated hardship must be narrow and site specific as to limit its applicability in future variance requests.

The grade difference between the subject property and adjacent property exceeds the existing fence height and is approximately 9'. The applicant cannot resolve the issue with the use of landscaping material due to

an existing and healthy Magnolia tree at the rear of the subject property and removal of the tree is not recommended. The applicant has offered to compensate, or provide to, the adjacent owner landscaping materials to remedy the issue and has not received approval from the adjacent owner. For these reasons, it is staff's opinion that this is a unique case in which remedies that which creates a significant hardship on the property owner that can be documented and clearly demonstrated.

The applicant's variance acknowledges the existing development standard and seeks to create a visual barrier with an accessory lattice affixed to the existing fence and will incorporate vegetative materials to create an additional visual buffer. Staff is supportive of the applicant's method for achieving a resolution, provided the applicant is agreeable to the following conditions of support:

1. The height of additional fencing materials is no greater than 36" above the existing fence line and shall include vegetative materials.
2. Any approved variance is not transferrable 'by-right' to any future Prince George's County fence permit. It will be the City and County's right to consider any future variances at time of application.

In conclusion, staff recommends the City Council support the applicant's variance to the setback requirements and a variance request for a fence structure exceeding 6' in height with the condition stated above.

Staff will prepare a correspondence from the City Administrator to the Prince George's County Board of Zoning Appeals reflecting the City Council's opinion on this matter.



Hyattsville City Council Agenda Item Report

Meeting Date: November 5, 2018

Submitted by: Lesley Riddle

Submitting Department: Public Works

Item Type: Purchase

Agenda Section: Consent Items (8:30 p.m. - 8:35 p.m.)

SUBJECT

Replacement of Streets Vehicle 66

HCC-112-FY19

Recommendation:

I move that the Mayor and Council authorize the expenditure of FY19 Capital Improvement Funds in an amount not to exceed \$54,000 for the purpose of purchasing a Chevrolet Silverado from Criswell Chevrolet, utilizing the Montgomery County Contract Rider, Contract Number 1065341.

Sponsor(s):

At the Request of the City Administrator

Co-Sponsor(s):

ATTACHMENTS

[Chevrolet MC-OTL 2016.pdf](#)

[CHEVROLET Term Renewal 2018-06-03 thru 2019-06-02.pdf](#)

[City of Hyattsville 3500 Silverado sales_proposal.pdf](#)

Summary Background:

During our review of the FY18 budget we assessed our current fleet of vehicles at Public Works. We found that overall many of our vehicles and equipment are at or beyond the recommended depreciation. Additionally, there is a need to accommodate new City programs and staffing for FY19. The DPW is committed to ensuing moderate, but deliberate replacement schedule of vehicles and equipment to ensure safety and maintain and improve services to our residents.

Streets Vehicle ST66 is a 2008 Ford pickup truck that has had multiple service issues over the past three years. Currently, the truck needs an engine replacement at a cost of approximately \$15,000. Last year, the truck was out of service for many months due to a major repair on the fuel injectors. Additionally, the truck needs major repair to the bed and rear tail gate due to weather and salt related damage. With the Blue Book value at of truck at only \$9000, staff recommends replacing this vehicle, and not investing any additional funds into ST66.

Staff proposes purchasing a 2018 Chevrolet Silverado from Criswell Chevrolet using the Montgomery County Contract Rider. The cost of this vehicle should not exceed \$54,000.

Next Steps:

With Council approval staff will facilitate the purchase of this vehicle.

Fiscal Impact:

\$54,000

City Administrator Comments:

Recommend Approval

Community Engagement:

N/A

Strategic Goals:

Goal 4 – Foster Excellence in all City Operations

Legal Review Required?

N/A

IFB #1060169	MONTGOMERY COUNTY, MARYLAND Off-the-Lot New Vehicles and Equipment All GVWRs Through Class 7 26,000 lb. GVWR SOLICITATION, BID AND AWARD SHEET	RETURN BID TO: OFFICE OF PROCUREMENT 255 ROCKVILLE PIKE, STE. 180 ROCKVILLE, MD 20850-4166
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PART I: SOLICITATION (Invitation for Bids ("IFB"))

SEALED BIDS IN ORIGINAL AND ONE (1) COPY TO FURNISH THE SUPPLIES AND/OR SERVICES DESCRIBED ON THE ATTACHED QUOTATION SHEET(S) WILL BE RECEIVED UP TO 11:00am LOCAL TIME ON 3/22/2016. BIDS WILL BE PUBLICLY OPENED AT THE DATE AND TIME STATED.

BIDS RECEIVED AFTER THE DATE AND TIME SPECIFIED WILL NOT BE CONSIDERED AND WILL BE RETURNED UNOPENED TO THE BIDDER. THE FOLLOWING DOCUMENTS ARE HEREBY INCORPORATED BY REFERENCE INTO AND MADE PART OF ANY CONTRACT AWARDED. In the event of any conflict among the provisions of the bid documents, or those documents comprising the resultant Contract, the conflict must be resolved by giving precedence to the below documents in the following order:

1. The "General Conditions of Contract between County and Contractor", and the "Special Terms and Conditions" shown in Sections B and C of this document.
2. The "Instructions, Conditions and Notices" shown in Section A of this IFB.
3. The specifications/scope of work shown in Section D of this document.
4. All solicitation amendments that change Section D will supersede in the event of a conflict.
5. All representations and certifications listed in this document.
6. This "Solicitation, Bid and Award Sheet" and the attached solicitation Quotation Sheet(s).

PART II-BID

The Bidder, by signing this solicitation, agrees that the County has 120 calendar days from the bid opening date in which to make an award of this solicitation. The Bidder agrees that its prices and/or discounts for all desired goods and/or services shall remain firm for the above time period prior to contract award. Also, the Bidder agrees that all instructions, terms, conditions, specifications, and amendments of this solicitation shall remain firm for the above time period prior to contract award. The County's Standard Payment Terms are Net Thirty (30) Days. This does not preclude an offeror from offering a prompt payment discount for payment of proper invoices in less than (30) days. An optional prompt payment term is not required, but may be offered conditioned on the following basis: Only a prompt payment discount, conditioned on a thirty-day or greater payment basis, will be utilized to recalculate prices for purposes of the Method of Award process for price/cost only. Prompt payment discounts may be offered on a shorter payment basis and adopted by the County at time of award, but will not be considered during the Method of Award process.

NAME AND SIGNATURE REQUIREMENTS FOR BIDS AND CONTRACTS: The correct and full legal business name of the bidder must be used in bids received and on all contracts issued as a result of this solicitation. A trade name (i.e., a shortened or different name under which the firm does business) must not be used when the full legal name is different. Corporations must have names that comply with State Law, which requires a suffix indicating the corporate status of the business (e.g. Inc., Incorporated, etc.). Trade names may be indicated by individuals or corporations with the individual or corporate name followed by "t/a" (trading as) or "d/b/a" (doing business as) respectively. The offeror's signature on the proposal, contract, amendment(s), or related correspondence, must conform to the following:

All signatures must be made by an authorized officer, partner, manager, member, or employee. The signing of an offer or a contract is a representation by the person signing that the person signing is authorized to do so on behalf of the offeror or contractor.

BIDDER'S CORRECT AND FULL LEGAL BUSINESS NAME:	<u>CRISWELL CHEVROLET INC</u>	TELEPHONE NO.:	<u>301-948-5460</u>
ADDRESS:	<u>503 QUINCE ORCHARD RD GAITHERSBURG MD</u>	TOLL FREE NO.:	<u>N/A</u>
REMITTANCE ADDRESS: (If Remittance Address is Different from Above Address)		FAX NO.:	<u>301-948-1381</u>
BIDDER'S E-MAIL ADDRESS:	<u>FLEET-MAN@MSN.COM</u>		

ACKNOWLEDGEMENT OF AMENDMENTS The bidder acknowledges receipt of amendments to the solicitation for offers and related documents numbered and dated as follows:		<u>Scott Silverman</u> <u>FLEET SALES MANAGER</u> NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER (TYPE OR PRINT):
Amendment No./Date	Amendment No./Date	
		<u>[Signature]</u> <u>3/11/16</u> SIGNATURE OF ABOVE PERSON: DATE:

PART III: AWARD (TO BE MADE BY THE COUNTY'S CONTRACTING OFFICER (OFFICE USE ONLY))

YOUR BID IS ACCEPTED AS TO THE FOLLOWING AND/OR AS ATTACHED TO THIS DOCUMENT:

YOUR CONTRACT NUMBER IS:

<u>Primary Lines: 2, 12, 22, 31</u>	<u>1065341</u>
-------------------------------------	----------------

MONTGOMERY COUNTY, MARYLAND

BY <u>Peter Schuler</u>	<u>[Signature]</u>	<u>6/15/16</u>
PRINTED NAME OF CONTRACTING OFFICER	SIGNATURE OF CONTRACTING OFFICER	AWARD DATE

THIS FORM HAS BEEN APPROVED AS TO FORM AND LEGALITY BY THE OFFICE OF THE COUNTY ATTORNEY

LINE #	VEHICLE TYPE BY OEM	BID
<u>SEDAN & CUV</u>		
1	BUICK	
2	CHEVROLET	<u>-519</u>
3	CHRYSLER	
4	DODGE	
5	FIAT	
6	FORD	
7	HONDA	
8	HYUNDAI	
9	KIA	
10	NISSAN	
11	TOYOTA	
<u>SUV</u>		
12	CHEVROLET	<u>-519</u>
13	DODGE	
14	FORD	
15	GMC	
16	HONDA	
17	HYUNDAI	
18	JEEP	
19	KIA	
20	NISSAN	
21	TOYOTA	
<u>VAN</u>		
22	CHEVROLET	<u>-519</u>
23	CHRYSLER	
24	DODGE	
25	FORD	
26	HONDA	
27	KIA	
28	NISSAN	
29	RAM	
30	TOYOTA	
<u>PICKUP TRUCK</u>		
31	CHEVROLET	<u>-519</u>
32	FORD	
33	GMC	
34	NISSAN	
35	RAM	
36	TOYOTA	
<u>CLASS 3 CHASSIS CAB</u>		
37	FORD	
38	RAM	
<u>CLASS 4-7 CHASSIS CAB</u>		
39	FORD	
40	FREIGHTLINER	
41	HINO	
42	INTERNATIONAL	
43	ISUZU	
44	KENWORTH	
45	MACK	
46	UD	
47+	OTHER	<u>-390</u>

QUOTATION SHEET

INSTRUCTIONS:

Enter a dollar amount rounded to the second decimal point, with a "minus -" sign, a "plus +" sign, or no sign (to be considered the same as a plus + sign) that represents the number of dollars of price adjustment that must be made by Contractor as the Bid Adjustment portion of a quote for the life of the Contract.

NOTE:

A Bid is a dollar amount that, when added to or subtracted from a Contractor quote that is priced at "Dealer Invoice", is one of the determining factors in the calculation of the selling price of a vehicle to the County.

A Contractor quote priced at Dealer Invoice is one that lists the vehicle and optional equipment at Original Equipment Manufacturer ("OEM") invoice pricing (vs. Manufacturer Suggested Retail Price, "MSRP"), inclusive of manufacturer-to-dealer transportation costs and advertising adjustments, plus upfitter pricing for installed and/or modified equipment quoted by a subcontractor to the Contractor and included in a Contractor quote (with transportation costs) at an amount not greater than the subcontractor quoted price to the Contractor, minus applicable and available (local, regional, and/or national) government bid concessions, discounts, and incentives, and a dollar adjustment equal to the amount of the awarded Bid.

Vehicles may be factory ordered, sourced from a bailment pool, or in the Contractor's inventory, either inbound or on the lot. For vehicles purchased from a Contractor's on-the-lot inventory, dealer-added items will ONLY be reimbursed at the dealer's cost of materials and labor, and such must be documented as part of the quoting process (examples: window tinting, wheel locks, pin striping, glass etching, etc.).

At most, one Primary Award for an OEM Line with a Bid that represents the most advantageous discount (minus), premium (plus), or no price adjustment (zero), and at most one Secondary Award for the second most advantageous Bid may be made to a responsive and responsible Bidder for each of the Bid Lines 1 through 46 and OTHER as necessary, alpha listed and numbered consecutively beginning with Line 47 by the Office of Procurement during the bid tabulation process. An awardee of a Secondary Award may be required to perform the Contract if the awardee of the Primary Award fails to perform the Contract.

Bidder is cautioned that the dollar amount of a Bid is a business decision of the Bidder and should take into consideration costs of doing business, such as: floor-plan expense; dealership resources required to perform a Contract; business risk, etc. Transportation from the Contractor to the County is FOB Destination.

Original

IFB #1060169	MONTGOMERY COUNTY, MARYLAND Off-the-Lot New Vehicles and Equipment All GVWRs Through Class 7 26,000 lb. GVWR SOLICITATION, BID AND AWARD SHEET	RETURN BID TO: OFFICE OF PROCUREMENT 255 ROCKVILLE PIKE, STE. 180 ROCKVILLE, MD 20850-4166
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PART I: SOLICITATION (Invitation for Bids ("IFB"))

SEALED BIDS IN ORIGINAL AND ONE (1) COPY TO FURNISH THE SUPPLIES AND/OR SERVICES DESCRIBED ON THE ATTACHED QUOTATION SHEET(S) WILL BE RECEIVED UP TO 11:00am LOCAL TIME ON 3/22/2016. BIDS WILL BE PUBLICLY OPENED AT THE DATE AND TIME STATED. BIDS RECEIVED AFTER THE DATE AND TIME SPECIFIED WILL NOT BE CONSIDERED AND WILL BE RETURNED UNOPENED TO THE BIDDER. THE FOLLOWING DOCUMENTS ARE HEREBY INCORPORATED BY REFERENCE INTO AND MADE PART OF ANY CONTRACT AWARDED. In the event of any conflict among the provisions of the bid documents, or those documents comprising the resultant Contract, the conflict must be resolved by giving precedence to the below documents in the following order:

1. The "General Conditions of Contract between County and Contractor", and the "Special Terms and Conditions" shown in Sections B and C of this document.
2. The "Instructions, Conditions and Notices" shown in Section A of this IFB.
3. The specifications/scope of work shown in Section D of this document.
4. All solicitation amendments that change Section D will supersede in the event of a conflict.
5. All representations and certifications listed in this document.
6. This "Solicitation, Bid and Award Sheet" and the attached solicitation Quotation Sheet(s).

PART II-BID

The Bidder, by signing this solicitation, agrees that the County has 120 calendar days from the bid opening date in which to make an award of this solicitation. The Bidder agrees that its prices and/or discounts for all desired goods and/or services shall remain firm for the above time period prior to contract award. Also, the Bidder agrees that all instructions, terms, conditions, specifications, and amendments of this solicitation shall remain firm for the above time period prior to contract award. The County's Standard Payment Terms are Net Thirty (30) Days. This does not preclude an offeror from offering a prompt payment discount for payment of proper invoices in less than (30) days. An optional prompt payment term is not required, but may be offered conditioned on the following basis: Only a prompt payment discount, conditioned on a thirty-day or greater payment basis, will be utilized to recalculate prices for purposes of the Method of Award process for price/cost only. Prompt payment discounts may be offered on a shorter payment basis and adopted by the County at time of award, but will not be considered during the Method of Award process.

NAME AND SIGNATURE REQUIREMENTS FOR BIDS AND CONTRACTS: The correct and full legal business name of the bidder must be used in bids received and on all contracts issued as a result of this solicitation. A trade name (i.e., a shortened or different name under which the firm does business) must not be used when the full legal name is different. Corporations must have names that comply with State Law, which requires a suffix indicating the corporate status of the business (e.g. Inc., Incorporated, etc.). Trade names may be indicated by individuals or corporations with the individual or corporate name followed by "t/a" (trading as) or "d/b/a" (doing business as) respectively. The offeror's signature on the proposal, contract, amendment(s), or related correspondence, must conform to the following:

All signatures must be made by an authorized officer, partner, manager, member, or employee. The signing of an offer or a contract is a representation by the person signing that the person signing is authorized to do so on behalf of the offeror or contractor.

BIDDER'S CORRECT AND FULL LEGAL BUSINESS NAME:	CRISWELL CHEVROLET INC	TELEPHONE NO.:	301-948-5460
ADDRESS:	503 QUINCE ORCHARD RD GAITHERSBURG MD	TOLL FREE NO.:	N/A
REMITTANCE ADDRESS: (If Remittance Address is Different from Above Address)		FAX NO.:	301-948-1381
BIDDER'S E-MAIL ADDRESS:	FLEET-MAN@MSN.COM		

ACKNOWLEDGEMENT OF AMENDMENTS	
The bidder acknowledges receipt of amendments to the solicitation for offers and related documents numbered and dated as follows:	
Amendment No./Date	Amendment No./Date

Scott Silverman FLEET SALES MANAGER	
NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER (TYPE OR PRINT):	
	3/11/16
SIGNATURE OF ABOVE PERSON:	DATE:

PART III: AWARD (TO BE MADE BY THE COUNTY'S CONTRACTING OFFICER (OFFICE USE ONLY))

YOUR BID IS ACCEPTED AS TO THE FOLLOWING AND/OR AS ATTACHED TO THIS DOCUMENT:

YOUR CONTRACT NUMBER IS:

Primary Lines: 2, 12, 22, 31	1065341
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MONTGOMERY COUNTY, MARYLAND

BY Peter Schuler		6/15/16
PRINTED NAME OF CONTRACTING OFFICER	SIGNATURE OF CONTRACTING OFFICER	AWARD DATE

THIS FORM HAS BEEN APPROVED AS TO FORM AND LEGALITY BY THE OFFICE OF THE COUNTY ATTORNEY

LINE #	VEHICLE TYPE BY OEM	BID
	<u>SEDAN & CUV</u>	
1	BUICK	
2	CHEVROLET	<u>-519</u>
3	CHRYSLER	
4	DODGE	
5	FIAT	
6	FORD	
7	HONDA	
8	HYUNDAI	
9	KIA	
10	NISSAN	
11	TOYOTA	
	<u>SUV</u>	
12	CHEVROLET	<u>-519</u>
13	DODGE	
14	FORD	
15	GMC	
16	HONDA	
17	HYUNDAI	
18	JEEP	
19	KIA	
20	NISSAN	
21	TOYOTA	
	<u>VAN</u>	
22	CHEVROLET	<u>-519</u>
23	CHRYSLER	
24	DODGE	
25	FORD	
26	HONDA	
27	KIA	
28	NISSAN	
29	RAM	
30	TOYOTA	
	<u>PICKUP TRUCK</u>	
31	CHEVROLET	<u>-519</u>
32	FORD	
33	GMC	
34	NISSAN	
35	RAM	
36	TOYOTA	
	<u>CLASS 3 CHASSIS CAB</u>	
37	FORD	
38	RAM	
	<u>CLASS 4-7 CHASSIS CAB</u>	
39	FORD	
40	FREIGHTLINER	
41	HINO	
42	INTERNATIONAL	
43	ISUZU	
44	KENWORTH	
45	MACK	
46	UD	
47+	OTHER	<u>-390</u>

QUOTATION SHEET

INSTRUCTIONS:

Enter a dollar amount rounded to the second decimal point, with a "minus -" sign, a "plus +" sign, or no sign (to be considered the same as a plus + sign) that represents the number of dollars of price adjustment that must be made by Contractor as the Bid Adjustment portion of a quote for the life of the Contract.

NOTE:

A Bid is a dollar amount that, when added to or subtracted from a Contractor quote that is priced at "Dealer Invoice", is one of the determining factors in the calculation of the selling price of a vehicle to the County.

A Contractor quote priced at Dealer Invoice is one that lists the vehicle and optional equipment at Original Equipment Manufacturer ("OEM") invoice pricing (vs. Manufacturer Suggested Retail Price, "MSRP"), inclusive of manufacturer-to-dealer transportation costs and advertising adjustments, plus upfitter pricing for installed and/or modified equipment quoted by a subcontractor to the Contractor and included in a Contractor quote (with transportation costs) at an amount not greater than the subcontractor quoted price to the Contractor, minus applicable and available (local, regional, and/or national) government bid concessions, discounts, and incentives, and a dollar adjustment equal to the amount of the awarded Bid.

Vehicles may be factory ordered, sourced from a bailment pool, or in the Contractor's inventory, either inbound or on the lot. For vehicles purchased from a Contractor's on-the-lot inventory, dealer-added items will ONLY be reimbursed at the dealer's cost of materials and labor, and such must be documented as part of the quoting process (examples: window tinting, wheel locks, pin striping, glass etching, etc.).

At most, one Primary Award for an OEM Line with a Bid that represents the most advantageous discount (minus), premium (plus), or no price adjustment (zero), and at most one Secondary Award for the second most advantageous Bid may be made to a responsive and responsible Bidder for each of the Bid Lines 1 through 46 and OTHER as necessary, alpha listed and numbered consecutively beginning with Line 47 by the Office of Procurement during the bid tabulation process. An awardee of a Secondary Award may be required to perform the Contract if the awardee of the Primary Award fails to perform the Contract.

Bidder is cautioned that the dollar amount of a Bid is a business decision of the Bidder and should take into consideration costs of doing business, such as: floor-plan expense; dealership resources required to perform a Contract; business risk, etc. Transportation from the Contractor to the County is FOB Destination.

DELIVERY TIME PERIOD

The County requests delivery of vehicles to be made according to the schedule below, where "Calendar Days" is the number of calendar days net of federal holidays with Day 1 being the purchase order date or release date against a blanket purchase order. The Bidder may propose a delivery time period other than the delivery time period requested by the County. Bids that indicate a delivery time period exceeding the "Requested" delivery time period specified will be declared non-responsive and rejected. County will evaluate equally, regarding time period of delivery, bids that propose delivery within the requested delivery period specified below. The County may elect to award under the Bidder's proposed delivery time period only if it offers delivery in less time than the requested delivery time period. If the Bidder does not indicate its own delivery time period, then the Bidder shall accept the requested delivery time period and it will apply to the award.

By accepting a contract award, the Bidder acknowledges that the "Requested" delivery time period, or Bidder's proposed delivery time period only if it offers delivery in the same or less time than the requested delivery time period, becomes the Established Delivery Schedule for the contract term.

A. For complete vehicles in dealer inventory at the time of order (includes dealer exchanges):

<u>LINE #</u>	<u>DELIVERY REQUESTED BY COUNTY</u>	<u>BIDDER'S PROPOSED DELIVERY</u>
<u>1 - 36</u>	<u>8 Calendar Days</u>	<u>Calendar Days</u>

B. For complete vehicles in dealer inventory at the time of order (includes dealer exchanges) with locally installed non-OEM equipment (such as tonneau covers, tool boxes, bed caps, bed slides, running boards, strobe lights, light bars, etc.):

<u>LINE #</u>	<u>DELIVERY REQUESTED BY COUNTY</u>	<u>BIDDER'S PROPOSED DELIVERY</u>
<u>1 - 36</u>	<u>15 Calendar Days</u>	<u>Calendar Days</u>

C. For incomplete vehicles Class 5 and lighter being modified/alterd with non-OEM installed equipment that are available in the subcontractor's bailment pool at the time of order:

<u>LINE #</u>	<u>DELIVERY REQUESTED BY COUNTY</u>	<u>BIDDER'S PROPOSED DELIVERY</u>
<u>37 - 46</u>	<u>120 Calendar Days</u>	<u>Calendar Days</u>

D. For complete vehicles factory ordered:

<u>LINE #</u>	<u>DELIVERY REQUESTED BY COUNTY</u>	<u>BIDDER'S PROPOSED DELIVERY</u>
<u>1 - 36</u>	<u>300 Calendar Days</u>	<u>Calendar Days</u>

E. For complete vehicles factory ordered with locally installed non-OEM equipment (Such as: tonneau covers, tool boxes, bed caps, bed slides, running boards, strobe lights, light bars, etc.):

<u>LINE #</u>	<u>DELIVERY REQUESTED BY COUNTY</u>	<u>BIDDER'S PROPOSED DELIVERY</u>
<u>1 - 36</u>	<u>315 Calendar Days</u>	<u>Calendar Days</u>

F. For complete vehicles factory ordered being modified/alterd with non-OEM installed equipment by Ship-through or Drop-ship, and for Class 3 or lighter incomplete vehicles being completed by intermediate and/or final stage manufacturer by Ship-through or Drop-ship (Such as: cargo van interiors, service bodies, platform bodies, 2-3 yard dump bodies, etc.):

<u>LINE #</u>	<u>DELIVERY REQUESTED BY COUNTY</u>	<u>BIDDER'S PROPOSED DELIVERY</u>
<u>1 - 38</u>	<u>345 Calendar Days</u>	<u>Calendar Days</u>

G. For incomplete vehicles factory ordered Class 4 and heavier being completed by intermediate and/or final stage manufacturer:

<u>LINE #</u>	<u>DELIVERY REQUESTED BY COUNTY</u>	<u>BIDDER'S PROPOSED DELIVERY</u>
<u>39 - 46</u>	<u>400 Calendar Days</u>	<u>Calendar Days</u>

MID-ATLANTIC PURCHASING TEAM RIDER CLAUSE**USE OF CONTRACT(S) BY MEMBERS COMPRISING MID-ATLANTIC PURCHASING TEAM COMMITTEE****A. Extension to Other Jurisdictions**

The [issuing jurisdiction] extends the resultant contracts(s), including pricing, terms and conditions to the members of the Mid-Atlantic Purchasing Team, as well as all other public entities under the jurisdiction of the United States and its territories.

B. Contract Agreement

Any jurisdiction or entity using the resultant contract(s) may enter into its own contract with the successful Contractor(s). There shall be no obligation on the part of any participating jurisdiction to use the resultant contract(s). Contracts entered into with a participating jurisdiction may contain general terms and conditions unique to the jurisdiction including, by way of illustration and not limitation, clauses covering minority participation, non-discrimination, indemnification, naming the jurisdiction as an additional insured under any required Comprehensive General Liability policies; and venue.

C. A negative reply will not adversely affect consideration of your bid.**D. It is the awarded offeror's responsibility to notify the members shown below of the availability of the Contract(s)****E. The issuing jurisdiction shall not be held liable for any costs or damages incurred by another jurisdiction as a result of any award extended to the jurisdiction by the awardee.****F. Inclusion of Governmental and Nonprofit Participants (Optional Clause)**

This shall include but not be limited to private schools, Parochial schools, non-public schools such as charter schools, special districts, intermediate units, non-profit agencies providing services on behalf of government and/or state community and/or private colleges/universities that require these goods, commodities and/or services.

G. Notification and Reporting

The Contractor agrees to notify if requested by the issuing jurisdiction of those entities that wish to use any contract resulting from this solicitation and will also provide usage information, which may be requested. The Contractor will provide the copy of the solicitation and resultant contract documents to any requesting jurisdiction or entity.

MID-ATLANTIC PURCHASING TEAM:

YES	NO	JURISDICTION
☒	☐	Alexandria, Virginia
☒	☐	Alexandria Public Schools
☒	☐	Alexandria Sanitation Authority
☒	☐	Annapolis City
☒	☐	Anne Arundel County
☒	☐	Anne Arundel Schools
☒	☐	Arlington County, Virginia
☒	☐	Arlington County Public Schools
☒	☐	Baltimore City
☒	☐	Baltimore County Schools
☒	☐	Bladensburg, Maryland
☒	☐	Bowie, Maryland
☒	☐	BRCPC
☒	☐	Carroll County
☒	☐	Carroll County Schools
☒	☐	Charles County Government
☒	☐	Charles County Schools
☒	☐	City of Fredericksburg
☒	☐	College Park, Maryland
☒	☐	District of Columbia Government
☒	☐	District of Columbia Schools
☒	☐	District of Columbia Water & Sewer Auth.
☒	☐	Fairfax County, Virginia
☒	☐	Fairfax County Water Authority
☒	☐	Falls Church, Virginia
☒	☐	Fauquier County Schools & Govt., Virginia
☒	☐	Frederick, Maryland
☒	☐	Gaithersburg, Maryland
☒	☐	Greenbelt, Maryland
☒	☐	Harford County
☒	☐	Harford County Schools
☒	☐	Howard County

YES	NO	JURISDICTION
☒	☐	Howard County Schools
☒	☐	Herndon, Virginia
☒	☐	Leesburg, Virginia
☒	☐	Loudoun County, Virginia
☒	☐	Loudoun County Public Schools
☒	☐	Loudoun County Water Authority
☒	☐	Manassas, Virginia
☒	☐	City of Manassas Public Schools
☒	☐	Manassas Park, Virginia
☒	☐	MD-National Capital Park & Planning Comm.
☒	☐	Metropolitan Washington Airports Authority
☒	☐	Metropolitan Washington Council of Governments
☒	☐	Montgomery College
☒	☐	Montgomery County Public Schools
☒	☐	Prince George's County, Maryland
☒	☐	Prince George's Public Schools
☒	☐	Prince William County, Virginia
☒	☐	Prince William County Public Schools
☒	☐	Prince William County Service Authority
☒	☐	Rockville, Maryland
☒	☐	Spotsylvania County Govt. & Schools
☒	☐	Stafford County, Virginia
☒	☐	Takoma Park, Maryland
☒	☐	Upper Occoquan Sewage Authority
☒	☐	University of the District of Columbia
☒	☐	Vienna, Virginia
☒	☐	Washington Metropolitan Area Transit Auth.
☒	☐	Washington Suburban Sanitary Commission
☒	☐	Winchester, Virginia
☒	☐	Winchester Public Schools

CRISWELL

Vendor Name



OFFICE OF PROCUREMENT

Isiah Leggett
County Executive

Cherri Branson
Director

May 21, 2018

Scott Silverman
Criswell Chevrolet Inc
503 Quince Orchard Rd
Gaithersburg, MD 20878

Re: Contract Renewal
Modification #2
Contract No.:1065341

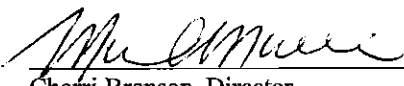
According to the provision entitled "Contract Term" of the above cited contract, this letter constitutes notice of renewal of the contract to cover the 12-month performance period beginning the day immediately following the current expiration date of 6/2/18.

You are obliged to keep on file with this office a current original Certificate of Insurance. The existing Certificate shows an expiration date of 7/1/18. The Certificate must:

1. List Montgomery County, Maryland as an additional insured under liability policies.
2. Provide notice to the Certificate Holder of cancellation or change in any materials in accordance with policy provisions.
3. Show Montgomery County, Maryland as the Certificate Holder.

For additional information please contact the Office of Procurement at (240) 777-9900.

FOR MONTGOMERY COUNTY, MARYLAND


Cherri Branson, Director
Office of Procurement

5/29/18
Date

cc: Criswell Chevrolet Inc
Kathleen Hynes
Suzanne Kapust

PMMD 41b Rev. 6/15

Office of Procurement



Criswell Automotive

Mark A. White | 571-335-2469 | mwhite@criswellauto.com

City of Hyattsville

Prepared For: Aaron Jones

[Fleet] 2018 Chevrolet Silverado 3500HD (CK35743) 4WD Crew Cab 153.7"



Note: Photo may not represent exact vehicle or selected equipment.



Criswell Automotive

Mark A. White | 571-335-2469 | mwhite@criswellauto.com

[Fleet] 2018 Chevrolet Silverado 3500HD (CK35743) 4WD Crew Cab 153.7"

Quote Worksheet

	MSRP
Base Price	\$43,000.00
Dest Charge	\$1,495.00
Adjustments	\$0.00
Total Options	\$2,824.00
Subtotal	\$47,319.00
GM/Criswell Local Government Discount	(\$7,000.00)
MCOTLC	(\$519.00)
Boss Plow, Boss Salter and Snow deflector and installation	\$10,005.00
Light Bar, directional LED for the rear and 4 corner strobes plus installation	\$1,910.00
Mobile Radio	\$1,001.00
Subtotal Pre-Tax Adjustments	\$5,397.00
Less Customer Discount	\$0.00
Subtotal Discount	\$0.00
Trade-In	\$0.00
Excluded from Sales Tax	Subtotal Trade-In \$0.00
Taxable Price	\$52,716.00
Sales Tax	\$0.00
Subtotal Taxes	\$0.00
Subtotal Post-Tax Adjustments	\$0.00
Total Sales Price	\$52,716.00

Dealer Signature / Date

Customer Signature / Date

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Data Version: 6541. Data Updated: Sep 12, 2018 9:30:00 PM PDT.



Criswell Automotive

Mark A. White | 571-335-2469 | mwhite@criswellauto.com

[Fleet] 2018 Chevrolet Silverado 3500HD (CK35743) 4WD Crew Cab 153.7"

Selected Model and Options

MODEL			
CODE	MODEL	MSRP	Invoice
CK35743	2018 Chevrolet Silverado 3500HD 4WD Crew Cab 153.7" Work Truck	\$43,000.00	\$40,420.00

COLORS			
CODE	DESCRIPTION	MSRP	Invoice
GAZ	Summit White	\$0.00	\$0.00

PREFERRED EQUIPMENT GROUP			
CODE	DESCRIPTION	MSRP	Invoice
1WT	Work Truck Preferred Equipment Group includes standard equipment	\$0.00	\$0.00

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[Fleet] 2018 Chevrolet Silverado 3500HD (CK35743) 4WD Crew Cab 153.7"

ADDITIONAL EQUIPMENT - EXTERIOR

CODE	DESCRIPTION	MSRP	Invoice
4GM	Tire, Spare LT265/70R18E all-terrain (Requires (QGM) LT265/70R18E all-terrain tires. Not available with (ANQ) Alaskan Snow Plow Special Edition, SEO (5Z4) spare wheel, carrier and lock delete, (5V1) carrier with spare wheel and no tire or SEO (9L3) spare tire delete. Not available with dual rear wheels on *359**.)	\$66.00	\$60.06
A91	Remote Locking Tailgate (Included and only available with (AQQ) Remote Keyless Entry.)	Inc.	Inc.
CGN	Bed Liner, Spray-on Pickup box bed liner with bowtie logo. Liner is permanently bonded to the truck bed providing a water tight seal. The textured, non-skid surface is black in color and robotically applied. Spray-on liner covers entire bed interior surface below side rails, including tailgate, front box top rail, gage hole plugs and lower tie down loops. (Included with (ANQ) Alaskan Snow Plow Special Edition. Not available with (ZW9) pickup box delete or (VZX) bed liner, LPO. Not available with any ship thru code.)	\$495.00	\$450.45
DPN	Mirrors, outside heated power-adjustable vertical trailing, upper glass, manual-folding and extending, Black; includes integrated turn signal indicators consisting of 51 square inch flat mirror surface positioned over a 24.5 square inch convex mirror surface with a common head and lower convex spotter glass (convex glass is not heated and not power adjustable) and addition of auxiliary cargo lamp for backing up (helps to see trailer when backing up with a trailer) and amber auxiliary clearance lamp (Included and only available with (PCR) WT Fleet Convenience Package and includes (DD8) auto-dimming inside rearview mirror.)	Inc.	Inc.

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[Fleet] 2018 Chevrolet Silverado 3500HD (CK35743) 4WD Crew Cab 153.7"

TRW	Provision for cab roof-mounted lamp/beacon provides an instrument panel-mounted switch and electrical wiring tucked beneath the headliner for a body upfitter to connect a body-mounted warning or emergency lamp (Included with (VYU) Snow Plow Prep Package.)	Inc.	Inc.
VK3	License plate kit, front	\$0.00	\$0.00

ADDITIONAL EQUIPMENT - MECHANICAL

CODE	DESCRIPTION	MSRP	Invoice
5H1	Key equipment, two additional keys for single key system Provides two additional spare keys for a total of (4). (Keys will be cut but not programmed) NOTE: programming of keys is at customer's expense. Programming keys is not a warranty expense. (Not available with (9J4) rear bumper delete or (5Z4) spare wheel, carrier and lock delete. Requires (E63) pickup box.)	\$45.00	\$40.95
JL1	Trailer brake controller, integrated (If (ZW9) pickup box delete or (9J4) rear bumper delete is ordered (JL1) trailer brake controller is deleted and available to order as a free flow option.)	\$0.00	\$0.00
KW5	Alternator, 220 amps (Included with (VYU) Snow Plow Prep Package when ordered with gas or diesel engines.)	Inc.	Inc.
NQF	Transfer case, electronic shift with rotary dial controls (Requires 4WD models.)	\$200.00	\$182.00
NZZ	Underbody Shield, frame-mounted shields includes front underbody shield starting behind front bumper and running to first cross-member, protecting front underbody, oil pan, differential case and transfer case (Included with (VYU) Snow Plow Prep Package.)	Inc.	Inc.

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[Fleet] 2018 Chevrolet Silverado 3500HD (CK35743) 4WD Crew Cab 153.7"

ADDITIONAL EQUIPMENT - SAFETY-INTERIOR

CODE	DESCRIPTION	MSRP	Invoice
8S3	Backup alarm, 97 decibels (Not available with SEO (SFW) back-up alarm calibration, (ZW9) pickup box delete or (UY2) trailer wiring provisions.)	\$138.00	\$125.58
AY0	Airbags, Crew Cab: Single-stage frontal airbags for driver and front outboard passenger; Seat-mounted side-impact airbags for driver and front outboard passenger; Head-curtain airbags for front and rear outboard seating positions	\$395.00	\$359.45

ADDITIONAL EQUIPMENT - INTERIOR

CODE	DESCRIPTION	MSRP	Invoice
9L7	Upfitter switches, (4) Provides 4-30 amp circuits to facilitate installation of aftermarket electrical accessories (Included with (ANQ) Alaskan Snow Plow Special Edition.)	\$125.00	\$113.75
AQQ	Remote Keyless Entry (Included and only available with (PCR) WT Fleet Convenience Package. Includes (A91) remote locking tailgate.)	Inc.	Inc.
C49	Defogger, rear-window electric	\$225.00	\$204.75
DD8	Mirror, inside rearview auto-dimming (Included and only available with (PCR) WT Fleet Convenience Package.)	Inc.	Inc.

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[Fleet] 2018 Chevrolet Silverado 3500HD (CK35743) 4WD Crew Cab 153.7"

ADDITIONAL EQUIPMENT - PACKAGE

CODE	DESCRIPTION	MSRP	Invoice
PCR	WT Fleet Convenience Package includes (DPN) outside heated power-adjustable vertical trailing mirrors, (A91) remote locking tailgate and (AQQ) Remote Keyless Entry (If (ZW9) pickup box delete is ordered (A91) remote locking tailgate will not be included.)	\$640.00	\$582.40
VYU	Snow Plow Prep Package includes power feed for backup and roof emergency light, (KW5) 220-amp alternator with gas or diesel engine, forward lamp wiring harness, (TRW) provision for cab roof mounted lamp/beacon, (NZZ) underbody shields and Heavy-Duty front-springs (Only available on 4WD models. Included with (ANQ) Alaskan Snow Plow Special Edition. Upgradeable to (KHB) dual, 150 amps and 220 amps each alternators with (L5P) Duramax 6.6L Turbo-Diesel V8 engine.)	\$385.00	\$350.35

ADDITIONAL EQUIPMENT - OTHER

CODE	DESCRIPTION	MSRP	Invoice
R9Y	Fleet Free Maintenance Credit. This option code provides a credit in lieu of the free oil changes, tire rotations and inspections (2 maximum), during the first 24 months and 24,000 miles period for this ordered vehicle. The invoice will detail the applicable credit. The customer will be responsible for all oil change, tire rotations and inspections costs for this vehicle. (Requires one of the following Fleet or Government order types: FBC, FBN, FCA, FCN, FEF, FLS, FNR, FRC or FGO. Not available with FDR order type.)	(\$90.00)	(\$81.90)
VQ2	Fleet Processing Option	\$0.00	\$0.00

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Data Version: 6541. Data Updated: Sep 12, 2018 9:30:00 PM PDT.



Criswell Automotive

Mark A. White | 571-335-2469 | mwhite@criswellauto.com

[Fleet] 2018 Chevrolet Silverado 3500HD (CK35743) 4WD Crew Cab 153.7"

SEAT TYPE

CODE	DESCRIPTION	MSRP	Invoice
AE7	Seats, front 40/20/40 split-bench, 3-passenger, driver and front passenger recline with outboard head restraints and center fold-down armrest with storage. Vinyl has fixed lumbar and cloth has manually adjustable driver lumbar. (STD) (Upgradeable to (AZ3) front 40/20/40 split-bench seat.)	\$0.00	\$0.00

GVWR

CODE	DESCRIPTION	MSRP	Invoice
C7A	GVWR, 10,000 lbs. (4536 kg) with single rear wheels (STD) (Requires *35743, C35943, *35953 or *35903 models and (L96) Vortec 6.0L V8 SFI engine or (LC8) 6.0L V8 SFI Gaseous CNG/LPG capable engine. Requires (AY0) single-stage air bags.)	\$0.00	\$0.00

PAINT

CODE	DESCRIPTION	MSRP	Invoice
GAZ	Summit White	\$0.00	\$0.00

AXLE

CODE	DESCRIPTION	MSRP	Invoice
GT5	Rear axle, 4.10 ratio (Requires (L96) Vortec 6.0L V8 SFI engine or (LC8) 6.0L V8 SFI Gaseous CNG/LPG capable engine.)	\$0.00	\$0.00

SEAT TRIM

CODE	DESCRIPTION	MSRP	Invoice
H2Q	Dark Ash with Jet Black Interior Accents, Vinyl seat trim	\$0.00	\$0.00

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Criswell Automotive

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[Fleet] 2018 Chevrolet Silverado 3500HD (CK35743) 4WD Crew Cab 153.7"

RADIO

CODE	DESCRIPTION	MSRP	Invoice
IOB	Audio system, Chevrolet MyLink Radio with 7" diagonal color touch-screen, AM/FM stereo with seek-and-scan and digital clock, includes USB ports, auxiliary jack, Bluetooth streaming audio for music and most phones	\$0.00	\$0.00

ENGINE

CODE	DESCRIPTION	MSRP	Invoice
L96	Engine, Vortec 6.0L Variable Valve Timing V8 SFI E85-compatible, FlexFuel capable of running on unleaded or up to 85% ethanol (360 hp [268.4 kW] @ 5400 rpm, 380 lb-ft of torque [515.0 N-m] @ 4200 rpm) (STD)	\$0.00	\$0.00

TRANSMISSION

CODE	DESCRIPTION	MSRP	Invoice
MYD	Transmission, 6-speed automatic, heavy-duty, electronically controlled with overdrive and tow/haul mode. Includes Cruise Grade Braking and Powertrain Grade Braking (STD) (Requires (L96) Vortec 6.0L V8 SFI engine or (LC8) 6.0L V8 SFI Gaseous CNG/LPG capable engine.)	\$0.00	\$0.00

EMISSIONS

CODE	DESCRIPTION	MSRP	Invoice
NE1	Emissions, Connecticut, Delaware, Maine, Maryland, Massachusetts, New Jersey, New York, Oregon, Pennsylvania, Rhode Island, Vermont and Washington state requirements	\$0.00	\$0.00

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[Fleet] 2018 Chevrolet Silverado 3500HD (CK35743) 4WD Crew Cab 153.7"

WHEELS

CODE	DESCRIPTION	MSRP	Invoice
PYT	Wheels, 18" (45.7 cm) painted steel includes 18" x 8" (45.7 cm x 20.3 cm) steel spare wheel. Spare not included with (ZW9) pickup box delete unless a spare tire is ordered. (STD) (Requires single rear wheels, (QGM) LT265/70R18E all-terrain, blackwall tires or (QWF) LT265/70R18E all-season, blackwall tires.)	\$0.00	\$0.00

TIRES

CODE	DESCRIPTION	MSRP	Invoice
QGM	Tires, LT265/70R18E all-terrain, blackwall (Included with (ANQ) Alaskan Snow Plow Special Edition. Requires single rear wheels.)	\$200.00	\$182.00

SUSPENSION PKG

CODE	DESCRIPTION	MSRP	Invoice
Z85	Suspension Package, Standard includes 51mm twin tube shock absorbers and 33mm front stabilizer bar (STD)	\$0.00	\$0.00

PAINT SCHEME

CODE	DESCRIPTION	MSRP	Invoice
ZY1	Paint, solid	\$0.00	\$0.00
Options Total		\$2,824.00	\$2,569.84

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Criswell Automotive

Mark A. White | 571-335-2469 | mwhite@criswellauto.com

[Fleet] 2018 Chevrolet Silverado 3500HD (CK35743) 4WD Crew Cab 153.7"

Standard Equipment

Mechanical

Engine, Vortec 6.0L Variable Valve Timing V8 SFI E85-compatible, FlexFuel capable of running on unleaded or up to 85% ethanol (360 hp [268.4 kW] @ 5400 rpm, 380 lb-ft of torque [515.0 N-m] @ 4200 rpm) (STD) (Does not include E85 capability with (ZW9) pickup box delete.)

Transmission, 6-speed automatic, heavy-duty, electronically controlled with overdrive and tow/haul mode. Includes Cruise Grade Braking and Powertrain Grade Braking (STD) (Requires (L96) Vortec 6.0L V8 SFI engine or (LC8) 6.0L V8 SFI Gaseous CNG/LPG capable engine.)

Rear axle, 4.10 ratio (Requires (L96) Vortec 6.0L V8 SFI engine or (LC8) 6.0L V8 SFI Gaseous CNG/LPG capable engine.)

GVWR, 10,000 lbs. (4536 kg) with single rear wheels (STD) (Requires *35743, C35943, *35953 or *35903 models and (L96) Vortec 6.0L V8 SFI engine or (LC8) 6.0L V8 SFI Gaseous CNG/LPG capable engine. Requires (AY0) single-stage air bags.)

Pickup box (STD)

Suspension Package, Standard includes 51mm twin tube shock absorbers and 33mm front stabilizer bar (STD)

Air cleaner, high-capacity

Transfer case, with floor-mounted shifter (Included with 4WD models only.)

Differential, heavy-duty locking rear

Four wheel drive

Trailer equipment Trailing hitch platform 2.5" with a 2.0" insert for HD, 7-wire harness with independent fused trailering circuits mated to a 7-way sealed connector to hook up parking lamps, backup lamps, right and left turn signals, an electric brake lead, battery and a ground, The trailer connector also includes the 4-way for use on trailers without brakes - park, brake/turn lamps (Will be deleted if (ZW9) pickup box delete or (9J4) rear bumper delete is ordered.)

Cooling, external engine oil cooler

Cooling, auxiliary external transmission oil cooler

Battery, heavy-duty 720 cold-cranking amps/80 Amp-hr maintenance-free with rundown protection and retained accessory power

Alternator, 150 amps

Trailer brake controller, integrated (If (ZW9) pickup box delete or (9J4) rear bumper delete is ordered (JL1) trailer brake controller is deleted and available to order as a free flow option.)

Recovery hooks, front, frame-mounted, black

Frame, fully-boxed, hydroformed front section

Chassis, single rear wheel

Steering, Recirculating ball with smart flow power steering system

Brakes, 4-wheel antilock, 4-wheel disc with DuraLife brake rotors (Requires single rear wheels.)

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[Fleet] 2018 Chevrolet Silverado 3500HD (CK35743) 4WD Crew Cab 153.7"

Mechanical

Capless Fuel Fill (Gas engine only. Not available with (ZW9) pickup box delete.)

Exhaust, aluminized stainless-steel muffler and tailpipe

Exterior

Wheels, 18" (45.7 cm) painted steel includes 18" x 8" (45.7 cm x 20.3 cm) steel spare wheel. Spare not included with (ZW9) pickup box delete unless a spare tire is ordered. (STD) (Requires single rear wheels, (QGM) LT265/70R18E all-terrain, blackwall tires or (QWF) LT265/70R18E all-season, blackwall tires.)

Tires, LT265/70R18E all-season, blackwall (STD) (Requires single rear wheels.)

Tire, spare LT265/70R18E all-season, blackwall (Included and only available with (QWF) LT265/70R18E all-season tires or (QGM) LT265/70R18E all-terrain tires. Available to order when (ZW9) pick-up box delete is ordered.)

Wheel, 18" x 8" (45.7 cm x 20.3 cm) full-size, steel spare. Spare not included with (ZW9) pickup box delete unless a spare tire is ordered. (Requires single rear wheels. Included with (E63) pickup box. Available to order when (ZW9) pick-up box delete is ordered.)

Tire carrier lock keyed cylinder lock that utilizes same key as ignition and door (Not included when (ZW9) pickup box delete or (9J4) rear bumper delete is ordered.)

Bumper, front chrome

Bumper, rear chrome with bumper CornerSteps

CornerStep, rear bumper

Grille surround, chrome

Headlamps, halogen projector-beam

Lamps, cargo area, cab mounted with switch on center switch bank

Mirrors, outside high-visibility vertical trailering, Black with manual folding and extension and lower convex spotter glass

Glass, solar absorbing, tinted

Door handles, Black

Tailgate and bed rail protection caps, top

Tailgate, locking, utilizes same key as ignition and door (Not available with (AQQ) Remote Keyless Entry.)

Entertainment

Audio system, Chevrolet MyLink Radio with 7" diagonal color touch-screen, AM/FM stereo with seek-and-scan and digital clock, includes USB ports, auxiliary jack, Bluetooth streaming audio for music and most phones

6-speaker audio system

Bluetooth for phone personal cell phone connectivity to vehicle audio system

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[Fleet] 2018 Chevrolet Silverado 3500HD (CK35743) 4WD Crew Cab 153.7"

Interior

Seats, front 40/20/40 split-bench, 3-passenger, driver and front passenger recline with outboard head restraints and center fold-down armrest with storage. Vinyl has fixed lumbar and cloth has manually adjustable driver lumbar. (STD) (Upgradeable to (AZ3) front 40/20/40 split-bench seat.)

Seat trim, Vinyl

Seat, rear 60/40 folding bench (folds up), 3-passenger (includes child seat top tether anchor) (Requires Crew Cab models.)

Floor covering, Graphite-colored rubberized-vinyl

Steering wheel

Steering column, manual Tilt-Wheel

Instrumentation, 6-gauge cluster featuring speedometer, fuel level, engine temperature, tachometer, voltage and oil pressure

Driver Information Center 3.5-inch diagonal monochromatic display, provides warning messages and basic vehicle information

Windows, power with driver express up and down and express down on all other windows

Door locks, power

Cruise control, steering wheel-mounted

Air conditioning, single-zone

Assist handle, front passenger and driver on A-pillars

Safety-Mechanical

StabiliTrak, stability control system with Proactive Roll Avoidance and traction control includes electronic trailer sway control and hill start assist

Safety-Exterior

Daytime Running Lamps with automatic exterior lamp control

Safety-Interior

Air bags, single-stage frontal and thorax side-impact, driver and front passenger, and head curtain side-impact, front and rear outboard seating positions (Always use safety belts and child restraints. Children are safer when properly secured in a rear seat in the appropriate child restraint. See the Owner's Manual for more information.)

Airbags, Crew Cab: Single-stage frontal airbags for driver and front outboard passenger (Always use safety belts and child restraints. Children are safer when properly secured in a rear seat in the appropriate child restraint. See the Owner's Manual for more information.)

OnStar, delete also deletes driver information center compass.

Rear Vision Camera (Removed when (ZW9) pickup box delete is ordered.)

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[Fleet] 2018 Chevrolet Silverado 3500HD (CK35743) 4WD Crew Cab 153.7"

Safety-Interior

Teen Driver mode a configurable feature that lets you activate customizable vehicle settings associated with a key fob, to encourage safe driving behavior. It can limit certain vehicle features, and it prevents certain safety systems from being turned off. An in-vehicle report gives you information on your teen's driving habits and helps you to continue to coach your new driver

Tire Pressure Monitoring System with Tire Fill Alert on SRW models (does not apply to spare tire) (Included and only available with (C7A) 10,000 lb. (4536 kg) GVWR.)

WARRANTY

Basic Years: 3
Basic Miles/km: 36,000
Drivetrain Years: 5
Drivetrain Miles/km: 60,000
Drivetrain Note: HD Duramax Diesel: 5 Years/100,000 Miles; Qualified Fleet Purchases: 5 Years/100,000 Miles
Corrosion Years (Rust-Through): 6
Corrosion Years: 3
Corrosion Miles/km (Rust-Through): 100,000
Corrosion Miles/km: 36,000
Roadside Assistance Years: 5
Roadside Assistance Miles/km: 60,000
Roadside Assistance Note: HD Duramax Diesel: 5 Years/100,000 Miles; Qualified Fleet Purchases: 5 Years/100,000 Miles
Maintenance Years: 2
Maintenance Miles/km: 24,000
Maintenance Note: 2 Visits

Weight Ratings

WEIGHT RATINGS

Front Gross Axle Weight Rating:	5200 lbs
Rear Gross Axle Weight Rating:	6200 lbs
Gross Vehicle Weight Rating:	10000.00 lbs

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Hyattsville City Council Agenda Item Report

Meeting Date: November 5, 2018

Submitted by: Jim Chandler

Submitting Department: Community & Economic Development

Item Type: Grant

Agenda Section: Consent Items (8:30 p.m. - 8:35 p.m.)

SUBJECT

FY19 Budget Appropriation: Maryland DHCD Community Legacy Grant Award

HCC-119-FY19

Recommendation:

I move the Mayor and Council amend the FY2019 budget to accept and appropriate the FY2019 Community Legacy Grant of \$50,000 from the Maryland Department of Housing & Community Development.

Sponsor(s):

At the Request of the City Administrator

Co-Sponsor(s):

N/A

ATTACHMENTS

[Memo - 2018 Community Legacy Award Acceptance - 10.26.2018.doc](#)

Summary Background:

In April 16 2017, the City Council approved Resolution 2018-02, a resolution approving the applicant and acceptance of Community Legacy grant award funding from the Maryland Department of Housing & Community Development (DHCD) for the purpose of funding the City of Hyattsville's Commercial Façade Improvement Program.

On Wednesday, October 24, 2018, Maryland DHCD announced a \$50,000 grant award for the City of Hyattsville's Commercial Façade Improvement Program. The grant must be accepted by the City Council and appropriated in the FY2019 City Budget, prior to any commercial façade award being made by the City Council.

Next Steps:

The City Council will consider 2018 Commercial Facade Improvement (CFI) grant awards.

Fiscal Impact:

\$50,000

City Administrator Comments:

Recommend Approval

Community Engagement:

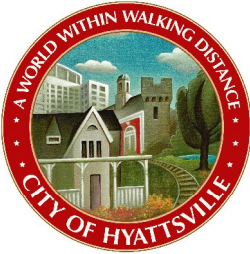
Community Sustainability Goal 11: Support Local & Small Businesses

Strategic Goals:

Goal 2 – Ensure the Long-Term Economic Viability of the City

Legal Review Required?

Pending



Memo

To: Mayor and Council
From: Jim Chandler, Director, Community & Economic Development
CC: Tracey Nicholson, City Administrator
Ron Brooks, City Treasurer
Date: October 26, 2018
Re: Maryland DHCD Community Legacy Grant Award Acceptance and Appropriation

The purpose of this memorandum is to provide the Mayor and City Council is to advise the City Council of Maryland Department of Housing & Community Development's (DHCD) award of \$50,000 in Community Legacy grant award funds to the City of Hyattsville and Staff's recommendation of acceptance and appropriation of funding.

Summary

In April 16 2017, the City Council approved Resolution 2018-02, a resolution approving the applicant and acceptance of Community Legacy grant award funding from the Maryland Department of Housing & Community Development (DHCD) for the purpose of funding the City of Hyattsville's Commercial Façade Improvement Program.

On Wednesday, October 24, 2018, Maryland DHCD announced a \$50,000 grant award for the City of Hyattsville's Commercial Façade Improvement Program. The grant must be accepted by the City Council and appropriated in the FY2019 City Budget, prior to any commercial façade award being made by the City Council.



Hyattsville City Council Agenda Item Report

Meeting Date: November 5, 2018

Submitted by: Lesley Riddle

Submitting Department: Public Works

Item Type: Purchase

Agenda Section: Consent Items (8:30 p.m. - 8:35 p.m.)

SUBJECT

Bottle Filling Stations - Exterior

HCC-121-FY19

Recommendation:

I move that the Mayor and Council approve the purchase of 5 (five) exterior water fountains with bottle filling stations from Pro-Fountains, cost NTE \$20,000.

Sponsor(s):

At the Request of the City Administrator

Co-Sponsor(s):

N/A

ATTACHMENTS

[Global - Water Fountains 2018.pdf](#)

[Plumber Stock - Water Fountains 2018.pdf](#)

[Pro Dry - Water Fountains 2018.pdf](#)

Summary Background:

A main component of the City's Sustainability plan is for our City parks to be evaluated for existing conditions and determine what services and amenities can be improved. The City Council approved in the FY19 budget the purchase and installation of drinking fountains with water bottle filling capacity. A key benefit of filtered water bottle filling stations is their ability to provide safe drinking water. Most stations use high-performance filters that remove common contaminants such as chlorine and lead. The stations purify water, improving the taste of the water. Plastic bottled water is an easy way to encourage water consumption, however, the disposal, and long-term environmental impact are significant. It's estimated that 80 percent of plastic bottles end up in the dump, only to be burned or end up in a landfill. Filtered water bottle filling stations serve as an alternative to plastic water bottles through encouraging the use of re-usable bottles and containers.

Three quotes were received in accordance with our procurement policy and the staff is recommending installing five (5) exterior fountains, replacing existing fountains in Heurich Park, Magruder Park, Hyatt Park, Dietz Park and King Park, the cost NTE \$20,000. We also be installing three (3) interior fountains at each floor of the City Administration Building as part of this project.

Next Steps:

With Council approval, staff will purchase and install the water fountains with bottle filling capacity.

With Council approval staff will purchase the new fountains and schedule installation.

Fiscal Impact:

The funds for this purchase are in the Parks Capital Improvement Project Budget.

City Administrator Comments:

Recommend approval.

Community Engagement:

N/A

Strategic Goals:

Goal 3 – Promote a Safe and Vibrant Community

Legal Review Required?

N/A



11 HARBOR PARK DRIVE
PORT WASHINGTON, NY 11050

Sales Quote

Account #: 758748	Quote #: 4676721	Quote Issued: 08/20/2018
CITY OF HYATTSVILLE-MD	MSCHMIDL@HYATTSVILLE.ORG	*Quote Expires 30 Days from Issue
Attn: DEPT OF PUBLIC WORKS		
MIKE SCHMIDL	Phone: (301) 985-5033	
4633 ARUNDEL PL	Fax:	
HYATTSVILLE, Maryland 20781		
CLICK HERE TO LOGIN AND PLACE THIS ORDER ONLINE.		

Part#	Description	Shipping	Quantity	Price	Extended
1223199	HT-4420BF1UDBEVG OUTDOOR PEDESTAL TUBULAR W/PET FOUNTAIN, LOWER WATER REFILLING STATION * Please note: This item is Non Returnable and Non Cancellable.	TRUCK	5	\$3,999.00	\$19,995.00
Item Total:					\$19,995.00
PLEASE BE SURE TO REVIEW OUR TERMS AND CONDITIONS				*Total:	\$19,995.00

Notes	Thank you for the opportunity to help with your needs. To place your order or for further assistance please contact me. Name: DAVID COOK Email: dcook@globalindustrial.com Phone: (516) 608-7668 x206572 Fax: (516) 608-7247
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*Applicable taxes and shipping charges will be added to invoice.

11 Harbor Park Drive, Port Washington, N.Y. 11050
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Quotation



506 N. 200 W.
Cedar City, UT 84721
(435) 868-4020

QUOTE DATE	QUOTE NUMBER
08/15/2018	S3140064
PAGE NO.	1 of 1

SHIP TO:

PlumbersStock Estimates
506 N 200 W
CEDAR CITY, UT 84720

CUSTOMER NUMBER	CUSTOMER PO NUMBER	JOB NAME / RELEASE NUMBER		SALESPERSON		
35815				PLUMBERSSTOCK		
WRITER		SHIP VIA	TERMS		SHIP DATE	FREIGHT ALLOWED
Stacie Goodwin Heiner		PS BEST METHOD	COD		08/15/2018	No
ORDER QTY	DESCRIPTION			PN	UNIT PRICE	EXT PRICE
5ea	ELKAY LK4420BF1UDB BI-LVL W/LOWER BF-PET FTN			239273	4325.000/ea	21625.00

THIS IS A QUOTATION
Prices are firm for 30 days and subject to
change without notice after 30 days.
Applicable taxes extra!

Subtotal	21625.00
S&H Charges	725.00
Amount Due	22350.00



Quote

ProFloorMachines.com

Date	Quote #
8/15/2018	10579

Name / Address
CITY OF HYATTSVILLE MICHAEL A SCHMIDL JR 4633 ARUNDEL PLACE HYATTSVILLE, MD 20781

Ship To
CITY OF HYATTSVILLE MICHAEL A SCHMIDL JR 4633 ARUNDEL PLACE HYATTSVILLE, MD 20781

Industry	Rep	Manufacturer	Sales Person	Customer E-mail	
	Drink	Elkay	Laura Schnob	MSCHMIDL@HYATTSV...	
Item	Description		Qty	Rate	Total
HT-4420BF1UDBEVG	DRINKING FOUNTAIN, HALSEY TAYLOR, OUTDOOR ENDURA II, HYDROBOOST BOTTLE FILLING STATION, BI LEVEL WITH PET FOUNTAIN, NON-REFRIGERATED, STANDARD EVERGREEN		5	3,954.06	19,770.30
Shipping/Customer	LIFTGATE AT DELIVERY		1	62.00	62.00

Quotes valid for a minimum of 30 days.

Payment Terms: USA credit cards, Wire Transfer, ACH and Check with Order

FOB Delivered (Free Freight) One Shipment to one location within contiguous USA.

Prices based on quantity as shown. Reductions in quantity will have to be requested.

Subtotal	\$19,832.30
Sales Tax (0.0%)	\$0.00
Total	\$19,832.30



Hyattsville City Council Agenda Item Report

Meeting Date: November 5, 2018

Submitted by: Lesley Riddle

Submitting Department: Public Works

Item Type: Purchase

Agenda Section: Consent Items (8:30 p.m. - 8:35 p.m.)

SUBJECT

Holiday Decorations

HCC-122-FY19

Recommendation:

I move that the Mayor and Council approve the purchase of Holiday Decorations for City Corridors from Mosca Design at a cost NTE \$12,000.

Sponsor(s):

At the Request of the City Administrator

Co-Sponsor(s):

N/A

ATTACHMENTS

[holiday deco quotes.pdf](#)

Summary Background:

Council approved the purchase of holiday decorations for light poles and open areas throughout the City in FY19. Adhering to our procurement policy staff requested three (3) quotes. Rileigh's Outdoor Décor presented the most complete quote with the best price but was not able to fulfill in order in a timely manner. Mosca was able to fulfill the order by early November. The order will include 23 LED lighted wreaths with bows that will be mounted over the light globes, and 10 garland pole wraps. Shipping charges are an additional \$450. Staff recommends purchasing the holiday decorations from Mosca to fulfill the order in a timely manner. The total request for funding NTE \$12,000. The City will purchase decorations each year in an effort to expand to additional corridors and open spaces annually.

Next Steps:

Staff will purchase holiday decorations and install on light poles in the City.

Fiscal Impact:

\$12,000

City Administrator Comments:

Recommend Approval

Community Engagement:

N/A

Strategic Goals:

Goal 3 – Promote a Safe and Vibrant Community

Legal Review Required?

N/A

MOSCA Design**Gary Weaver****Phone:** (301) 437-5151

Quote 3:

23 Lamp Post Wreaths & Pole wrap garland

To: City of Hyattsville
 Attn: Laura Carr
 Dept of Public Works
 Hyattsville, MD 20781
 O: 301-985-5000

Ship To:

DATE	F.O.B. POINT	SHIP DATE	SHIP VIA	TERMS	EXEMPT NO.
10-15 -18	Pre pay				

QTY	SIZE	DESCRIPTION	UNIT PRICE	TOTAL
23	4 ½ foot	LP 319 -Deluxe wreath with LED lamps; with hardware flocked berry clusters; one bow – see below	\$515	< 15%
	24 "	FB 4 Red four loop fabric bow with gold tirm .. @ \$515 *above wreath with 2 bows: \$565	\$11,845	\$10,068.25
10	17 foot	Virginia Pine Natural garland; with wire ties at each end @ \$93.50	\$935	\$794.75
SUBTOTAL				\$10,863
SALES TAX				
SHIPPING BILLED WHEN KNOWN				
OTHER				
TOTAL				

RILEIGHS

OUTDOOR DECOR

P.O. Box 4365
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QUOTE 10/11/18

S _____
 O _____
 L Same _____
 D _____
 T mschmidl@hyattsville.org _____
 O _____
 Phone (301) 985-5032 x201 _____
 Fax () 985-5033 is his direct # _____

S _____
 H City of Hyattsville = DPW _____
 I 4633 Arundel Pl. _____
 P Hyattsville, MD 20781 _____
 T Attn: Michael Schmidl _____
 O _____
 5782 _____
 Phone (240) 832-5782 cell _____

CUSTOMER ORDER NUMBER		SHIPPING DATE		SHIP VIA Best Way		F.O.B		SALESMAN MB	
REF	QUANTITY	ITEM#	DESCRIPTION		UNIT PRICE		AMOUNT		
C	10		6" TTBC fine cut Garland cut into 17' lengths, with wire ties on both ends		\$33		\$330		
			CP=1.60 x 255 + 4.25 x 15 = \$471.75						
C	23	LP-319-LED	4.5' Over the globe wreath with 12-3-1TTBC Back to Back Garland and 40 C7 Warm White LED lamps No bow, but leave room List is \$510 less 20% discount		\$408		\$9,384		
R	23	RODVBOW	24" red vinyl bow with wire				NC		
SHIPPING CHARGES WILL BE ADDED TO INVOICE									
• 20% restocking fee on all returns plus applicable shipping charges • No returns without proper authorization • Custom items are NOT returnable					TOTAL MATERIALS		\$ 9,714		
					SHIPPING		to be added		
PAYMENT SCHEDULE					SALES TAX		N/A		
Due					TOTAL				
Due Upon Delivery					LESS DEPOSIT				
Due					BALANCE DUE				
					After 30 days a 1 ½% MONTHLY FINANCE CHARGE will be added on past due accounts which is an ANNUAL % RATE of 18% PER YEAR				

SIGNATURE OF PURCHASER	SIGNATURE OF RILEIGHS OUTDOOR DECOR REP M. A. Bednar
------------------------	---

Quote

Michael Bednar

Thu 10/11/2018 3:25 PM

To: Mike Schmidl <MSchmidl@hyattsville.org>; Laura Carr <lcarr@hyattsville.org>;

1 attachments (109 KB)

Hyattsville Rope Garland Pole Wrap LP319 Wreaths 18.doc

Hi Mike

Here is the quote for 23 4.5' Wreaths that go over the globe. I went with a double row of garland instead of single to get an even fuller look (no extra charge to you), along with the pole wraps.

Shipping is estimated at about \$490

Mike



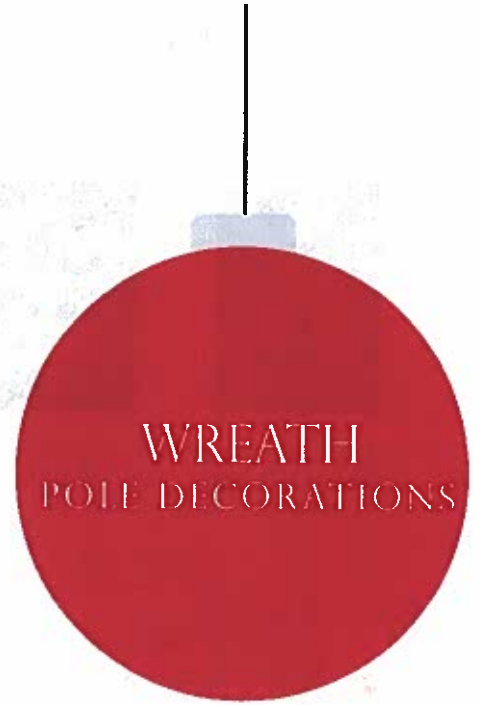
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Hyattsville City Council Agenda Item Report

Meeting Date: November 5, 2018

Submitted by: Jim Chandler

Submitting Department: Administration

Item Type: Appointment

Agenda Section: Consent Items (8:30 p.m. - 8:35 p.m.)

SUBJECT

Renaissance Square Condominium Board Appointments

HCC-123-FY19

Recommendation:

I move that the Mayor and Council appoint Maryann Dillon to serve as Housing Initiative Partnership's representative on the Renaissance Square Condominium Board for a period not to exceed twelve (12) calendar months.

Sponsor(s):

At the Request of the City Administrator

Co-Sponsor(s):

N/A

ATTACHMENTS

[Memo - Renaissance Square Condo Board Appointment.docx](#)

Summary Background:

The attached memorandum provides details regarding the purpose of the appointment to the Board.

Next Steps:

The Renaissance Square Condominium Board is tentatively scheduled to convene in November 2018.

Fiscal Impact:

N/A

City Administrator Comments:

Recommend Approval

Community Engagement:

On February 7, 2007, the City of Hyattsville approved a Declaration of Renaissance Square Condominium, for the purposes of creating a managing board and adopting by-laws for the development of the Renaissance Square Artist Housing project.

Strategic Goals:

Goal 1 – Ensure Transparent and Accessible Governance

Legal Review Required?

Complete



Memo

To: Mayor and City Council
CC: Tracey Nicholson, City Administrator
From: Jim Chandler, Assistant City Administrator
Date: October 4, 2018
Re: Renaissance Square Condominium Board Appointments

Summary

In a review of the City land records related to Urban Investment Partners proposal for redevelopment along Baltimore Avenue, the City Attorney located a condominium declaration and by laws for the Renaissance Square Condominium Regime, a land-use and joint development partnership between the City of Hyattsville and Housing Initiative Partnership (HIP).

On February 7, 2007, the City of Hyattsville approved a Declaration of Renaissance Square Condominium, for the purposes of creating a managing board and adopting by-laws for the development of the Renaissance Square Artist Housing project and the anticipated adjacent YMCA site. The YMCA was never developed and currently functions as a surface public parking lot.

The authorizing documents appointed then City Administrator Elaine Murphy, Mayor William Gardiner and Housing Initiative Partnership (HIP) Executive Director Mosi Harrington as board members.

Staff and attorney's for both the City and HIP have reviewed the declaration and by-law documents and have concluded that the permanent Board was not formed, nor has it convened a meeting. Furthermore, it is our conclusion that the Board and related obligations are no longer necessary.

The City Attorney has recommended the appointment of temporary members, consistent with the intent of the declaration and by-laws, for the purpose of meeting all legal obligations. Staff is recommending the following individuals be appointed to the Interim Board:

- Honorable Candace B. Hollingsworth, Mayor, City of Hyattsville
- Mary Ann Dillon, Executive Director, Housing Initiative Partnership
- Jim Chandler, Asst. City Administrator, City of Hyattsville

It is our intent that the Board would convene in November 2018 for the purpose of affirming any outstanding obligations have been met and take action to dissolve the condo regime board. Meeting minutes will be provided to the City of Hyattsville and Housing Initiative Partnership.



Hyattsville City Council Agenda Item Report

Meeting Date: November 5, 2018

Submitted by: Katie Gerbes

Submitting Department: Community & Economic Development

Item Type: Grant

Agenda Section: Consent Items (8:30 p.m. - 8:35 p.m.)

SUBJECT

FY19 Budget Appropriation: Maryland Heritage Area Authorities Non-Capital Grant

HCC-129-FY19

Recommendation:

I move the Mayor and Council amend the FY2019 budget to accept and appropriate the FY2019 MHAA Non-Capital Grant off \$29,339 from the Maryland Department of Planning's Maryland Historical Trust, and authorize the City Administrator to sign the contract, upon the review and approval by the City Attorney for legal sufficiency.

Sponsor(s):

At the Request of the City Administrator

Co-Sponsor(s):

N/A

ATTACHMENTS

Summary Background:

In March 2018, Staff applied for a Maryland Heritage Area Authorities grant to cover the costs associated with implementing bicyclist/pedestrian wayfinding signage. In August 2018, staff was notified that our grant application was accepted. The matching grant will help provide funds for the installation of 88 wayfinding signs, five (5) pedestrian oriented wayfinding kiosks, as well as sharrows and other lane markings for bicycle lanes. The wayfinding program funded by the grant was developed by Toole Design Group as part of the larger Hyattsville Transportation Study.

Next Steps:

Pending legal review, the grant agreement will be signed, at which point the City may begin drawing down funds.

Fiscal Impact:

\$29,339

City Administrator Comments:

Recommend Approval.

Community Engagement:

2017-2022 Community Sustainability Plan - Goal #11C: Improve parking and wayfinding signage on City streets. Signage should direct people to public parking lots, commercial corridors and community facilities. Additionally, improve directional signage to and from trails to direct users to commercial destinations.

Strategic Goals:

Goal 3 – Promote a Safe and Vibrant Community

Legal Review Required?

Pending



Hyattsville City Council Agenda Item Report

Meeting Date: November 5, 2018

Submitted by: Ron Brooks

Submitting Department: Finance

Item Type: Budget

Agenda Section: Consent Items (8:30 p.m. - 8:35 p.m.)

SUBJECT

FY19 Budget Amendment: Adjusting Appropriations for Salaries in Community Services

HCC-131-FY19

Recommendation:

I move that the Mayor and Council amend the FY19 Community Services Budget by adjusting various salary line-item appropriations to cover proposed changes in Teen Center Programing.

Sponsor(s):

At the Request of the City Administrator

Co-Sponsor(s):

N/A

ATTACHMENTS

Summary Background:

In FY19 Council approved \$41,000 for part-time staffing and \$112,153 in regular full-time staffing for a total of \$153,153 in salaries for Teen Center Programing. Due to proposed program changes, we are seeking to adjust salary appropriations by moving previously approved part-time appropriations to the regular full-time staffing line. Total salaries of \$153,153 will remain the same as previously approved.

Next Steps:

Amend the FY19 budget in Community Services to reflect the adjustments of budget appropriations in the Teen Center part-time staffing and regular full-time staffing salary line-items.

Fiscal Impact:

The adjustments will not increase the previously approved FY19 Community Services budget appropriations in salaries.

City Administrator Comments:

See Summary above.

Community Engagement:

N/A

Strategic Goals:

Goal 1 – Ensure Transparent and Accessible Governance

Legal Review Required?

N/A



Hyattsville City Council Agenda Item Report

Meeting Date: November 5, 2018

Submitted by: Ron Brooks

Submitting Department: Finance

Item Type: Budget

Agenda Section: Consent Items (8:30 p.m. - 8:35 p.m.)

SUBJECT

FY19 Capital Budget Amendment: Department of Public Works

HCC-130-FY19

Recommendation:

I move that the Mayor and Council amend the FY19 DPW Capital Budget and transfer \$23,000 from Sanitation Operation Capital Budget to Streets Capital Budget to cover the cost of a new truck for use in Street Operations.

Sponsor(s):

At the Request of the City Administrator

Co-Sponsor(s):

N/A

ATTACHMENTS

Summary Background:

In the FY19 DPW Capital Budgets for Sanitation and Street Operations, Council approved a total of \$360,000 for the replacement and purchase of heavy duty trucks. The department is requesting to transfer \$23,000 from the Sanitation Capital Budget to Streets Capital Budget to cover the cost of a new heavy duty truck for use in Street Operations. The transfer will not increase the total amount of \$360,000 previously approved by Council to replace and purchase trucks for these two (2) DPW departments.

Next Steps:

Purchase a new heavy duty truck for use in Street Operations.

Fiscal Impact:

N/A

City Administrator Comments:

Recommend Approval

Community Engagement:

N/A

Strategic Goals:

Goal 3 – Promote a Safe and Vibrant Community

Legal Review Required?

N/A



Hyattsville City Council Agenda Item Report

Meeting Date: November 5, 2018

Submitted by: Anthony DeSantis

Submitting Department: Community Services

Item Type: Proclamation

Agenda Section: Consent Items (8:30 p.m. - 8:35 p.m.)

SUBJECT

Proclamation: Veterans Day

HCC-133-FY19

Recommendation:

I move that the Mayor and Council proclaim November 11, 2018, to be Veterans Day in the City of Hyattsville.

Sponsor(s):

At the Request of the City Administrator

Co-Sponsor(s):

N/A

ATTACHMENTS

[Veterans_Day_2018_Final_\(1\).docx](#)

Summary Background:

This proclamation declares November 11, 2018, to be Veterans Day in the City of Hyattsville, honoring and recognizing heroes past and present from the United States Armed Forces.

Next Steps:

Recognize November 11, 2018, as Veterans Day in the City of Hyattsville

Fiscal Impact:

N/A

City Administrator Comments:

Recommend Approval

Community Engagement:

Recognition of Veterans Day has been planned.

Strategic Goals:

Goal 5 – Strengthen the City's Identity as a Diverse, Creative, and Welcoming Community

Legal Review Required?

N/A

CITY OF HYATTSVILLE

PROCLAMATION

RECOGNIZING NOVEMBER 11, 2018, AS VETERANS DAY IN THE CITY OF HYATTSVILLE

This proclamation declares November 11, 2018, to be Veterans Day in the City of Hyattsville, honoring and recognizing heroes past and present from the United States Armed Forces.

WHEREAS, the contributions and sacrifices of veterans are a reminder that freedom is not free, and we are forever indebted to the millions of service members who have fought and died in the line of duty; and

WHEREAS, significant sacrifices are also made by the family members who support the men and women that have fought to preserve our liberties; and

WHEREAS, Hyattsville and surrounding municipalities within Prince George's County have approximately 60,000 veterans who have served in the United States Armed Forces; and

WHEREAS, it is most appropriate that we honor and recognize the dedication and valor that veterans continue to display as they protect our freedom and democracy.

NOW, THEREFORE BE IT RESOLVED, that the Mayor and City Council with the utmost respect and gratitude for the more than 21.8 million veterans who have faithfully served our country in the Armed Forces hereby proclaim November 11, 2018, to be Veterans Day in the City of Hyattsville.

Candace B. Hollingsworth
Mayor, City of Hyattsville

November 5, 2018





Hyattsville City Council Agenda Item Report

Meeting Date: November 5, 2018

Submitted by: Anthony DeSantis

Submitting Department: Community Services

Item Type: Proclamation

Agenda Section: Consent Items (8:30 p.m. - 8:35 p.m.)

SUBJECT

Proclamation: American Education Week

HCC-134-FY19

Recommendation:

I move that the Mayor and Council declare the week of November 12 - 16, 2018, to be American Education Week in the City of Hyattsville.

Sponsor(s):

At the Request of the City Administrator

Co-Sponsor(s):

N/A

ATTACHMENTS

[American Education Week 2018 \(Final\).docx](#)

Summary Background:

American Education Week is an annual opportunity to celebrate public education and honor individuals that enlighten our City's youth.

Next Steps:

Declare the week of November 12 - 16, 2018, to be American Education Week in the City of Hyattsville

Fiscal Impact:

N/A

City Administrator Comments:

Recommend Approval

Community Engagement:

Recognition of American Education Week has been planned.

Strategic Goals:

Goal 5 – Strengthen the City's Identity as a Diverse, Creative, and Welcoming Community

Legal Review Required?

N/A

CITY OF HYATTSVILLE

PROCLAMATION

DECLARING THE WEEK OF NOVEMBER 12 – 16, 2018, TO BE AMERICAN EDUCATION WEEK IN THE CITY OF HYATTSVILLE

American Education Week is an annual opportunity to celebrate public education and honor individuals that enlighten our City's youth.

WHEREAS, progressive education is a pillar on which the United States was founded; and

WHEREAS, from the first public school opened in 1635, to an approximate 98,000 that collectively form an enterprise that focuses on strengthening intellectual skills and core values for a better tomorrow; and

WHEREAS, selfless individuals, from custodians to principals, work tirelessly to prepare our nation's youth for a brighter future;

NOW, THEREFORE BE IT RESOLVED, that the Mayor and Council of the City of Hyattsville recognize the impact all education employees have on our City, and that our community celebrates them through this year's American Education Week.

Candace B. Hollingsworth
Mayor, City of Hyattsville

November 5, 2018





Hyattsville City Council Agenda Item Report

Meeting Date: November 5, 2018

Submitted by: Anthony DeSantis

Submitting Department: Community Services

Item Type: Proclamation

Agenda Section: Consent Items (8:30 p.m. - 8:35 p.m.)

SUBJECT

Proclamation: Native American Heritage Month

HCC-135-FY19

Recommendation:

I move that the Mayor and Council recognize November 2018 as Native American Heritage Month in the City of Hyattsville.

Sponsor(s):

At the Request of the City Administrator

Co-Sponsor(s):

N/A

ATTACHMENTS

[Native American Heritage Month 2018 \(Final\).docx](#)

Summary Background:

Native American Heritage Month is an opportunity to celebrate the rich culture and traditions of Native Americans as well as recognize the tremendous contributions that Native Americans have made to the United States.

Next Steps:

Recognize November 2018 as Native American Heritage Month in the City of Hyattsville

Fiscal Impact:

N/A

City Administrator Comments:

Recommend Approval

Community Engagement:

Recognition of Native American Heritage Month has been planned.

Strategic Goals:

Goal 5 – Strengthen the City's Identity as a Diverse, Creative, and Welcoming Community

Legal Review Required?

N/A

CITY OF HYATTSVILLE

PROCLAMATION

RECOGNIZING NOVEMBER 2018 AS NATIVE AMERICAN HERITAGE MONTH IN THE CITY OF HYATTSVILLE

This proclamation recognizes the month of November 2018 as Native American Heritage Month in the City of Hyattsville. Native American Heritage Month is an opportunity to celebrate the rich culture and traditions of Native Americans as well as recognize the tremendous contributions that Native Americans have made to the United States.

WHEREAS, American Indian Heritage Month has been advocated for and observed in many communities since the 1910s, and nationally established in 1990; and

WHEREAS, Native Americans have called what is now Maryland and what is now the United States home since long, long before the arrival of European explorers; and

WHEREAS, the values and spirit celebrated this month are ones that resonate for Americans of every background and heritage, including respect for the natural world and the flourishing of future generations;

NOW, THEREFORE BE IT RESOLVED, that this Mayor and Council hereby proclaim November 2018 to be Native American Heritage Month in the City of Hyattsville, and encourage all residents to learn about the lasting legacies of the original inhabitants of what is now the United States.

Candace B. Hollingsworth
Mayor, City of Hyattsville

November 5, 2018





Hyattsville City Council Agenda Item Report

Meeting Date: November 5, 2018

Submitted by: Anthony DeSantis

Submitting Department: Community Services

Item Type: Proclamation

Agenda Section: Consent Items (8:30 p.m. - 8:35 p.m.)

SUBJECT

Proclamation: Municipal Government Works Month

HCC-136-FY19

Recommendation:

I move that the Mayor and Council recognize November 2018 as Municipal Government Works Month in the City of Hyattsville.

Sponsor(s):

At the Request of the City Administrator

Co-Sponsor(s):

N/A

ATTACHMENTS

[Municipal Government Works Month 2018 \(Final\).docx](#)

Summary Background:

Municipal Government Works Month is an annual opportunity to raise Maryland residents' awareness of the many contributions that local government employees make to our communities on a daily basis.

Next Steps:

Recognize November 2018 as Municipal Government Works Month in the City of Hyattsville

Fiscal Impact:

N/A

City Administrator Comments:

Recommend Approval

Community Engagement:

Recognition of Municipal Government Works Month has been planned.

Strategic Goals:

Goal 5 – Strengthen the City's Identity as a Diverse, Creative, and Welcoming Community

Legal Review Required?

N/A

CITY OF HYATTSVILLE

PROCLAMATION

RECOGNIZING NOVEMBER 2018 AS MUNICIPAL GOVERNMENT WORKS MONTH IN THE CITY OF HYATTSVILLE

This proclamation declares the month of November 2018, to be Municipal Government Works Month in the City of Hyattsville. Municipal Government Works Month is an annual opportunity to raise Maryland residents' awareness of the many contributions that local government employees make to our communities on a daily basis.

WHEREAS, municipal government represents the most responsive level of government, allowing residents to have direct access to elected officials; and

WHEREAS, the City of Hyattsville became an incorporated Maryland municipality in April 1886; and

WHEREAS, the Maryland Municipal League established Municipal Government Works Month in 1993; and

WHEREAS, municipalities have enhanced the quality of life for their respective residents by helping to make Maryland a great place to live, work, play, and explore;

NOW, THEREFORE BE IT RESOLVED, that the Mayor and Council of the City of Hyattsville join the Maryland Municipal League in declaring November 2018 to be Municipal Government Works Month in the City of Hyattsville.

Candace B. Hollingsworth
Mayor, City of Hyattsville

November 5, 2018





Hyattsville City Council Agenda Item Report

Meeting Date: November 5, 2018

Submitted by: Jim Chandler

Submitting Department: Community & Economic Development

Item Type: Grant

Agenda Section: Action Items (8:35 p.m. - 8:55 p.m.)

SUBJECT

Commercial Façade Improvement Program – 2018 Grant Awards (5 minutes)

HCC-126-FY19

Recommendation:

I move that the Mayor and Council accept the recommendations of the staff and approve 2018 Commercial Façade Improvement program grant awards for the following improvement projects:

- Will's Home Decorating (Former TESST Building), 5122 Baltimore Avenue, Hyattsville MD 20781: \$50,000
- Queens Chapel Town Center, 5400 Queens Chapel Road, Hyattsville 20782: \$21,125
- J. Richard Lilly, MD and Associates, 5804 and 5806 Baltimore Avenue, Hyattsville 20781: \$6,125
- Susie Rhabb, Owner, 5126 Baltimore Avenue, Hyattsville: \$7,750

Sponsor(s):

At the Request of the City Administrator

Co-Sponsor(s):

N/A

ATTACHMENTS

[Memo_-_CFI_2018_Award_Recommendations_-_10.29.2018.docx](#)

Summary Background:

In April 2018, the City issued its sixth application cycle for the Commercial Façade Improvement Program, which provides Hyattsville business and commercial property owners with competitive 1:1 matching grant awards of \$5,000 to \$50,000 per building.

The City's funding source is the State of Maryland Department of Housing & Community Development's Community Legacy Grant. The grant funds are eligible to assist with the cost of labor, materials and design, permitting fees and physical improvements including re-painting, exterior shutters, gutters, windows, siding, doors, masonry, finishes, lighting and signage.

The program requires the applicant to provide contractor bids and the selected projects will operate under a single contract, signed by the contractor, property/business owner and the City of Hyattsville.

The City received a total of three (3) applications submitted by three (3) different applicants. In addition to new applications, the City received a request for additional CFI funds for expanding the scope of services for an on-going project.

Next Steps:

The City will provide award letters and proceed with grant agreements for each of the four awardees. All four (4) 124 projects recommended for funding are scheduled to be completed by December 2019.

Fiscal Impact:

N/A

City Administrator Comments:

Recommend Approval

Community Engagement:

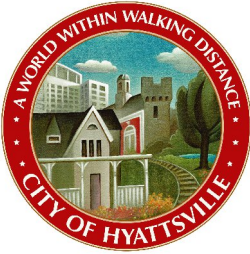
In April 2018, the application and program guidelines were posted to the City website, and printed application packets were available at the City Administration Building. The City posted notices throughout our various communications outlets. City staff also issued direct solicitations and went door to door to locations that we determined could benefit from exterior improvements. The City received four (4) inquiries and a total of four (4) applications from commercial property owners.

Strategic Goals:

Goal 2 – Ensure the Long-Term Economic Viability of the City

Legal Review Required?

Pending



Memo

To: Mayor and Council
From: Jim Chandler, Director, Community & Economic Development
Katie Gerbes, City Planner
Date: October 26, 2018
Re: Commercial Façade Improvement Program – 2018 Grant Awards

The purpose of this memorandum is to provide the Mayor and City Council with a briefing of the applicants recommended for commercial façade improvement grant awards for the City's 2018 grant application cycle.

Program Summary

In April 2018, the City issued its sixth application cycle for the Commercial Façade Improvement Program, which provides Hyattsville business and commercial property owners with competitive 1:1 matching grant awards of \$5,000 to \$50,000 per building.

The City's funding source is the State of Maryland Department of Housing & Community Development's Community Legacy Grant. The grant funds are eligible to assist with the cost of labor, materials and design, permitting fees and physical improvements including re-painting, exterior shutters, gutters, windows, siding, doors, masonry, finishes, lighting and signage.

The program requires the applicant to provide three (3) contractor bids and the selected projects will operate under a single contract, signed by the contractor, property/business owner and the City of Hyattsville.

Commercial Façade Improvement Program Application – Summer 2018 Cycle

In April, the application and program guidelines were posted to the City website, and printed application packets were available at the City Administration Building. City staff also issued direct solicitations and went door to door to locations that we determined could benefit from exterior improvements. The City received four (4) inquiries and a total of four (4) applications from commercial property owners.

Commercial Façade Review – Application Review & Analysis

The City received a total of three (3) applications submitted by three (3) different applicants. In addition to new applications, we received a request for additional CFI funds for expanding the scope of services for an on-going project. Copies of each application and materials were distributed to City Staff consisting of the following individuals:

- Jim Chandler, Director, Community & Economic Development
- Katie Gerbes, City Planner, Community & Economic Development
- Karin Flom, Community Development Intern, Community & Economic Development

Members were asked to review and evaluate the applications independently prior to meeting as a group. Each member of the Review Panel was asked to evaluate the applications based on the following criteria:

- Completeness of Grant Application
- Intent of work to be performed (Accessibility, code compliance, aesthetics, etc.)
- Private investment leveraged
- Economic revitalization impact (removal of blight, job creation potential)

The evaluations and applicant interviews conducted by Staff.

Owner	Doing Business As	Property Address	Scope of Improvements	Private Equity	Grant Request	Project Total
Valerie Kabelac and Michael Richards	Will's Home Decorating	5122 Baltimore Avenue, Hyattsville MD 20781	Signage, exterior window replacement, exterior door replacement, exterior lighting and electrical	\$80,000	\$50,000	\$130,000
Rosenthal Properties Michael Hollins	Queens Chapel Town Center	5400 Queens Chapel Road, Hyattsville 20782	Shopping Center signage and awning replacement	\$24,925	\$24,925	\$49,850
Richard Lilly	J. Richard Lilly, MD and Associates	5804 and 5806 Baltimore Avenue, Hyattsville, MD 20781	Additional exterior painting and lighting	\$19,000	\$10,000	\$29,000
Suzie Rhabb	Prime Restaurant	5126 Baltimore Avenue, Hyattsville 20781	Signage, exterior window replacement, exterior door replacement, exterior lighting and electrical	\$10,000	\$10,000	\$20,000

Recommendation & Actions

- Will's Home Decorating (Former TESST Building), 5122 Baltimore Avenue, Hyattsville MD 20781: The owners have recently acquired the vacant building and will be renovating the interior and exterior façade with plans to relocate its existing retail store from Beltsville by the end of 2019. Façade eligible improvements include new exterior signage, exterior window replacement, door replacement, exterior lighting and electrical. The owner is funding the acquisition and renovation work with a combination of a private lending and a loan from the Maryland Neighborhood BusinessWorks program.
- Queens Chapel Town Center, 5400 Queens Chapel Road, Hyattsville 20782: The owners have proposed replacement of the existing shopping center signage and replacement of some of the exterior awnings. The owner is contributing private equity as matching funds.
- J. Richard Lilly, MD and Associates, 5804 and 5806 Baltimore Avenue, Hyattsville 20781: The owner has an ongoing CFI project and has requested additional funding to expand the scope of services to include additional masonry and related improvements. The owner was previously awarded a CFI grant of \$43,875 therefore any additional CFI award is limited to \$6,125 as it will bring the cumulative project award to \$50,000, the maximum award permitted under the program guidelines. The owner is prepared to move forward with an additional \$29,000 in improvements, provided additional funds are made available through the City.
- 5126 Baltimore Avenue, Hyattsville: The property owner is proposing replacement of the existing exterior trim, windows and doors, addition of exterior lighting and paint treatment. The owner will be working with a firm to design and perform the improvements. The owner anticipates the work will be performed with the existing tenant, Prime Restaurant, in place.

Applications that were provided a funding amount less than what was requested will be considered for additional CFI funding during the 2019 funding cycle. The CFI program maintains a balance of \$85,00 in CFI funding available.

Recommendation

All four projects recommended for funding are scheduled to be completed by December 2019. Based on funding availability and the program funding criteria, Staff is recommending the City Council approve grant awards for each of the four applicants, with grant 2018 CFI awards as follows:

Owner	Doing Business As	Property Address	Scope of Improvements	Grant Award
Valerie Kabelac and Michael Richards	Will's Home Decorating	5122 Baltimore Avenue, Hyattsville, 20781	Signage, exterior window replacement, exterior door replacement, exterior lighting and electrical	\$50,000
Rosenthal Properties Michael Hollins	Queens Chapel Town Center	5400 Queens Chapel Road, Hyattsville 20782	Shopping Center signage and awning replacement	\$21,125
Richard Lilly	J. Richard Lilly, MD and Associates	5804 and 5806 Baltimore Avenue, Hyattsville, 20781	Additional exterior painting and lighting	\$6,125
Susie Rhabb	Prime Restaurant	5126 Baltimore Avenue, Hyattsville 20781	Signage, exterior window replacement, exterior door replacement, exterior lighting and electrical	\$7,750



Hyattsville City Council Agenda Item Report

Meeting Date: November 5, 2018

Submitted by: Katie Gerbes

Submitting Department: Community & Economic Development

Item Type: Planning & Development

Agenda Section: Action Items (8:35 p.m. - 8:55 p.m.)

SUBJECT

PPS 4-17008: Hyattsville Armory Apartments (10 minutes)

HCC-110-FY19

Recommendation:

I move that the City Council authorize the Mayor to submit correspondence on behalf of the City of Hyattsville to the Maryland-National Capital Park & Planning Commission in support of the preliminary plan of subdivision for the Armory Apartments development (PPS 4-17008), subject to the following conditions:

- o Access to the property from Jefferson Street shall be maintained through a public dedication of the driveway to the City;
- o Desired BPIS improvements include some combination of the following pieces of infrastructure: (1) Rhode Island Avenue Trolley Trail way-finding signage (2) a Capital Bikeshare on, or adjacent to, publicly accessible property south of the subject site (3) crosswalk improvements and (4) a new bus shelter dedicated to and maintained by Prince George's County DPW&T.

Sponsor(s):

At the Request of the City Administrator

Co-Sponsor(s):

N/A

ATTACHMENTS

[Armory Apartments PPS Action Memo FINAL.docx](#)

[Hyattsville-UIP-Elevations-180717 \(1\).pdf](#)

[PPS_4-17008_DevelopmentExhibit.pdf](#)

[Planning Committee Minutes- 07.17.18.docx](#)

Summary Background:

The Hyattsville Armory Apartments is a proposed, mixed-use development occurring along the 5300 block of Baltimore Avenue in Ward 1. The site is current home to five (5) vacant structures, as well as two parking lots. The applicant is proposing demolition of the existing structures to construct a five to six (5-6) story building with 32,000 square feet of retail use along the ground floor and 284 rental apartments on the upper floors.

Next Steps:

City comments were due to M-NCPPC on October 29. Staff has been in communication with M-NCPPC and has agreed that if City comments are submitted by November 6, 2018, they can be included in the staff report. The Planning Board hearing is currently scheduled for December 6, 2018.

Fiscal Impact:

N/A

City Administrator Comments:

Recommend Support

Community Engagement:

This project was first presented to the City Council on July 16, 2018. It was discussed at the Planning Committee meeting on July 17, 2018, and brought back to the City Council for discussion on October 1, 2018. Additionally, a page on Speak Up, HVL has been created to gather resident comments on the proposal.

Strategic Goals:

Goal 2 – Ensure the Long-Term Economic Viability of the City

Legal Review Required?

N/A



Memo

To: Mayor and City Council

From: Jim Chandler, Assistant City Administrator and Director, Community & Economic Development
Katie Gerbes, Community Planner

Date: October 29, 2018

Re: PPS 4-17008: Hyattsville Armory Apartments

Attachments: Hyattsville UIP Elevations
PPS 4-17008 Development Exhibit
July 2018 Planning Committee Minutes

The purpose of this memorandum is to provide the City Council a summary of the preliminary plan of subdivision (PPSD) application for the Hyattsville Armory Apartments project.

Project Summary

- Hyattsville Armory Apartments is a proposed mixed-use development along the 5300 block of Baltimore Avenue;
- The proposed development is proposed to include 32,000 square feet of ground floor retail space and 284 rental apartment units;
- The applicant is proposing two (2) vehicular access points to the development's parking garage: Jefferson Street and an improved intersection at Baltimore Avenue and the spur of Hamilton Street;
- Significant pedestrian improvements will be made to the frontage along Baltimore Avenue, most notably by widening the sidewalk to 20 feet in width;
- Staff recommend support of the PSD application and one variance requested by the applicant, subject to the following conditions:
 - o Access to the property from Jefferson Street shall be maintained through a public dedication of the driveway to the City;
 - o Desired BPIS improvements include some combination of the following pieces of infrastructure: (1) Rhode Island Avenue Trolley Trail way-finding signage (2) a Capital Bikeshare on, or adjacent to, publicly accessible property south of the subject site (3)

crosswalk improvements and (4) a new bus shelter dedicated to and maintained by Prince George's County DPW&T.

Project Details

The Hyattsville Armory Apartments is a proposed, mixed-use development occurring along the 5300 block of Baltimore Avenue in Ward 1. The site is currently home to five vacant structures, as well as two parking lots. The applicant is proposing demolition of the existing structures to construct a 5-6 story building with 32,000 square feet of retail use along the ground floor and 284 rental apartments on the upper floors. The building will be five stories on the northern part of the parcel, adjacent to the Hyattsville Armory, and will scale up to six stories on the southern end of the project.

Because the property in question is made up of several smaller parcels, there is a variety of zoning present on site. Parcel A is zoned M-U-I (mixed-use infill), and the remaining parcels are zoned C-O (commercial office) or C-S-C (commercial shopping center). The property lies within the "Town Center" character area of the Gateway Arts District Approved Sector Plan and Sectional Map Amendment. Through the preliminary plan of subdivision, the applicant will be consolidating six individual parcels into one large parcel. The total combined site is 4.39 acres.

Parking

In addition to the parcels fronting Baltimore Avenue, the applicant has also entered into agreements with the City of Hyattsville and Crossover Church to incorporate the parking lots accessed by Jefferson Street into the project. The City of Hyattsville property, known as Lot 5, will be leased to the applicant, so that a structured parking garage can be constructed on its site. Within the parking garage the applicant will be providing 102 public parking spaces that will be dedicated back to the City. The City will assume maintenance of the public area of the garage and shall receive all parking revenues. Similarly, the applicant will be constructing dedicated parking spaces for Crossover Church in exchange for use of their parking lot.

The exact mix of retail fronting Baltimore Avenue is not yet determined, but is likely to be a combination of restaurants, convenience type stores, health and beauty stores, as well as a fitness studio or boutique. As for the apartments, apartments will be rented at market rate, and the applicant is proposing the following breakdown of unit types: 25 studios (9%), 174 1-bedrooms (61%), and 85 2-bedrooms (30%).

Vehicle and Pedestrian Access

There will be two locations for vehicular access onto the property. Retail parking will be primarily accessed from Baltimore Avenue, while church and resident parking accessed primarily through Jefferson Street. The Baltimore Avenue access into the parking garage will be controlled by a traffic signal in order to better manage traffic flow in to, and out of, the property. In the original presentation to the City Council, the applicant mentioned a third vehicular access, off of the Church Place alley. In subsequent conversations with the applicant, that entrance has been removed, leaving two other access points into the property.

As a part of the project, the pedestrian realm will see significant improvement. The applicant proposes a sidewalk of 20 feet in width, that will feature tree boxes along Baltimore Avenue, as well as benches and seating options throughout. The width of the sidewalk will mirror the sidewalk on the eastern side of Baltimore Avenue, at the Shops at Arts District.

Bicycle Pedestrian Impact Statement

The applicant is also required, per Prince George's County sub-division requirements, to provide offsite bicycle/pedestrian improvements as a part of this project. This requirement defined as the Bicycle and Pedestrian Impact Statement (BPIS). The cost cap for the improvements, as calculated by M-NCPPC, is \$97,000. The applicant has proffered a BPIS offer, which has been reviewed by M-NCPPC. Staff have provided M-NCPPC with a list of possible improvements to be made within a one-quarter mile radius of the site, including Rhode Island Avenue Trolley Trail wayfinding signage, crosswalk improvements, bus shelters and a Capital Bikeshare station. M-NCPPC will work with the applicant to determine which improvements will be made as a part of their BPIS requirements.

Driveway Access

As a technical note, during this preliminary plan, the applicant will be working with the City to modify the subdivision of the parcel where Lot 5 is currently located. The way the condominium units for that property are drawn, the parking lot is divided into two units. The applicant will be cleaning up the unit lines so that the entire parking lot falls within one unit. Staff are working with the applicant to ensure this process runs smoothly. Staff are also working to ensure that access to the Jefferson Street parking lots are publicly accessible via a dedication of the entrance way. The applicant is agreeable to this method.

At this time, it is not determined if the project will be subject to a detailed site plan. If a proposal meets all of the standards and requirements of the Gateway Arts District, it does not have to go through a detailed site plan process. The applicant is meeting with M-NCPPC in the upcoming weeks to determine if a detailed site plan is warranted.

Variance Requests

The applicant is seeking one variance for the project. They are seeking a variance to Section 24-113 of the Prince George's Subdivision Ordinance, which calls for the dedication of public utility easements (PUE) along public road right of ways. Baltimore Avenue already has the necessary utilities existing along its right-of-way, so the applicant does not feel it is necessary to dedicate additional frontage to an already existing utility. Staff are supportive of this variance request.

Planning Committee Review

The applicant presented to the Planning Committee on July 17, 2018. The Planning Committee largely responded positively to the proposal and had a few suggestions for improvements. Below is a list of the recommendations voted on by the Committee:

- Committee is overall supportive of the project and appreciates the work UIP has done in activating the space and working with the City and its citizens;
- Committee has concerns about Church Place/Hamilton Alley and its ability to accommodate two-way traffic. We are concerned about the impact of truck traffic on 43rd with the elementary schools and childcare center;
- Generally, like the architecture design but believe it needs to be taken further to ensure we have an elevated, lasting design. We are good with it being funky and modern, but needs to go a little further than it is currently;
- We want to ensure there is adequate bicycle parking space in the garage and in the public area;

- Work with different communities in Hyattsville to ensure retail will be the needs of residents of Hyattsville and should consider “local” businesses;
- Encourage developer to reach out to local schools to see if there are ways to partner with them;
- City Council work with the developer to see about the possibility of affordable housing units within the development;
- If you have a water feature, do not put it near the road in the plaza area;
- City staff should follow up with the traffic engineer to obtain the traffic study and ensure traffic will work on Route 1, Hamilton Street and Jefferson Street.

Several of the Committee’s comments are not relevant to the preliminary plan of subdivision, as they refer to the building architecture or other elements that would be taken into consideration during the detailed site plan process. Of those comments relevant to the preliminary plan, Staff have worked with the applicant to remove vehicular access to the property from Church Place and have received a copy of the traffic study for the site. The other comments are applicable to, and will be addressed at time of, detailed site plan.

Minutes from the July Planning Committee meeting are attached to this memo.

Staff Recommendations

Many of the initial concerns of Staff have been addressed by the applicant in revisions to the application. We anticipate that resolution to outstanding concerns of Staff and the Committee will be addressed by the applicant at time of detailed site plan.

Staff recommends support of the PPSD application and one variance requested by the applicant, subject to the following conditions:

- Access to the property from Jefferson Street shall be maintained through a public dedication of the driveway to the City;
- Desired BPIS improvements include some combination of the following pieces of infrastructure: (1) Rhode Island Avenue Trolley Trail way-finding signage (2) a Capital Bikeshare station on, or adjacent to, publicly accessible property south of the subject site (3) crosswalk improvements and (4) a new bus shelter dedicated to and maintained by Prince George’s County DPW&T.

Next Steps

This project is scheduled to come to the City Council on the “Action” agenda on November 5, 2018. The Planning Board hearing is scheduled for December 6, 2018.



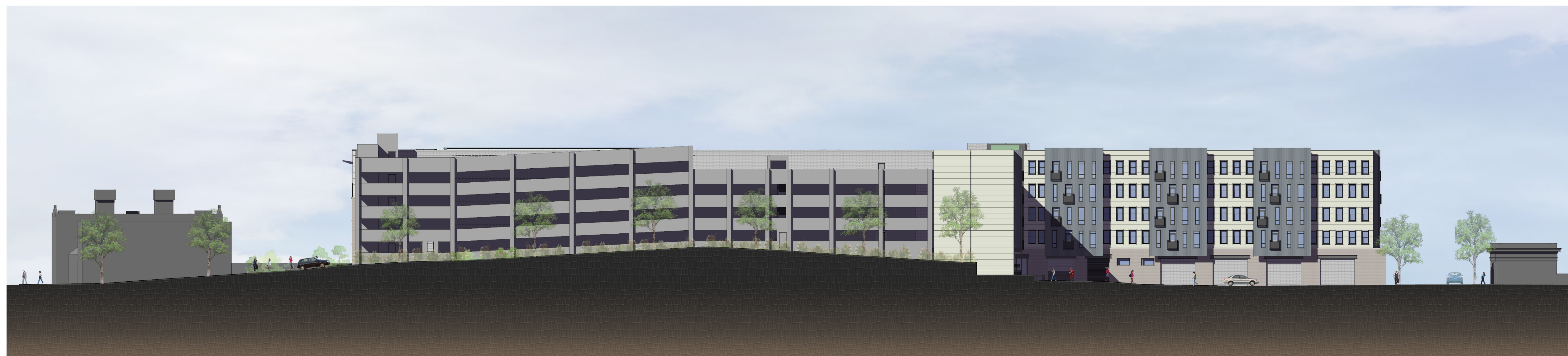
EAST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION



WEST ELEVATION

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CITY OF HYATTSVILLE
PLANNING COMMITTEE AGENDA
JULY 17, 2018

1. Introduction of Committee & Guests Members (7:37 PM)
 - Maureen Foster
 - Wil Maxwell
 - Chad Copeland
 - Jonathan Mueller
 - Todd Dengel
 - Bart Lawrence
 - Katie Gerbes
 - Brook Katzen, UIP
 - Bill Shipp, O'Malley, Miles, Nylen and Gilmore
 - Jonathan Johnson, Torti Gallas
 - Julia Murdoch, Torti Gallas
 - Bob Wallace, Torti Gallas
 - Maria Baroni, UIP
 - Steve Schwat, UIP
 - Andy Akers, UIP
 - Flawn Williams
 - Yohannes Bennehoff
 - Maiya Dacey
 - Ryan Winkelvoss
 - James Garray
 - Nick Harris
 - Krissi Humbard
 - Victoria Moss
2. Committee Business (9:08 PM)
 - Moved to the end of the meeting.
 - Approved unanimously, with edits.
3. Hyattsville Armory Apartments (7:38 PM)
 - Been working on this project for approximately 18 months
 - 6 story building total, with 32,000 square feet of retail and 284 apartments
 - o 25 studios (9%)
 - o 174 1-bedrooms (61%)
 - o 85 2-bedrooms (30%)
 - o Similar size of the Palette apartment building and the EYA commercial on the east side of Baltimore Avenue.
 - Site is currently 7 parcels with 5 vacant structures located on the parcels. These are the buildings along Baltimore Avenue has a lot of art on the buildings and created the temporary Polka Dot Park.
 - Scale of building is broken down by creating outdoor pockets of open and green space to break up the massing.

- Paying a lot of attention to the pedestrian realm – existing sidewalk will be widened from 4 feet to 20 feet, making for a better experience and safer environment. It will be comparable to the size of the sidewalk on the east side of the street at the shopping center.
- Architecture is inspired by the existing context of the neighborhood; taking inspiration from the historic Armory building, Franklins and the residential neighborhood nearby.
- Building will be set off 50 feet from property line adjacent to the Armory building to respect that integrity of the armory and provide a buffer. This will become a pedestrian plaza with outdoor dining, seating and the possibility of programming. This park is referred to as “Armory Plaza.”
 - o Park on the south of the site is “Polka Dot Park 2.0,” with the intention of creating an area with sculptures, art and visual amenities.
 - o There will be an “arts alley,” which is a cut through of the building leading to the Church Place alley in the rear. The intention is to create an art alley experience full of murals and public art.
- There are 3 vehicular access points to the project: Baltimore Avenue (retail parking), Hamilton Alley (Crossover Church parking), and Jefferson Street (residential parking).
 - o With 3 uses coming together, want to provide multiple ways in and out to limit traffic.
- The intersection with Baltimore Avenue and the spur of Hamilton Street (next to Maryland Building) is not very geometrically safe. Meeting with State Highway Administration to try to better align and square off this intersection.
- Intend to add left turn lanes on Baltimore Avenue into the building and onto the spur of Hamilton Street to prevent congestion of folks turning in to the development.
- Just submitted preliminary plan of subdivision to the county to combine these parcels into one.
- Will also need to go through the detailed site plan process.
 - o Do not intend to need any variances supported; have been complying with design guidelines.
- Surcharges and impact fees:
 - o School Surcharge: \$2,361,044
 - o Public Safety Surcharge: \$698,924
 - o Systems Development Charge: \$722,844
- Believe the development as a whole will improve public safety as there will be a widened, safer sidewalk, as well as provide lights and eyes on the street in this area.
- General timeline estimates a Planning Board hearing in October 2018 and to submit building permits by the end of 2018. Hope to start construction in February 2019, and will be approximately 18 months of construction, with an opening slated for late summer 2020.
- Clarifying Questions:
 - o MF: Have you done a traffic study yet? Has it been shared?
 - Have done a traffic study. We didn’t bring our traffic consultants today, but the study did not show that this will result in a failure in any of the surrounding intersections of the project. Study was done about a year ago, but we are in the process of updating those counts and updating the report. I have not been notified of any issues.
 - o MF: Do you have an idea of how many additional students this would bring into the schools?

- Based on Prince George's County metrics, we estimate it could add 38 elementary school pupils, 15 middle school pupils, and 21 high school pupils.
- o MF: Just to clarify, today you are not seeking any variances?
 - Correct.
- o MF: Can you explain the Jefferson Street in and out?
 - Parking garage is located at the rear of the site. It is multi-level, but shorter than the front, so you won't see it from Baltimore Avenue. Entrance from Baltimore Avenue cuts through the building and circulates up. As it goes one level up, as you are up the hill, there will be the Hamilton Alley and Jefferson Street access. The church will have their own area within the garage to replace their existing parking.
- o MF: Can you tell me a little bit about the interaction you expect with pedestrians and the cars coming in off of Baltimore Avenue in the front of the building?
 - It will be a fully signalized, 4-way intersection with four new crosswalks. There will be durations in the cycle for pedestrians only, and times when there will be a no walk sign so that cars can pass through.
- o WM: It looks like you want to close the off ramp on Baltimore Avenue for this? Will that create a traffic mix up.
 - Mistake on the diagram that should be there.
 - BL: City did a walk through with SHA to talk about pedestrian safety on Baltimore Avenue. That intersection is a hazard to pedestrians as it is, so SHA has started considering a hard intersection there to improve that.
- o WM: Are you planning on using wood in the accent pieces on the artists alley?
 - It is a rendering, it is not final. Exact materials and configuration has not been finalized yet.
- o WM: Would there be any bicycle spaces in the parking garage and any accommodation for electric vehicle charging?
 - Yes.
- o JM: For the construction period, do you see any need to close or reduce lanes on Baltimore Avenue while building?
 - Since there will be a 20 foot right of way between the curb and start of the building, that gives plenty of space for construction vehicles and loading. We will ensure there is always pedestrian access.
- o JM: Will the equipment and trucks have to go down Baltimore Avenue?
 - The site utilization plan will be forthcoming as it gets closer to construction, we will know details then.
- o JM: How many buildings are being torn down? Are they all vacant.
 - 5, and all vacant.
- o JM: You are using the 2004 design guidelines, are those the most recent?
 - Yes.
- o CC: How married are you to the materials and scheme of the exterior of the building?
 - We want to build a project that the community is happy with and think it is beautiful. We are hoping you can chime in and give us feedback.
- o CC: Is there a willingness to adopt something that mirrors the color blocking and designs of what is currently on the site?

- We are very flexible on colors, material and detailing on the exterior. It will be challenging for us to change some functional locations, but we can adjust finishes.
- o CC: This will be close to the City Building and elementary schools. Have you considered incorporating something that can be used by the schools as a part of this development?
 - That is a good idea. We recognize that this project will be an important part of the fabric of the community and we don't take it lightly. We are long term managers and owners of all of our properties. Ways to involve the community into the project after completion would work.
 - Do you mean programmatic space?
 - CC: I was intentionally vague to see what you were thinking.
 - I think the space public park spaces can be used informally and formally by the community, like Polka Dot Park currently is.
 - Every year Hyattsville Elementary School paints a mural project with their 5th graders, and we are hoping that they can start expanding their murals onto our property.
- o TD: Does this remove any street parking?
 - There are no on street parking spaces on that side of Baltimore Avenue.
- o TD: You all are maintaining ownership?
 - Yes, we will be leasing and running the building.
- o TD: How do you plan to mark off parking spaces for different groups?
 - 102 spaces dedicated at all times to the public; controlled and managed by the City
 - 90 spaces dedicated to Crossover Church
 - 57 "swing" spaces between Crossover Church and public parking
 - 460 dedicated residential parking spaces
 - There will be gate controlled access to the Church and residential parking spaces.
- o TD: I see there is a middle courtyard. Is that where the arts alley goes to?
 - It will be a private courtyard for residents of the apartment building.
- o TD: Have you done feasibility studies on the project?
 - We have a feasibility team in house that is constantly studying the market and trends. We've spoken to a number of institutional investors, which will come through a combination of debt and equity.
- o TD: You said there is 5 stories of residential and 1 level of retail.
 - Correct, 6 stories total.
- o DM: On this slide, you refer to this as the Hamilton Street alley. The entrance to your project that runs to the alley will be public?
 - It will be exclusively for Crossover Church and residential parking. Public will utilize Baltimore Avenue.
- o DM: Because Hamilton Street is one way, do you think you have enough circulation to avoid an issue with the people who live and work on Hamilton Street having issues with traffic.
 - I don't have the exact data right now, but the alley entrance to the parking garage as there are more established entrances that will see higher traffic. We think it is a convenient additional access point, but is likely to be the least trafficked point.
 - DM: Just to clarify, church members currently multiple entrances to that lot.

- o DM: Does this property line stop at the City lot, or will it impact the artists housing?
 - We intend to relocate a few of their spaces, but won't be impacting their parking aside from that.
- General Public Clarifying Questions:
 - o Maiya Dacey: I live nearby and don't want to look at a parking garage. Can you explain what the rear elevation of the garage may look like?
 - Bottom of the garage will be at the level of Baltimore Avenue, so from the rear will be below grade. First two levels of the garage, almost 3 will be invisible from the rear as it is built into the hill. It's likely we will dress it up with art or designs.
 - Will there be cars on the top?
 - Yes, but there will also be a parapet wall to help shield the view of the cars.
 - o Dan Muth: You mentioned the height will be about 75 feet tall? How does this compare to what is there now? It seems to be much larger?
 - This is a common building type for apartment construction. You can't Building more than 5 stories of wood framed apartments on top of retail. The Palette which is the only comparable apartment in the neighborhood, will be the same height as this.
 - What about the EYA townhomes?
 - I think they are roughly 40 feet.
 - How tall is the Verizon Building?
 - At least 80 feet.
 - o Vicki Moss: Can you talk a bit about the entrance and exit of the parking from Baltimore Avenue. Will you be allowing left turns?
 - New intersection will be fully signalized in all directions, with left turn lanes and crosswalks. Cars coming out of garage will have to wait in the garage until the light changes.
 - What type of retail are you imagining?
 - A little too soon to talk about specific tenants, but the group responsible for the retail on the east side of the street has been a consultant to us and they've produced some merchandising plans. We expect a mix of restaurants, convenience servicing, and retail/boutiques.
 - We are not talking about 7-11s, right?
 - We don't know quite yet. What would you like to see?
 - o This is a tricky question, because there are a lot of destinations in the town that bring people from out of town, which is a good and bad thing.
 - o Flawn Williams: Is there any provision for loading for move in/move out and retail loading?
 - There is a 3-bay loading area off of Hamilton Street, which connects to a back corridor that is accessible to the retail tenants.
 - The parking spaces which are dedicated to the church, is that through a keycard arrangement?
 - We haven't nailed that down yet, we could give fobs, but that is problematic. We may end up with human staffing on Sundays to control that.
 - You mentioned Sundays and Wednesdays will be busy days for the church. Will it be used at all on other days?

- o We will be giving them back exactly what they have (90 spaces dedicated at all times), but then “swing” spaces that can be public parking at other times.
- o MF: Does that mean people on the right-hand side of the retail need to cross the interior street?
 - Yes.
- o DM: You said you want to reconfigure Hamilton Street. I don’t see how it moves on your landscape design to where it is now.
 - We would like to make improvements to the intersection that would solve the misalignment between existing signals and curb cuts. We have talked to the owners on the property on the east side of the street and in the future want to see a connection there.
- o TD: Trash, grease traps, etc. Where will this all be located?
 - In the centralized loading area, off of Hamilton. Anything delivered to or taken away from building will be hosted there.
 - TD: Same for retail?
 - Separate trash rooms for retail and residential, but they are in the same general area.
- o BL: The bike infrastructure was asked about. Will there be bike racks outside the building?
 - In DC there are requirements for bike parking spaces in the building and outside the building.
- o BL: When you are referring to the alley access, that is the City’s alley, so will be stay as the City?
 - Alley access will stay public, but access to the garage itself will be private.
- o BL: Are there steps from the sidewalk to the plaza?
 - No, it is flush.
- o BL: How long is the block from Jefferson to Hamilton?
 - 500 feet.
- o BL: You said retail is 32,000 square feet and comparable to busboys, but can you be more specific? Is that the entire space from Chipotle down to Yes?
 - Yes.
- o BL: You said this would be open to the public, but who will manage this space?
 - UIP would manage the cleaning, landscaping and decoration of the shared spaces. It is private property with a public easement.
- o BL: Have you done other projects with retail? If so, what retail do you see there?
 - Yes, we own shopping centers and a mixed-use building in Adams Morgan. You can see them all on our website.
- o WM: Where is the front door?
 - Through Polka Dot Park 2.0, off of the plaza. There will be a small lobby with elevator and stairs that bring them up to the second level where the amenities like mailroom starts.
- Committee Comments:
 - o DM: I think you need to make sure the alley is managed for two-way traffic.
 - o WM: I think the alley and parking will be good for the area and will turn out okay. I like the design but wouldn’t mind different colors. You may want to consider some bicycle considerations in the residential parking area to have a dedicated bike room.
 - We have one in the building.
 - o JM: I like what I am seeing and like that we are seeing progress on both sides of the street. It looks like a lot of the space is already parking and will be replaced with parking,

- so I like that. I like the design. To me, it seems in style to the artists housing. If people have other suggestions for architecture, I hope they can point you to specific examples.
- o CC: I think the appearance of the building looks generic and like any other apartment building you could run across anywhere. I think part of what makes this community is the fun art, color blocking and the Hyattsville sign. It has warmed the hearts of a lot of people and if you can incorporate that, I think it would be well received.
 - o CC: As you look towards retail development, 7-11 and CVS make my stomach turn. I think you have the opportunity to do something more special than that.
 - o CC: I encourage you to reach out to the public school and St. Jerome to find ways you can be helpful to the school and the City to be a good neighbor and be an advocate to help our schools.
 - o TD: I would like to say that I have seen your presence in the community by being active in the Speak Up plan and activating spaces like Polka Dot Park and that is not going unnoticed. I think the density here is important and hope it will help to activate some of the dormant spaces that currently exist.
 - o TD: From the retail side, I think the term "local" is important. Local businesses are a good opportunity here to coincide with the local businesses we already have.
 - o TD: I like the way you have broken up the space works and see how it works in places like Pike & Rose.
 - o TD: I love Franklin's, but the corrugated metal has passed its prime and I encourage you to move away from that. In Brentwood what they are doing there already looks dated.
 - o TD: I hope that you continue to engage the community and maybe you meet with the community outside of this committee.
 - o MF: I am concerned about the loading dock and what it means to have the trucks coming and going off Hamilton Street there. I can see there is a backup and then we have trucks parking on Route 1 to unload.
 - o MF: I am still concerned about access of Route 1; I am concerned because it is a nightmare now, but I am excited to see what your traffic study says.
 - o MF: I love the armory plaza and think you should look at Riverdale Park Station and see how they have activated that space.
 - Community Comments:
 - o Flawn Williams: I would love to see water features for kids but push them away from car traffic. I concur with Todd to backpedal the corrugated metal. If there is any room in this plan for some affordable housing, I think that would greatly enhance community adoption of this plan.
 - o Vicki Moss: Regarding retail, perhaps a hardware store. They serve everyone and are a great community resource for all prices and people.
 - o Steve Schwat: We think hard about the retail. When you build so much space, but a limited amount is retail, it is more important to provide an amenity to the residents of the building, because often that is then an amenity to the neighborhood. We can lose money on retail rents if it means we're supporting higher
 - o Steve Schwat: We have been approached by CVS on this project, but have not entered into an agreement with them, but they are being a community resource as well, with the medical clinics and grocery elements.
 - o Dan Muth: I thank you for considering the sector plan and doing something that could be good to the community. I think this will be the new landmark of Hyattsville. In some ways, this will scale up the entire community. That is not a bad thing, but something to be aware of. We aren't afraid of funky and original here, and I am not offended by modern architecture on this route. I think the architecture is 85% there and could go 15% further with community input.

- o Yohannes Bennehoff: Is the retail space flexible on how big it can be?
 - Yes.
- o James Garray: No comment, but it is a big change to the environment.
- o Ryan Winklevoss: I know you have a business opportunity to outlast the aesthetic on the east side of Route 1. If you look at the more recent residential mixed-use spaces, like Pike & Rose and near Catholic University. You have the possibility to make something that doesn't look like it was build years ago.
- o Maiya Dacey: I would love to see an elevation of materials and how can we get materials that don't look so flat. The pops of color are fun, but they're dated. I know these are mock ups, but if you can elevate the materials to make them look more sophisticated and expensive. Overall, I am excited about this project.
- o Krissi Humbard: Excited about the public spaces.
- Recommendations:
 - o RECOMMENDATION: Committee is overall supportive of the project and appreciates the work UIP has done in activating the space and working with the City and its citizens.
 - Approved: 5 in favor, 1 opposed.
 - o RECOMMENDATION: Committee has concerns about Church Place/Hamilton Alley and its ability to accommodate two-way traffic. We are concerned about the impact of truck traffic on 43rd with the elementary schools and childcare center.
 - Adopted unanimously.
 - o RECOMMENDATION: Generally, like the architecture design but believe it needs to be taken further to ensure we have an elevated, lasting design. We are good with it being funky and modern, but needs to go a little further than it is.
 - Adopted unanimously.
 - o RECOMMENDATION: We want to ensure there is adequate bicycle parking space in the garage and in the public area.
 - Adopted unanimously.
 - o RECOMMENDATION: Work with different communities in Hyattsville to ensure retail will be the needs of residents of Hyattsville and should consider "local" businesses.
 - Adopted unanimously.
 - o RECOMMENDATION: Encourage developer to reach out to local schools to see if there are ways to partner with them.
 - Adopted unanimously.
 - o RECOMMENDATION: City Council work with the developer to see about the possibility of affordable housing units within the development.
 - Adopted unanimously.
 - o RECOMMENDATION: If you have a water feature, do not put it near the road in the plaza area.
 - Adopted unanimously.
 - o RECOMMENDATION: City staff should follow up with the traffic engineer to obtain the traffic study and ensure traffic will work on Route 1, Hamilton Street and Jefferson Street.
 - Adopted unanimously.

4. Development Updates (9:09 PM)

- Magruder Pointe
 - An additional revised CSP was received after the June Planning Committee meeting, which was seeking rezoning exclusively to M-U-I zone.
 - City Council voted on July 16 not to support M-U-I request.
- TESST Building

- Recipient of a Commercial Façade Improvement program grant
- Will be occupied by Will's Decorating.
- Significant renovations inside and outside necessary.
- Metro II
 - Do not have an update on construction, but will talk to them to get an idea of progress/anticipated timeline.
- Is the Minority Access building occupied?
 - Yes, but most of the space isn't used. Pyramid Atlantic used it for their pop-up bookstore recently.
- Sangfroid Distillery
 - Recipient of last year's CFI grant. They have a new hand painted sign, new windows and garage door. Will be opening in October.
 - Request to get a showcase of other CFI project for September meeting.
 - i. Yes.
- Are there businesses moving into flatiron building?
 - City has not heard of anything related to the flatiron building.
- What is the status of Hamilton Street? Why are the roads in such bad condition?
 - Due to WSSC work to replace pipes. Once completed, they are required to pave over the road.
- Sacred Heart
 - Was called up by the District Council and had oral testimony on July 9. Deni Taveras took the case "under advisement" and will be making a decision on July 23 as to if the District Council is to reverse decision.
- Editor's Park numbers
 - Will have them for September meeting.
- Mall Updates
 - &Pizza is supposed to open this week, with Mezeh following in early August. The main sign on East West Highway is being replaced. No news on the pad site – it seems the mall has stopped pursuing that.
- Sunoco on East West Highway
 - Waiting on a referral from M-NCPPC.
- Hyatt View Status
 - At the Planning Board hearing there seemed to be a disagreement about if the project needed a detailed site plan as well. I will check in with applicant to get confirmation.
- Aldi Expansion
 - Language was revised on the dias at the City Council meeting to incorporate more of the Planning Committee's comments.
- Where do we fall with committee speaking to the City Council?
 - Want to talk about Armory Apartments

5. Adjourn (9:31 PM)



Hyattsville City Council Agenda Item Report

Meeting Date: November 5, 2018

Submitted by: Ron Brooks

Submitting Department: Finance

Item Type: Bond

Agenda Section: Action Items (8:35 p.m. - 8:55 p.m.)

SUBJECT

Hyattsville Ordinance 2018-08: Introduction of Resolution to Issue 2018 General Obligation Bonds to renovate the Public Works Facility and 3505 Hamilton Street (5 minutes)

HCC-125-FY19

Recommendation:

I move that the Mayor and Council introduce Hyattsville Resolution 2018-08 for the Issuance of (1)(A) General Obligation Bonds and (B) General Obligation Bond Anticipated Notes, each in an original aggregate principal amount not exceeding Thirteen Million Eight Hundred Twenty-Five Thousand Dollars (\$13,825,000), and (2) General Obligation Refunding Bonds, provided that the original aggregate principal amount of any series of refunding bonds shall not exceed one hundred thirty percent (130%) of the aggregate principal amount of the bonds refunded. The proceeds of the sale are to be used and applied for the public purpose of financing, reimbursing or refinancing costs (as defined in the ordinance) of the projects identified as Public Works Facility and 3505 Hamilton Street together with related costs. In accordance with applicable budgetary procedures or law the authorized bonds, bond anticipation notes and refunding bonds shall be sold at private sale, unless by resolution City Council provides for the sale of the obligations by another permissible manner and authorizes the City Council to pledge the City's Full Faith and Credit and unlimited taxing power to the prompt payment of Debt Service on each series of the obligations (INTRODUCTION/FIRST READING).

Sponsor(s):

At the Request of the City Administrator

Co-Sponsor(s):

N/A

ATTACHMENTS

[Bond_Ordinance_DOCS-_206299-v2-2018_Hyattsville_Ordinance__1_.docx](#)

Summary Background:

In fiscal years 2016 thru 2019 City Council approved Capital Budget appropriations of \$3.3 million to renovate the Public Works Facility and \$10,265,000 to renovate 3505 Hamilton Street for the Police Department for a total not to exceed for both projects of \$13,565,000. Funding for both projects is being provided from approved Capital Budget Funds and thru the Issuance and sale of General Obligation Bonds and/or General Obligation Bond Anticipated Notes plus issuance costs in an aggregate principal amount not to exceed Thirteen Million Eight Hundred Twenty-Five Thousand Dollars \$13,825,000. The proceeds of the sale are to be used and applied for the public purpose of financing, reimbursing or refinancing costs (as defined in the ordinance) of the projects identified as Public Works Facility and 3505 Hamilton Street together with related costs.

Next Steps:

Second reading passage by City Council on November 15, 2018 and then complete the bond issuance process with the City's Financial Advisor.

Fiscal Impact:

The FY18 General Obligation Bonds will increase debt service beginning in FY19.

City Administrator Comments:

See summary above.

Community Engagement:

The community will have an opportunity to ask questions during the required public hearing for issuance of the General Obligation Bonds.

Strategic Goals:

Goal 3 – Promote a Safe and Vibrant Community

Legal Review Required?

Pending

CITY OF HYATTSVILLE
ORDINANCE 2018-08

AN ORDINANCE AUTHORIZING AND EMPOWERING CITY OF HYATTSVILLE (THE "CITY") TO ISSUE AND SELL FROM TIME TO TIME, UPON ITS FULL FAITH AND CREDIT, ONE OR MORE SERIES OF (1)(A) GENERAL OBLIGATION BONDS AND (B) GENERAL OBLIGATION BOND ANTICIPATION NOTES, EACH IN AN ORIGINAL AGGREGATE PRINCIPAL AMOUNT NOT EXCEEDING THIRTEEN MILLION EIGHT HUNDRED TWENTY-FIVE THOUSAND DOLLARS (\$13,825,000), AND (2) GENERAL OBLIGATION REFUNDING BONDS, PROVIDED THAT THE ORIGINAL AGGREGATE PRINCIPAL AMOUNT OF ANY SERIES OF REFUNDING BONDS SHALL NOT EXCEED ONE HUNDRED THIRTY PERCENT (130%) OF THE AGGREGATE PRINCIPAL AMOUNT OF THE BONDS REFUNDED THEREFROM, THE PROCEEDS OF THE SALE THEREOF TO BE USED AND APPLIED FOR THE PUBLIC PURPOSE OF FINANCING, REIMBURSING OR REFINANCING COSTS (AS DEFINED IN THIS ORDINANCE) OF THE PROJECTS IDENTIFIED HEREIN AS PUBLIC WORKS FACILITY AND 3505 HAMILTON STREET, TOGETHER WITH RELATED COSTS; SPECIFYING THE MAXIMUM PRINCIPAL AMOUNT OF THE BONDS AND THE BOND ANTICIPATION NOTES PROVIDED FOR HEREIN TO BE ALLOCATED TO SUCH PROJECTS, SUBJECT TO REALLOCATION BY THE CITY IN ACCORDANCE WITH APPLICABLE BUDGETARY PROCEDURES OR LAW; DETERMINING THAT EACH SERIES OF THE AUTHORIZED BONDS, BOND ANTICIPATION NOTES AND REFUNDING BONDS (EACH, A "SERIES OF OBLIATIONS" OR "OBLIGATIONS") SHALL BE SOLD AT PRIVATE SALE, UNLESS BY RESOLUTION THE CITY COUNCIL OF THE CITY (THE "CITY COUNCIL") PROVIDES FOR THE SALE OF ANY SERIES OF OBLIGATIONS BY ANOTHER PERMISSIBLE MANNER; AUTHORIZING THE CITY COUNCIL TO DETERMINE OR PROVIDE BY RESOLUTION FOR VARIOUS MATTERS RELATING TO THE AUTHORIZATION, SALE, SECURITY, ISSUANCE, DELIVERY, PAYMENT, AND REDEMPTION OR PREPAYMENT OF AND FOR EACH SERIES OF OBLIGATIONS; PLEDGING THE CITY'S FULL FAITH AND CREDIT AND UNLIMITED TAXING POWER TO THE PROMPT PAYMENT OF DEBT SERVICE ON EACH SERIES OF OBLIGATIONS AND PROVIDING FOR THE IMPOSITION OF AD VALOREM TAXES SUFFICIENT FOR SUCH PURPOSES; PROVIDING THAT THE PRINCIPAL OF AND INTEREST ON THE OBLIGATIONS ALSO MAY BE PAID FROM ANY OTHER SOURCES OF REVENUE LAWFULLY AVAILABLE TO THE CITY FOR SUCH PURPOSE; PROVIDING THAT CERTAIN ACTIONS MAY BE TAKEN OR PROVIDED FOR BY RESOLUTION IN CONNECTION WITH THE REISSUANCE OF ANY OBLIGATIONS; PROVIDING THAT ANY OF THE BONDS, BOND ANTICIPATION NOTES OR REFUNDING BONDS AUTHORIZED HEREBY MAY BE CONSOLIDATED WITH ANY BONDS, BOND ANTICIPATION NOTES AND/OR REFUNDING BONDS AUTHORIZED BY THE CITY COUNCIL AND ISSUED AS A SINGLE SERIES OF

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1 **BONDS, BOND ANTICIPATION NOTES AND/OR REFUNDING BONDS, AS**
2 **APPLICABLE; AUTHORIZING, EMPOWERING AND DIRECTING OFFICIALS AND**
3 **EMPLOYEES OF THE CITY TO TAKE CERTAIN ACTIONS IN CONNECTION WITH**
4 **THE OBLIGATIONS; AUTHORIZING MODIFICATIONS OF THE OBLIGATIONS TO**
5 **BE MADE BY RESOLUTION UNLESS ANOTHER ACTION IS REQUIRED;**
6 **PROVIDING THAT THIS TITLE BE DEEMED A FAIR SUMMARY OF THIS**
7 **ORDINANCE FOR ALL PURPOSES; PROVIDING THAT THE PROVISIONS OF THIS**
8 **ORDINANCE SHALL BE LIBERALLY CONSTRUED; AND OTHERWISE**
9 **GENERALLY RELATING TO THE SALE, ISSUANCE, DELIVERY AND PAYMENT OF**
10 **AND FOR THE OBLIGATIONS.**

11 **RECITALS**
12

13 1. City of Hyattsville, a municipal corporation of the State of Maryland (the “City”)
14 and a municipality within the meaning of the Enabling Act, the Bond Anticipation Note Act and
15 the Refunding Act identified below, is authorized and empowered by Sections 19-301 to 19-309,
16 inclusive, of the Local Government Article of the Annotated Code of Maryland (previously
17 codified as Sections 31 to 37, inclusive, of Article 23A of the Annotated Code of Maryland), as
18 replaced, supplemented or amended (the “Enabling Act”), and Section C5-23A of the Charter of
19 the City of Hyattsville, as replaced, supplemented or amended (the “Charter”), to borrow money
20 for any proper public purpose and to evidence such borrowing by the issuance and sale of its
21 general obligation bonds.

22 2. The City has determined to undertake the public purpose projects identified in
23 Section 3 of this Ordinance.

24 3. The City has determined to authorize the issuance and sale from time to time of one
25 or more series of its general obligation bonds in order to finance, reimburse or refinance all or a
26 portion of the costs of any of the public purpose projects identified in Section 3 of this Ordinance.

27 4. The City has determined that each series of the general obligation bonds authorized
28 hereby shall be sold at private sale through a negotiated underwriting unless the financial advisor
29 to the City, the City Administrator of the City (the “City Administrator”) and the Treasurer of the
30 City (the “Treasurer”) recommend that it would be more advantageous to the City to sell any such
31 series by another permissible method and the City Council of the City (the “City Council”) makes
32 such a determination by resolution.

33 5. Prior to issuing any one or more series of the general obligation bonds authorized
34 hereby, the City may need to obtain interim financing in order to finance or reimburse applicable
35 project costs on a timely basis through the issuance and sale from time to time of general obligation
36 bond anticipation notes in one or more series pursuant to the authority of Sections 19-211 to 19-
37 223, inclusive, of the Local Government Article of the Annotated Code of Maryland (previously
38 codified as Section 12 of Article 31 of the Annotated Code of Maryland), as replaced,
39 supplemented or amended (the “Bond Anticipation Note Act”).

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6. Subsequent to the issuance of any general obligation bonds provided for herein, the City may desire to currently refund or advance refund all or a portion of such bonds through the issuance and sale from time to time of one or more series of its general obligation refunding bonds pursuant to the authority of Section 19-207 of the Local Government Article of the Annotated Code of Maryland (previously codified as Section 24 of Article 31 of the Annotated Code of Maryland), as replaced, supplemented or amended (the “Refunding Act”).

7. The City has determined to pledge its full faith and credit and unlimited taxing power to the prompt payment of the principal of and interest on the bonds, the bond anticipation notes and the refunding bonds authorized hereby.

8. The City has determined to issue any series of the bonds, the bond anticipation notes and the refunding bonds authorized hereby in accordance with the terms and conditions provided for in a resolution or resolutions to be adopted by the City Council pursuant to the authority of the Enabling Act, the Bond Anticipation Note Act, the Refunding Act, Section C5-23A of the Charter and this Ordinance, as applicable.

NOW THEREFORE, BE IT ORDAINED, by the City Council of the City of Hyattsville in regular session assembled:

SECTION 1. (a) That the Recitals to this Ordinance are deemed a substantive part of this Ordinance and are incorporated by reference herein. Capitalized terms used in the Sections of this Ordinance and not otherwise defined herein shall have the meanings given to such terms in the Recitals.

(b) References in this Ordinance to any official by title shall be deemed to refer (i) to any official authorized under the Charter, the code of ordinances of the City (the “City Code”) or other applicable law or authority to act in such titled official’s stead during the absence or disability of such titled official, (ii) to any person who has been elected, appointed or designated to fill such position in an acting or interim capacity under the Charter, the City Code or other applicable law or authority, (iii) to any person who serves in a “deputy”, “associate” or “assistant” capacity as such an official, provided that the applicable responsibilities, rights or duties referred to herein have been delegated to such deputy, associate or assistant in accordance with the Charter, the City Code or other applicable law or authority, and/or (iv) to the extent an identified official commonly uses another title not provided for in the Charter or the City Code, the official, however known, who is charged under the Charter, the City Code or other applicable law or authority with the applicable responsibilities, rights or duties referred to herein.

(c) References in this Ordinance to the “principal amount” of any of the Bonds, the BANs, the Refunding Bonds or the Obligations (each as defined herein) shall be construed to mean the par amount of such Bonds, BANs, Refunding Bonds or Obligations, as applicable.

SECTION 2. That pursuant to the authority of the Enabling Act, Section C5-23A of the Charter and any other applicable law, the City hereby determines to borrow money and incur

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indebtedness for the public purpose of financing, reimbursing or refinancing costs (as defined in Section 3(b) hereof) of the Projects identified in Section 3(b) hereof.

SECTION 3. (a) That to evidence the borrowing and indebtedness authorized in Section 2 of this Ordinance, the City, acting pursuant to the authority of the Enabling Act, Section C5-23A of the Charter and any other applicable law, hereby determines to issue and sell from time to time, in one or more series, upon its full faith and credit, its general obligation bonds in an original aggregate principal amount not to exceed Thirteen Million Eight Hundred Twenty-Five Thousand Dollars (\$13,825,000) (each, a “series of the Bonds” and, collectively, the “Bonds”). Any series of the Bonds may be issued as one or more bonds and any such bond may be issued in installment form and/or draw-down form.

(b) With respect to the projects listed below, the word “costs” as used in Section 2 hereof shall include, as applicable, costs of the following activities and expenses: land and right-of-way acquisition and development; site and utility improvements, including, without limitation, grading, landscaping, paving, sidewalk, curb, gutter, storm water, water, and sewer improvements, and related or similar activities and expenses; demolition, razing and removal and related or similar activities and expenses; acquisition, construction, expansion, reconstruction, replacement, renovation, rehabilitation, improvement, installation, furnishing and equipping activities and expenses, and related or similar activities and expenses; planning, design, engineering, architectural, feasibility, surveying, bidding, permitting, inspection, construction management, financial, legal and administrative activities and expenses, and related or similar activities and expenses; costs of issuance (which may include costs of bond insurance or other credit or liquidity enhancement); capitalized interest; and any such costs that may represent the City’s share or contribution to the financing, reimbursement or refinancing of costs of any such project (collectively, “Costs of the Projects”). The maximum original aggregate principal amount of the Bonds (or the BANs, as identified in Section 7 hereof) to be appropriated or applied to the Costs of the Projects (exclusive of any premium realized upon sale or investment earnings that may be applied for such purposes) shall be allocated among the following public purpose projects in the maximum principal amount set forth opposite each, except as otherwise herein provided:

	<u>Project Description</u>	<u>Maximum Principal Amount</u>
1	Public Works Facility (1)	\$ 3,300,000
2	3505 Hamilton Street (2)	10,265,000
3	Costs of Issuance	<u>260,000</u>
	TOTAL	<u><u>\$13,825,000</u></u>

(1) Sometimes referred to in City materials as the Department of Public Works Renovation Project.

(2) Sometimes referred to in City materials as Reuse of 3505 Hamilton Street.

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1 The projects identified in line items 1-3 above (including Costs of Issuance) are collectively
2 referred to herein as the "Projects". Except as indicated in the footnotes above, the Projects
3 described in line items 1-3 above are identified by the names used in the City's Capital
4 Improvements Plan. The City, without notice to or the consent of any registered owners of the
5 Bonds (or the registered owners of any of the BANs, as applicable), may reallocate the maximum
6 principal amount of the Bonds (and of any of the BANs, as applicable) (exclusive of any premium
7 realized upon sale or investment earnings that may be applied for such purposes) to be spent among
8 any of the Projects identified herein in compliance with applicable budgetary procedures or
9 applicable law. Further, it is the intention of the City that proceeds of the Bonds (or of any of the
10 BANs, as applicable) may be spent on any applicable Costs of the Projects, notwithstanding the
11 descriptive names for such Projects in the table above, including, without limitation, costs related
12 to changes in the scopes of and/or names of any of the Projects identified above effected through
13 applicable budgetary procedures or applicable law.

14 (c) In the event the City issues any series of the BANs pursuant to Section 7 of this
15 Ordinance, proceeds of the Bonds of any series in anticipation of which such BANs were issued
16 may also be applied to prepay or pay principal, premium and/or interest on such series of the BANs
17 in accordance with the provisions of the Bond Anticipation Note Act, and such application shall
18 be deemed the payment of Costs of the Projects for purposes of this Ordinance.

19 SECTION 4. That the proceeds of the Bonds shall be used and applied by the City
20 exclusively and solely for the public purposes described in Section 3 of this Ordinance, unless a
21 supplemental ordinance is enacted by the City to provide for the use and application of such
22 proceeds for some other proper public purpose authorized by the Enabling Act, the Charter or other
23 applicable law; provided that, no such supplemental ordinance shall be required if changes in the
24 scope of or name of any Project are otherwise made as contemplated in Section 3(b) of this
25 Ordinance.

26 SECTION 5. That pursuant to the authority of the Enabling Act, Section C5-23A of the
27 Charter and any other applicable law, the City hereby determines that it is in the best interests of
28 the City to sell each series of the Bonds at private sale through a negotiated underwriting due to
29 the anticipated size of any issue and the ability to time the market, negotiate terms and thereby
30 obtain a beneficial interest rate or rates and other beneficial terms. Notwithstanding the foregoing
31 sentence, the City Council by resolution may determine, based on the recommendation of the
32 financial advisor to the City, the City Administrator and the Treasurer, that it would be more
33 advantageous to the City to sell any series of the Bonds by another permissible method for the
34 reasons specified in such resolution.

35 SECTION 6. That pursuant to the authority of the Enabling Act, Section C5-23A of the
36 Charter, any other applicable law and this Ordinance, the City Council, prior to the sale, issuance
37 and delivery of each series of the Bonds, shall adopt a resolution or resolutions specifying,
38 prescribing, determining or providing for the determination of, providing for, approving, or
39 providing for the approval of, such matters, details, forms (including, without limitation, the form

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1 of the Bonds of such series), documents or procedures as may be required by the Enabling Act,
2 the Charter, any other applicable law or this Ordinance or as the City Council may deem
3 appropriate for the authorization, sale, security, issuance, delivery, payment or redemption or
4 prepayment of or for such series of the Bonds. Any such resolution may set forth, determine or
5 provide for the determination of, approve or provide for the approval of, among other matters, as
6 applicable, the designation of such series of the Bonds; the date of issuance of such series of the
7 Bonds; the original aggregate principal amount of such series of the Bonds; the denominations of
8 such series of the Bonds; the maturity or maturities of such series of the Bonds; the principal
9 installments (including, without limitation, serial maturities and/or mandatory sinking fund
10 installments) payable on such series of the Bonds; the rate or rates of interest, or the method of
11 determining the rate or rates of interest, payable on such series of the Bonds, which may be fixed
12 or variable; provisions for the payment of late fees, additional interest and/or penalties payable
13 with respect to such series of the Bonds and/or adjustments to interest rates in appropriate
14 circumstances; the purchase price payable for such series of the Bonds (within the limits of any
15 applicable law); provisions relating to the redemption or prepayment of such series of the Bonds
16 at the City's option or by mandatory sinking fund payments; provisions allowing the registered
17 owners such series of the Bonds to put or cause the redemption or prepayment of the Bonds of
18 such series at their option; the components of the Projects (and related maximum principal
19 amounts) on which the proceeds of such series of the Bonds shall be expended and provisions for
20 appropriation, disposal and investment of such proceeds; provisions for the application of
21 unexpended proceeds, any premium paid upon sale and/or investment earnings on such series of
22 the Bonds of such series, which may include, without limitation, on Costs of the Projects or on
23 debt service payable on such series of the Bonds, to the extent permitted by applicable law; matters
24 relating to the method of sale of such series of the Bonds; the selection of any bond registrar,
25 paying agent, investment bidding agent or other appropriate service providers in connection with
26 such series of the Bonds; certifications, representations, determinations, designations or elections
27 relating to the tax-exempt or taxable status of interest payable on such series of the Bonds; and all
28 other terms and conditions pursuant to which such series of the Bonds will be sold, issued and
29 delivered. Among other matters, the City Council, by resolution, may authorize, approve or
30 otherwise provide for (i) payment of any commitment fee or similar fee and any other costs
31 (including other parties' legal costs) payable in connection with any series of the Bonds and any
32 compensation payable to the purchaser(s) of such series of the Bonds in the event the City fails to
33 deliver such series of the Bonds, (ii) the obtaining of credit enhancement or liquidity enhancement
34 for any series of the Bonds (and the negotiation, approval, execution and delivery of any
35 agreements or documents relating thereto), and (iii) any other agreements, documents, instruments
36 or determinations necessary or desirable to enhance the marketability of or as security for any
37 series of the Bonds, including, without limitation, any ratings, any official statement or similar
38 disclosure document or any continuing disclosure undertaking required to satisfy the requirements
39 of Securities and Exchange Commission Rule 15c2-12. References to providing for
40 determinations or approvals or similar matters by resolution shall be construed to permit the City
41 Council to delegate to one or more officials the authority to make or provide on behalf of the City
42 any of the determinations, approvals or other decisions contemplated by this Section 6. Any
43 resolution may specify, prescribe, determine or provide for the determination of, provide for, or

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1 approve or provide for the approval of, the details required or authorized in this Section 6 for more
2 than one series of the Bonds.

3 SECTION 7. (a) That pursuant to the authority of the Bond Anticipation Note Act,
4 Section C5-23A of the Charter and any other applicable law, the City is hereby authorized and
5 empowered to issue and sell, upon its full faith and credit, its general obligation bond anticipation
6 notes in one or more series from time to time in an original aggregate principal amount not to exceed
7 Thirteen Million Eight Hundred Twenty-Five Thousand Dollars (\$13,825,000) (each a “series of
8 the BANs” and, collectively, the “BANs”), prior to and in anticipation of the sale of any series of
9 the Bonds, for the public purpose of financing or reimbursing Costs of the Projects on an interim
10 basis. Any such series of the BANs may consist of one or more notes and any note may be issued in
11 installment form and/or draw-down form. Prior to the sale, issuance and delivery of each series of
12 the BANs, the City Council shall adopt a resolution or resolutions pursuant to the authority of the
13 Bond Anticipation Note Act, the Charter, any other applicable law and this Ordinance authorizing
14 such series of the BANs and specifying, prescribing, determining or providing for the determination
15 of, providing for, approving, or providing for the approval of, with respect to such series of the BANs,
16 the same types of matters, details, forms, documents, procedures or determinations detailed in Section
17 6 hereof that may be made or addressed with respect to each series of the Bonds, to the extent
18 applicable with respect to such series of the BANs, and as otherwise may be authorized or required
19 by applicable law. Unless the City Council determines otherwise in a resolution providing for any
20 series of the BANs, pursuant to the authority of the Bond Anticipation Note Act, each series of the
21 BANs shall be sold by private negotiation. Any such sale by private negotiation is hereby determined
22 to be in the public interest due to the ability to time the market, negotiate with potential purchasers
23 and thereby achieve a beneficial interest rate or rates and other beneficial terms by undertaking a sale
24 by private negotiation and, with respect to a private sale that involves a direct purchase transaction,
25 the lower costs of issuance typically incurred with such a direct purchase transaction as compared to
26 a negotiated underwriting or a public sale at competitive bid. By resolution the City Council may
27 delegate to one or more City officials the authority to make any final determinations, approvals or
28 decisions with respect to a series of the BANs. Any resolution may specify, prescribe, determine or
29 provide for the determination of, provide for, or approve or provide for the approval of, the details
30 required or authorized by this Section 7 for more than one series of the BANs.

31 (b) The City hereby covenants (i) to pay from the proceeds of one or more series of the
32 Bonds the principal of any series of the BANs actually issued, (ii) to the extent that interest on any
33 series of the BANs is not paid from proceeds of the BANs, the interest on such series of the BANs,
34 and (iii) to issue the applicable series of the Bonds as soon as there is no longer a reason for deferring
35 its issuance. This covenant shall not be construed to prevent the City from paying principal of and/or
36 interest on any series of the BANs from sources of funds other than proceeds of the Bonds, to the
37 extent such other sources are available for such purpose.

38 (c) As authorized by the Bond Anticipation Note Act, by resolution the City Council may
39 provide for the renewal of any series of the BANs at maturity with or without resale, together with
40 any amendments or modifications to such series of the BANs and any related documentation.

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1 SECTION 8. That pursuant to the authority of the Enabling Act, the Refunding Act,
2 Section C5-23A of the Charter and any other applicable law, the City is hereby authorized and
3 empowered to issue and sell from time to time, in one or more series, upon its full faith and credit,
4 its general obligation bonds (each, a “series of the Refunding Bonds” and, collectively, the
5 “Refunding Bonds”) for the purpose of currently refunding or advance refunding in whole or in
6 part any of the Bonds then outstanding, including paying all or any portion of the following:
7 outstanding principal, any redemption or prepayment premium, and/or interest accrued or to accrue
8 to the date or dates of redemption, prepayment, purchase or maturity of the Bonds to be refunded,
9 costs and expenses incurred in connection with the sale, issuance and delivery of such Refunding
10 Bonds, and, to the extent determined by the City Council by resolution, interest on such Refunding
11 Bonds, for the public purpose of (A) realizing savings in the total cost of debt service on a direct
12 comparison or present value basis, or (B) debt restructuring that reduces the total cost of debt service
13 or is determined by the City Council to be in the best interests of the City, to be consistent with the
14 City’s long-term financial plan, and to realize a financial objective of the City, including improving
15 the relationship of debt service to any source of payment such as taxes, assessments or other charges,
16 or for any other purpose then authorized by the Refunding Act or other applicable law, and as to be
17 determined by resolution of the City Council; provided that, the original aggregate principal amount
18 of any such series of the Refunding Bonds shall not exceed one hundred thirty percent (130%) of
19 the outstanding aggregate principal amount of the Bonds refunded therefrom. Any such series of
20 the Refunding Bonds may consist of one or more bonds and any such bond may be issued in
21 installment form and/or draw-down form. Prior to the sale, issuance and delivery of each series of
22 the Refunding Bonds, the City Council shall adopt a resolution or resolutions pursuant to the authority
23 of the Refunding Act, the Charter, any other applicable law and this Ordinance authorizing such series
24 of the Refunding Bonds and specifying, prescribing, determining or providing for the determination
25 of, providing for, approving, or providing for the approval of, with respect to such series of the
26 Refunding Bonds, the same types of matters, details, forms, documents, procedures or determinations
27 detailed in Section 6 above that may be made or addressed with respect to each series of the Bonds,
28 to the extent applicable with respect to such series of the Refunding Bonds, and as otherwise may be
29 authorized or required by applicable law, including, without limitation, the purposes of the
30 Refunding Act to be achieved by the issuance of such series of the Refunding Bonds, the selection
31 of any escrow agent or verification consultant, the selection of any escrow bidding agent, the
32 determination of the Bonds to be refunded in whole or in part from such series of the Refunding
33 Bonds, and any agreements, documents or other instruments necessary or desirable in connection
34 with the refunding. Unless the City Council determines otherwise in a resolution providing for
35 any series of the Refunding Bonds, pursuant to the authority of the Refunding Act, each series of
36 the Refunding Bonds shall be sold at a private sale, without soliciting bids. Any such sale at a
37 private sale, without soliciting bids, is hereby determined to be in the public interest due to the ability
38 to time the market, negotiate with potential purchasers and thereby achieve a beneficial interest rate
39 or rates and other beneficial terms by undertaking a private sale and, with respect to a private sale that
40 involves a direct purchase transaction, the lower costs of issuance typically incurred with such a direct
41 purchase transaction as compared to a negotiated underwriting or a public sale at competitive bid. By
42 resolution the City Council may delegate to one or more City officials the authority to make any final
43 determinations, approvals or decisions with respect to a series of the Refunding Bonds. Any

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1 resolution may specify, prescribe, determine or provide for the determination of, provide for, or
2 approve or provide for the approval of, the details required or authorized by this Section 8 for more
3 than one series of the Refunding Bonds.

4 SECTION 9. (a) That the full faith and credit and unlimited taxing power of the City
5 are hereby pledged to the prompt payment of the principal of and interest on each series of the
6 Bonds, the BANs or the Refunding Bonds, as applicable (collectively, the “Obligations”), when
7 due and to the imposition of the taxes hereinbelow described as and when such taxes may become
8 necessary in order to provide sufficient funds to meet the debt service requirements of each series
9 of the Obligations. Subject to the further provisions of this Section 9, the City hereby covenants
10 with the registered owners of the Obligations of each series to impose ad valorem taxes on all real
11 and tangible personal property in the City that is subject to assessment for unlimited municipal
12 taxation at a rate and in an amount sufficient to pay the principal of and the interest on the
13 Obligations in each fiscal year in which any of the Obligations are outstanding and to take any
14 further action that may be lawfully appropriate from time to time during the period that the
15 Obligations of such series remain outstanding and unpaid to provide the funds necessary to pay
16 promptly the principal thereof and the interest due thereon. If the proceeds from the taxes so levied
17 in any such fiscal year are inadequate for such payment, additional taxes shall be levied in the
18 succeeding fiscal year to make up such deficiency.

19 (b) The foregoing provisions shall not be construed so as to prohibit the City from
20 paying the principal of and interest on the Obligations of any series from the proceeds of the sale
21 of any other obligations of the City or from any other funds legally available for that purpose
22 (including, without limitation, with respect to any BANs, from the proceeds of any Bonds and,
23 with respect to any Bonds, from the proceeds of any Refunding Bonds). Within the limitations of
24 any applicable Maryland or federal law (including, without limitation, the Internal Revenue Code
25 of 1986, as amended, and the regulations issued thereunder), the City may apply to the payment
26 of the principal of or interest on the Obligations of any series any funds received by it from the
27 State of Maryland or the United States of America, or any governmental agency or instrumentality,
28 or from any other source, if the funds are granted or paid to the City for the purpose of assisting
29 the City in accomplishing the types of projects which the Obligations of such series are issued to
30 finance, reimburse or refinance or are otherwise available for such purpose, and to the extent of
31 any such funds received or receivable in any fiscal year, the taxes hereby required to be imposed
32 may be reduced proportionately.

33 (c) By resolution, the City Council may provide that all or a portion of the principal of
34 and interest on any series of the Obligations may be payable in the first instance from any other
35 source or sources designated in such resolution, to the extent such moneys are available for such
36 purpose.

37 SECTION 10. That by resolution, the City Council may make any appropriate arrangements
38 (including, without limitation, by authorizing one or more appropriate officials to make any elections,
39 designations, determinations or filings on the City’s behalf) in the event any right of the registered

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owner of an Obligation to put or cause the prepayment or redemption of such Obligation at its option, or any change in the interest rate of an Obligation, or any other modification to an Obligation could lead to a reissuance of such Obligation for purposes of the Internal Revenue Code of 1986, as amended, and the regulations issued thereunder.

SECTION 11. That by resolution the City Council may determine that any of the Bonds, the BANs or the Refunding Bonds may be consolidated with any other bonds, bond anticipation notes and/or refunding bonds authorized by the City Council and issued as a single series of bonds, bond anticipation notes and/or refunding bonds, as applicable.

SECTION 12. That by resolution the City Council may make or authorize any modifications to (i) any series of the Obligations once issued, and (ii) any related documentation, certificates or instruments, unless under applicable law the proposed modifications require action by ordinance in addition to or in place of a resolution.

SECTION 13. That the Mayor of the City, the City Administrator, the Treasurer, the City Clerk of the City, as appropriate, and all other appropriate officials and employees of the City are hereby authorized, empowered and directed to (i) take any and all action necessary to complete and close the sale, issuance and delivery of the Bonds, the BANs and the Refunding Bonds, (ii) negotiate, approve, execute and deliver all documents, certificates and instruments necessary or appropriate in connection with any such sale, issuance and delivery, and (iii) carry out the transactions contemplated by this Ordinance, any resolution adopted in furtherance of this Ordinance, and any documents, certificates or instruments executed and delivered in connection with any series of the Obligations.

SECTION 14. That the title of this Ordinance shall be deemed to be, and is, a fair summary of this Ordinance for publication and all other purposes.

SECTION 15. That the provisions of this Ordinance shall be liberally construed in order to effectuate the transactions contemplated by this Ordinance.

SECTION 16. That this Ordinance shall become effective twenty (20) calendar days following the date of its passage, subject to the provisions of Section C2-10(A) of the Charter regarding the filing with the City Clerk of a valid petition for referendum within thirty (30) business days following the passage of this Ordinance.

[CONTINUED ON FOLLOWING PAGE]

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1 **INTRODUCED** by the Mayor and City Council of the City of Hyattsville, Maryland at a
2 regular public meeting on November 5, 2018, at which meeting copies were available to the public
3 for inspection.
4

5 **PASSED** _____ [as introduced] _____ [as amended] by the Mayor and City
6 Council of the City of Hyattsville, Maryland at a ____ regular ____ special [check applicable meeting
7 type] public meeting on November 19, 2018, at which meeting copies were available to the public for
8 inspection.
9

10
11 ATTEST:
12
13
14
15

16 _____
17 Laura Reams, City Clerk
18

16 _____
17 Candace B. Hollingsworth, Mayor
18

19
20 #206299;50036.017

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Hyattsville City Council Agenda Item Report

Meeting Date: November 5, 2018

Submitted by: Katie Gerbes

Submitting Department: Community & Economic Development

Item Type: Planning & Development

Agenda Section: Discussion Items (8:55 p.m. - 10:00 p.m.)

SUBJECT

Hyattsville Transportation Study (15 minutes)

HCC-113-FY19

Recommendation:

Sponsor(s):

At the Request of the City Administrator

Co-Sponsor(s):

N/A

ATTACHMENTS

[Transportation Study Adoption Memo - Discussion.docx](#)

[Hyattsville Comments on Final Report_TDG Response.xlsx](#)

[Draft Final Report HVL Clean_revised 092018.pdf](#)

[Appendix A: Hyattsville Transportation Study - Existing Conditions Memo](#)

[Appendix B: 2037 AM_Build](#)

[Appendix B: 2037 AM_No Build](#)

[Appendix B: 2037 PM_Build](#)

[Appendix B: 2037 PM_No Build](#)

[Appendix C: Wayfinding Submittal](#)

[Appendix D: Hyattsville TS Planning Level Cost Estimate](#)

[2018-09-26_Final Report Presentation to City Council.pdf](#)

Summary Background:

On October 1, 2018, the final draft of the Hyattsville Transportation Study was presented to the City Council and Hyattsville community. Comments on the final draft were accepted throughout the month of October. Along with the report, the City Council will be presented with the list of comments collected by residents and staff during the October review period.

The adopted Hyattsville Transportation Study will serve as the City's transportation policy and action plan for the foreseeable future, there Staff is recommending that any City Council directed amendments to the document be made via the adoption of a Council motion.

Next Steps:

Final edits to the transportation study will be made within the week. The finalized version of the study will be submitted to the City Council on November 19, 2018 for adoption.

Fiscal Impact:

N/A

City Administrator Comments:

For Discussion

Community Engagement:

There were several rounds of public meetings held to gather resident feedback to inform the Hyattsville Transportation Study. A total of 7 meetings were held, as well as online Wikimaps and pages on the Speak Up site were created in order to further gather community input. Additionally, the final draft of the study was uploaded to Speak Up for resident review and comment from October 1 - October 29.

Strategic Goals:

Goal 3 – Promote a Safe and Vibrant Community

Legal Review Required?

N/A



Memo

To: Mayor and City Council

CC: Tracey Nicholson, City Administrator
Lesley Riddle, Director, Department of Public Works
Hal Metzler, Project Manager, Department of Public Works

From: Katie Gerbes, Community Planner

Date: October 30, 2018

Re: Hyattsville Transportation Study – Final Report

Attachments: Hyattsville Transportation Study
Appendix A: Technical Memorandum I: Existing Conditions Report
Appendix B: Technical Memorandum II: Future Conditions Results
Appendix C: Wayfinding Report
Appendix D: Planning-Level Cost Estimate
Hyattsville Transportation Study Comment Spreadsheet

The purpose of this memorandum is to provide the Mayor and members of the City Council with information on the final draft of the Hyattsville Transportation Study.

Project Summary

In July 2017, the City retained the services of Toole Design Group to perform a city-wide Transportation Study. The project kicked off in Fall 2017 by gathering community input on transportation related concerns within the City. In March 2018, Toole presented an Existing Condition Report, which provided a review of past studies; a summary of data collection and assessment; the Wikimap summary; school area circulation observations; existing motor vehicle traffic conditions and the origin-destination analysis. In May 2018, Staff published a list of draft recommendations on the Speak Up website, allowing residents an opportunity to review some of the proposed changes and provide comments on them. The comment period for the draft recommendations closed in June 2018.

From all of the feedback throughout this process, Toole has provided the City with the final draft of the Hyattsville Transportation Study. The study itself is divided into eight (8) sections, including the current

state of transportation in Hyattsville, major transportation findings, future transportation needs, the proposed transportation network and implementation strategies. The study also has four (4) appendices with additional information and data.

Proposed Changes & Staff Recommendations

After the study was presented to the community at the City Council meeting on October 1, 2018, a page was activated on the Speak Up site where the document and its associated appendices are available for the general public to review and provide comment. The Speak Up page was live through October 29, 2018. During the review period, Staff also review the final draft of the report for any necessary edits.

To better review and process the comments gathered, a spreadsheet was created listing every comment received during the review period. Following each comment, there are columns listed for Staff's opinion on the comment, as well as Toole Design Group's opinion on the comment. Ultimately, authority lies with the City Council as to which changes should be incorporated into the report.

Next Steps

The Hyattsville Transportation Study is on the discussion agenda for the November 5, 2018 City Council meeting. At this meeting, Staff will be seeking direction from the City Council on what comments/edits should be incorporated into the study. The study will return to the City Council on November 19, 2018 with all of its incorporated changes for adoption.

Date	Commenter	Type of Comment	Page
10/1/2018	Tom Wright	Data Collection	N/A
10/1/2018	Bart Lawrence	Project Recommendations	N/A
10/1/2018	Kevin Ward	Editorial	45
10/2/2018	Dan Behrend	Project Recommendations	N/A
10/9/2018	Staff	Editorial	Throughout
10/9/2018	Staff	Editorial	3-4
10/9/2018	Staff	Editorial	6
10/9/2018	Staff	Editorial	7
10/9/2018	Staff	Editorial	10
10/9/2018	Staff	Editorial	10
10/9/2018	Staff	Editorial	11
10/9/2018	Staff	Editorial	12
10/9/2018	Staff	Editorial	13
10/9/2018	Staff	Editorial	15
10/9/2018	Staff	Editorial	16
10/9/2018	Staff	Editorial	20
10/9/2018	Staff	Editorial	22
10/9/2018	Staff	Editorial	23
10/9/2018	Staff	Editorial	27
10/9/2018	Staff	Editorial	30
10/9/2018	Staff	Editorial	31
10/9/2018	Staff	Editorial	33
10/9/2018	Staff	Editorial	35
10/9/2018	Staff	Editorial	41
10/9/2018	Staff	Editorial	41
10/9/2018	Staff	Editorial	45
10/9/2018	Staff	Editorial	47
10/9/2018	Staff	Editorial	49

10/9/2018	Staff	Editorial	51
10/9/2018	Staff	Editorial	51
10/9/2018	Staff	Project Recommendations	35
10/12/2018	Kristina Al	Strategies	39
10/12/2018	Kristina Al	General	N/A
10/14/2018	Dylan Hutchinson	General	N/A
10/14/2018	Dylan Hutchinson	General	N/A
10/14/2018	Dylan Hutchinson	Strategies	39
10/14/2018	Dylan Hutchinson	General	N/A
10/18/2018	Thomas Wright	Project Recommendations	42

10/22/2018	Joanne Waszczak	Project Recommendations	N/A
10/24/2018	Leah Wolf	Project Recommendations	35
10/24/2018	Leah Wolf	Project Recommendations	44
10/26/2018	Joyce McDonald	Project Recommendations	42
10/29/2018	Jennifer Kaleba	Project Recommendations	42

10/29/2018	Lissa Bell		N/A
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10/29/2018	Judith Anderson	Project Recommendations	42
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10/29/2018	Chris Currie	Project Recommendations	N/A
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10/29/2018	Emily Palus	Project Recommendations	42
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10/29/2018	Sarah Eisen	Project Recommendations	N/A
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10/29/2018	Matthew Palus	Project Recommendations	42
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10/29/2018	Julia Dezelski	Project Recommendations	43
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10/29/2018	Julia Dezelski	Project Recommendations	N/A
------------	----------------	-------------------------	-----

10/29/2018	Julia Dezelski	Project Recommendations	N/A
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Comment

There seems to be no information collected on the intersection of Wells Boulevard & Adelphi Road.

Oglethorpe does not seem like a good choice for a bike boulevard; Farragut Street, Madison Street or Queensbury seem like better routes.

Need more color variation on the map of projects in Figure 6.

Create a bike boulevard on Queensbury Road

Change header to read "Hyattsville Transportation Study" not "Hyattsville Transportation Plan"

Changes to Table of Contents: remove "Travel Behavior Change" line item; Add "Traffic Calming" and "Bike Facility Types" as lines under section 5; Add Strategy 9 line item under Section 6

Add Strategy 9 to list of strategies

Delete blank page

Change labeling of charts, maps, etc. universally to "Exhibit X" and ensure title text is centered

Add route names for Route 1 (US 1) and Route 1 Alternate (US 1 ALT)

Replace the word "policies" with "strategies" throughout page

Change bullet point to black

Change title of chart to "Exhibit 2"

Remove "This space is intentionally left blank" text

Rewording of paragraphs 2 and 3.

Change title of chart to "Exhibit 3"

Change reference to "Figure 2" to "Exhibit 4"

Change title of map to "Exhibit 4"

Change title of figure to "Exhibit 5"

Change title of chart to "Exhibit 6"

Change title of figure to "Exhibit 7"

Reword "via other measures" to read " or other measures to reduce cut through traffic."

Text on bullet points in strategy 3 seem to be smaller than text of the rest of the document

Change title of table to "Exhibit 8"

Change reference to "page 48" to be a reference to Exhibit 9"

Change title of map to "Exhibit 9"

Change title of chart to "Exhibit 10"

Change title of chart to "Exhibit 11"

Change reference to Table 5 to "Exhibit 10"
Change reference to Table 4 to "Exhibit 8"

Circulation changes proposed in Strategy 4 should be listed as individual project recommendations in the table on page 41.

The amount of parking on some streets make them unsafe for driving. Consider only allowing parking on one side of the street or with residential permits only. Improving lighting, sidewalks and biking would be outstanding.

Access to the UMD shuttle is onerous for residents. Instead of an annual card that has to be renewed in person, consider mailing a card to all residents or providing a sticker that can be added to a drivers license that enables use of the shuttles.

Residents which each project will affect most should have the heaviest weighted opinions on the subject project.

There are numerous projects which appear to overlap in an opposing manner (e.g. converting a street from one-way to two-way and also making the street a bike boulevard. On narrow streets, where will the cars go?
Street parking is already sparse.)
The extension of paid parking zones should be limited, as it discourages business patronization. Time limit parking should be employed near commercial districts in place of paid parking.

Consult with emergency services and consider their response vehicle access prior to any road improvement project or change in traffic patterns.

NS-5, connecting Calverton and Dean Drive, needs additional research. This strategy is in complete opposition to the Prince George's Plaza TDDP . The TDDP identified this path as part of Strategy TM7.3 to implement exclusively non-motorized connections between these streets. This should either be stricken from the plan or reworded to align with the TDDP goals.

Please add intersection improvements at Baltimore Avenue and Jefferson Street. Residents have been advocating for improvements at that intersection. There is a need for a fourth crosswalk with a pedestrian signal. There is also a need for an exclusive pedestrian interval/barnes dance to allow cyclists and pedestrians to cross.

The idea to make Farragut Street from 42nd Avenue eastbound to Route 1 has been tried before and found to be unsafe. Visibility to turn north from Farragut to 42nd is very poor and there is parking on both sides of Farragut between 42nd Avenue and 43rd Avenue and not enough space for both eastbound and westbound traffic. This was tried before a number of years ago and after a short period of time the two-way traffic was restored to eastbound only. There might be City staff still around who remember this earlier experiment.

I wholeheartedly support the proposal to install a traffic light at the intersection of Armentrout and alternate Route 1. Present visibility from Armentrout to alternate Route 1 southbound is very poor.

Our Ward 3 Council person Tom Wright has posted his comments regarding the Plan, and I want to support his assessment that the City's proposed extension of Calverton Drive in a full two lane street/sidewalk connection with Dean Drive is completely at odds with the recommendations of M-NCPPC planners which were adopted by the Planning Board and County Council in the TDDP. Connections through walking paths and bike lanes in this area are in keeping with TDDP intentions to manage storm water runoff, while encouraging those modes of transportation instead of automobile. The City's plan in general is designed to encourage the same; why does it add more concrete and auto traffic in this specific area?

The last time this was up for comment, many directly impacted residents spoke out against the eminent domain action and subsequent new road construction to connect 39th Ave to Nicholson and I will, again, reiterate that opposition. Such construction would create yet another speed-through street in the city. Without additional housing plots on that corridor, it's only function would be as a short-cut. in a city that values walkability and bicycle transit, that's just silly. Creating a walk/bike path through that corridor for quicker access to Prince George's Plaza metro and shops would be more in keeping with the stated goals of the city.

I'm late to the party here, but I'd propose adding Quintana St. to the list of small, narrow streets receiving very heavy cut-through traffic. This tiny street between Queens Chapel and East-West Hwy is a (infamously) popular cut-through for people trying to avoid the Belcrest/Queens Chapel intersection light debacle. AND it's DANGEROUS, not just inconvenient, for those of who live on the street because the street's curve makes visibility very poor. It's a mess.

The proposal to connect Calverton and Dean Drives to allow vehicular traffic should be reconsidered. Hyattsville has established a goal of creating walkable and bikeable neighborhoods, and this proposal is in complete opposition to that goal. It would funnel traffic from a high-density area into a small residential neighborhood with narrow streets that cannot accommodate additional traffic. Calverton Drive is so narrow that when cars are parked on the street, only one-way traffic is possible. Connecting Calverton to Dean Drive will divert traffic from major roadways into a neighborhood with streets that were not designed to handle it.

Although 30 people proposed or upvoted a sidewalk connector between the south end neighborhood and the civic center -- twice as many as the next most popular idea on the Transportation Plan forum, it was once again left out of the report being presented to the City Council. My neighbors and I strongly encourage the City Council to include the 42nd and Decatur sidewalk connector in the Transportation Plan in order to make a necessary improvement in the safety of pedestrians -- especially schoolchildren -- currently competing with motor vehicles on a narrow and low-visibility section of road in south Hyattsville.

Opposed to NS-5, Let Calverton be a dead end. How about a foot/bicycle path between Calverton and Dean, as an alternative to a vehicular connection, and other paths that would help students and others safely navigate within the neighborhood and to commercial areas to the south? Foot and bicycle connectivity was raised in the first public meeting, drawn on the maps, provided in the map wiki, and spoke up in the Speak-up Hyattsville app. Adding asphalt to extend Calverton was opposed in all these data collectors - and has been for more than 25 years

I was shocked to see that improving pedestrian safety at Rt. 1 and Jefferson Street was omitted from this report. This intersection is unsafe and I fear for my family whenever we cross here. Please please consider adding it to the plan.

Please don't "induce" traffic on Calverton Drive. Improvement in connectivity between Calverton and Dean Drive via walking or cycling, yes do it. There are already informal footpaths across private property providing this connection. Formalize them, buy the right-of-way to establish a safe, appropriately lighted non-motor vehicle access that is passable to emergency vehicles but does not siphon automobile traffic down Calverton Drive. *This* is a sustainable alternative. If induction of traffic applies to pedestrians and cyclists, please do induce more pedestrian and cycling traffic down Calverton. The intersection of Adelphi and Wells needs help desperately. Try and cross Adelphi on foot within the time permitted by the light. Try and cross with a stroller. Try and make a left turn at that intersection on a bicycle. I understand the study is constrained by what the City of Hyattsville can and cannot do. But a study like this can and should document such a problem and a hazard, so that agents pushing the SHA to address the problem have something concrete, a published source to point to.

I would like to voice my support specifically for the following: 1) the Hamilton Street Complete Street Design and Reconstruction - this reconfiguration plan should aim to provide improved driving conditions, safety, walkability, as well as aim to connect the metro station with the historic district.

I would like to voice my support for the swift execution of the 2005 West Hyattsville TDDP - this plan included the Ager Road Complete Street Project and the residential development north of the West Hyattsville metro station. I would also like to underscore that travelers, commuters, and other drivers entering and exiting the District of Columbia on a daily basis travel along the corridor between Hamilton Street and Chillum Road on a regular basis. This passageway is possibly the least welcoming part of the city and unfortunately, is also the gateway into Hyattsville from Northeast DC.

Shuttle system between Arts District and West Hyattsville Metro. Overall, the plan seems to focus more attention to Prince George Metro and the surrounding areas than to the Arts District and the south end side of the city - specifically West Hyattsville metro and the surrounding area. A shuttle between the Arts District/Historic District and the West Hyattsville metro would be very valuable to the citizens of that area. It would also presumably encourage non-residents to visit the Arts District.

[illegible]

Staff concurs.
Staff concurs.

Toole will make the change.
Toole will make the change.

Staff concurs.

Toole will make the change.

Staff concurs and will look at parking restrictions as part of the citywide review of our residential parking zones.

No action needed by Toole.

Not relevant to this document, but staff will pass on the message.

No action needed by Toole.

Staff concurs, and project specific outreach will occur as each project is initiated.

No action needed by Toole.

Staff defers to Toole for their expertise.

Two-way conversion and bike boulevard are complimentary as it slows down traffic speed and improves bike connectivity. The impact on parking needs to be addressed as each

Staff intends to continue the practice of paid parking in our commercial districts.

No action needed by Toole.

Hyattsville City Police have reviewed the document and provided their comment on recommended changes that may cause issues for their response.

No action needed by Toole.

Staff acknowledges that many residents of University Hills do not want to see a vehicular connection from Calverton to Dean. Staff defer to the City Council to make a determination on weighing the desires of the community versus the necessary improvement in connectivity the connection would make.

No action needed by Toole.

Staff defers to Toole for their expertise.

Pedestrian crossing on the north leg is needed at the intersection. It's not clear why it was eliminated by the SHA and require coordination with them.

Staff disagrees and believe the road can support two-way traffic.

Toole believes a two-way conversion is the appropriate intervention on Farragut Street.

Staff concurs.

No action needed by Toole.

Staff acknowledges that many residents of University Hills do not want to see a vehicular connection from Calverton to Dean. Staff defer to the City Council to make a determination on weighing the desires of the community versus the necessary improvement in connectivity the connection would make.

No action needed by Toole.

As indicated in the Final Draft Report, there will be no use of eminent domain to make any of the "new street" connections. Any project recommendations for new streets are included in the document in order provide the framework for new connections should redevelopment occur.

No action needed by Toole.

Staff acknowledge there is cut-through traffic on Quintana Street, but do not think it warrants intervention at this time.

Toole concurs.

Staff acknowledges that many residents of University Hills do not want to see a vehicular connection from Calverton to Dean. Staff defer to the City Council to make a determination on weighing the desires of the community versus the necessary improvement in connectivity the connection would make.

No action needed by Toole.

Staff concurs and believes these sidewalk connections can be made, even if they are not specifically noted in the study.

No action needed by Toole.

Staff acknowledges that many residents of University Hills do not want to see a vehicular connection from Calverton to Dean. Staff defer to the City Council to make a determination on weighing the desires of the community versus the necessary improvement in connectivity the connection would make.

No action needed by Toole.

This is a popular sentiment and Staff defer to Toole for their expertise on ways/the necessity to improve pedestrian safety in this area.

The project can be added in the list. It will require coordination with SHA.

Staff acknowledges that many residents of University Hills do not want to see a vehicular connection from Calverton to Dean. Staff defer to the City Council to make a determination on weighing the desires of the community versus the necessary improvement in connectivity the connection would make.

No action needed by Toole.

Staff concur.

No action needed by Toole.

Though not specifically listed in the study, staff concur.

No action needed by Toole.

A circulator study is being completed outside of the scope of this project. Findings of the circulator study will be presented in December.

No action needed by Toole.



Hyattsville Transportation Study

Draft Final Report

September 20, 2018

Prepared by:

TooleDesignGroup

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I. Executive Summary

Cities around the country are fundamentally rethinking the way people move – taking a more holistic approach that considers all modes of transportation and community benefits, beyond just moving automobiles. With the motto of “A World Within Walking Distance,” Hyattsville prides itself on being truly multimodal. This study reflects these national trends and local priorities.

This Transportation Study takes a comprehensive look at the City of Hyattsville’s transportation network and recommends several improvements. In addition to detailed technical analysis, such as collecting traffic data and roadway inventory and modeling future traffic intersections, this process builds on prior studies, and includes substantial public input received throughout the project. This Study will help the City plan and build a transportation system that works for everyone, regardless of age, mobility, or transportation mode. It will help the City support anticipated growth and investment, improve and maintain existing transportation infrastructure, carry out new projects, and determine priorities for the next twenty years.

This Study seeks to carry out the vision of the Speak Up! HVL Community Sustainability Plan, Hyattsville’s framework for the city’s future growth and evolution. It has six goals, which align with those goals set out in the Sustainability Plan:

- Improve safety along major roads
- Enhance and increase safe connectivity for pedestrians
- Improve traffic flow within neighborhoods
- Strengthen connectivity for cyclists
- Support development around the Metro stations and Gateway Arts District
- Support environmentally friendly, sustainable growth

These six goals form the basis for a set of eight strategies that will guide the City as it further invests in its transportation system. These strategies will help the City determine what projects to fund and construct, which transportation modes to prioritize in each location or setting, and articulate its transportation needs to the County and State, which are responsible for some of the larger roads within City limits. Those eight strategies are:

- Strategy 1: Complete the City's street grid with new street connections.
- Strategy 2: Design streets for lower speeds.
- Strategy 3: Prioritize people on foot in street design.
- Strategy 4: Where appropriate, change traffic circulation.
- Strategy 5: Prioritize the comfort of people on bikes in street design.
- Strategy 6: Design intersections to improve safety for all users.
- Strategy 7: Prioritize connections to and from the Metro stations and Arts District
- Strategy 8: Integrate trails into the local transportation network.

These strategies informed the development of 61 transportation projects the City can execute in the coming years. Each of these projects has been ranked based on their ability to achieve the Sustainability Plan's goals, producing a list of 20 top priority projects for the City. More information on the strategies, as well as the list of recommended projects, can be found in Chapter 6, which discusses the City's proposed transportation network.

This Study is intended to guide capital and operating investment in the City of Hyattsville's transportation system. Through extensive data collection and analysis, and with significant input from the people who make this community great, the City has developed a vision for making the City an easier and safer place to get around. It builds on the City's rich history as a local and regional transportation hub, while preparing it for a more socially, economically, and environmentally sustainable future. This Study provides a framework for future investments in the City that will help everyone who lives, works, or visits Hyattsville.

In the very near future, Hyattsville will be a place where anyone, regardless of age, background, or ability, can travel safely, comfortably, and affordably. Its transportation network will prioritize people-friendly streets that add energy and vitality to their surroundings while accommodating the inevitable flow of traffic into and out of the City. The transportation system will support its sustainability goals, prioritizing active transportation for shorter trips and access to rapid transit for longer trips. Hyattsville's streets will serve as the backdrop for community events and festivals, as well as the rhythms of everyday life: traveling to school or work, running errands at a local business, enjoying a leisurely stroll or bike ride, spending time with friends, family, and loved ones.

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2. Introduction

Since the late 1990's, the City of Hyattsville and surrounding parts of Prince George's County have grown substantially, which has brought significant transportation challenges. The City has conducted several studies over the past several years to address these challenges, including vehicular traffic counts, bicycle and pedestrian accessibility, as well as policy analysis. To build on these efforts and create a holistic vision for its transportation network, in 2017 the City secured the services of Toole Design Group (TDG) to prepare a city-wide multimodal Transportation Study.

This Transportation Study provides a comprehensive assessment of the transportation network of the City of Hyattsville and recommends several improvements that are anticipated to address both the existing and future transportation challenges. This document provides a summary of different modal assessment while the accompanying technical appendices provides the detailed analysis, as well as public input received during the course of the project. The recommendations of this Study will help the City build a transportation system that works for everyone, regardless of age, mobility, or transportation mode. It will help the City support anticipated growth and investment, improve and maintain existing transportation infrastructure, carry out new projects, and determine priorities for the next twenty years.

To do so, the City has six goals for this Transportation Study:

- Identify **bicycle** and **pedestrian** needs of the City
- Evaluate existing and future **roadway needs**
- Evaluate **one-way streets** and circulation
- Evaluate **parking issues** on specific areas
- Prepare a **wayfinding plan**
- Evaluate **school traffic** and infrastructure

Why This Study is Needed

There are three overarching trends shaping transportation issues in Hyattsville today: growth in population, changes in transportation behaviors, and travel to or through the City. This Study aims to address all three.

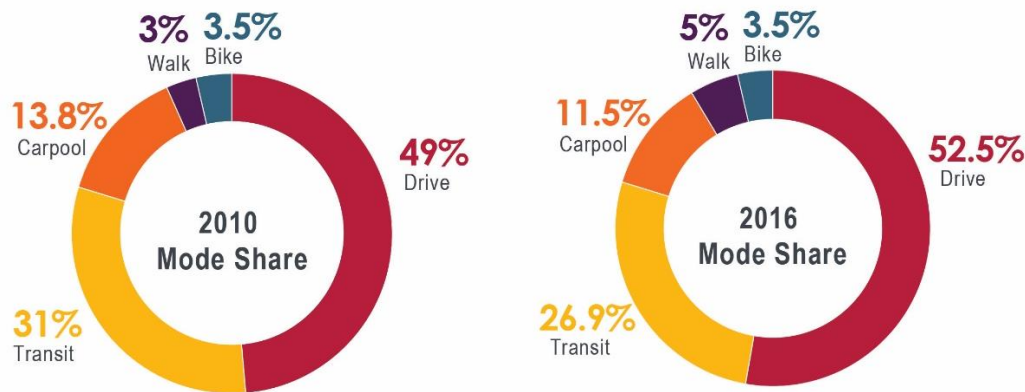
Population Growth

Hyattsville has experienced considerable growth over the past twenty-six years, with its population increasing from 13,864 in 1990 to 18,262 in 2016, according to the Census. Much of that growth has occurred around in two areas: around the Prince George's Plaza Metro station, which has become a hub for shopping, offices, and multi-family housing; and the Gateway Arts District along Baltimore Avenue (Route 1), the City's historic heart and now home to hundreds of new homes, shops, and arts institutions. In addition, the Riverfront at West Hyattsville Metro development at the West Hyattsville Metro station is anticipated to include 183 townhomes

and 400 apartments. Meanwhile, most employed residents continue to commute to jobs outside the City. From 2002 to 2015, the percentage of residents who both live and work in the City decreased from 4.7% to 2.5%, according to the American Community Survey.

Travel Behavior Change

As of 2015, the largest destinations for residents commuting out of Hyattsville for work are Washington, DC (38.7%); three communities in Maryland, College Park (4.4%), Bethesda (2.8%), and Silver Spring (2.4%); and Arlington, VA (2.0%). The number of workers per household is growing, increasing from an average of 1.78 workers per household in 2009 to 1.98 workers in 2016. Subsequently, the number of people traveling to and from work is increasing faster than the growth in population. The average number of cars per household is lower in Hyattsville than the national average, and car ownership rates appear to be declining: in 2016, 60% of Hyattsville households have had access to one or no vehicles, compared to 55% in 2010. Hyattsville residents' active transportation habits have changed during the same period. More City residents are walking to work; 5% walked in 2016, compared to 3% in 2010. Bicycling habits remained consistent at 3.5%. At the same time, more residents are driving to work (52.5% compared to 49%), fewer are taking transit (31% to 26.9%), and fewer are carpooling (13.8% to 11.5%).



Mode Shift Between 2010 and 2016

This shifting travel behavior may be the result of trends happening outside of the City's control, such as the reliability of the Metrorail system, or the rise of ride-hailing services such as Lyft and Uber that allow residents to use transit less. However, the increase in walking and decrease in car ownership indicate that more residents are taking advantage of the City's compact, walkable neighborhoods, and the trend indicates that there are opportunities to encourage more walking and bicycling. Based on the input received during the public meetings held for the project, residents frequently comment that because of their condition, the streets are not always comfortable or safe for them to use when they get around on foot or bike today.

Traffic Volume Changes

Several State of Maryland roads run through Hyattsville, carrying traffic originating and ending in other jurisdictions. The volume of traffic on those roads has changed in recent years, according to Average Annual Daily Traffic (AADT) counts from the Maryland State Highway Administration. As shown in Table I, between 2010 and 2017, motor traffic volumes decreased on Queens Chapel Road (MD 500) and Hamilton Street/38th Street (MD 208), while it increased on East-West Highway (MD 410), Route 1, and Route 1 Alternate (both of which are signed as Baltimore Avenue). This may be due in part to growth in the Prince George's Plaza and Gateway Arts District, both of which are regional destinations for shopping, dining, and entertainment. It may also be the result of growth in surrounding areas, which has generated increased through traffic within the City itself.

Table I : Average Annual Daily Traffic (AADT) Changes on Major Streets in Hyattsville

Road	Location	2010 ADT	2017 ADT	% Change
East-West Highway	East of Belcrest Road	26,660	31,101	16.66%
	East of Adelphi Road	48,370	49,271	1.86%
Queens Chapel Road	South of East-West Highway	24,312	22,582	-7.12%
	South of Ager Road	41,882	35,850	-14.40%
Hamilton Street	East of Queens Chapel Road	17,372	15,880	-8.59%
38th Street	South of Hamilton Street	7,042	6,943	-1.41%
Baltimore Avenue (Route 1)	South of Jefferson Street	25,830	31,851	23.31%
	North of Decatur Street	13,230	16,871	27.52%

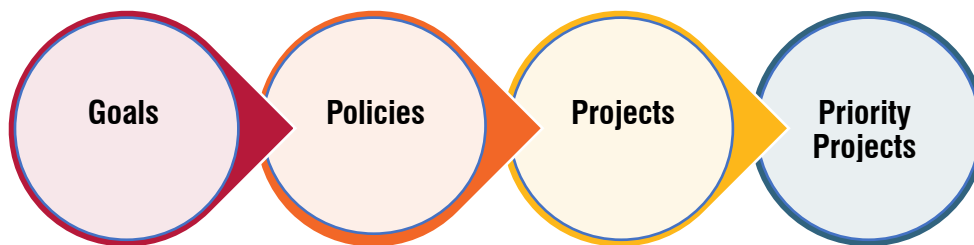
While this Study cannot directly address regional traffic behavior, it can provide recommendations that City of Hyattsville would like to see implemented by Maryland State Highway Administration (SHA) that address the impact of regional traffic on residents. Moreover, this Study recommends transportation options for residents, workers, and visitors, and improve traffic circulation through the City so that through traffic does not restrict local residents' ability to travel within their community and enjoy their public streets.

Study Approach

In 2017, the City released its Speak Up! HVL Community Sustainability Plan, which used an extensive outreach process to produce a vision for creating a stronger economy, a greater sense of community, and a healthier environment. This Study seeks to carry out the vision of the Community Sustainability Plan, Hyattsville's framework for the city's future growth and evolution. The Study has six goals, which align with those goals set out in the Sustainability Plan:

- Improve safety along major roads
- Enhance and increase safe connectivity for pedestrians
- Improve traffic flow within neighborhoods
- Strengthen connectivity for cyclists
- Support development around the Metro stations and Gateway Arts District
- Support environmentally friendly, sustainable growth

These six goals form the basis for a set of policies that will guide the City as it further develops its transportation system. These policies will help the City determine what projects to fund and construct, which transportation modes to prioritize in each location or setting, and articulate its transportation needs to the County and State, which are responsible for some roads within City limits. In the context of this Study, these policies were used to create a list of 61 transportation projects that the City can execute in the coming years. A 23-point scale, using metrics derived from the six Community Sustainability Plan goals, was created to rank each of these projects, producing a list of 20 top priority projects for the City. The chart below illustrates this process by which the Study Team developed the Study.



More specifically, this Study undertook the following detailed data collection and analyses to determine the transportation needs of the City:

- Collected current traffic data, roadway inventory and conducted analysis to quantify the multimodal assessment at key intersections and roadways (See Existing Condition Memo in Appendix A);
- Analyzed future traffic conditions at study intersections by incorporating future traffic growth and trips generated by approved developments;
- Solicited input from the public through various mechanisms, including seven public meetings, pop-up tables at public events, and on-line WikiMap survey;
- Reviewed previous planning documents that relate to transportation in the City, including the Prince George's Plaza Transit District Development Plan, the West Hyattsville Transit District Development Plan, the Gateway Arts District Sector Plan, the Hyattsville Pedestrian and Bicycle Master Plan, and the Speak Up! HVL Community Sustainability Plan;
- Compiled transportation improvement recommendations that meet the current and future transportation needs of Hyattsville;

- Based on the analysis performed in this Study, prepared a Sequential Action Plan to assist City staff in implementing the recommended projects and policies.

3. The State of Transportation in Hyattsville

City History

Since its founding, transportation has shaped Hyattsville's development patterns. During the 19th century, the Washington and Baltimore Turnpike and the Baltimore and Ohio Railroad's Washington Line connected the city to Washington and Baltimore, as well as communities in between. Shortly after Hyattsville's incorporation in 1886, it was already one of the largest communities in Prince George's County. In 1893, the electric streetcar connected the city to Washington, DC, establishing it as a commuter suburb. Hyattsville also became a regionally significant destination when its main street, Baltimore Avenue, was named part of Route 1, a national highway corridor between Maine and Florida.

During the 20th century, Hyattsville began to take its current form. A system of regional stream valley parks was established along the Anacostia River during the 1930s, resulting in the creation of the Northwest Branch and Northeast Branch trails in the City. Regional bus service came to the area in the 1950s, followed by the opening of Metro's Green Line in 1991, which brought two stations, West Hyattsville and Prince George's Plaza. Today, Hyattsville is a vital part of the Washington, DC metropolitan area, due in large part to its extensive and well-traveled transportation system.

Hyattsville Today

Located in northern Prince George's County, Hyattsville today is an increasingly popular destination for people seeking easy access to Washington, DC and regional job centers. It is a very diverse community, with residents hailing from many cultures and backgrounds. There is no majority racial or ethnic group in the City.

Hyattsville has three primary activity centers that draw visitors and shoppers from within the City and the surrounding area. **Hyattsville Crossing** (formerly **Prince George's Plaza**), located at the Prince George's Plaza Metro station, is home to a regional, car-oriented shopping mall with many big-box retailers, as well as several office buildings, the Hyattsville branch of the Prince George's County library system, the Hyattsville campus of Prince George's Community College, and a growing residential population. **West Hyattsville**, also the site of a Metro station and a significant residential development under construction, has a smaller, neighborhood-focused shopping district along Queens Chapel Road and is adjacent to Northwest Branch Park. The **Gateway Arts District** extends along Baltimore Avenue (Route 1) from Mount Rainier and the Washington, D.C. border to the historic heart of Hyattsville. Within the City, the Gateway Arts District is home to several arts institutions and locally-owned shops and restaurants, along with Hyattsville City Hall, Prince George's County's District Court, and Prince George's County Police District 1.

According to the United States Census, the City is the 14th-largest municipality in the State of Maryland, and the 5th largest municipality in Prince George's County in terms of population. However, in terms of population and employment density, Hyattsville is the 2nd most dense community in the County, which indicates that public investment in high-quality multimodal transportation network in the City will likely be used extensively by residents and employees.

Table 2 : Comparison with Communities in Prince George's County

	Population	Employment	Land Area (sq. mi.)	Population Density	Employment Density	Metro Stations
Bowie	57,633	14,742	18.43	3127	800	0
College Park	31,942	28,362	5.64	5663	5029	1
Laurel	25,703	12,624	4.3	5977	2936	0
Greenbelt	23,623	3,238	6.28	3762	516	1
Hyattsville	18,262	8,482	2.67	6840	3177	2
New Carrollton	12,727	661	1.53	8318	432	0

What About All the Previous Studies?

This Study builds on several previous studies that have guided the growth and development of the City of Hyattsville and incorporates many of their goals and recommendations. The following is a summary of selected plans. Technical Memorandum I: Existing Conditions Report in Appendix A provides more detail information about all the past studies reviewed as part of this project.

2005 West Hyattsville Transit District Development Plan (TDDP)

The West Hyattsville TDDP, was the County's first "form-based" zoning plan, drafted by the Maryland-National Capital Park and Planning Commission, outlines a vision for a transit-oriented community around the West Hyattsville Metro station. Located in southwest Hyattsville, this is identified as an area of the City that will absorb much of its population growth in the coming years. To accommodate that growth, the TDDP recommends a mix of townhomes, apartments, and small-scale retail, a series of new or expanded parks, and a new street grid providing new pedestrian, bicycle, and motor vehicle connections between Ager Road and Queens Chapel Road. Many of the recommendations from the West Hyattsville TDDP are currently being implemented, including the Ager Road Complete Street project as well as a significant residential development north of the West Hyattsville Metro station.

2008 Pedestrian and Bicycle Study

Drafted by the citizen-led Hyattsville Bike and Pedestrian Safety Committee, the Bicycle and Pedestrian Master Plan contains recommendations for making the walking and bicycling experience in the City safer and more convenient. It recommends the implementation of City-wide sidewalk standards, including closing gaps in existing sidewalks, requiring that sidewalks are of a minimum width, and enforcing basic ADA requirements for all sidewalks. It designates several corridors throughout the City where pedestrian and bicycle access should be a priority,

and identifies specific improvements, including high-visibility crosswalks, street lighting, new or renovated curb ramps, and construction of wider sidewalks. Several of these corridors have been incorporated into this Study's recommendations, including:

- Belcrest Road
- Jamestown Road
- Nicholson Street between Ager Road and Queens Chapel Road
- Hamilton Street between Ager Road and 38th Street
- Jefferson Street between 40th Avenue and Baltimore Avenue
- 38th Street between Hamilton Street and Northwest Branch Trail
- 40th Avenue and 41st Avenue between Jefferson Street and Queens Chapel Road

2010 Citywide Traffic Study and Transportation Plan

Drafted in 2010 for the City of Hyattsville, the Citywide Traffic Study and Transportation Plan examined traffic conditions in the City, analyzing several dozen intersections. It forecast future traffic volumes and identified potential modifications to improve motor vehicle traffic flow. Additionally, it identifies opportunities to create new active transportation facilities in the City and improve the walking and biking experience. This Study incorporates, with modifications where appropriate, several of the 2010 plan recommendations, including:

- Construction of new sidewalks and high-visibility crosswalk;
- Installation of a High Intensity Activated Crosswalk (HAWK) signal at the Northwest Branch trail crossing of Queens Chapel Road;
- Addition of bike lanes along Adelphi Road;
- Installation of new traffic signals on Ager Road and on Queens Chapel Road;
- Conversion of select one-way residential streets to two-way streets.

2016 Prince George's Plaza Transit District Development Plan (TDDP)

Created by the Maryland-National Capital Park and Planning Commission, the Prince George's Plaza TDDP envisions the creation of a new town center around the Prince George's Plaza Metro station and the Mall at Prince George's. Like the West Hyattsville TDDP, the Plan recommends the creation of new local streets and the extension of existing streets such as America Boulevard to form a street grid. It suggests the implementation of bike lanes on streets including Belcrest Road and Toledo Terrace. It also discusses the long-term redevelopment of the mall as an urban, mixed-use district. This Plan includes many of its recommendations, such as the reconstruction of Toledo Drive, though it proposes multi-use path instead of on-street bike lanes along East-West Highway.

This study also incorporates recommendations and insights from the following plans:

- 2014 West Hyattsville Pedestrian Safety Study
- 2015 City of Hyattsville Customer Preference Survey
- 2004 Gateway Arts District Sector Plan
- ATHA Bikeshare Study

- Hyattsville Elementary School Safe Routes to School activities

Late in 2017, Prince George's County adopted new design standards for urbanized parts of the County, applicable primarily to County roads within the I-495 Beltway. The Prince George's County Urban Street Design Standards are a useful resource when considering Complete Streets retrofits in Hyattsville.

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4. Major Transportation Findings

As part of this Study, extensive data collection and analysis was conducted on various roadways and intersections. Vehicular turning movement, pedestrian, and bicycle counts were collected at 39 intersections throughout the City, during the AM and PM peak hours. An inventory of pedestrian and bicycle infrastructure was collected within a quarter mile of five public schools across the City. Roadway inventory, including quality of sidewalks, was also taken on 16 miles of mostly city-owned and maintained roadways. Appendix A provides the detailed finding of the assessment in Technical Memorandum I: Existing Conditions Report.

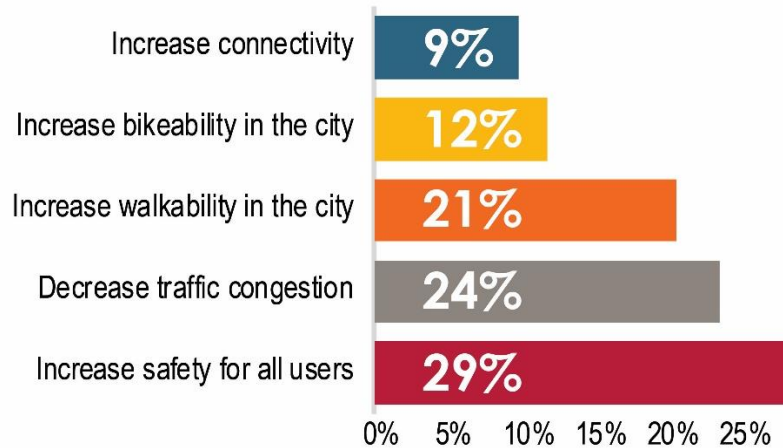
A major effort of this Study was to solicit input from the public to ensure that their concerns are addressed. Two public meetings were held during the project. The 1st public meeting was held at the beginning of the project and allowed residents to set the direction of the Study. The major input of the 1st public meeting was to focus on the safety of pedestrians and bicyclists as they travel within the City, traffic congestion at major roadways, and cut-through traffic on certain local streets.



Participants at the first public meeting

The 2nd public meeting was held to present the draft findings and recommendations of the Study. This meeting allowed residents to provide comments on the draft recommendations so that the City can address them before it is finalized. Additional public meetings were held in each Ward, to focus on Ward-specific issues. In addition to the public meetings, City staff held public outreach efforts with various organizations and at public events including the Summer Jam series, farmer's market, etc.

One of the most effective public engagement tools was the online interactive map (WikiMap), hosted on the Speak Up! HVL website, which received over 600 responses. Through the Wikimap and its corresponding survey, respondents were asked about their top priorities for the Study; 29% said it was to increase safety for all users regardless of travel mode; 24% said it was to decrease traffic congestion; 21% said it was to increase walkability in the City; 12% said it was to increase bikeability in the City; and 9% said it was to increase connectivity. These inputs provided valuable information to the City to help determine the specific needs of the community. The following section describes the key findings of the Study.



WikiMap Respondents' Priorities for this Study

Challenges for People Walking

While the City of Hyattsville has a comprehensive network of sidewalks, there are significant gaps in pedestrian accessibility. 10% of the streets that were inventoried lack sidewalks, including large sections of Queens Chapel Road, Ager Road, 38th Avenue, 41st Avenue, and 42nd Avenue. Many other streets have narrow sidewalks less than four feet wide, the minimum requirement under Americans with Disabilities Act (ADA) standards.

There is a wide variety in the presence and quality of other pedestrian facilities, such as curb ramps, crosswalks, pedestrian signals, accessible bus stops, wayfinding, and regulatory signs. 38% of the intersections studied (15 of 39) did not have any crosswalks, mostly on local streets such as 41st Avenue, 42nd Avenue, and Lancer Drive. Several bus stops along major corridors did not provide accessible landing pads or connection to existing sidewalks, making it difficult for residents or visitors with disabilities to use the existing bus service. Similarly, uneven sidewalks and sloping driveways present barriers for people with disabilities or parents using strollers.

Most streets without sidewalks tend to be in residential neighborhoods, which often make up the very beginning or the very end of a pedestrian's trip.

Challenges for People Biking

The City's bicycle network contains over 31 miles of bicycle infrastructure, mostly consisting of on-street facilities such as shared-lane markings, known as sharrows, and off-street trails such as the Northeast Branch and Northwest Branch trails. Most bicycle facilities are in good condition. The City's narrow streets and 25-mph posted speed limit make it relatively easy for residents and visitors to travel by bicycle. A network of sharrows and wayfinding currently exists on Gallatin Street, Hamilton Street, Nicholson Street, and 40th Avenue. However, existing one-way street configurations on streets such as Longfellow, Oglethorpe, Hamilton, Gallatin, and Farragut can make trips cumbersome and circuitous, especially throughout downtown Hyattsville.

Respondents noted a variety of issues that make it difficult to walk or bike, including a lack of marked crosswalks, heavy and fast traffic, wide streets that encourage motorists to speed, long waits to cross the street at intersections, and a lack of sidewalks.

Respondents identified several streets that were difficult for walking or biking, or were barriers to walking and biking, including:

- East-West Highway
- Queens Chapel Road
- Rhode Island Avenue (Anacostia River to Farragut Street)
- 42nd Avenue (Oglethorpe Street to East-West Highway)
- Hamilton Street (Queens Chapel Road to 38th Street)
- 38th Street (Northwest Branch Trail to Hamilton Street)

Challenges for People Driving

While motor vehicle congestion does occur within the City, the major roads and intersections in Hyattsville do allow relatively high traffic throughput, with some delays at peak travel times. The City has several state and county roadways, such as Baltimore Avenue (Route 1), Queens Chapel Road, Adelphi Road, and East-West Highway, that serve as regional commuting routes. Drivers using these roads may experience significant delay at certain intersections due to rush hour congestion. The existing operational analysis of 33 study intersections showed that during either AM or PM peak hours, following nine intersections are currently operating with significant delay (>80 seconds) during periods of peak congestion:

- Baltimore Avenue (Route 1) / East-West Highway (MD 410)
- Baltimore Avenue (Route 1) / Hamilton Street (south) / Alternate US 1
- Baltimore Avenue (Alt Route 1) / Charles Armentrout Street
- Toledo Terrace / East-West Highway (MD 410)
- Editors Park Drive / East-West Highway (MD 410)
- Belcrest Road / East-West Highway (MD 410)
- East-West Highway (MD 410) / Queens Chapel Road (MD 500) / Adelphi Road
- Ager Road / Nicholson Street
- Adelphi Road / Campus Drive



It should be noted that all the intersections identified above are either on county or state roadways. While these roadways and intersections are used extensively by regional traffic, they also provide vital access to residents of Hyattsville and impact their ability to travel around the City to conduct daily activities. The improvements recommended by Hyattsville at these intersections, as well as proposed new connections, are

important to residents of the City and should be considered as part of any future improvements on these roadways.

Because of the delays at the major roadways, residents of Hyattsville are concerned about cut-through traffic on local streets. The local streets that were identified as experiencing significant cut-through traffic were:

- Queensbury Road
- Jefferson Street
- Nicholson Street
- 42nd Avenue
- Hamilton Street

This Study evaluated the operation of these streets and have recommended solutions that are anticipated to reduce cut-through traffic, while also encouraging more bicycle and pedestrian use.

Big Data Analysis

This Study used state-of-the-art big data collection method of using anonymized cell-phone location services to determine the travel pattern within and outside the City. The following section summarizes the analysis process and findings; and more details are included in Appendix A.

Hyattsville was divided into 16 zones based on different land-uses as well as two outside zones, one containing Maryland outside of Hyattsville, and another containing Washington, DC and Northern Virginia. The data revealed that only about 15% of trips start and end within Hyattsville, while approximately 52% of the trips start or end in other areas of Maryland. The rest of the trips either start or end in DC + Northern Virginia.

The travel patterns between the 16 internal zones within Hyattsville also revealed several important trends. It showed that the zone representing Prince George's Plaza (south of MD 410, west of MD 500 and north of Nicholson Street) (Zone 4 the map on the following page) is a strong destination for adjacent zones, especially from areas south of Nicholson Street (Zones 2 and 3 on the map). However, due to lack of direct roadway connections between these zones, the vast majority of residents would have to drive on Queens Chapel Road and East-West Highway to travel between these zones.

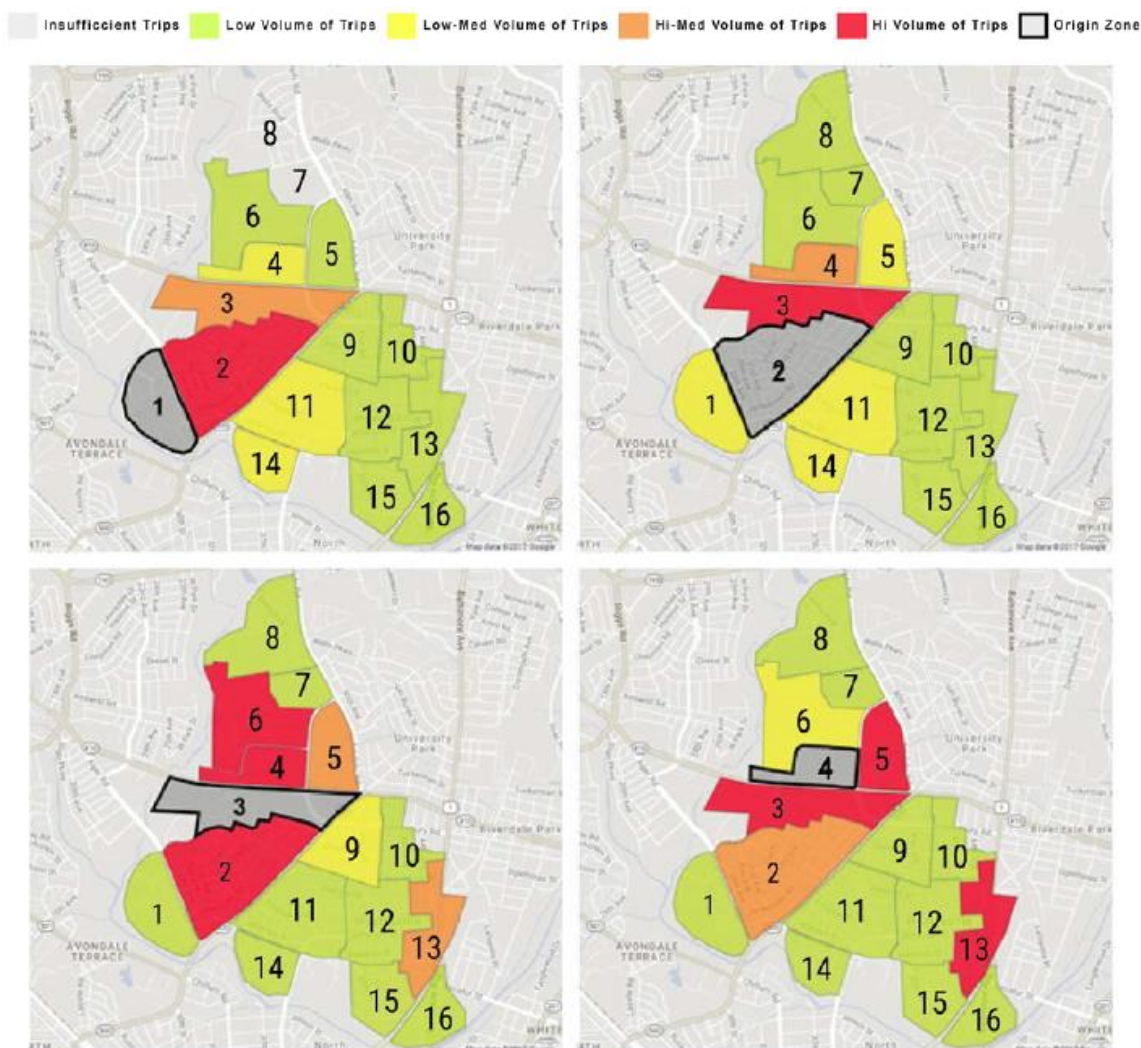
This travel pattern indicates a demand for a more direct connection between these two zones, which could have the additional benefit of reducing local traffic on Queens Chapel and East-West Highway. While a direct roadway connection may not be desirable, a high-quality bicycle and pedestrian connection will likely provide an efficient and direct connection that could accommodate a number of neighborhood trips while reducing traffic from surrounding major roadways, providing much needed relief to residents in adjacent neighborhoods.

Similarly, the big data analysis showed a high number of trips between the Mall at Prince George's and University Town Center on the north side of East-West Highway (MD 410)

(Zone 4 in the map below) and the Arts District on Baltimore Avenue (Route 1) (Zone 13 in the map below). This indicates the demand for the trips between these areas is high and is currently being undertaken by driving personal vehicles. As these areas are less than 1.5 miles apart, providing high-quality alternate modes of transportation can reduce vehicular trips between these areas.

The following maps are an example of the big data analysis of local travel habits. In each map, the area in grey is where trips are originating from, and the darkest-colored zones are where most of those trips end up. These maps illustrate that many trips in Hyattsville are between adjacent zones; for example, most trips originating in Zone 1 (containing the West Hyattsville Metro station) end in Zone 2 (containing nearby residential neighborhoods and the Queens Chapel Town Center shopping area).

Figure 1 : Example of Big Data Analysis Output showing Trips Originating in Grey Zone and Ending in Other Colored Zones



Parking Assessment

Vehicular parking has historically been a challenge in few areas of Hyattsville, for example, near Gateway Arts District and residential areas south of the Prince George's Plaza Metro station. City of Hyattsville identified over 7 miles of roadway segments to assess parking during both early morning and late evening hours. The morning parking counts were taken before 6:30 am and the evening counts were taken between 6:30 pm – 8:30 pm. The morning hour was chosen as that is when maximum residential parking occupancy occurs. Similarly, the evening hour was chosen such that the parking demand is high due to competing parking demand between residential parking and evening retail parking.

The data collected during both hours showed that only about 0.5 miles of block segments experienced parking utilization of over 80%. This indicates that adequate on-street parking is available on most of the street segments assessed.

The block segments with over 80% parking utilization are listed below. Appendix A includes maps with parking utilization on all the streets where parking data was collected.

Morning Hour High Parking Utilization Streets

- Gallatin Street, from 36th Avenue to 36th Place
- Jamestown Road, from Manorwood Drive to Lancer Drive
- Oglethorpe Street, from 41st Avenue to 42nd Avenue
- 42nd Place from Rhode Island Avenue to the alley

Evening Hour High Parking Utilization Streets

- Jamestown Road from Manorwood Drive to Lancer Drive
- Oglethorpe Street from 38th Place to 39th Avenue
- Oglethorpe Street from 41st Avenue to 42nd Avenue
- 42nd Place from Rhode Island Avenue to the alley

Findings

Three of these street segments, Gallatin Street from 36th Avenue to 36th Place; Jamestown Road from Manorwood Drive to Lancer Drive; and Oglethorpe Street from 38th Place to 39th Avenue, are characterized by detached or semi-detached homes with frequent curb cuts. In some cases there is limited off-street parking, or the off-street parking may not be convenient for some housing types (e.g. a single driveway for a duplex structure).

Oglethorpe Street from 41st Avenue to 42nd Avenue is close to two apartment complexes and Hyattsville Middle School, suggesting that the high rate of parking usage may be driven by residents of those two complexes or school faculty and staff. Another contributing factor is that on-street parking is restricted east of 42nd Avenue (adjacent to the middle school) and on 42nd Avenue south of Oglethorpe which pushes parking demand further west.

42nd Place is adjacent to an evolving commercial district on Rhode Island Avenue, and may be experiencing spillover from the businesses, churches and multifamily buildings along the street.

While many of these have their own parking lots, the availability of free on-street parking likely contributes to the higher occupancy rate. Furthermore, the nature of these businesses is changing with retail establishments where customers stay for one or more hours at a time replacing other types of businesses that may have had relatively few visiting customers.

Recommendations

Tiered residential permit parking fees. In some cases – one household may be responsible for many of the cars parked on a street. Some cities have tiered residential parking permit programs wherein the first one or two parking permits are free, or very low cost. However, additional permits increase in cost (e.g. \$10 for first permit, \$20 for second permit, \$30 for third permit).

Expand residential parking permit zones. Streets near schools and multifamily buildings often experience overflow parking from these uses. The City should evaluate the extents of current parking districts and expand them where parking congestion is an issue.

Evaluate Hyattsville Middle School parking impacts. The City should work with PGCPs and Hyattsville Middle School leadership to determine if overflow parking from the school is exacerbating parking congestion on nearby streets. If this is a problem, work with the PGCPs and the school to address the issue through Transportation Demand Management programs that encourage use of transit, carpooling, walking or biking, and other strategies to reduce people driving alone to the school. Longer term, it may be appropriate to expand the school's parking lot.

Install metered parking (42nd Place only). As the number of businesses on southern Rhode Island Avenue increases, there will be increased demand for parking. In the short term, consider extending the two-hour parking distance further north on 42nd Place, and extending the hours beyond 6pm if evening parking congestions remains an issue. This could be coupled with free parking for permitted residents. As new businesses open and parking demand increases, consider metered parking with automated pay stations as has been implemented in some of the City's public lots.

Improve wayfinding and connections to city parking lots. Better wayfinding that directs visitors to the City's existing parking lots can reduce impacts on neighborhood streets. Additionally, better wayfinding and improved pathways between city parking lots and commercial destinations will encourage more people to 'park and walk.' Improvements include pedestrian-scale lighting, managing vegetation, signage directing people to destinations, art along the pathways, etc.

Parking Lot Districts in commercial areas. The growth and success of Hyattsville's commercial districts while undoubtedly lead to increased demand for vehicle parking, which can in turn create issues on nearby residential streets. The City should consider establishing one or more Parking Lot Districts (PLDs) wherein resources are pooled to create centralized parking solutions, including surface or structured parking lots, valet services and even parking shuttles. PLDs can be funded in a variety of ways- including parking revenues, business contributions, and

fee payments in lieu of providing required onsite parking. PLDs can help small lot and infill developments meet parking requirements without sacrificing limited onsite space.

General Considerations. Any changes to the City’s parking regulations and programs should be accompanied with extensive outreach and education. Parking can be a very sensitive issue for residents and businesses, and it is important that any changes are implemented methodically and with ample communication. Furthermore anything that involves regulatory changes should be implemented with a warning period for the first weeks before any tickets or fines are issued.

Administrative costs and increased workload should also be considered. Expanding the City’s parking permit program will require additional staff time to process applications. Increasing the amount of regulated parking (i.e. permitted, metered) will increase the enforcement workload as well.

Wayfinding and Signage

Wayfinding signs are important for providing direction to motorists and non-driving travelers. Effective signage can reduce congestion by directing drivers to parking and other destinations, as people are guided to the most direct routes. In addition, good signage is an important aspect of enhancing the “sense of place” to residents and visitors alike. Good signage accentuates the character of the City and conveys the sense of community. This Study evaluated the

design and condition of existing wayfinding signs for both motorized and non-motorized mode of transportation. It also recommends new wayfinding sign design that builds on the streetcar history of Hyattsville and provides a consistent design for different types of signs.

Existing wayfinding signs are generally in good condition and are concentrated along existing bicycle and pedestrian routes. However, there is a variety of wayfinding sign designs in the City, including bike route signs, Anacostia Trails Heritage Area signs, and vehicle-oriented signs. Many of these signs do not comply with Manual on Uniform Traffic Control Devices (MUTCD) size, color, or font standards, nor do they have a consistent design showcasing the City’s unique character and branding. This Study worked with City staff to select a branded wayfinding sign design that respects Hyattsville history and provides a consistent design for all the signs. More information on wayfinding can be found in Chapter 5 and Appendix C.

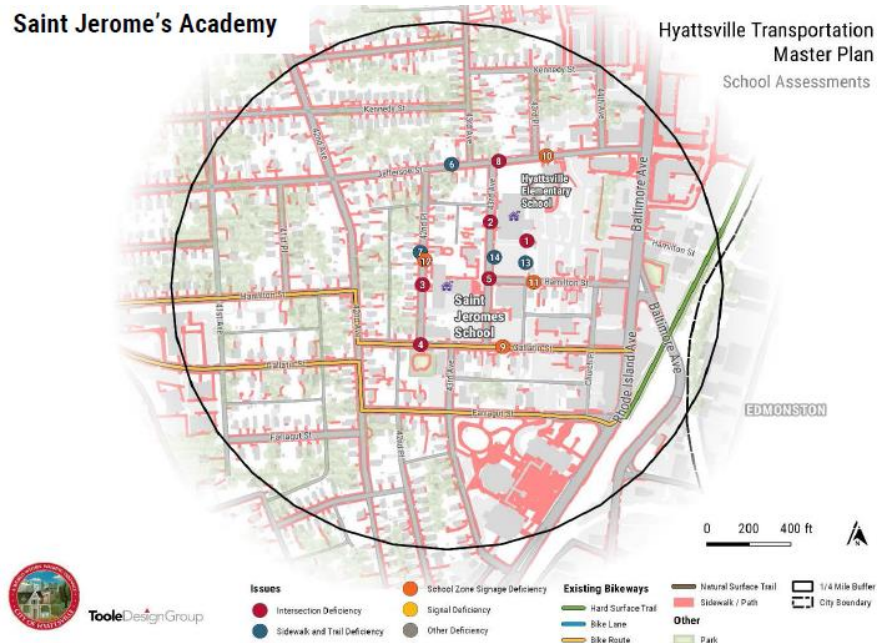


Existing Wayfinding Signs

School Access

This Study examined access and circulation related to five elementary and middle schools in the City: Saint Jerome's Academy, Hyattsville Elementary School, Hyattsville Middle School, Edward Felegy Elementary School, and Nicholas Orem Middle School. Common issues affecting access to each school included missing or deficient curb ramps; sidewalks that are obstructed or below minimum widths, cars parked too close to intersections, relatively high vehicle speeds along major walking or biking routes, missing "School Zone" speed restriction signage, and crosswalks below minimum width standards. Additional detailed assessment of each of the school is provided in the Technical Memorandum I: Existing Conditions Report in Appendix A. Figure 2 shows the example of the school assessment for Saint Jerome's Academy.

Figure 2 : School Area Deficiencies for Saint Jerome's Academy
(See Appendix A for other school assessments)



5. Future Transportation Needs

As the City continues to grow and evolve, so will its transportation system in both scope and in variety. The following sections describe some of the key challenges as well as the principles which form the foundation for the recommendations of this Study.

Critical Street Connections

Hyattsville's streets are one of the city's most significant public assets. A dense network of streets is key to providing efficient traffic circulation, regardless of the mode of transportation. Impinging the circulation on any one or series of streets may result in trips diverted to other streets. Hence, one of the most effective ways to address future growth in population, employment and resulting traffic is to ensure that the Hyattsville has a policy to develop a

connected street network. This allows the city to distribute the traffic more equitably and improve the quality of life of the residents.



Sparse street network (left image) concentrates traffic on small number of street, while dense connected street network (right image) distributes the traffic evenly and improves resiliency.

While the City has an extensive street network, there remain missing links in the grid; particularly between East-West Highway and neighborhoods to the south, and along the Queens Chapel/Adelphi Road corridors. Likewise, the one-way streets on local corridors such as Longfellow Street create broken connections within the street network. These missing links force residents to take long, circuitous routes for short, local trips, which may encourage them to drive instead of walking or bicycling due to the additional distance. As a result, local traffic contributes to more congestion on the main roads, which already must carry through and regional traffic. Filling in some of these missing connections and turning select one-way streets into two-way streets will improve access and mobility throughout the City. This will reduce the burden on local streets while also giving people a more safe and comfortable option to travel without an automobile.

Future Vehicular Needs

The overall population and employment growth of Prince George's County and the Washington DC metro area, in addition to the anticipated growth in Hyattsville, will affect travel behaviors and traffic volumes on the streets within the City. This growth will require Hyattsville to be smart and deliberate about the investments that it makes to improve the transportation system for current and future residents and businesses and makes the best use of public resources.

This Study makes several improvement recommendations at major intersections as they are critical bottlenecks in the transportation network within the City limits. However, it should be noted that a vast majority of these intersections are on County and State roadways. As such, the City does not have the authority to implement the recommended improvements and can only request changes by the responsible agency. Nonetheless, safe operations of these intersections are critically important to the residents of Hyattsville as they provide vital access to local and regional destinations. It is anticipated that Prince George's County DPWT and

Maryland SHA will take the recommended improvements into consideration in any future project for roadways.

This Study recognizes that simply adding vehicular capacity at existing roadways and intersections is not a sustainable mitigation measure as any added capacity will likely be filled by induced traffic demand created by the addition of the capacity. Furthermore, it is well understood that adding vehicular capacity by adding lanes will reduce safety for pedestrians and bicyclists while eliminating the sense-of-place of the area. Lastly, increasing capacity for motor vehicles often requires acquisition of additional right of way (which may in turn require demolishing existing structures). As such, physical improvements were identified that would a) improve vehicular safety and capacity at critical intersections without having a major negative impact on bicycle and pedestrian environment, b) improve bicycle and pedestrian environment without adding significant vehicular delay; and c) limit the need to widen roads and/or intersections. These improvements recommendations are listed in the following chapter.

What is Induced Traffic?

It is the latent traffic demand that fills any new added vehicular capacity of the roadway, which results in recurrence of congestion.

Analysis for this Study used the Metropolitan Washington Council of Governments (MWCOG) regional travel demand model data as well as site-generated trips from approved developments in Hyattsville to forecast 2032 future traffic volume at several intersections in the City. Study intersections were analyzed for the AM and PM peak hours. Intersections where the forecasted traffic growth resulted in extreme delay in the future, i.e. more than 200 seconds of average delay, were identified for future long-term improvements. This approach is taken for two main reasons; 1) The advent of transformational transportation technology will likely continue to have dramatic impact on travel behavior in the future. Thus, future traffic volume forecast is unpredictable. 2) Adding vehicular capacity to accommodate estimated future traffic growth will have substantial negative impact on the near-term pedestrian and bicycle environment, as well as the built environment and sense-of-place around the intersection.

The recommended projects in this Study include both short-term and long-term improvements at critical intersections, as described above. Appendix B provides the future intersection operational results.

Traffic Calming

Residents of Hyattsville are concerned about volume and speed of traffic on neighborhood streets. With anticipated future traffic growth, especially on major roadways within the City, these issues are likely to get worse in the future. One of the key tools to address this future vehicular need is to implement a robust traffic calming policy and program. The City's current municipal code (Chapter 114 Article II, Traffic Regulations) defines traffic calming devices, procedure to request, public hearings, removal and maintenance of the devices. While the code provides many critical elements of the program, it lacks, 1) the engineering guidance on which type of device is appropriate for what type of issue, 2) definition of what constitutes a "speeding problem," and 3) definition of "sufficient volume of non-residential traffic." Absence

of these critical elements in the municipal code and the City's procedure could potentially contribute to inconsistent implementation of the traffic calming program.

One strategy used by many communities to address the speed and volume issues on a roadway, while still accommodating local trips is to identify them as bicycle boulevards (also called neighborhood slow streets). These types of streets prioritize bicycle and pedestrian modes while still accommodating local traffic, thus decreases the propensity of it being used for cut-through traffic. See the section on bicycle facility types for more detail.

Future Bicycle and Pedestrian Needs

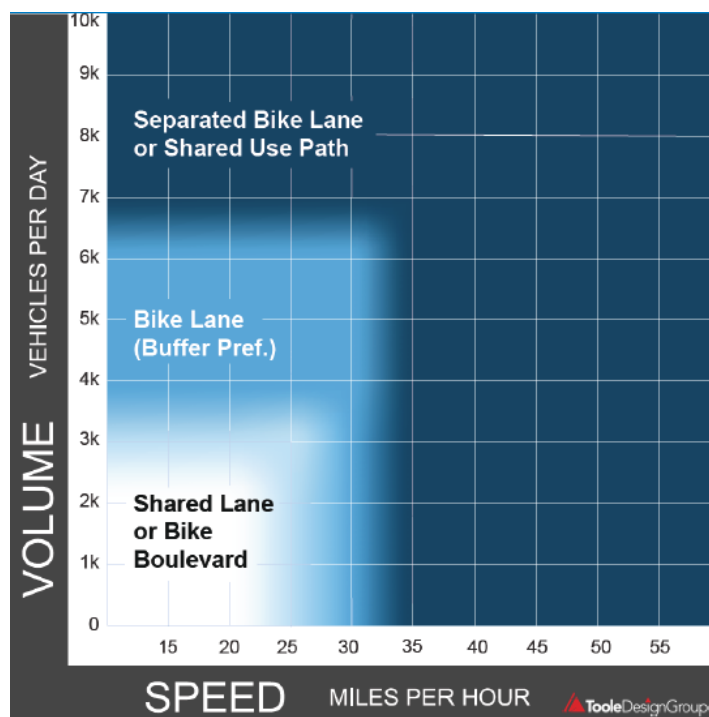
With increased development around the Metro stations and in the Gateway Arts District, it is expected that pedestrian and bicycle traffic will increase in the coming years, especially due to the proximity of these local destinations. More people may work, shop, go to school, or participate in leisure activities close to home, or make greater use of the City's public transportation assets. To reduce reliance on single-occupancy vehicle for travel, especially for short trip lengths around town, Hyattsville should invest in infrastructure that supports other modes of travel. Cities around the country are finding that developing high-quality bicycle and pedestrian facilities is having a positive impact on economic activity and investment, transportation affordability, public health and general well-being of residents.

Bicycle Facility Types

The current state-of-the-practice in bicycle facility design is based on identifying vulnerable users, such as families bicycling together or children, as the design users of the facility. This means designing facilities that are safe for everyone so that families feel comfortable enough to use it. This has resulted in bicycle facility type guidance that is based on the roadway context—specifically vehicular speed and volume. Generally, bicycle facilities adjacent to high speed and volume roadways should have increased physical separation. This Study recommends bicycle facilities that are in line with this principle.

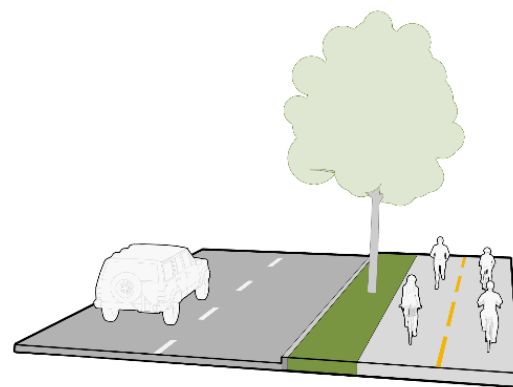
Below is a chart from the forthcoming AASHTO (American Association of State Highway and Transportation Officials) Guide for the Design of Bicycle Facilities, which provides general guidelines for designing bicycle facilities based on the roadway's speed and traffic volume. On slower streets with little traffic, it recommends that bicyclists share space with drivers, but on streets with higher speeds or greater traffic, it recommends striped bike lanes with buffers, or separated bike lanes or paths that are fully separated from motor vehicles. The following is a description of different types of bicycle facilities that may be appropriate for streets within the City.

Figure 3 : Bicycle Facility Selection Chart



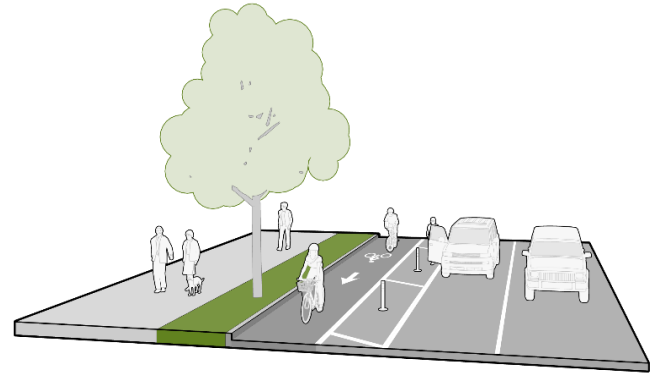
Multiuse Paths

Multiuse paths are dedicated facilities for bicyclists and pedestrians that are typically located adjacent to high-speed roads with very few roadway or driveway crossings. They are accommodated within the rights-of-way of the roadways. They are preferred by less experienced bicyclists because of their separation from traffic. More experienced bicyclists may avoid them if pedestrians and slower bicyclists are present. Snow removal and sweeping of these paths may require specialized equipment. Additionally, tree roots growing under the pavement may require periodic maintenance to preserve a comfortably smooth pathway surface. Multiuse paths are also referred to as Shared Use Paths.



Separated Bike Lanes

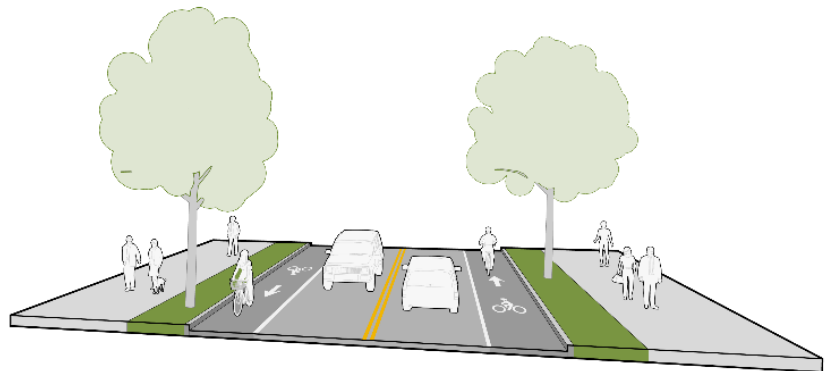
Separated Bicycle Lanes (SBLs) are on-street bicycle lanes that are physically separated from motor vehicle traffic. SBLs can be designed for one-way or two-way bicycle traffic. Additionally, they can be level with the travel lane, raised but still lower than the sidewalk, or level with the sidewalk. This bikeway type combines the user experience of a multiuse path with the on-street infrastructure of bike lanes. Separation from traffic



can be achieved with physical elements such as a lane of parallel parking, planters, curbing, or flexible posts. SBLs require added design considerations at driveways, transit stops, and intersections (especially for two-way Separated Bike Lanes) to manage conflicts with turning vehicles and crossing pedestrians. They may require bicycle-specific signals, signal phasing or protected intersection designs that slow turning vehicle speeds. Colored pavement or other visual treatments may be used to enhance visibility and raise awareness of the SBL, especially at conflict areas like driveways and intersections. Stormwater treatment is one of the considerations when installing protection such as curbs. This may be mitigated by installing pre-cast concrete blocks with drainage sleeves that allow storm water to access existing gutter and storm drain systems. Specialized street sweepers may be required to maintain narrow facilities.

Conventional Bike Lanes

This bikeway type uses signage and striping to allocate dedicated roadway space to bicyclists. It encourages predictable movements by bicyclists and motorists. Care must be taken to properly design bike lanes to meet or exceed minimum standards, particularly for width, and to properly restrict cars from parking in them.



Substandard bike lanes may not attract riders and may not be comfortable for casual or less confident bicyclists. It is also important that bike lane treatments be carried through intersections to provide continuity and guidance for bicyclists where the potential for conflicts is highest. Where bike lanes must end due to space constrictions or must transition to another facility type, advance warning and/or wayfinding signage for an alternative route should be provided to instruct bicyclists how to proceed. Bike lanes generally need to be swept periodically to keep debris from accumulating in them, especially if they are located adjacent to a curb.

Bicycle Boulevard

Bicycle boulevards (also referred to as neighborhood greenways or neighborhood slow streets) are low-speed, low-volume shared roadways that create a high comfort walking and bicycling environment, while still allowing local vehicle traffic. Traffic



calming or diversion treatments are often used to promote speed and volume reduction. Shared lane markings and wayfinding signs are often used to help bicyclists navigate the route and raise awareness that bicyclists are present. Bicycle boulevards also feature enhanced treatments at arterial/collector street intersections to provide safe and convenient crossings. Maintenance requirements are generally low because cars share the same space, although traffic calming elements would add maintenance needs if they are installed. Generally, roadways with an average of fewer than 3,000 vehicles per day and 25 mph speed are ideal for bicycle boulevards. If the current operating volume and speeds are higher, then traffic calming devices such as, speed humps, traffic diverters, chicanes, etc., can be installed to ensure that the operational characteristics of the roadway encourages families to ride bicycle together.

Pedestrian Crossing Guidance

One of the main hurdles for pedestrian travel is safety at major roadway crossings. This issue was raised during public meetings and WikiMap surveys. While reducing the crossing distance by eliminating travel lanes, etc., is an ideal solution, in most instances, it is cost prohibitive. Furthermore, installing a full traffic signal with pedestrian signal heads must meet strict signal warrants established in the MUTCD (Manual on Uniform Traffic Control Devices), the federal government's standards for the design and placement of traffic signs and signals. As a result, it may not be possible to install a traffic signal at every location where pedestrians are crossing.

In order to assist pedestrian crossings at uncontrolled locations, the Federal Highway Administration (FHWA) published the *Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations* in 2017, which includes the guidance for pedestrian crash countermeasures based on roadway configurations, speed limits, and average daily traffic volumes, as shown in Table 3. Hyattsville should use this guideline to install safe pedestrian crossings at unsafe locations with high pedestrian crossing demand.

Table 3 : Uncontrolled Crossing Counter Measures
(Source: FHWA Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations)

Roadway Configuration	Speed Limit								
	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph
	Vehicle AADT <9,000			Vehicle AADT 9,000–15,000			Vehicle AADT >15,000		
2 lanes*	1 2 3 4 5 6	1 3 5 6 7	1 3 5 6 7	1 3 4 5 6	1 3 5 6 7	1 3 5 6 7	1 3 4 5 6 7	1 3 5 6 7	1 3 5 6 7
3 lanes with raised median*	1 2 3 4 5	1 3 5 7	1 3 5 7	1 3 4 5 7	1 3 5 7	1 3 5 7	1 3 4 5 7	1 3 5 7	1 3 5 7
3 lanes w/o raised median†	1 2 3 4 5 6 7	1 3 5 6 7	1 3 5 6 7	1 3 4 5 6 7	1 3 5 6 7	1 3 5 6 7	1 3 4 5 6 7	1 3 5 6 7	1 3 5 6 7
4+ lanes with raised median‡	1 3 5	1 3 5 7	1 3 5 7	1 3 5 7	1 3 5 7	1 3 5 7	1 3 5 7	1 3 5 7	1 3 5 7
4+ lanes w/o raised median‡	1 3 5 6 7 8	1 3 5 6 7 8	1 3 5 6 7 8	1 3 5 6 7 8	1 3 5 6 7 8	1 3 5 6 7 8	1 3 5 6 7 8	1 3 5 6 7 8	1 3 5 6 7 8

*One lane in each direction †One lane in each direction with two-way left-turn lane ‡Two or more lanes in each direction

Given the set of conditions in a cell,

- ① Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgment at a marked uncontrolled crossing location.
- # Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location.

The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgment.

- 1 High-visibility crosswalk markings, parking restriction on crosswalk approach, adequate nighttime lighting levels
- 2 Raised crosswalk
- 3 Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line
- 4 In-Street Pedestrian Crossing sign
- 5 Curb extension
- 6 Pedestrian refuge island
- 7 Pedestrian Hybrid Beacon
- 8 Road Diet

This table was developed using information from: Zegeer, C. V., Stewart, J. R., Huang, H. H., Lagerwey, P. A., Feaganes, J., & Campbell, B. J. (2005). *Safety effects of marked versus unmarked crosswalks at uncontrolled locations: Final report and recommended guidelines* (No. FHWA-HRT-04-100); *Manual on Uniform Traffic Control Devices*, 2009 Edition, Chapter 4F, Pedestrian Hybrid Beacons; the *Crash Modification Factors (CMF) Clearinghouse website* (<http://www.cmfclearinghouse.org/>); and the *Pedestrian Safety Guide and Countermeasure Selection System (PEDSAFE) website* (<http://www.pedbikesafe.org/PEDSAFE/>).

Future Transit Needs

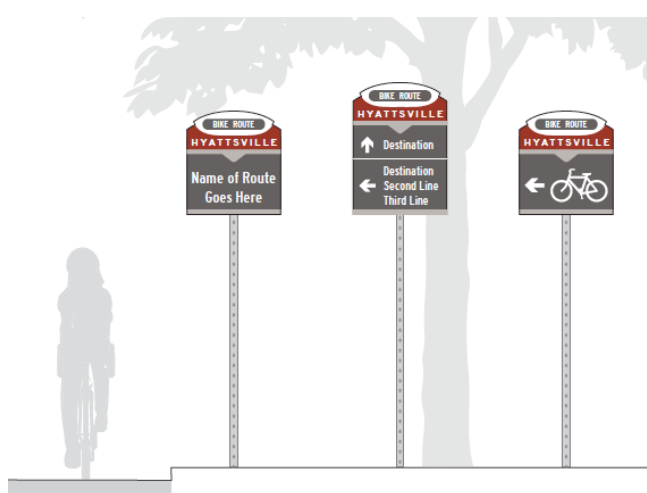
Hyattsville is served relatively well by regional transit service, including two Metro stations, Metrobus, The Bus, and UMD shuttle. However, the big data analysis as well as public input revealed that there is significant demand for travel between Hyattsville Crossing, the Gateway Arts District, and West Hyattsville. However, the current transit services do not provide direct and efficient route connecting these destinations. As such, this Study identified the need to conduct an operational and financial feasibility study to provide high-frequency shuttle service between these destinations.

Wayfinding Sign Design and Placement

As part of this Study, the project team worked closely with City staff to develop a set of new designs for all wayfinding signs in the City. The recommended design takes inspiration from significance of streetcars Hyattsville's transportation history and provides unique branding for the City and that enhances the sense-of-place in the community. The figure below provides the proposed design for various types of wayfinding signs. Each of the sign type is designed to provide specific information to bicyclists, pedestrians and motorists. However, they all have the same design elements to provide consistent branding and improve aesthetics.

The project team also developed installation details and as well as identified bicycle routes, sign texts and placement to assist City in installation of these signs. These details are provided in Appendix C of this Study.

Figure 4 Proposed Wayfinding Sign Design



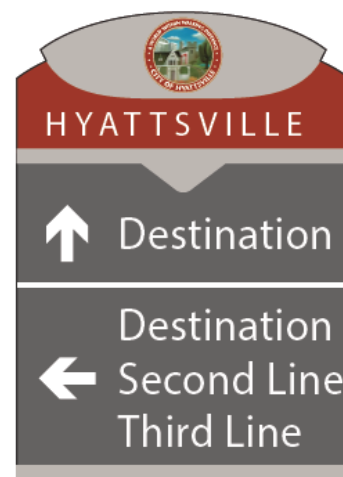
Bicycle Wayfinding Signs



Kiosk Sign



Vehicular Wayfinding



Sign Detail Example

6. Proposed Transportation Network

Goals and Vision

This Study includes goals, policies, and strategies that can be used to shape public and private transportation initiatives for the next decade. Throughout the planning process, community stakeholders expressed a desire for a safer walking and bicycling experience, improved access to shops, schools, leisure activities, improved transit, and better traffic flow. The following statement describes what the City of Hyattsville will look like after the implementation of the goals expressed in this Study.

In the near future, Hyattsville will be a place where anyone, regardless of age, background, or ability, can travel safely, comfortably, and affordably. Its transportation network will prioritize people-friendly streets that add energy and vitality to their surroundings, while accommodating the inevitable flow of traffic into and out of the City. The transportation system will support Hyattsville's sustainability goals by prioritizing active transportation for shorter trips and access to rapid transit for longer trips. Hyattsville's streets will serve as the backdrop for community events and festivals, as well as the rhythms of everyday life: traveling to school or work, running errands at a local business, enjoying a leisurely stroll or bike ride, spending time with friends, family, and loved ones.

Strategy Recommendations

In order to implement the above goals and vision, several strategies are recommended. The projects identified for each strategy highlight specific projects that support and advance the strategy. These projects, and several others are listed in the Project Recommendation section.

Strategy I: Complete the City's street grid with new street connections.

- **Project: New street between Toledo Terrace and Heurich Park Road.** A lack of street connections between East-West Highway, Ager Road, and Queens Chapel Road forces residents on long, circuitous paths to make local trips, encouraging people to drive and generating additional traffic congestion. A new street from the end of Toledo Terrace to Heurich Park Road (or 31st Avenue) will significantly improve traffic flow and circulation, particularly for local trips. The design may require incorporation of traffic calming treatments to ensure that this does not create a new traffic burden on neighborhoods. This connection would require additional analysis and a feasibility study.
- **Project: Improve the McClanahan Park connection between Jamestown Road and the Prince George's Plaza Metro station.** Today, area residents rely on informal foot paths connecting dead-end neighborhood streets south of the station to the Prince George's Plaza Metro station and shopping areas along East-West Highway. Improved sidewalk connections and a small, neighborhood-scaled plaza at McClanahan Park would make it safer, easier and more inviting to walk to the station, while providing much needed community open space.
- **Project: Public plaza connection between 33rd Avenue and Editors Park Drive.** The big data analysis showed high number of trips between the commercial developments

along East-West Highway and neighborhood to the south of Nicholson Street.

Currently, most trips between these areas are made by car. However, these trips can easily be made by foot or bicycle if safe and inviting infrastructure is present.

Neighborhoods immediately south of the Metro Green Line tracks currently rely on a handful of foot paths connecting dead-end streets south of the tracks to the Prince George's Plaza Metro station, the Mall at Prince George's, and Nicholas Orem Middle School. One of those streets is 33rd Avenue, which currently has a path connecting it to the dead-end Editors Park Drive and Orem Middle School. Turning this path into a plaza would create a new public open space, encourage more walking and biking to the mall area, in turn increasing safety with more pedestrian activity and eyes on the street.

- **Project: Connect missing links in the neighborhood street network.** Dead-end streets can impede connections for people on foot or bicycle, funnel more traffic onto the streets that do provide through-connections, and reduce accessibility for emergency vehicles. Connecting these broken links could improve access throughout the City and make it easier for people to take short trips by any mode without traveling on already burdened major roads. It is recommended the City undertake a feasibility study of connecting the following dead-end streets:
 - Calverton Drive to Dean Drive
 - Oliver Street between 42nd Place and 43rd Avenue
 - Queens Chapel Road and Manorwood Drive intersection

Furthermore, as large land parcels redevelop in the future, e.g. the Mall at Prince George's or expansion of the University Town Center, the City should consider establishing an urban street grid network to improve multimodal circulation as well as enhance the livability of the area.

It should be noted that in each case, new streets are proposed to preserve right-of-way if or when redevelopment occurs at that location. The City has no intention of seizing private property to construct these roads. New streets are intended to create access to new development, serve new residents and businesses, and improve local traffic for current residents by completing the street grid. They are not intended to encourage cut-through traffic on existing streets. All new streets should be designed to discourage cut-through traffic by incorporating traffic calming devices or via other measures.

Strategy 2: Design streets for lower speeds.

- **Project: Rebuild Hamilton Street as a Complete Street between Jamestown Road and 40th Avenue.** Hamilton Street is a state highway and a major connection between the West Hyattsville Metro station, the Queens Chapel Town Center, and Magruder Park. However, it has long stretches without sidewalks, no bicycle accommodations, and has an overly wide design that encourages speeding and unsafe driving behavior. To reduce speeding and make this the east-west main street for Hyattsville that is safe and comfortable for all users, Hamilton Street should be redesigned as a Complete Street, with bike lanes, ample and continuous sidewalks, additional pedestrian crossings and narrower motor vehicle lanes and potentially other traffic calming measures. This will

require coordination with SHA and potential opportunity for the City taking over control and ownership of the street from the SHA after the reconstruction. The design should consider the new police station on Hamilton and emergency responders ability to navigate the street.

- **Project: Rebuild Toledo Road as a Complete Street between Toledo Place and Adelphi Road.** Toledo Road is a local street within the Prince George's Plaza Transit District but currently lacks continuous sidewalks or bicycle accommodations for its entire length. Working in conjunction with the owners of the Mall at Prince George's and University Town Center, rebuild this street as a Complete Street with sidewalks, bike lanes, and a two-lane street section.

Strategy 3: Prioritize people on foot in street design.

- **Project: Complete missing links in the sidewalk network.** Sidewalks are a crucial part of making it easy, comfortable, and safe to walk in the City, particularly around major destinations such as the Metro stations and Arts District. While the City has an extensive sidewalk network, there remain several blocks in those areas currently lack complete or accessible sidewalks on one or both sides of the street. New sidewalks are recommended in the following locations:
 - Along 38th Avenue between from Hamilton Street to Northwest Branch Trail
 - Along 41st Avenue between Nicholson Street and Oglethorpe Street
 - Along the south side of Maryhurst Drive between Madison Street and Madison Place
 - Along the Oliver Street right-of-way between 42nd Avenue and 42nd Place
- **Project: Complete off-street links in the sidewalk and trail network.** In areas with dead-end or discontinuous streets, there are opportunities for off-street trail connections that can leverage the existing sidewalk network to dramatically improve access for people traveling on foot. Multi-use paths are recommended in the following locations:
 - Between Northwestern High School and Toledo Terrace or Belcrest Road
 - Between Nicholas Orem Middle School and 34th Avenue (upgrade existing path to accessible standards)
 - Between Nicholas Orem Middle School and the intersection of 35th Avenue and Oliver Street
 - Between First Baptist Church and the intersection of 42nd Place and Macaroy Alley
- **Project: Create safer pedestrian crossings citywide.** Many intersections in high-traffic areas, such as near transit stops, schools, or shopping areas currently lack high-visibility crosswalks that indicate to drivers where to stop and tell people crossing on foot, especially those with disabilities, where they can do so safely. Other intersections have wide turning radii that encourage drivers to speed, giving them less time to react to the presence of people crossing the street. It is recommended the City create pedestrian-friendly intersections through the provision of high-visibility crosswalks and curb extensions, where appropriate, throughout Hyattsville. Taking advantage of

reconstruction and development opportunities to strategically improve intersections is encouraged. Every pedestrian crossing that is made safer and more comfortable will enhance and the pedestrian network and increase the walkability of the City.

- **Project: Update and implement traffic calming program.** City's current traffic calming policy and program lays a strong foundation to build an effective program. The policy should be updated to define important parameters that are critical for its successful implementation, like excessive speed and non-residential traffic. In addition, the program should be updated to include guidance on effectiveness and implementation of traffic control devices. Traffic calming should be implemented on following streets:
 - 3900 block of Jefferson Street
 - Queensbury Road

Strategy 4: Reduce the number of one-way streets.

- **Project: Convert one-way to two-way streets or change circulation.** One-way streets are common on Hyattsville's narrower streets, particularly around the Arts District and in Hyattsville Hills. However, some one-way streets can increase traffic congestion by forcing drivers to take long, circuitous routes, impede travel by not providing a route for a return trip, and even encourage speeding on streets with excess width. Additional discussion about one-way streets and how they relate to the City's street network can be found in Chapter 5. The City should change traffic circulation on the following streets:
 - Hamilton Street – convert to two-way from Route 1 to 43rd Ave
 - Hamilton Street – convert to two-way from 40th Avenue to 42nd Avenue
 - Farragut Street – convert to two-way from 42nd Avenue to access to the Prince George's County Services Complex.
 - Jefferson Street – convert to two-way or reverse one-way from 35th Avenue to Queens Chapel Road
 - Oglethorpe Street – convert to two-way from 42nd Place to 44th Avenue
 - Jamestown Road – convert to two-way from 31st Avenue to Lancer Drive

Strategy 5: Prioritize the comfort of people on bikes in street design.

- **Project: Create bike boulevards on lower-speed streets that could provide key bicycling connections but are too narrow for bike lanes.** Nearly all of the City is within a comfortable bicycling distance of major destinations, such as the Metro stations, the Prince George's Plaza transit district, or the Gateway Arts District. Most neighborhood streets lack bicycle accommodations but are too narrow to accommodate dedicated bike lanes or would require parking removal for their installation. Many of these streets are ideal for a bike boulevard, which uses signs, pavement markings and traffic calming to create a low-speed street that is comfortable for bicycling. Bike boulevards can also help address speeding and discourage cut-through traffic through traffic calming. It is recommended that the City convert the following streets to bike boulevards:
 - Jamestown Road between Ager Road and Oliver Street
 - Jefferson Street between 40th Avenue and Baltimore Avenue

- Nicholson Street between Ager Road and Queens Chapel Road
- Oglethorpe Street between Queens Chapel Road and Baltimore Avenue
- 40th Avenue between Hamilton Street and 41st Avenue
- 41st Avenue between 40th Avenue and Queens Chapel Road
- **Project: Provide separated bike lanes on Belcrest Road and Toledo Terrace.** Belcrest Road and Toledo Terrace are important local connections within the Prince George's Plaza Transit District and are home to thousands of residents in recently-constructed multi-family buildings. However, both streets currently lack safe bicycle accommodations. Separated bike lanes on both streets would be a key part of the City's bicycle network. Note: a portion of Toledo Terrace lies outside of the boundaries of the City of Hyattsville, however, the City should advocate for this work to be completed as the only access to Toledo Terrace is by using roads within the City.
- **Project: Provide separated bike lanes (or multi-use path) on Adelphi Road.** Adelphi Road is a key north-south connection between the Prince George's Plaza area and communities adjacent to the City, including the University of Maryland and the Town of University Park. Providing separated bike lanes on this corridor would create an alternative to driving into the City for short trips, reducing traffic volumes and parking needs in the transit district. It is recommended separated bike lanes (or multi-use path) are installed on Adelphi Road from Queens Chapel Road to City limits. As this road is owned by SHA, coordination with the State Highway Administration and a feasibility study would be required to explore potential street sections and configurations.
- **Project: Install multi-use path on East-West Highway.** East-West Highway is a key east-west connection through the City (owned by SHA), but is largely inaccessible to people traveling by bike. There are currently no bicycle facilities on or parallel to this street, which is the primary connection across the Northwest Branch of the Anacostia River to points west. Due to the high traffic volume and speed on the roadway, even protected bicycle lane is not anticipated to feel safe for many users. Hence, a high-quality, separated multi-use path is recommended along the roadway. A multi-use path on the north side of East-West Highway would improve access to the Mall at Prince George's, University Town Center, and the Prince George's Plaza Metro station. It is recommended the City work with SHA to provide a multi-use path on the north side of East-West Highway from 23rd Avenue to Adelphi Road.

Strategy 6: Design intersections to improve safety for all.

- **Project: Redesign the intersection of Baltimore Avenue (Route 1, Route 1 Alternate), and Hamilton Street.** This intersection forms the southern gateway to the Gateway Arts District, as well as a key connection over the MARC tracks. However, it experiences significant backups on Route 1 Alternate and Hamilton Street, and is very difficult for people to cross on foot. Converting Hamilton from a one-way eastbound to a one-way westbound street and adding a new southbound left-turn lane can reduce backups, while also improving circulation for Hyattsville Elementary School and St. Jerome Academy. Tightening the geometry of the intersection can improve the

pedestrian connection. Redesigning this intersection can be an opportunity to create a more welcoming entrance to Hyattsville's section of Route 1.

- **Project: Reconfigure intersections on East-West Highway to reduce delay for all users and improve the crossing experience for pedestrians and bicyclists.** While East-West Highway serves regional traffic, it is also the spine of the Prince George's Plaza Transit District and, as a result, must accommodate the needs of nearby residents, including those taking short trips. Long traffic signal cycles not only cause backups on side streets but create unacceptable delays for people walking or bicycling. The lane configuration and signal timing for these six intersections should be updated to improve its operation (see Project Recommendation section for specific recommendations):
 - East-West Highway and Toledo Terrace
 - East-West Highway and Editors Park Drive
 - East-West Highway and Belcrest Road
 - East-West Highway, Queens Chapel Road, and Adelphi Road
 - East-West Highway and Baltimore Avenue (Route 1)
- **Project: Install single-lane modern roundabout at the 40th Avenue, Gallatin Street & Hamilton Street intersection.** The intersection is one of the key entrances to Magruder Park and the historic residential areas of Hyattsville. Furthermore, the five approaches of the intersection make it an ideal candidate for a roundabout.
- **Project: Reconfigure intersections to improve safety.** In order to improve safety at intersections, the lane configuration can be modified to reduce turning vehicle speed and pedestrian crossing distances, while ensuring that vehicular operation is not deteriorated considerably. This can be achieved by eliminating turn lanes where it is not necessary, updating traffic signal phasing and timings, etc. Lane configuration changes are recommended at the following intersections (see Project Recommendation section for specific recommendation):
 - Route 1 and Farragut Street
 - Ager Road and Hamilton Street
 - Queens Chapel Road, Queensbury Road, and Belcrest Road
- **Project: New traffic signals at critical intersections such as Baltimore Avenue (Route 1 Alternate) and Charles Armentrout Drive.** Charles Armentrout Drive is an important local connection between Rhode Island Avenue and industrial activities on Baltimore Avenue (Route 1 Alternate). Currently, the intersection of Armentrout Drive and Baltimore Avenue is uncontrolled and has dangerously poor sight distance, which creates significant backups, particularly for traffic turning left (north) from Armentrout Drive to Baltimore Avenue. A traffic signal would improve traffic flow and safety while creating a safe grade-level crossing for people on foot or bicycle. Baltimore Avenue is a state route, so this project would require coordination with SHA.
- **Project: New traffic signals on Ager Road at Lancer Drive and Nicholson Street.** The Ager Road road diet (reducing pavement width) currently being built by Prince George's County DPWT is intended to calm speeding on Ager Road and make it safer to cross between the West Hyattsville Metro station, the Queens Chapel Town Center, and

surrounding residential areas. New traffic signals at Lancer Drive and Nicholson Street will create safer crossings for people on foot or bike, while improving circulation within the neighborhoods. A Lancer Drive signal will also create access to the new residential development currently under construction west of the Metro station. As Ager Road is a County route, this would require coordination with Prince George's County DPWT.

- **Project: Study the feasibility of a new traffic signal at East-West Highway and America Boulevard as part of future development of the area.** As University Town Center builds out, the need for additional access from East-West Highway will increase, particularly for people on foot or bicycle. A signalized intersection with future redevelopment that require full access (instead of existing right-in/right-out access), would allow people additional access to this development and improve connections to the Prince George's Plaza Metro station. As East-West Highway is a state route, coordination with SHA and a feasibility study should analyze the potential effects of a new traffic signal on adjacent intersections.
- **Project: New traffic signals on Queens Chapel Road at Lancer Drive and Nicholson Street.** Queens Chapel Road is currently home to the longest stretch in the City without a signalized intersection, measuring 1.5 miles. People on foot or bike must travel far out of their way to cross at a signal or risk their safety crossing against the light. Two new traffic signals at Lancer Drive and Nicholson Street will create safer crossings, calm traffic by reducing the ability to gain speed between lights and improve circulation between residential areas in the City. (A signal at the intersection of Queens Chapel Road and Nicholson Street is currently under design by SHA.)

Strategy 7: Prioritize connections to and from the Metro stations and Arts District

- **Project: Working with private property owners, develop a new street network around the Prince George's Plaza Transit District.** Today, the areas around the Prince George's Plaza Metro station are largely characterized by large, privately-owned developments with long blocks, and limited pedestrian or bicycle connections. The University Town Center and Editors Park developments both include a network of local streets designed to provide more internal connectivity. Long-term plans to expand University Town Center and redevelop the Mall at Prince George's should include additional street connections to the grid, including the following links:
 - Editors Park Drive between East-West Highway and Toledo Terrace
 - Freedom Way between Toledo Terrace and Belcrest Road
 - America Boulevard between East-West Highway and Queens Chapel Road
 - America Boulevard between Toledo Road and Belcrest Road
- **Project: Work with private property owners to develop a new street network around the West Hyattsville Metro station.** A new residential development is currently under construction on the north side of the station that will include several new, private streets connecting to Ager Road. On the south side of the station, long-term plans call for extending Hamilton Street and Jamestown Road, and providing additional street connections between Ager Road and Queens Chapel Road. Hyattsville

should work with WMATA, PG DPWT and future developers to incorporate new street connections with short blocks and frequent crossings.

- **Project: Conduct feasibility study to assess the viability of establishing a shuttle service between the Metro Stations and the Arts District.** The big data analysis and public input clearly indicated the high travel demand between these areas in the city. The City should evaluate the financial and operational feasibility of establishing a shuttle service between these destinations.

Strategy 8: Integrate trails into the local transportation network.

- **Project: Install pedestrian/bicycle actuated traffic control devices on the Northwest Branch Trail where it crosses major streets, including Queens Chapel Road and 38th Street, and East-West Highway.** These devices give people traveling on foot or bike a safe way to cross busy roads. These intersections should be analyzed either for rectangular rapid flashing beacon or High Intensity Activated Crosswalk (HAWK) signal, also known as a pedestrian hybrid beacon.

Project Recommendations

The comprehensive data collection and analysis, as well as several rounds of public engagement conducted as part of this Study, identified several key multimodal mobility challenges within Hyattsville. This ranged from lack of adequate pedestrian facilities around schools, opportunities to improve multimodal circulation throughout the City, opportunities to improve bicycle travel within the City, lack of consistent wayfinding signs, and the opportunity to establish shuttle service. The table below lists the all of the recommended projects for this Study. A map of the recommended projects can be found on page 48.

Figure 5 : Project Recommendations

Project ID	Category	Project Name	Description
BB-1	Bike boulevard	Jefferson Street Bike Blvd (40th Ave to Trolley Trail)	Designate and design as bike boulevard to improve east-west bicycle connectivity
BB-2	Bike boulevard	Nicholson Street Bike Blvd (Ager Rd to 40 th Avenue)	Designate and design as bike boulevard to improve east-west bicycle connectivity
BB-3	Bike boulevard	Jamestown Road Bike Blvd (Ager Rd to Oliver Rd)	Designate and design as bike boulevard as alternate to bicycling on Queens Chapel Road
BB-4	Bike boulevard	40th/41st Avenue Bike Blvd	Designate and design as bike boulevard to connect Magruder Park to East-West Highway and beyond
BB-5	Bike boulevard	Oglethorpe Street Bike Blvd	Designate and design as bike boulevard to improve east-west bicycle connectivity
BP-1	Bicycle/Pedestrian Actuators	NW Branch Trail Crossing at 38th Street	Install Rectangular Rapid Flashing Beacon (RRFB), raised crossing, or High Intensity Activated Crosswalk (HAWK) signal
BP-2	Bicycle/Pedestrian Actuators	NW Branch Trail Crossing at Queens Chapel Road	Redesign to reduce crossing distance and install a High Intensity Activated Crosswalk (HAWK) signal
CC-1	Circulation Change	Gallatin Street two-way conversion	Convert to two-way from 42nd Ave to Route 1
CC-2	Circulation Change	Hamilton Street one-way flip	Convert EB one-way to WB one-way from 43rd Ave to Route 1
CC-3	Circulation Change	Circulation change implementation	Review additional proposed circulation changes and determine timeline for implementation
I-1	Intersection	Route 1, Route 1-Alt & Hamilton Street (south) Improvement	Redesign intersection to add SBLT lane and new WBTH movement. Consider converting the signal at Hamilton St (north) intersection to stop-controlled to improve north-south vehicular flow in the area
I-2	Intersection	40th Avenue, Gallatin Street, & Hamilton St. Roundabout	Install roundabout to improve traffic flow, safety, and gateway treatment to City's core
I-3	Intersection	East-West Highway & Toledo Terrace Improvement	Restripe SB and NB approaches to provide separate LT and shared TH-RT lanes. Remove WBRT lane to reduce pedestrian crossing distance
I-4	Intersection	East-West Highway & Editor's Park Drive Improvement	Consider removing EBRT lane due to low turning volume and to reduce pedestrian crossing distance
I-5	Intersection	East-West Highway & Belcrest Road improvement	Consider reconfiguring to exclusive dual NBLT and single SBLT lanes to improve vehicular operation

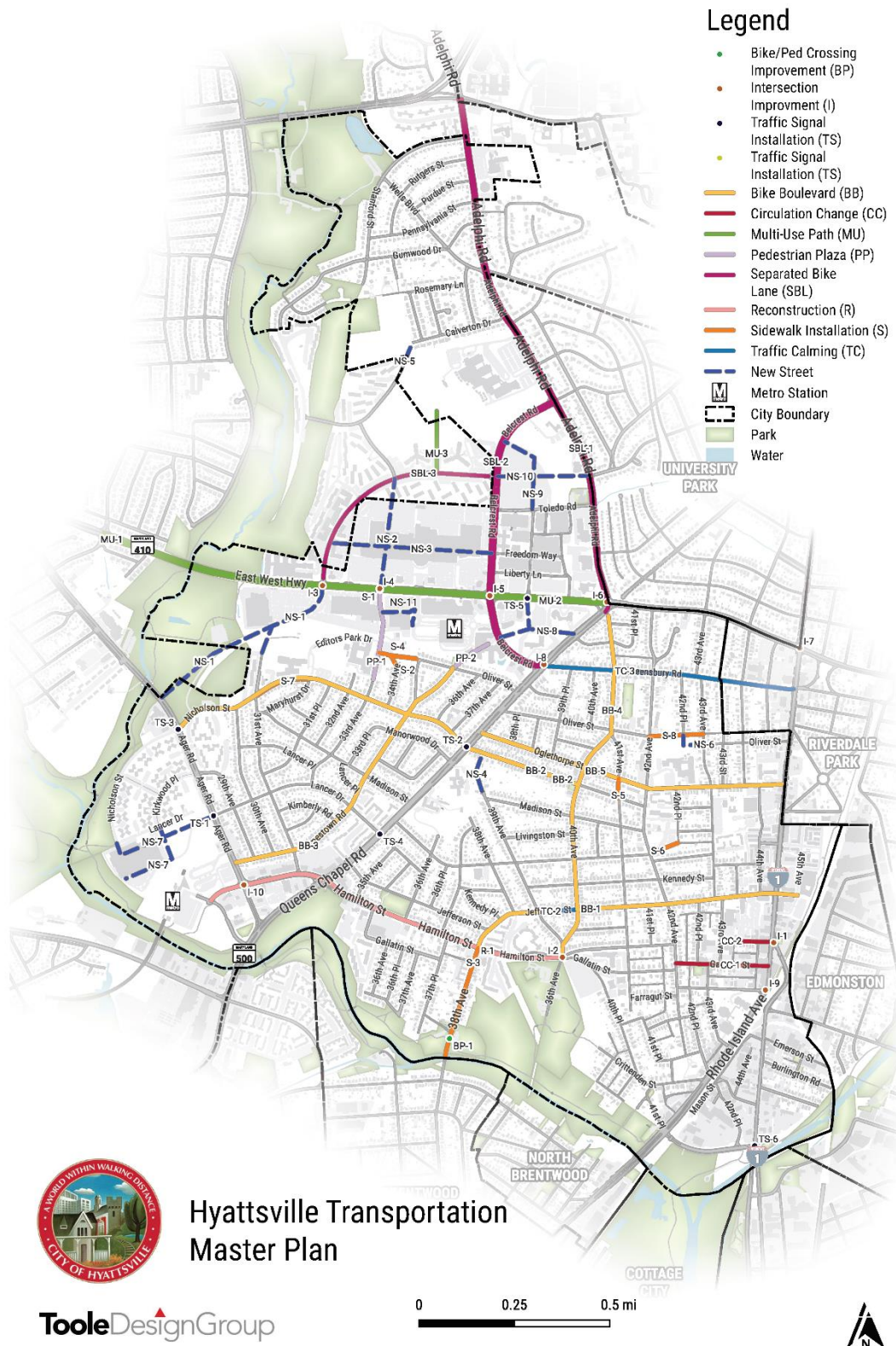
Project ID	Category	Project Name	Description
I-6	Intersection	East-West Highway, Queens Chapel Road, & Adelphi Rd Improvements	Consider realigning the NS approaches to intersect at closer to 90° and provide exclusive NBLT and SBLT lanes to improve vehicular operation
I-7	Intersection	East-West Highway & Route 1 Improvement	Consider providing dual westbound left-turn lanes
I-8	Intersection	Queens Chapel Road & Queensbury Road-Belcrest Road	Consider restricting movement to right-in/right-out/left-in as the last option to reduce cut-through traffic on Queensbury Road
I-9	Intersection	Route 1 and Farragut Street Reconfiguration	Consider consolidating two eastbound lanes to one to reduce pedestrian crossing distance.
I-10	Intersection	Ager Road & Hamilton Street Reconfiguration	Consider reconfiguring WB approach to shared LT-TH and TH-RT lanes due to low through volume and to reduce pedestrian crossing distance
MU-1	Multiuse Path	East-West Highway Multiuse Path (Toledo Terrace to 23rd Avenue)	Install multi-use trail on north side instead of bike lanes, eliminate continuous right turn lane
MU-2	Multiuse Path	East-West Highway Multiuse Path (Toledo Terrace to Adelphi Road)	Install multi-use trail on north side instead of bike lanes, eliminate continuous right turn lane
MU-3	Multiuse Path	Northwestern High School Multiuse Trail Connection	Construct multiuse path between Northwestern HS fields and Toledo Terrace or Belcrest Road, or through future Landy Property development
NS-1	New street	Toledo Terrace to Heurich Park Road Connection	Study alternative routes for the new street connection to improve circulation and reduce congestion on East-West Hwy. A portion of this road would lie outside the City limits and requires coordination with Prince George's County
NS-2	New street	Editors Park Drive Connection from East-West Highway to Toledo Road	Build future Complete Street grid network as part of any future redevelopment of the area
NS-3	New street	Freedom Way Connection from Toledo Terrace to Belcrest Road	Build future Complete Street grid network as part of any future redevelopment of the area
NS-4	New street	38th Street extension from current terminus to Queens Chapel Rd & Manorwood Dr.	Construct two lane roadway with sidewalks to alleviate traffic on Nicholson St and 40th Ave and improve local connection
NS-5	New street	Calverton Drive extension to Dean Drive	Construction two lane roadway with sidewalks and bike lanes to provide multimodal connection
NS-6	New street	Oliver Street extension from 43rd Avenue to 42nd Place	Construction two lane roadway with sidewalks to assist with traffic circulation in the neighborhood
NS-7	New street	New street network around the West Hyattsville Metro station	Build future Complete Street grid network as part of any future redevelopment of the area
NS-8	New street	America Boulevard between East-West Highway and Queens Chapel Road	Build future Complete Street grid network as part of any future redevelopment of the area
NS-9	New street	America Boulevard extension from Toledo Road to Belcrest Road	Build future Complete Street grid network as part of any future redevelopment of the area

Project ID	Category	Project Name	Description
NS-10	New street	Toledo Terrace extension between Belcrest Road and Adelphi Road	Build future Complete Street grid network as part of any future redevelopment of the area
NS-11	New street	Sentinel Drive between Editors Park Drive and Prince George's Plaza Metro entrance	Build future Complete Street grid network as part of any future redevelopment of the area
PC-1	Pedestrian Crossings	Citywide pedestrian improvements	Install curb extensions, high-visibility crosswalks, Rectangular Rapid Flashing Beacon (RRFB), pedestrian hybrid beacons, where appropriate
PP-1	Pedestrian Plaza	33rd Avenue to Editors Park Drive Plaza	Construct public plaza connection between 33rd Avenue and East-West Highway
PP-2	Pedestrian Plaza	McClanahan Park	Construct plaza/wider sidewalk/trail from Jamestown Rd to Prince George's Plaza Metro station at McClanahan Park
SBL-1	Separated Bike Lanes	Adelphi Road Separated Bike Lanes	Install Separated Bike Lanes (or multi-use trail) from East West Highway to city limit
SBL-2	Separated Bike Lanes	Belcrest Road Separated Bike Lanes	Install Separated Bike Lanes (or multiuse path) from Adelphi Rd to Queens Chapel Rd)
SBL-3	Separated Bike Lanes	Toledo Terrace Separated Bike Lanes	Install Separated Bike Lanes from Belcrest Rd to EW Highway
R-1	Reconstruction	Hamilton Street Complete Street Design and Construction	Work with the State to redesign as a Complete Street to enhance east-west connection for people traveling on foot or bike from West Hyattsville Metro to Magruder Park and the Arts District
R-2	Reconstruction	Toledo Road Complete Street Design and Construction	Design and build Complete Street from Adelphi Road to Toledo Place
S-1	Sidewalk installation	East-West Highway to mall at Editors Park Drive	Work with developer to create accessible entrance to mall
S-2	Sidewalk installation	34th Avenue to Middle School Ped Connection	Install accessible pathway connecting Nicholas Orem Middle School to 34th Avenue
S-3	Sidewalk installation	38th Avenue Sidewalk from Hamilton Street to Northwest Branch Trail	Install missing sidewalk (could require additional ROW on either side)
S-4	Sidewalk installation	Oliver Street Ped connection to Orem Middle School	Build accessible path to Oliver Street behind baseball field connecting to existing stairs, ROW exists on south side for a new path
S-5	Sidewalk installation	41st Avenue Sidewalk from Nicholson Street to Oglethorpe Street	Construct new sidewalk
S-6	Sidewalk installation	42nd Place to 42nd Ave Ped Connection near Macaroy Street	Consider building pathway connecting 42nd Place to First Baptist Church
S-7	Sidewalk installation	Maryhurst Drive Sidewalk installation	Install new sidewalk on the south side of Maryhurst Drive
S-8	Sidewalk installation	Oliver Street Sidewalk between 42nd Avenue and 43rd Avenue	Construct sidewalk within the existing ROW

Project ID	Category	Project Name	Description
SS-1	Streetscape	Various streets	Strengthen the pedestrian environment by widening sidewalks, installing street furniture, improving lighting, discouraging the use of slip lanes and right turn only lanes
TC-1	Traffic Calming	Revamp the traffic calming program	Update the current program in the municipal code to include specific guidance on volume and speed thresholds
TC-2	Traffic Calming	3900 Block of Jefferson Street Traffic Calming	Install curb extension on the NW corner of 38 th St/ Jefferson St intersection and other measures to discourage cut-through traffic
TC-3	Traffic Calming	Queensbury Road Traffic Calming	Install traffic calming devices to discourage cut-through traffic
TS-1	Traffic signal	Ager Road and Lancer Drive Traffic signal	Install traffic signal to improve operation and safety for all users
TS-2	Traffic signal	Queens Chapel Road and Nicholson Street Traffic Signal	Install traffic signal to improve operation and safety for all users
TS-3	Traffic signal	Ager Road and Nicholson Street Traffic Signal	Conduct signal warrant analysis and improve pedestrian safety
TS-4	Traffic signal	Queens Chapel Road and Lancer Drive Traffic Signal	Install traffic signal to improve operation and safety for all users
TS-5	Traffic signal	East-West Highway and America Boulevard Traffic Signal	Potential future signal as part of area redevelopment
TS-6	Traffic signal	Route 1 Alternate and Armentrout Drive Traffic Signal	Install traffic signal to improve operation and safety for all users
WF-1	Wayfinding	Wayfinding Overhaul	Install new wayfinding signs on bicycle boulevards and major destinations

EB: Eastbound; WB: Westbound; NB: Northbound; SB: Southbound; LT: Left-Turn; RT: Right-Turn; TH: Through

Figure 6 :Map of Recommended Projects



7. Implementation

There are several important transportation projects across the City of Hyattsville that would have a meaningful impact on accessibility, mobility, and quality of life. However, the City cannot build everything all at once, and must invest wisely in projects that can have the largest impact while effectively addressing stated goals. Many of the improvements will require coordination with other parties including SHA, Prince George's DPWT, and private developers/property owners. To find the projects that the City should place emphasis on, each of the 61 recommended projects were ranked on a 23-point scale, using the following metrics based on the six Speak Up! HVL goals. Each metric was allocated a point on 1-5 scale based on its compatibility with the Study's vision, with 5 being the highest point. These metrics are:

1. **Improve safety on major roads.** Projects that meet this requirement will make it safer for people travel within the City by a variety of modes. (4 points)
2. **Safer connectivity for pedestrians.** Projects that meet this requirement will improve access for people traveling on foot, with an emphasis on completing missing links in the sidewalk and trail network and improving crossings of busy roads. (5 points)
3. **Improve traffic flow within neighborhoods.** Projects that meet this requirement will reduce the number of circuitous local trips that add unnecessary traffic on residential streets, while creating new opportunities for people on foot or bike to make short trips safely and comfortably. (3 points)
4. **Strengthen connectivity for cyclists.** Projects that meet this requirement will improve access for people traveling by bicycle, with an emphasis on completing missing links in the bicycling network and improving crossings of busy roads. (5 points)
5. **Support the Metro stations and Gateway Arts District.** Projects that meet this requirement will support pedestrian-, bicycle-, and transit-friendly development in the City's three activity centers, by making it easier to travel to and from them without a car. An emphasis is placed on projects within a half-mile of the West Hyattsville Metro station, Prince George's Plaza Metro station, and Gateway Arts District. (4 points)
6. **Support sustainable growth.** Projects that support metrics 2, 4, and 5 will receive an extra point for supporting environmentally, socially, and economically sustainable development within the City. (2 points).

This system can be used by the City in the future to rate other transportation projects that arise, allowing officials to make wise decisions about which investments to make.

Top scoring projects

The following projects scored towards the top of the list for transportation investments. These projects address the City's sustainability goals, as well as significant travel issues that residents, workers, and visitors currently face. They can impact many people's access and mobility within the City within a short period of time.

Figure 7 :Top 20 Scored Projects

Project ID	Category	Project Name	Speak Up HVL Priorities						Total Points
			Improve safety on major roads	Safe connectivity for pedestrians	Traffic flow in neighborhoods	Strengthen connectivity for cyclists	Support Metro/Arts District	Sustainable growth	
R-1	Reconstruction	Hamilton Street Complete Street Design and Construction	✓	✓	✓	✓	✓	✓	23
NS-1	New street	Toledo Terrace to Heurich Park Road Connection	✓	✓	✓	✓	✓	✓	23
BP-1	Bike/Ped Crossing	NW Branch Trail Crossing at 38th Street (MD 208) south of Gaines Alley	✓	✓		✓	✓	✓	20
BP-2	Bike/Ped Crossing	NW Branch Trail Crossing at Queens Chapel Road (MD 500) south of Jamestown Road	✓	✓		✓	✓	✓	20
I-1	Intersection	Route 1, Route 1-Alt & Hamilton Street (south) Improvement	✓	✓		✓	✓	✓	20
I-2	Intersection	40th Avenue, Gallatin Street, & Hamilton St. Roundabout	✓	✓		✓	✓	✓	20
MU-1	Multiuse Path	East-West Highway Multiuse Path (Toledo Terrace to 23rd Avenue)	✓	✓		✓	✓	✓	20
MU-2	Multiuse Path	East-West Highway Multiuse Path (Toledo Terrace to Adelphi Road)	✓	✓		✓	✓	✓	20
PP-1	Pedestrian Plaza	33rd Avenue to Editors Park Drive Plaza		✓	✓	✓	✓	✓	19
TS-1	Traffic signal	Ager Road and Lancer Drive Traffic signal		✓	✓	✓	✓	✓	19
TC-1	Traffic Calming	Revamp the traffic calming program	✓	✓	✓	✓			17
TC-2	Traffic Calming	3900 Block of Jefferson Street Traffic Calming	✓	✓	✓	✓			17
TC-3	Traffic Calming	Queensbury Road Traffic Calming	✓	✓	✓	✓			17
TS-2	Traffic signal	Queens Chapel Road and Nicholson Street Traffic Signal	✓	✓	✓	✓			17
TS-3	Traffic signal	Ager Road and Nicholson Street Traffic Signal	✓	✓	✓	✓			17
TS-4	Traffic signal	Queens Chapel Road and Lancer Drive Traffic Signal	✓	✓	✓	✓			17
BB-1	Bike boulevard	Jefferson Street or Gallatin Street Bike Blvd (40th Ave to Trolley Trail)	✓		✓	✓	✓		16
PP-2	Pedestrian Plaza	Jamestown Road Plaza		✓		✓	✓	✓	16
R-2	Reconstruction	Toledo Road Complete Street Design and Construction	✓	✓		✓		✓	16
S-1	Sidewalk installation	East-West Highway to Mall at Editors Park Drive		✓		✓	✓	✓	16

Sequential Action Plan

Planning, obtaining funding and implementing projects from design to construction require a considerable level of effort from City Staff. This report aims to provide the City with the information to make educated decisions not only about what to implement, but how to implement.

The top 20 projects that will have the most impact on the City of Hyattsville and help reach the transportation goals are listed and ranked above in Table 5. The ranking should serve as guidance for the City, and the projects should be implemented as groups if geographically practical and if funding allows. A planning level cost estimate for each recommended priority project is included in Appendix D of the report. A planning level cost estimate is essential for budgeting City funds toward these projects and for informing negotiations with future land developers.

Several projects, specifically the new street projects, are intended to be implemented as a part of future development. With these projects, the City can be specific in discussion with future developers and ensure that their development plan accommodates City's recommended projects. The earlier and clearer the request, the more likely a developer can include it in their plan. The new streets are not the only projects that can be implemented by developers. Other projects that are on or adjacent to their site may be negotiated into their project with their preliminary plan approvals. Often the new development will warrant the addition of a traffic signal and new signal priority projects should be give precedence. This can be especially important on projects that require SHA and DPW&T approval. The developer's experience in these areas can be very valuable. The recommended projects in this transportation plan aim to make Hyattsville a more vibrant and active City which in-turn makes developers properties more profitable.

However, the City cannot solely rely on developers to fund and implement all of the changes that will meet the transportation goals and vision for the City. Development is controlled by the market and although collaboration can be mutually beneficial, the City loses control over the timeline of design and construction. The City will need to implement projects through their Capital Improvement Programs and apply for additional funding through grants. A planning level cost estimate has been prepared for each recommended project and is included in Appendix D.

When implementing projects, it may make sense for the City to consider grouping projects by project type, by geography, or by corridor (or some combination of the three). Similarly, there may be occasions where two or more projects must be implemented simultaneously or in close succession to achieve full benefit and functionality. The following table provides a proposed grouping of projects for the sequential action plan. Projects with the same Group Number in the first column make sense to be implemented as a package of projects, rather than in isolation. This proposed grouping does not preclude the City from taking other approaches (e.g. completing all sidewalk installation projects as part of one City-wide contract) and should be revisited from time to time to confirm the groupings still make sense.

Table 6 : Suggested Project Groups

Groups	Project ID	Category	Project Name
1	R-1	Reconstruction	Hamilton Street Complete Street Design and Construction
	I-10	Intersection	Ager Road & Hamilton Street Reconfiguration
2	I-3	Intersection	East-West Highway & Toledo Terrace Improvement
	NS-1	New street	Toledo Terrace to Heurich Park Road Connection
	SBL-3	Separated Bike Lanes	Toledo Terrace Separated Bike Lanes
3	BP-1	Bike/Ped Crossing	NW Branch Trail Crossing at 38th Street (MD 208) south of Gaines Alley
	BP-2	Bike/Ped Crossing	NW Branch Trail Crossing at Queens Chapel Road (MD 500) south of Jamestown Road
4	CC-1	Circulation Change	Gallatin Street two-way conversion
	CC-2	Circulation Change	Hamilton Street one-way flip
	CC-3	Circulation Change	Circulation Change Implementation
	I-1	Intersection	Route 1, Route 1-Alt & Hamilton Street Improvement
	I-9	Intersection	Route 1 and Farragut Street Reconfiguration
5	I-2	Intersection	40th Avenue, Gallatin Street, & Hamilton St. Roundabout
	TS-6	Traffic signal	Route 1 Alternate and Armentrout Drive Traffic Signal
6	I-4	Intersection	East-West Highway, Queens Chapel Road, & Adelphi Rd Improvements
	MU-1	Multiuse Path	East-West Highway Multiuse Path (Toledo Terrace to 23rd Avenue)
	MU-2	Multiuse Path	East-West Highway Multiuse Path (Toledo Terrace to Adelphi Road)
7	PP-1	Pedestrian Plaza	33rd Avenue to Editors Park Drive Plaza
	PP-2	Pedestrian Plaza	Jamestown Road Plaza
	NS-10	New street	Sentinel Drive between Editors Park Drive and Prince George's Plaza Metro entrance
8	NS-7	New street	New street network around the West Hyattsville Metro station
	TS-1	Traffic signal	Ager Road and Lancer Drive Traffic signal
	TS-4	Traffic signal	Queens Chapel Road and Lancer Drive Traffic Signal
9	TC-1	Traffic Calming	Revamp the traffic calming program
	TC-2	Traffic Calming	3900 Block of Jefferson Street Traffic Calming
	TC-3	Traffic Calming	Queensbury Road Traffic Calming
10	TS-2	Traffic signal	Queens Chapel Road and Nicholson Street Traffic Signal
11	BB-2	Bike boulevard	Nicholson Street Bike Blvd from Ager Rd to 40th Ave
	BB-3	Bike boulevard	Jamestown Road Bike Blvd from Ager Rd to Oliver Rd
	S-7	Sidewalk installation	Nicholson St Sidewalk installation
	TS-3	Traffic signal	Ager Road and Nicholson Street Traffic Signal

Groups	Project ID	Category	Project Name
12	BB-1	Bike boulevard	Jefferson Street or Gallatin Street Bike Blvd (40th Ave to Trolley Trail)
	BB-4	Bike boulevard	40th/41st Avenue Bike Blvd
	BB-5	Bike boulevard	Oglethorpe Street Bike Blvd
	S-3	Sidewalk installation	38th Avenue Sidewalk from Hamilton St to Northwest Branch Trail
	S-5	Sidewalk installation	41st Avenue Sidewalk from Nicholson Street to Oglethorpe St
	S-6	Sidewalk installation	42nd Place to 42nd Ave Ped Connection near Macaroy Street
	S-8	Sidewalk installation	Oliver Street Sidewalk between 42nd Avenue and 43rd Avenue
13	NS-2	New street	Editors Park Drive Connection from East-West Highway to Toledo Road
	NS-3	New street	Freedom Way Connection from Toledo Terrace to Belcrest Road
	R-2	Reconstruction	Toledo Road Complete Street Design and Construction
	S-1	Sidewalk installation	East-West Highway to mall at Editors Park Drive
14	NS-10	New street	Toledo Terrace extension between Belcrest Road and Adelphi Road
	NS-9	New street	America Boulevard extension from Toledo Road to Belcrest Road
	I-5	Intersection	East-West Highway & Belcrest Road improvement
	SBL-1	Separated Bike Lanes	Adelphi Road Separated Bike Lanes
	SBL-2	Separated Bike Lanes	Belcrest Road Separated Bike Lanes
15	I-7	Intersection	East-West Highway & Route 1 Improvement
16	NS-8	New street	America Boulevard between East-West Highway and Queens Chapel Road
	I-6	Intersection	East-West Highway, Queens Chapel Road, & Adelphi Rd Improvements
	I-8	Intersection	Queens Chapel Road & Queensbury Road-Belcrest Road
	TS-5	Traffic signal	East-West Highway and America Boulevard Traffic Signal
17	NS-4	New street	39th Avenue extension from Madison Street to Nicholson Street
	NS-6	New street	Oliver Street extension from 43rd Avenue to 42nd Place
18	MU-3	Multiuse Path	Northwestern High School Multiuse Trail Connection
	NS-5	New street	Calverton Drive extension to Dean Drive
19	S-2	Sidewalk installation	34th Avenue to Middle School Ped Connection
	S-4	Sidewalk installation	Oliver Street Ped connection to NO Middle School
20	PC-1	Pedestrian Crossings	Citywide pedestrian improvements
	SS-1	Streetscape	Various streets
21	WF-1	Wayfinding	Wayfinding Overhaul

Implementation Strategy

To implement the various projects, the Study recommends that the City partake in the following approaches:

Establish quarterly working session with SHA, DPW&T and other implementing agencies

As many of the major projects within Hyattsville are on facilities owned by regional entities, it is important to establish regular meetings with the agencies to ensure that the priorities identified

by the City are included in their annual projects. Working with implementing agencies early in the process allows the project scope of work to address Hyattsville concerns. For example, any future project on East-West Highway in Hyattsville should evaluate the feasibility to build multi-use path along the corridor, as identified by this Study.

Identify Initial Projects to Implement

Of the top 20 projects listed in Table 5, depending on the funds available, identify handful of projects to implement in the next few budget cycles. It should be noted that some of the projects may benefit from collaboration between different departments in order to pool funds allocated to the departments. For example, Community and Economic Development Department may be interested to be part of updating wayfinding signs that will help improve the streetscape.

Once the project has been identified, review the recommended project list in Table 4 to note projects that are in the same geography which may benefit from economies of scale for being included in the project. For example, if a new traffic signal project is approved, including sidewalks or wayfinding signs within a block of the location will ensure the best and most optimal use of scarce public resources.

Identify Priority Area to Implement in Alternate Budget Cycle

The City currently has several programs in the Capital Improvement Plan, including sidewalk and roadway improvement, ADA compliance, lighting improvements, and residential signage, among others. While these funds are essential to address critical infrastructure needs in all areas of the City, it might be more impactful to focus the implementation of the funds in priority areas of the City in alternate budget cycle. The priority area may be established by evaluating the total need of the area versus the availability of funds for the budget cycle. This method of fund allocation allows regular maintenance of other areas of the City to occur in budget cycle when the funds are not allocated to the priority areas.

Enhance Existing Annual Sidewalk Improvement Program

Based on extensive sidewalk deficiencies identified in the Study, Hyattsville can provide more funding to improve existing sidewalks and meet ADA and state requirements. In order to meet the sustainability goals of the City, the sidewalk improvement program should be enhanced to include streetscape and stormwater improvement such that the livability of the project area is improved.

8. Conclusion

Over the past year, the Study Team has worked with community members and City of Hyattsville officials and staff to develop a vision for a place where streets are not simply a way to get through the City, but an opportunity to enrich the daily life of the City's residents, businesses, and visitors. Through extensive public input, research, data collection, and analysis, the Study Team identified the transportation challenges facing the City, including gaps in the pedestrian and bicycle network that make it difficult to walk or bike, delays from congestion at major intersections during rush hour, concerns with high-speed cut-through traffic on local streets, and a need for better wayfinding to provide clear direction to travelers and visitors.

From this, the Study Team identified a list of goals for improving the transportation system, building upon the vision laid out by the Speak Up HVL! Community Sustainability Plan:

- Improve safety along major roads
- Enhance and increase safe connectivity for pedestrians
- Improve traffic flow within neighborhoods
- Strengthen connectivity for cyclists
- Support development around the Metro stations and Gateway Arts District
- Support environmentally friendly, sustainable growth

These six goals form the basis for a set of policies that will guide the City as it further invests in its transportation system. These policies will help the City determine what projects to fund and construct, which transportation modes to prioritize in each location or setting, and articulate its transportation needs to the County and State, which are responsible for some of the larger roads within City limits. These policies were used to create a list of 61 transportation projects that the City can execute in the coming years. A 23-point scale, using metrics derived from the six Speak Up HVL! Goals, was created to rank each of these projects, producing a list of 20 top priority projects that could have a transformative impact on travel in Hyattsville.

This Study will serve as a guide to shaping and investing in Hyattsville's transportation system in the coming years. It will help the City build a transportation system that works for everyone, regardless of age, mobility, or transportation mode. It will help the City support anticipated growth and investment, improve and maintain existing transportation infrastructure, carry out new projects, and determine priorities for the next twenty years. Additionally, it will affirm the City's goals to become a more socially, economically, and environmentally sustainable place.

This Study reflects a broader, nationwide shift in rethinking the way people move, considering all modes of transportation, not just moving automobiles, and casting our public streets as places where people can play a more active role in their community. With these recommendations in hand, the City can work with Prince George's County, the State of Maryland, and other entities to make the right investments in its transportation system. Finally, this Study also allows Hyattsville to accommodate future growth, and the transportation

challenges that come with it, in a way that enriches existing communities while supporting the creation of new places that people will love and cherish.



Hyattsville Transportation Study

TECHNICAL MEMORANDUM I

Existing Conditions Report

February 25, 2018

Prepared by:
TooleDesignGroup

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I. Introduction

Over the past several years, the City of Hyattsville has conducted several studies to address several transportation concerns facing the City. These studies independently evaluated numerous topics including vehicular traffic counts, pedestrian and bicycle accessibility, as well as policy analysis. Within this context, the City secured the services of Toole Design Group (TDG) and its partners to prepare a city-wide transportation study that builds on previous studies and incorporates an analysis of existing conditions. The final transportation plan will provide recommendations for improvements to the transportation network for all modes (motor vehicle, bicycle and pedestrian). This Plan will help the City improve and maintain existing transportation infrastructure, carry out new projects, and determine priorities for the next 20 years. This memorandum provides a summary of existing conditions related to the transportation modes which will inform recommendations that advance the City's transportation goals.

The document is organized in eight sections: Sections 1 and 2 provide a synopsis of citywide transportation characteristics, and a summary of past plans that are pertinent to this Study. The subsequent sections provide baseline conditions based on field observations (Section 3), a summary of public feedback received via online crowdsourcing map (Section 4); school area circulation and access (Section 5); and traffic conditions (Sections 6 and 7).

City Characteristics

Incorporated in 1886, the City of Hyattsville is located just over one mile from the District of Columbia, and is one of the oldest incorporated municipalities within Prince George's County, Maryland. With over 18,000 residents (according to the latest U.S. Census estimates) the City has experienced an increase in population since the late 1990's. This is due in part to its transit connections, and proximity to activity and job centers throughout the region.

Hyattsville has two metro stations within city limits served by the WMATA Green Line. Prince George's Plaza and West Hyattsville Metrorail stations average around 5,000 and 8,000 riders per weekday respectively, according to WMATA.¹ The City is also served by a number of WMATA and The Bus (Prince George's County bus service) regional and local bus lines. The Riverdale MARC Station, just east of the City, provides commuter rail connections between Baltimore and Washington, D.C.

The City has a network of narrow low-speed local roadways and larger regional roadways - some of which dissect the city and act as barriers for walking and biking. While most roadways are owned and maintained by the City, four major roadways are owned and maintained by the Maryland State Highway Administration (SHA). These include, Baltimore Avenue/ Rhode Island Avenue, US1-A (Baltimore Avenue); East-West Highway (MD 410); Queens Chapel Rd (MD 500); and parts of Hamilton Street (MD 208). Ager Road and Adelphi Road are the main roadways owned and maintained by the Prince George's County Dept. of Public Works and Transportation (DPWT).

¹WMATA ridership data Sept 2010 – February 2016

The Northwest Branch Trail runs along the Anacostia River in southern and western Hyattsville. This provides regional bicycle and pedestrian connectivity to Washington, D.C. and Montgomery County, MD through the Anacostia Tributary Trail System which is maintained by the Maryland National Capital Park and Planning Commission – Prince Georges County (MNCPPC-PG). Additional details on existing conditions related to the roadway network are in Sections 3 through 7 of this memo.

2. Review of Past Studies

To provide baseline information about local standards and procedures, the Study Team conducted a literature review of past studies and plans. This section provides a summary of major outcomes and projects along a number of important transportation corridors affecting the comfort and connectivity of all modes throughout the City. The following plans were reviewed as part of this study:

I. 2010 Citywide Traffic Study and Transportation Plan

The 2010 Transportation Plan, prepared by Sabra, Wang & Associates, Inc., collected and analyzed data on the City's existing and projected future transportation network. The Plan also developed a computer model of the City's street network, including roadway geometry, traffic volumes, and traffic control including traffic signal timing and phasing. The study covered three phases:

- Traffic data collection and existing conditions analysis
- Citywide traffic study and transportation plan
- Wayfinding services

The document identified short- and long- term strategies for 1) reducing congestion; 2) enhancing mobility and safety for all modes; 3) improving inter-modal connections; and 4) minimizing the impact on residential streets. The future conditions portion of the study projected:

- An increase of 3,000 am peak and 4,000 pm peak vehicle trips due to increased developments by year 2030.
- A more than 30 percent increase in daily traffic on State and County roads related to new developments in adjacent municipalities.
- Several intersections with LOS E or F during peak hours on State and County roads.

Related to connectivity and safety, the Plan also noted that few streets provide continuous east-west connections within Hyattsville (only two: Queensbury Road and Hamilton Street/40th Place/Crittenden Street). These streets currently carry mainly local traffic, but could experience increases from non-local traffic if State and County routes are at capacity.

Finally, the Plan called for the following short-term improvements:

- Develop and implement a Safe Routes to School program for Hyattsville Elementary
- Install speed cameras to increase compliance with posted speed limits in school zones:
 - US 1 at Farragut Street, Jefferson Street, Hamilton Street and/or Madison Street (St. Jerome's, Hyattsville Elementary, DeMatha)
 - MD 410 East-West Highway between Belcrest Road and Editor's Park Drive (Nicholas Orem, Concordia Lutheran)
 - 42nd Avenue at Oglethorpe Street (Hyattsville Middle)

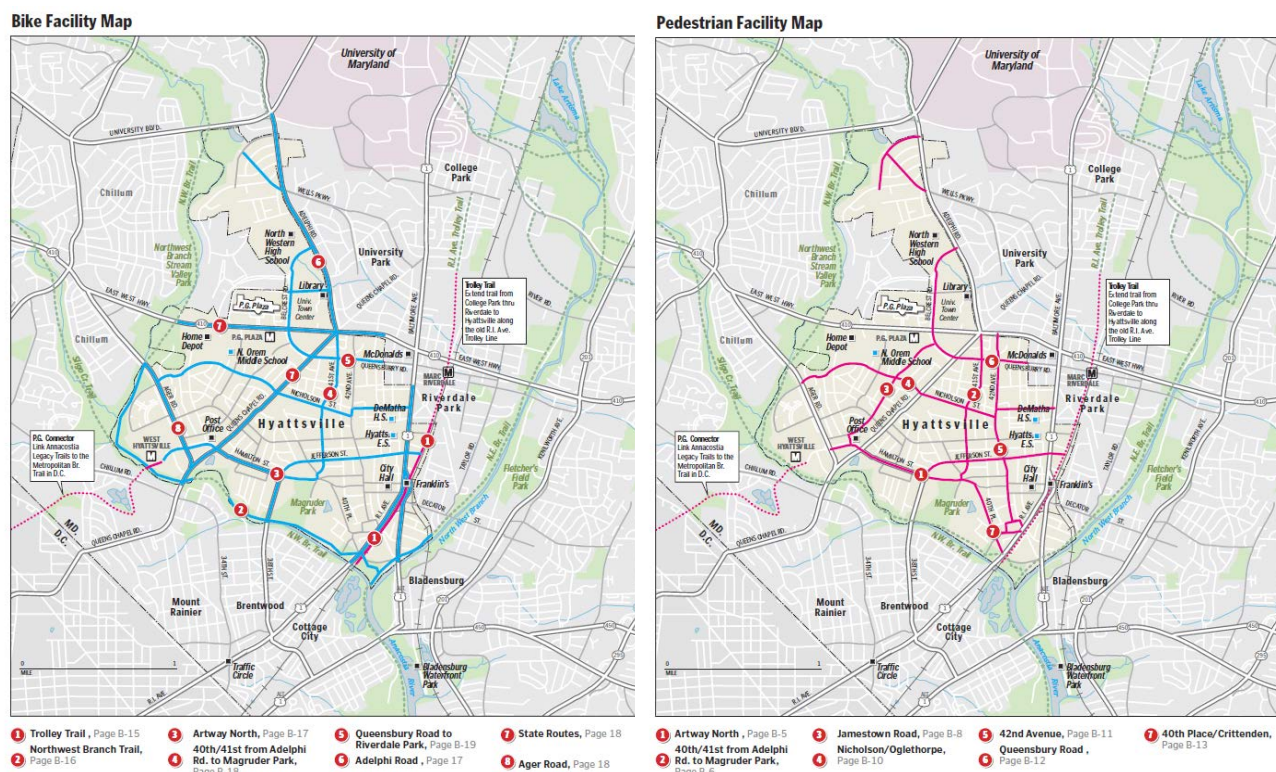
- o Adelphi Rd between Belcrest Road and Wells Parkway (Northwestern High School.
 - o Ager Road at Nicholson (West Hyattsville Elementary)
- Install new bicycle/pedestrian actuators:
 - o MD 208/ 38th Street south of Gaines Alley
 - o MD 500/ Queens Chapel south of Jamestown Road
- Install new sidewalks along 38th Avenue and Hamilton Street
- Work with WMATA to upgrade high-volume bus stops on Hamilton and 38th and East-West Highway and Toledo Terrace
- Work with SHA to finalize design and implementation of Queens Chapel Road streetscaping and crossings
- Work with SHA to review signal phasing/timing at
 - o Queens Chapel Road at Queensbury Road/ Belcrest Road
 - o US I from US I Alternate to East-West Highway
- Install access restrictions along Lancer Drive east of Queens Chapel Road to discourage cut-through traffic.
- Improve key pedestrian crossings at
 - o Adelphi Road at Wells Parkway
 - o Ager Road at Nicholson Street
 - o East-West Highway at Queens Chapel Road
 - o Queens Chapel Road at Queensbury Road
- Develop proposed cross-sections, signing and marking for implementation of key bicycle corridor connections (shared lanes, painted lanes, shoulder use, etc.)
 - o Adelphi Road and 40th Street/ Sheridan St (University Park) parallel to Adelphi Road
 - o Rhode Island Avenue Trolley Trail (US I)
 - o Ager Road
 - o Queens Chapel Road and/ or Jamestown Road parallel to Queens Chapel Road
- Intersection improvements to mitigate failing level of service
 - o US I Alternate at Armentrout Drive
 - o Ager Road at Nicholson Street, Ager Road at Lancer Drive
 - o Queens Chapel Road at Lancer, Longfellow, Jefferson, Madison, Manorwood, Nicholson, Oglethorpe and Oliver Streets

2. 2008 Pedestrian and Bicycle Study

This plan was developed by the Hyattsville Bicycle and Pedestrian Safety Committee which was established in 2006 and is comprised of residents and public officials. The six main recommendations of the plan pertain to:

- Designating pedestrian routes (see figure below)
- Establishing and/or improving bike routes (see figure below)
- Pursuing major intersection safety improvements
- Ensuring well-lit streets
- Making ADA-compliant pedestrian access a high priority
- Implementing city-wide sidewalk standards

Figure 1: Proposed Bicycle and Pedestrian Routes



Several corridors were designated bicycle and pedestrian routes and as such received several recommendations which were then prioritized into three tiers: 1) urgent, 2) important, 3) not immediate. The following projects received the highest prioritization based on safety concerns:

- 38th Avenue sidewalk installation (Hamilton to Northwest Branch Trail)
- 41st Avenue Intersection with Queensbury
- Artway North pedestrian and bicycle improvements
- 40th and 41st Avenue pedestrian route improvements
- Belcrest at East-West Hwy intersection improvements
- Belcrest at Queens Chapel intersection improvements
- Jamestown Road pedestrian route improvements
- Northwest Branch Trail at US I intersection
- Northwest Branch Trail at Queens Chapel intersection improvements
- Northwest Branch Trail re-designation as a M-NCPPC commuter route and lighting of the trail
- Trolley Trail installation parallel to US I on old trolley right-of-way, North of the Flatiron Building.

3. 2014 West Hyattsville Pedestrian Safety Study

The West Hyattsville Pedestrian Safety Study, completed by The Traffic Group in 2014, focused on assessing pedestrian safety along the following roadways:

- Ager Road
- MD 500 – Queens Chapel Road
- Hamilton Street (west of MD 500)
- MD 208 – (Hamilton Street/ 38th Street)

The study provided an overview of the crash history, followed by a breakdown of incidents, and their specific locations. Majority of the recommendations in the study focused on providing adequate signage, sidewalk maintenance and ADA compliance of the roadways.

Some of the major improvements recommended along these corridors included:

- MD 208 – (Hamilton Street/ 38th Street)
 - o Install new sidewalks at 3600 block and 3508 Hamilton Street,
 - o Install adequate sidewalk and ramps on three commercial entrances on the south side of intersection with 35th Avenue.

4. 2015 City of Hyattsville Customer Preference Survey: Shopping and Parking Preferences

This survey, completed by the City in 2015, was conducted to better understand behaviors of residents and visitors to Gateway Arts District in Hyattsville. The survey asked questions related to demographics, reasons for spending time in the District, parking habits, transportation modes, and desired improvements. Relevant findings included:

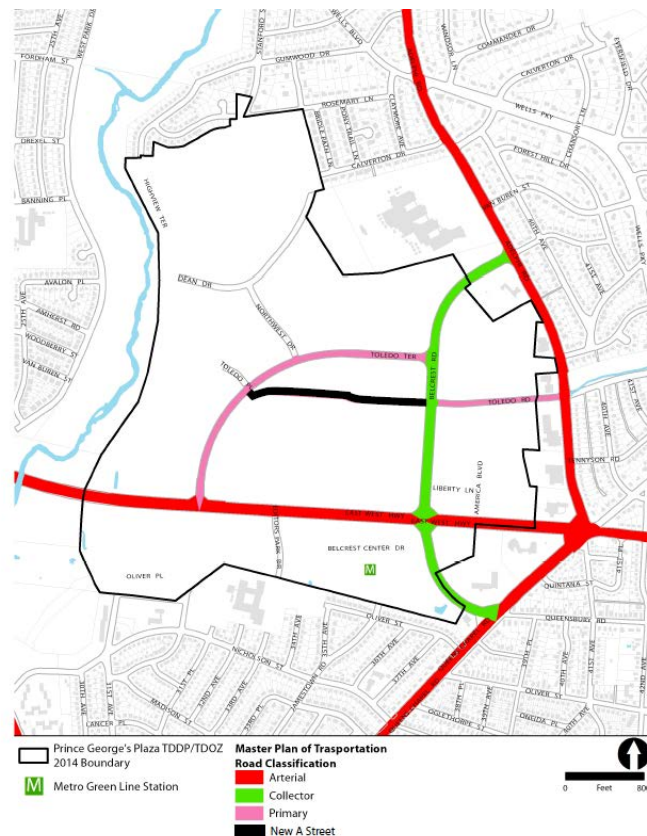
- 36 percent of respondents park their car in the District weekly
- 8.9 percent of respondents desire improved sidewalks and street lighting in the District
- 18 percent of respondents desire more convenient parking in the District
- 3.4 percent of respondents desire more frequent/reliable bus service in the District
- 5.1 percent of respondents desire bikeshare stations
- Proximity of parking to destination is more important than lower parking rates
- “Other” transportation modes used to visit Hyattsville:
 - o Bike/scooter: 16.1 percent
 - o Walking: 10.6 percent
 - o Bus: 32 percent
 - o Metro 12.7 percent
 - o Just car: 22.3 percent
 - o Other: 6.9 percent

5. Prince George's Plaza Transit District Development Plan

This Plan completed by MNCPPC-PG in July 2016, focused on amending and providing updates to the Prince George's Plaza Transit District. This update guides and coordinates development around the existing Prince Georges Plaza Metro station - focusing development under three main themes: 1) Smart Growth; 2) Placemaking; and, 3) Fostering healthy communities. Directly related to transportation, the plan:

- Establishes a policy and regulatory framework that promotes walkable transit-oriented, mixed-use development.
- Transforms the underutilized Prince George's Plaza Metro Station and auto-oriented MD 410 (East West Highway) by integrating and connecting the Metro station with development to the north and transforming the roadway into a pedestrian- and bike-friendly boulevard.
- Recognizes the importance of the natural environment—specifically the Northwest Branch Stream Valley Park and Wells Run—and incorporates best planning and development practices to ensure a comprehensive and sensitive approach to environmental stewardship, neighborhood compatibility, and pedestrian and bicycle connectivity.

Figure 2: Existing and Proposed Streets and Road



Recommendations of importance to the Transportation Study include:

- Restripe MD 410 to implement the road-diet concept.
- Install traffic signal at the MD 410/America Boulevard and MD 410/Editors Park Drive intersections.
- Evaluate and implement (if feasible) a protected bike lane on MD 410.
- Consider the use of bike boxes at all signalized intersections with dedicated bike facility.
- Increase bicycle and pedestrian connections to neighborhoods south of the Transit District.
- Create a formal bicycle and pedestrian connection between multifamily properties on the northern side of the Transit District and Northwestern High School.
- Extend Toledo Road as two-lane street with on-street parking and bicycle accommodation between Belcrest Road and Toledo Terrace.

- Add interim bike lanes on Toledo Terrace. Replace bike lane with on-street parking after Toledo Road is extended to Toledo Terrace.
- Construct a hard surface trail between Adelphi Road/Toledo Road and Northwest Drive/Dean Drive intersections.
- Construct a hard surface trail from Toledo Terrace to the Northwest Branch Trail via Toledo Place.
- Design and construct a bicycle facility on or adjacent to MD 410 between Toledo Terrace and 23rd Avenue, including connection to the Heurich Park and Northwest Branch Trail.
- Construct a series of bicycle facilities along Belcrest Road.
- Evaluation of 30-mph speed limit on MD 410 – pending SHA/DPW&T approval and implementing a 25-mph speed limit on all other local roads.
- Strengthening the pedestrian environment by the widening of sidewalks (where appropriate), installing street furniture, increasing wayfinding, improving lighting, discouraging the use of slip lanes and right-turn only lanes.

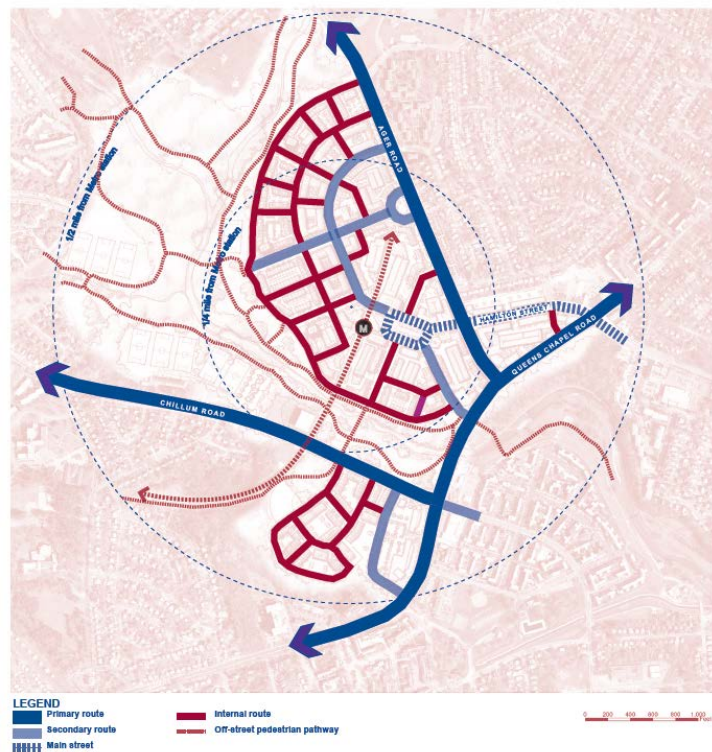
6. West Hyattsville Transit District Development Plan

This Plan, completed by MNCPPC-PG in July 2006, focused on providing updates to the existing West Hyattsville Transit District Overlay Zone. Three main themes guided the development of the plan: 1) maintaining existing neighborhoods; 2) environmental stewardship, and 3) increase transportation options.

The document provides a set of specific streetscape standards, and recommendations related to design and type of parking. It also delineated the character and function of a various roadways throughout the West Hyattsville area (see figure below). Ager Road, Queens Chapel Road and Chillum Road were identified as primary transportation routes.

The Plan also provided conceptual recommendations related to the internal connectivity of the street network within the Transit District.

Figure 3: Proposed Street Typology



7. Gateway Arts District Sector Plan

The plan amended the 1994 *Approved Master Plan and Sectional Map Amendment for Planning Area 68* and the 2002 *Prince George's County Approved General Plan*. The Sector Plan was developed by MNCPPC-PG and designated 'Artway Routes' to help make a number of streets connecting to Route 1 (Baltimore Avenue) corridor more inviting. The Plan also called for the installation of traffic calming throughout the Arts District routes to provide more comfortable facilities for bicyclists and pedestrians. The following three corridors were identified as "Artway Routes" connecting the West Hyattsville Metro Station to the Route 1 (Baltimore Avenue) corridor:

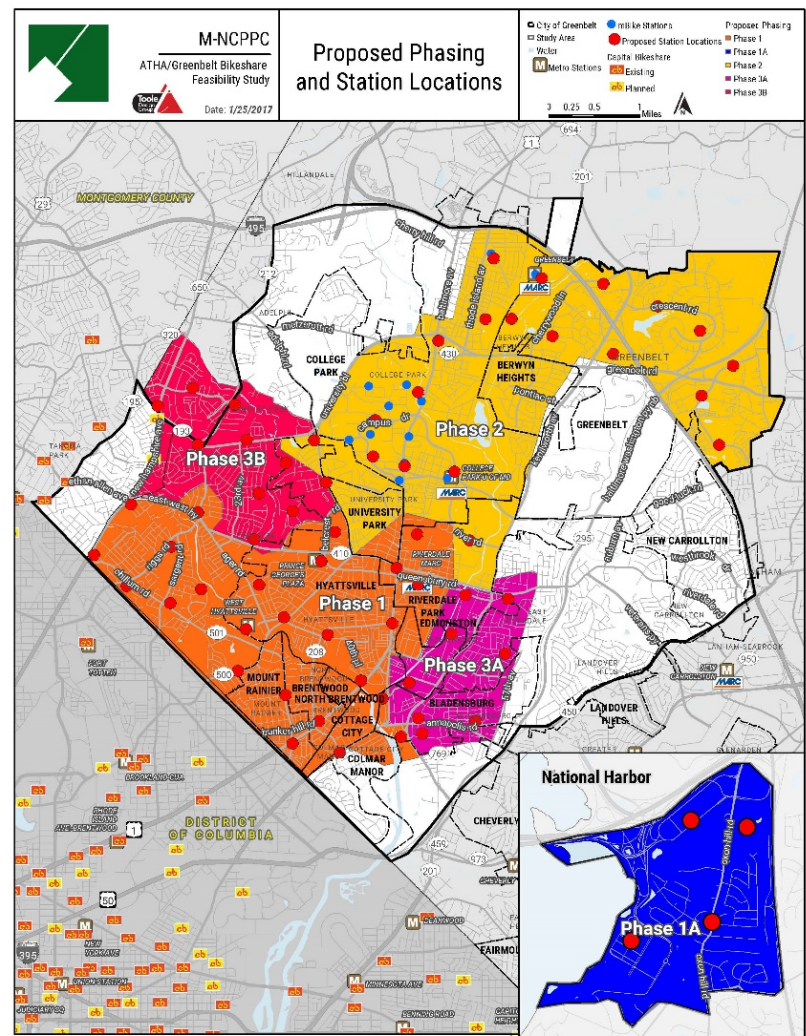
- Artway South – Chillum Road/34th Street
- Artway Central – Northwest Branch Stream Valley Park Trail
- Artway North – Hamilton Street/Gallatin Street

8. ATHA Bikeshare Study

This study, completed by MNCPPC-PG in 2016 considered the feasibility of implementing a bike share program in the Anacostia Trails Heritage Area and National Harbor areas of Prince George's County. Based on the analysis of existing conditions, feedback received from stakeholder input, and, conversations with county officials and agencies, expansion of the existing Capital Bikeshare program (currently in the District of Columbia and Montgomery County) was recommended. The recommended phasing and generalized station locations can be found in the figure on the right.

The report recommended the implementation of eight bike share stations within the city limits as part of Phase I rollout. These locations include:

Figure 4: Proposed Phasing and Bikeshare Station Locations



- West Hyattsville Metro
- Ager / Nicholson
- Jefferson / Baltimore
- Queens Chapel / Hamilton
- PG Plaza Metro
- University Town Center
- Hamilton / 38th
- Melrose Skatepark

9. Hyattsville Elementary School Safe Route to School Plan

The 2011 Hyattsville Elementary School Safe Route to School Plan, completed by Sabra, Wang & Associates, Inc., identifies ways to improve safety and accessibility for pedestrians and bicyclists during arrival and dismissal. The document includes an evaluation of existing conditions near the school and observations, as well as an overview of the current road network, traffic operations, pedestrian and bicycle facilities, and problematic intersections. Surveys were conducted to assess walking and bicycling behaviors. The plan contains recommendations for Safe Routes to School projects, short- and long-term engineering, and strategies for school zone operation improvements.

Specific standards included:

- The Maryland Safe Routes to School Handbook recommends a walking radius of 1-2 miles from the school site location.
- Any students volunteering for crossing guard positions should be given an advanced education course using the Maryland Safe Routes to School brochure from Maryland Highway Safety Office.

Specific recommendations included:

- Installing stop sign controls, crosswalks, ramps, and stop bars along Jefferson Street at both the east and west legs of 43rd avenue
- Installing reduced speed (20 mph) signs along Jefferson Street and 43rd Avenue
- Focusing on making improvements along key walking routes including 42nd Avenue, Longfellow Street, Jefferson Street, Gallatin Street, and 38th Street.

3. Data Collection and Assessment

To develop an understanding of existing conditions throughout the City, various data collection related tasks were executed. This section provides a summary of each data collection task.

Collection of GIS data from the City

Following the project kickoff meeting in June 2017, Study Team requested Geographic Information System (GIS) layers from the City to help with the construction of base maps, traffic and transportation analyses. The City also shared their branding guidelines so that all project materials conform to Hyattsville's standards. Table 1 shows a list of requested data.

Table 1: Requested Data from the City

Transportation	Planning	Other
Road centerline	Recent planning documents	Vector logos
AADT	Approved private developments	Branding guidelines
Functional classification	Land use – existing / future	
Posted speed limits	Parcels	
Number of lanes	Traffic analysis zones (TAZ)	
Presence of on-street parking	Topographic contours	
Pavement width	Major transmission lines/ROW	
Shoulder width	Water features	
Curb and gutter data	City Boundaries	
Bicycle facilities/trails	Regional Attractions	
Transit (bus and rail)		
Crash data		
Traffic modeling data		

In addition to the GIS data described above, cell phone data captured between the months of September 2016 and August 2017 was used to assess local and regional travel behaviors.

Additional traffic modeling, forecast, and operational modelling files were requested by the Study Team. These were derived from the Maryland Department of Transportation State Highway Administration (MDOT SHA) Travel Forecasting and Analysis Division (TFAD) data.

Field Assessment

Field observations with a focus on key roadways and intersections were conducted to record characteristics of the existing transportation network. The main purpose of these observations was to note operational and/or safety deficiencies, as well as to validate the models that will be used to develop recommendations on the future conditions portion of the Study.

Field observations were conducted during the period of October 7 through 16, 2017. Prior to beginning the field assessment, the Study Team worked with city staff to develop the methodology and data inputs. The methodology focused on evaluating a variety of street types and intersections, based on the existing functional classification. The Study Team collected data including photos and geocoded information so that it was easily integrated with the GIS data provided by the City.

To streamline the data collection, TDG developed an online inventory using the publicly-available Fulcrum app on a portable tablet. The table below provides a summary of the data collected:

Table 2: Field Assessment – Proposed Data to be Collected

Intersections (points)	Corridors (lines)
Number of curb extensions	Posted speed
Number and condition of curb ramps	Street width
Existing traffic control device	Traffic flow (ex. one-way, two-way, other)
Number and type of crosswalk	Existence of parking lanes
Lighting type	Existence of traffic calming treatments
	Lighting type
	Presence and width of sidewalks

Concurrent with the development of the methodology, the Study Team collaborated with City staff to prioritize corridors and intersections for field assessment. A map of prioritized corridors and intersections for field work can be found in Figure 5 below. Data was collected for 39 study intersections and over 16 miles of mostly city owned and maintained roadways. Queens Chapel Road, which is a state-owned facility, was included in the assessment due to its prominent location separating major residential neighborhoods in the City.

Summary of Findings

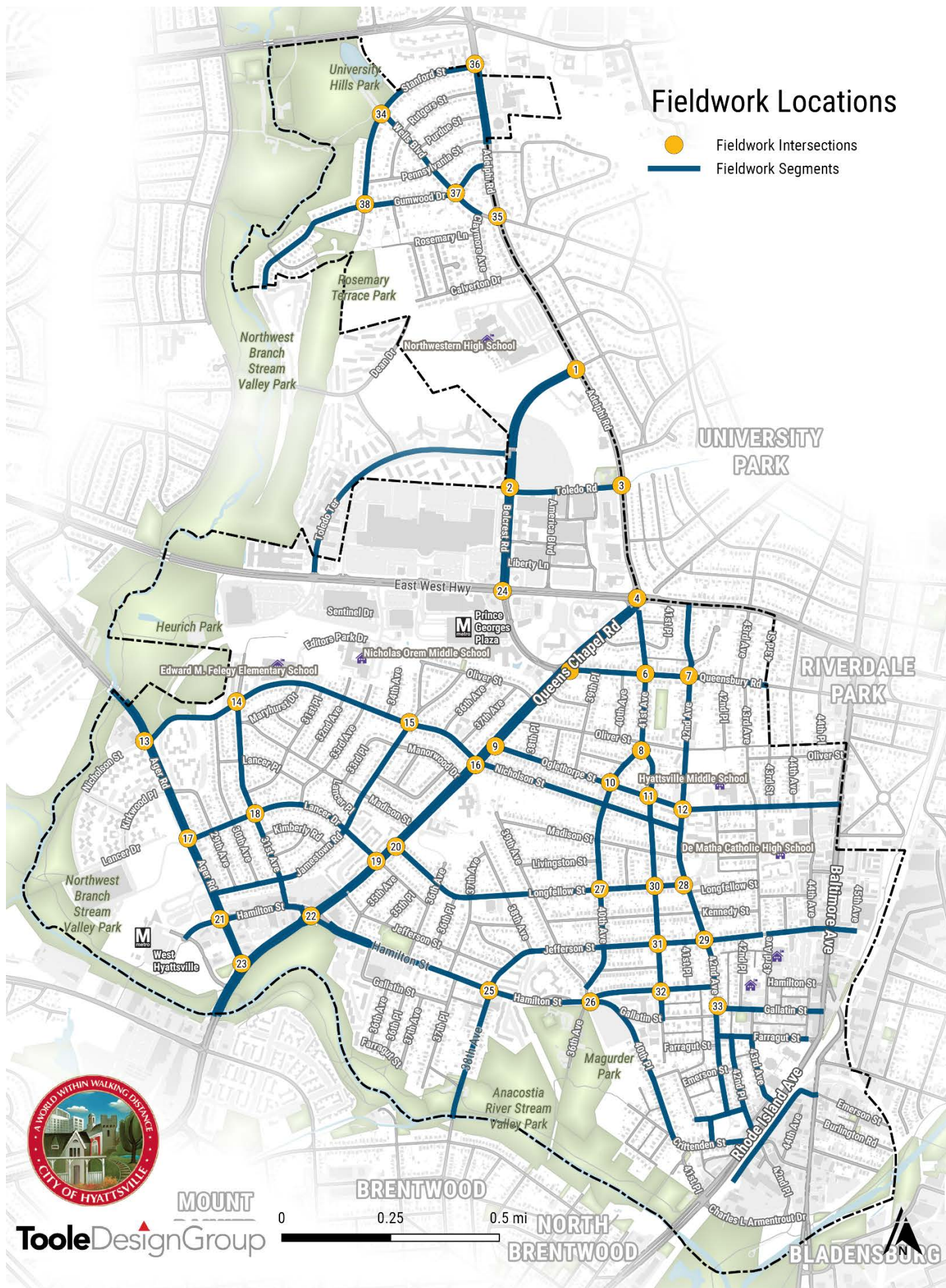
The following section describes the findings and observations from the data collection and provides thematic maps as a reference.

Intersections Assessment – Crosswalk Type

Approximately 38 percent of the studied intersections (15 of 39) did not have any crosswalks. These intersections were:

- Adelphi Road and Stanford Street
- Stanford Street and Wells Road
- Gumwood Drive and Stanford Street
- Gumwood Drive, Wells Boulevard, Wells Parkway and Notre Dame Street
- Oglethorpe and 41st Avenue
- 41st Avenue and Longfellow Street
- 40th Avenue and Longfellow Street
- 41st Avenue and Jefferson Street
- 42nd Avenue and Longfellow Street
- Queens Chapel Road and Oglethorpe Street
- Queens Chapel Road and Nicholson Street
- Queens Chapel Road and Longfellow Street
- Queens chapel Road and Lancer Drive
- Lancer Drive and 31st Avenue
- Lancer Drive and Ager Road

Figure 5: Proposed Fieldwork Locations



Most of the intersections that did not have crosswalks are located along local streets. These include 41st Avenue, 42nd Avenue, and Lancer Drive among others.

High-visibility crosswalks are present in 36 percent (14 of 39) of all intersections studied. Most high visibility crosswalks are in good condition and comply with Manual on Uniform Traffic Control Devices (MUTCD) standards. However, some crosswalks particularly on major roadways including Queens Chapel Road are faded, presenting potential safety issues.

About one-quarter (10 of 39) of all intersections studied include continental (double parallel lines) crosswalks. Figure 7 illustrates crosswalk inventory findings.

Intersections Assessment – Traffic Control Devices

As part of the intersection assessment, the Study Team documented the type of existing traffic control device. As noted in Figure 8 below, 28 percent (11 of 39) of intersections assessed included traffic signals, 44 percent (17 of 39) included four-way stops; 20 percent (8 of 39) were controlled using two-way stops; and only the intersection of Hamilton and 42nd Avenue which does not require a traffic control device because of its traffic patterns (i.e., one way), did not have one.

Intersections with traffic signal controls are concentrated along Adelphi Road, Queens Chapel Road, Ager Road, and Belcrest Road while the majority of four-way stop controlled intersections were found along 40th Avenue, 41st Avenue, and 42nd Avenue. At the time field observations were conducted, Queens Chapel Road was under construction. However, it should be noted that only the only signalized crossings of Queens Chapel Road are at Hamilton Street and Belcrest Road-Queensbury Road. These crossings are located at 0.8 miles apart. The operational analysis of the intersections is presented in Section 6.

Figure 6: Existing High Visibility Crosswalk on Intersection of Oglethorpe Street and 42nd Avenue



Intersections Assessment

Existing Crosswalk Type

- High Visibility
- Continental (double parallel line)
- None

Map showing intersections and crosswalk types in the University Park area. The map includes a legend for 'Existing Crosswalk Type' with three categories: High Visibility (yellow circle), Continental (double parallel line) (teal circle), and None (red circle). The map shows various streets and parks, with intersections numbered 1 through 39. A scale bar indicates 0 to 0.5 miles. The map is titled 'Intersections Assessment' and includes the City of Hyattsville logo and TooleDesignGroup logo.

Figure 8: Intersections Assessment - Existing Traffic Control Devices



Segments Assessment – Infrastructure Inventory

During the field assessment, Study Team took inventory of the selected roadway segments. Table 3 provides inventory of the segments. Figure 9 and Figure 10 denote the existing functional classification and right-of-way (ROW) ownership of the study segments. The traffic operation and circulation on these roadways and study intersections is further described in Section 4 of this memorandum.

Table 3: Fieldwork Segment Characteristics

Roadway	Functional Classification	Ownership	Travel lanes	Posted Speed	Bike Facility	Sidewalk	Existing Parking
31ST AVE	Local	City	2	25	None	Yes	No
38TH AVE	Collector	City	2	25	None	Partial	Partial
40TH AVE	Local	City	2	25	Sharrow	Yes	Partial
41ST AVE	Local	City	2	25	None	Partial	No
42ND AVE	Local	City	2	25	None	Yes	Partial
42ND PL	Local	City	2	25	None	Yes	Partial
43RD AVE	Local	City	2	25	None	Yes	Partial
ADELPHI RD	Local	County	2	25	Sharrow	Yes	Yes
AGER RD	Local	County	4	25	None	Partial	No
BELCREST RD	Local	County	4	25	None	Yes	No
CRITTENDEN ST	Local	City	2	25	None	Yes	No
DECATUR ST	Local	City	2	25	None	Partial	Partial
FARRAGUT ST	Local	City	2	25	Sharrow	Yes	Partial
GALLATIN ST	Local	City	2	25	Sharrow	Yes	No
GUMWOOD DR	Local	City	2	25	None	Partial	Yes
HAMILTON ST	Collector	City	4	35	None	Yes	No
HAMILTON ST	Local	City	4	25	Bike Lane (Partial)	Yes	Yes
JAMESTOWN RD	Local	City	2	25	None	Yes	Yes
JEFFERSON ST	Local	City	2	25	None	Yes	No
LANCER DR	Local	City	2	25	None	Yes	No
LONGFELLOW ST	Local	City	2	25	None	Yes	Partial
NICHOLSON ST	Local	City	2	25	Sharrow	Yes	Partial
NICHOLSON ST	Local	City	2	25	Sharrow	Yes	Yes
NOTRE DAME ST	Local	City	2	25	None	Partial	Yes
OGLETHORPE ST	Local	City	2	25	None	Yes	No
QUEENS CHAPEL RD	Arterial	SHA	4	35	Sharrow	Yes	No
QUEENSBURY RD	Local	City	2	25	None	Partial	No
STANFORD ST	Local	City	2	25	None	Partial	Yes
TOLEDO RD	Local	City	2	25	None	No	No
TOLEDO TER	Local	County	2	25	None	Partial	No
WELLS BLVD	Local	City	2	25	None	No	Yes

Functional Classification

- Regional Arterial (Solid Red Line)
- Local Arterial (Dashed Red Line)
- Regional Collector (Solid Blue Line)
- Local Collector (Dashed Blue Line)
- Local (Solid Yellow Line)
- Private (Thin Grey Line)

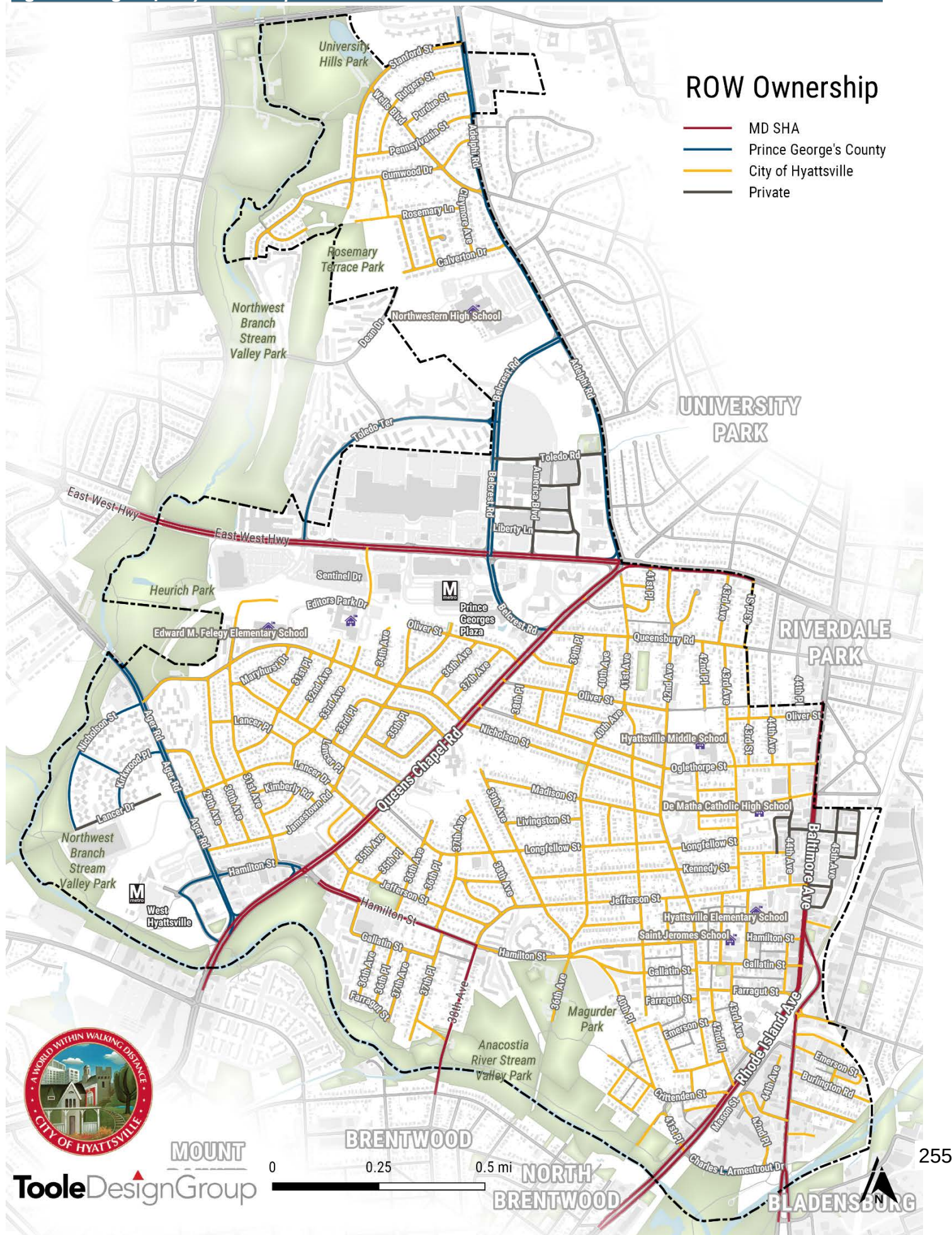
Map Labels: University Hills Park, Northwest Branch Stream Valley Park, Heurich Park, Edward M. Felegy Elementary School, Nicholas Orem Middle School, UNIVERSITY PARK, RIVERDALE PARK, MOUNT BENTWOOD, NORTH BENTWOOD, Anacostia River Stream Valley Park, Charles L. Armentrout Dr.

Scale: 0 to 0.5 miles

Logo: A WORLD WITHIN WALKING DISTANCE CITY OF HYATTSVILLE

Design: TooleDesignGroup

Figure 10: Right of Way Ownership



Segment Assessment - Pedestrian Conditions

The City of Hyattsville has a comprehensive network of sidewalks illustrated in Figure 12. Areas without sidewalk coverage tend to be residential neighborhoods, and while sidewalk coverage is fairly comprehensive throughout the city, some sidewalks have temporary or permanent obstructions that impede pedestrians such as trash cans, utility poles, or other obstacles (see Figure 11).

Throughout the City, there is significant variability in the presence and quality of other pedestrian facilities such as curb ramps, crosswalks, pedestrian signals, accessible bus stops, wayfinding, and regulatory signage. At various intersections, faded crosswalks were noted, particularly across wider roadways. There are also areas of the City where substandard or missing curb ramps create barriers for people with disabilities and people pushing strollers, particularly across or along larger roadways such as Queens Chapel Road, Ager Road, and Baltimore Avenue (Route 1). Similarly, while some traffic signals provide pedestrian countdown signals, many of these feature an older type of signal without a countdown, or none at all.

Figure 11: Existing Sidewalk Obstruction on Local Street



Segments shown in red in Figure 13 represent road segments with no sidewalks and/or segments where the sidewalk width is less than 4 ft. (the minimum allowed width under ADA standards). Of the over 16 miles of roadway assessed, 10 percent did not have any sidewalk. These were:

- Wells Boulevard and Wells Parkway, from Stanford Street to Adelphi Road.
- Gumwood Drive, from Stanford Street to Wells Boulevard
- Notre Dame Street, from Wells Boulevard to Adelphi Road
- 41st Avenue, from Oglethorpe Street to Nicholson Street
- 41st Avenue, from Longfellow Street to Kennedy Street
- 41st Avenue, from Ingraham Street to Farragut Street
- Decatur Street, from 42nd Place to 41st Place
- 42nd Avenue, from Decatur Street to Crittenden Street
- Rhode Island Avenue, from Baltimore Avenue (Route 1) to 42nd Place.

Sidewalk gaps along Queens Chapel Road and Ager Road contribute to particularly problematic pedestrian conditions due to do the free right turn from Ager to Queens Chapel Road. Sidewalk gaps on the historic neighborhood are concentrated along 38th Avenue, 41st Avenue, and 42nd Avenue.

Sidewalk Coverage

- Existing Sidewalk
- Water
- Park

Northwest Branch Stream Valley Park
University Hills Park
Rosemary Terrace Park
Northwestern High School
UNIVERSITY PARK

Adelphi Rd
Pennsylvania St
East West Hwy
Belcrest Rd
Toledo Ter
Sentinel Dr
Editors Park Dr
Freedom Way
Liberty Ln
Democrat Ave
American Blvd
Belcrest Center Dr
Belcrest Rd
Queens Chapel Rd

0 0.25 0.5 mi

TooleDesignGroup

Figure 13 B: Sidewalk Coverage

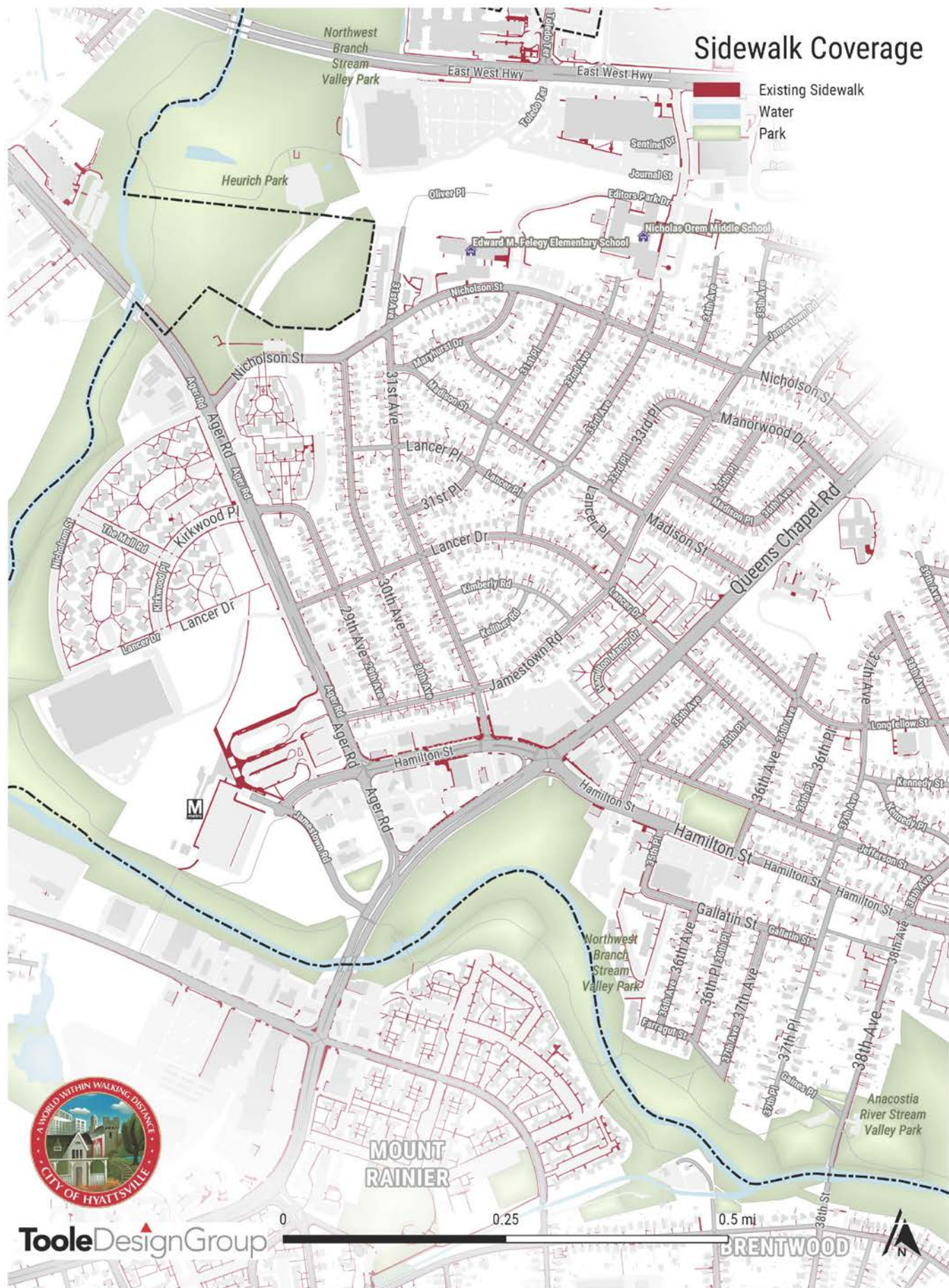


Figure 14 C: Sidewalk Coverage

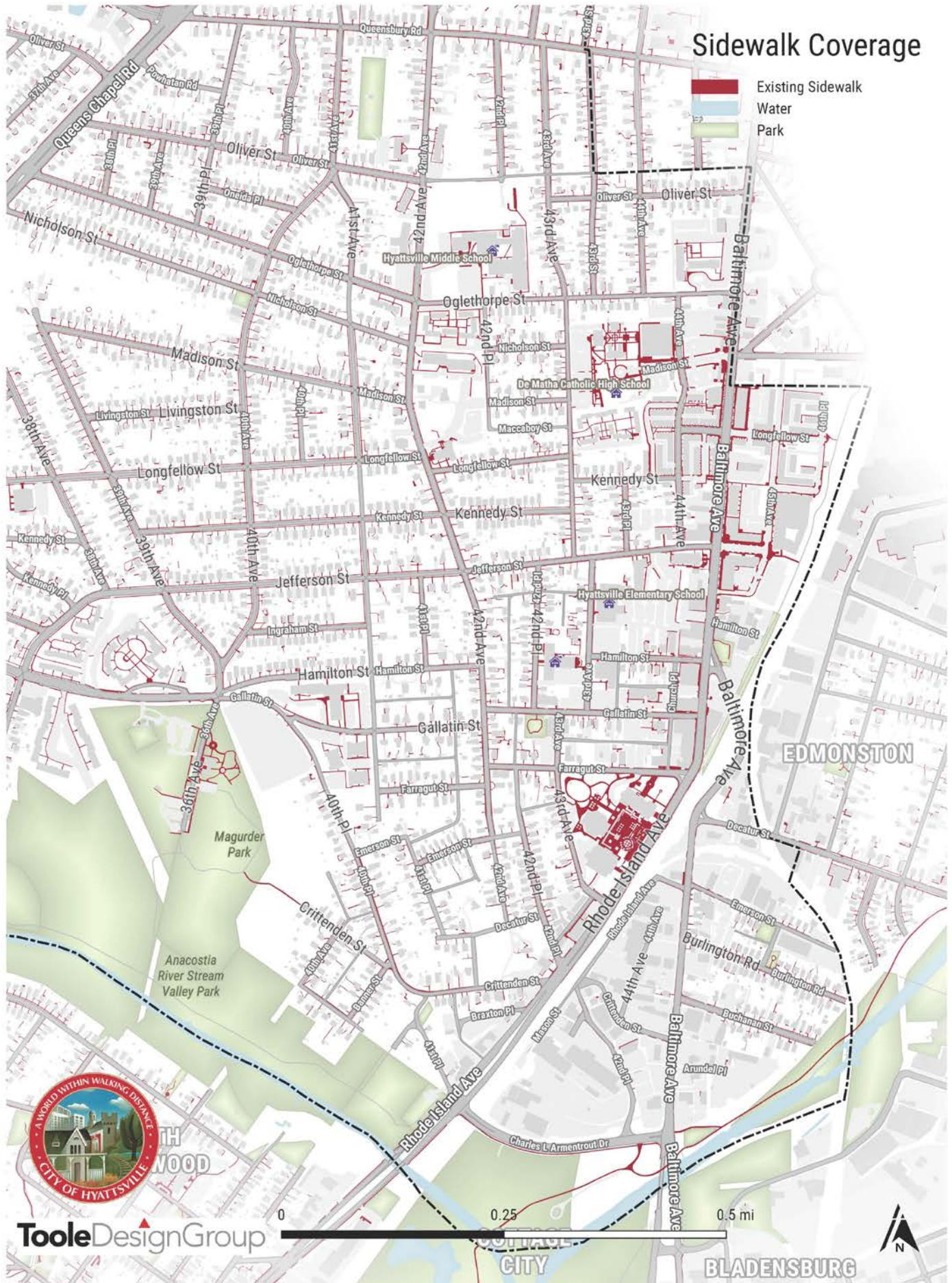
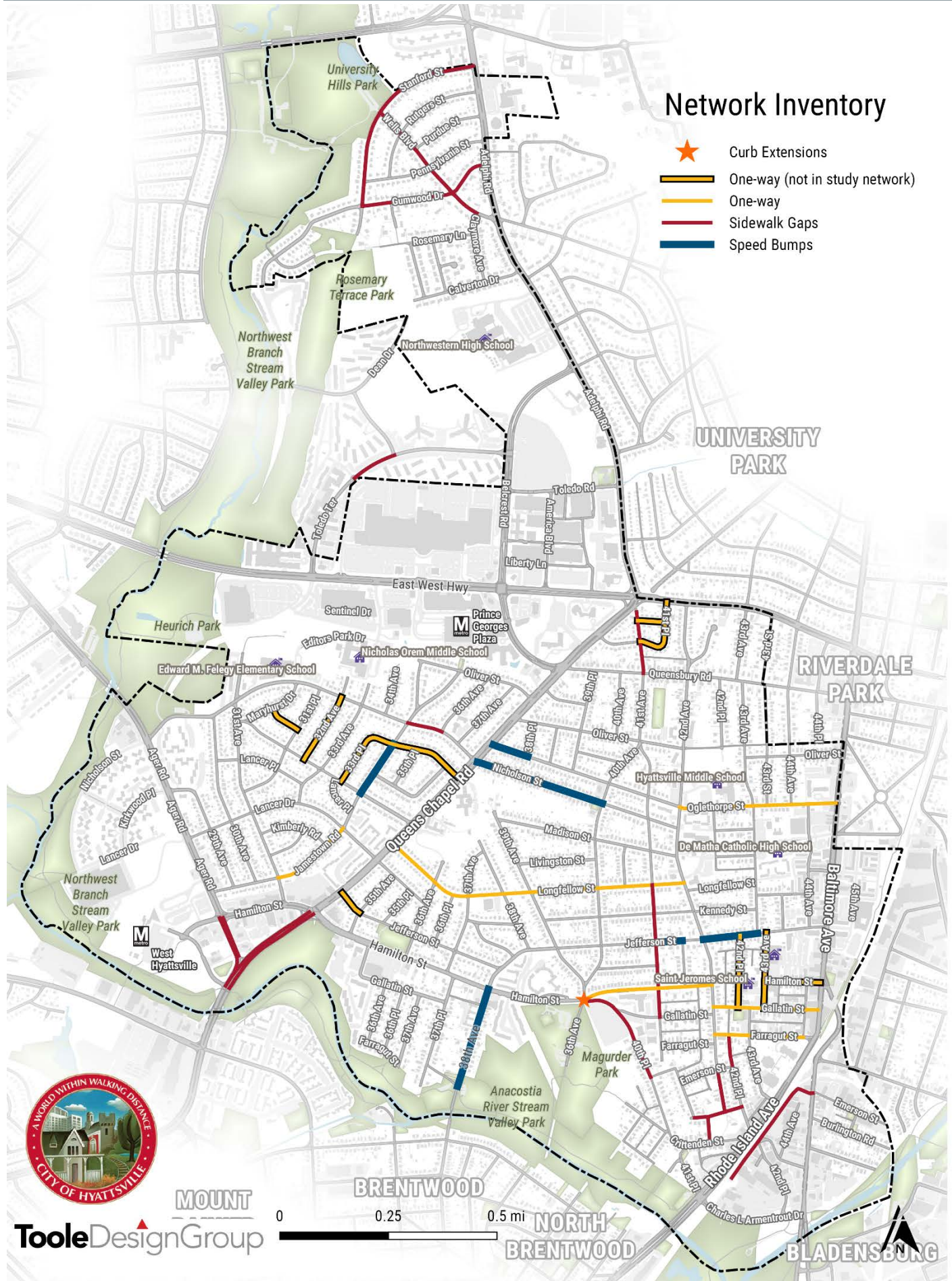


Figure 15: Segment Assessments



Field surveyors also noted that while Baltimore Avenue (Route 1) was not part of the field study network, various sidewalks were adjacent to relatively high speed vehicular traffic (Figure 14). Additionally, inconsistent sidewalk widths, sidewalk buckling, and exposed pipes adjacent to the sidewalk made it difficult for pedestrians to travel along the corridor.

Figure 16: Existing conditions along Baltimore Avenue (Route 1)



Figure 17: Missing Curb Ramps in Front of St. Jerome Academy (left); Faded Crosswalk on Adelphi Road (right)



While a complete field review of all pedestrian facilities was outside the scope of this study, several bus stops along major corridors did not provide accessible landing pads or connections to existing sidewalks. This can make it difficult for residents and visitors with disabilities to use the existing bus service.

Uneven sidewalks and sloping driveways were also found. These represent additional impediments for pedestrians with disabilities and parents using strollers along sidewalks.

Finally, in some areas that experience higher pedestrian volumes (ex. close to elementary and middle schools), existing sidewalk widths were found to be ADA compliant (i.e., more than 4 ft. wide), do not comfortably accommodate bi-directional pedestrian traffic or two strollers walking side by side as noted in the figure below.

Figure 18: Uneven Sidewalk (left) and sloping driveways create access management issues on sidewalks (right)



Figure 19: Existing Sidewalk is too Narrow to Accommodate side-by-side stroller traffic.



Segment Assessment - Bicycle Infrastructure:

The overall conditions of existing bicycle infrastructure throughout the City of Hyattsville is in fairly good condition. The existing bicycle network in the city consists of on-street facilities mostly in the form of shared-lane markings or sharrows, and off-street trails, with both the Northeast and Northwest Branch trails bordering the city. Table 4 and Figure 19 provide a summary of existing and planned bicycle infrastructure in Hyattsville.

Table 4: Existing Bicycle Facilities (miles)

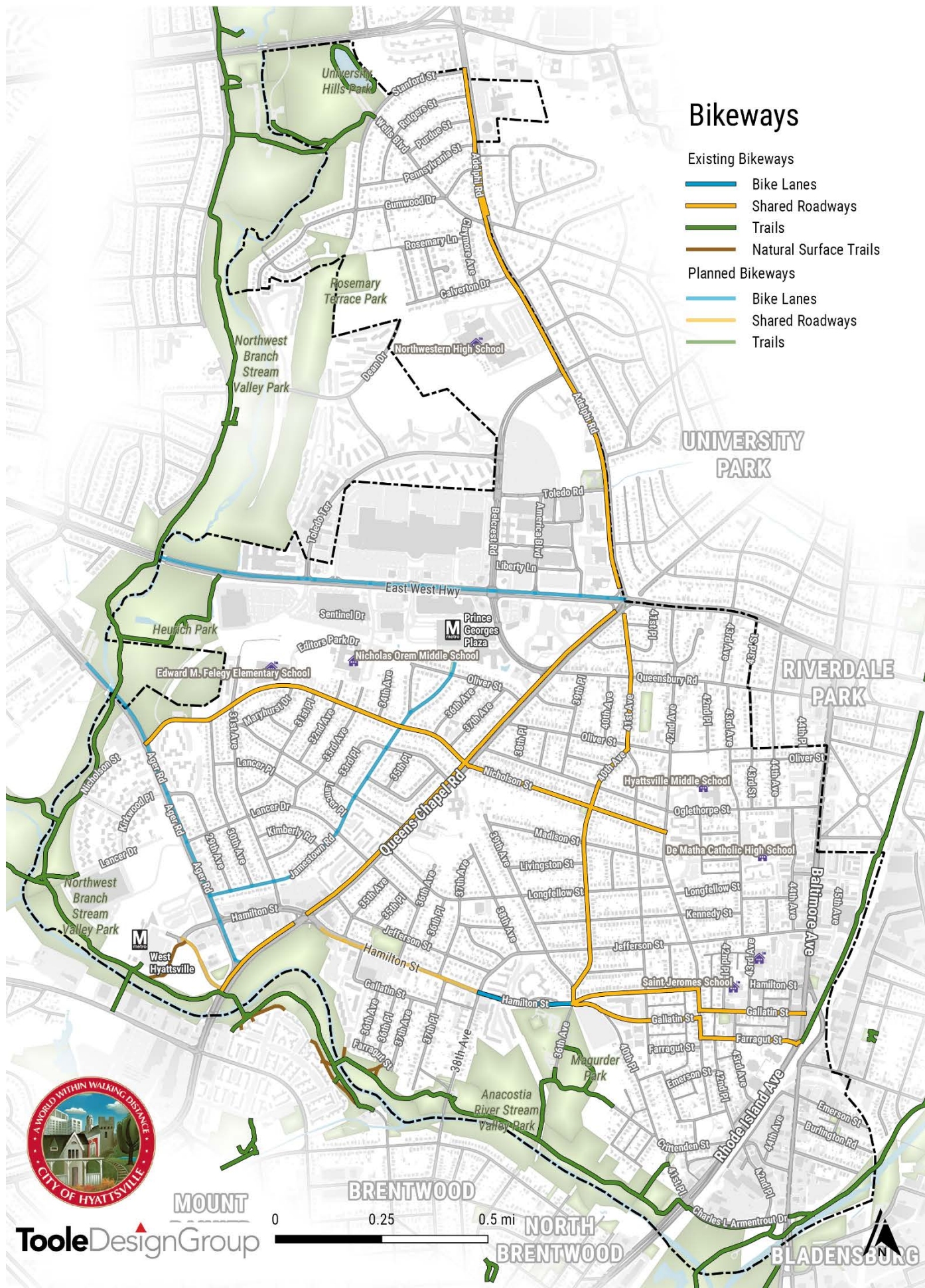
Type of Facility	Miles
Bike Lane	0.22
Trail	24.49
Shared Roadway	6.44
Total	31.15

A network of sharrows, as shown in Figure 18, and wayfinding currently exists on Hamilton Street, Nicholson Street, 40th Avenue, and Gallatin Street. The existing narrow streets in addition to existing 25 mph posted speed limits in most local streets, make it relatively easy for residents and visitors to traverse the City. However, existing one-way street configurations on Longfellow Street, Oglethorpe Street, Hamilton Street, Gallatin Street, and Farragut Street make circulation cumbersome and circuitous for bicyclists, especially throughout Downtown Hyattsville. Further, one-way circulation in some of these corridors provides overly-wide travelways to motorists which may encourage drivers to speed, reducing safety and comfort for people walking and bicycling.

Figure 20: Existing Wayfinding does not comply with current MUTCD Standards



Figure 21: Bikeways



Wayfinding

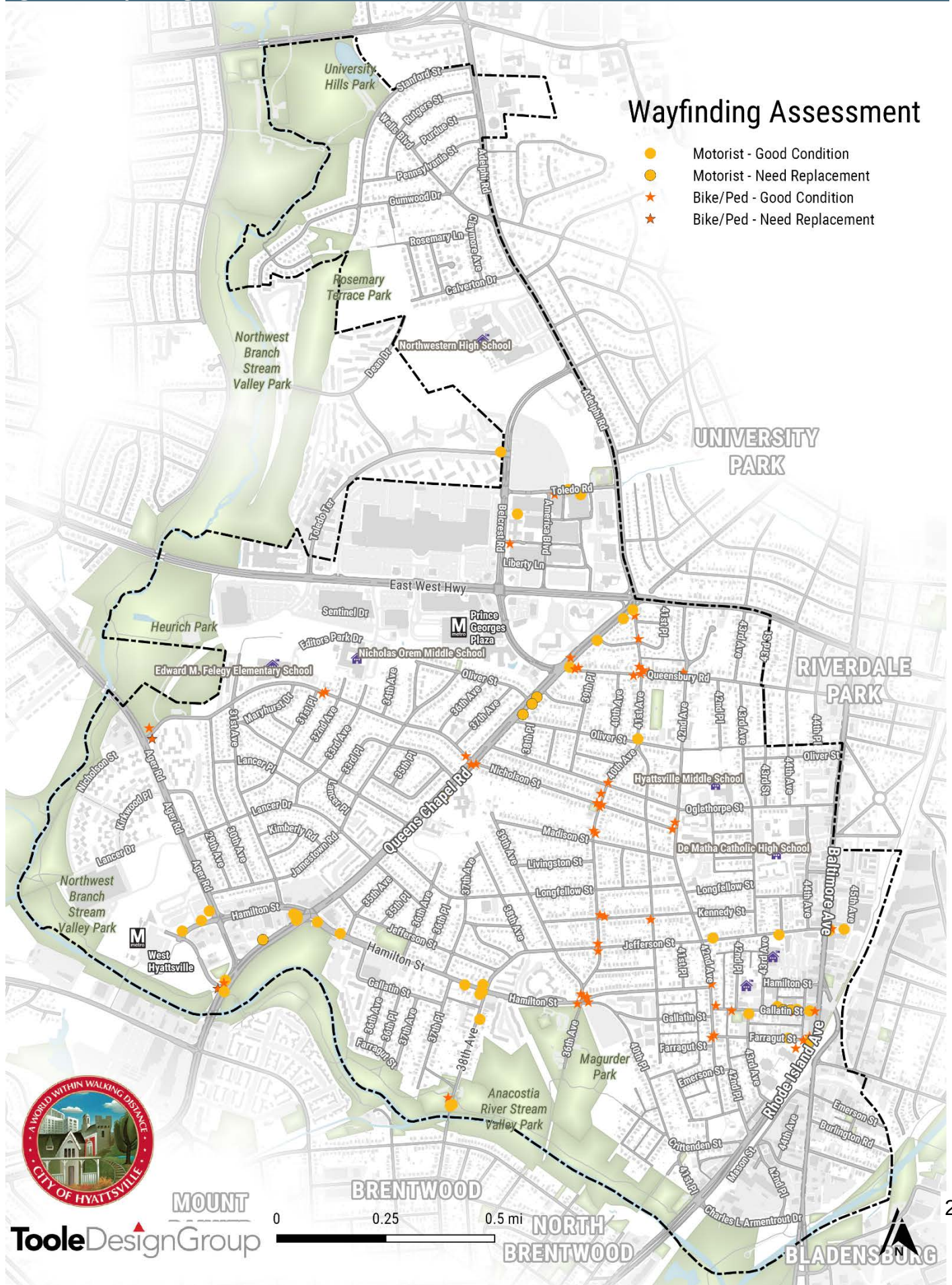
Existing wayfinding signs are generally in good condition and are concentrated along existing bicycle and pedestrian routes. Figure 21 presents the types and conditions of existing wayfinding signs assessed. Many of the signs found throughout the study area, however, do not comply with MUTCD size, color or font standards, and does not have a consistent design that showcases the City's unique character and branding. The Study Team also found that existing signage was not always located in visible places (ex. at 42nd Avenue and Hamilton) and was sometimes difficult to read. Further, while some destinations/routes designated as preferred routes, such as Adelphi Road, are the most direct routes for people walking and biking, they may not provide the most comfortable walking and biking environments. A separate wayfinding report being prepared as part of this study, will provide additional details on existing condition of the signs and recommendations for new design, location and directions.

Figure 22: Disjointed Wayfinding in Study Area



Field surveyors did note signs that should be replaced due to poor condition. These are indicated on the map on Figure 21 in red triangles and circles.

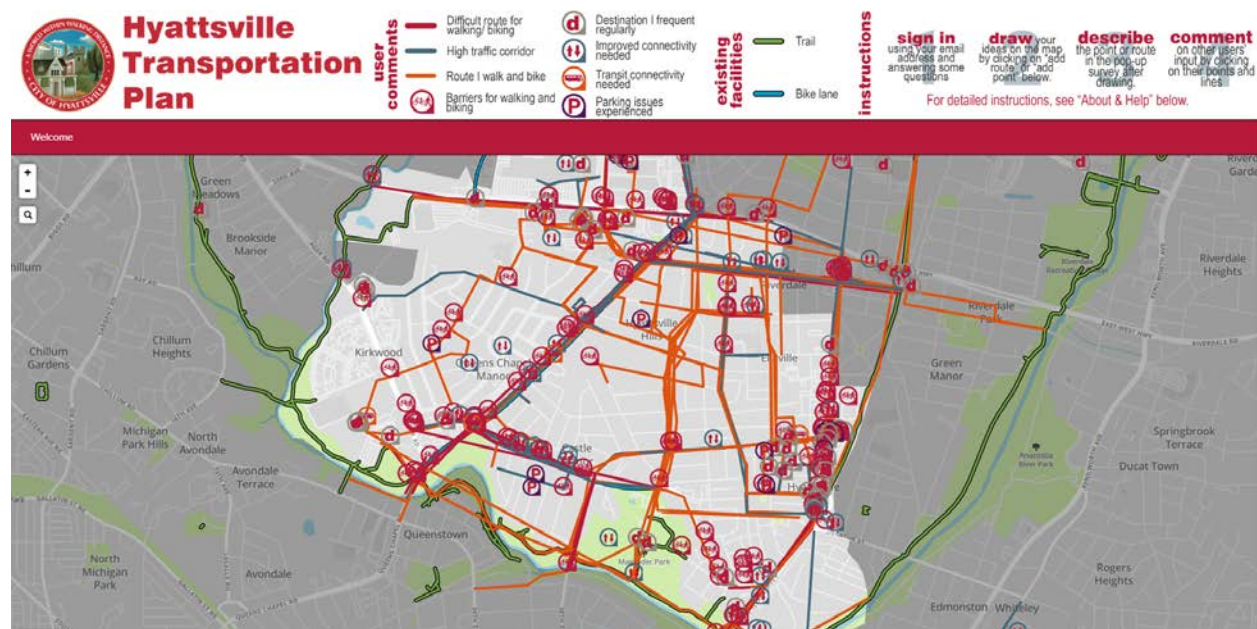
Figure 23: Wayfinding Assessment



4. Wikimap Summary

To complement existing public engagement and gather additional input from the community about specific issues throughout city streets, the Study Team developed two online interactive crowdsourcing maps, or wikimaps. The maps, one in English and one in Spanish, allowed residents to identify barriers and difficult routes for walking and biking as well as provide information about preferred routes, issues with parking and connectivity. The wikimaps were active between July and November 2017. During this time, the maps received 123 line and 242 point comments from 177 users across all five city wards.

Figure 24: Screenshot of Wikimap

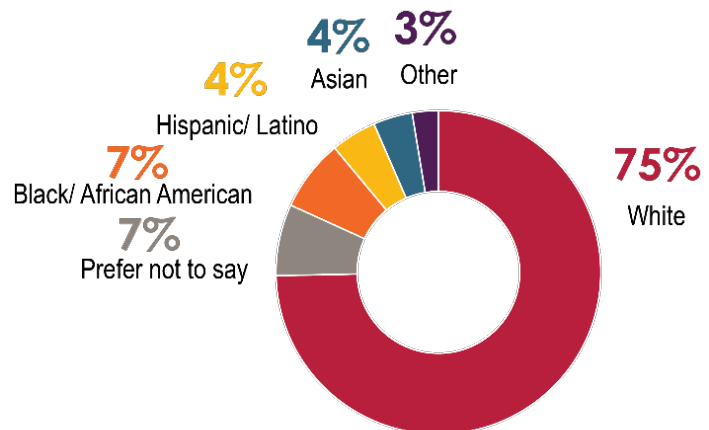


Wikimap users were also asked to complete a short survey to help the Study Team understand their background, mobility habits, and concerns. The following is a summary of demographic characteristics from wikimap respondents:

Race and Ethnicity

Most respondents (75 percent) self-identified as white non-Hispanic, while seven percent noted they are Black/African-American and four percent noted they are Latino/Hispanic and Asian respectively.

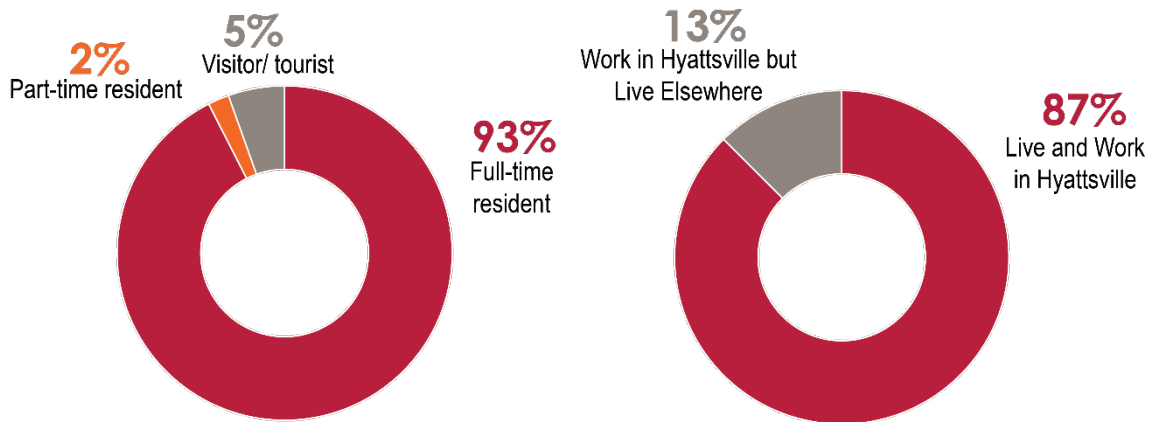
Figure 25: Demographic Distribution of Respondents



Place of Residency and Work

As noted in the figures below, 93 percent of wikimap users reported being full-time residents of Hyattsville while five percent reported being visitor/tourists. Furthermore, 87 percent reported also working in Hyattsville. This figure is not representative of most residents of Hyattsville, according to City staff, as many work outside Hyattsville in the DC metro area.

Figure 26: Residency and Work Status (right: residency; left: work)

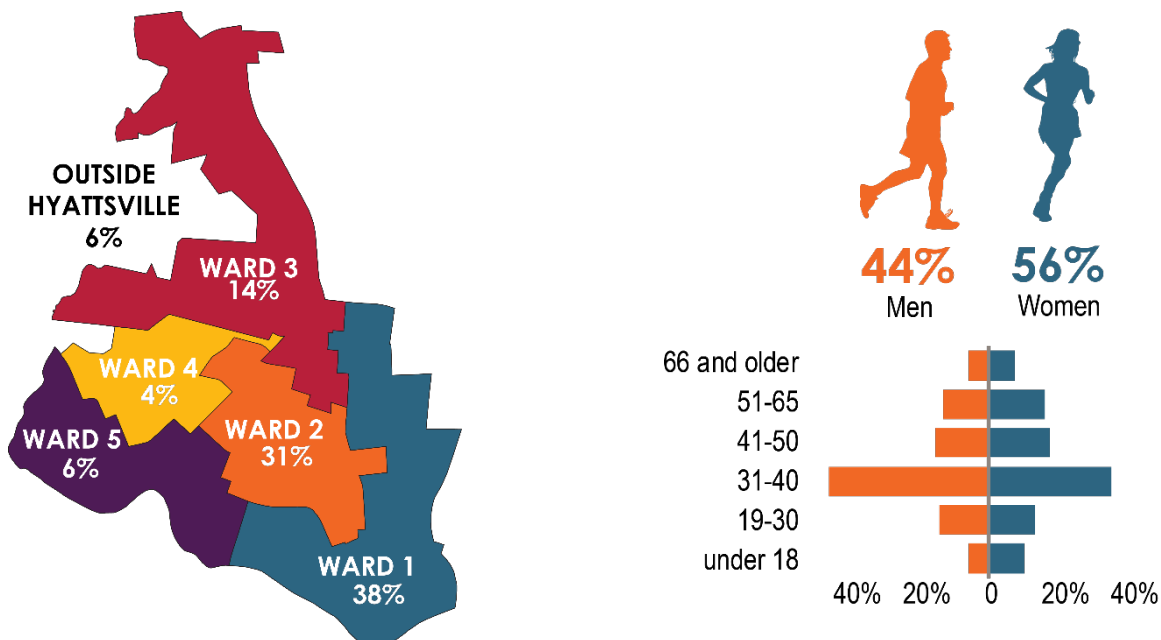


The majority of respondents (69 percent) live in Wards 1 and 2 while only around 10 percent of respondents live in Wards 4 and 5. City Staff are actively working to increase participation from these communities, however have so far been unsuccessful.

Age and Sex

The majority of survey respondents (56 percent) self-identified as women, with a large proportion of them noted being between the ages of 31 and 40 years of age.

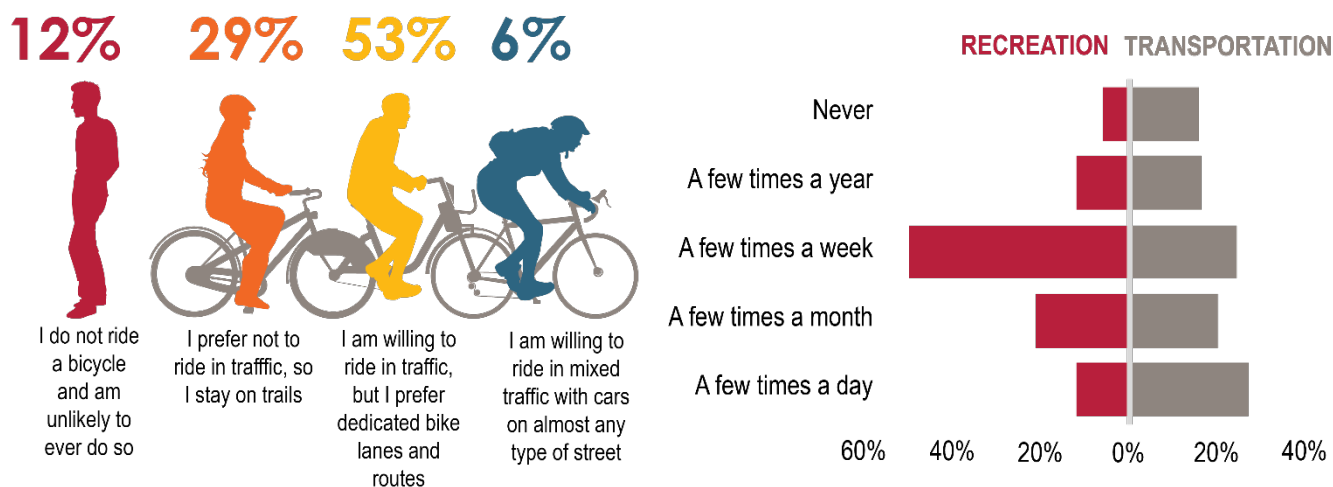
Figure 27: Ward of Residency (Left) - Age and Sex (Right)



Walking and Bicycling Practices

Most users responding to the wikimap (53 percent) would like dedicated bike lanes or routes while 29 percent of residents would prefer more separation in the form of trails. Related to walking, almost 50 percent of wikimap respondents noted walking/running for recreation a few times a week, while around 25 percent of respondents reported walking a few times a day for transportation.

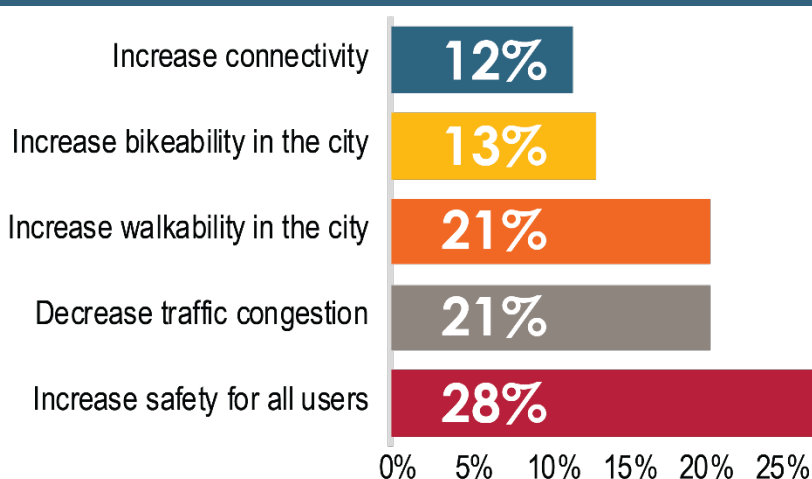
Figure 28: Bicycling Habits (left) and Walking Habits (right)



Priorities for the Study

When asked to select from a set of priorities for the Transportation Study, around 34 percent of respondents noted they would like the Study's recommendation to increase conditions for bicyclists and pedestrians. More than a quarter of all respondents (28 percent) noted that they would like to see increased safety for all users as an outcome as part of the Transportation Study.

Figure 29: Priorities for the Transportation Study



Issue Areas

Wikimap respondents were asked to identify corridors that represent barriers for all modes. More specifically, users were asked to use the wikimaps to note which corridors present difficulties for people walking, and where they experience high vehicular traffic.

Users were also asked to note areas where improved connectivity is needed, areas where specific barriers for walking and biking exist, areas that experience parking issues, and areas that would benefit from additional transit connectivity.

Using the data derived from the wikimaps, the Study Team developed a set of heatmaps to summarize the results. The following sections provide information about the maps. For each of the maps areas in red denote higher concentration of comments.

Parking and Traffic

Wikimap respondents were asked to identify areas and corridors of the city experiencing parking issues and high traffic. Figure 28 shows the heat map of the issues. The wikimap received 31 comments related to existing traffic and 19 related to existing parking issues. The result of the analysis of data mirrors what past studies have concluded. Several corridors were identified as experiencing high traffic:

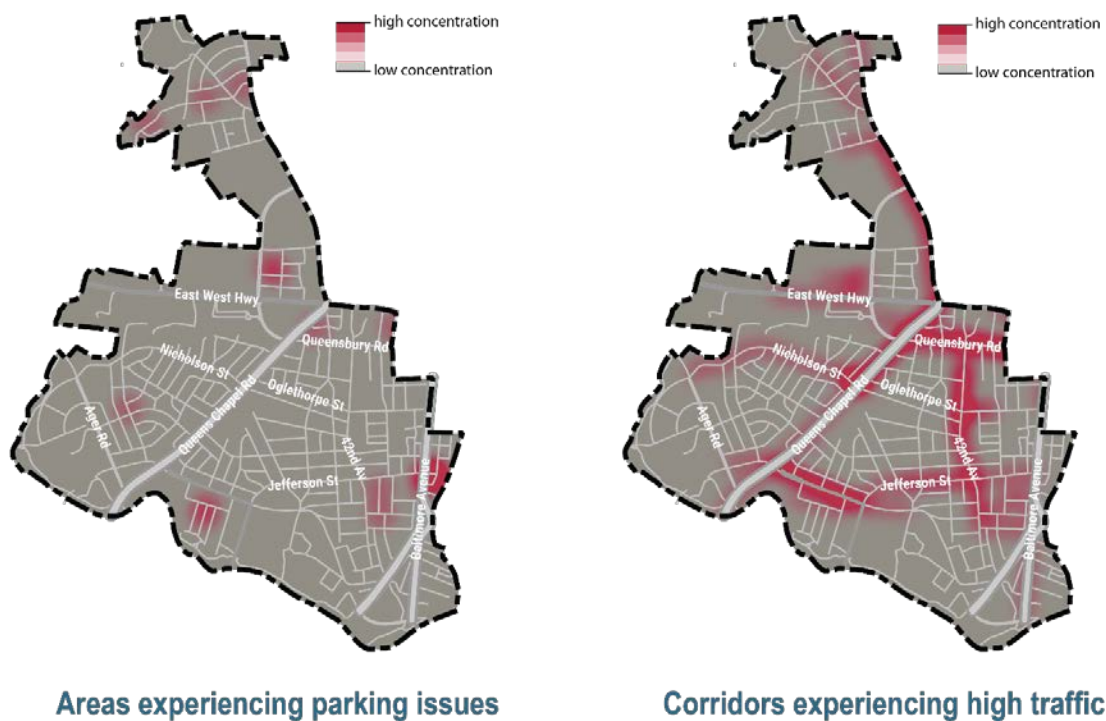
- 42nd Avenue
- Queensbury Road
- Nicholson Street
- Queens Chapel Road
- Jefferson Street
- Hamilton Street

Among the complaints about high traffic areas, many users noted that Jefferson Street and Hamilton Street experience high traffic because they are used as east-west cut-through routes by both visitors and residents. Further, Queensbury Road and Queens Chapel Road were identified as high traffic and high-speed areas that act as barriers for some people.

Areas of the city experiencing highest parking issues include:

- Downtown Hyattsville
- University Town Center

Figure 30: Areas Experiencing Parking Issues (left) and High Traffic (right)



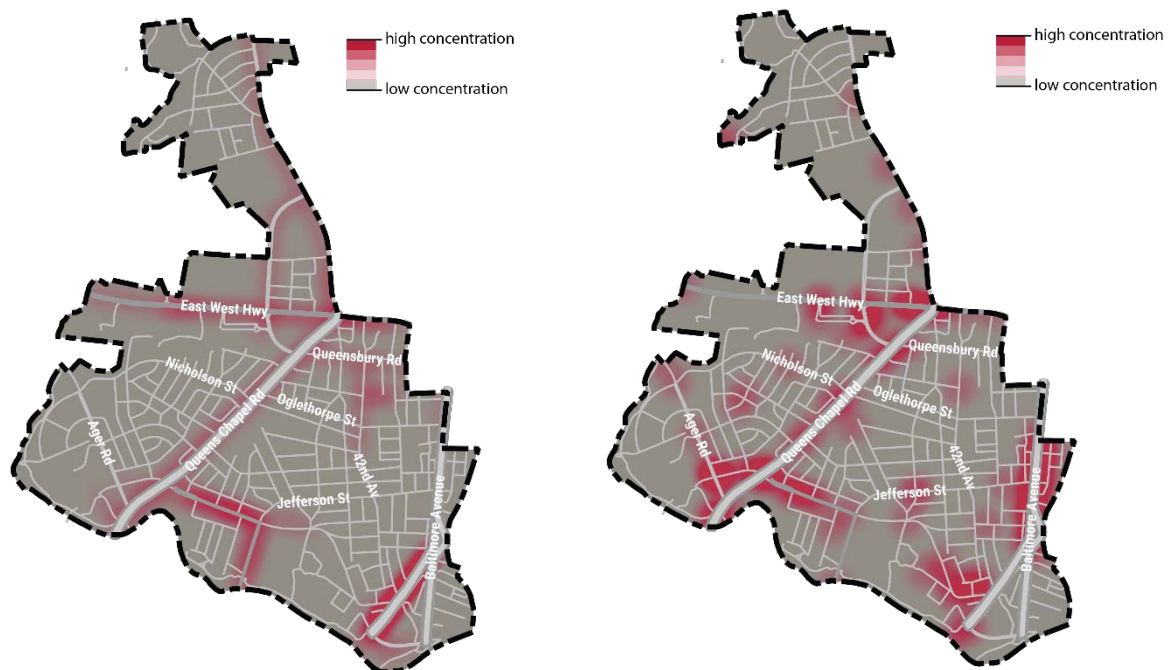
Some of the parking-related comments indicated that roads are too narrow to accommodate two-way traffic as well as parking. Other comments noted that people from other jurisdictions park their cars on local streets (where parking is free) taking away parking spaces from residents.

Difficult Routes and Areas for Walking and Biking

Wikimap respondents were also asked to identify difficult routes for walking and biking. Users placed points and comments on areas/intersections that represent these barriers for biking. Figure 29 shows the heat-map of these issues. The wikimap received 202 comments related to barriers (points) and 40 related to routing (lines). The routes representing the biggest difficulty for people walking and biking include:

- East West Highway
- Queens Chapel Road
- Rhode Island Avenue (Anacostia River to Farragut Street)
- 42nd Avenue (Oglethorpe Street to East-West Highway (MD-410))
- Hamilton Street (from Queens Chapel Road to 38th Street)
- 38th Street (from the Northwest Branch Trail to Hamilton Street)

Figure 31: Difficult Routes for Walking and Biking (left) and Barriers for Walking and Biking (right)



Difficult routes for walking and biking

Barriers for walking and biking

Gaps in the sidewalk network, as well as (perceived) heavy and fast traffic were the most common barriers to walking and biking given by respondents. Areas identified as barriers for people biking and walking included:

- Intersection of Hamilton Street and Queens Chapel Road
- Intersection of Ager Road and Hamilton Street
- Intersection of East-West Highway and Toledo Terrace
- Intersection of Queensbury Road and Baltimore Avenue
- Intersection of Jefferson Street and Baltimore Avenue

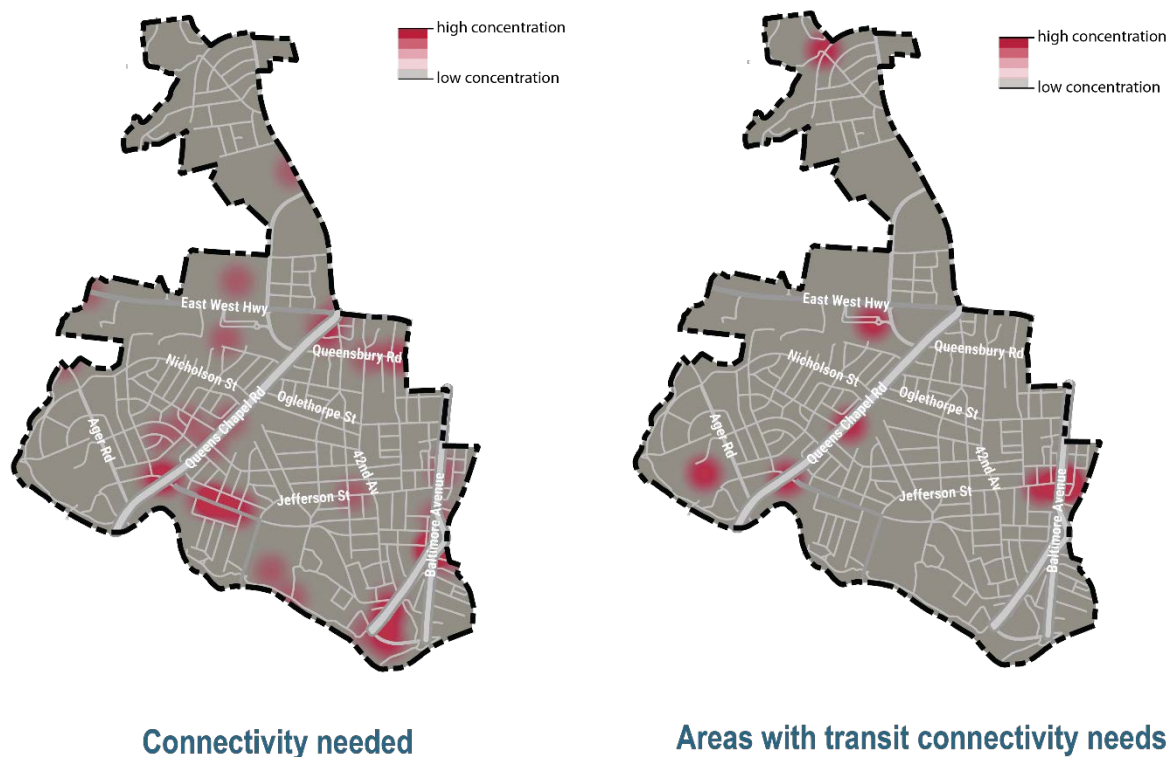
The issues that were most noted included:

- Lack of marked pedestrian crossings
- Heavy and fast traffic
- Wide street encourages motorists to speed
- Long wait at intersections
- Lack of sidewalks

Improved Connectivity and Transit Connectivity Needs

Figure 30 below presents a heatmap of the areas in the city with connectivity needs. The wikimap received eight comments related to transit connectivity needs. Among the comments received, users noted the need for quick, frequent and reliable transit between different parts of Hyattsville and the two Metro stations. Users referenced the need for a circulator type of bus access linking the Metro stations to the Arts District.

Figure 32: Areas Where Improved Connectivity is Needed (left); Transit Connectivity Needed (right)

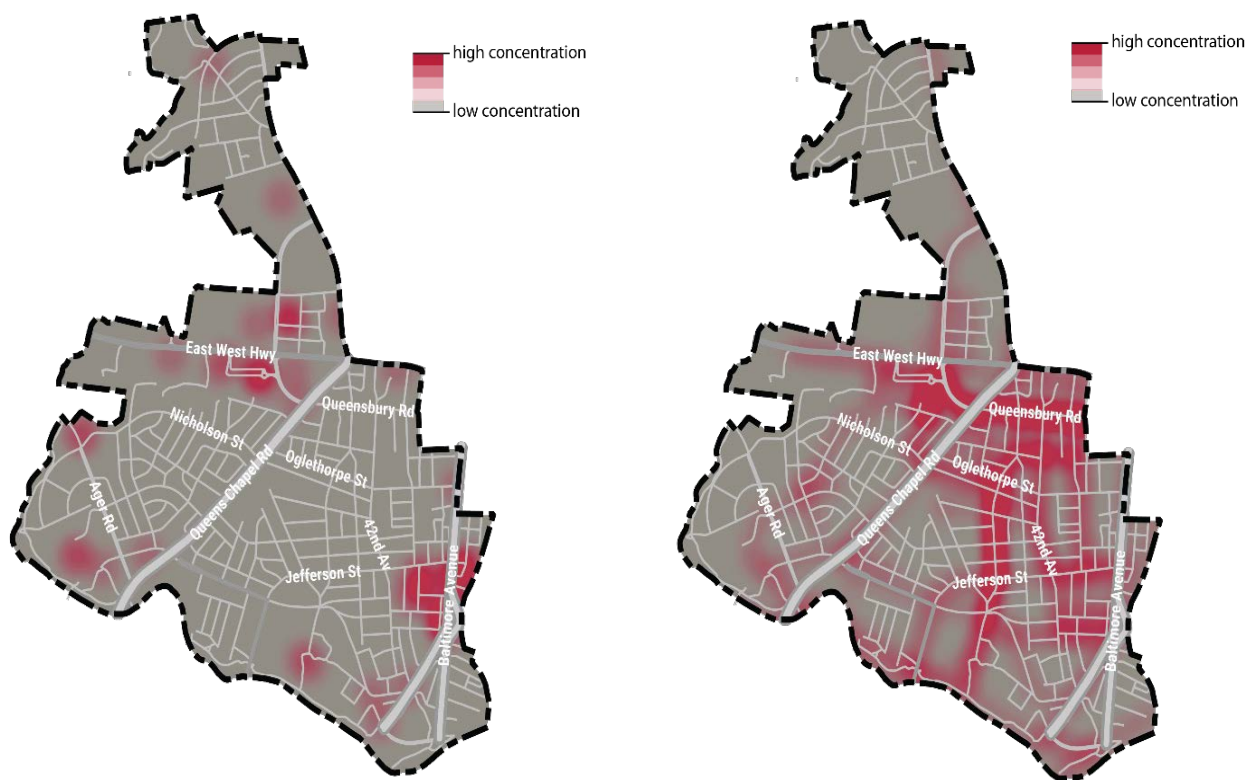


The wikimap received 47 comments related to the need for improved pedestrian and bicycle connectivity. Many of these comments focused on the need to provide better connections to the Northeast and Northwest Branch Trails, as well as the existing Trolley Trail. Other comments noted the need for additional sidewalk coverage, and more comfortable/safe crossings along Baltimore Avenue, Queens Chapel Road, and Rhode Island Avenue.

Destinations and Routes People Walk and Bike

The wikimap receive 117 comments related to destinations and routes people walk and bike to/through. The West Hyattsville and Prince George's Plaza metro stations were among the most popular destinations along with the Arts District, Magruder Park and University Town Center.

Figure 33: Destinations (left); Routes People Walk and Bike (right)



Destinations

Routes people walk and bike

The routes receiving the highest number of comments included those with existing bicycle and pedestrian wayfinding. These include:

- Queensbury Road
- Belcrest Road
- 40th Avenue
- 42nd Avenue
- Oglethorpe Street

5. School Area Circulation Observations

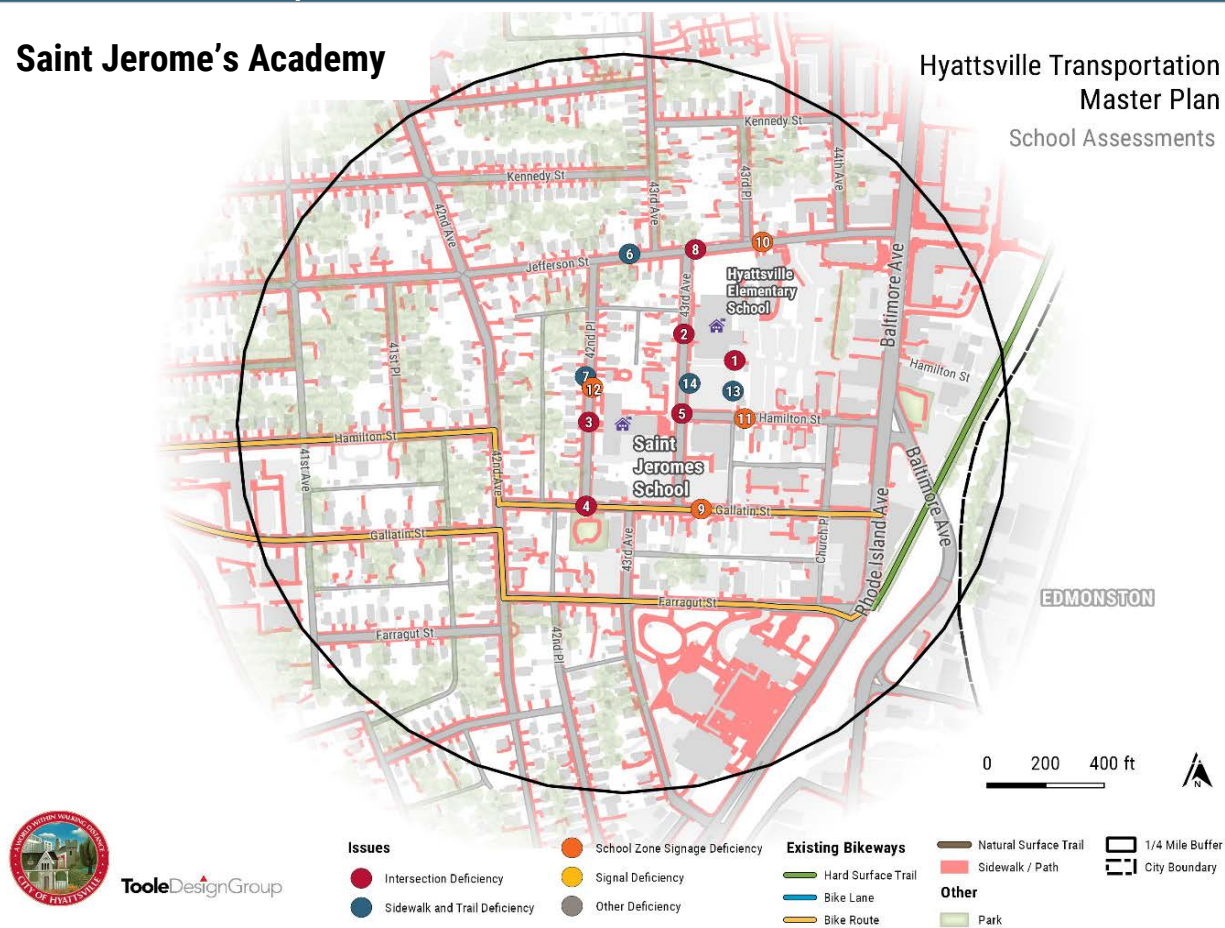
To assess multimodal connectivity and safety for students walking and biking to school, school area circulation observations were conducted between September 13 and 21, 2017. These field observations focused on documenting existing infrastructure within a ¼ mile radius around each of the following schools:

- St. Jerome Academy (5207 42nd Place)
- Hyattsville Elementary School (5311 43rd Avenue)
- Hyattsville Middle School (6001 42nd Avenue)
- Felegy Elementary School (6110 Editors Park Drive)
- Nicholas Orem Middle School (6100 Editors Park Drive)

The Study Team documented the arrival process for each of the schools between 7:00 and 9:30 am. As part of these observations, the Study Team also noted primary walking routes (within ¼ mile of school) as well as existing deficiencies in the street and sidewalk network representing obstacles for bicycling and walking to school. Infrastructure deficiencies maps for each school can be found below. Complete existing conditions reports were developed for each school and can be found in Appendix I-A.

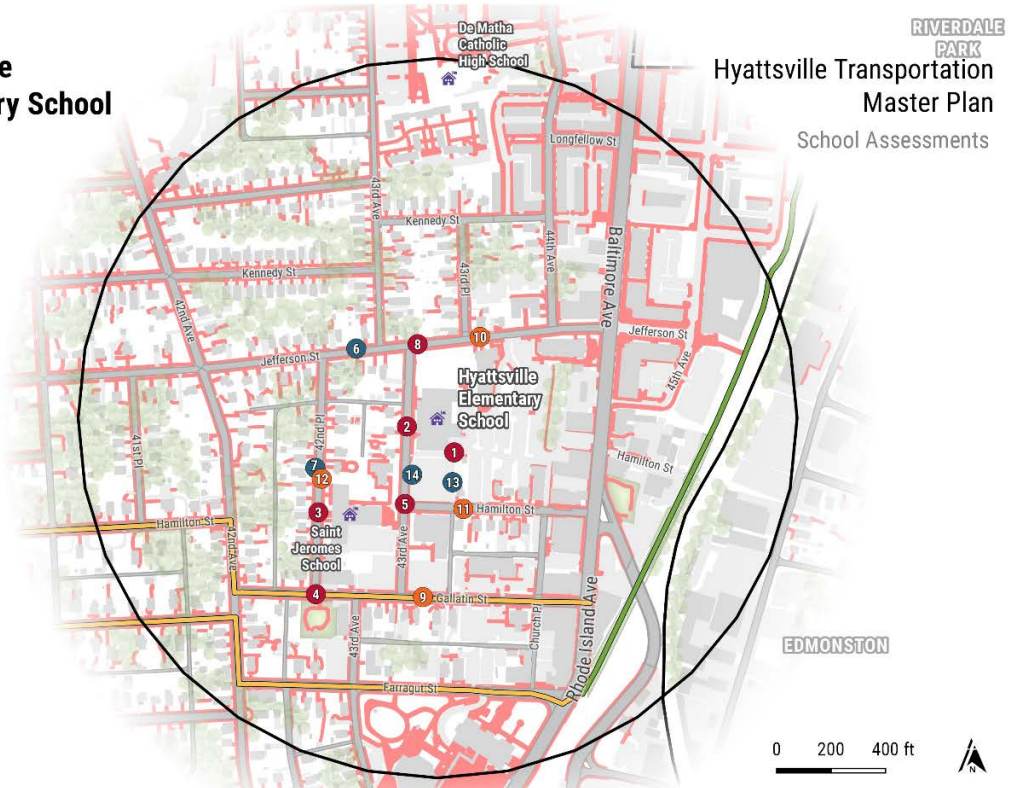
Figure 34: School Area Deficiencies

Saint Jerome's Academy



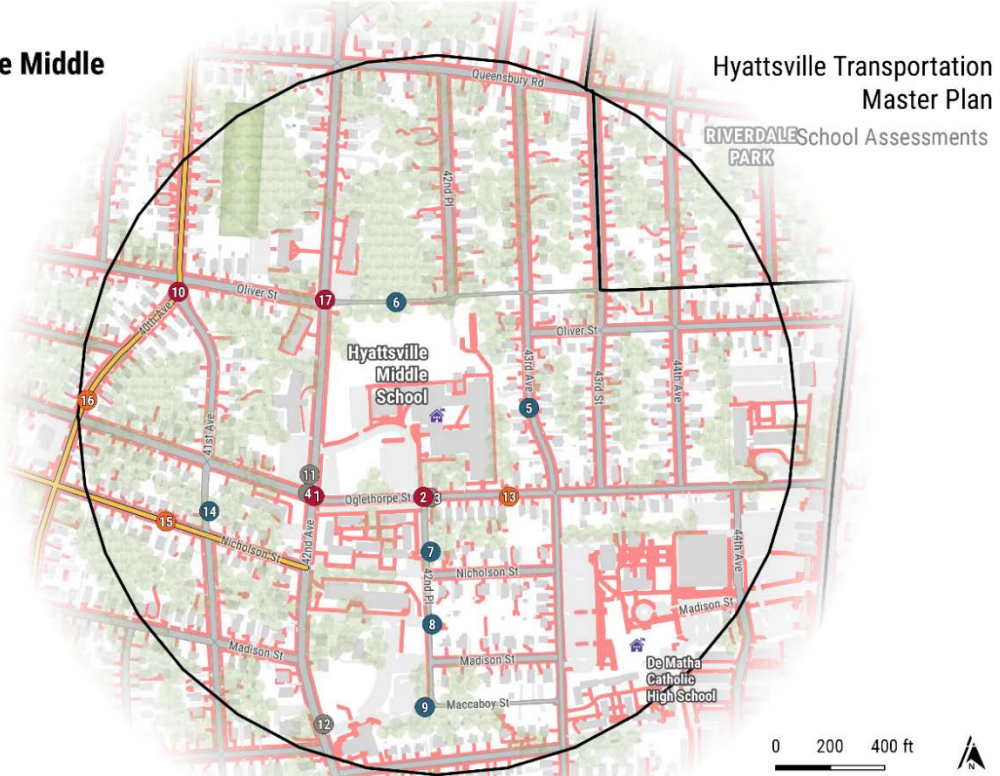
Hyattsville Elementary School

Hyattsville Transportation Master Plan School Assessments



Hyattsville Middle School

Hyattsville Transportation Master Plan School Assessments



TooleDesignGroup

Issues

- Intersection Deficiency
- Sidewalk and Trail Deficiency
- School Zone Signage Deficiency
- Signal Deficiency
- Other Deficiency

Existing Bikeways

- Hard Surface Trail
- Bike Lane
- Bike Route

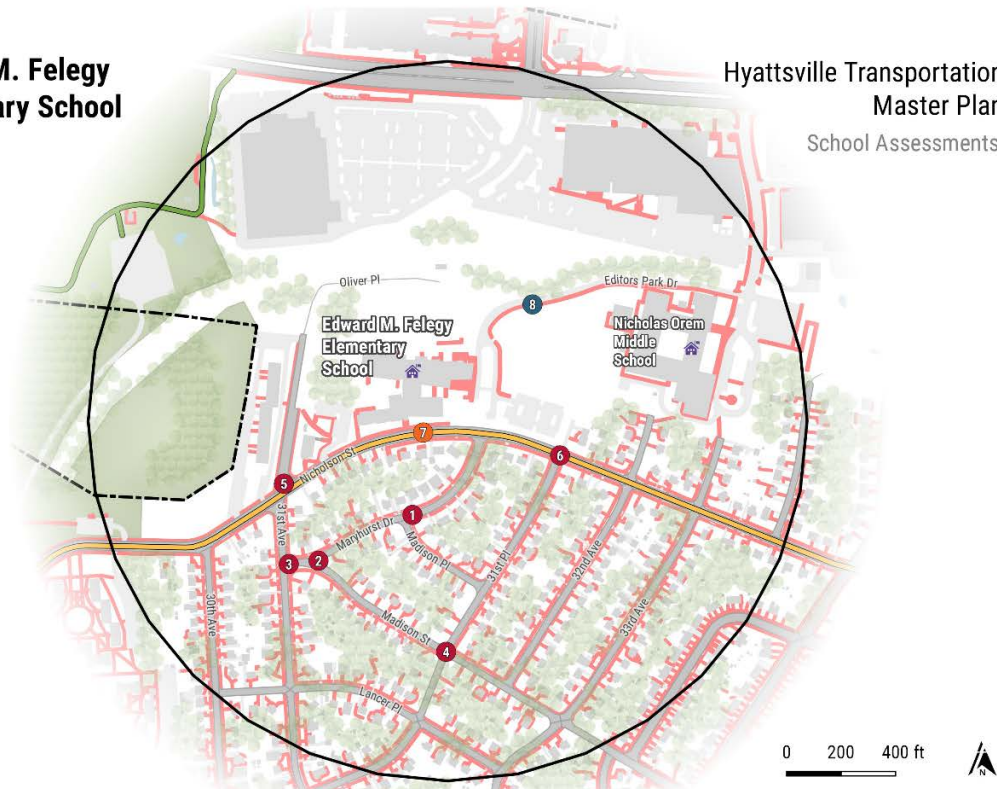
Other

- Natural Surface Trail
- Sidewalk / Path
- Park

- 1/4 Mile Buffer
- City Boundary

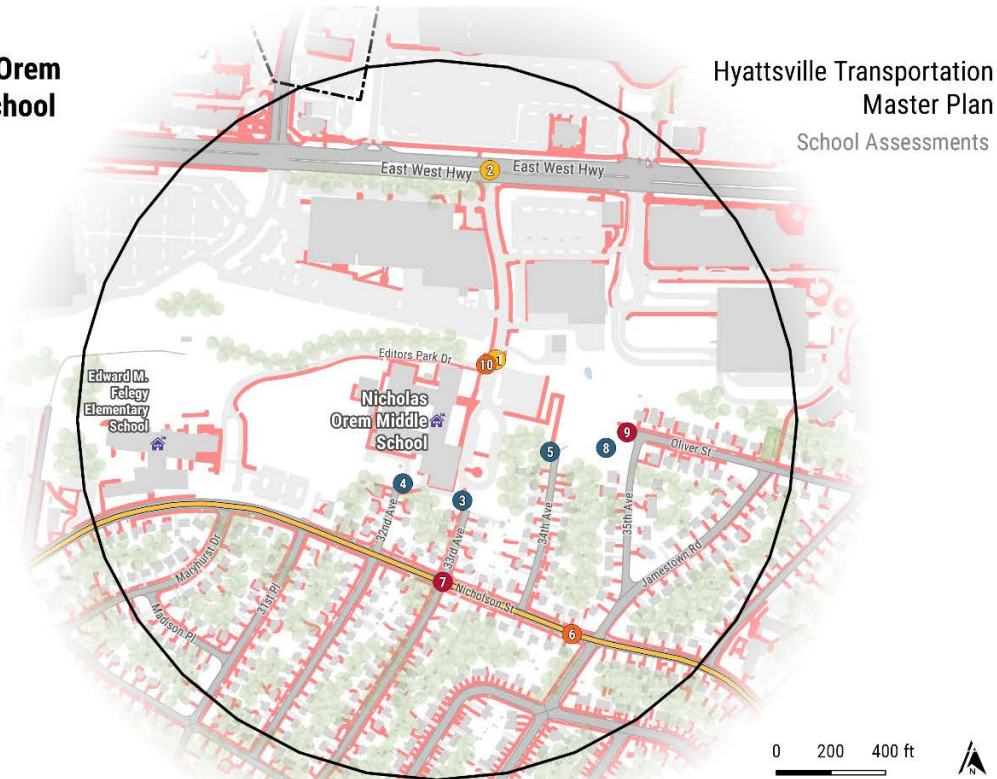
Edward M. Felegy Elementary School

Hyattsville Transportation Master Plan School Assessments



Nicholas Orem Middle School

Hyattsville Transportation Master Plan School Assessments



TooleDesignGroup

Issues

- Intersection Deficiency
- Signal Deficiency
- School Zone Signage Deficiency
- Sidewalk and Trail Deficiency
- Other Deficiency

Existing Bikeways

- Hard Surface Trail
- Bike Lane
- Bike Route

Other

- Natural Surface Trail
- Sidewalk / Path
- Park

- 1/4 Mile Buffer
- City Boundary

The most common issues found throughout each of the schools included:

- Missing or deficient curb ramps
- Obstructions along sidewalks
- Narrow sidewalks
- Cars parked too close to intersections, decreasing pedestrian visibility
- Relatively high vehicle speeds along major walking/biking routes
- Missing “School Zone” speed restrictions signage
- Existing crosswalks below minimum MUTCD width standards.

As part of this process, the Study Team also developed a list of recommendations addressing specific issues around each of the schools. A list of prioritized projects per school was also developed. A complete report including observations and recommendations per school can be found in Appendix I-A.

6. Existing Motor Vehicle Traffic Conditions

The Study Team assessed the operation of existing traffic conditions related motor vehicle circulation in various corridors throughout the City. The following section provides a summary of conditions.

Historical Traffic Data

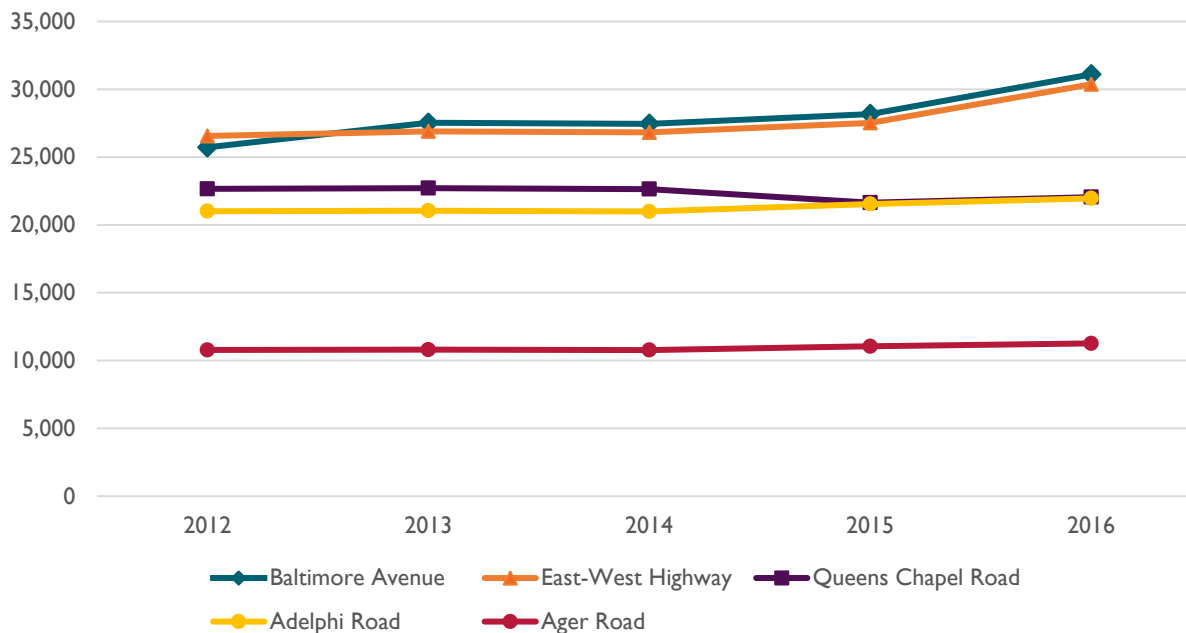
To understand the changes in traffic volumes and patterns over time, annual average daily traffic (AADT) volumes were examined for 2010 through 2016 – the most recent data available. AADTs are determined to provide an estimate of the daily bi-directional volumes at specific locations or along specific roadway corridors. AADT data was obtained from the SHA Statewide AADT Points website. AADT data was not available for Adelphi Road and Ager Road from 2010 to 2011. A summary of the historical AADT volumes is provided in Table 5. The trend of the AADT from 2012 to 2016 is illustrated in Figure 33 below.

Table 5: Historical AADT Data

Road	Location	Annual Average Daily Traffic Volumes						
		2010	2011	2012	2013	2014	2015	2016
Baltimore Avenue (US 1)	North of Hamilton Street	25,830	25,931	25,722	27,530	27,451	28,172	31,100
East-West Highway (MD 410)	West of Queens Chapel Road	26,660	26,771	26,562	26,900	26,821	27,522	30,370
Queens Chapel Road (MD 500)	South of East-West Highway	24,312	21,120	22,660	22,711	22,642	21,640	22,051
Adelphi Road	North of East-West Highway	N/A	N/A	21,010	21,051	20,992	21,543	21,954
Ager Road	Between Hamilton Street and Queens Chapel Road	N/A	N/A	10,780	10,801	10,772	11,053	11,264

The data shows that traffic volumes remained relatively steady between 2010 and 2014. Traffic volumes began to show growth in 2015, with the exception of traffic volumes on Queens Chapel Road, which decreased. Significant growth was observed from 2015 to 2016 on Baltimore Avenue (Route 1) and East-West Highway (MD 401). The historical AADT volumes will be used to help develop future traffic growth rates for the study area network.

Figure 35: Historical Annual Average Daily Traffic Volumes



Traffic Data Collection

The following sections describe the traffic data collected for the purposes of conducting a traffic analysis as part of this study.

Traffic Counts and Volumes

The following traffic data were acquired for 33 study intersections featured in Figure 34:

- Intersection turning movement count (TMC) data, including passenger vehicle, heavy vehicle, pedestrian, and bicycle counts
- Multiuse trail volume data

The TMCs for the 33 study intersections were acquired from two sources, including SHA and TMC data that was collected as a part of this study. TMCs were collected for this study for intersections where either the previous counts were not available, or the previous counts were conducted prior to 2015. As such, 23 of the 33 intersection TMCs were collected on October 11, 2017. A summary of TMC data is shown in Table 6.

The AM and PM peak hours for each study intersections are noted in Table 6. Based on the collected traffic data, the AM and PM peak periods were identified as 7:00 AM to 9:00 AM and 4:30 PM to 6:30 PM. This was determined by combining the traffic volumes for all intersections encompassing a majority of the individual intersection peak hours. Different corridors have slightly different peak hours. As such, the peak hour volumes at each intersection were analyzed to represent the highest through-put volumes. The existing 2017 peak hour volumes at the study intersections are provided in Appendix I-B.

Figure 36: Study Intersections



Table 6: Intersection Traffic Count Summary

ID	Intersection	Date Collected	AM Peak Hour	PM Peak Hour	Source
1	MD 500/Ager Rd	9/14/2016	7:45-8:45	5:15-6:15	SHA
2	MD 500/Hamilton St	10/11/2017	7:15-8:15	4:30-5:30	Collected
3	MD 500/Nicholson St	10/11/2017	7:15-8:15	4:30-5:30	Collected
4	MD 500/Belcrest Rd/Queensbury Rd	10/11/2017	8:00-9:00	4:45-5:45	Collected
5	MD 208(Hamilton St)/38th Ave	10/11/2017	7:30-8:30	4:45-5:45	Collected
6	US 1/MD 410	3/8/2016	7:15-8:15	5:15-6:15	SHA
7	US 1/Queensbury Rd	10/11/2017	7:45-8:45	4:30-5:30	Collected
8	US 1/Oglethorpe Rd	10/11/2017	7:30-8:30	5:00-6:00	Collected
9	US 1/Madison St	10/11/2017	7:30-8:30	5:00-6:00	Collected
10	US 1/Jefferson St	10/11/2017	7:30-8:30	5:00-6:00	Collected
11	US 1/Hamilton St (North)	10/11/2017	7:30-8:30	5:00-6:00	Collected
12	US 1/Hamilton St (South)/US 1 Alt	8/18/2015	7:45-8:45	5:30-6:30	SHA
13	US 1 Alt/Decatur St	10/11/2017	7:30-8:30	4:45-5:45	Collected
14	US 1 Alt/Charles Armentrout St	10/11/2017	7:30-8:30	4:45-5:45	Collected
15	US 1/Gallatin St	10/11/2017	7:30-8:30	4:45-5:45	Collected
16	US 1/Farragut St	10/11/2017	7:15-8:15	4:45-5:45	Collected
17	US 1/43rd Ave	10/11/2017	7:30-8:30	4:45-5:45	Collected
18	US 1/42nd Place/Crittenden St	10/11/2017	7:30-8:30	4:45-5:45	Collected
19	US 1/41st Place/Charles Armentrout Dr	8/18/2015	7:15-8:15	5:30-6:30	SHA
20	MD 410/Toledo Terrace	2/25/2016	7:15-8:15	5:15-6:15	SHA
21	MD 410/Editors Park Dr	10/5/2016	7:00-8:00	5:45-6:45	SHA
22	MD 410/Prince George's Plaza	10/4/2016	8:45-9:45	5:00-6:00	SHA
23	MD 410/Belcrest Rd	7/7/2015	8:15-9:15	5:15-6:15	SHA
24	MD 410/MD 500/Adelphi Rd	3/23/2016	8:00-9:00	6:00-7:00	SHA
25	Ager Rd/23rd Ave	10/11/2017	7:00-8:00	5:00-6:00	Collected
26	Ager Rd/Oglethorpe St/School	10/11/2017	7:00-8:00	5:00-6:00	Collected
27	Ager Rd/Nicholson St	10/11/2017	7:00-8:00	5:00-6:00	Collected
28	Ager Rd/Hamilton St	10/11/2017	7:30-8:30	5:00-6:00	Collected
29	Toledo Rd/Belcrest Rd	10/11/2017	8:00-9:00	5:00-6:00	Collected
30	Adelphi Rd/Belcrest Rd	10/11/2017	7:45-8:45	4:45-5:45	Collected
31	Adelphi Rd/Campus Dr	4/5/2016	7:30-8:30	4:30-5:30	SHA
32	Adelphi Rd/Toledo Rd	10/11/2017	7:30-8:30	5:00-6:00	Collected
33	Hamilton St/40th Pl/39th Ave	10/11/2017	7:30-8:30	5:00-6:00	Collected

Volume Balancing

As the TMC data were obtained from different sources, the traffic volumes were evaluated so that there are no irrational discrepancies between close-by intersections. The potential

imbalance of peak hour traffic volumes between intersections was assessed for all the study intersections. The following section summarizes the volume balancing strategies.

- In general, volumes are consistent for intersections where data were collected at the same time or where there are no mid-block driveways.
- Where counts were collected at different times, volume balancing was conducted to match the newly counted traffic data if applicable.
- If there were multiple driveways between adjacent study intersections, the magnitude of the imbalance was assessed to determine if the imbalance could be attributed to the driveways.

The list of intersection volumes that were balanced are shown in Table 7 below.

Table 7: Intersection Volumes Balanced		
Intersections	AM	PM
US 1/MD 410	x	x
US 1/Jefferson St		x
US 1/Hamilton St (South)/US 1 Alt	x	x
US 1 Alt/Decatur St		x
US 1/Farragut St	x	
US 1/41st Place/Charles Armentrout Dr	x	x
MD 410/Editors Park Dr	x	x
MD 410/Prince George's Plaza	x	x
MD 410/Belcrest Rd	x	x
MD 410/MD 500/Adelphi Rd	x	x
Ager Rd/23rd Ave	x	x

Intersection Traffic Control and Lane Configurations

The existing traffic controls are described in Table 8 and detailed intersection lane configurations are provided in Appendix I-C. Intersection lane configurations were verified using 2017 Google Maps.

Traffic Signal Timings

Existing signal timings for most of the study intersections were obtained either from the 2010 Hyattsville Transportation Study (within the Synchro models prepared for that study) or from SHA in PDF format. Signal timing data for the remaining intersections under Prince George's County jurisdiction were obtained from recent traffic studies in the area. PDF files were compared against the Synchro models to verify the correct intersection coding and operations. The Synchro files were used to import signal timing parameters into the Vistro models.

Table 8: Study Intersections and Existing Traffic Control

ID	Intersection	Traffic Control
1	MD 500/Ager Rd	SHA Signalized
2	MD 500/Hamilton St	SHA Signalized
3	MD 500/Nicholson St	SHA Unsignalized
4	MD 500/Belcrest Rd/Queensbury Rd	SHA Signalized
5	MD 208(Hamilton St)/38th Ave	SHA Signalized
6	US 1/MD 410	SHA Signalized
7	US 1/Queensbury Rd	SHA Signalized
8	US 1/Oglethorpe Rd	SHA Signalized
9	US 1/Madison St	SHA Signalized
10	US 1/Jefferson St	SHA Signalized
11	US 1/Hamilton St (North)	SHA Signalized
12	US 1/Hamilton St (South)/US 1 Alt	SHA Signalized
13	US 1 Alt/Decatur St	SHA Signalized
14	US 1 Alt/Charles Armentrout St	SHA Unsignalized
15	US 1/Gallatin St	SHA Signalized
16	US 1/Farragut St	SHA Signalized
17	US 1/43rd Ave	SHA Unsignalized
18	US 1/42nd Place/Crittenden St	SHA Signalized
19	US 1/41st Place/Charles Armentrout Dr	SHA Signalized
20	MD 410/Toledo Terrace	SHA Signalized
21	MD 410/Editors Park Dr	SHA Unsignalized
22	MD 410/Prince George's Plaza	SHA Signalized
23	MD 410/Belcrest Rd	SHA Signalized
24	MD 410/MD 500/Adelphi Rd	SHA Signalized
25	Ager Rd/23rd Ave	County Signalized
26	Ager Rd/Oglethorpe St/School	County Signalized
27	Ager Rd/Nicholson St	County Unsignalized
28	Ager Rd/Hamilton St	County Signalized
29	Toledo Rd/Belcrest Rd	County Signalized
30	Adelphi Rd/Belcrest Rd	County Signalized
31	Adelphi Rd/Campus Dr	County Signalized
32	Adelphi Rd/Toledo Rd	County Signalized
33	Hamilton St/40th Pl/39th Ave	County Unsignalized

Measures of Effectiveness

Traffic analysis was performed using PTV Vistro, a macroscopic analysis tool that uses Highway Capacity Manual (HCM) methodologies to calculate operational performance at signalized and unsignalized intersections. Because Vistro is deterministic program, it is not capable of capturing queue spillover and impact to adjacent intersections. As a result, operational results for some of the closely-spaced intersections do not represent field observed operations. This section documents such conditions. The following measures of effectiveness (MOE) were considered for this study:

- Movement/approach/overall intersection delay;
- Movement/approach/overall intersection Level of Service (LOS); and
- 95th-percentile movement/approach queues, based on Vistro HCM outputs

The Highway Capacity Manual (HCM) defines LOS for signalized and unsignalized intersections as a function of average vehicle control delay. LOS may be calculated per movement or per approach for any intersection configuration, but overall intersection LOS is defined for signalized and all-way stop-controlled intersections only. Overall intersection LOS is not reported for two-way stop-controlled intersections. Table 9 and Table 10 summarize the different LOS designations for both signalized and unsignalized intersections, respectively, based on vehicle delay and volume to capacity ratio. The existing conditions LOS, delay, and queuing analyses for the AM and PM peak hours are discussed in the following sections.

Table 9: LOS and Delay Thresholds, Signalized Intersections

Level of Service (LOS)	Average Control Delay (seconds)	General Description
A	≤10	Free flow
B	>10-20	Stable flow (slight delays)
C	>20-35	Stable flow (acceptable delays)
D	>35-55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55-80	Unstable flow (intolerable delay)
F	>80	Forced flow (congested and queues fail to clear)

Table 10: LOS and Delay Thresholds, Unsignalized Intersections

Level of Service (LOS)	Average Control Delay (seconds)
A	0-10
B	>10-15
C	>15-25
D	>25-35
E	>35-50
F	>50

In addition to the LOS and delay MOEs, 95th-percentile queues per movement were also evaluated. The 95th percentile queues are particularly useful for traffic operations evaluation, as they represent the maximum queue lengths that are anticipated for 95 percent of the peak hour period at each location while removing potential outliers that may skew the analysis results.

Traffic Operational Results

The existing conditions overall intersection delay and LOS outputs are summarized in Table 11. Figure 35 and Figure 36 provide a summary of existing LOS for AM and PM peak hours at the various study intersections. It should be noted that in vibrant urban environments, it is relatively rare for intersections to operate at LOS B or better during the peak hours. Generally, intersections operating at LOS D or better are considered acceptable, while intersections operating at LOS E and F are cause for concern. The existing conditions volume, delay, and LOS by movement is provided in Appendix I-D. Degraded (LOS E/F) operations for overall intersections and individual movements are highlighted in red. Vistro HCM reports are provided in Appendix I-E.

As shown in Table 11 and Appendix I-D more than half of the study intersections currently operate at an overall LOS C or better and with moderate delays for individual movements. However, several intersections experience significant delay due to congestion related to commuting traffic. For intersections that generally operate at acceptable LOS, certain movements (such as left turns) may operate poorly. The 95th percentile queue length for each movement at the intersections were compared with available storage for turn lanes and between adjacent intersections. The results of 95th percentile queues were reported in Appendix I-F. The following section describes the existing traffic operational deficiencies based on delay and 95th-percentile queue results.

Several arterial corridors in the study area serve as regional commuting corridors to destinations beyond the City of Hyattsville. This section describes the traffic operational issues at the study intersections along these major arterial corridors.

Baltimore Avenue (US 1) and US 1 Alternate

Baltimore Avenue serves as a commuter route for drivers traveling between Washington D.C. and points north such as the University of Maryland and suburban Maryland. The right-of-way is constrained on Baltimore Avenue in the study area and some intersections do not contain dedicated left-turn lanes. The intersection spacing and access also impact operations on the corridor, with side streets movements affecting arterial traffic flow. A small number of intersections on Baltimore Avenue or Route 1 Alternate operate at degraded conditions (LOS E or worse) as described below.

- Baltimore Avenue (Route 1)/East-West Highway
- Baltimore Avenue/Route 1 Alternate/Hamilton Street South
- Route 1 Alternate/Charles Armentrout Street

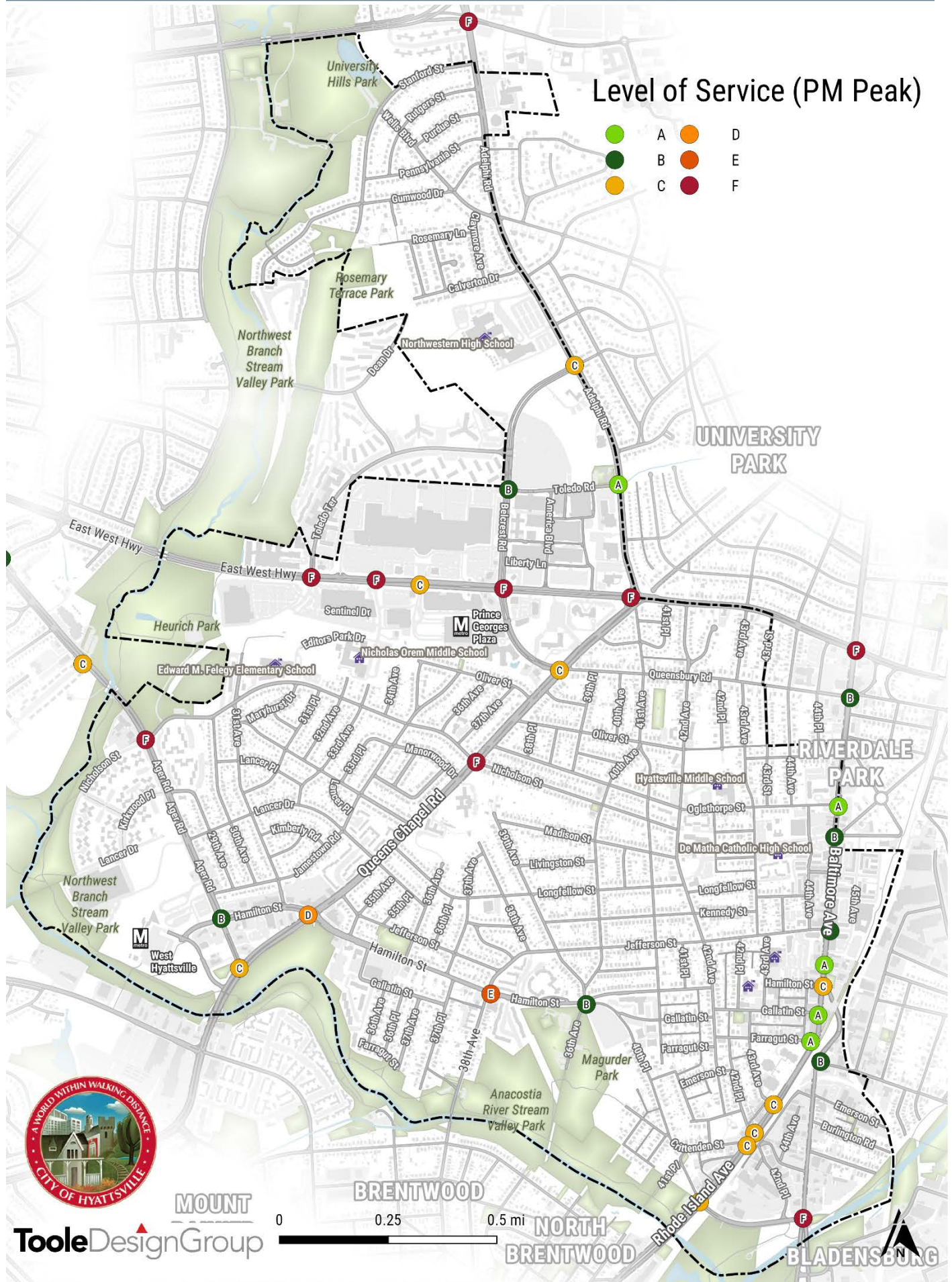
Table I I: Existing (2017) Intersection Delay and LOS

ID	Intersection	Traffic Control	AM Peak Hour Delay	AM Peak Hour LOS	PM Peak Hour Delay	PM Peak Hour LOS
1	MD 500/Ager Rd	SHA Signalized	25.8	C	22.2	C
2	MD 500/Hamilton St	SHA Signalized	28.6	C	40.9	D
3	MD 500/Nicholson St	SHA Unsignalized	Significant	F	Significant	F
4	MD 500/Belcrest Rd/Queensbury Rd	SHA Signalized	18.7	B	25.9	C
5	MD 208(Hamilton St)/38th Ave	SHA Signalized	26.3	C	29.4	C
6	US 1/MD 410	SHA Signalized	72.7	E	112.6	F
7	US 1/Queensbury Rd	SHA Signalized	16.4	B	19.0	B
8	US 1/Oglethorpe Rd	SHA Signalized	10.4	B	5.1	A
9	US 1/Madison St	SHA Signalized	16.2	B	10.2	B
10	US 1/Jefferson St	SHA Signalized	16.7	B	11.4	B
11	US 1/Hamilton St (North)	SHA Signalized	1.4	A	2.0	A
12	US 1/Hamilton St (South)/US 1 Alt	SHA Signalized	234.7	F	53.9	D
13	US 1 Alt/Decatur St	SHA Signalized	20.1	C	12.0	B
14	US 1 Alt/Charles Armentrout St	SHA Unsignalized	Significant	F	Significant	F
15	US 1/Gallatin St	SHA Signalized	3.6	A	1.4	A
16	US 1/Farragut St	SHA Signalized	9.7	A	9.7	A
17	US 1/43rd Ave	SHA unsignalized	32.0	D	20.1	C
18	US 1/42nd Place/Crittenden St	SHA Signalized	20.8	C	30.9	C
19	US 1/41st Place/Charles Armentrout Dr	SHA Signalized	31.8	C	20.1	C
20	MD 410/Toledo Terrace	SHA Signalized	128.0	F	96.8	F
21	MD 410/Editors Park Dr	SHA Unsignalized	95.9	F	Significant	F
22	MD 410/Prince George's Plaza	SHA Signalized	12.2	B	21.8	C
23	MD 410/Belcrest Rd	SHA Signalized	48.7	D	91.0	F
24	MD 410/MD 500/Adelphi Rd	SHA Signalized	85.9	F	155.4	F
25	Ager Rd/23rd Ave	County Signalized	26.7	C	17.1	B
26	Ager Rd/Oglethorpe St/School	County Signalized	28.7	C	34.9	C
27	Ager Rd/Nicholson St	County Unsignalized	260.0	F	Significant	F
28	Ager Rd/Hamilton St	County Signalized	11.4	B	17.1	B
29	Toledo Rd/Belcrest Rd	County Signalized	8.7	A	13.9	B
30	Adelphi Rd/Belcrest Rd	County Signalized	17.7	B	51.3	D
31	Adelphi Rd/Campus Dr	County Signalized	28.8	C	105.5	F
32	Adelphi Rd/Toledo Rd	County Signalized	5.9	A	9.2	A
33	Hamilton St/40th Pl/39th Ave	County Unsignalized	10.3	B	12.3	B

Figure 37: Level of Service (AM Peak)



Figure 38: Level of Service (PM Peak)



Despite operating at acceptable LOS, the following intersections experience significant queue lengths.

- Baltimore Avenue (Route 1)/Madison Street (southbound queue spills back to Oglethorpe Street during AM peak hour)
- Rhode Island Avenue (Route 1)/Crittenden Street (both peak hours)

The intersection of Baltimore Avenue (Route 1) and East-West Highway (MD 410) is among the worst-performing intersections in the study area for both peak hours. The oversaturated conditions on all four approaches were attributable to significant through/right-turn volumes and high left-turn volumes opposing the through volumes. The northbound 95th-percentile queue spillover impacts Queensbury Road intersection during both AM and PM peak hours. The eastbound 95th-percentile queue extends close to the Queens Chapel Road intersection during PM peak hour.

The lack of dedicated southbound left-turn lane on Baltimore Avenue at US 1 Alternate caused significant delay and queuing during both AM and PM peak hour. The heavy use of Route 1 Alternate as a bypass route resulted in large turning volumes between Baltimore Avenue (north) at Route 1 Alternate. During both peaks, the northbound and southbound queue on Baltimore Avenue spills back to adjacent intersections constantly and northbound right-turn queue from Route 1 Alternate extends as far as Decatur Street.

The unsignalized intersection of Route 1 Alternate and Charles Armentrout Street has significant operational and safety issues. Large eastbound right-turn and northbound left-turn volumes travel through this intersection during both the AM and PM peaks; the eastbound left-turn on Charles Armentrout Street is stop-controlled and does not have sufficient gap time to cross the intersection due to large volumes of opposing movements and sight distance which is constrained by the adjacent bridge structure.

The 95th percentile queues on eastbound Crittenden Street at Baltimore Avenue were significant due to large volume of turning traffic under the skewed intersection. The Crittenden Street approach operates as split phases with the 42nd Place approach, which reduces the green-time allowed for both approaches, resulting in longer queues.

Queens Chapel Road and Adelphi Road

Queens Chapel Road serves as a commuter route for traffic heading in and out of Washington, D.C. and Adelphi Road serves as a major route to and from I-495 and the University of Maryland. As such, high demand corresponds to increased congestion. As shown in Table 8, the three intersections listed below experience significant delays in the AM and/or PM peak hour.

- Campus Drive/Adelphi Road
- East-West Highway (MD 410)/Queens Chapel Road (MD 500)/Adelphi Road
- Queens Chapel Road (MD 410)/Nicholson Street

The following intersections, despite operating at acceptable LOS, experience extensive queues.

- Belcrest Road/ Adelphi Road
- Queens Chapel Road/Hamilton Street

At the Campus Drive/Adelphi Road intersection, the southbound 95th-percentile queue on Adelphi Road spills back to University Boulevard; the other three approaches also have extensive queues and significant delay (LOS E/F) during the PM peak hour. The signal operates a reservice for the southbound approach phase (served twice in one signal cycle) to help clear queues in the short block on Adelphi Road between Campus Drive and University Boulevard, which adversely impacts other approaches during PM peak.

At Belcrest Road/Adelphi Road intersection, eastbound left-turn and southbound right-turn carry significant amount of traffic and the 95th-percentile queue on eastbound Belcrest Road was extensive during the PM peak hour. This could potentially be due to Belcrest Road being used to avoid the East-West Highway (MD 410) and Adelphi Road intersection.

East-West Highway (MD 410)/Queens Chapel Road (MD 500)/Adelphi Road intersection is among the most congested intersections in the study area, particularly during the PM peak hours. The Adelphi Road and Queens Chapel Road (MD 500) approaches experience significant delays (LOS F in both peaks). The eastbound approach operates at LOS F during the PM peak hours. The northbound approach does not have dedicated left-turn lane and the split phasing results in high delay on Adelphi Road. The skewed roadway geometry on Adelphi Road and Queens Chapel Road (MD 500) creates safety and operational challenges. Southbound left-turn and westbound left-turn movements and opposing through movements carry significant volumes. As such, the northbound and eastbound 95th-percentile queues extend close to the adjacent intersections during the PM peak hour.

Queens Chapel Road (MD 500)/Nicholson Street intersection is currently unsignalized and Nicholson Street experienced significant delay due to stop control and lack of adequate gap in the north-south traffic stream.

The eastbound and westbound approach 95th-percentile queues on Hamilton Street at Queens Chapel Road (MD 500) spill back to adjacent intersection in both the AM and PM peak hours.

East-West Highway (MD 410)

East-West Highway serves a major east-west corridor for commuters heading to and from Silver Spring and for non-work related trips to the Mall at Prince George's. The majority of the intersections in the study area on East-West Highway operate at congested conditions, either on the mainline or on the side streets due to long cycle length and high volumes.

When crossing other major roadways, such as Queens Chapel Road (MD 500) and Baltimore Avenue (Route 1), East-West Highway experiences high delay. As previously described, the eastbound and westbound approaches operate at congested traffic conditions (LOS E/F) in both peak hours. The queues that are not cleared in one signal cycle adversely affect signal progression under oversaturated conditions.

At minor streets, such as at Toledo Terrace and Editors Park Drive, East-West Highway occupies a significant amount of green time, and side streets delays are significant. Toledo Terrace has permissive phasing for left-turn movements while Editors Park Drive is stop-controlled. The intersection of Belcrest Road and East-West Highway operates at oversaturated conditions due to high volumes on all four approaches and split phasing on Belcrest Road. The operation of the intersection may be improved by removing the split phase for the minor street approaches.

During PM peak hour, 95th percentile queues on East-West Highway at most of the study intersections extend close to adjacent intersections. During both peaks, side street queues are significant, particularly on Toledo Terrace and southbound Belcrest Road, which extend beyond Freedom Way.

Ager Road

Ager Road/Nicholson Street intersection may warrant a signal due to high delay and significant queues on the stop-controlled side street. Nicholson Street provides access to Edward M. Felegy Elementary School and Nicholas Orem Middle School which results in high traffic peaks during pick-up and drop-off times. The 95th-percentile queue at the eastbound right-turn lane of the Ager Road and Queens Chapel Road (MD 500) extends close to Hamilton Street during the AM peak hour due to heavy commuting traffic into D.C.

Exceptions in Operational Results

Field observations contradict the operational performance of the following three intersections derived from Vistro:

- Baltimore Avenue/Hamilton Street (north) (both peak hours)
- East-West Highway/Editors Park Drive (both peak hours)
- East-West Highway/Prince George's Mall (PM peak hour)

Significant congestion was observed in the field, with vehicles experiencing signal delay over multiple cycles, even though the VISTRO analysis showed that the intersection was operating at LOS D or better. This can be attributed to several factors:

- Vistro analyses are based upon TMC data, which only captures vehicles passing through the intersection during the peak hour. When demand is much higher in the field and the intersection is not able to process the actual vehicular demand during the peak hour, the TMC data collected can reflect lower traffic volume than the demand at the intersection.
- Vistro cannot accurately capture lane utilization or lane changing behavior. In the field, there was much higher utilization of lanes at certain intersections due to upstream and/or downstream lane configuration, which can result in longer delays and queues.
- Vistro analyses do not account for downstream congestion of adjacent intersections. Queue spillback from these adjacent facilities reduces actual throughput, increasing delay.

7. Origin-Destination Analysis

To understand traffic patterns throughout the city based on the number of local and regional destinations and trip generators, the Study Team conducted an origin-destination analysis using data collected by StreetLight Data, a company that aggregates cell-phone data for specific use in transportation planning. The company uses the anonymized location and time stamp of data to calculate origin and destination of the cell-phone user. The company produces an index based on normalized traffic volumes that can be used to compare traffic volumes across different areas (or zones) in a city. It should be noted that the index is not actual traffic count and does not represent the actual number of trips. The analysis helped answer the following questions:

- In general, what percent of trips originate in Hyattsville and end outside the City?
- For travel within the City, which origin-destination (OD) pair has the highest trips? Are these short distance trips, and, therefore, could they potentially be converted to walking or bicycling trips?
- For local streets with high traffic volumes (as identified by Wikimap respondents), which OD pair has the most impact on these specific roadways?

The following section describes the methodology used and the findings from this research.

Methodology:

To begin with the analysis, the Study Team worked with city staff to define context-sensitive origin-destination zones that considered land use and roadway functional classification. A total of 16 zones, as shown in Figure 37, were identified. Two additional zones were added to capture trips traveling to/from Maryland and the DC/Virginia areas. In addition to these zones, a set of filters were created to distill traffic data along following corridors:

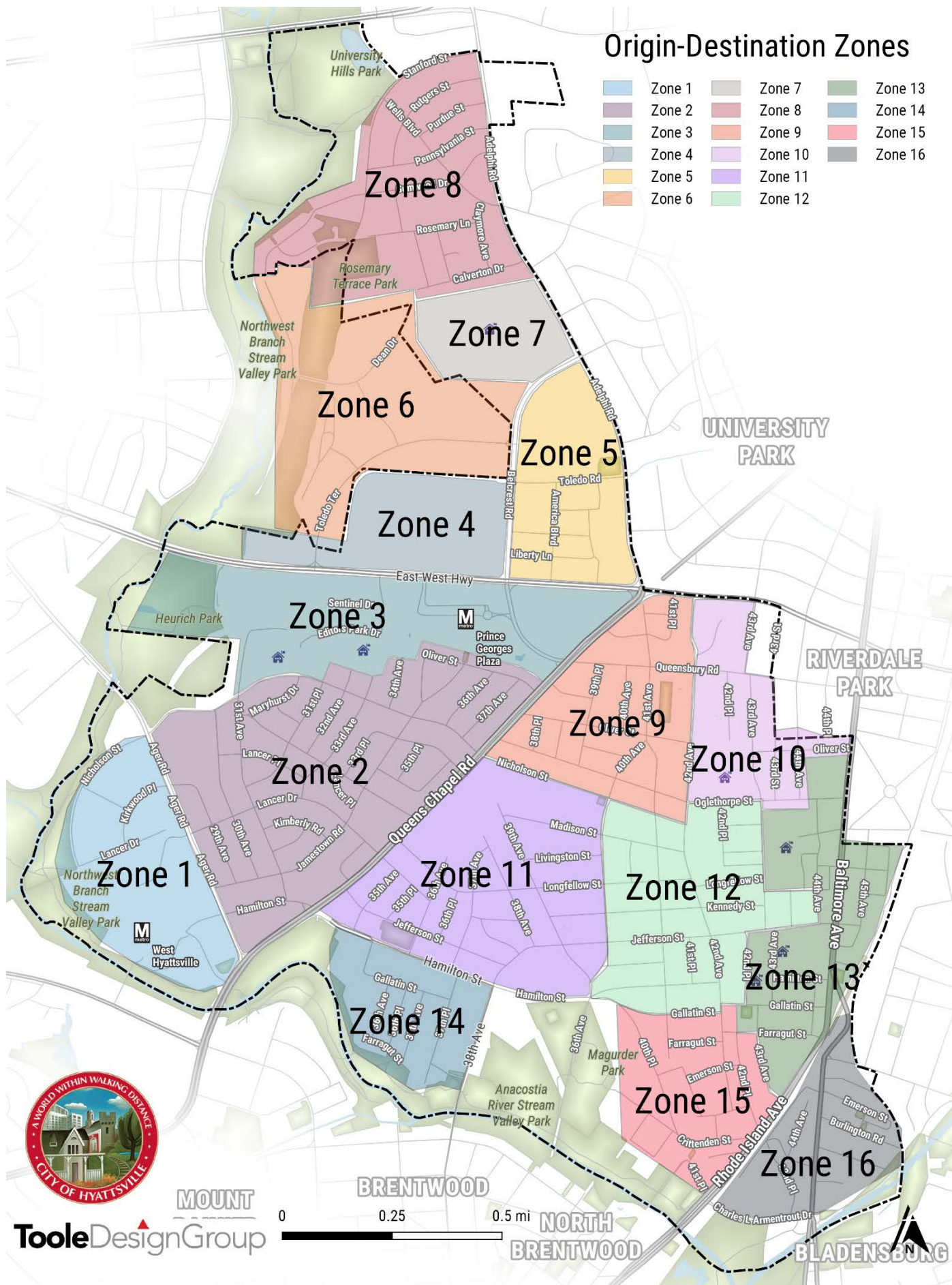
- | | |
|--|-------------------------------|
| • Ager Road (2 filters) | • Queensbury Road (2 filters) |
| • Nicholson Street, west of Queens Chapel Road (2 filters) | • Hamilton Street (2 filters) |
| • Nicholson Street, east of Queens Chapel Road | • Jefferson Street |
| • Belcrest Road, north of Hwy 410 | • Hamilton Street |
| • Belcrest Road, south of Hwy 410 | • 40 th Place |
| | • 42 nd Avenue |
| | • 43 rd Avenue |

StreetLight data were obtained for 12-month period, from September 2016 to August 2017. To assess the travel pattern during a regular work-day, average daily data from Monday to Friday were analyzed. Furthermore, in an effort to understand after-work travel pattern, data between the hours of 6:00 and 9:00 pm were also analyzed.

Results

To better understand the travel patterns within the City, the results have been organized in to two area-based groups: regional and local.

Figure 39: Origin-Destination Zones for Analysis



Regional Results

Regional travel patterns were obtained by averaging the OD rates for each of the 16 internal zones in the City with the two external zones that represented D.C./Virginia and Maryland. The average rates were used to understand the aggregated regional travel pattern of residents and visitors of Hyattsville. Figure 38 shows an example regional travel pattern of one of the internal zones (shown in Blue) showing high (Red) origin rate for Maryland and low (Green) origin rate for DC/Virginia. Table 12 shows the average origin rate showing percentage of trips from Hyattsville to the two external zones, as well as to other zones within Hyattsville.

Figure 40: Example Regional Travel Pattern of One of the Internal Zones (Blue)

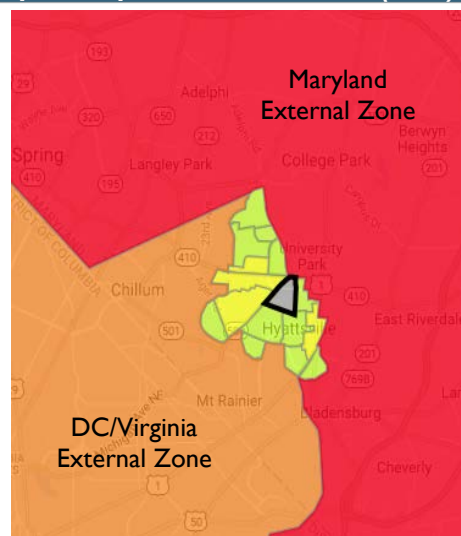


Table 12: Average Origin Rates

	To Hyattsville	To DC + Virginia	To Maryland
From Hyattsville, daily avg.	15.1%	32.9%	52.0%
From Hyattsville, 6-9pm, M-F	16.2%	30.6%	53.3%

The results of the regional trip analysis showed that during an average weekday approximately 15 percent of all trips originating within the city, end within the city. During the after-work hours (6:00 to 9:00 p.m.) the trend continued with only approximately 16 percent of traffic traveling inside Hyattsville. Conversely, most trips originating in Hyattsville were going to Washington, DC or Virginia (32.9 percent) or other destinations in Maryland (52 percent).

Table 13 below lists the destination rates, by percent, of trips ending in Hyattsville. The table shows that during an average weekday, of all traffic travelling to Hyattsville, approximately 16 percent comes from within Hyattsville. In the evening (6:00 to 9:00 pm) hours during the weekday, approximately 19 percent of traffic comes from within Hyattsville.

The result of the regional travel pattern analysis indicates that even during the after-work hours, vast majority of Hyattsville residents and visitors do not spend time in the City.

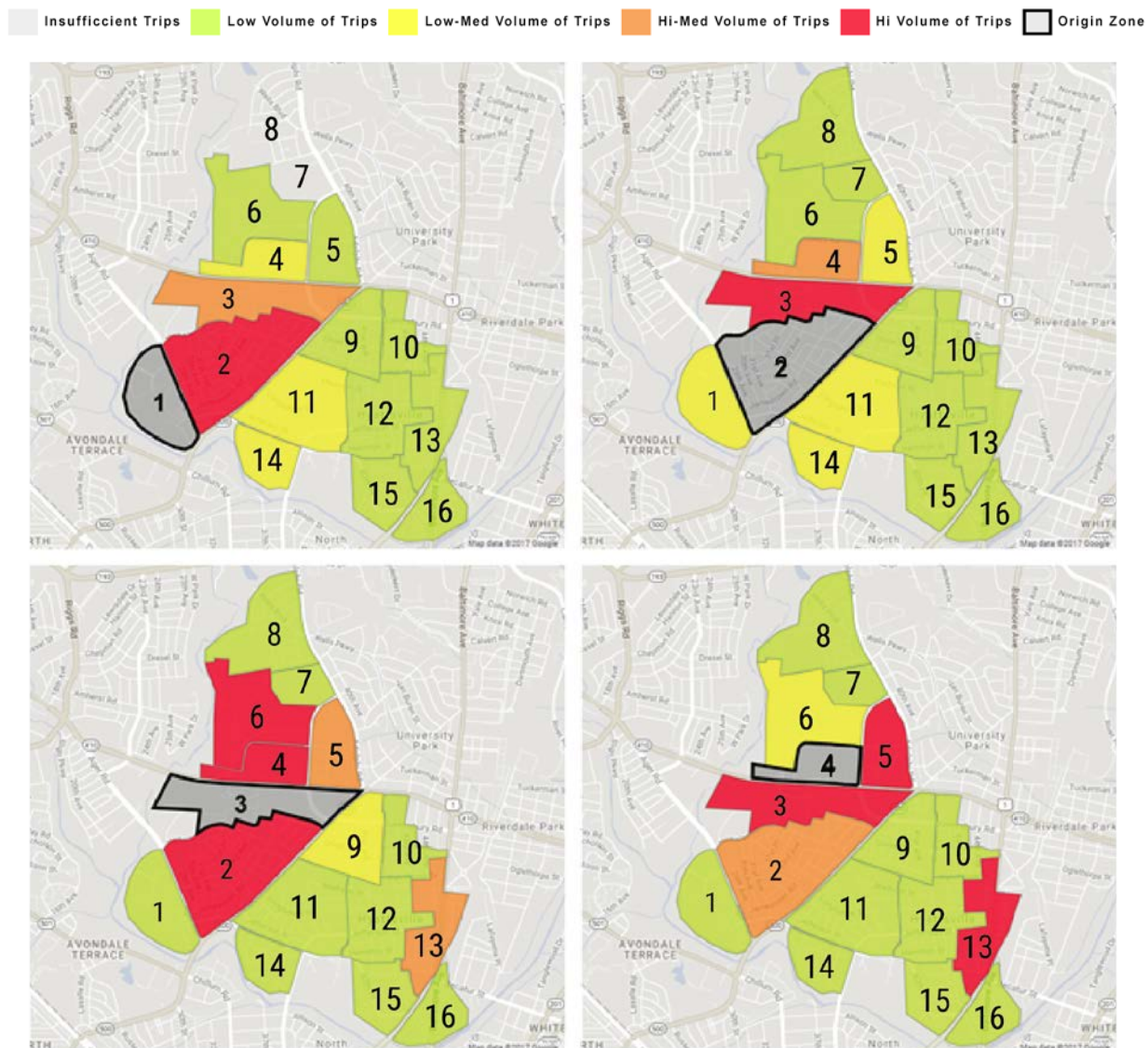
Table 13: Average Destination Rates

	From Hyattsville	From DC + Virginia	From Maryland
To Hyattsville, daily avg.	16.2%	33.5%	50.9%
To Hyattsville, 6-9pm, M-F	18.6%	33.5%	47.9%

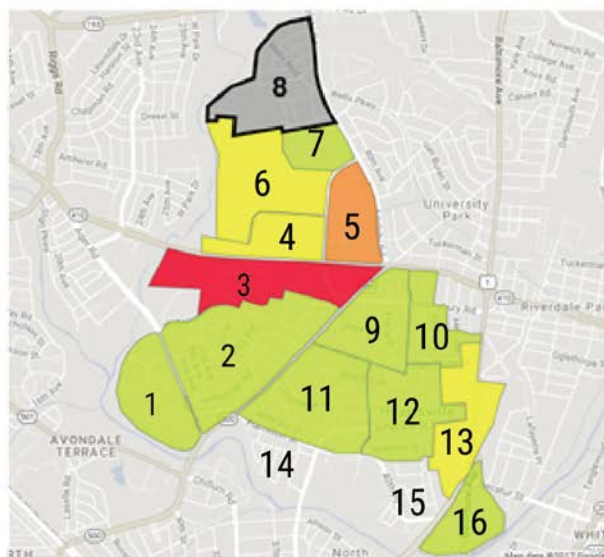
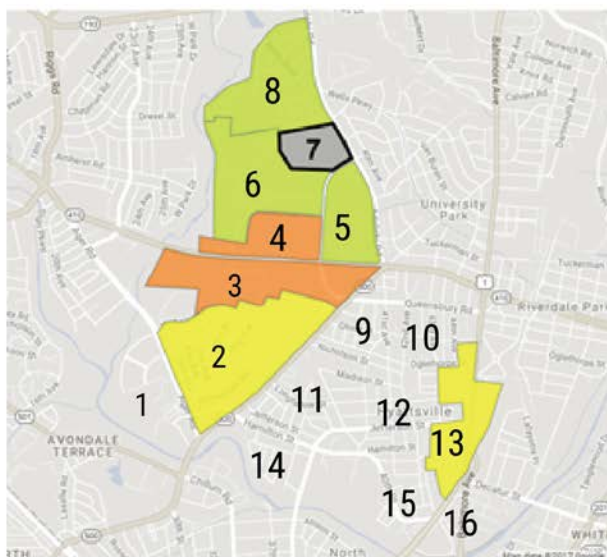
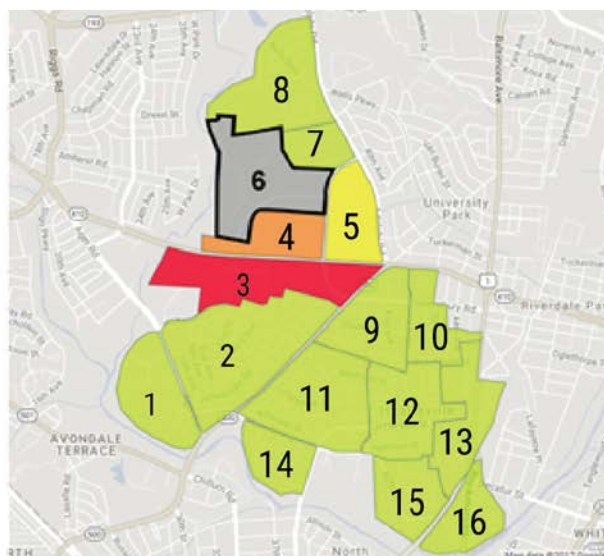
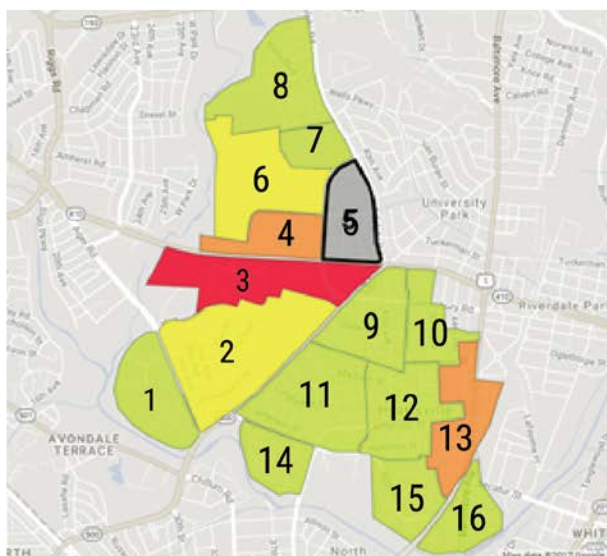
Local Results:

The following maps show the proportion of trips originating in a defined zone in the City and ending in others. In the maps, the grey areas represent the origin zones and the colored areas show the proportion of trips ending in the other areas. Areas with the highest proportion of trips are noted in red. For instance, the first map indicates that, of the traffic originates in Zone 1 and travels within Hyattsville, the highest volume of trips end in Zone 2.

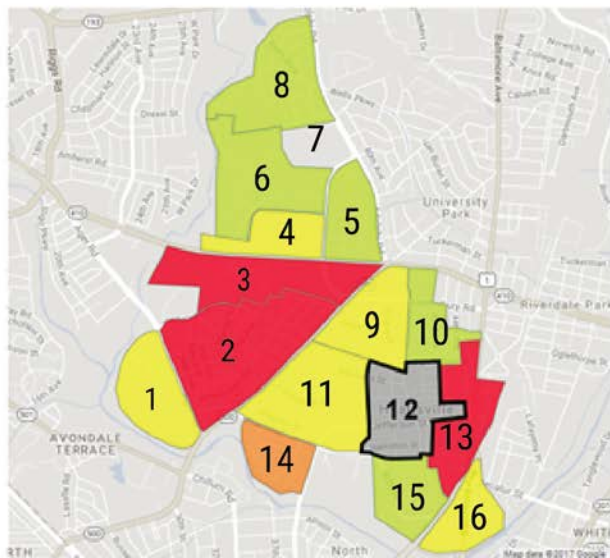
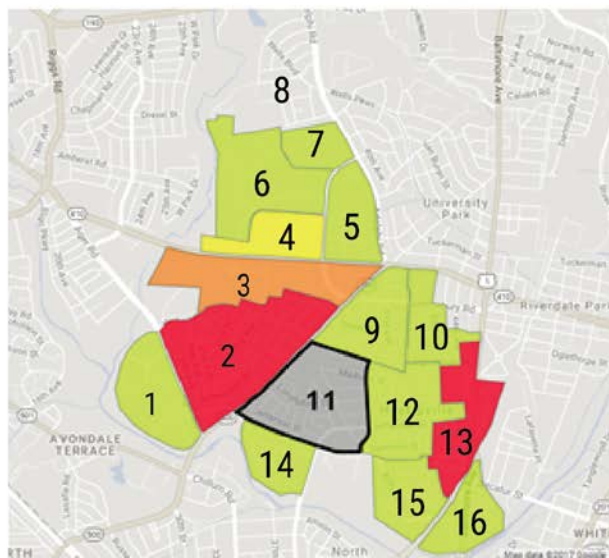
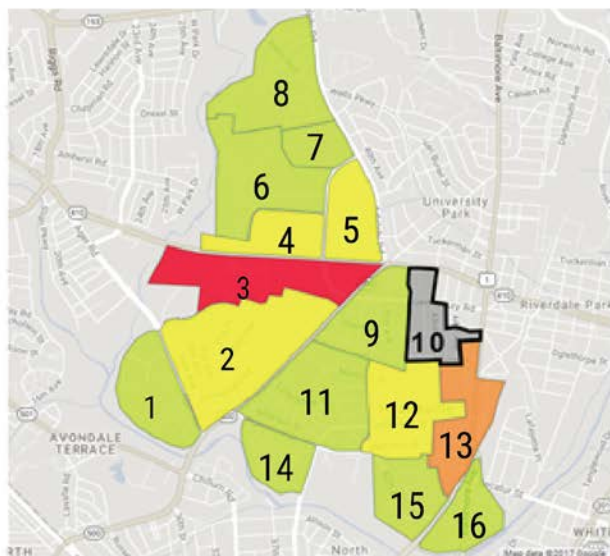
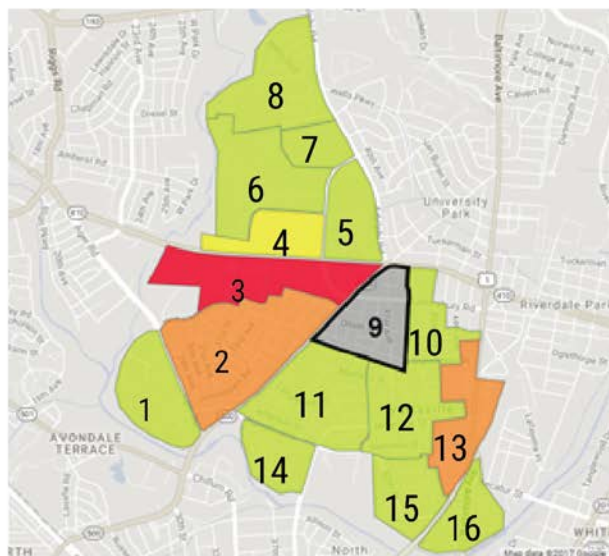
Figure 41: Proportion of Trips Originating in a Zone (bold) that Ended in Another Zone

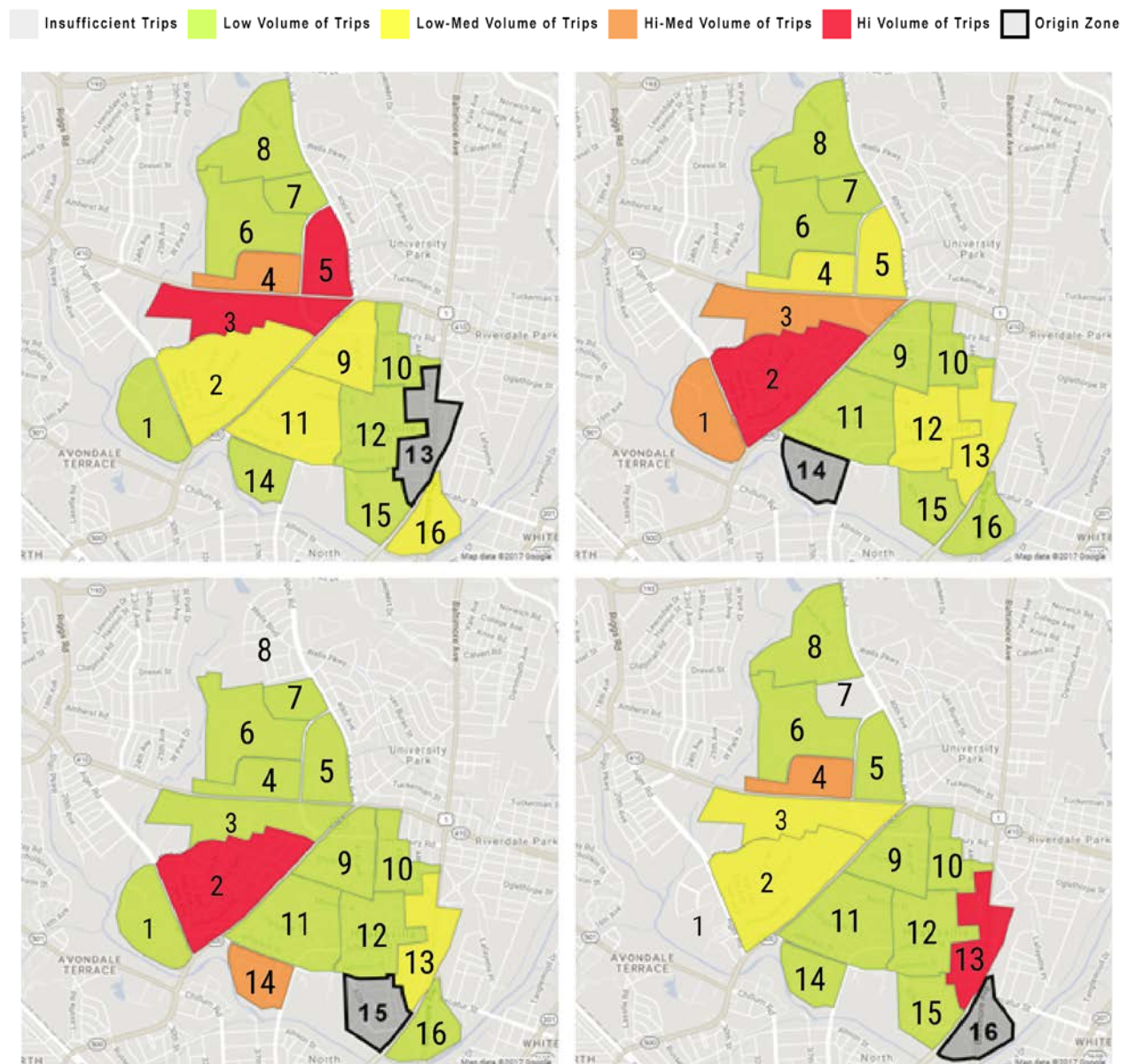


Insufficient Trips
 Low Volume of Trips
 Low-Med Volume of Trips
 Hi-Med Volume of Trips
 Hi Volume of Trips
 Origin Zone



Insufficient Trips
 Low Volume of Trips
 Low-Med Volume of Trips
 Hi-Med Volume of Trips
 Hi Volume of Trips
 Origin Zone





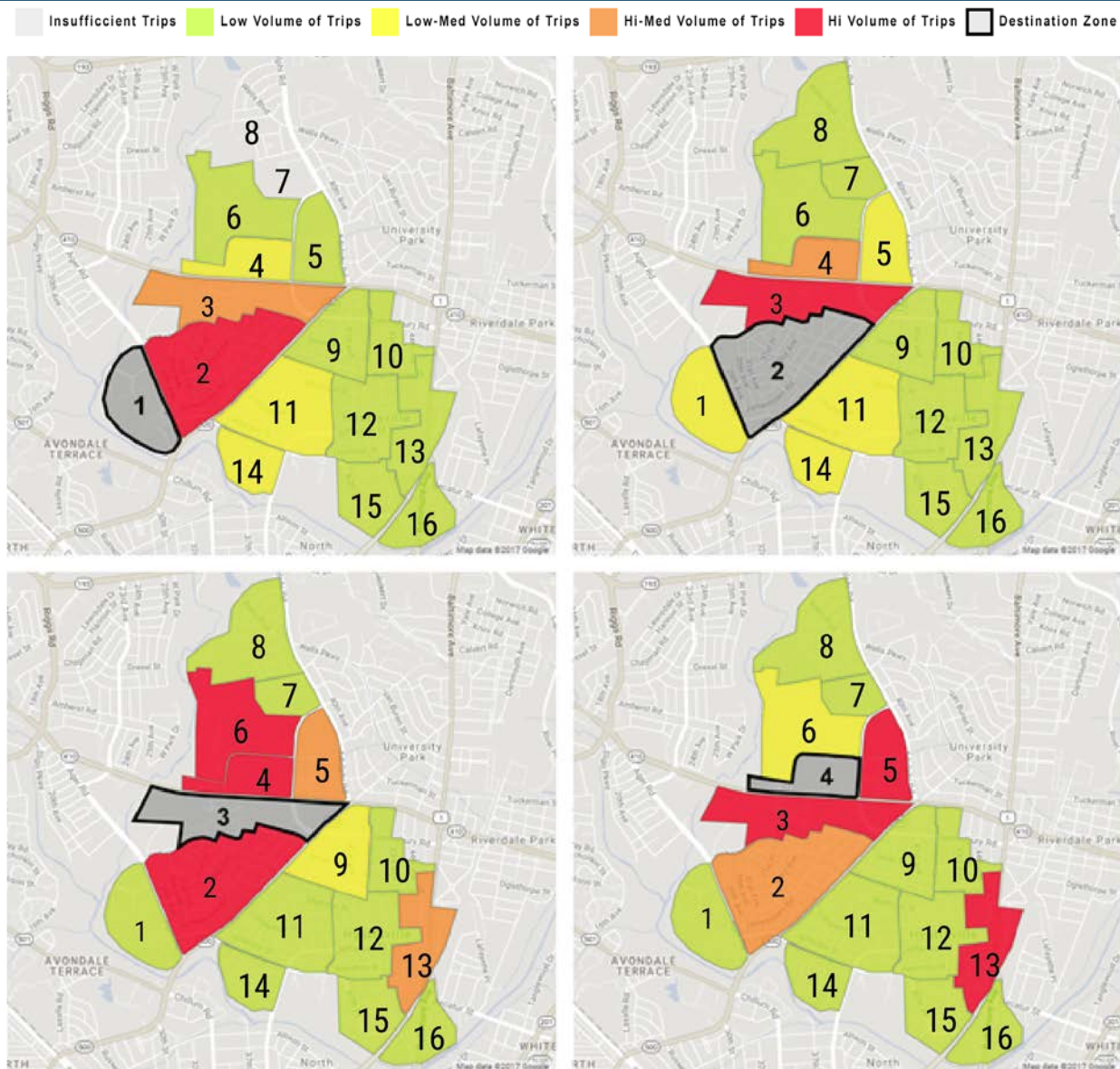
The data shows that a vast number of contiguous zones within the city receive the highest proportion of trips between each other. These are short trips that can potentially be made by walking or biking. The data also indicates that the most common destinations in the City are Zones 2, 3, 4, 5, and 13. These zones include the following local and regional destinations:

- Prince George's Plaza and Hyattsville Metro stations (Zone 1 and 3);
- Downtown Hyattsville/Arts District (Zone 13);
- The Mall at Prince George's (Zone 4)
- University Town Center (Zone 5)

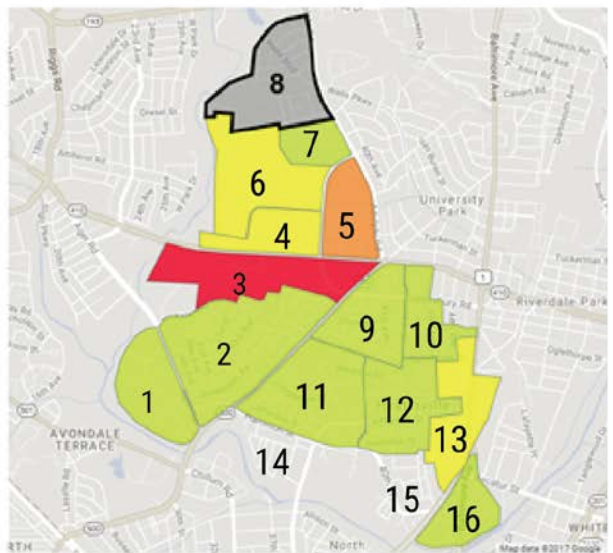
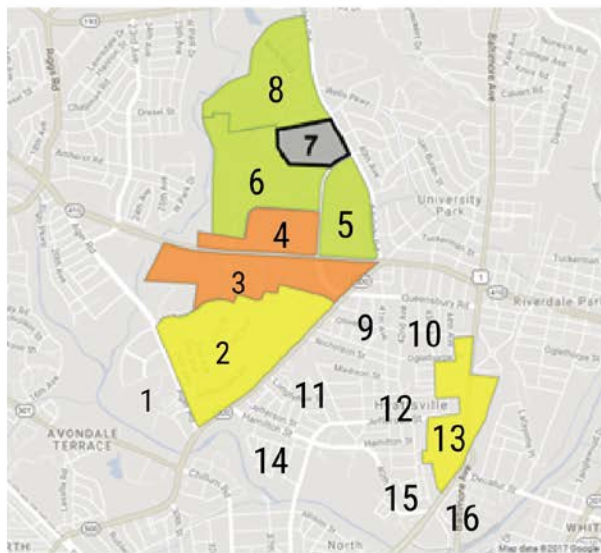
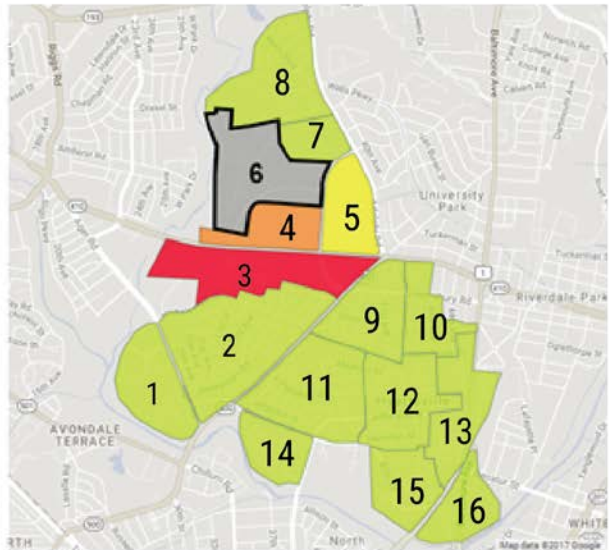
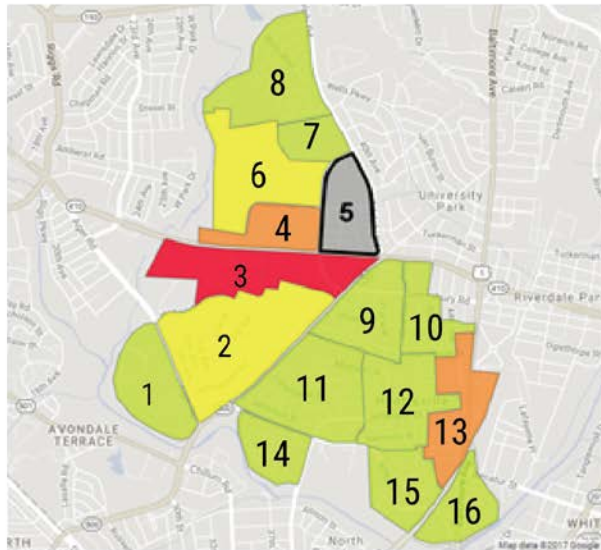
Destination Maps

The following maps show the proportion of trips ending in a defined zone in the City and originating in others. In the maps, the grey areas represent the destinations zones and the colored areas show the proportion of trips originating from n the other areas. Areas with the highest proportion of trips are noted in red.

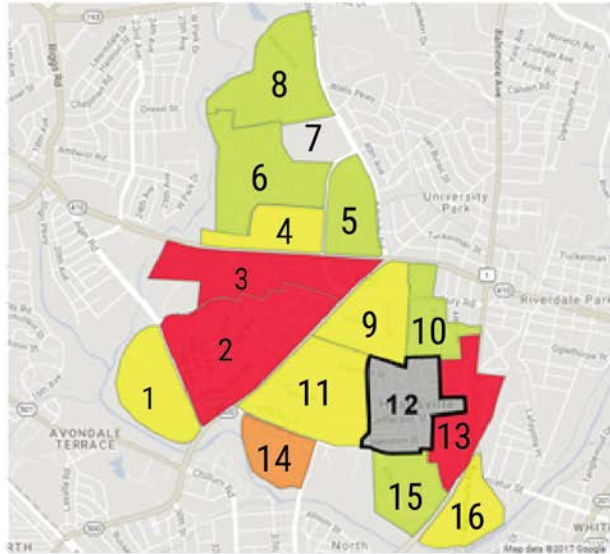
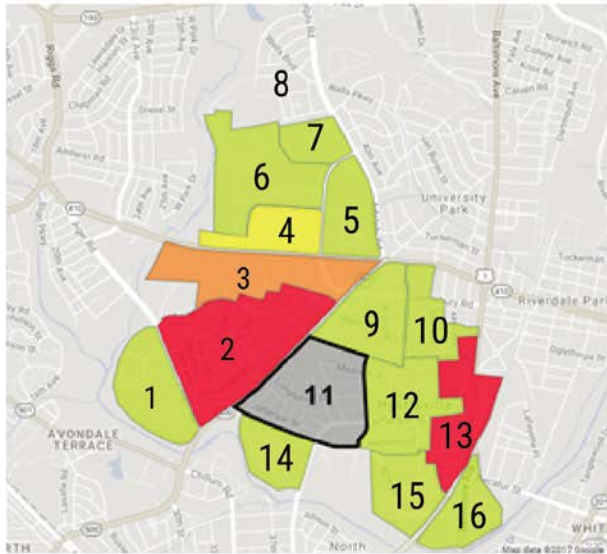
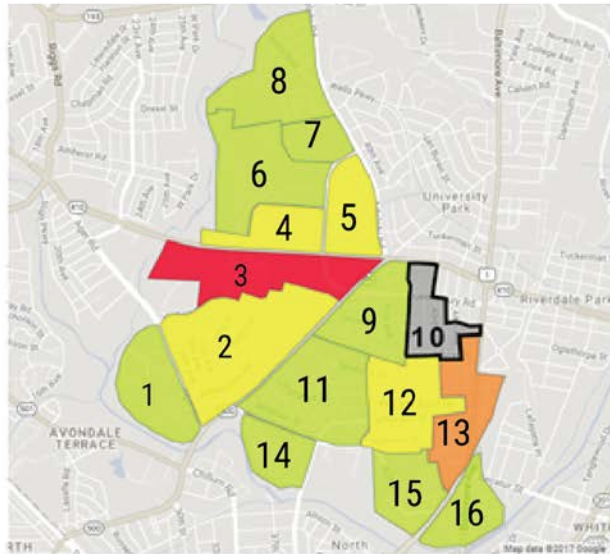
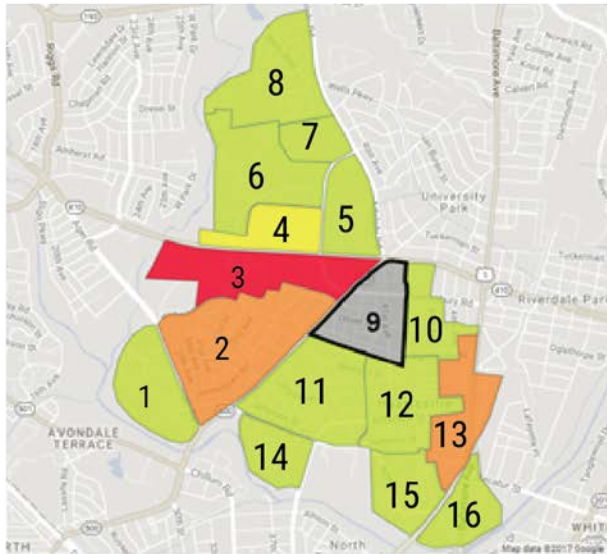
Figure 42: Proportion of Trips Ending in a Zone (bold) that Originated in Another Zone (colored)



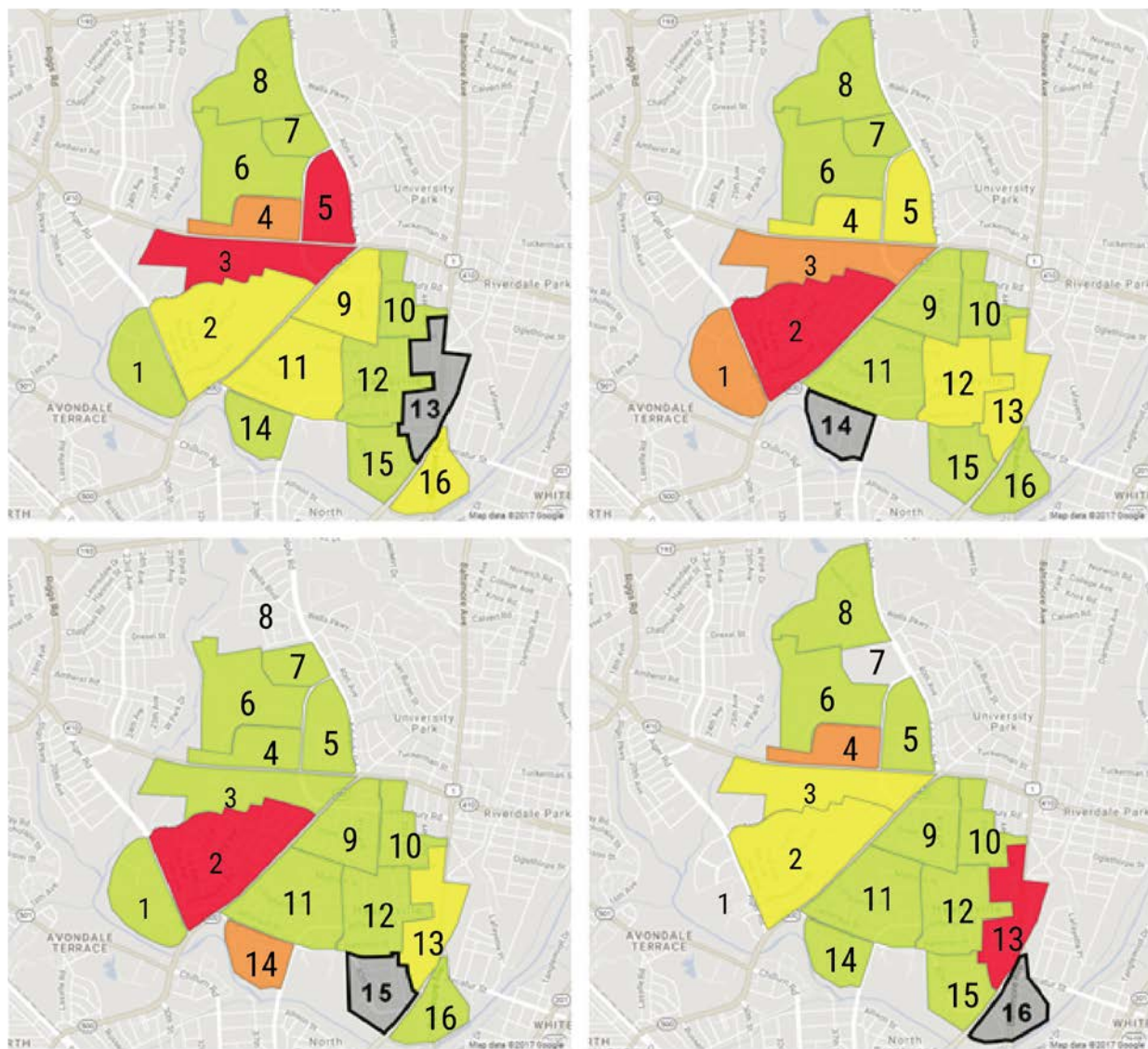
Insufficient Trips
 Low Volume of Trips
 Low-Med Volume of Trips
 Hi-Med Volume of Trips
 Hi Volume of Trips
 Destination Zone



Insufficient Trips
 Low Volume of Trips
 Low-Med Volume of Trips
 Hi-Med Volume of Trips
 Hi Volume of Trips
 Destination Zone



Insufficient Trips
 Low Volume of Trips
 Low-Med Volume of Trips
 Hi-Med Volume of Trips
 Hi Volume of Trips
 Destination Zone



Similar to the origin data, the destination data shows that contiguous zones within the city are often the starting point for trips. Often, destination traffic originates from Zones 2, 3 and 13. Interestingly, these zones are also the most common destinations.

Local Street Travel Pattern Assessment

The StreetLight data was used to assess the travel pattern of local streets in Hyattsville that were identified by Wikimap survey respondents as being a barrier to travel. The assessment identified the OD zone pairs that contributed the most amount of traffic to the local street segment. The information, in conjunction with other data, will be used to determine potential mitigation measures to improve mobility between the OD zone pair. Among other specific local street segments, the assessment identified Belcrest Road, south of East-West Highway, and Queensbury Road as having the greatest volume of traffic from different zones within the City. The following is a summary of specific corridors:

Belcrest Road

Belcrest Road, south of the East-West Highway (MD 410), experiences the highest traffic volumes than any other local street from traffic within Hyattsville. Most of the traffic volume originates in Zone 3, with high traffic volume on Belcrest ending in Zone 2 and Zone 13. Zone 2 is located just south of Zone 3 where enhanced bicycle and pedestrian connection can potentially reduce traffic on Belcrest Road. Zone 13 is located along US 1 and would require extended multimodal connection to help reduce traffic on Belcrest Road.

Hamilton Street

Zone 14 produces high traffic volumes on Hamilton Street. Trips originating in Zone 14 and traveling to Zone 2, or originating in Zone 2 and traveling to Zone 14, produce the highest volumes of traffic on the street. Queens Chapel Road acts as a barrier to bicycling and pedestrian connection between Zone 14 and Zone 2.

Jefferson Street

Trips originating in Zone 2 and ending in Zone 13, or trips originating in Zone 13 and ending in Zone 11 have a higher traffic volume that uses Jefferson streets, than other origin-destination trips. Hence, potential enhanced multimodal connection between Zone 13 and Zone 11 would likely reduce traffic volume on Jefferson St.

Nicholson Street - East of Queens Chapel Road

Nicholson Street, east of Queens Chapel Road, has high traffic volume from trips originating in Zone 2. However, most of the traffic that leaves Zone 2 and passes through Queens Chapel Road either ends in Zone 9 or Zone 13.

Nicholson Street - West of Queens Chapel Road

Nicholson Street, west of Queens Chapel Road, has high traffic volume from trips originating in Zone 2. Vehicles use this segment of Nicholson Street to either travel within Zone 2, or to travel to Zone 3.

Queensbury Road

Queensbury Road experiences its highest traffic volumes from trips originating in Zone 3 and ending in Zone 13 and for trips originating in Zone 13 and ending in Zone 4. This data suggests that providing enhanced multimodal connection between Zone 13 and Zone 3 and 4, would likely reduce traffic volume on Queensbury Road.

Appendix I-A

School Infrastructure Assessment Reports

Appendix I-B

Existing Traffic Volume Figures

Appendix I-C

Existing Lane Configuration

Appendix I-D

Existing LOS by Movement

Appendix I-E

Existing Intersection Operational Results VISTRO HCM Report

Appendix I-F

Existing 95th-Pecentile Queue and Storage

Hyattsville Transportation Plan

Vistro File: K:\...\2037 AM Build.vistro
Report File: K:\...\2037 AM_Build.pdf

Scenario: Base Scenario
8/1/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	MD 500/Ager Rd	Signalized	HCM 2010	NEB Left	0.892	35.1	D
2	MD 500/Hamilton St	Signalized	HCM 2010	SEB Thru	0.844	59.2	E
3	MD 500/Nicholson St	Signalized	HCM 2010	SEB Left	0.526	9.1	A
4	MD 500/Belcrest Rd/Queensbury Rd	Signalized	HCM 2010	EB Right	0.801	28.8	C
5	MD 208(Hamilton St)/38th Ave	Signalized	HCM 2010	SWB Right	0.861	38.7	D
6	US 1/MD 410	Signalized	HCM 2010	SB Right	0.929	80.1	F
7	US 1/Queensbury Rd	Signalized	HCM 2010	WB Left	0.532	17.7	B
8	US 1/Oglethorpe Rd	Signalized	HCM 2010	EB Left	0.524	11.9	B
9	US 1/Madison St	Signalized	HCM 2010	EB Right	0.639	16.9	B
10	US 1/Jefferson St	Signalized	HCM 2010	EB Right	0.757	19.9	B
11	US 1/Hamilton St (North)	Two-way stop	HCM 2010	WB Right	0.003	14.1	B
12	US 1/Hamilton St (South)/US 1 Alt	Signalized	HCM 2010	NWB Right	0.893	58.7	E
13	US 1 Alt/Decatur St	Signalized	HCM 2010	WB Right	0.746	44.4	D
14	US 1 Alt/Charles Armentrout St	Signalized	HCM 2010	NB Left	0.730	32.8	C
15	US 1/Gallatin St	Signalized	HCM 2010	EB Left	0.339	3.9	A
16	US 1/Farragut St	Signalized	HCM 2010	EB Left	0.347	10.0	A
17	US 1/43rd Avenue	Two-way stop	HCM 6th Edition	SEB Left	0.047	35.6	E
18	US 1/42nd Place/Crittendon St	Signalized	HCM 2010	NEBL2	0.879	33.6	C
19	US 1/41st Place/Charles Armentrout Drive	Signalized	HCM 2010	NEB Left	0.946	42.9	D
20	MD 410/Toledo Terrace	Signalized	HCM 2010	NB Left	0.612	31.8	C
21	MD 410/Editors Park Dr	Signalized	HCM 2010	NB Right	0.418	5.2	A
22	MD 410/Prince George's Plaza	Signalized	HCM 2010	NB Right	0.388	13.3	B
23	MD 410/Belcrest Rd	Signalized	HCM 2010	EB Left	0.686	41.4	D
24	MD 410/MD 500/Adelphi Rd	Signalized	HCM 2010	NB Right	0.850	46.4	D
25	Ager Rd/23rd Ave	Signalized	HCM 6th Edition	SWB Left	0.579	35.9	D
26	Ager Rd/Oglethorpe St/School	Signalized	HCM 6th Edition	NWB Right	0.420	39.2	D

27	Ager Rd/Nicholson St	Signalized	HCM 2010	NEB Left	0.465	16.3	B
28	Ager Rd/Hamilton St	Signalized	HCM 2010	EB Left	0.841	19.7	B
29	Toledo Rd/Belcrest Rd	Signalized	HCM 2010	EB Left	0.375	8.6	A
30	Adelphi Rd/Belcrest Rd	Signalized	HCM 2010	SWB Thru	0.783	23.7	C
31	Adelphi Rd/Campus Dr	Signalized	HCM 2010	WB Left	0.473	31.8	C
32	Adelphi Rd/Toledo Rd	Signalized	HCM 2010	EB Right	0.424	6.3	A
33	Hamilton St/40th Pl/39th Ave	Roundabout	HCM 2010	NWB Thru		8.1	A
4281	New Intersection	Two-way stop	HCM 6th Edition	NB Thru	0.000	12.6	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: MD 500/Ager Rd

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 35.1
 Level Of Service: D
 Volume to Capacity (v/c): 0.892

Intersection Setup

Name	Ager Rd.		MD 500		MD 500	
Approach	Southbound		Northeastbound		Southwestbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	1
Pocket Length [ft]	100.00	100.00	400.00	100.00	100.00	300.00
Speed [mph]	35.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		No	

Volumes

Name	Ager Rd.		MD 500		MD 500	
Base Volume Input [veh/h]	0	386	303	827	1353	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	2.00	2.00	2.00	3.85
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	58	17	21	85	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	444	320	848	1438	12
Peak Hour Factor	1.0000	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	121	87	230	391	3
Total Analysis Volume [veh/h]	0	483	348	922	1563	13
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	9		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Split	Split
Signal group	0	4	1	0	2	0
Auxiliary Signal Groups		1,4				
Lead / Lag	-	-	Lead	-	-	-
Minimum Green [s]	0	5	5	0	20	0
Maximum Green [s]	0	30	43	0	66	0
Amber [s]	0.0	3.0	4.0	0.0	5.0	0.0
All red [s]	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	0	20	45	0	55	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	5.0	0.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk		No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	3.0	0.0	4.0	0.0
Minimum Recall		No	No		No	
Maximum Recall		No	No		Yes	
Pedestrian Recall		No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	230.0	0.0
Detector Length [ft]	0.0	30.0	30.0	0.0	6.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	R	L	C	R
C, Cycle Length [s]	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	4.00	4.00
g_i, Effective Green Time [s]	47	28	62	62
g / C, Green / Cycle	0.40	0.23	0.51	0.51
(v / s)_i Volume / Saturation Flow Rate	0.31	0.20	0.44	0.01
s, saturation flow rate [veh/h]	1583	1774	3547	1547
c, Capacity [veh/h]	627	408	1818	793
d1, Uniform Delay [s]	31.55	44.32	25.51	14.39
k, delay calibration	0.34	0.12	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.20	5.58	5.58	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.85	0.86	0.02
d, Delay for Lane Group [s/veh]	37.75	49.90	31.09	14.43
Lane Group LOS	D	D	C	B
Critical Lane Group	Yes	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	12.93	10.31	19.45	0.18
50th-Percentile Queue Length [ft/ln]	323.23	257.81	486.16	4.44
95th-Percentile Queue Length [veh/ln]	18.83	15.58	26.68	0.32
95th-Percentile Queue Length [ft/ln]	470.65	389.48	666.96	7.99

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	37.75	49.90	0.00	31.09	14.43
Movement LOS		D	D		C	B
d_A, Approach Delay [s/veh]	37.75		49.90		30.95	
Approach LOS	D		D		C	
d_I, Intersection Delay [s/veh]	35.06					
Intersection LOS	D					
Intersection V/C	0.892					

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 2: MD 500/Hamilton St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 59.2
 Level Of Service: E
 Volume to Capacity (v/c): 0.844

Intersection Setup

Name	MD 500				MD 500			Hamilton St			Hamilton St		
Approach	Northeastbound				Southwestbound			Northwestbound			Southeastbound		
Lane Configuration													
Turning Movement	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	1	0	1	1	0	0	0	0	1
Pocket Length [ft]	200.0	100.0	100.0	200.0	220.00	100.00	200.00	200.00	100.00	100.00	100.00	100.00	50.00
Speed [mph]	40.00				40.00			35.00			35.00		
Grade [%]	0.00				0.00			0.00			0.00		
Crosswalk	Yes				Yes			Yes			Yes		

Volumes

Name	MD 500				MD 500			Hamilton St			Hamilton St		
Base Volume Input [veh/h]	2	23	608	128	95	949	89	302	420	89	110	378	31
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.63	2.00	2.00	2.63	2.27	2.11	2.00	2.00	2.27	3.85
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	21	0	22	85	3	0	10	5	12	35	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	23	629	128	117	1034	92	302	430	94	122	413	31
Peak Hour Factor	0.920	0.920	0.920	0.920	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	6	171	35	32	281	25	82	117	26	33	112	8
Total Analysis Volume [veh/h]	2	25	684	139	127	1124	100	328	467	102	133	449	34
Presence of On-Street Parking	No			No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0				0			0			0		
Bicycle Volume [bicycles/h]	0				0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Permi	Prote	Permi	Permi	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	1	6	6	5	2	2	3	8	8	7	4	4
Auxiliary Signal Groups													
Lead / Lag	Lead	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	20	20	5	20	20	5	5	5	5	5	5
Maximum Green [s]	13	13	42	42	30	42	42	19	25	25	19	25	25
Amber [s]	4.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	18	18	48	48	18	48	48	24	30	30	24	30	30
Vehicle Extension [s]	3.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk			No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall		No	No		No	No		No	No		No	No	
Maximum Recall		No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall		No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	30.0	5.0	5.0	5.0	5.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.00	4.00	0.00	4.00	4.00	0.00	3.00	0.00	3.00
g_i, Effective Green Time [s]	60	48	48	60	52	52	49	36	49	26
g / C, Green / Cycle	0.50	0.40	0.40	0.50	0.43	0.43	0.41	0.30	0.41	0.21
(v / s)_i Volume / Saturation Flow Rate	0.04	0.19	0.09	0.14	0.32	0.06	0.26	0.32	0.13	0.26
s, saturation flow rate [veh/h]	639	3547	1574	922	3547	1574	1284	1804	1049	1835
c, Capacity [veh/h]	277	1428	634	443	1543	685	420	539	267	389
d1, Uniform Delay [s]	19.50	26.54	23.49	17.56	28.05	20.46	29.03	42.09	28.70	47.31
k, delay calibration	0.11	0.50	0.50	0.50	0.50	0.50	0.50	0.48	0.13	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.15	1.15	0.80	1.62	3.05	0.45	13.39	53.46	1.78	129.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.10	0.48	0.22	0.29	0.73	0.15	0.78	1.06	0.50	1.24
d, Delay for Lane Group [s/veh]	19.66	27.69	24.29	19.18	31.11	20.91	42.43	95.55	30.48	176.33
Lane Group LOS	B	C	C	B	C	C	D	F	C	F
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.38	7.26	2.67	2.02	13.42	1.74	8.27	23.56	2.53	25.35
50th-Percentile Queue Length [ft/ln]	9.40	181.40	66.72	50.46	335.44	43.55	206.76	589.01	63.18	633.80
95th-Percentile Queue Length [veh/ln]	0.68	11.67	4.80	3.63	19.42	3.14	12.99	32.65	4.55	37.56
95th-Percentile Queue Length [ft/ln]	16.92	291.85	120.10	90.82	485.62	78.39	324.68	816.24	113.72	938.88

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	19.66	19.66	27.69	24.29	19.18	31.11	20.91	42.43	95.55	95.55	30.48	176.33	176.33
Movement LOS	B	B	C	C	B	C	C	D	F	F	C	F	F
d_A, Approach Delay [s/veh]	26.88				29.23			76.13			144.84		
Approach LOS	C				C			E			F		
d_I, Intersection Delay [s/veh]	59.19												
Intersection LOS	E												
Intersection V/C	0.844												

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 3: MD 500/Nicholson St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 9.1
 Level Of Service: A
 Volume to Capacity (v/c): 0.526

Intersection Setup

Name	Nicholson St			MD 500			MD 500				Nicholson St		
Approach	Westbound			Northeastbound			Southwestbound				Southeastbound		
Lane Configuration													
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	150.00	100.00	100.00	150.0	100.0	100.0	100.0	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00				30.00		
Grade [%]	0.00			0.00			0.00				0.00		
Crosswalk	Yes			Yes			Yes				Yes		

Volumes

Name	Nicholson St			MD 500			MD 500				Nicholson St		
Base Volume Input [veh/h]	15	59	26	48	912	10	1	11	1111	84	100	10	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	0.00	2.27	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	38	0	0	0	110	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	59	26	48	950	10	1	11	1221	84	100	10	18
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.900	0.900	0.900	0.900	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	16	7	13	264	3	0	3	339	23	28	3	5
Total Analysis Volume [veh/h]	17	66	29	53	1056	11	1	12	1357	93	111	11	20
Presence of On-Street Parking	No		No	No		No	No			No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0				0		
Bicycle Volume [bicycles/h]	0			0			0				0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permi	Prote	Permi	Permi	Permiss	Permiss	Permiss
Signal group	0	4	0	5	2	0	0	1	6	0	0	8	0
Auxiliary Signal Groups													
Lead / Lag	-	-	-	Lead	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	30	30	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	25	0	10	85	0	0	10	85	0	0	25	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	10	0	0	10	0
Rest In Walk		No			No				No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No		No	No			No	No			No	
Maximum Recall		No		No	No			No	No			No	
Pedestrian Recall		No		No	No			No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	C	L	C	C	C
C, Cycle Length [s]	38	38	38	38	38	38	38	38
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
l2, Clearance Lost Time [s]	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	25	20	20	25	19	19	5
g / C, Green / Cycle	0.14	0.65	0.53	0.53	0.65	0.49	0.49	0.14
(v / s)_i Volume / Saturation Flow Rate	0.06	0.09	0.29	0.29	0.02	0.39	0.39	0.12
s, saturation flow rate [veh/h]	1836	614	1863	1856	673	1863	1821	1203
c, Capacity [veh/h]	367	557	987	984	620	913	893	337
d1, Uniform Delay [s]	15.15	4.86	5.98	5.98	3.03	8.26	8.29	16.20
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.46	0.07	0.46	0.47	0.01	1.68	1.77	0.84
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.30	0.10	0.54	0.54	0.02	0.80	0.81	0.42
d, Delay for Lane Group [s/veh]	15.61	4.93	6.44	6.44	3.04	9.94	10.05	17.04
Lane Group LOS	B	A	A	A	A	A	B	B
Critical Lane Group	No	Yes	No	No	No	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	0.80	0.06	1.73	1.73	0.01	3.52	3.49	1.10
50th-Percentile Queue Length [ft/ln]	19.94	1.44	43.36	43.22	0.34	87.95	87.23	27.43
95th-Percentile Queue Length [veh/ln]	1.44	0.10	3.12	3.11	0.02	6.33	6.28	1.97
95th-Percentile Queue Length [ft/ln]	35.89	2.60	78.06	77.80	0.60	158.31	157.02	49.37

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	15.61	15.61	15.61	4.93	6.44	6.44	3.04	3.04	9.99	10.05	17.04	17.04	17.04
Movement LOS	B	B	B	A	A	A	A	A	A	B	B	B	B
d_A, Approach Delay [s/veh]	15.61			6.37			9.93			17.04			
Approach LOS	B			A			A			B			
d_I, Intersection Delay [s/veh]	9.11												
Intersection LOS	A												
Intersection V/C	0.526												

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: MD 500/Belcrest Rd/Queensbury Rd

Control Type:	Signalized	Delay (sec / veh):	28.8
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.801

Intersection Setup

Name	Belcrest Road			Queensbury Road			MD 500			MD 500		
Approach	Eastbound			Westbound			Northeastbound			Southwestbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	150.00	100.00	100.00	100.00	375.00	100.00	100.00	200.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Belcrest Road			Queensbury Road			MD 500			MD 500		
Base Volume Input [veh/h]	61	121	416	38	184	35	349	697	39	27	738	64
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.85	2.38	2.21	3.85	2.38	3.85	2.21	2.08	2.78	3.70	1.97	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	107	0	0	0	18	20	0	0	3	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	61	121	523	38	184	35	367	717	39	27	741	64
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	34	145	11	51	10	102	199	11	8	206	18
Total Analysis Volume [veh/h]	68	134	581	42	204	39	408	797	43	30	823	71
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	6			18			1			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	37.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	4	4	0	8	8	8	1	6	6	5	2	2
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	20	20	0	20	20	20	5	20	20	10	20	20
Maximum Green [s]	40	40	0	40	40	40	40	53	53	40	53	53
Amber [s]	4.0	4.0	0.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0	2.0
Split [s]	45	45	0	45	45	45	45	60	60	45	60	60
Vehicle Extension [s]	6.0	6.0	0.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
Minimum Recall		Yes			Yes		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	30.0	30.0	30.0	0.0	0.0	0.0	30.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	C	L	C	C	L	C	C
C, Cycle Length [s]	89	89	89	89	89	89	89	89	89
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	7.00	7.00	7.00	7.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	0.00	5.00	5.00	0.00	5.00	5.00
g_i, Effective Green Time [s]	37	37	37	40	30	30	40	26	26
g / C, Green / Cycle	0.41	0.41	0.41	0.45	0.34	0.34	0.45	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.15	0.37	0.17	0.21	0.23	0.23	0.03	0.24	0.24
s, saturation flow rate [veh/h]	1369	1580	1672	1908	1861	1828	867	1863	1812
c, Capacity [veh/h]	617	650	734	750	631	620	389	537	523
d1, Uniform Delay [s]	17.75	24.48	18.38	18.51	25.26	25.27	15.30	29.89	29.89
k, delay calibration	0.39	0.45	0.15	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.11	15.78	0.48	0.62	1.25	1.27	0.08	3.70	3.81
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.33	0.89	0.39	0.54	0.67	0.67	0.08	0.84	0.84
d, Delay for Lane Group [s/veh]	18.86	40.26	18.86	19.13	26.50	26.54	15.39	33.60	33.70
Lane Group LOS	B	D	B	B	C	C	B	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.93	13.59	4.05	2.52	7.61	7.49	0.31	8.97	8.74
50th-Percentile Queue Length [ft/ln]	73.25	339.79	101.29	63.12	190.28	187.33	7.82	224.35	218.54
95th-Percentile Queue Length [veh/ln]	5.27	19.64	7.29	4.54	12.14	11.98	0.56	13.89	13.59
95th-Percentile Queue Length [ft/ln]	131.86	490.95	182.32	113.62	303.39	299.56	14.07	347.18	339.76

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	18.86	18.86	40.26	18.86	18.86	18.86	19.13	26.52	26.54	15.39	33.64	33.70
Movement LOS	B	B	D	B	B	B	B	C	C	B	C	C
d_A, Approach Delay [s/veh]	34.74			18.86			24.11			33.05		
Approach LOS	C			B			C			C		
d_I, Intersection Delay [s/veh]	28.77											
Intersection LOS	C											
Intersection V/C	0.801											

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 5: MD 208(Hamilton St)/38th Ave

Control Type:	Signalized	Delay (sec / veh):	38.7
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.861

Intersection Setup

Name				Hamilton St			38th Ave			Hamilton St		
Approach	Northbound			Westbound			Southwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	125.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Hamilton St			38th Ave			Hamilton St		
Base Volume Input [veh/h]	167	61	23	46	355	11	23	118	269	96	335	158
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.27	3.33	0.00	3.70	2.00	0.00	0.00	2.22	1.89	1.69	1.88	1.65
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	0	0	0	3	0	0	0	0	0	12	45
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	179	61	23	46	358	11	23	118	269	96	347	203
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	50	17	6	13	99	3	6	33	75	27	96	56
Total Analysis Volume [veh/h]	199	68	26	51	398	12	26	131	299	107	386	226
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	5			4			5			6		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	2	8	8	8	6	6	6	4	4	4
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lag	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	5	15	15	20	20	20	15	15	15	20	20	20
Maximum Green [s]	15	45	45	35	35	35	20	20	20	35	35	35
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	25	50	50	40	40	40	25	25	25	40	40	40
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall	Yes	No			No			No			No	
Maximum Recall	Yes	Yes			Yes			Yes			Yes	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	2.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	45	35	35	25	35	35
g / C, Green / Cycle	0.50	0.39	0.39	0.28	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.31	0.06	0.22	0.28	0.11	0.35
s, saturation flow rate [veh/h]	959	793	1853	1639	973	1746
c, Capacity [veh/h]	585	111	721	495	268	679
d1, Uniform Delay [s]	13.51	43.90	21.58	32.61	32.92	25.87
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.04	12.96	3.24	25.06	4.40	17.38
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.50	0.46	0.57	0.92	0.40	0.90
d, Delay for Lane Group [s/veh]	16.55	56.86	24.83	57.67	37.32	43.25
Lane Group LOS	B	E	C	E	D	D
Critical Lane Group	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	3.88	1.52	7.06	13.03	2.38	14.74
50th-Percentile Queue Length [ft/ln]	96.94	37.93	176.39	325.84	59.46	368.54
95th-Percentile Queue Length [veh/ln]	6.98	2.73	11.41	18.95	4.28	21.04
95th-Percentile Queue Length [ft/ln]	174.49	68.28	285.29	473.86	107.03	525.96

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.55	16.55	16.55	56.86	24.83	24.83	57.67	57.67	57.67	37.32	43.25	43.25
Movement LOS	B	B	B	E	C	C	E	E	E	D	D	D
d_A, Approach Delay [s/veh]	16.55			28.37			57.67			42.37		
Approach LOS	B			C			E			D		
d_I, Intersection Delay [s/veh]	38.72											
Intersection LOS	D											
Intersection V/C	0.861											

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 6: US 1/MD 410

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 80.1
 Level Of Service: F
 Volume to Capacity (v/c): 0.929

Intersection Setup

Name	US 1			US 1			MD 410			MD 410		
Approach	Northbound			Southbound			Westbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	1	0	0	1	0	1	1	0	0
Pocket Length [ft]	200.00	100.00	100.00	225.00	100.00	100.00	700.00	100.00	450.00	600.00	100.00	100.00
Speed [mph]	45.00			45.00			40.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 1			US 1			MD 410			MD 410		
Base Volume Input [veh/h]	426	527	53	168	704	122	292	1751	147	179	948	284
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.15	2.00	2.38	2.07	2.00	2.00	2.00	2.03	1.67	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	426	527	53	168	704	122	292	1751	147	179	948	284
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	118	146	15	47	196	34	81	486	41	50	263	79
Total Analysis Volume [veh/h]	473	586	59	187	782	136	324	1946	163	199	1053	316
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			6			3		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	180
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	6	5	2	0	3	8	8	7	4	4
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	15	15	5	25	0	5	25	25	5	15	15
Maximum Green [s]	25	42	42	25	42	0	25	66	66	25	66	66
Amber [s]	4.0	4.5	4.5	4.0	4.5	0.0	4.0	4.5	4.5	4.0	4.5	4.5
All red [s]	1.0	2.0	2.0	1.0	2.0	0.0	1.0	2.0	2.0	1.0	2.0	2.0
Split [s]	30	48	48	30	48	0	30	72	72	30	72	72
Vehicle Extension [s]	3.0	5.0	5.0	3.0	5.0	0.0	3.0	5.0	5.0	3.0	5.0	5.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	4.5	4.5	3.0	4.5	0.0	3.0	4.5	4.5	3.0	4.5	4.5
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.0	5.0	5.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	180	180	180	180	180	180	180	180	180	180	180	180
L, Total Lost Time per Cycle [s]	6.50	6.50	6.50	6.50	6.50	6.50	5.00	6.50	6.50	5.00	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.50	4.50	0.00	4.50	4.50	3.00	4.50	4.50	3.00	4.50	4.50
g_i, Effective Green Time [s]	72	51	51	72	45	45	19	68	68	22	71	71
g / C, Green / Cycle	0.40	0.28	0.28	0.40	0.25	0.25	0.11	0.38	0.38	0.12	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate	0.24	0.18	0.18	0.18	0.25	0.25	0.09	0.39	0.40	0.11	0.30	0.20
s, saturation flow rate [veh/h]	1956	1863	1801	1038	1863	1766	3445	3546	1790	1774	3547	1583
c, Capacity [veh/h]	562	529	511	352	465	441	368	1346	679	218	1403	626
d1, Uniform Delay [s]	52.21	56.01	56.04	39.29	67.55	67.55	79.27	55.84	55.84	78.00	46.75	41.07
k, delay calibration	0.33	0.50	0.50	0.50	0.50	0.50	0.11	0.50	0.50	0.28	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.74	5.38	5.58	5.62	45.05	46.76	6.94	34.15	49.45	28.33	3.73	2.89
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

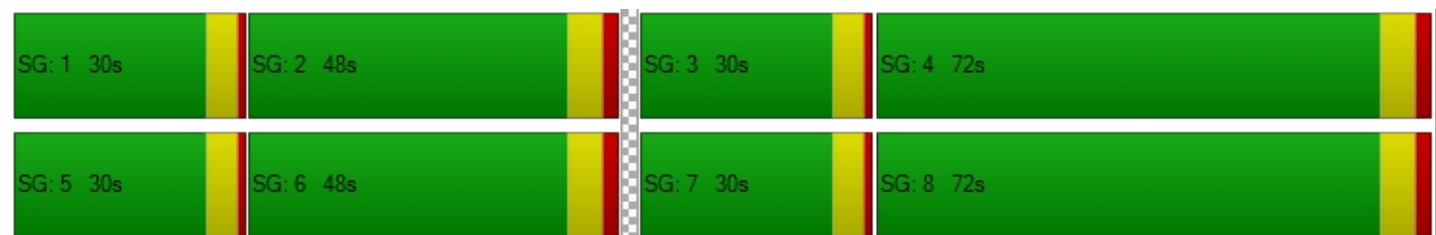
X, volume / capacity	0.84	0.62	0.62	0.53	1.01	1.02	0.88	1.04	1.05	0.91	0.75	0.50
d, Delay for Lane Group [s/veh]	61.95	61.39	61.62	44.91	112.59	114.31	86.21	89.99	105.29	106.32	50.49	43.96
Lane Group LOS	E	E	E	D	F	F	F	F	F	F	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	8.04	13.61	13.22	6.10	26.86	25.67	7.74	36.39	39.64	10.70	20.51	10.93
50th-Percentile Queue Length [ft/ln]	201.10	340.24	330.50	152.59	671.40	641.67	193.61	909.86	991.00	267.39	512.68	273.27
95th-Percentile Queue Length [veh/ln]	12.70	19.66	19.18	10.16	35.65	34.30	12.31	47.51	51.94	16.06	27.93	16.35
95th-Percentile Queue Length [ft/ln]	317.38	491.50	479.58	253.88	891.24	857.59	307.71	1187.68	1298.44	401.47	698.35	408.82

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	61.95	61.49	61.62	44.91	113.28	114.31	86.21	94.34	105.29	106.32	50.49	43.96
Movement LOS	E	E	E	D	F	F	F	F	F	F	D	D
d_A, Approach Delay [s/veh]	61.69			101.83			93.99			56.26		
Approach LOS	E			F			F			E		
d_I, Intersection Delay [s/veh]	80.08											
Intersection LOS	F											
Intersection V/C	0.929											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 7: US 1/Queensbury Rd

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 17.7
 Level Of Service: B
 Volume to Capacity (v/c): 0.532

Intersection Setup

Name	US 1			US 1			Queensbury			Queensbury		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	250.00	100.00	100.00	150.00	100.00	100.00	350.00	100.00	100.00	200.00	100.00	200.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	US 1			US 1			Queensbury			Queensbury		
Base Volume Input [veh/h]	66	781	117	46	1010	34	67	115	76	137	123	168
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	1.89	3.85	2.00	3.85	1.96	2.30	1.85	1.69	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	66	781	117	46	1010	34	67	115	76	137	123	168
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	217	33	13	281	9	19	32	21	38	34	47
Total Analysis Volume [veh/h]	73	868	130	51	1122	38	74	128	84	152	137	187
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			11			11			4		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	6.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	2	6	6	6	4	4	4	8	8	8
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lag	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	5	15	15	15	15	15	8	8	8	8	8	8
Maximum Green [s]	8	60	60	46	46	46	20	20	20	20	20	20
Amber [s]	3.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	13	65	65	52	52	52	25	25	25	25	25	25
Vehicle Extension [s]	3.0	5.0	5.0	5.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.5	3.5	3.5	3.5	3.5	3.5	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall	No	No			No			No			No	
Maximum Recall	No	Yes			Yes			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	294.0	294.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	6.0	6.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	5.50	5.50	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.50	3.50	3.50	3.50	3.50	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	60	60	60	51	51	51	20	20	20	20	20
g / C, Green / Cycle	0.66	0.66	0.66	0.56	0.56	0.56	0.22	0.22	0.22	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.12	0.27	0.27	0.09	0.31	0.31	0.06	0.12	0.13	0.07	0.12
s, saturation flow rate [veh/h]	630	1863	1777	552	1863	1840	1238	1736	1168	1863	1560
c, Capacity [veh/h]	437	1232	1175	306	1049	1036	251	386	188	414	347
d1, Uniform Delay [s]	7.63	7.12	7.12	17.26	12.50	12.51	35.55	31.02	42.05	29.39	30.94
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.12	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.82	1.03	1.08	1.17	2.12	2.16	0.65	1.22	8.47	0.46	1.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.17	0.41	0.41	0.17	0.56	0.56	0.29	0.55	0.81	0.33	0.54
d, Delay for Lane Group [s/veh]	8.46	8.15	8.20	18.43	14.62	14.66	36.20	32.24	50.52	29.86	32.25
Lane Group LOS	A	A	A	B	B	B	D	C	D	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.47	3.80	3.65	0.73	6.85	6.79	1.51	4.13	3.80	2.50	3.64
50th-Percentile Queue Length [ft/ln]	11.84	95.05	91.27	18.18	171.23	169.69	37.85	103.27	95.11	62.56	91.12
95th-Percentile Queue Length [veh/ln]	0.85	6.84	6.57	1.31	11.14	11.06	2.72	7.44	6.85	4.50	6.56
95th-Percentile Queue Length [ft/ln]	21.32	171.08	164.29	32.73	278.53	276.51	68.12	185.88	171.20	112.61	164.02

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	8.46	8.17	8.20	18.43	14.64	14.66	36.20	32.24	32.24	50.52	29.86	32.25
Movement LOS	A	A	A	B	B	B	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	8.19			14.80			33.27			37.39		
Approach LOS	A			B			C			D		
d_I, Intersection Delay [s/veh]	17.74											
Intersection LOS	B											
Intersection V/C	0.532											

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 8: US 1/Oglethorpe Rd

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 11.9
 Level Of Service: B
 Volume to Capacity (v/c): 0.524

Intersection Setup

Name	US 1		US 1		Oglethorpe	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00		40.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	US 1		US 1		Oglethorpe	
Base Volume Input [veh/h]	21	973	1208	40	117	54
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.04	1.97	0.00	1.67	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	21	973	1208	40	117	54
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	270	336	11	33	15
Total Analysis Volume [veh/h]	23	1081	1342	44	130	60
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	66.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Split	Split
Signal group	2	2	6	6	4	4
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	Lag	-
Minimum Green [s]	15	15	15	15	15	15
Maximum Green [s]	85	85	85	85	25	25
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	90	90	90	90	30	30
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	7	7
Pedestrian Clearance [s]	0	0	0	0	10	10
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall		No	No		No	
Maximum Recall		Yes	Yes		Yes	
Pedestrian Recall		No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	50.0	50.0	50.0	50.0	50.0	50.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	C	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	85	85	85	85	25
g / C, Green / Cycle	0.71	0.71	0.71	0.71	0.21
(v / s)_i Volume / Saturation Flow Rate	0.32	0.32	0.37	0.38	0.11
s, saturation flow rate [veh/h]	1725	1694	1863	1843	1743
c, Capacity [veh/h]	1253	1200	1320	1305	363
d1, Uniform Delay [s]	7.28	7.54	8.13	8.18	42.20
k, delay calibration	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.15	1.25	1.50	1.55	5.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.44	0.46	0.53	0.53	0.52
d, Delay for Lane Group [s/veh]	8.43	8.78	9.62	9.73	47.51
Lane Group LOS	A	A	A	A	D
Critical Lane Group	No	No	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	5.66	5.75	7.59	7.65	5.60
50th-Percentile Queue Length [ft/ln]	141.41	143.83	189.84	191.33	139.89
95th-Percentile Queue Length [veh/ln]	9.56	9.69	12.11	12.19	9.48
95th-Percentile Queue Length [ft/ln]	238.92	242.17	302.82	304.76	236.88

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	8.43	8.61	9.68	9.73	47.51	47.51
Movement LOS	A	A	A	A	D	D
d_A, Approach Delay [s/veh]	8.61		9.68		47.51	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	11.92					
Intersection LOS	B					
Intersection V/C	0.524					

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SG: 2 90s

SG: 4 30s

SG: 104 17s

SG: 6 90s

Intersection Level Of Service Report

Intersection 9: US 1/Madison St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 16.9
 Level Of Service: B
 Volume to Capacity (v/c): 0.639

Intersection Setup

Name	US 1			US 1			Madison			Madison		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 1			US 1			Madison			Madison		
Base Volume Input [veh/h]	72	925	12	7	1159	91	109	20	114	68	61	22
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	72	925	12	7	1159	91	109	20	114	68	61	22
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	257	3	2	322	25	30	6	32	19	17	6
Total Analysis Volume [veh/h]	80	1028	13	8	1288	101	121	22	127	76	68	24
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			2			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	74.0
Offset Reference	LagEnd
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	2	2	2	6	6	6	4	4	4	8	8	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	20	20	20	20	20	20	15	15	15	15	15	15
Maximum Green [s]	85	85	85	85	85	85	25	25	25	25	25	25
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	90	90	90	90	90	90	30	30	30	30	30	30
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	7	7	7	7	7	7	7	7	7	0	0	0
Pedestrian Clearance [s]	13	13	13	13	13	13	10	10	10	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall		No			No			No			No	
Maximum Recall		Yes			Yes			Yes			Yes	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	85	85	85	85	85	85	25	25
g / C, Green / Cycle	0.71	0.71	0.71	0.71	0.71	0.71	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.20	0.28	0.28	0.01	0.38	0.38	0.20	0.13
s, saturation flow rate [veh/h]	395	1863	1855	551	1863	1815	1375	1312
c, Capacity [veh/h]	264	1319	1314	379	1319	1286	330	317
d1, Uniform Delay [s]	17.54	7.09	7.09	10.80	8.19	8.21	47.14	42.60
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.92	0.89	0.89	0.10	1.54	1.60	19.82	6.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.30	0.40	0.40	0.02	0.53	0.53	0.82	0.53
d, Delay for Lane Group [s/veh]	20.46	7.98	7.98	10.90	9.73	9.81	66.96	48.82
Lane Group LOS	C	A	A	B	A	A	E	D
Critical Lane Group	No	No	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	1.52	5.12	5.10	0.10	8.01	7.88	9.82	5.10
50th-Percentile Queue Length [ft/ln]	37.93	127.90	127.39	2.49	200.18	197.06	245.44	127.56
95th-Percentile Queue Length [veh/ln]	2.73	8.83	8.80	0.18	12.65	12.49	14.96	8.81
95th-Percentile Queue Length [ft/ln]	68.27	220.63	219.94	4.48	316.20	312.17	373.90	220.18

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	20.46	7.98	7.98	10.90	9.76	9.81	66.96	66.96	66.96	48.82	48.82	48.82
Movement LOS	C	A	A	B	A	A	E	E	E	D	D	D
d_A, Approach Delay [s/veh]	8.87			9.77			66.96			48.82		
Approach LOS	A			A			E			D		
d_I, Intersection Delay [s/veh]	16.87											
Intersection LOS	B											
Intersection V/C	0.639											

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SG: 2 90s

SG: 4 30s

SG: 102 20s

SG: 104 17s

SG: 6 90s

SG: 8 30s

SG: 106 20s

Intersection Level Of Service Report

Intersection 10: US 1/Jefferson St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 19.9
 Level Of Service: B
 Volume to Capacity (v/c): 0.757

Intersection Setup

Name	US 1			US 1			Jefferson St					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	150.00	100.00	100.00	175.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	US 1			US 1			Jefferson St					
Base Volume Input [veh/h]	301	950	1	7	1257	103	57	7	105	40	24	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.82	2.00	2.00	2.00	2.00	2.22	1.43	2.00	1.82	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	301	950	1	7	1257	103	57	7	105	40	24	8
Peak Hour Factor	0.9000	0.9000	1.0000	1.0000	0.9000	0.9000	0.9000	1.0000	0.9000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	84	264	0	2	349	29	16	2	29	10	6	2
Total Analysis Volume [veh/h]	334	1056	1	7	1397	114	63	7	117	40	24	8
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	90.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	6	4	4	4	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lag	-	-	-	-	-
Minimum Green [s]	8	20	0	0	20	20	20	20	20	0	20	0
Maximum Green [s]	15	90	0	0	70	70	20	20	20	0	20	0
Amber [s]	4.0	4.0	0.0	0.0	4.0	4.0	4.0	4.0	4.0	0.0	4.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	20	95	0	0	75	75	25	25	25	0	25	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	7	7	7	7	7	0	7	0
Pedestrian Clearance [s]	0	0	0	0	13	13	13	13	13	0	13	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	3.0	0.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	0.0
Minimum Recall	No	No			No			No			No	
Maximum Recall	Yes	Yes			Yes			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	90	90	90	70	70	70	20	20
g / C, Green / Cycle	0.75	0.75	0.75	0.58	0.58	0.58	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.53	0.28	0.28	0.01	0.41	0.41	0.12	0.06
s, saturation flow rate [veh/h]	632	1863	1862	532	1863	1814	1553	1150
c, Capacity [veh/h]	464	1397	1397	309	1087	1058	299	238
d1, Uniform Delay [s]	23.91	5.23	5.23	17.23	17.63	17.73	47.16	44.03
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.21	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.28	0.78	0.78	0.14	3.79	3.99	4.09	0.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.72	0.38	0.38	0.02	0.70	0.71	0.63	0.30
d, Delay for Lane Group [s/veh]	33.19	6.02	6.02	17.37	21.42	21.73	51.25	44.73
Lane Group LOS	C	A	A	B	C	C	D	D
Critical Lane Group	Yes	No	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.34	4.16	4.16	0.12	15.05	14.91	5.67	1.95
50th-Percentile Queue Length [ft/ln]	83.60	103.92	103.90	2.89	376.33	372.75	141.70	48.87
95th-Percentile Queue Length [veh/ln]	6.02	7.48	7.48	0.21	21.42	21.24	9.57	3.52
95th-Percentile Queue Length [ft/ln]	150.48	187.06	187.02	5.19	535.40	531.07	239.31	87.97

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	33.19	6.02	6.02	17.37	21.56	21.73	51.25	51.25	51.25	44.73	44.73	44.73
Movement LOS	C	A	A	B	C	C	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	12.54			21.55			51.25			44.73		
Approach LOS	B			C			D			D		
d_I, Intersection Delay [s/veh]	19.88											
Intersection LOS	B											
Intersection V/C	0.757											

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SG: 2 95s

SG: 4 25s

SG: 104 20s

SG: 5 20s

SG: 6 75s

SG: 106 20s

Intersection Level Of Service Report

Intersection 11: US 1/Hamilton St (North)

Control Type: Two-way stop
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 14.1
 Level Of Service: B
 Volume to Capacity (v/c): 0.003

Intersection Setup

Name	US 1		US 1		Hamilton St (North)	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	150.00	100.00	100.00	100.00
Speed [mph]	30.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	US 1		US 1		Hamilton St (North)	
Base Volume Input [veh/h]	1228	4	2	1370	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	2.04	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1228	4	2	1370	0	1
Peak Hour Factor	0.9000	1.0000	1.0000	0.9000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	341	1	1	381	0	0
Total Analysis Volume [veh/h]	1364	4	2	1522	0	1
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	14.12
Movement LOS	A	A		A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.01
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.19
d_A, Approach Delay [s/veh]	0.00		0.00		14.12	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 12: US 1/Hamilton St (South)/US 1 Alt

Control Type:	Signalized	Delay (sec / veh):	58.7
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.893

Intersection Setup

Name	US 1			US 1			Hamilton			US 1 ALT		
Approach	Northbound			Southbound			Eastbound			Northwestbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00
Speed [mph]	30.00			30.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	US 1			US 1			Hamilton			US 1 ALT		
Base Volume Input [veh/h]	0	328	20	466	901	0	7	7	10	95	76	902
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.17	0.00	2.00	2.06	0.00	0.00	0.00	0.00	2.63	0.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	328	20	466	901	0	7	7	10	95	76	902
Peak Hour Factor	1.0000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	91	6	129	250	0	2	2	3	26	19	251
Total Analysis Volume [veh/h]	0	364	22	518	1001	0	8	8	11	106	76	1002
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			3			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	18.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Split	Split	Permiss	Permiss	Overlap
Signal group	0	6	6	5	2	0	3	3	3	8	8	8
Auxiliary Signal Groups												5,8
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lag	-	-
Minimum Green [s]	0	20	20	4	20	0	0	0	0	5	5	5
Maximum Green [s]	0	55	55	20	63	0	0	0	0	30	30	30
Amber [s]	0.0	4.0	4.0	4.0	4.0	0.0	0.0	0.0	0.0	3.0	3.0	3.0
All red [s]	0.0	1.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0
Split [s]	0	50	50	15	65	0	0	0	0	55	55	55
Vehicle Extension [s]	0.0	3.0	3.0	3.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	5	5	5
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	10	10	10
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	0.0	3.0	3.0	2.0	3.0	0.0	0.0	0.0	0.0	2.0	2.0	2.0
Minimum Recall		No		Yes	No						No	No
Maximum Recall		Yes		No	Yes						No	No
Pedestrian Recall		No		No	No						No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C		C	R
C, Cycle Length [s]	120	120	120	120	120		120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	0.00	3.00	3.00		2.00	0.00
g_i, Effective Green Time [s]	45	45	60	60	60		51	66
g / C, Green / Cycle	0.38	0.38	0.50	0.50	0.50		0.43	0.55
(v / s)_i Volume / Saturation Flow Rate	0.10	0.11	0.48	0.34	0.34		0.10	0.63
s, saturation flow rate [veh/h]	1860	1823	1082	1470	1470		1846	1583
c, Capacity [veh/h]	697	684	549	735	735		785	871
d1, Uniform Delay [s]	26.15	26.21	32.85	22.75	22.75		22.01	27.00
k, delay calibration	0.50	0.50	0.50	0.50	0.50		0.11	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.98	1.03	26.75	5.05	5.05		0.15	80.99
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.28	0.94	0.68	0.68		0.23	1.15
d, Delay for Lane Group [s/veh]	27.14	27.24	59.60	27.80	27.80		22.16	107.99
Lane Group LOS	C	C	E	C	C		C	F
Critical Lane Group	No	No	Yes	No	No		No	Yes
50th-Percentile Queue Length [veh/ln]	4.06	4.07	15.41	11.49	11.49		3.37	43.48
50th-Percentile Queue Length [ft/ln]	101.40	101.76	385.21	287.29	287.29		84.14	1086.90
95th-Percentile Queue Length [veh/ln]	7.30	7.33	21.85	17.05	17.05		6.06	60.56
95th-Percentile Queue Length [ft/ln]	182.52	183.17	546.15	426.28	426.28		151.46	1514.04

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	27.19	27.24	59.60	27.80	27.80	0.00	0.00	0.00	22.16	22.16	107.99
Movement LOS		C	C	E	C	C				C	C	F
d_A, Approach Delay [s/veh]	27.19			38.64			0.00			94.80		
Approach LOS	C			D			A			F		
d_I, Intersection Delay [s/veh]	58.74											
Intersection LOS	E											
Intersection V/C	0.893											

Sequence

Ring 1	-	2	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 13: US 1 Alt/Decatur St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 44.4
 Level Of Service: D
 Volume to Capacity (v/c): 0.746

Intersection Setup

Name	US 1 ALT		Decatur St		US 1 ALT	
Approach	Northbound		Westbound		Southwestbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	75.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		No	

Volumes

Name	US 1 ALT		Decatur St		US 1 ALT	
Base Volume Input [veh/h]	667	49	139	332	119	432
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.13	2.13	1.97	2.00	2.63	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	667	49	139	332	119	432
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	185	14	39	92	33	120
Total Analysis Volume [veh/h]	741	54	154	369	132	480
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	15.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Permissive	Unsignalized	Split	Split	ProtectedPermissi	Permissive
Signal group	6	0	4	0	5	2
Auxiliary Signal Groups						
Lead / Lag	-	-	Lag	-	Lead	-
Minimum Green [s]	10	0	5	0	4	10
Maximum Green [s]	39	0	15	0	10	54
Amber [s]	5.0	0.0	4.0	0.0	4.0	5.0
All red [s]	1.0	0.0	1.0	0.0	1.0	1.0
Split [s]	30	0	30	0	30	30
Vehicle Extension [s]	0.2	0.0	3.0	0.0	3.0	0.2
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	0.0	3.0	0.0	3.0	4.0
Minimum Recall	No		No		No	No
Maximum Recall	Yes		No		No	Yes
Pedestrian Recall	No		No		No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	0.0	30.0	0.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	R	L	C
C, Cycle Length [s]	80	80	80	80	80
L, Total Lost Time per Cycle [s]	6.00	5.00	5.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	3.00	3.00	0.00	4.00
g_i, Effective Green Time [s]	45	15	15	54	54
g / C, Green / Cycle	0.56	0.19	0.19	0.68	0.68
(v / s)_i Volume / Saturation Flow Rate	0.40	0.09	0.23	0.16	0.26
s, saturation flow rate [veh/h]	1860	1775	1583	849	1863
c, Capacity [veh/h]	1045	333	297	491	1257
d1, Uniform Delay [s]	12.79	28.92	32.50	9.11	5.69
k, delay calibration	0.50	0.11	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.08	1.00	134.53	1.34	0.88
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.71	0.46	1.24	0.27	0.38
d, Delay for Lane Group [s/veh]	16.86	29.92	167.03	10.46	6.57
Lane Group LOS	B	C	F	B	A
Critical Lane Group	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	9.60	2.65	16.64	0.80	3.11
50th-Percentile Queue Length [ft/ln]	240.02	66.28	415.94	20.05	77.82
95th-Percentile Queue Length [veh/ln]	14.68	4.77	25.82	1.44	5.60
95th-Percentile Queue Length [ft/ln]	367.05	119.30	645.43	36.10	140.08

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.86	0.00	29.92	167.03	10.46	6.57
Movement LOS	B		C	F	B	A
d_A, Approach Delay [s/veh]	16.86		126.66		7.41	
Approach LOS	B		F		A	
d_I, Intersection Delay [s/veh]	44.39					
Intersection LOS	D					
Intersection V/C	0.746					

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 14: US 1 Alt/Charles Armentrout St

Control Type:	Signalized	Delay (sec / veh):	32.8
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.730

Intersection Setup

Name	US 1 Alt		US 1 ALT		Charles L Armentrout	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	US 1 Alt		US 1 ALT		Charles L Armentrout	
Base Volume Input [veh/h]	1070	786	481	146	18	572
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.08	2.00	2.00	2.00	3.85	2.17
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	0	0	0	0	12
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1073	786	481	146	18	584
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	298	218	134	41	5	162
Total Analysis Volume [veh/h]	1192	873	534	162	20	649
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtectedPermissi	Permissive	Permissive	Permissive	Permissive	Unsignalized
Signal group	5	2	6	0	3	3
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	5	5	5	0	5	5
Maximum Green [s]	30	30	30	0	30	30
Amber [s]	3.0	3.0	3.0	0.0	3.0	3.0
All red [s]	0.0	1.0	1.0	0.0	1.0	1.0
Split [s]	49	81	32	0	39	39
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	3.0
Walk [s]	0	5	5	0	5	5
Pedestrian Clearance [s]	0	10	10	0	10	10
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	1.0	2.0	2.0	0.0	2.0	2.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L
C, Cycle Length [s]	63	63	63	63	63
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	54	54	21	21	2
g / C, Green / Cycle	0.85	0.85	0.33	0.33	0.02
(v / s)_i Volume / Saturation Flow Rate	0.86	0.47	0.29	0.10	0.01
s, saturation flow rate [veh/h]	1390	1863	1863	1583	1743
c, Capacity [veh/h]	1117	1582	610	518	42
d1, Uniform Delay [s]	13.52	1.35	20.05	15.93	30.45
k, delay calibration	0.50	0.44	0.16	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	46.59	1.23	6.03	0.34	8.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.07	0.55	0.88	0.31	0.48
d, Delay for Lane Group [s/veh]	60.12	2.58	26.08	16.28	38.59
Lane Group LOS	F	A	C	B	D
Critical Lane Group	Yes	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	14.46	0.54	7.70	1.66	0.39
50th-Percentile Queue Length [ft/ln]	361.59	13.51	192.49	41.48	9.69
95th-Percentile Queue Length [veh/ln]	21.86	0.97	12.25	2.99	0.70
95th-Percentile Queue Length [ft/ln]	546.42	24.33	306.25	74.66	17.44

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	60.12	2.58	26.08	16.28	38.59	0.00
Movement LOS	F	A	C	B	D	
d_A, Approach Delay [s/veh]	35.79		23.80		38.59	
Approach LOS	D		C		D	
d_I, Intersection Delay [s/veh]	32.81					
Intersection LOS	C					
Intersection V/C	0.730					

Sequence

Ring 1	2	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SG: 2 81s

SG: 3 39s

SG: 103 15s

SG: 5 49s

SG: 6 32s

SG: 106 15s

Intersection Level Of Service Report

Intersection 15: US 1/Gallatin St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 3.9
 Level Of Service: A
 Volume to Capacity (v/c): 0.339

Intersection Setup

Name	US 1		US 1		Gallatin St.	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		0.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		No	

Volumes

Name	US 1		US 1		Gallatin St.	
Base Volume Input [veh/h]	18	341	952	65	10	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.11	2.05	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	341	952	65	10	10
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	95	264	18	3	3
Total Analysis Volume [veh/h]	20	379	1058	72	10	10
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	2.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	6	6	2	2	4	0
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	Lead	-
Minimum Green [s]	4	4	4	4	5	0
Maximum Green [s]	86	86	86	86	30	0
Amber [s]	4.0	4.0	4.0	4.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	75	75	75	75	15	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	10	0
Rest In Walk						
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall		No	No		No	
Maximum Recall		Yes	Yes		No	
Pedestrian Recall		No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	50.0	50.0	50.0	50.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	8
Pedestrian Walk [s]	20
Pedestrian Clearance [s]	10

Lane Group Calculations

Lane Group	C	C	C	C	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	100	100	100	100	2
g / C, Green / Cycle	0.83	0.83	0.83	0.83	0.02
(v / s)_i Volume / Saturation Flow Rate	0.13	0.12	0.30	0.31	0.01
s, saturation flow rate [veh/h]	1519	1693	1862	1821	1707
c, Capacity [veh/h]	1292	1403	1543	1509	35
d1, Uniform Delay [s]	1.96	2.00	2.52	2.55	58.24
k, delay calibration	0.50	0.50	0.50	0.50	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.25	0.22	0.67	0.71	13.73
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.15	0.15	0.37	0.37	0.57
d, Delay for Lane Group [s/veh]	2.21	2.22	3.20	3.26	71.97
Lane Group LOS	A	A	A	A	E
Critical Lane Group	No	No	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	0.70	0.74	2.57	2.60	0.76
50th-Percentile Queue Length [ft/ln]	17.50	18.41	64.13	64.95	19.08
95th-Percentile Queue Length [veh/ln]	1.26	1.33	4.62	4.68	1.37
95th-Percentile Queue Length [ft/ln]	31.50	33.13	115.44	116.91	34.35

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	2.21	2.22	3.23	3.26	71.97	71.97
Movement LOS	A	A	A	A	E	E
d_A, Approach Delay [s/veh]	2.22		3.23		71.97	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	3.86					
Intersection LOS	A					
Intersection V/C	0.339					

Sequence

Ring 1	-	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SG: 2 75s

SG: 4 15s

SG: 8 30s

SG: 6 75s

Intersection Level Of Service Report

Intersection 16: US 1/Farragut St

Control Type:	Signalized	Delay (sec / veh):	10.0
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.347

Intersection Setup

Name	US 1		Farragut		US 1	
Approach	Southbound		Eastbound		Northeastbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		25.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	US 1		Farragut		US 1	
Base Volume Input [veh/h]	942	3	35	25	10	301
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.97	0.00	0.00	0.00	0.00	2.11
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	942	3	35	25	10	301
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	262	1	10	7	3	84
Total Analysis Volume [veh/h]	1047	3	39	28	11	334
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	96.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Permissive	Permissive	Split	Split	Permissive	Permissive
Signal group	6	6	4	4	2	2
Auxiliary Signal Groups						
Lead / Lag	-	-	Lag	-	Lag	-
Minimum Green [s]	20	20	20	20	20	20
Maximum Green [s]	83	83	26	26	83	83
Amber [s]	5.0	5.0	4.0	4.0	5.0	5.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	89	89	31	31	89	89
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	7	7	0	0
Pedestrian Clearance [s]	0	0	13	13	0	0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	4.0	3.0	3.0	4.0	4.0
Minimum Recall	No		No			No
Maximum Recall	Yes		Yes			Yes
Pedestrian Recall	No		No			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	50.0	50.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	C
C, Cycle Length [s]	120	120	120	120
L, Total Lost Time per Cycle [s]	6.00	6.00	5.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00
l2, Clearance Lost Time [s]	4.00	4.00	3.00	4.00
g_i, Effective Green Time [s]	83	83	26	83
g / C, Green / Cycle	0.69	0.69	0.22	0.69
(v / s)_i Volume / Saturation Flow Rate	0.28	0.28	0.04	0.19
s, saturation flow rate [veh/h]	1863	1862	1723	1798
c, Capacity [veh/h]	1289	1288	373	1275
d1, Uniform Delay [s]	7.94	7.94	38.31	7.00
k, delay calibration	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.96	0.96	1.05	0.52
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.41	0.41	0.18	0.27
d, Delay for Lane Group [s/veh]	8.90	8.90	39.36	7.53
Lane Group LOS	A	A	D	A
Critical Lane Group	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	5.75	5.75	1.74	3.22
50th-Percentile Queue Length [ft/ln]	143.67	143.74	43.60	80.52
95th-Percentile Queue Length [veh/ln]	9.68	9.68	3.14	5.80
95th-Percentile Queue Length [ft/ln]	241.95	242.04	78.48	144.93

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	8.90	8.90	39.36	39.36	7.53	7.53
Movement LOS	A	A	D	D	A	A
d_A, Approach Delay [s/veh]	8.90		39.36		7.53	
Approach LOS	A		D		A	
d_I, Intersection Delay [s/veh]	9.97					
Intersection LOS	A					
Intersection V/C	0.347					

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report Intersection 17: US 1/43rd Avenue

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 35.6
Level Of Service: E
Volume to Capacity (v/c): 0.047

Intersection Setup

Name	US 1		US 1			
Approach	Northeastbound		Southwestbound		Southeastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0
Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	US 1		US 1			
Base Volume Input [veh/h]	112	331	895	57	6	85
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	112	331	895	57	6	85
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	83	224	14	2	21
Total Analysis Volume [veh/h]	112	331	895	57	6	85
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.16	0.00	0.01	0.00	0.05	0.16
d_M, Delay for Movement [s/veh]	10.94	0.00	0.00	0.00	35.58	13.84
Movement LOS	B	A	A	A	E	B
95th-Percentile Queue Length [veh/ln]	0.55	0.00	0.00	0.00	0.77	0.77
95th-Percentile Queue Length [ft/ln]	13.78	0.00	0.00	0.00	19.16	19.16
d_A, Approach Delay [s/veh]	2.77		0.00		15.27	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	1.76					
Intersection LOS	E					

Intersection Level Of Service Report

Intersection 18: US 1/42nd Place/Crittendon St

Control Type:	Signalized	Delay (sec / veh):	33.6
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.879

Intersection Setup

Name	42nd Pl			Crittenden St			US 1			US 1		
Approach	Southbound			Eastbound			Northeastbound			Southwestbound		
Lane Configuration												
Turning Movement	Left	Right	Right2	Left	Thru	Right	Left2	Left	Thru	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	42nd Pl			Crittenden St			US 1			US 1		
Base Volume Input [veh/h]	1	14	0	0	23	257	286	14	426	940	20	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	2.00	2.14	0.00	2.17	2.05	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	12	3	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	14	0	0	23	269	289	14	426	940	20	5
Peak Hour Factor	0.9000	0.9000	0.9000	1.0000	0.9000	0.9000	1.0000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	0	0	6	75	72	4	118	261	6	1
Total Analysis Volume [veh/h]	1	16	0	0	26	299	289	16	473	1044	22	6
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	12.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split
Signal group	4	4	4	0	3	3	0	6	6	2	6	6
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	Lag	-	-	-	-
Minimum Green [s]	5	5	5	0	5	5	0	20	20	5	20	20
Maximum Green [s]	19	19	19	0	25	25	0	60	60	30	60	60
Amber [s]	4.0	4.0	4.0	0.0	4.0	4.0	0.0	5.0	5.0	3.0	5.0	5.0
All red [s]	1.0	1.0	1.0	0.0	1.0	1.0	0.0	4.0	4.0	1.0	4.0	4.0
Split [s]	24	24	24	0	30	30	0	66	66	66	66	66
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk	No				No				No	No		
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	3.0	0.0	3.0	3.0	0.0	7.0	7.0	2.0	7.0	7.0
Minimum Recall	No				No				No	No		
Maximum Recall	No				No				Yes	No		
Pedestrian Recall	No				No				No	No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	50.0	50.0	50.0	0.0	50.0	50.0	0.0	50.0	50.0	50.0	50.0	50.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	9.00	9.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	7.00	7.00	2.00	2.00
g_i, Effective Green Time [s]	2	25	74	74	79	79
g / C, Green / Cycle	0.02	0.21	0.62	0.62	0.66	0.66
(v / s)_i Volume / Saturation Flow Rate	0.01	0.20	0.58	0.13	0.29	0.29
s, saturation flow rate [veh/h]	1625	1635	524	3541	1862	1845
c, Capacity [veh/h]	30	341	298	2177	1222	1211
d1, Uniform Delay [s]	58.41	46.94	38.27	10.28	9.95	9.98
k, delay calibration	0.11	0.38	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.39	32.75	58.54	0.23	1.15	1.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.56	0.95	1.02	0.22	0.44	0.44
d, Delay for Lane Group [s/veh]	73.79	79.70	96.81	10.51	11.09	11.16
Lane Group LOS	E	E	F	B	B	B
Critical Lane Group	Yes	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.65	12.73	13.84	2.72	6.66	6.69
50th-Percentile Queue Length [ft/ln]	16.14	318.13	346.04	68.08	166.52	167.27
95th-Percentile Queue Length [veh/ln]	1.16	18.58	20.32	4.90	10.89	10.93
95th-Percentile Queue Length [ft/ln]	29.05	464.39	508.03	122.54	272.34	273.32

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	73.79	73.79	73.79	0.00	79.70	79.70	96.81	96.81	10.51	11.12	11.16	11.16
Movement LOS	E	E	E		E	E	F	F	B	B	B	B
d_A, Approach Delay [s/veh]	73.79			79.70			44.34			11.12		
Approach LOS	E			E			D			B		
d_I, Intersection Delay [s/veh]	33.57											
Intersection LOS	C											
Intersection V/C	0.879											

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 19: US 1/41st Place/Charles Armentrout Drive

Control Type:	Signalized	Delay (sec / veh):	42.9
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.946

Intersection Setup

Name	US 1			US 1			Charles L Armentrout			41st		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	200.00	100.00	200.00	200.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	43.00			35.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 1			US 1			Charles L Armentrout			41st		
Base Volume Input [veh/h]	3	233	207	409	825	1	644	4	505	2	2	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	2.38	2.14	2.00	0.00	2.00	0.00	2.21	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	12	0	0	0	0	3	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	233	207	421	825	1	644	4	508	2	2	3
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	65	58	117	229	0	179	1	141	1	1	1
Total Analysis Volume [veh/h]	3	259	230	468	917	1	716	4	564	2	2	3
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	4			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	42.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Overlap	Permiss	Permiss	Permiss
Signal group	6	6	6	5	2	2	8	8	2	4	4	4
Auxiliary Signal Groups									2,5			
Lead / Lag	Lag	-	-	Lead	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	20	20	20	5	20	20	8	8	20	8	8	8
Maximum Green [s]	25	25	25	18	48	48	60	60	48	60	60	60
Amber [s]	5.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0	5.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0	2.0	2.0
Split [s]	31	31	31	23	54	54	66	66	54	66	66	66
Vehicle Extension [s]	6.0	6.0	6.0	3.0	6.0	6.0	3.0	3.0	6.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Recall		No		No	No			No	No		No	
Maximum Recall		Yes		No	Yes			No	Yes		No	
Pedestrian Recall		No		No	No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	0.0	50.0	50.0	50.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C	R	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	5.50	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	0.00	4.00	4.00	4.00	0.00	4.00
g_i, Effective Green Time [s]	25	25	25	48	48	48	60	48	60
g / C, Green / Cycle	0.21	0.21	0.21	0.40	0.40	0.40	0.50	0.40	0.50
(v / s)_i Volume / Saturation Flow Rate	0.00	0.07	0.15	0.33	0.25	0.25	0.50	0.36	0.00
s, saturation flow rate [veh/h]	618	3547	1577	1402	1863	1862	1443	1580	1874
c, Capacity [veh/h]	60	739	329	581	745	745	782	632	975
d1, Uniform Delay [s]	60.00	40.57	44.02	31.47	28.66	28.66	29.70	33.59	15.06
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.45	0.50	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.57	1.31	11.75	11.34	3.79	3.80	16.51	17.38	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

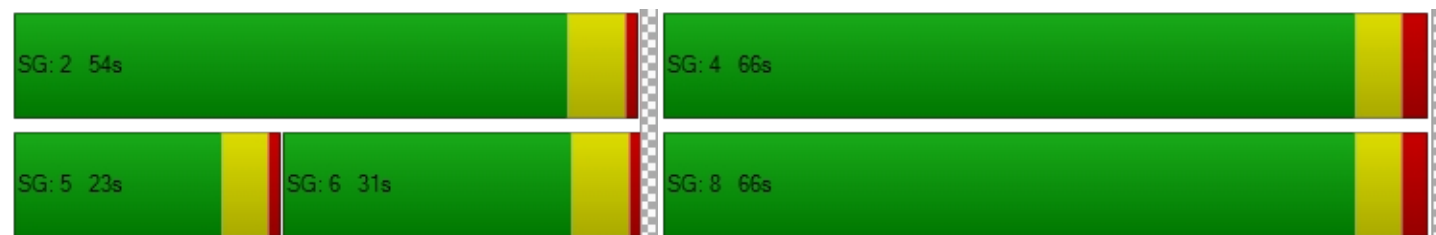
X, volume / capacity	0.05	0.35	0.70	0.81	0.62	0.62	0.92	0.89	0.01
d, Delay for Lane Group [s/veh]	61.57	41.88	55.77	42.81	32.46	32.46	46.22	50.97	15.06
Lane Group LOS	E	D	E	D	C	C	D	D	B
Critical Lane Group	No	No	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.12	3.34	7.24	12.57	11.07	11.07	23.68	18.26	0.10
50th-Percentile Queue Length [ft/ln]	2.89	83.39	181.07	314.30	276.86	276.79	591.96	456.51	2.48
95th-Percentile Queue Length [veh/ln]	0.21	6.00	11.66	18.39	16.53	16.53	31.66	25.27	0.18
95th-Percentile Queue Length [ft/ln]	5.21	150.10	291.41	459.68	413.30	413.21	791.47	631.72	4.47

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	61.57	41.88	55.77	42.81	32.46	32.46	46.22	46.22	50.97	15.06	15.06	15.06
Movement LOS	E	D	E	D	C	C	D	D	D	B	B	B
d_A, Approach Delay [s/veh]	48.49			35.95			48.30			15.06		
Approach LOS	D			D			D			B		
d_I, Intersection Delay [s/veh]	42.86											
Intersection LOS	D											
Intersection V/C	0.946											

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 20: MD 410/Toledo Terrace

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 31.8
 Level Of Service: C
 Volume to Capacity (v/c): 0.612

Intersection Setup

Name				Toledo Terrace			MD 410			MD 410		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	1	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	500.00	100.00	900.00	175.00	100.00	175.00
Speed [mph]	30.00			30.00			50.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Toledo Terrace			MD 410			MD 410		
Base Volume Input [veh/h]	93	5	80	167	22	235	135	683	153	71	1109	89
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.44	0.00	2.50	2.38	0.00	1.96	2.07	2.00	1.92	2.00	2.05	3.85
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	43	0	0	0	0	0	0	6	11	0	26	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	136	5	80	167	22	235	135	689	164	71	1135	89
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	1	22	46	6	65	38	191	46	20	315	25
Total Analysis Volume [veh/h]	151	6	89	186	24	261	150	766	182	79	1261	99
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	4			2			1			5		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	9.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	8	8	8	4	4	4	1	6	6	2	2	2
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lead	-	-	Lag	-	-
Minimum Green [s]	8	8	8	8	8	8	5	20	20	20	20	20
Maximum Green [s]	36	36	36	36	36	36	25	102	102	72	72	72
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.5
All red [s]	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.5	1.5	1.5	1.5	1.5
Split [s]	42	42	42	42	42	42	30	108	108	78	78	78
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	5.0	5.0	5.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0
Minimum Recall		No			No		No	No			No	
Maximum Recall		No			No		No	Yes			Yes	
Pedestrian Recall		No			No		No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	R
C, Cycle Length [s]	150	150	150	150	150	150	150	150	150	150
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	0.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	36	36	36	36	102	102	102	90	90	90
g / C, Green / Cycle	0.24	0.24	0.24	0.24	0.68	0.68	0.68	0.60	0.60	0.60
(v / s)_i Volume / Saturation Flow Rate	0.14	0.06	0.14	0.17	0.26	0.22	0.12	0.11	0.36	0.06
s, saturation flow rate [veh/h]	1085	1621	1285	1634	567	3547	1580	698	3545	1553
c, Capacity [veh/h]	120	389	279	392	357	2412	1074	394	2131	933
d1, Uniform Delay [s]	72.02	46.02	59.05	52.47	14.28	9.80	8.68	21.46	18.52	12.75
k, delay calibration	0.13	0.11	0.14	0.23	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	133.01	0.32	3.59	5.36	3.59	0.35	0.34	1.14	1.22	0.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.26	0.24	0.67	0.73	0.42	0.32	0.17	0.20	0.59	0.11
d, Delay for Lane Group [s/veh]	205.03	46.34	62.64	57.83	17.87	10.14	9.02	22.60	19.74	12.98
Lane Group LOS	F	D	E	E	B	B	A	C	B	B
Critical Lane Group	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	9.08	2.94	7.09	10.52	1.92	4.78	2.06	1.68	13.12	1.44
50th-Percentile Queue Length [ft/ln]	226.90	73.49	177.17	263.00	48.00	119.42	51.61	41.88	327.93	35.95
95th-Percentile Queue Length [veh/ln]	15.57	5.29	11.45	15.84	3.46	8.36	3.72	3.02	19.06	2.59
95th-Percentile Queue Length [ft/ln]	389.23	132.28	286.31	395.98	86.40	209.03	92.90	75.38	476.43	64.70

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	205.03	46.34	46.34	62.64	57.83	57.83	17.87	10.14	9.02	22.60	19.74	12.98
Movement LOS	F	D	D	E	E	E	B	B	A	C	B	B
d_A, Approach Delay [s/veh]	143.75			59.73			11.01			19.43		
Approach LOS	F			E			B			B		
d_I, Intersection Delay [s/veh]	31.82											
Intersection LOS	C											
Intersection V/C	0.612											

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 21: MD 410/Editors Park Dr

Control Type:	Signalized	Delay (sec / veh):	5.2
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.418

Intersection Setup

Name	Editors Park Dr		MD 410		MD 410		
Approach	Northbound		Eastbound		Westbound		
Lane Configuration							
Turning Movement	Left	Right	Thru	Right	U-turn	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	150.00	100.00	100.00
Speed [mph]	30.00		45.00		45.00		
Grade [%]	0.00		0.00		0.00		
Crosswalk	Yes		Yes		Yes		

Volumes

Name	Editors Park Dr		MD 410		MD 410		
Base Volume Input [veh/h]	58	54	821	102	1	65	1280
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.85	0.00	2.00	1.64	0.00	1.89	2.05
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	86	6	0	0	21	26
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	58	140	827	102	1	86	1306
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	39	230	28	0	24	363
Total Analysis Volume [veh/h]	64	156	919	113	1	96	1451
Presence of On-Street Parking	No	No	No	No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0		
Bicycle Volume [bicycles/h]	0		0		0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	0	6	0	0	0	2
Auxiliary Signal Groups							
Lead / Lag	Lead	-	-	-	-	-	-
Minimum Green [s]	5	0	5	0	0	0	5
Maximum Green [s]	30	0	30	0	0	0	30
Amber [s]	3.0	0.0	3.0	0.0	0.0	0.0	3.0
All red [s]	1.0	0.0	1.0	0.0	0.0	0.0	1.0
Split [s]	74	0	46	0	0	0	46
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	0.0	3.0
Walk [s]	5	0	5	0	0	0	5
Pedestrian Clearance [s]	10	0	10	0	0	0	10
Rest In Walk	No		No				No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	0.0	0.0	2.0
Minimum Recall	No		No				No
Maximum Recall	No		No				No
Pedestrian Recall	No		No				No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	R	L	C
C, Cycle Length [s]	34	34	34	34	34
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	20	20	20	20
g / C, Green / Cycle	0.18	0.59	0.59	0.59	0.59
(v / s)_i Volume / Saturation Flow Rate	0.13	0.26	0.07	0.16	0.29
s, saturation flow rate [veh/h]	1667	3547	1589	606	5072
c, Capacity [veh/h]	299	2070	927	446	2960
d1, Uniform Delay [s]	13.09	3.95	3.15	7.63	4.10
k, delay calibration	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.52	0.15	0.06	0.24	0.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

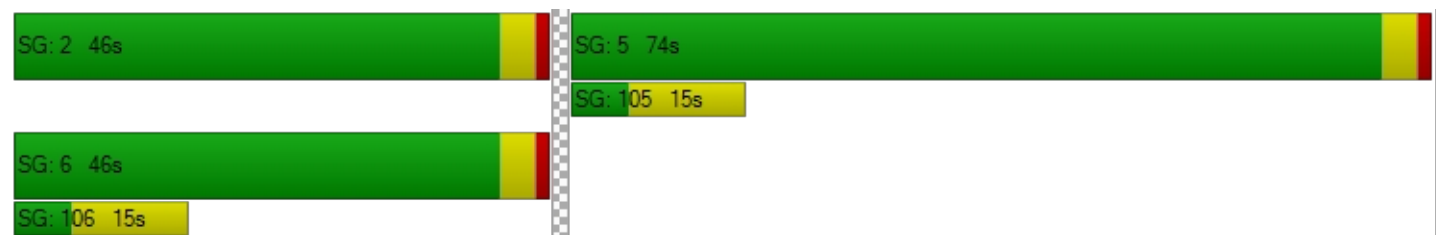
X, volume / capacity	0.74	0.44	0.12	0.22	0.49
d, Delay for Lane Group [s/veh]	16.61	4.10	3.21	7.87	4.22
Lane Group LOS	B	A	A	A	A
Critical Lane Group	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.51	0.24	0.05	0.28	0.25
50th-Percentile Queue Length [ft/ln]	37.83	5.97	1.33	7.07	6.21
95th-Percentile Queue Length [veh/ln]	2.72	0.43	0.10	0.51	0.45
95th-Percentile Queue Length [ft/ln]	68.10	10.75	2.40	12.73	11.18

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.61	16.61	4.10	3.21	7.87	7.87	4.22
Movement LOS	B	B	A	A	A	A	A
d_A, Approach Delay [s/veh]	16.61		4.00		4.45		
Approach LOS	B		A		A		
d_I, Intersection Delay [s/veh]	5.24						
Intersection LOS	A						
Intersection V/C	0.418						

Sequence

Ring 1	2	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 22: MD 410/Prince George's Plaza

Control Type:	Signalized	Delay (sec / veh):	13.3
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.388

Intersection Setup

Name	Metro			PG Plaza			MD 410			MD 410		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	2	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	250.00	100.00	250.00	225.00	100.00	100.00	325.00	100.00	100.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Metro			PG Plaza			MD 410			MD 410		
Base Volume Input [veh/h]	76	11	66	30	16	18	98	790	59	57	1244	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.54	3.85	2.22	0.00	0.00	3.85	2.22	2.07	1.74	2.21	2.00	3.85
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	92	0	0	47	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	76	11	66	30	16	18	98	882	59	57	1291	39
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	3	18	8	4	5	27	245	16	16	359	11
Total Analysis Volume [veh/h]	84	12	73	33	18	20	109	980	66	63	1434	43
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	39.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	3	3	3	4	4	4	1	6	6	5	2	2
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	5	5	20	20	5	20	20
Maximum Green [s]	24	24	24	24	24	24	25	54	54	25	54	54
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	4.5
All red [s]	1.5	1.5	1.5	1.5	1.5	1.5	1.0	1.5	1.5	1.0	1.5	1.5
Split [s]	30	30	30	30	30	30	30	60	60	30	60	60
Vehicle Extension [s]	2.5	2.5	2.5	2.5	2.5	2.5	2.5	5.0	5.0	2.5	5.0	5.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.5	3.5	3.5	3.5	3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	Yes		No	Yes	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	294.0	294.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	30.0	30.0	30.0	30.0	6.0	6.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	150	150	150	150	150	150	150	150	150	150	150
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	5.50	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.50	3.50	3.50	3.50	3.50	0.00	4.00	4.00	0.00	4.00	4.00
g_i, Effective Green Time [s]	10	10	5	5	5	118	108	108	118	108	108
g / C, Green / Cycle	0.07	0.07	0.03	0.03	0.03	0.79	0.72	0.72	0.79	0.72	0.72
(v / s)_i Volume / Saturation Flow Rate	0.02	0.05	0.01	0.01	0.01	0.24	0.20	0.20	0.10	0.27	0.27
s, saturation flow rate [veh/h]	3461	1589	3514	1900	1555	451	3544	1802	616	3547	1835
c, Capacity [veh/h]	234	108	112	61	50	387	2561	1302	518	2555	1322
d1, Uniform Delay [s]	66.80	68.87	70.96	70.97	71.21	4.96	7.18	7.18	3.97	8.08	8.08
k, delay calibration	0.08	0.08	0.08	0.08	0.08	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.69	9.18	1.07	2.01	3.89	1.81	0.26	0.51	0.48	0.43	0.84
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.79	0.29	0.30	0.40	0.28	0.27	0.27	0.12	0.38	0.38
d, Delay for Lane Group [s/veh]	67.49	78.05	72.04	72.98	75.10	6.77	7.44	7.69	4.45	8.51	8.91
Lane Group LOS	E	E	E	E	E	A	A	A	A	A	A
Critical Lane Group	No	Yes	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.57	3.50	0.64	0.71	0.81	0.81	3.53	3.69	0.42	5.57	5.91
50th-Percentile Queue Length [ft/ln]	39.26	87.60	16.02	17.86	20.31	20.26	88.28	92.21	10.38	139.14	147.69
95th-Percentile Queue Length [veh/ln]	2.83	6.31	1.15	1.29	1.46	1.46	6.36	6.64	0.75	9.43	9.89
95th-Percentile Queue Length [ft/ln]	70.66	157.68	28.83	32.15	36.56	36.46	158.91	165.97	18.69	235.86	247.34

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	67.49	78.05	78.05	72.04	72.98	75.10	6.77	7.51	7.69	4.45	8.64	8.91
Movement LOS	E	E	E	E	E	E	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	72.80			73.14			7.45			8.48		
Approach LOS	E			E			A			A		
d_I, Intersection Delay [s/veh]	13.34											
Intersection LOS	B											
Intersection V/C	0.388											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 23: MD 410/Belcrest Rd

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 41.4
 Level Of Service: D
 Volume to Capacity (v/c): 0.686

Intersection Setup

Name	Belcrest Road			Belcrest Rd			MD 410			MD 410		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	100.00	250.00	100.00	100.00	225.00	100.00	100.00	225.00	100.00	100.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Belcrest Road			Belcrest Rd			MD 410			MD 410		
Base Volume Input [veh/h]	232	270	11	95	409	93	112	684	122	194	1021	62
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.21	2.00	3.85	2.00	2.21	2.63	2.00	2.00	2.38	2.63	2.00	2.63
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	18	0	0	0	0	3	17	0	75	32	26	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	250	270	11	95	409	96	129	684	197	226	1047	62
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	69	75	3	26	114	27	36	190	55	63	291	17
Total Analysis Volume [veh/h]	278	300	12	106	454	107	143	760	219	251	1163	69
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	26			10			91			71		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	144.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap
Signal group	7	4	4	3	8	3	1	6	6	5	2	2
Auxiliary Signal Groups									6,7			2,3
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	5	5	20	20	5	20	20
Maximum Green [s]	30	21	21	30	30	30	30	50	50	30	50	50
Amber [s]	3.0	4.0	4.0	3.0	3.0	3.0	3.0	4.5	4.5	3.0	4.5	4.5
All red [s]	1.0	2.0	2.0	1.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0	2.0
Split [s]	30	36	36	20	46	20	26	34	34	50	58	58
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
Walk [s]	0	0	0	0	5	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	10	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	4.0	4.0	2.0	2.0	2.0	2.0	4.5	4.5	2.0	4.5	4.5
Minimum Recall	No	No		No	No		No	No	No	No	No	No
Maximum Recall	No	No		No	No		No	Yes	Yes	No	Yes	Yes
Pedestrian Recall	No	No		No	No		No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	30.0	30.0	30.0	5.0	5.0	5.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	150	150	150	150	150	150	150	150	150	150	150	150
L, Total Lost Time per Cycle [s]	5.00	6.00	6.00	4.00	4.00	4.00	4.00	6.50	4.00	4.00	6.50	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.00	4.00	0.00	2.00	2.00	2.00	4.50	0.00	2.00	4.50	0.00
g_i, Effective Green Time [s]	40	22	22	42	28	28	14	70	90	24	79	96
g / C, Green / Cycle	0.27	0.15	0.15	0.28	0.19	0.19	0.09	0.46	0.60	0.16	0.53	0.64
(v / s)_i Volume / Saturation Flow Rate	0.13	0.08	0.09	0.07	0.16	0.17	0.08	0.21	0.14	0.14	0.33	0.04
s, saturation flow rate [veh/h]	2183	1863	1813	1538	1859	1619	1774	3547	1557	1763	3547	1566
c, Capacity [veh/h]	416	278	270	435	350	305	168	1642	935	277	1865	998
d1, Uniform Delay [s]	45.90	59.32	59.41	41.42	58.55	59.43	66.91	27.54	13.95	62.13	25.11	10.33
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.86	1.80	1.92	0.29	4.97	9.39	11.42	0.94	0.59	10.68	1.59	0.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.67	0.56	0.57	0.24	0.83	0.89	0.85	0.46	0.23	0.90	0.62	0.07
d, Delay for Lane Group [s/veh]	47.76	61.13	61.33	41.71	63.52	68.82	78.33	28.48	14.54	72.80	26.70	10.46
Lane Group LOS	D	E	E	D	E	E	E	C	B	E	C	B
Critical Lane Group	No	No	No	Yes	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.28	5.72	5.67	3.11	11.08	10.91	5.85	9.30	3.49	10.06	14.40	0.87
50th-Percentile Queue Length [ft/ln]	106.91	142.99	141.73	77.75	276.88	272.83	146.22	232.59	87.24	251.48	360.02	21.74
95th-Percentile Queue Length [veh/ln]	7.67	9.64	9.57	5.60	16.53	16.33	9.82	14.31	6.28	15.26	20.62	1.57
95th-Percentile Queue Length [ft/ln]	191.70	241.05	239.35	139.95	413.32	408.27	245.38	357.64	157.03	381.51	515.61	39.14

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.76	61.22	61.33	41.71	65.45	68.82	78.33	28.48	14.54	72.80	26.70	10.46
Movement LOS	D	E	E	D	E	E	E	C	B	E	C	B
d_A, Approach Delay [s/veh]	54.88			62.22			32.11			33.75		
Approach LOS	D			E			C			C		
d_I, Intersection Delay [s/veh]	41.42											
Intersection LOS	D											
Intersection V/C	0.686											

Sequence

Ring 1	1	2	3	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 24: MD 410/MD 500/Adelphi Rd

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 46.4
 Level Of Service: D
 Volume to Capacity (v/c): 0.850

Intersection Setup

Name	MD 500			Adelphi Rd			MD 410			MD 410		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	1	0	0	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	350.00	100.00	150.00	300.00	100.00	100.00	350.00	100.00	150.00
Speed [mph]	45.00			45.00			45.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	MD 500			Adelphi Rd			MD 410			MD 410		
Base Volume Input [veh/h]	6	468	376	352	541	30	43	779	13	582	1233	526
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.85	2.13	2.15	2.00	2.00	1.56	2.63	2.00	0.00	2.00	2.04	2.09
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	12	0	0	3	2	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	480	376	352	544	32	43	779	13	582	1233	526
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	133	104	98	151	9	12	216	4	162	343	146
Total Analysis Volume [veh/h]	16	533	418	391	604	36	48	866	14	647	1370	584
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	3			6			5			9		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Unsigna	Protecte	Permiss	Overlap
Signal group	3	8	0	7	4	0	1	6	0	5	2	2
Auxiliary Signal Groups												2,4
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	7	0	5	25	0	5	5	5
Maximum Green [s]	30	30	0	30	23	0	9	30	0	44	30	30
Amber [s]	3.0	3.0	0.0	3.0	5.0	0.0	4.0	5.0	0.0	4.0	5.0	5.0
All red [s]	1.0	1.0	0.0	1.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Split [s]	10	33	0	30	53	0	15	37	0	50	72	72
Vehicle Extension [s]	3.0	3.0	0.0	3.0	2.5	0.0	3.0	5.0	0.0	6.0	3.0	3.0
Walk [s]	0	5	0	0	0	0	0	0	0	0	5	5
Pedestrian Clearance [s]	0	10	0	0	0	0	0	0	0	0	10	10
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	5.0	0.0	4.0	5.0	0.0	4.0	5.0	5.0
Minimum Recall	No	No		No	No		No	No		No	No	No
Maximum Recall	No	No		No	No		No	Yes		No	No	No
Pedestrian Recall	No	No		No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	294.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	30.0	6.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C	R
C, Cycle Length [s]	150	150	150	150	150	150	150	150	150	150	150
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	5.00	5.00	0.00	5.00	0.00	5.00	0.00
g_i, Effective Green Time [s]	2	36	36	19	50	50	80	54	80	70	133
g / C, Green / Cycle	0.02	0.24	0.24	0.13	0.33	0.33	0.53	0.36	0.53	0.46	0.88
(v / s)_i Volume / Saturation Flow Rate	0.01	0.15	0.27	0.11	0.17	0.02	0.09	0.24	0.34	0.39	0.37
s, saturation flow rate [veh/h]	1743	3542	1563	3445	3547	1583	535	3547	1899	3545	1579
c, Capacity [veh/h]	28	839	370	446	1170	522	226	1278	854	1648	1396
d1, Uniform Delay [s]	73.25	51.43	57.24	64.11	40.59	34.46	26.35	40.61	26.46	34.99	1.59
k, delay calibration	0.11	0.11	0.50	0.11	0.08	0.08	0.50	0.50	0.29	0.37	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	16.28	0.80	86.81	5.62	0.26	0.04	2.14	2.91	3.67	3.74	0.92
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

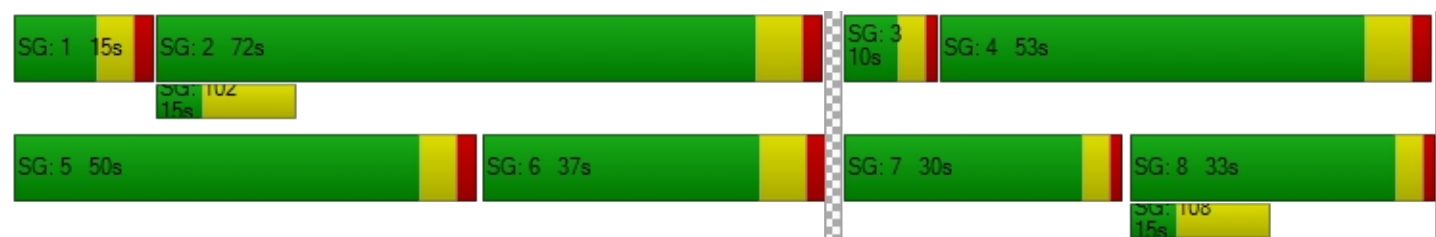
X, volume / capacity	0.56	0.64	1.13	0.88	0.52	0.07	0.21	0.68	0.76	0.83	0.42
d, Delay for Lane Group [s/veh]	89.53	52.24	144.05	69.74	40.85	34.50	28.49	43.52	30.13	38.74	2.51
Lane Group LOS	F	D	F	E	D	C	C	D	C	D	A
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.73	8.95	22.61	7.56	8.90	0.90	0.92	13.75	6.67	21.52	1.30
50th-Percentile Queue Length [ft/ln]	18.32	223.72	565.21	189.03	222.60	22.57	22.93	343.85	166.64	538.05	32.58
95th-Percentile Queue Length [veh/ln]	1.32	13.86	32.58	12.07	13.80	1.62	1.65	19.84	10.90	29.13	2.35
95th-Percentile Queue Length [ft/ln]	32.98	346.38	814.38	301.77	344.94	40.62	41.28	495.90	272.49	728.25	58.65

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	89.53	52.24	144.05	69.74	40.85	34.50	28.49	43.52	0.00	30.13	38.74	2.51
Movement LOS	F	D	F	E	D	C	C	D		C	D	A
d_A, Approach Delay [s/veh]	92.54			51.59			42.73			28.46		
Approach LOS	F			D			D			C		
d_I, Intersection Delay [s/veh]	46.39											
Intersection LOS	D											
Intersection V/C	0.850											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report Intersection 25: Ager Rd/23rd Ave

Control Type: Signalized
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 35.9
Level Of Service: D
Volume to Capacity (v/c): 0.579

Intersection Setup

Name	Rittenhouse St			23rd Ave			Ager Rd.			Ager Rd.		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Rittenhouse St			23rd Ave			Ager Rd.			Ager Rd.		
Base Volume Input [veh/h]	14	18	22	267	13	75	19	875	164	11	465	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	47	0	0	14	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	18	22	267	13	75	19	922	164	11	479	3
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	5	6	67	3	19	5	231	41	3	120	1
Total Analysis Volume [veh/h]	14	18	22	267	13	75	19	922	164	11	479	3
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	35	0	0	35	0
Maximum Green [s]	0	20	0	0	30	0	0	35	0	0	35	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	25	0	0	30	0	0	39	0	0	39	0
Vehicle Extension [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	21	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	0.00	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	20	25	35	35	35	35	35	35
g / C, Green / Cycle	0.22	0.28	0.39	0.39	0.39	0.39	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.03	0.25	0.02	0.33	0.33	0.02	0.14	0.14
s, saturation flow rate [veh/h]	1557	1392	822	1683	1596	467	1683	1679
c, Capacity [veh/h]	396	422	297	654	621	110	654	653
d1, Uniform Delay [s]	28.19	31.02	24.93	25.12	25.14	40.39	19.62	19.62
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.71	18.04	0.41	13.16	13.84	1.82	1.60	1.60
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.14	0.84	0.06	0.85	0.85	0.10	0.37	0.37
d, Delay for Lane Group [s/veh]	28.91	49.06	25.34	38.29	38.98	42.21	21.21	21.22
Lane Group LOS	C	D	C	D	D	D	C	C
Critical Lane Group	No	Yes	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	1.00	9.08	0.33	12.53	12.01	0.28	3.72	3.71
50th-Percentile Queue Length [ft/ln]	25.12	226.98	8.28	313.20	300.22	7.10	92.90	92.77
95th-Percentile Queue Length [veh/ln]	1.81	14.02	0.60	18.33	17.69	0.51	6.69	6.68
95th-Percentile Queue Length [ft/ln]	45.22	350.52	14.91	458.32	442.30	12.78	167.21	166.98

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.91	28.91	28.91	49.06	49.06	49.06	25.34	38.56	38.98	42.21	21.22	21.22
Movement LOS	C	C	C	D	D	D	C	D	D	D	C	C
d_A, Approach Delay [s/veh]	28.91			49.06			38.39			21.68		
Approach LOS	C			D			D			C		
d_I, Intersection Delay [s/veh]	35.92											
Intersection LOS	D											
Intersection V/C	0.579											

Other Modes

g_Walk,mi, Effective Walk Time [s]	34.0			34.0			20.0			11.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	17.42			17.42			27.22			34.67		
I_p,int, Pedestrian LOS Score for Intersection	1.757			1.970			3.181			2.661		
Crosswalk LOS	A			A			C			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	444			556			778			778		
d_b, Bicycle Delay [s]	27.22			23.47			16.81			16.81		
I_b,int, Bicycle LOS Score for Intersection	1.649			2.145			2.471			1.966		
Bicycle LOS	A			B			B			A		

Sequence

Ring 1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 26: Ager Rd/Oglethorpe St/School

Control Type:	Signalized	Delay (sec / veh):	39.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.420

Intersection Setup

Name	Oglethorpe St			School			Ager Rd.			Ager Rd.		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	1200.00	350.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Oglethorpe St			School			Ager Rd.			Ager Rd.		
Base Volume Input [veh/h]	27	12	36	14	0	4	25	936	80	122	718	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	47	0	0	14	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	27	12	36	14	0	4	25	983	80	122	732	12
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	3	9	4	0	1	6	246	20	31	183	3
Total Analysis Volume [veh/h]	27	12	36	14	0	4	25	983	80	122	732	12
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	4	0	0	8	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	10	0	5	10	0
Maximum Green [s]	0	20	0	0	20	0	20	30	0	20	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	4.0	4.0	0.0	4.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	30	0	0	30	0	30	45	0	30	45	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	6.0	0.0	3.0	6.0	0.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	27	0	0	11	0	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	C	C
C, Cycle Length [s]	109	109	109	109	109	109	109	109
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	0.00	3.00	3.00	0.00	3.00	3.00
g_i, Effective Green Time [s]	25	25	70	40	40	70	40	40
g / C, Green / Cycle	0.23	0.23	0.64	0.37	0.37	0.64	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.05	0.01	0.02	0.32	0.32	0.13	0.22	0.22
s, saturation flow rate [veh/h]	1422	1272	1028	1683	1639	928	1683	1673
c, Capacity [veh/h]	371	350	639	618	601	549	618	614
d1, Uniform Delay [s]	34.02	32.75	8.93	32.11	32.12	14.02	28.06	28.06
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.22	0.28	0.11	15.61	15.98	0.93	4.34	4.36
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.20	0.05	0.04	0.87	0.87	0.22	0.60	0.60
d, Delay for Lane Group [s/veh]	35.24	33.02	9.05	47.72	48.10	14.95	32.40	32.42
Lane Group LOS	D	C	A	D	D	B	C	C
Critical Lane Group	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.74	0.40	0.22	15.39	15.06	1.16	8.44	8.40
50th-Percentile Queue Length [ft/ln]	43.46	9.99	5.41	384.75	376.40	29.06	211.00	209.92
95th-Percentile Queue Length [veh/ln]	3.13	0.72	0.39	21.82	21.42	2.09	13.20	13.15
95th-Percentile Queue Length [ft/ln]	78.22	17.98	9.74	545.60	535.49	52.30	330.11	328.73

Movement, Approach, & Intersection Results

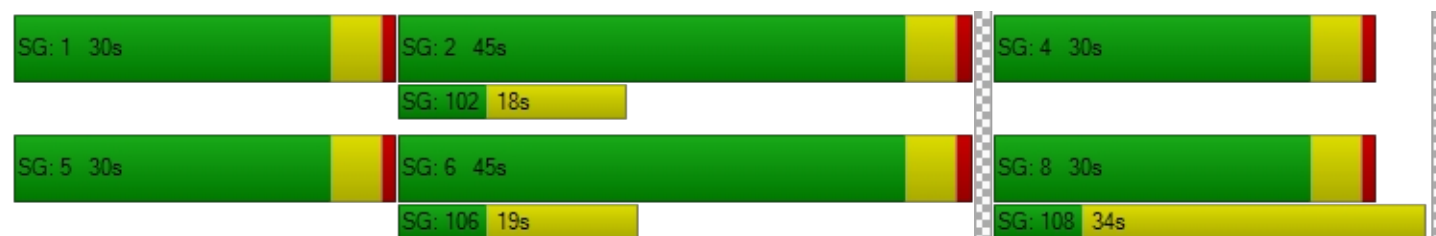
d_M, Delay for Movement [s/veh]	35.24	35.24	35.24	33.02	33.02	33.02	9.05	47.89	48.10	14.95	32.41	32.42
Movement LOS	D	D	D	C	C	C	A	D	D	B	C	C
d_A, Approach Delay [s/veh]	35.24			33.02			47.01			29.95		
Approach LOS	D			C			D			C		
d_I, Intersection Delay [s/veh]	39.24											
Intersection LOS	D											
Intersection V/C	0.420											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			25.0			11.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	34.67			34.67			23.47			34.67		
I_p,int, Pedestrian LOS Score for Intersection	1.783			1.894			2.729			2.765		
Crosswalk LOS	A			A			B			C		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	556			556			889			889		
d_b, Bicycle Delay [s]	23.47			23.47			13.89			13.89		
I_b,int, Bicycle LOS Score for Intersection	1.683			1.589			2.457			2.274		
Bicycle LOS	A			A			B			B		

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 27: Ager Rd/Nicholson St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 16.3
 Level Of Service: B
 Volume to Capacity (v/c): 0.465

Intersection Setup

Name	Ager Rd.				Nicholson St			Nicholson St			Ager Rd.			
Approach	Northbound				Northeastbound			Southwestbound			Southeastbound			
Lane Configuration														
Turning Movement	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	1	0	0	0
Pocket Length [ft]	225.0	100.0	100.0	150.0	100.00	100.00	100.00	100.00	100.00	100.00	200.0	100.0	100.0	100.0
Speed [mph]	35.00				30.00			30.00			35.00			
Grade [%]	0.00				0.00			0.00			0.00			
Crosswalk	Yes				Yes			Yes			Yes			

Volumes

Name	Ager Rd.				Nicholson St			Nicholson St			Ager Rd.			
Base Volume Input [veh/h]	1	39	741	25	98	17	82	60	18	239	6	51	713	82
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	2.00	0.00	1.82	0.00	0.00	1.74	0.00	2.44	2.00	3.57
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	47	0	0	0	0	0	0	0	0	0	14	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	39	788	25	98	17	82	60	18	239	6	51	727	82
Peak Hour Factor	0.900	0.900	0.900	0.900	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.900	0.900	0.900	0.900
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	11	219	7	27	5	23	17	5	66	2	14	202	23
Total Analysis Volume [veh/h]	1	43	876	28	109	19	91	67	20	266	7	57	808	91
Presence of On-Street Parking	No			No	No		No	No		No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0				0			0			0			
Bicycle Volume [bicycles/h]	0				0			0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permi	Permi	Permi	Permi
Signal group	0	0	2	0	0	8	0	0	4	0	0	0	6	0
Auxiliary Signal Groups														
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	5	0	0	5	0	0	0	5	0
Maximum Green [s]	0	0	30	0	0	30	0	0	30	0	0	0	30	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	0	57	0	0	33	0	0	33	0	0	0	57	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	5	0	0	5	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	0	10	0	0	10	0	0	10	0	0	0	10	0
Rest In Walk			No			No			No				No	
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall			No			No			No				No	
Maximum Recall			No			No			No				No	
Pedestrian Recall			No			No			No				No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	53	53	53	29	29	53	53	53
g / C, Green / Cycle	0.59	0.59	0.59	0.32	0.32	0.59	0.59	0.59
(v / s)_i Volume / Saturation Flow Rate	0.07	0.24	0.24	0.22	0.22	0.10	0.25	0.25
s, saturation flow rate [veh/h]	629	1863	1842	1000	1607	613	1863	1797
c, Capacity [veh/h]	352	1097	1085	382	565	346	1097	1058
d1, Uniform Delay [s]	15.56	10.06	10.06	27.18	26.30	16.10	10.08	10.08
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.73	1.16	1.17	6.12	5.13	1.18	1.17	1.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.12	0.41	0.41	0.57	0.62	0.18	0.42	0.42
d, Delay for Lane Group [s/veh]	16.29	11.22	11.23	33.31	31.44	17.27	11.25	11.29
Lane Group LOS	B	B	B	C	C	B	B	B
Critical Lane Group	No	No	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.59	4.66	4.61	4.84	7.14	0.90	4.70	4.55
50th-Percentile Queue Length [ft/ln]	14.87	116.51	115.34	120.99	178.38	22.55	117.57	113.76
95th-Percentile Queue Length [veh/ln]	1.07	8.20	8.14	8.45	11.52	1.62	8.26	8.05
95th-Percentile Queue Length [ft/ln]	26.77	205.02	203.41	211.19	287.90	40.59	206.49	201.22

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.29	16.29	11.22	11.23	33.31	33.31	33.31	31.44	31.44	31.44	17.27	17.27	11.27	11.29
Movement LOS	B	B	B	B	C	C	C	C	C	C	B	B	B	B
d_A, Approach Delay [s/veh]	11.46				33.31			31.44			11.67			
Approach LOS	B				C			C			B			
d_I, Intersection Delay [s/veh]	16.31													
Intersection LOS	B													
Intersection V/C	0.465													

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SG: 2 57s

SG: 102 15s

SG: 6 57s

SG: 106 15s

SG: 4 33s

SG: 104 15s

SG: 8 33s

SG: 108 15s

Intersection Level Of Service Report

Intersection 28: Ager Rd/Hamilton St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 19.7
 Level Of Service: B
 Volume to Capacity (v/c): 0.841

Intersection Setup

Name	Hamilton St			Hamilton St			Ager Rd.			Ager Rd.		
Approach	Eastbound			Westbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	1	0	0	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	1500.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Hamilton St			Hamilton St			Ager Rd.			Ager Rd.		
Base Volume Input [veh/h]	28	74	10	45	220	330	79	180	55	388	347	115
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.33	1.72	0.00	3.85	2.08	1.91	2.06	1.84	3.33	2.21	2.00	2.63
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	47	47	58	0	13	0	17	0	0	0	0	14
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	75	121	68	45	233	330	96	180	55	388	347	129
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	34	19	13	65	92	27	50	15	108	96	36
Total Analysis Volume [veh/h]	83	134	76	50	259	367	107	200	61	431	386	143
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	4	0	0	8	0	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	10	0	5	10	0
Maximum Green [s]	0	26	0	0	26	0	0	30	0	10	45	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	4.0	0.0	3.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	30	0	0	30	0	0	35	0	15	50	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	3.0	0.0	2.0	3.0	0.0
Minimum Recall		No			No			Yes		Yes	Yes	
Maximum Recall		No			No			No		No	No	
Pedestrian Recall		No			No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	C	L	C	C	L	C
C, Cycle Length [s]	77	77	77	77	77	77	77	77	77
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	3.00	3.00	3.00	0.00	3.00
g_i, Effective Green Time [s]	26	26	26	26	28	28	28	42	42
g / C, Green / Cycle	0.34	0.34	0.34	0.34	0.37	0.37	0.37	0.55	0.55
(v / s)_i Volume / Saturation Flow Rate	0.41	0.13	0.18	0.25	0.12	0.07	0.07	0.33	0.30
s, saturation flow rate [veh/h]	201	1598	1676	1440	870	1866	1720	1298	1778
c, Capacity [veh/h]	160	536	617	483	221	685	631	791	974
d1, Uniform Delay [s]	36.05	19.66	20.65	22.92	32.09	16.70	16.74	10.63	11.26
k, delay calibration	0.50	0.11	0.12	0.27	0.11	0.11	0.11	0.50	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.43	0.47	0.68	5.98	1.64	0.14	0.16	2.69	0.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.52	0.39	0.50	0.76	0.48	0.20	0.20	0.55	0.54
d, Delay for Lane Group [s/veh]	47.48	20.13	21.33	28.90	33.73	16.84	16.90	13.33	11.73
Lane Group LOS	D	C	C	C	C	B	B	B	B
Critical Lane Group	Yes	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.04	2.77	4.26	6.31	1.96	1.54	1.47	4.36	5.11
50th-Percentile Queue Length [ft/ln]	50.92	69.33	106.48	157.77	48.96	38.49	36.74	108.94	127.66
95th-Percentile Queue Length [veh/ln]	3.67	4.99	7.64	10.43	3.53	2.77	2.64	7.78	8.81
95th-Percentile Queue Length [ft/ln]	91.65	124.79	191.09	260.76	88.13	69.28	66.12	194.52	220.31

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.48	20.13	20.13	21.33	21.33	28.90	33.73	16.86	16.90	13.33	11.73	11.73
Movement LOS	D	C	C	C	C	C	C	B	B	B	B	B
d_A, Approach Delay [s/veh]	27.88			25.44			21.77			12.45		
Approach LOS	C			C			C			B		
d_I, Intersection Delay [s/veh]	19.73											
Intersection LOS	B											
Intersection V/C	0.841											

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 29: Toledo Rd/Belcrest Rd

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 8.6
 Level Of Service: A
 Volume to Capacity (v/c): 0.375

Intersection Setup

Name	Belcrest Rd				Belcrest Rd				Toledo Rd			Toledo Rd		
Approach	Northbound				Southbound				Eastbound			Westbound		
Lane Configuration														
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	400.0	100.0	100.0	100.0	200.0	100.0	100.0	100.0	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				30.00			30.00		
Grade [%]	0.00				0.00				0.00			0.00		
Crosswalk	Yes				No				Yes			Yes		

Volumes

Name	Belcrest Rd				Belcrest Rd				Toledo Rd			Toledo Rd		
Base Volume Input [veh/h]	15	96	258	53	2	78	497	73	28	18	28	57	23	90
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	3.03	1.83	1.37	0.00	2.00	2.02	0.00	0.00	2.86	0.00	2.86	3.45	2.13
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	18	0	0	0	3	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	96	276	53	2	78	500	73	28	18	28	57	23	90
Peak Hour Factor	0.900	0.900	0.900	0.900	0.900	0.900	0.900	0.900	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	27	77	15	1	22	139	20	8	5	8	16	6	25
Total Analysis Volume [veh/h]	17	107	307	59	2	87	556	81	31	20	31	63	26	100
Presence of On-Street Parking	No			No	No			No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	8				0				20			15		
Bicycle Volume [bicycles/h]	0				0				0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	2	2	2	2	6	6	6	6	4	4	4	8	8	8
Auxiliary Signal Groups														
Lead / Lag	Lag	Lag	-	-	Lag	Lag	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Maximum Green [s]	40	40	40	40	40	40	40	40	30	30	30	30	30	30
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	45	45	45	45	45	45	45	45	35	35	35	35	35	35
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Pedestrian Clearance [s]	15	15	15	15	15	15	15	15	21	21	21	21	21	21
Rest In Walk			No				No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall			No				No			No			No	
Maximum Recall			Yes				Yes			No			No	
Pedestrian Recall			No				No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	30.0	30.0	30.0	0.0	0.0	0.0	0.0	30.0	30.0	30.0	30.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	C
C, Cycle Length [s]	61	61	61	61	61	61	61	61	61	61
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	40	40	40	40	40	40	11	11	11	11
g / C, Green / Cycle	0.66	0.66	0.66	0.66	0.66	0.66	0.18	0.18	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.16	0.10	0.10	0.09	0.17	0.18	0.02	0.01	0.02	0.13
s, saturation flow rate [veh/h]	780	1866	1756	1007	1862	1773	1285	1847	1593	1508
c, Capacity [veh/h]	551	1231	1158	711	1228	1169	145	324	280	344
d1, Uniform Delay [s]	7.15	3.91	3.92	5.64	4.26	4.27	29.79	20.84	21.02	23.53
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.94	0.26	0.28	0.36	0.53	0.56	0.72	0.08	0.17	1.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.22	0.15	0.15	0.13	0.26	0.27	0.21	0.06	0.11	0.55
d, Delay for Lane Group [s/veh]	8.10	4.17	4.20	6.00	4.79	4.83	30.51	20.91	21.19	24.90
Lane Group LOS	A	A	A	A	A	A	C	C	C	C
Critical Lane Group	No	No	No	No	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.83	0.69	0.67	0.47	1.31	1.27	0.46	0.23	0.36	2.51
50th-Percentile Queue Length [ft/ln]	20.74	17.18	16.63	11.74	32.84	31.76	11.54	5.74	9.03	62.74
95th-Percentile Queue Length [veh/ln]	1.49	1.24	1.20	0.85	2.36	2.29	0.83	0.41	0.65	4.52
95th-Percentile Queue Length [ft/ln]	37.32	30.93	29.93	21.13	59.11	57.16	20.78	10.33	16.26	112.94

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	8.10	8.10	4.18	4.20	6.00	6.00	4.80	4.83	30.51	20.91	21.19	24.90	24.90	24.90
Movement LOS	A	A	A	A	A	A	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	5.17				4.95				24.65			24.90		
Approach LOS	A				A				C			C		
d_I, Intersection Delay [s/veh]	8.65													
Intersection LOS	A													
Intersection V/C	0.375													

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SG: 2 45s

SG: 102 22s

SG: 6 45s

SG: 106 22s

SG: 4 35s

SG: 104 28s

SG: 8 35s

Intersection Level Of Service Report

Intersection 30: Adelphi Rd/Belcrest Rd

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 23.7
 Level Of Service: C
 Volume to Capacity (v/c): 0.783

Intersection Setup

Name	Belcrest Rd			Underwood St			Adelphi Rd				Adelphi Rd		
Approach	Northeastbound			Southwestbound			Northwestbound				Southeastbound		
Lane Configuration													
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.0	100.0	100.0	100.0	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00				30.00		
Grade [%]	0.00			0.00			0.00				0.00		
Crosswalk	No			Yes			Yes				Yes		

Volumes

Name	Belcrest Rd			Underwood St			Adelphi Rd				Adelphi Rd		
Base Volume Input [veh/h]	376	0	31	18	42	6	2	37	1013	0	0	735	680
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.98	0.00	0.00	1.99	1.94
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	18	0	0	0	0	0	0	0	12	0	0	5	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	394	0	31	18	42	6	2	37	1025	0	0	740	683
Peak Hour Factor	0.9000	1.0000	1.0000	0.9000	0.9000	0.9000	0.900	0.900	0.900	1.000	1.0000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	109	0	8	5	12	2	1	10	285	0	0	206	190
Total Analysis Volume [veh/h]	438	0	31	20	47	7	2	41	1139	0	0	822	759
Presence of On-Street Parking	No		No	No		No	No			No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			1				5		
Bicycle Volume [bicycles/h]	0			0			0				0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	15.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Permi	Prote	Permi	Permi	Permiss	Permiss	Permiss
Signal group	4	0	0	8	8	8	5	5	2	0	0	6	6
Auxiliary Signal Groups													
Lead / Lag	Lead	-	-	Lag	-	-	Lead	Lead	-	-	-	-	-
Minimum Green [s]	4	0	0	4	4	4	4	4	4	0	0	4	4
Maximum Green [s]	30	0	0	16	16	16	11	11	60	0	0	45	45
Amber [s]	4.0	0.0	0.0	3.0	3.0	3.0	3.5	3.5	3.5	0.0	0.0	4.0	4.0
All red [s]	1.0	0.0	0.0	1.0	1.0	1.0	0.5	0.5	1.0	0.0	0.0	1.0	1.0
Split [s]	30	0	0	30	30	30	30	30	30	0	0	30	30
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	0.0	3.0	3.0
Walk [s]	4	0	0	4	4	4	0	0	3	0	0	3	3
Pedestrian Clearance [s]	13	0	0	13	13	13	0	0	8	0	0	8	8
Rest In Walk	No				No				No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	0.0	0.0	2.0	2.0	2.0	2.0	2.0	2.5	0.0	0.0	3.0	3.0
Minimum Recall	No				No			No	No			No	
Maximum Recall	No				No			No	Yes			Yes	
Pedestrian Recall	No				No			No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	30.0	30.0	30.0	0.0	0.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C
C, Cycle Length [s]	94	94	94	94	94	94	94
L, Total Lost Time per Cycle [s]	5.00	5.00	4.00	4.25	4.50	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	2.00	0.00	2.50	3.00	3.00
g_i, Effective Green Time [s]	15	15	6	60	60	53	53
g / C, Green / Cycle	0.16	0.16	0.06	0.64	0.64	0.56	0.56
(v / s)_i Volume / Saturation Flow Rate	0.13	0.13	0.04	0.02	0.32	0.42	0.50
s, saturation flow rate [veh/h]	1772	1781	1844	1810	3547	1863	1593
c, Capacity [veh/h]	285	287	113	453	2251	1039	889
d1, Uniform Delay [s]	38.33	38.33	43.38	19.23	9.30	16.05	18.34
k, delay calibration	0.11	0.11	0.11	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.77	5.75	6.19	0.42	0.82	5.25	12.93
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.82	0.65	0.10	0.51	0.76	0.89
d, Delay for Lane Group [s/veh]	44.10	44.08	49.56	19.64	10.11	21.30	31.27
Lane Group LOS	D	D	D	B	B	C	C
Critical Lane Group	No	Yes	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.61	5.64	1.87	0.35	5.86	13.45	16.83
50th-Percentile Queue Length [ft/ln]	140.36	141.04	46.79	8.67	146.55	336.28	420.83
95th-Percentile Queue Length [veh/ln]	9.50	9.54	3.37	0.62	9.83	19.47	23.56
95th-Percentile Queue Length [ft/ln]	237.51	238.42	84.22	15.61	245.82	486.65	589.05

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	44.09	0.00	44.08	49.56	49.56	49.56	19.64	19.64	10.11	0.00	0.00	21.68	31.27
Movement LOS	D		D	D	D	D	B	B	B			C	C
d_A, Approach Delay [s/veh]	44.09			49.56			10.46			26.29			
Approach LOS	D			D			B			C			
d_I, Intersection Delay [s/veh]	23.67												
Intersection LOS	C												
Intersection V/C	0.783												

Sequence

Ring 1	-	2	-	4	-	8	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report Intersection 31: Adelphi Rd/Campus Dr

Control Type: Signalized
Analysis Method: HCM 2010
Analysis Period: 15 minutes

Delay (sec / veh): 31.8
Level Of Service: C
Volume to Capacity (v/c): 0.473

Intersection Setup

Name	Adelphi Rd.			Adelphi Rd.			Campus Dr.			Campus Dr.		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	0	0	0
Pocket Length [ft]	350.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	250.00	100.00	100.00	100.00
Speed [mph]	40.00			40.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Adelphi Rd.			Adelphi Rd.			Campus Dr.			Campus Dr.		
Base Volume Input [veh/h]	230	953	80	209	1338	0	0	140	206	73	127	66
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.27	2.08	2.27	2.00	2.05	0.00	0.00	2.00	2.21	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	30	0	0	8	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	230	983	80	209	1346	0	0	140	206	73	127	66
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	1.0000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	64	273	22	58	374	0	0	39	57	20	35	18
Total Analysis Volume [veh/h]	256	1092	89	232	1496	0	0	156	229	81	141	73
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	248
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	45.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Overlap	Overlap	Permiss	Permiss	Permiss	Permiss	Split	Split	Split
Signal group	3	8	8	1	1	0	0	2	2	6	6	6
Auxiliary Signal Groups				1,7	1,4							
Lead / Lag	Lag	-	-	Lag	-	-	-	-	-	Lag	-	-
Minimum Green [s]	5	8	8	15	15	0	0	25	25	5	5	5
Maximum Green [s]	30	60	60	40	40	0	0	60	60	30	30	30
Amber [s]	4.0	4.0	4.0	4.0	4.0	0.0	0.0	4.5	4.5	4.5	4.5	4.5
All red [s]	1.0	2.0	2.0	1.0	1.0	0.0	0.0	1.5	1.5	1.5	1.5	1.5
Split [s]	30	30	30	30	30	0	0	30	30	30	30	30
Vehicle Extension [s]	3.0	3.5	3.5	3.0	3.0	0.0	0.0	4.0	4.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	4.0	4.0	3.0	3.0	0.0	0.0	4.0	4.0	4.0	4.0	4.0
Minimum Recall	Yes	Yes		Yes	Yes			Yes			Yes	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	30.0	30.0	30.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	R	C	C	R
C, Cycle Length [s]	118	118	118	118	118	118	118	118	118	118
L, Total Lost Time per Cycle [s]	5.00	6.00	6.00	5.00	5.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	4.00	4.00	0.00	0.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	19	34	34	57	73	25	25	10	10	10
g / C, Green / Cycle	0.16	0.28	0.28	0.49	0.62	0.21	0.21	0.09	0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.14	0.22	0.06	0.07	0.42	0.04	0.14	0.06	0.06	0.05
s, saturation flow rate [veh/h]	1769	5070	1579	3445	3545	3547	1580	1800	1695	1583
c, Capacity [veh/h]	291	1447	451	1672	2179	751	335	154	145	135
d1, Uniform Delay [s]	48.22	38.46	31.98	16.78	15.18	38.40	42.93	52.79	52.73	51.80
k, delay calibration	0.12	0.13	0.13	0.11	0.17	0.15	0.15	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.40	0.99	0.26	0.04	0.62	0.19	3.51	7.10	7.08	3.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

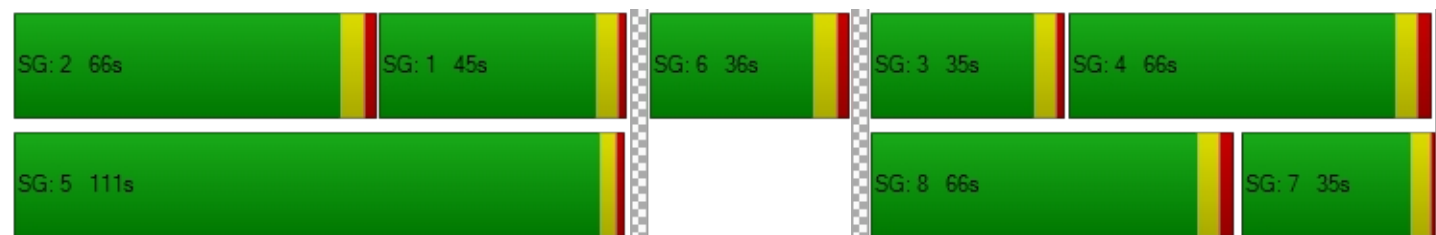
X, volume / capacity	0.88	0.75	0.20	0.14	0.69	0.21	0.68	0.75	0.74	0.54
d, Delay for Lane Group [s/veh]	57.61	39.45	32.24	16.82	15.80	38.59	46.44	59.89	59.82	55.11
Lane Group LOS	E	D	C	B	B	D	D	E	E	E
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.96	9.46	1.93	1.69	12.20	1.87	6.41	3.61	3.35	2.18
50th-Percentile Queue Length [ft/ln]	199.07	236.50	48.21	42.25	304.89	46.85	160.29	90.31	83.69	54.53
95th-Percentile Queue Length [veh/ln]	12.59	14.50	3.47	3.04	17.92	3.37	10.56	6.50	6.03	3.93
95th-Percentile Queue Length [ft/ln]	314.76	362.61	86.78	76.05	448.08	84.34	264.11	162.56	150.64	98.16

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	57.61	39.45	32.24	16.82	15.80	0.00	0.00	38.59	46.44	59.89	59.84	55.11
Movement LOS	E	D	C	B	B			D	D	E	E	E
d_A, Approach Delay [s/veh]	42.24			15.94			43.26			58.68		
Approach LOS	D			B			D			E		
d_I, Intersection Delay [s/veh]	31.78											
Intersection LOS	C											
Intersection V/C	0.473											

Sequence

Ring 1	1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	7	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report Intersection 32: Adelphi Rd/Toledo Rd

Control Type: Signalized
Analysis Method: HCM 2010
Analysis Period: 15 minutes

Delay (sec / veh): 6.3
Level Of Service: A
Volume to Capacity (v/c): 0.424

Intersection Setup

Name	Adelphi Rd			Adelphi Rd		Toledo Rd	
Approach	Northbound			Southbound		Eastbound	
Lane Configuration							
Turning Movement	U-turn	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0	1
Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00	200.00
Speed [mph]	45.00			30.00		30.00	
Grade [%]	0.00			0.00		0.00	
Crosswalk	Yes			No		Yes	

Volumes

Name	Adelphi Rd			Adelphi Rd		Toledo Rd	
Base Volume Input [veh/h]	6	156	1022	667	104	51	75
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	1.97	2.01	2.05	1.88	2.38	1.96
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	12	5	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	156	1034	672	104	51	75
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	43	287	187	29	14	21
Total Analysis Volume [veh/h]	7	173	1149	747	116	57	83
Presence of On-Street Parking	No		No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	6			0		6	
Bicycle Volume [bicycles/h]	0			0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Permissive	ProtectedP	Permissive	Permissive	Permissive	Split	Split
Signal group	5	5	2	6	6	4	4
Auxiliary Signal Groups							
Lead / Lag	Lead	Lead	-	-	-	Lag	-
Minimum Green [s]	4	4	4	4	4	4	4
Maximum Green [s]	15	15	65	45	45	25	25
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	20	20	70	50	50	30	30
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	7	7	7	7	7
Pedestrian Clearance [s]	0	0	6	6	6	13	13
Rest In Walk			No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall		No	No	No		No	
Maximum Recall		No	Yes	Yes		No	
Pedestrian Recall		No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	30.0	30.0	30.0	30.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	R
C, Cycle Length [s]	82	82	82	82	82	82
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	65	65	56	56	7	7
g / C, Green / Cycle	0.79	0.79	0.68	0.68	0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.22	0.32	0.21	0.07	0.03	0.05
s, saturation flow rate [veh/h]	834	3546	3545	1578	1767	1552
c, Capacity [veh/h]	718	2796	2390	1064	159	140
d1, Uniform Delay [s]	2.58	2.73	5.55	4.73	35.26	36.05
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.84	0.45	0.34	0.21	1.35	3.96
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.25	0.41	0.31	0.11	0.36	0.59
d, Delay for Lane Group [s/veh]	3.41	3.17	5.89	4.93	36.61	40.01
Lane Group LOS	A	A	A	A	D	D
Critical Lane Group	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.42	1.24	2.26	0.63	1.12	1.73
50th-Percentile Queue Length [ft/ln]	10.46	31.04	56.47	15.72	27.93	43.20
95th-Percentile Queue Length [veh/ln]	0.75	2.24	4.07	1.13	2.01	3.11
95th-Percentile Queue Length [ft/ln]	18.83	55.88	101.65	28.29	50.27	77.76

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	3.41	3.41	3.17	5.89	4.93	36.61	40.01
Movement LOS	A	A	A	A	A	D	D
d_A, Approach Delay [s/veh]	3.21			5.76		38.63	
Approach LOS	A			A		D	
d_I, Intersection Delay [s/veh]	6.28						
Intersection LOS	A						
Intersection V/C	0.424						

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 33: Hamilton St/40th Pl/39th Ave

Control Type: Roundabout
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 8.1
 Level Of Service: A

Intersection Setup

Name	Magruder Park Ent				39th Ave				Hamilton St			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				35.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	Yes				Yes				Yes			

Volumes

Name	Magruder Park Ent				39th Ave				Hamilton St			
Base Volume Input [veh/h]	4	1	0	2	0	6	2	29	62	0	335	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.85	0.00	2.15	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	12	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	1	0	2	0	6	2	29	62	0	347	8
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	0	1	0	2	1	8	17	0	96	2
Total Analysis Volume [veh/h]	4	1	0	2	0	7	2	32	69	0	386	9
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings

Number of Conflicting Circulating Lanes	1				1				1			
Circulating Flow Rate [veh/h]	480				587				36			
Exiting Flow Rate [veh/h]	31				77				592			
Demand Flow Rate [veh/h]	4	1	0	2	0	6	2	29	62	0	347	8
Adjusted Demand Flow Rate [veh/h]	4	1	0	2	0	7	2	32	69	0	386	9

Lanes

Overwrite Calculated Critical Headway	No				No				No			
User-Defined Critical Headway [s]	4.00				4.00				4.00			
Overwrite Calculated Follow-Up Time	No				No				No			
User-Defined Follow-Up Time [s]	3.00				3.00				3.00			
A (intercept)	1130.00				1130.00				1130.00			
B (coefficient)	0.00100				0.00100				0.00100			
HV Adjustment Factor	1.00				1.00				0.98			
Entry Flow Rate [veh/h]	7				41				475			
Capacity of Entry and Bypass Lanes [veh/h]	700				629				1091			
Pedestrian Impedance	1.00				1.00				1.00			
Capacity per Entry Lane [veh/h]	700				629				1065			
X, volume / capacity	0.01				0.07				0.44			

Movement, Approach, & Intersection Results

Lane LOS	A	A	A
95th-Percentile Queue Length [veh]	0.03	0.21	2.25
95th-Percentile Queue Length [ft]	0.76	5.22	56.23
Approach Delay [s/veh]	5.25	6.46	8.14
Approach LOS	A	A	A
Intersection Delay [s/veh]	8.06		
Intersection LOS	A		

Intersection Setup

Name	Hamilton St				Gallatin St			
Approach	Westbound				Northwestbound			
Lane Configuration								
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				35.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				Yes			

Volumes

Name	Hamilton St				Gallatin St			
Base Volume Input [veh/h]	6	6	112	2	12	375	2	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.20	0.00	0.00	2.18	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	3	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	6	112	2	12	378	2	0
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	2	31	1	3	105	1	0
Total Analysis Volume [veh/h]	7	7	124	2	13	420	2	0
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

Number of Conflicting Circulating Lanes	1				1			
Circulating Flow Rate [veh/h]	521				77			
Exiting Flow Rate [veh/h]	0				410			
Demand Flow Rate [veh/h]	6	6	112	2	12	378	2	0
Adjusted Demand Flow Rate [veh/h]	7	7	124	2	13	420	2	0

Lanes

Overwrite Calculated Critical Headway	No				No			
User-Defined Critical Headway [s]	4.00				4.00			
Overwrite Calculated Follow-Up Time	No				No			
User-Defined Follow-Up Time [s]	3.00				3.00			
A (intercept)	1130.00				1130.00			
B (coefficient)	0.00100				0.00100			
HV Adjustment Factor	0.98				0.98			
Entry Flow Rate [veh/h]	143				445			
Capacity of Entry and Bypass Lanes [veh/h]	672				1047			
Pedestrian Impedance	1.00				1.00			
Capacity per Entry Lane [veh/h]	659				1026			
X, volume / capacity	0.21				0.42			

Movement, Approach, & Intersection Results

Lane LOS	A				A			
95th-Percentile Queue Length [veh]	0.80				2.15			
95th-Percentile Queue Length [ft]	20.01				53.73			
Approach Delay [s/veh]	8.00				8.20			
Approach LOS	A				A			
Intersection Delay [s/veh]	8.06							
Intersection LOS	A							

Intersection Level Of Service Report

Intersection 4281: New Intersection

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 12.6
 Level Of Service: B
 Volume to Capacity (v/c): 0.000

Intersection Setup

Name							Queensbury			Queensbury		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name							Queensbury			Queensbury		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	267	0	0	218	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	272	0	0	222	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	68	0	0	56	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	272	0	0	222	0
Pedestrian Volume [ped/h]	0			0			0			0		

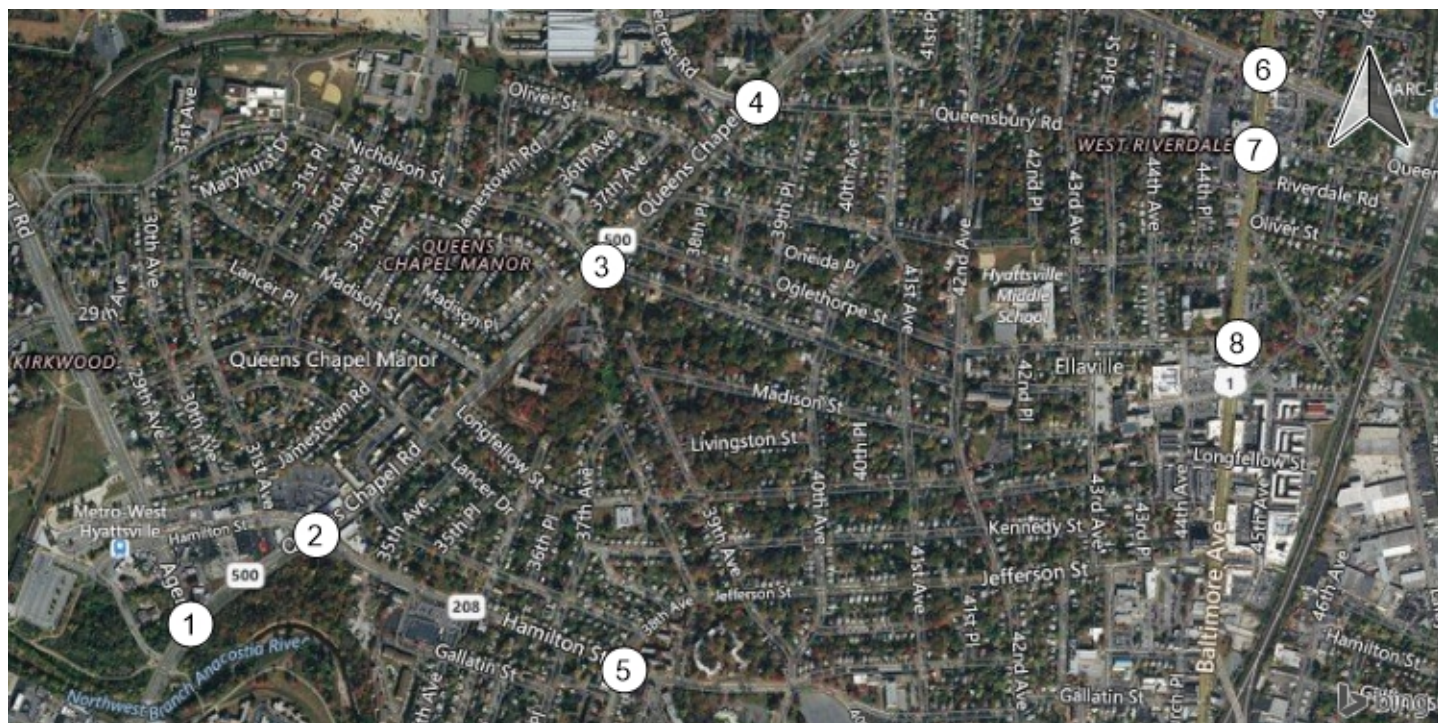
Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

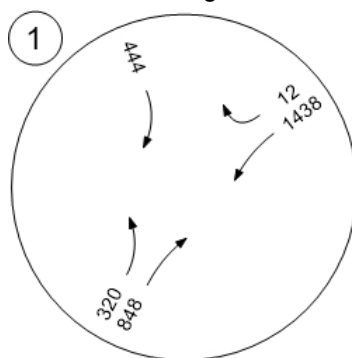
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.41	12.56	9.70	12.41	12.56	9.40	7.67	0.00	0.00	7.79	0.00	0.00
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.56			11.46			0.00			0.00		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	0.00											
Intersection LOS	B											

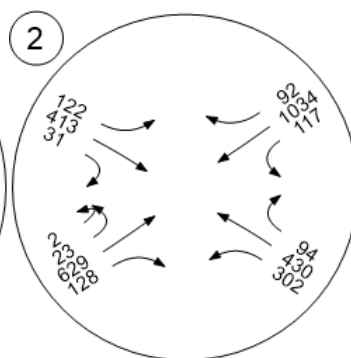
Traffic Volume - Future Total Volume



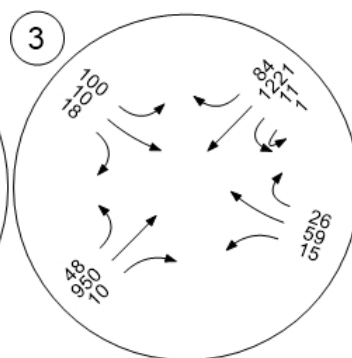
MD 500/Ager Rd



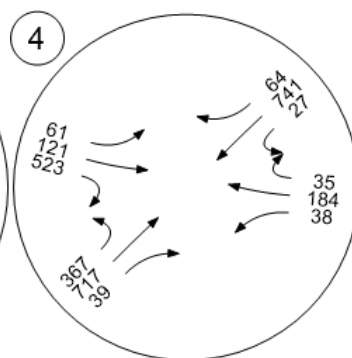
MD 500/Hamilton St



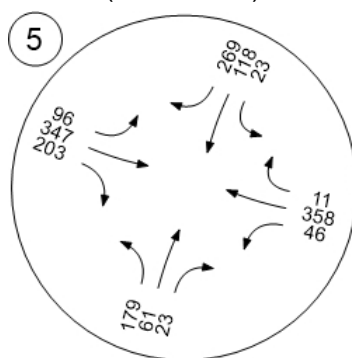
MD 500/Nicholson St



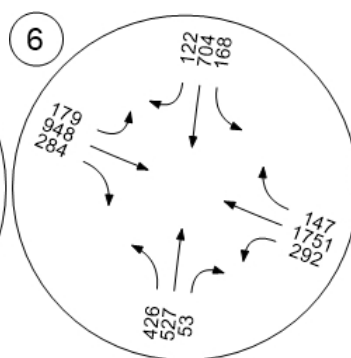
MD 500/Belcrest Rd/Queens



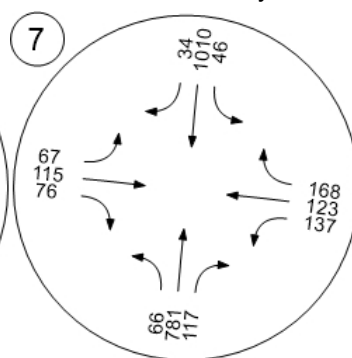
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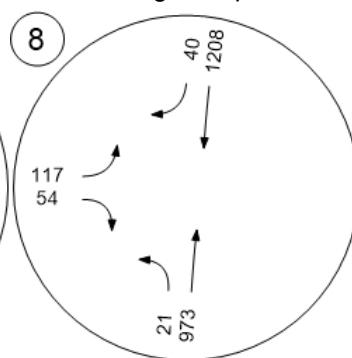
US 1/MD 410



US 1/Queensbury Rd

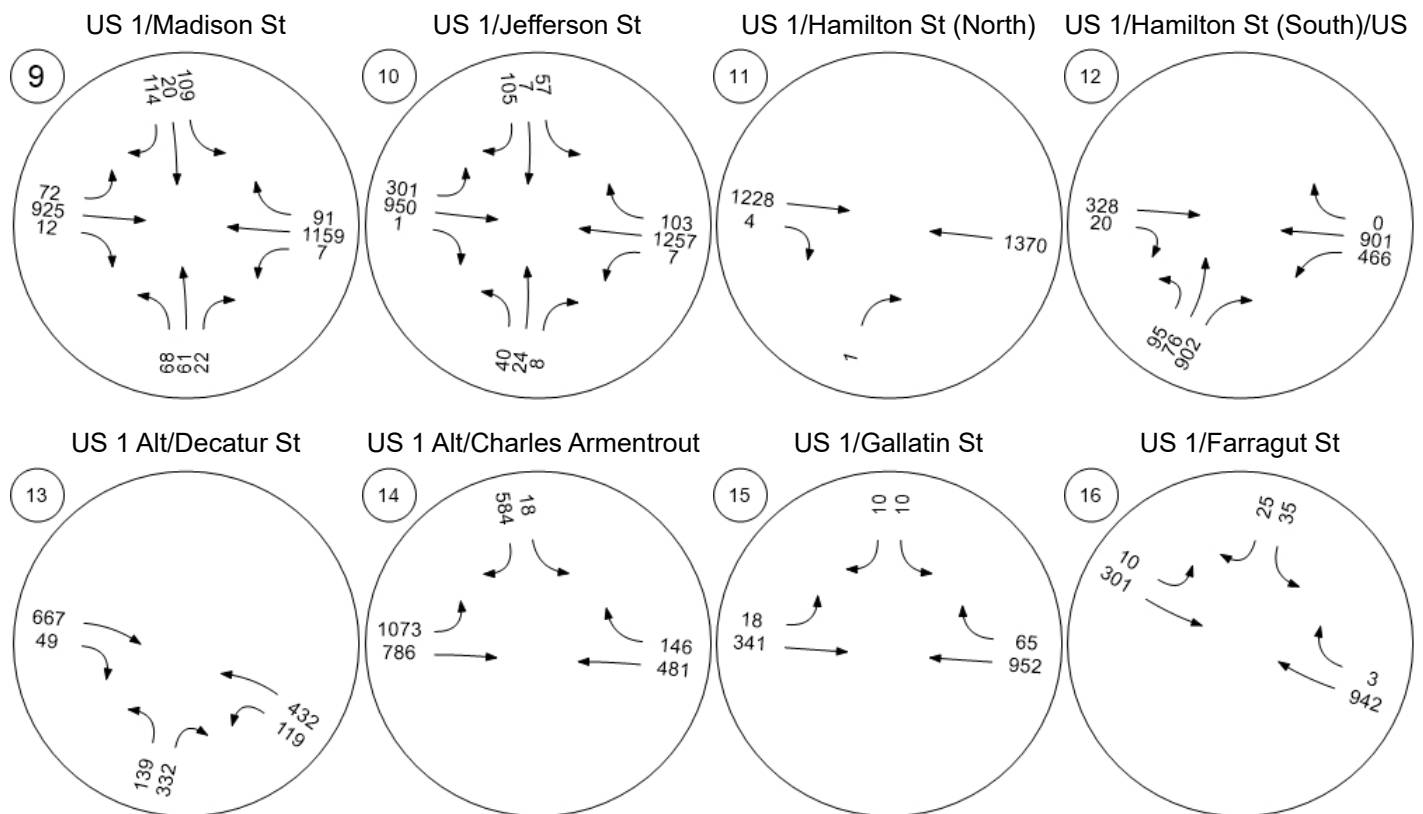


US 1/Oglethorpe Rd

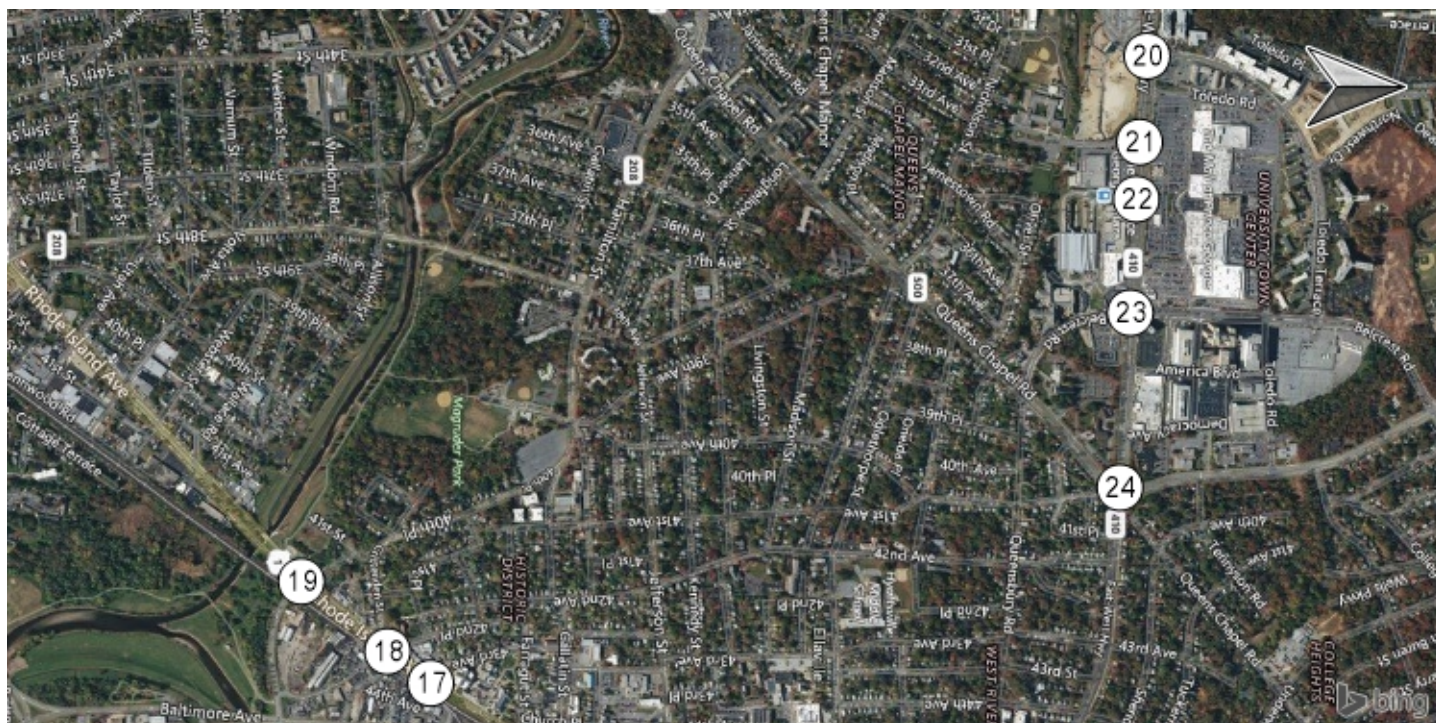


Version 6.00-00

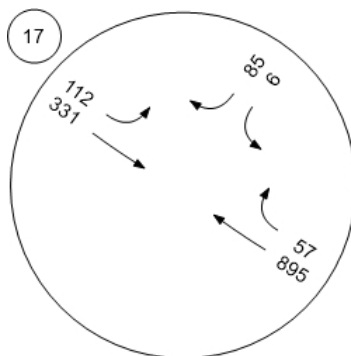
Traffic Volume - Future Total Volume



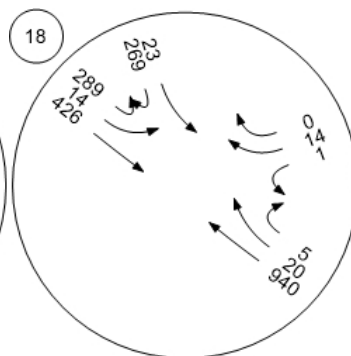
Traffic Volume - Future Total Volume



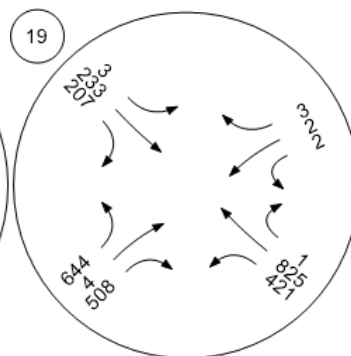
US 1/43rd Avenue



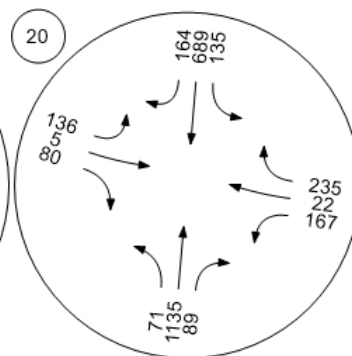
US 1/42nd Place/Crittendon



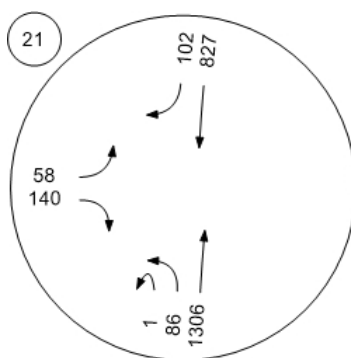
US 1/41st Place/Charles Arm



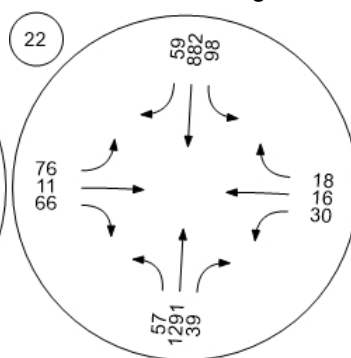
MD 410/Toledo Terrace



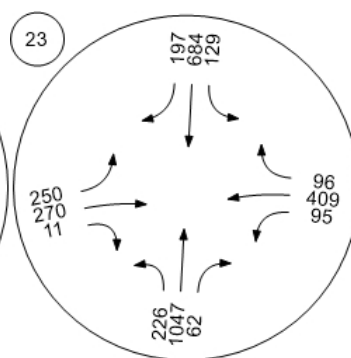
MD 410/Editors Park Dr



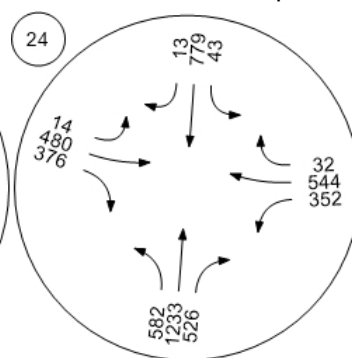
MD 410/Prince George's Plaza



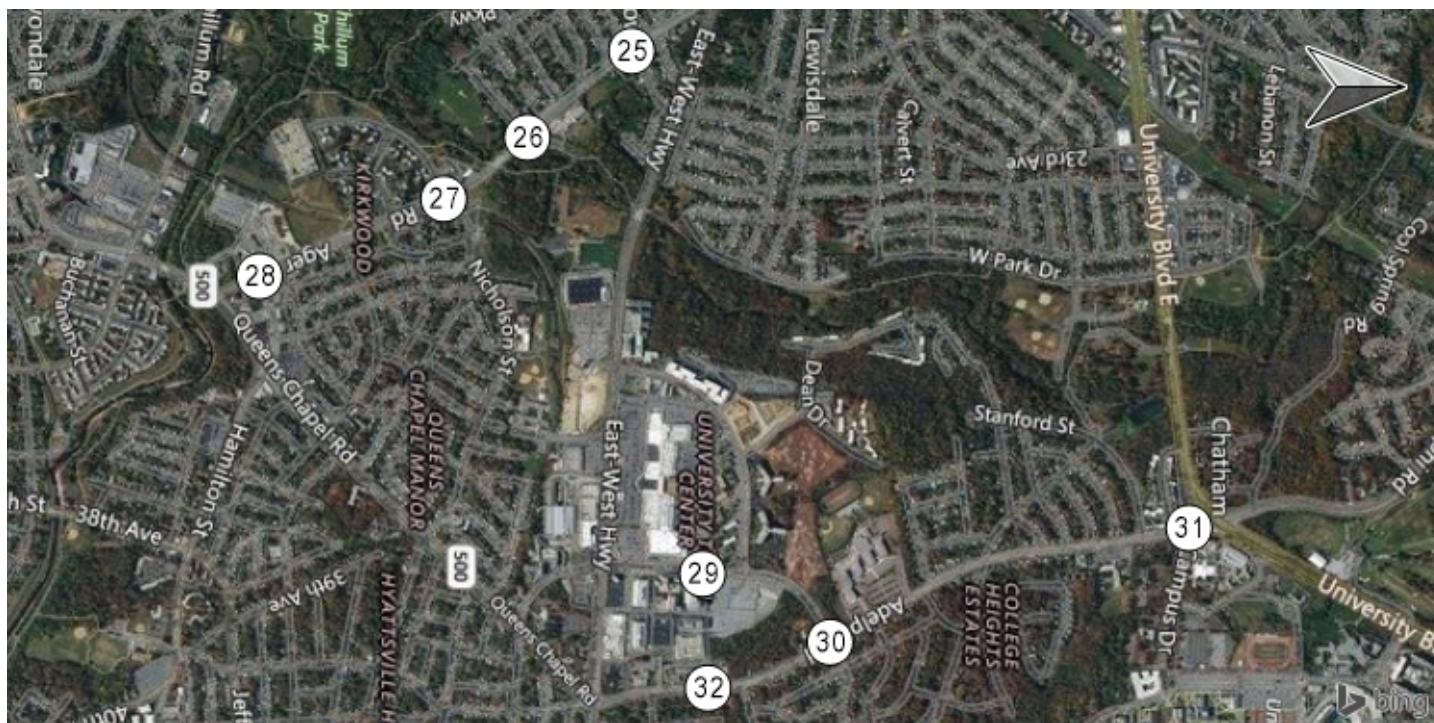
MD 410/Belcrest Rd



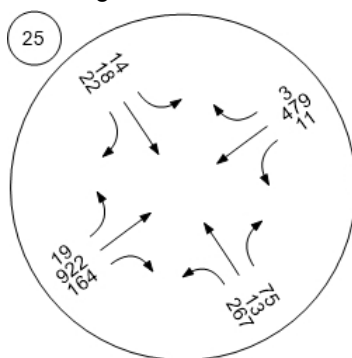
MD 410/MD 500/Adelphi Rd



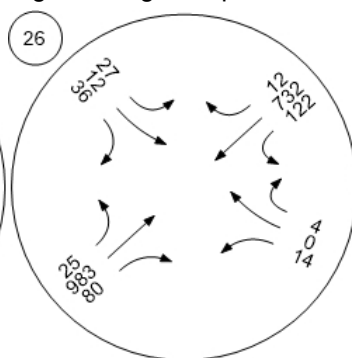
Traffic Volume - Future Total Volume



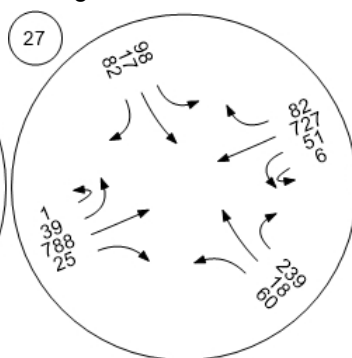
Ager Rd/23rd Ave



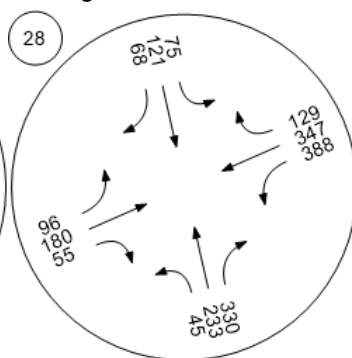
Ager Rd/Oglethorpe St/Scho



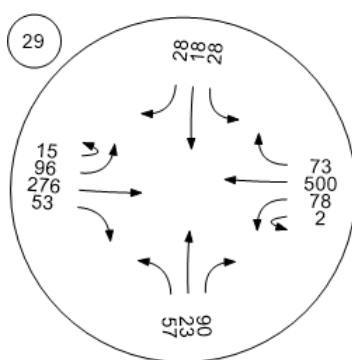
Ager Rd/Nicholson St



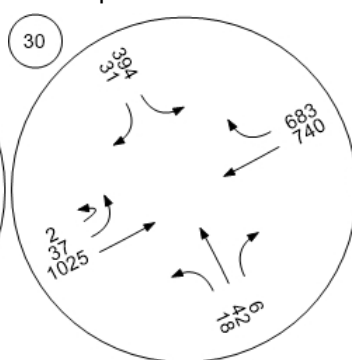
Ager Rd/Hamilton St



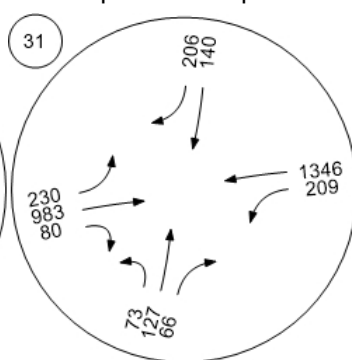
Toledo Rd/Belcrest Rd



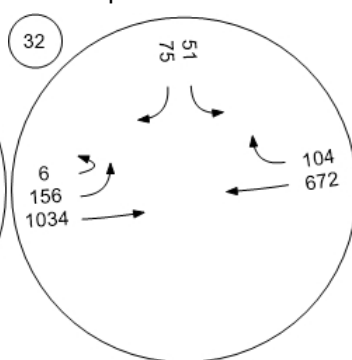
Adelphi Rd/Belcrest Rd



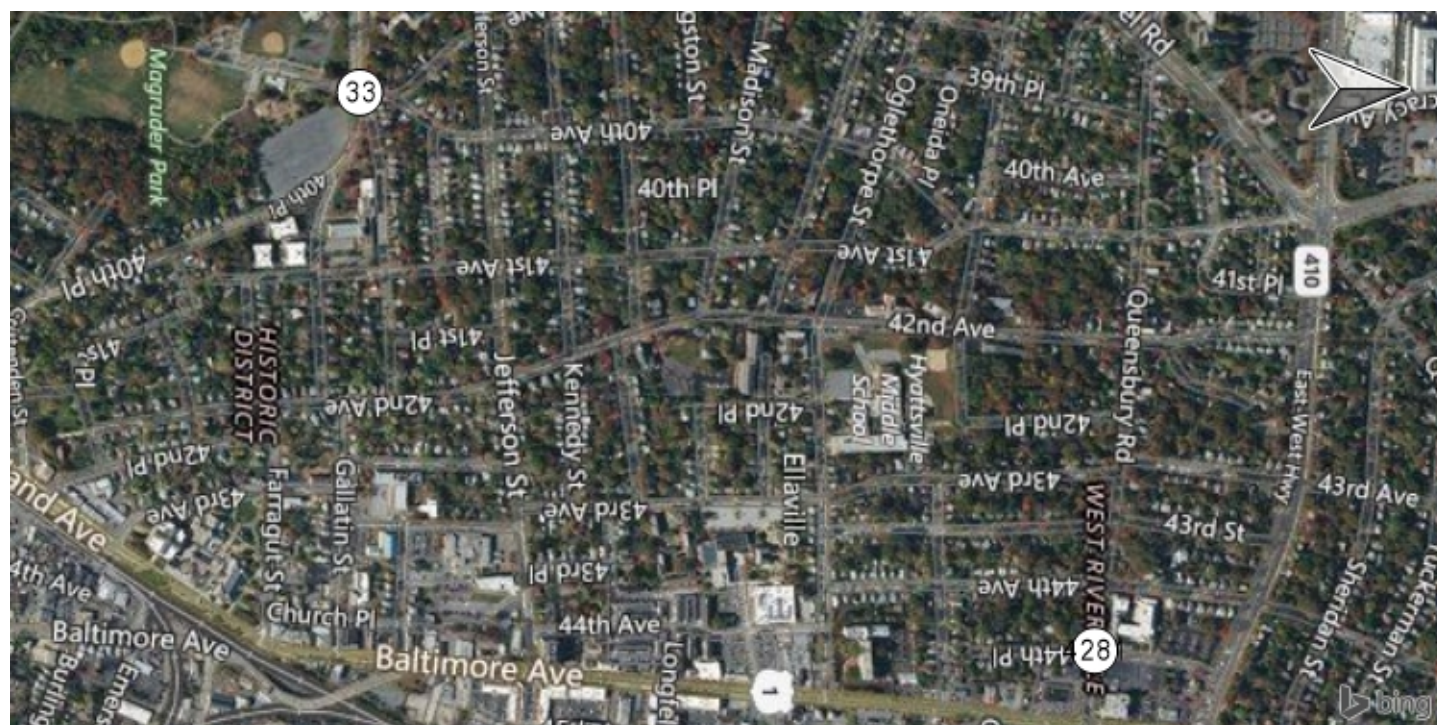
Adelphi Rd/Campus Dr



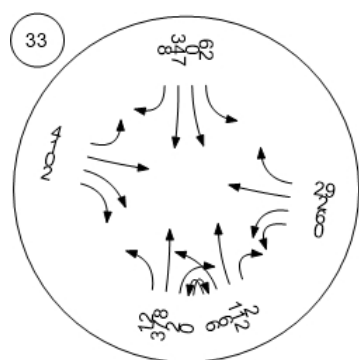
Adelphi Rd/Toledo Rd



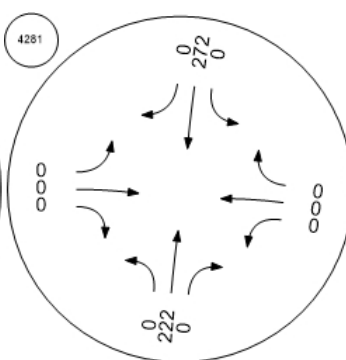
Traffic Volume - Future Total Volume



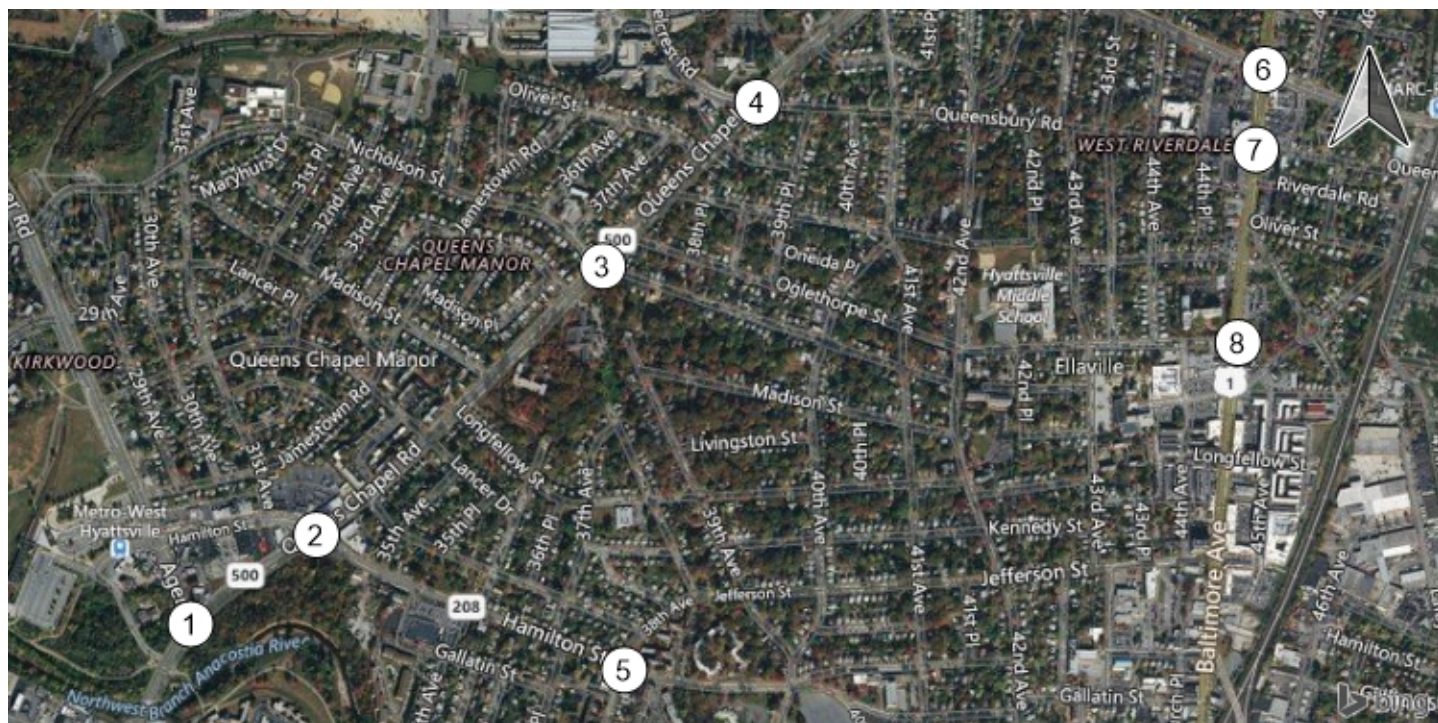
Hamilton St/40th Pl/39th Ave



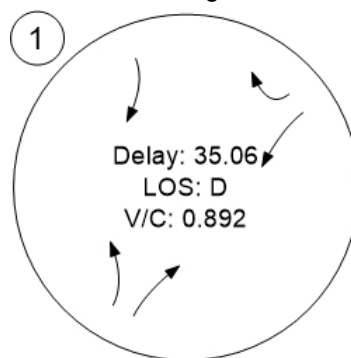
New Intersection



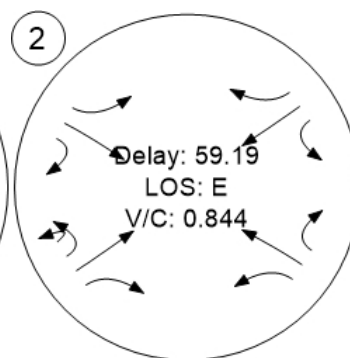
Traffic Conditions



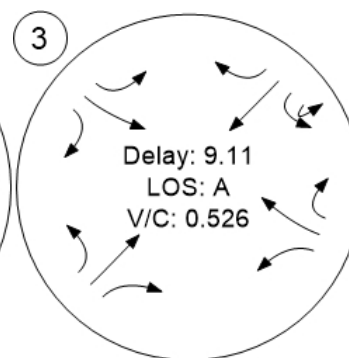
MD 500/Ager Rd



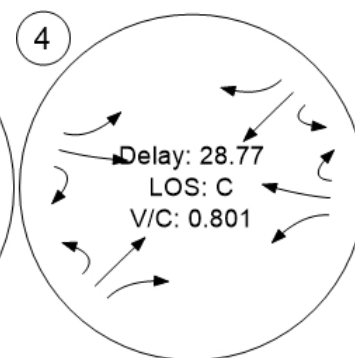
MD 500/Hamilton St



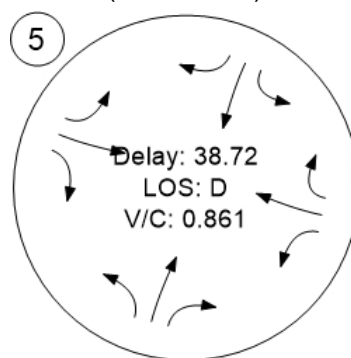
MD 500/Nicholson St



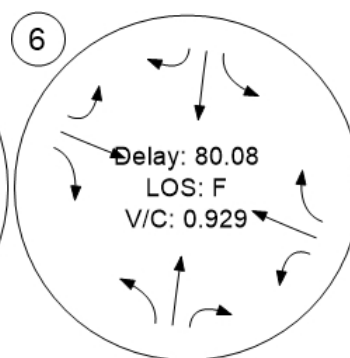
MD 500/Belcrest Rd/Queens



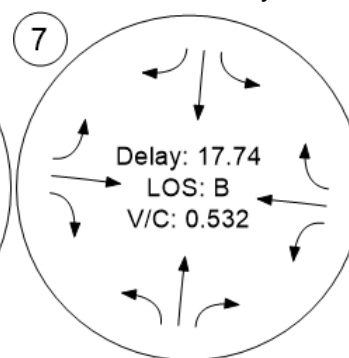
MD 208(Hamilton St)/38th Av



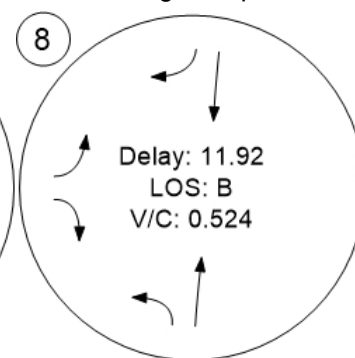
US 1/MD 410



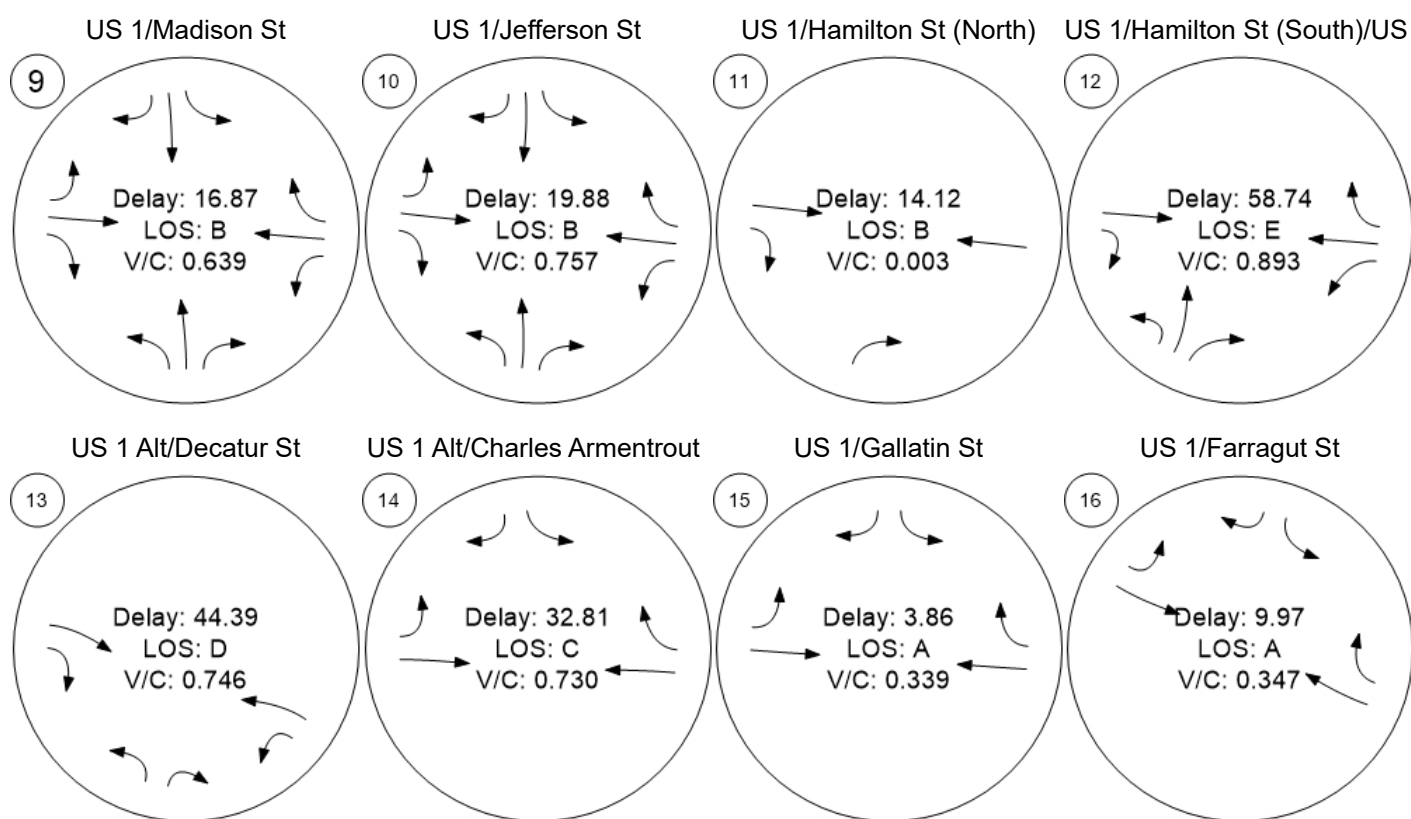
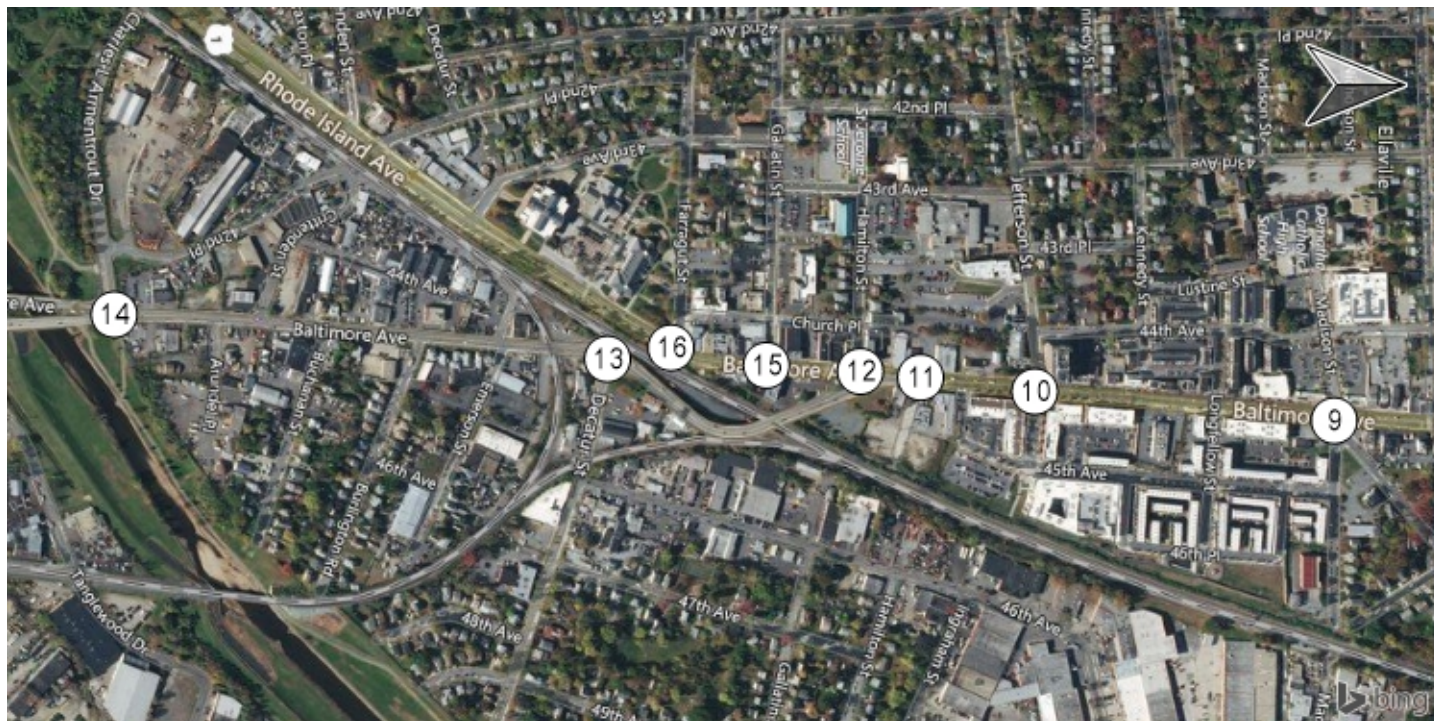
US 1/Queensbury Rd



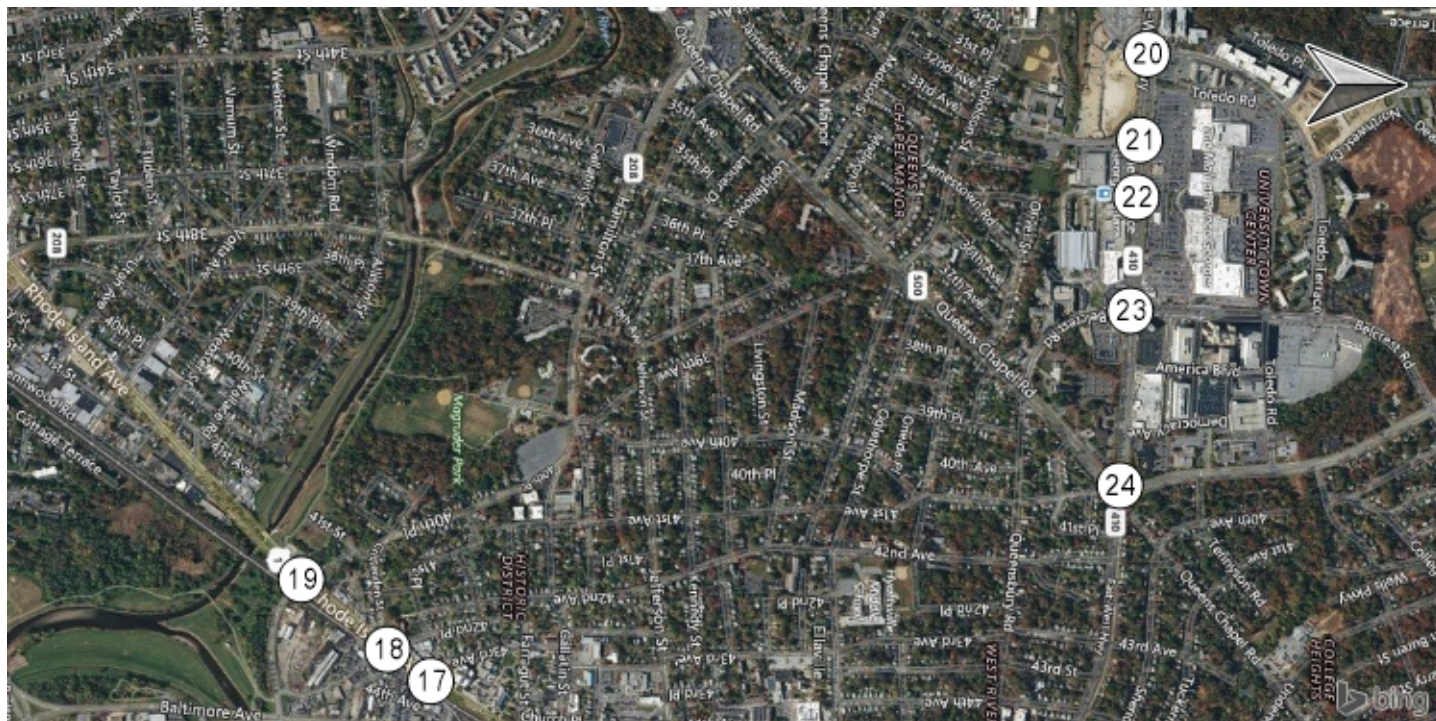
US 1/Oglethorpe Rd



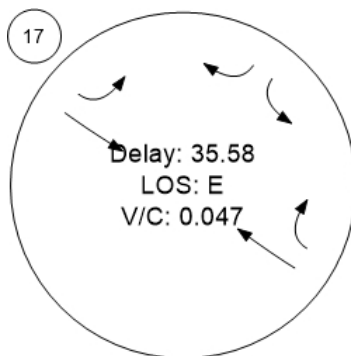
Traffic Conditions



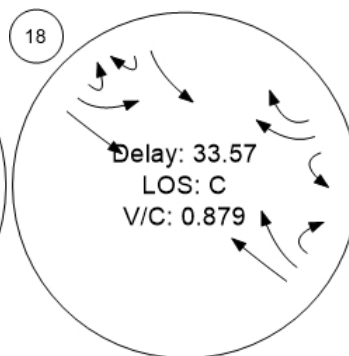
Traffic Conditions



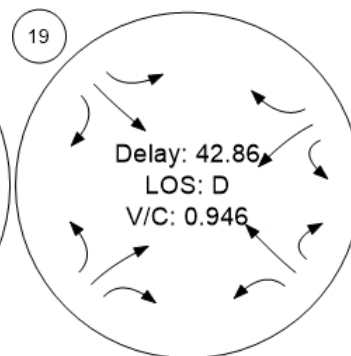
US 1/43rd Avenue



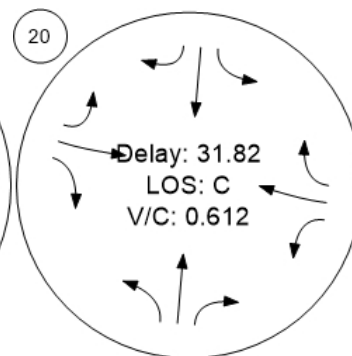
US 1/42nd Place/Crittendon



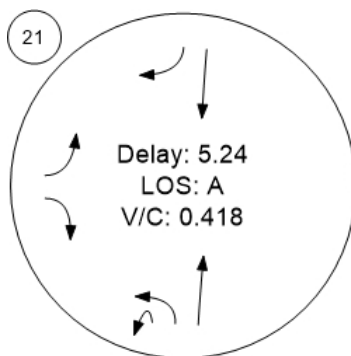
US 1/41st Place/Charles Arm



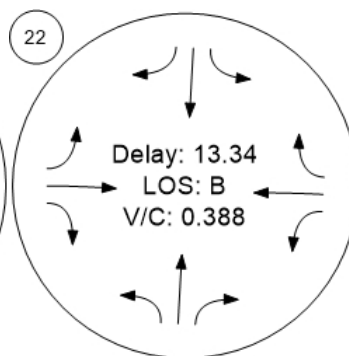
MD 410/Toledo Terrace



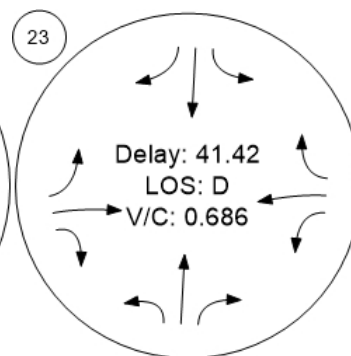
MD 410/Editors Park Dr



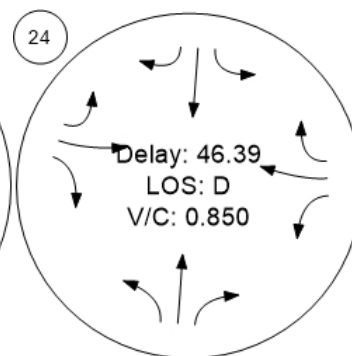
MD 410/Prince George's Plaz



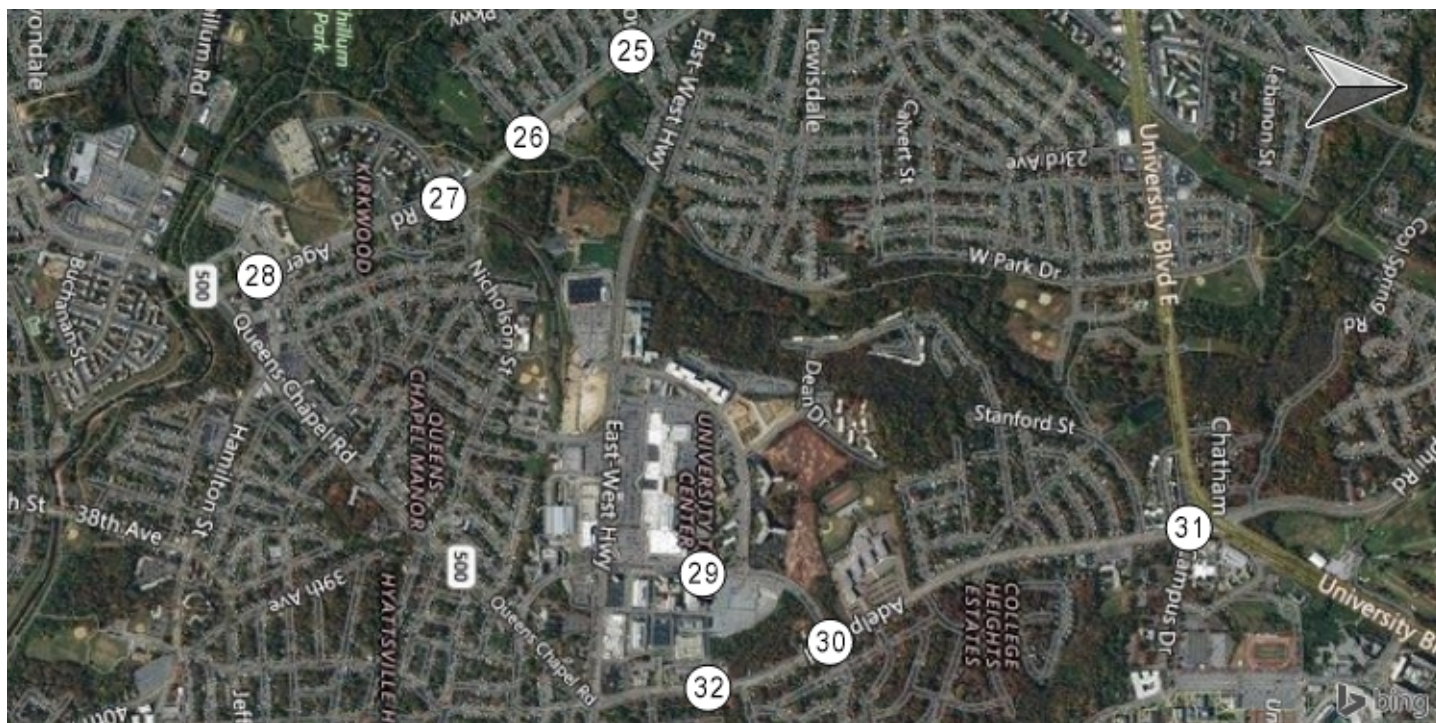
MD 410/Belcrest Rd



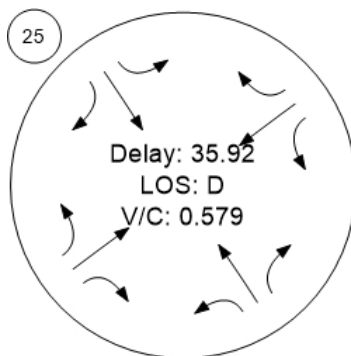
MD 410/MD 500/Adelphi Rd



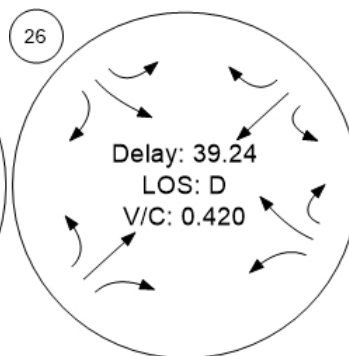
Traffic Conditions



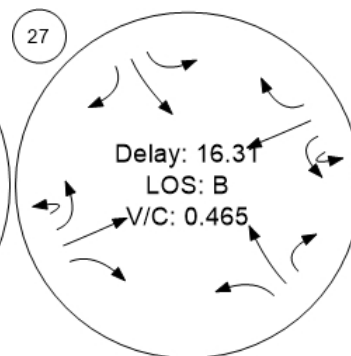
Ager Rd/23rd Ave



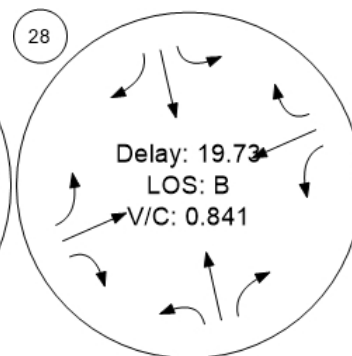
Ager Rd/Oglethorpe St/Scho



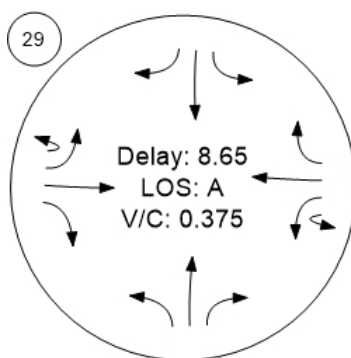
Ager Rd/Nicholson St



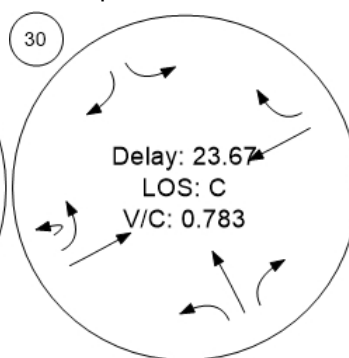
Ager Rd/Hamilton St



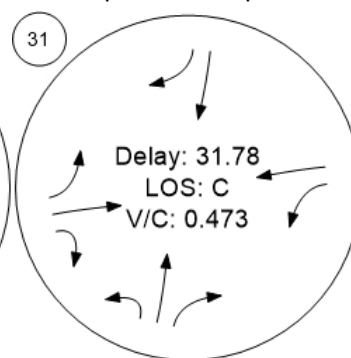
Toledo Rd/Belcrest Rd



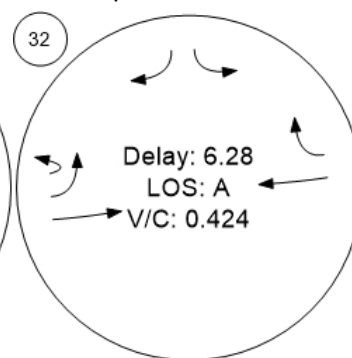
Adelphi Rd/Belcrest Rd



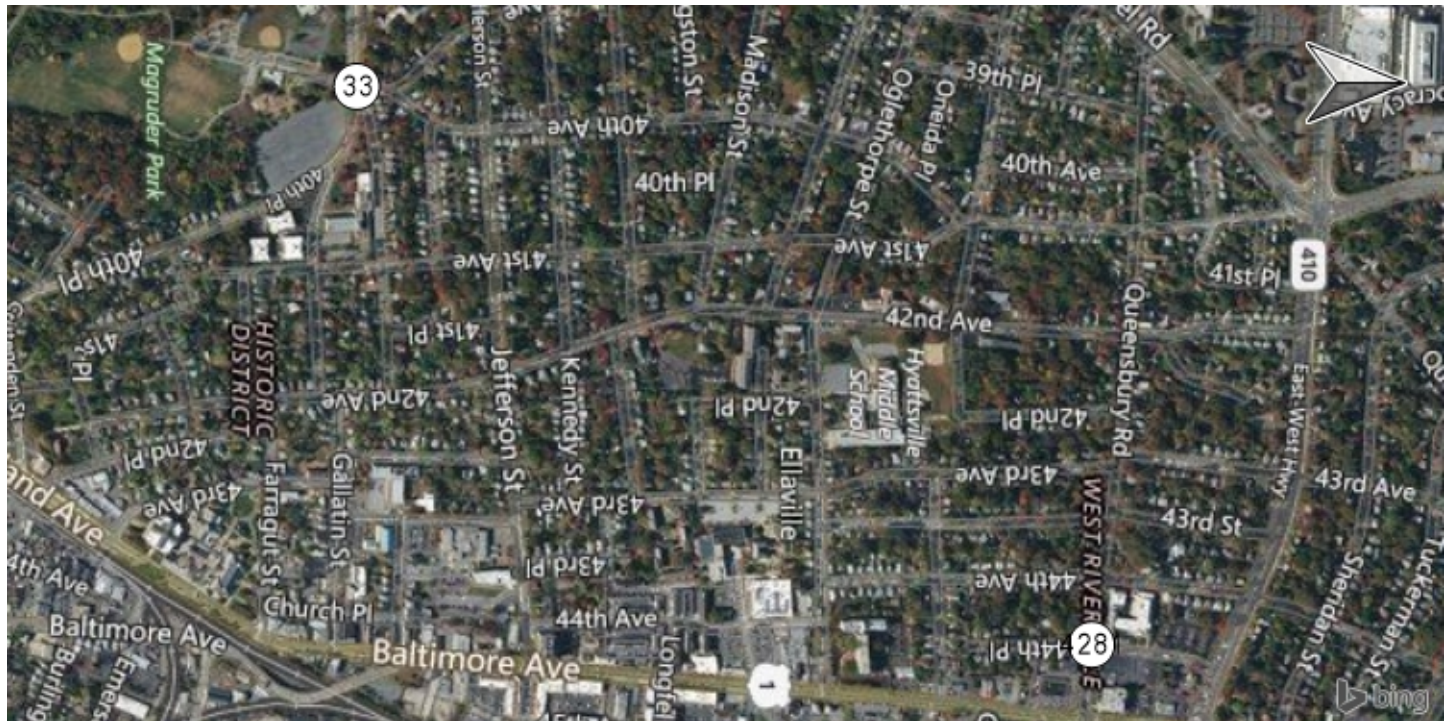
Adelphi Rd/Campus Dr



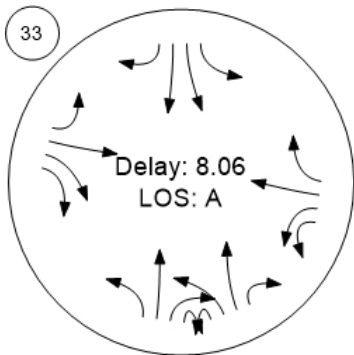
Adelphi Rd/Toledo Rd



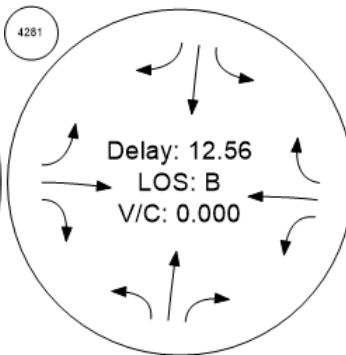
Traffic Conditions



Hamilton St/40th Pl/39th Ave



New Intersection



Hyattsville Transportation Plan

Vistro File: K:\...\2037 AM No Build.vistro

Scenario: Base Scenario

Report File: K:\...\2037 AM_No Build.pdf

6/21/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	MD 500/Ager Rd	Signalized	HCM 2010	SB Right	0.829	30.8	C
2	MD 500/Hamilton St	Signalized	HCM 2010	SEB Thru	0.698	32.0	C
3	MD 500/Nicholson St	Signalized	HCM 2010	SEB Left	0.529	9.1	A
4	MD 500/Belcrest Rd/Queensbury Rd	Signalized	HCM 2010	EB Left	0.564	21.2	C
5	MD 208(Hamilton St)/38th Ave	Signalized	HCM 2010	SWB Right	0.861	38.7	D
6	US 1/MD 410	Signalized	HCM 2010	WB Left	0.960	98.9	F
7	US 1/Queensbury Rd	Signalized	HCM 2010	WB Left	0.542	17.8	B
8	US 1/Oglethorpe Rd	Signalized	HCM 2010	EB Left	0.535	12.0	B
9	US 1/Madison St	Signalized	HCM 2010	EB Right	0.649	16.9	B
10	US 1/Jefferson St	Signalized	HCM 2010	EB Right	0.778	20.4	C
11	US 1/Hamilton St (North)	Signalized	HCM 2010	WB Right	0.475	1.6	A
12	US 1/Hamilton St (South)/US 1 Alt	Signalized	HCM 2010	NWB Right	0.941	312.1	F
13	US 1 Alt/Decatur St	Signalized	HCM 2010	WB Right	0.750	44.0	D
14	US 1 Alt/Charles Armentrout St	Two-way stop	HCM 2010	EB Left	0.000	10,000.0	F
15	US 1/Gallatin St	Signalized	HCM 2010	SB Right	0.331	3.7	A
16	US 1/Farragut St	Signalized	HCM 2010	EB Left	0.332	9.9	A
17	US 1/43rd Avenue	Two-way stop	HCM 6th Edition	SEB Left	0.049	36.3	E
18	US 1/42nd Place/Crittendon St	Signalized	HCM 2010	NEBL2	0.888	33.3	C
19	US 1/41st Place/Charles Armentrout Drive	Signalized	HCM 2010	NEB Left	0.946	42.9	D
20	MD 410/Toledo Terrace	Signalized	HCM 2010	SB Left	32.667	180.1	F
21	MD 410/Editors Park Dr	Two-way stop	HCM 2010	NB Left	1.214	383.9	F
22	MD 410/Prince George's Plaza	Signalized	HCM 2010	NB Right	0.400	13.2	B
23	MD 410/Belcrest Rd	Signalized	HCM 2010	WB Left	0.774	58.7	E
24	MD 410/MD 500/Adelphi Rd	Signalized	HCM 2010	NEB Right	1.058	110.7	F
25	Ager Rd/23rd Ave	Signalized	HCM 6th Edition	SWB Left	0.579	35.9	D
	Ager Rd/Oglethorpe		HCM 6th				

Version 6.00-00

26	Ager Rd/Greenidge St/School	Signalized	HCM 2010 Edition	NWB Right	0.420	39.2	D
27	Ager Rd/Nicholson St	Two-way stop	HCM 2010	NEB Left	4.241	1,934.8	F
28	Ager Rd/Hamilton St	Signalized	HCM 2010	WB Right	0.651	16.3	B
29	Toledo Rd/Belcrest Rd	Signalized	HCM 2010	EB Left	0.375	8.6	A
30	Adelphi Rd/Belcrest Rd	Signalized	HCM 2010	SWB Thru	0.783	23.7	C
31	Adelphi Rd/Campus Dr	Signalized	HCM 2010	WB Left	0.473	31.8	C
32	Adelphi Rd/Toledo Rd	Signalized	HCM 2010	EB Right	0.424	6.3	A
33	Hamilton St/40th Pl/39th Ave	All-way stop	HCM 2010	EB Thru	0.658	15.7	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: MD 500/Ager Rd

Control Type:	Signalized	Delay (sec / veh):	30.8
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.829

Intersection Setup

Name	Ager Rd.		MD 500		MD 500	
Approach	Southbound		Northeastbound		Southwestbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	1
Pocket Length [ft]	100.00	100.00	400.00	100.00	100.00	300.00
Speed [mph]	35.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		No	

Volumes

Name	Ager Rd.		MD 500		MD 500	
Base Volume Input [veh/h]	0	386	303	827	1353	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	2.00	2.00	2.00	3.85
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	58	17	21	85	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	444	320	848	1438	12
Peak Hour Factor	1.0000	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	121	87	230	391	3
Total Analysis Volume [veh/h]	0	483	348	922	1563	13
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	9		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Split	Split
Signal group	0	1	1	0	2	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	-	-
Minimum Green [s]	0	5	5	0	20	0
Maximum Green [s]	0	43	43	0	66	0
Amber [s]	0.0	4.0	4.0	0.0	5.0	0.0
All red [s]	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	0	48	48	0	72	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	5.0	0.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk		No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	3.0	0.0	4.0	0.0
Minimum Recall		No	No		No	
Maximum Recall		No	No		Yes	
Pedestrian Recall		No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	230.0	0.0
Detector Length [ft]	0.0	30.0	30.0	0.0	6.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	R	L	C	R
C, Cycle Length [s]	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	4.00	4.00
g_i, Effective Green Time [s]	39	39	70	70
g / C, Green / Cycle	0.33	0.33	0.58	0.58
(v / s)_i Volume / Saturation Flow Rate	0.31	0.20	0.44	0.01
s, saturation flow rate [veh/h]	1583	1774	3547	1548
c, Capacity [veh/h]	519	581	2060	899
d1, Uniform Delay [s]	39.03	33.74	18.86	10.64
k, delay calibration	0.34	0.12	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	19.55	1.08	2.68	0.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.93	0.60	0.76	0.01
d, Delay for Lane Group [s/veh]	58.58	34.82	21.55	10.67
Lane Group LOS	E	C	C	B
Critical Lane Group	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	16.25	8.44	15.60	0.15
50th-Percentile Queue Length [ft/ln]	406.21	211.06	389.98	3.66
95th-Percentile Queue Length [veh/ln]	22.86	13.21	22.08	0.26
95th-Percentile Queue Length [ft/ln]	571.48	330.18	551.92	6.59

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	58.58	34.82	0.00	21.55	10.67
Movement LOS		E	C		C	B
d_A, Approach Delay [s/veh]	58.58		34.82		21.46	
Approach LOS	E		C		C	
d_I, Intersection Delay [s/veh]	30.84					
Intersection LOS	C					
Intersection V/C	0.829					

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SG: 1 48s

SG: 2 72s

Intersection Level Of Service Report

Intersection 2: MD 500/Hamilton St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 32.0
 Level Of Service: C
 Volume to Capacity (v/c): 0.698

Intersection Setup

Name	MD 500				MD 500			Hamilton St			Hamilton St		
Approach	Northeastbound				Southwestbound			Northwestbound			Southeastbound		
Lane Configuration													
Turning Movement	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	1	0	1	1	0	0	1	0	1
Pocket Length [ft]	200.0	100.0	100.0	200.0	220.00	100.00	200.00	200.00	100.00	100.00	180.00	100.00	50.00
Speed [mph]	40.00				40.00			35.00			35.00		
Grade [%]	0.00				0.00			0.00			0.00		
Crosswalk	Yes				Yes			Yes			Yes		

Volumes

Name	MD 500				MD 500			Hamilton St			Hamilton St		
Base Volume Input [veh/h]	2	23	608	128	95	949	89	302	420	89	110	378	31
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.63	2.00	2.00	2.63	2.27	2.11	2.00	2.00	2.27	3.85
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	21	0	22	85	13	0	10	5	47	35	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	23	629	128	117	1034	102	302	430	94	157	413	31
Peak Hour Factor	0.920	0.920	0.920	0.920	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	6	171	35	32	281	28	82	117	26	43	112	8
Total Analysis Volume [veh/h]	2	25	684	139	127	1124	111	328	467	102	171	449	34
Presence of On-Street Parking	No			No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0				0			0			0		
Bicycle Volume [bicycles/h]	0				0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Permi	Prote	Permi	Permi	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	1	6	6	5	2	2	3	8	8	7	4	4
Auxiliary Signal Groups													
Lead / Lag	Lead	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	20	20	5	20	20	5	5	5	5	5	5
Maximum Green [s]	13	13	42	42	30	42	42	19	25	25	19	25	25
Amber [s]	4.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	18	18	48	48	18	48	48	24	30	30	24	30	30
Vehicle Extension [s]	3.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk			No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall		No	No		No	No		No	No		No	No	
Maximum Recall		No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall		No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	30.0	5.0	5.0	5.0	5.0	5.0	30.0	30.0	30.0	30.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.00	4.00	0.00	4.00	4.00	0.00	3.00	3.00	0.00	3.00	3.00
g_i, Effective Green Time [s]	67	55	55	67	59	59	42	27	27	42	18	18
g / C, Green / Cycle	0.56	0.46	0.46	0.56	0.49	0.49	0.35	0.22	0.22	0.35	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.04	0.19	0.09	0.14	0.32	0.07	0.24	0.16	0.16	0.15	0.13	0.02
s, saturation flow rate [veh/h]	626	3547	1574	899	3547	1574	1369	1861	1747	1140	3537	1555
c, Capacity [veh/h]	316	1633	725	489	1735	770	458	414	389	368	540	237
d1, Uniform Delay [s]	15.67	21.64	19.16	14.03	22.94	16.86	32.24	43.08	43.09	29.47	49.37	44.06
k, delay calibration	0.11	0.50	0.50	0.50	0.50	0.50	0.50	0.12	0.12	0.22	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.11	0.79	0.59	1.29	1.89	0.39	9.28	2.59	2.76	1.85	3.40	0.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.09	0.42	0.19	0.26	0.65	0.14	0.72	0.71	0.71	0.46	0.83	0.14
d, Delay for Lane Group [s/veh]	15.79	22.44	19.75	15.32	24.83	17.25	41.51	45.67	45.84	31.32	52.77	44.34
Lane Group LOS	B	C	B	B	C	B	D	D	D	C	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.32	6.38	2.35	1.74	11.72	1.72	8.62	8.24	7.76	3.69	6.72	0.89
50th-Percentile Queue Length [ft/ln]	8.11	159.49	58.74	43.59	292.93	42.97	215.51	206.10	194.01	92.17	168.03	22.30
95th-Percentile Queue Length [veh/ln]	0.58	10.52	4.23	3.14	17.33	3.09	13.44	12.95	12.33	6.64	10.97	1.61
95th-Percentile Queue Length [ft/ln]	14.60	263.05	105.72	78.47	433.27	77.35	335.89	323.82	308.23	165.90	274.32	40.15

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	15.79	15.79	22.44	19.75	15.32	24.83	17.25	41.51	45.73	45.84	31.32	52.77	44.34
Movement LOS	B	B	C	B	B	C	B	D	D	D	C	D	D
d_A, Approach Delay [s/veh]	21.79				23.32			44.20			46.72		
Approach LOS	C				C			D			D		
d_I, Intersection Delay [s/veh]	32.02												
Intersection LOS	C												
Intersection V/C	0.698												

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 3: MD 500/Nicholson St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 9.1
 Level Of Service: A
 Volume to Capacity (v/c): 0.529

Intersection Setup

Name	Nicholson St			MD 500			MD 500				Nicholson St		
Approach	Westbound			Northeastbound			Southwestbound				Southeastbound		
Lane Configuration													
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	150.00	100.00	100.00	150.0	100.0	100.0	100.0	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00				30.00		
Grade [%]	0.00			0.00			0.00				0.00		
Crosswalk	Yes			Yes			Yes				Yes		

Volumes

Name	Nicholson St			MD 500			MD 500				Nicholson St		
Base Volume Input [veh/h]	15	59	26	48	912	10	1	11	1111	84	100	10	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	0.00	2.27	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	73	0	0	0	120	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	59	26	48	985	10	1	11	1231	84	100	10	18
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.900	0.900	0.900	0.900	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	16	7	13	274	3	0	3	342	23	28	3	5
Total Analysis Volume [veh/h]	17	66	29	53	1094	11	1	12	1368	93	111	11	20
Presence of On-Street Parking	No		No	No		No	No			No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0				0		
Bicycle Volume [bicycles/h]	0			0			0				0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permi	Prote	Permi	Permi	Permiss	Permiss	Permiss
Signal group	0	4	0	5	2	0	0	1	6	0	0	8	0
Auxiliary Signal Groups													
Lead / Lag	-	-	-	Lead	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	30	30	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	25	0	10	85	0	0	10	85	0	0	25	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	10	0	0	10	0
Rest In Walk		No			No				No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No		No	No			No	No			No	
Maximum Recall		No		No	No			No	No			No	
Pedestrian Recall		No		No	No			No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	C	L	C	C	C
C, Cycle Length [s]	39	39	39	39	39	39	39	39
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
l2, Clearance Lost Time [s]	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	25	21	21	25	19	19	5
g / C, Green / Cycle	0.14	0.65	0.53	0.53	0.65	0.49	0.49	0.14
(v / s)_i Volume / Saturation Flow Rate	0.06	0.09	0.30	0.30	0.02	0.40	0.40	0.12
s, saturation flow rate [veh/h]	1836	609	1863	1856	655	1863	1821	1203
c, Capacity [veh/h]	367	553	991	988	606	917	897	335
d1, Uniform Delay [s]	15.26	4.92	6.05	6.05	3.09	8.28	8.31	16.31
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.47	0.07	0.49	0.50	0.01	1.70	1.79	0.85
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.31	0.10	0.56	0.56	0.02	0.80	0.81	0.42
d, Delay for Lane Group [s/veh]	15.72	4.99	6.55	6.55	3.11	9.98	10.10	17.16
Lane Group LOS	B	A	A	A	A	A	B	B
Critical Lane Group	No	Yes	No	No	No	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	0.81	0.06	1.83	1.83	0.01	3.58	3.55	1.11
50th-Percentile Queue Length [ft/ln]	20.14	1.46	45.87	45.73	0.34	89.49	88.82	27.70
95th-Percentile Queue Length [veh/ln]	1.45	0.11	3.30	3.29	0.02	6.44	6.39	1.99
95th-Percentile Queue Length [ft/ln]	36.25	2.63	82.57	82.31	0.61	161.08	159.87	49.86

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	15.72	15.72	15.72	4.99	6.55	6.55	3.11	3.11	10.03	10.10	17.16	17.16	17.16
Movement LOS	B	B	B	A	A	A	A	A	B	B	B	B	B
d_A, Approach Delay [s/veh]	15.72			6.47			9.98			17.16			
Approach LOS	B			A			A			B			
d_I, Intersection Delay [s/veh]	9.15												
Intersection LOS	A												
Intersection V/C	0.529												

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: MD 500/Belcrest Rd/Queensbury Rd

Control Type:	Signalized	Delay (sec / veh):	21.2
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.564

Intersection Setup

Name	Belcrest Road			Queensbury Road			MD 500			MD 500		
Approach	Eastbound			Westbound			Northeastbound			Southwestbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	375.00	100.00	100.00	200.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Belcrest Road			Queensbury Road			MD 500			MD 500		
Base Volume Input [veh/h]	61	121	416	38	184	35	349	697	39	27	738	64
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.85	2.38	2.21	3.85	2.38	3.85	2.21	2.08	2.78	3.70	1.97	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	107	0	0	0	18	55	0	0	13	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	61	121	523	38	184	35	367	752	39	27	751	64
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	34	145	11	51	10	102	209	11	8	209	18
Total Analysis Volume [veh/h]	68	134	581	42	204	39	408	836	43	30	834	71
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	6			18			1			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	37.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	4	3	0	8	4	8	1	6	6	5	2	2
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	8	8	0	0	8	0	8	25	25	8	25	25
Maximum Green [s]	30	30	0	0	30	0	40	53	53	40	53	53
Amber [s]	4.0	4.0	0.0	0.0	4.0	0.0	4.0	5.0	5.0	4.0	5.0	5.0
All red [s]	3.0	3.0	0.0	0.0	3.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0
Split [s]	38	38	0	0	38	0	52	96	96	16	60	60
Vehicle Extension [s]	4.0	4.0	0.0	0.0	4.0	0.0	5.0	6.0	6.0	3.5	6.0	6.0
Walk [s]	7	7	0	0	7	0	0	7	7	0	7	7
Pedestrian Clearance [s]	24	24	0	0	24	0	0	24	24	0	24	24
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	5.0	5.0	0.0	0.0	5.0	0.0	4.0	5.0	5.0	4.0	5.0	5.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	30.0	0.0	0.0	30.0	0.0	0.0	0.0	0.0	30.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	82	82	82	82	82	82	82	82	82
L, Total Lost Time per Cycle [s]	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	5.00	5.00	5.00	0.00	5.00	5.00	0.00	5.00	5.00
g_i, Effective Green Time [s]	21	21	21	47	37	37	47	31	31
g / C, Green / Cycle	0.26	0.26	0.26	0.57	0.45	0.45	0.57	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.06	0.07	0.16	0.22	0.24	0.24	0.04	0.25	0.25
s, saturation flow rate [veh/h]	1112	1856	1733	1854	1861	1825	810	1863	1811
c, Capacity [veh/h]	187	477	495	993	839	823	489	706	686
d1, Uniform Delay [s]	36.25	24.44	26.95	11.06	16.25	16.27	8.88	21.02	21.02
k, delay calibration	0.15	0.15	0.15	0.23	0.39	0.39	0.39	0.39	0.39
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.68	0.45	1.50	0.58	1.87	1.92	0.19	3.64	3.75
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

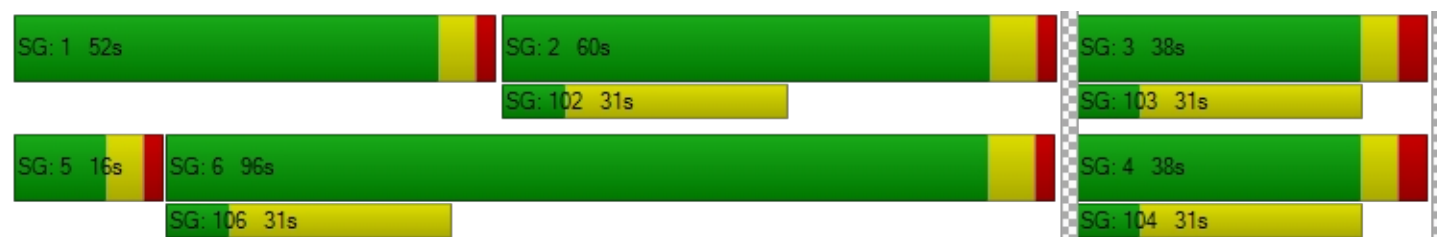
X, volume / capacity	0.36	0.28	0.58	0.41	0.53	0.53	0.06	0.65	0.65
d, Delay for Lane Group [s/veh]	37.93	24.89	28.46	11.64	18.12	18.19	9.07	24.65	24.77
Lane Group LOS	D	C	C	B	B	B	A	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.38	2.09	4.97	1.67	6.04	5.97	0.21	7.17	7.00
50th-Percentile Queue Length [ft/ln]	34.52	52.20	124.27	41.79	151.06	149.18	5.37	179.23	174.91
95th-Percentile Queue Length [veh/ln]	2.49	3.76	8.63	3.01	10.07	9.97	0.39	11.56	11.33
95th-Percentile Queue Length [ft/ln]	62.13	93.96	215.68	75.22	251.84	249.33	9.66	289.00	283.35

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	37.93	24.89	0.00	28.46	28.46	28.46	11.64	18.15	18.19	9.07	24.71	24.77
Movement LOS	D	C		C	C	C	B	B	B	A	C	C
d_A, Approach Delay [s/veh]	29.28			28.46			16.09			24.21		
Approach LOS	C			C			B			C		
d_I, Intersection Delay [s/veh]	21.18											
Intersection LOS	C											
Intersection V/C	0.564											

Sequence

Ring 1	1	2	-	3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 5: MD 208(Hamilton St)/38th Ave

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 38.7
 Level Of Service: D
 Volume to Capacity (v/c): 0.861

Intersection Setup

Name				Hamilton St			38th Ave			Hamilton St		
Approach	Northbound			Westbound			Southwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	125.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Hamilton St			38th Ave			Hamilton St		
Base Volume Input [veh/h]	167	61	23	46	355	11	23	118	269	96	335	158
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.27	3.33	0.00	3.70	2.00	0.00	0.00	2.22	1.89	1.69	1.88	1.65
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	0	0	0	3	0	0	0	0	0	12	45
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	179	61	23	46	358	11	23	118	269	96	347	203
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	50	17	6	13	99	3	6	33	75	27	96	56
Total Analysis Volume [veh/h]	199	68	26	51	398	12	26	131	299	107	386	226
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	5			4			5			6		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	2	8	8	8	6	6	6	4	4	4
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lag	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	5	15	15	20	20	20	15	15	15	20	20	20
Maximum Green [s]	15	45	45	35	35	35	20	20	20	35	35	35
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	25	50	50	40	40	40	25	25	25	40	40	40
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall	Yes	No			No			No			No	
Maximum Recall	Yes	Yes			Yes			Yes			Yes	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	2.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	45	35	35	25	35	35
g / C, Green / Cycle	0.50	0.39	0.39	0.28	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.31	0.06	0.22	0.28	0.11	0.35
s, saturation flow rate [veh/h]	959	793	1853	1639	973	1746
c, Capacity [veh/h]	585	111	721	495	268	679
d1, Uniform Delay [s]	13.51	43.90	21.58	32.61	32.92	25.87
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.04	12.96	3.24	25.06	4.40	17.38
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.50	0.46	0.57	0.92	0.40	0.90
d, Delay for Lane Group [s/veh]	16.55	56.86	24.83	57.67	37.32	43.25
Lane Group LOS	B	E	C	E	D	D
Critical Lane Group	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	3.88	1.52	7.06	13.03	2.38	14.74
50th-Percentile Queue Length [ft/ln]	96.94	37.93	176.39	325.84	59.46	368.54
95th-Percentile Queue Length [veh/ln]	6.98	2.73	11.41	18.95	4.28	21.04
95th-Percentile Queue Length [ft/ln]	174.49	68.28	285.29	473.86	107.03	525.96

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.55	16.55	16.55	56.86	24.83	24.83	57.67	57.67	57.67	37.32	43.25	43.25
Movement LOS	B	B	B	E	C	C	E	E	E	D	D	D
d_A, Approach Delay [s/veh]	16.55			28.37			57.67			42.37		
Approach LOS	B			C			E			D		
d_I, Intersection Delay [s/veh]	38.72											
Intersection LOS	D											
Intersection V/C	0.861											

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 6: US 1/MD 410

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 98.9
 Level Of Service: F
 Volume to Capacity (v/c): 0.960

Intersection Setup

Name	US 1			US 1			MD 410			MD 410		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	200.00	100.00	100.00	225.00	100.00	100.00	600.00	100.00	100.00	700.00	100.00	450.00
Speed [mph]	45.00			45.00			50.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 1			US 1			MD 410			MD 410		
Base Volume Input [veh/h]	426	527	53	168	704	122	183	1009	252	292	1751	147
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.15	2.00	2.38	2.07	2.00	2.00	2.00	2.00	2.00	2.00	2.03	1.67
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	0	0	0	0	8	30	58	31	0	15	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	434	527	53	168	704	130	213	1067	283	292	1766	147
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	121	146	15	47	196	36	59	296	79	81	491	41
Total Analysis Volume [veh/h]	482	586	59	187	782	144	237	1186	314	324	1962	163
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			3			6		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	180
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	6	5	2	0	7	4	4	3	8	8
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	15	15	5	25	0	5	15	15	5	25	25
Maximum Green [s]	25	42	42	25	42	0	25	66	66	25	66	66
Amber [s]	4.0	4.5	4.5	4.0	4.5	0.0	4.0	4.5	4.5	4.0	4.5	4.5
All red [s]	1.0	2.0	2.0	1.0	2.0	0.0	1.0	2.0	2.0	1.0	2.0	2.0
Split [s]	30	48	48	30	48	0	30	72	72	30	72	72
Vehicle Extension [s]	3.0	5.0	5.0	3.0	5.0	0.0	3.0	5.0	5.0	3.0	5.0	5.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	4.5	4.5	3.0	4.5	0.0	3.0	4.5	4.5	3.0	4.5	4.5
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	294.0	294.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	30.0	5.0	5.0	30.0	6.0	6.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	180	180	180	180	180	180	180	180	180	180	180	180
L, Total Lost Time per Cycle [s]	6.50	6.50	6.50	6.50	6.50	6.50	5.00	6.50	6.50	5.00	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.50	4.50	0.00	4.50	4.50	3.00	4.50	4.50	3.00	4.50	4.50
g_i, Effective Green Time [s]	72	51	51	72	44	44	25	66	66	25	66	66
g / C, Green / Cycle	0.40	0.28	0.28	0.40	0.25	0.25	0.14	0.36	0.36	0.14	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.25	0.18	0.18	0.18	0.26	0.26	0.13	0.33	0.20	0.18	0.40	0.40
s, saturation flow rate [veh/h]	1963	1863	1801	1040	1863	1761	1774	3547	1583	1774	3546	1791
c, Capacity [veh/h]	570	526	509	350	460	435	246	1291	576	246	1290	652
d1, Uniform Delay [s]	52.22	56.21	56.23	39.47	67.77	67.77	77.04	54.72	45.43	77.51	57.25	57.25
k, delay calibration	0.33	0.50	0.50	0.50	0.50	0.50	0.39	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.11	5.46	5.67	5.73	50.77	52.68	41.80	11.92	3.68	167.58	52.48	68.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

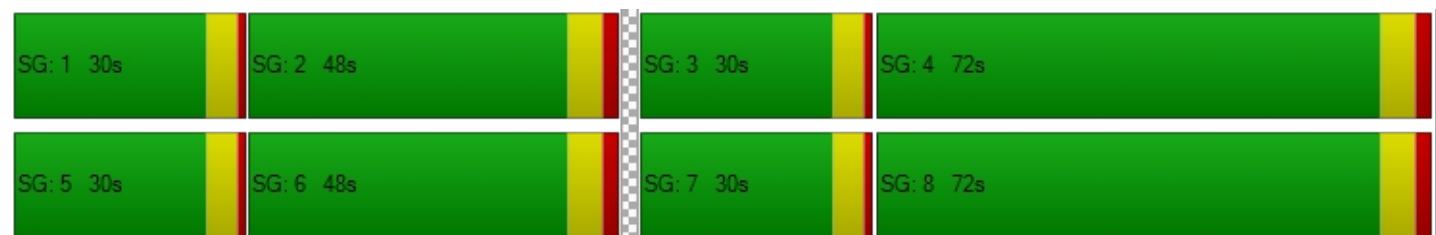
X, volume / capacity	0.85	0.62	0.62	0.53	1.03	1.04	0.96	0.92	0.54	1.32	1.09	1.11
d, Delay for Lane Group [s/veh]	62.33	61.66	61.90	45.20	118.54	120.45	118.84	66.63	49.10	245.09	109.73	125.63
Lane Group LOS	E	E	E	D	F	F	F	E	D	F	F	F
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	8.25	13.63	13.24	6.11	27.33	26.06	13.60	27.09	11.56	22.83	38.28	41.54
50th-Percentile Queue Length [ft/ln]	206.22	340.77	331.06	152.83	683.17	651.61	340.03	677.36	289.02	570.83	956.94	1038.60
95th-Percentile Queue Length [veh/ln]	12.96	19.69	19.21	10.17	36.65	35.20	19.65	35.63	17.14	34.43	51.40	56.00
95th-Percentile Queue Length [ft/ln]	323.98	492.14	480.26	254.20	916.19	880.06	491.24	890.77	428.42	860.73	1285.12	1399.88

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	62.33	61.77	61.90	45.20	119.29	120.45	118.84	66.63	49.10	245.09	114.26	125.63
Movement LOS	E	E	E	D	F	F	F	E	D	F	F	F
d_A, Approach Delay [s/veh]	62.02			106.99			70.59			132.32		
Approach LOS	E			F			E			F		
d_I, Intersection Delay [s/veh]	98.92											
Intersection LOS	F											
Intersection V/C	0.960											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 7: US 1/Queensbury Rd

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 17.8
 Level Of Service: B
 Volume to Capacity (v/c): 0.542

Intersection Setup

Name	US 1			US 1			Queensbury			Queensbury		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	250.00	100.00	100.00	150.00	100.00	100.00	350.00	100.00	100.00	200.00	100.00	200.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	US 1			US 1			Queensbury			Queensbury		
Base Volume Input [veh/h]	66	781	117	46	1010	34	67	115	76	137	123	168
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	1.89	3.85	2.00	3.85	1.96	2.30	1.85	1.69	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	8	0	0	31	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	66	789	117	46	1041	34	67	115	76	137	123	168
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	219	33	13	289	9	19	32	21	38	34	47
Total Analysis Volume [veh/h]	73	877	130	51	1157	38	74	128	84	152	137	187
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			11			11			4		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	6.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	2	6	6	6	4	4	4	8	8	8
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lag	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	5	15	15	15	15	15	8	8	8	8	8	8
Maximum Green [s]	8	60	60	46	46	46	20	20	20	20	20	20
Amber [s]	3.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	13	65	65	52	52	52	25	25	25	25	25	25
Vehicle Extension [s]	3.0	5.0	5.0	5.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.5	3.5	3.5	3.5	3.5	3.5	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall	No	No			No			No			No	
Maximum Recall	No	Yes			Yes			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	294.0	294.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	6.0	6.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	5.50	5.50	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.50	3.50	3.50	3.50	3.50	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	60	60	60	51	51	51	20	20	20	20	20
g / C, Green / Cycle	0.66	0.66	0.66	0.56	0.56	0.56	0.22	0.22	0.22	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.12	0.28	0.28	0.09	0.32	0.32	0.06	0.12	0.13	0.07	0.12
s, saturation flow rate [veh/h]	616	1863	1778	547	1863	1841	1238	1736	1168	1863	1560
c, Capacity [veh/h]	427	1232	1176	303	1049	1037	251	386	188	414	347
d1, Uniform Delay [s]	7.85	7.14	7.14	17.37	12.67	12.68	35.55	31.02	42.05	29.39	30.94
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.12	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.87	1.05	1.10	1.19	2.27	2.31	0.65	1.22	8.47	0.46	1.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.17	0.42	0.42	0.17	0.57	0.57	0.29	0.55	0.81	0.33	0.54
d, Delay for Lane Group [s/veh]	8.72	8.19	8.24	18.56	14.94	14.99	36.20	32.24	50.52	29.86	32.25
Lane Group LOS	A	A	A	B	B	B	D	C	D	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.48	3.85	3.70	0.73	7.17	7.11	1.51	4.13	3.80	2.50	3.64
50th-Percentile Queue Length [ft/ln]	11.91	96.22	92.45	18.28	179.16	177.67	37.85	103.27	95.11	62.56	91.12
95th-Percentile Queue Length [veh/ln]	0.86	6.93	6.66	1.32	11.56	11.48	2.72	7.44	6.85	4.50	6.56
95th-Percentile Queue Length [ft/ln]	21.45	173.20	166.41	32.90	288.92	286.97	68.12	185.88	171.20	112.61	164.02

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	8.72	8.21	8.24	18.56	14.96	14.99	36.20	32.24	32.24	50.52	29.86	32.25
Movement LOS	A	A	A	B	B	B	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	8.25			15.11			33.27			37.39		
Approach LOS	A			B			C			D		
d_I, Intersection Delay [s/veh]	17.83											
Intersection LOS	B											
Intersection V/C	0.542											

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 8: US 1/Oglethorpe Rd

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 12.0
 Level Of Service: B
 Volume to Capacity (v/c): 0.535

Intersection Setup

Name	US 1		US 1		Oglethorpe	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00		40.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	US 1		US 1		Oglethorpe	
Base Volume Input [veh/h]	21	973	1208	40	117	54
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.04	1.97	0.00	1.67	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	8	31	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	21	981	1239	40	117	54
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	273	344	11	33	15
Total Analysis Volume [veh/h]	23	1090	1377	44	130	60
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	66.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Split	Split
Signal group	2	2	6	6	4	4
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	Lag	-
Minimum Green [s]	15	15	15	15	15	15
Maximum Green [s]	85	85	85	85	25	25
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	90	90	90	90	30	30
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	7	7
Pedestrian Clearance [s]	0	0	0	0	10	10
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall		No	No		No	
Maximum Recall		Yes	Yes		Yes	
Pedestrian Recall		No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	50.0	50.0	50.0	50.0	50.0	50.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	C	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	85	85	85	85	25
g / C, Green / Cycle	0.71	0.71	0.71	0.71	0.21
(v / s)_i Volume / Saturation Flow Rate	0.33	0.33	0.38	0.39	0.11
s, saturation flow rate [veh/h]	1721	1694	1863	1843	1743
c, Capacity [veh/h]	1250	1200	1320	1306	363
d1, Uniform Delay [s]	7.31	7.57	8.25	8.31	42.20
k, delay calibration	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.17	1.27	1.58	1.63	5.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.45	0.46	0.54	0.54	0.52
d, Delay for Lane Group [s/veh]	8.47	8.84	9.83	9.94	47.51
Lane Group LOS	A	A	A	A	D
Critical Lane Group	No	No	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	5.72	5.83	7.91	7.97	5.60
50th-Percentile Queue Length [ft/ln]	142.93	145.81	197.77	199.35	139.89
95th-Percentile Queue Length [veh/ln]	9.64	9.79	12.52	12.61	9.48
95th-Percentile Queue Length [ft/ln]	240.97	244.82	313.08	315.13	236.88

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	8.47	8.66	9.88	9.94	47.51	47.51
Movement LOS	A	A	A	A	D	D
d_A, Approach Delay [s/veh]	8.65		9.88		47.51	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	12.01					
Intersection LOS	B					
Intersection V/C	0.535					

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 9: US 1/Madison St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 16.9
 Level Of Service: B
 Volume to Capacity (v/c): 0.649

Intersection Setup

Name	US 1			US 1			Madison			Madison		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 1			US 1			Madison			Madison		
Base Volume Input [veh/h]	72	925	12	7	1159	91	109	20	114	68	61	22
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	8	0	0	31	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	72	933	12	7	1190	91	109	20	114	68	61	22
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	259	3	2	331	25	30	6	32	19	17	6
Total Analysis Volume [veh/h]	80	1037	13	8	1322	101	121	22	127	76	68	24
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			2			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	74.0
Offset Reference	LagEnd
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	2	2	2	6	6	6	4	4	4	8	8	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	20	20	20	20	20	20	15	15	15	15	15	15
Maximum Green [s]	85	85	85	85	85	85	25	25	25	25	25	25
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	90	90	90	90	90	90	30	30	30	30	30	30
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	7	7	7	7	7	7	7	7	7	0	0	0
Pedestrian Clearance [s]	13	13	13	13	13	13	10	10	10	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall		No			No			No			No	
Maximum Recall		Yes			Yes			Yes			Yes	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	85	85	85	85	85	85	25	25
g / C, Green / Cycle	0.71	0.71	0.71	0.71	0.71	0.71	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.21	0.28	0.28	0.01	0.39	0.39	0.20	0.13
s, saturation flow rate [veh/h]	383	1863	1855	546	1863	1816	1375	1312
c, Capacity [veh/h]	255	1319	1314	375	1319	1287	330	317
d1, Uniform Delay [s]	18.20	7.11	7.11	10.87	8.31	8.34	47.14	42.60
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.19	0.90	0.91	0.10	1.62	1.68	19.82	6.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.31	0.40	0.40	0.02	0.54	0.55	0.82	0.53
d, Delay for Lane Group [s/veh]	21.39	8.01	8.02	10.98	9.93	10.02	66.96	48.82
Lane Group LOS	C	A	A	B	A	B	E	D
Critical Lane Group	No	No	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	1.56	5.18	5.16	0.10	8.33	8.21	9.82	5.10
50th-Percentile Queue Length [ft/ln]	39.07	129.45	128.94	2.50	208.13	205.26	245.44	127.56
95th-Percentile Queue Length [veh/ln]	2.81	8.91	8.88	0.18	13.06	12.91	14.96	8.81
95th-Percentile Queue Length [ft/ln]	70.33	222.75	222.06	4.50	326.43	322.74	373.90	220.18

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	21.39	8.02	8.02	10.98	9.97	10.02	66.96	66.96	66.96	48.82	48.82	48.82
Movement LOS	C	A	A	B	A	B	E	E	E	D	D	D
d_A, Approach Delay [s/veh]	8.96			9.98			66.96			48.82		
Approach LOS	A			A			E			D		
d_I, Intersection Delay [s/veh]	16.90											
Intersection LOS	B											
Intersection V/C	0.649											

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SG: 2 90s

SG: 4 30s

SG: 102 20s

SG: 104 17s

SG: 6 90s

SG: 8 30s

SG: 106 20s

Intersection Level Of Service Report

Intersection 10: US 1/Jefferson St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 20.4
 Level Of Service: C
 Volume to Capacity (v/c): 0.778

Intersection Setup

Name	US 1			US 1			Jefferson St					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	150.00	100.00	100.00	175.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	US 1			US 1			Jefferson St					
Base Volume Input [veh/h]	301	950	1	7	1257	103	57	7	105	40	24	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.82	2.00	2.00	2.00	2.00	2.22	1.43	2.00	1.82	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	8	0	0	31	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	301	958	1	7	1288	103	57	7	105	40	24	8
Peak Hour Factor	0.9000	0.9000	1.0000	1.0000	0.9000	0.9000	0.9000	1.0000	0.9000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	84	266	0	2	358	29	16	2	29	10	6	2
Total Analysis Volume [veh/h]	334	1064	1	7	1431	114	63	7	117	40	24	8
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	90.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	6	4	4	4	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lag	-	-	-	-	-
Minimum Green [s]	8	20	0	0	20	20	20	20	20	0	20	0
Maximum Green [s]	15	90	0	0	70	70	20	20	20	0	20	0
Amber [s]	4.0	4.0	0.0	0.0	4.0	4.0	4.0	4.0	4.0	0.0	4.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	20	95	0	0	75	75	25	25	25	0	25	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	7	7	7	7	7	0	7	0
Pedestrian Clearance [s]	0	0	0	0	13	13	13	13	13	0	13	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	3.0	0.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	0.0
Minimum Recall	No	No			No			No			No	
Maximum Recall	Yes	Yes			Yes			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	90	90	90	70	70	70	20	20
g / C, Green / Cycle	0.75	0.75	0.75	0.58	0.58	0.58	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.54	0.29	0.29	0.01	0.42	0.42	0.12	0.06
s, saturation flow rate [veh/h]	623	1863	1862	528	1863	1815	1553	1150
c, Capacity [veh/h]	457	1397	1397	306	1087	1059	299	238
d1, Uniform Delay [s]	25.38	5.25	5.25	17.30	17.90	18.02	47.16	44.03
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.21	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.91	0.79	0.79	0.14	4.06	4.30	4.09	0.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.38	0.38	0.02	0.72	0.72	0.63	0.30
d, Delay for Lane Group [s/veh]	35.29	6.04	6.04	17.44	21.97	22.32	51.25	44.73
Lane Group LOS	D	A	A	B	C	C	D	D
Critical Lane Group	Yes	No	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.40	4.20	4.20	0.12	15.66	15.55	5.67	1.95
50th-Percentile Queue Length [ft/ln]	85.12	105.04	105.02	2.89	391.43	388.69	141.70	48.87
95th-Percentile Queue Length [veh/ln]	6.13	7.56	7.56	0.21	22.15	22.01	9.57	3.52
95th-Percentile Queue Length [ft/ln]	153.22	189.07	189.03	5.21	553.66	550.36	239.31	87.97

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	35.29	6.04	6.04	17.44	22.13	22.32	51.25	51.25	51.25	44.73	44.73	44.73
Movement LOS	D	A	A	B	C	C	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	13.03			22.12			51.25			44.73		
Approach LOS	B			C			D			D		
d_I, Intersection Delay [s/veh]	20.36											
Intersection LOS	C											
Intersection V/C	0.778											

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SG: 2 95s

SG: 4 25s

SG: 104 20s

SG: 5 20s

SG: 6 75s

SG: 106 20s

Intersection Level Of Service Report

Intersection 11: US 1/Hamilton St (North)

Control Type:	Signalized	Delay (sec / veh):	1.6
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.475

Intersection Setup

Name	US 1		US 1		Hamilton	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	150.00	100.00	100.00	100.00
Speed [mph]	30.00		35.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	US 1		US 1		Hamilton	
Base Volume Input [veh/h]	1228	4	2	1370	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	3.85	0.00	2.04	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	0	0	31	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1236	4	2	1401	0	1
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	343	1	1	389	0	0
Total Analysis Volume [veh/h]	1373	4	2	1557	0	1
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	90.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Split	Split
Signal group	2	2	6	6	4	4
Auxiliary Signal Groups						
Lead / Lag	-	-	Lag	-	Lag	-
Minimum Green [s]	20	20	20	20	15	15
Maximum Green [s]	84	84	84	84	25	25
Amber [s]	5.0	5.0	5.0	5.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	90	90	90	90	30	30
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	7	7	0	0	5	5
Pedestrian Clearance [s]	8	8	0	0	10	10
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	4.0	4.0	4.0	3.0	3.0
Minimum Recall	No			No	No	
Maximum Recall	Yes			Yes	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	50.0	50.0	50.0	50.0	50.0	50.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	3.00
g_i, Effective Green Time [s]	108	108	108	108	1
g / C, Green / Cycle	0.90	0.90	0.90	0.90	0.00
(v / s)_i Volume / Saturation Flow Rate	0.37	0.37	0.01	0.44	0.00
s, saturation flow rate [veh/h]	1863	1861	400	3545	1615
c, Capacity [veh/h]	1681	1680	387	3200	9
d1, Uniform Delay [s]	0.90	0.90	2.03	1.01	59.36
k, delay calibration	0.50	0.50	0.50	0.50	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.74	0.74	0.02	0.53	5.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.41	0.41	0.01	0.49	0.11
d, Delay for Lane Group [s/veh]	1.64	1.65	2.05	1.55	64.45
Lane Group LOS	A	A	A	A	E
Critical Lane Group	No	No	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	0.71	0.71	0.01	0.39	0.04
50th-Percentile Queue Length [ft/ln]	17.78	17.80	0.21	9.66	1.09
95th-Percentile Queue Length [veh/ln]	1.28	1.28	0.02	0.70	0.08
95th-Percentile Queue Length [ft/ln]	32.00	32.04	0.39	17.38	1.96

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	1.64	1.65	2.05	1.55	64.45	64.45
Movement LOS	A	A	A	A	E	E
d_A, Approach Delay [s/veh]	1.64		1.55		64.45	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	1.61					
Intersection LOS	A					
Intersection V/C	0.475					

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 12: US 1/Hamilton St (South)/US 1 Alt

Control Type:	Signalized	Delay (sec / veh):	312.1
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.941

Intersection Setup

Name	US 1			US 1			Hamilton			US 1 ALT		
Approach	Northbound			Southbound			Eastbound			Northwestbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00
Speed [mph]	30.00			30.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	US 1			US 1			Hamilton			US 1 ALT		
Base Volume Input [veh/h]	0	328	20	466	901	0	7	7	10	95	0	902
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.17	0.00	2.00	2.06	0.00	0.00	0.00	0.00	2.63	0.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	0	18	13	0	0	0	0	0	0	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	331	20	484	914	0	7	7	10	95	0	907
Peak Hour Factor	1.0000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	92	6	134	254	0	2	2	3	26	0	252
Total Analysis Volume [veh/h]	0	368	22	538	1016	0	8	8	11	106	0	1008
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			3			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	18.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Permiss	Permiss	Overlap
Signal group	0	6	6	5	2	0	3	3	3	8	0	8
Auxiliary Signal Groups												5,8
Lead / Lag	-	-	-	Lead	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	0	20	20	4	20	0	5	5	5	5	0	5
Maximum Green [s]	0	55	55	20	63	0	5	5	5	30	0	30
Amber [s]	0.0	4.0	4.0	4.0	4.0	0.0	3.5	3.5	3.5	3.0	0.0	3.0
All red [s]	0.0	1.0	1.0	0.0	1.0	0.0	1.5	1.5	1.5	1.0	0.0	1.0
Split [s]	0	60	60	8	68	0	10	10	10	42	0	42
Vehicle Extension [s]	0.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	0.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	5	0	5
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	10	0	10
Rest In Walk		No			No			No		No		
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	0.0	2.0
I2, Clearance Lost Time [s]	0.0	3.0	3.0	2.0	3.0	0.0	3.0	3.0	3.0	2.0	0.0	2.0
Minimum Recall		No		Yes	No			No		No		No
Maximum Recall		Yes		No	Yes			No		No		No
Pedestrian Recall		No		No	No			No		No		No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	50.0	50.0	50.0	50.0	0.0	50.0	50.0	50.0	50.0	0.0	50.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	C	C	L	R
C, Cycle Length [s]	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	0.00	3.00	3.00	2.00	0.00
g_i, Effective Green Time [s]	78	78	86	86	3	17	25
g / C, Green / Cycle	0.65	0.65	0.71	0.71	0.02	0.14	0.21
(v / s)_i Volume / Saturation Flow Rate	0.10	0.11	0.73	0.59	0.02	0.06	0.60
s, saturation flow rate [veh/h]	1860	1823	1051	1337	1748	1763	1667
c, Capacity [veh/h]	1204	1180	780	955	43	255	352
d1, Uniform Delay [s]	8.34	8.36	19.14	12.00	57.96	46.72	47.33
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.29	0.30	27.57	8.19	13.71	1.08	846.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.16	0.17	0.98	0.83	0.62	0.42	2.86
d, Delay for Lane Group [s/veh]	8.63	8.66	46.71	20.19	71.67	47.80	893.59
Lane Group LOS	A	A	D	C	E	D	F
Critical Lane Group	No	No	Yes	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	2.03	2.03	16.93	14.99	0.98	2.99	93.31
50th-Percentile Queue Length [ft/ln]	50.64	50.81	423.26	374.77	24.59	74.86	2332.78
95th-Percentile Queue Length [veh/ln]	3.65	3.66	23.68	21.34	1.77	5.39	145.96
95th-Percentile Queue Length [ft/ln]	91.15	91.46	591.96	533.52	44.27	134.75	3648.96

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	8.64	8.66	46.71	26.08	0.00	71.67	71.67	71.67	47.80	0.00	893.59
Movement LOS		A	A	D	C		E	E	E	D		F
d_A, Approach Delay [s/veh]	8.64			33.22			71.67			813.11		
Approach LOS	A			C			E			F		
d_I, Intersection Delay [s/veh]	312.07											
Intersection LOS	F											
Intersection V/C	0.941											

Sequence

Ring 1	-	2	3	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 13: US 1 Alt/Decatur St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 44.0
 Level Of Service: D
 Volume to Capacity (v/c): 0.750

Intersection Setup

Name	US 1 ALT		Decatur St		US 1 ALT	
Approach	Northbound		Westbound		Southwestbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		No	

Volumes

Name	US 1 ALT		Decatur St		US 1 ALT	
Base Volume Input [veh/h]	667	49	139	332	119	432
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.13	2.13	1.97	2.00	2.63	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	0	0	0	0	18
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	672	49	139	332	119	450
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	187	14	39	92	33	125
Total Analysis Volume [veh/h]	747	54	154	369	132	500
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	15.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Permissive	Unsignalized	Split	Split	ProtectedPermissi	Permissive
Signal group	6	0	4	0	5	2
Auxiliary Signal Groups						
Lead / Lag	-	-	Lag	-	Lead	-
Minimum Green [s]	10	0	5	0	4	10
Maximum Green [s]	39	0	15	0	10	54
Amber [s]	5.0	0.0	4.0	0.0	4.0	5.0
All red [s]	1.0	0.0	1.0	0.0	1.0	1.0
Split [s]	30	0	30	0	30	30
Vehicle Extension [s]	0.2	0.0	3.0	0.0	3.0	0.2
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	0.0	3.0	0.0	3.0	4.0
Minimum Recall	No		No		No	No
Maximum Recall	Yes		No		No	Yes
Pedestrian Recall	No		No		No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	0.0	30.0	0.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	R	L	C
C, Cycle Length [s]	80	80	80	80	80
L, Total Lost Time per Cycle [s]	6.00	5.00	5.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	3.00	3.00	0.00	4.00
g_i, Effective Green Time [s]	45	15	15	54	54
g / C, Green / Cycle	0.56	0.19	0.19	0.68	0.68
(v / s)_i Volume / Saturation Flow Rate	0.40	0.09	0.23	0.16	0.27
s, saturation flow rate [veh/h]	1860	1775	1583	845	1863
c, Capacity [veh/h]	1045	333	297	487	1257
d1, Uniform Delay [s]	12.85	28.92	32.50	9.24	5.78
k, delay calibration	0.50	0.11	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.19	1.00	134.53	1.37	0.94
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.72	0.46	1.24	0.27	0.40
d, Delay for Lane Group [s/veh]	17.04	29.92	167.03	10.61	6.72
Lane Group LOS	B	C	F	B	A
Critical Lane Group	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	9.75	2.65	16.64	0.80	3.29
50th-Percentile Queue Length [ft/ln]	243.66	66.28	415.94	20.10	82.34
95th-Percentile Queue Length [veh/ln]	14.87	4.77	25.82	1.45	5.93
95th-Percentile Queue Length [ft/ln]	371.66	119.30	645.43	36.19	148.22

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	17.04	0.00	29.92	167.03	10.61	6.72
Movement LOS	B		C	F	B	A
d_A, Approach Delay [s/veh]	17.04		126.66		7.53	
Approach LOS	B		F		A	
d_I, Intersection Delay [s/veh]	44.02					
Intersection LOS	D					
Intersection V/C	0.750					

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 14: US 1 Alt/Charles Armentrout St

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	US 1 Alt		US 1 ALT		Charles L Armentrout	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	US 1 Alt		US 1 ALT		Charles L Armentrout	
Base Volume Input [veh/h]	1070	786	481	146	18	572
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.08	2.00	2.00	2.00	3.85	2.17
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	5	18	0	0	12
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1073	791	499	146	18	584
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	298	220	139	41	5	162
Total Analysis Volume [veh/h]	1192	879	554	162	20	649
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.35	0.01	0.01	0.00	0.00	1.22
d_M, Delay for Movement [s/veh]	180.15	0.00	0.00	0.00	10000.00	140.09
Movement LOS	F	A	A	A	F	F
95th-Percentile Queue Length [veh/ln]	47.82	0.00	0.00	0.00	4.26	24.57
95th-Percentile Queue Length [ft/ln]	1195.52	0.00	0.00	0.00	106.51	614.34
d_A, Approach Delay [s/veh]	103.69		0.00		434.86	
Approach LOS	F		A		F	
d_I, Intersection Delay [s/veh]	146.31					
Intersection LOS	F					

Intersection Level Of Service Report

Intersection 15: US 1/Gallatin St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 3.7
 Level Of Service: A
 Volume to Capacity (v/c): 0.331

Intersection Setup

Name	US 1		US 1		Gallatin St.	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		0.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		No	

Volumes

Name	US 1		US 1		Gallatin St.	
Base Volume Input [veh/h]	18	341	952	65	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.11	2.05	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	13	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	344	965	65	0	0
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	96	268	18	0	0
Total Analysis Volume [veh/h]	20	382	1072	72	0	0
Presence of On-Street Parking	No	No	No	No		
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	111
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	2.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	6	6	2	2	0	0
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	-	-
Minimum Green [s]	4	4	4	4	0	0
Maximum Green [s]	86	86	86	86	0	0
Amber [s]	4.0	4.0	4.0	4.0	0.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	90	90	90	90	0	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	0.0	0.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk						
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	0.0	0.0
Minimum Recall		No	No			
Maximum Recall		Yes	Yes			
Pedestrian Recall		No	No			
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	50.0	50.0	50.0	50.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	8
Pedestrian Walk [s]	20
Pedestrian Clearance [s]	10

Lane Group Calculations

Lane Group	C	C	C	C	
C, Cycle Length [s]	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	97	97	97	97	
g / C, Green / Cycle	0.81	0.81	0.81	0.81	
(v / s)_i Volume / Saturation Flow Rate	0.13	0.12	0.31	0.31	
s, saturation flow rate [veh/h]	1519	1693	1862	1821	
c, Capacity [veh/h]	1260	1368	1504	1471	
d1, Uniform Delay [s]	2.48	2.53	3.21	3.24	
k, delay calibration	0.50	0.50	0.50	0.50	
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.26	0.23	0.73	0.78	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.16	0.15	0.38	0.39	
d, Delay for Lane Group [s/veh]	2.75	2.76	3.94	4.01	
Lane Group LOS	A	A	A	A	
Critical Lane Group	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	0.86	0.91	3.21	3.25	
50th-Percentile Queue Length [ft/ln]	21.61	22.79	80.25	81.24	
95th-Percentile Queue Length [veh/ln]	1.56	1.64	5.78	5.85	
95th-Percentile Queue Length [ft/ln]	38.89	41.02	144.44	146.24	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	2.75	2.75	3.97	4.01	0.00	0.00
Movement LOS	A	A	A	A		
d_A, Approach Delay [s/veh]	2.75		3.98		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	3.66					
Intersection LOS	A					
Intersection V/C	0.331					

Sequence

Ring 1	-	2	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SG: 2 90s

SG: 8 30s

SG: 6 90s

Intersection Level Of Service Report Intersection 16: US 1/Farragut St

Control Type: Signalized
Analysis Method: HCM 2010
Analysis Period: 15 minutes

Delay (sec / veh): 9.9
Level Of Service: A
Volume to Capacity (v/c): 0.332

Intersection Setup

Name	US 1		Farragut		US 1	
Approach	Southbound		Eastbound		Northeastbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	150.00	100.00	100.00
Speed [mph]	30.00		25.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	US 1		Farragut		US 1	
Base Volume Input [veh/h]	942	3	35	25	10	301
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.97	0.00	0.00	0.00	0.00	2.11
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	13	0	0	0	0	3
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	955	3	35	25	10	304
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	265	1	10	7	3	84
Total Analysis Volume [veh/h]	1061	3	39	28	11	338
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	96.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Permissive	Permissive	Split	Split	Permissive	Permissive
Signal group	6	6	4	4	2	2
Auxiliary Signal Groups						
Lead / Lag	-	-	Lag	-	Lag	-
Minimum Green [s]	20	20	20	20	20	20
Maximum Green [s]	83	83	26	26	83	83
Amber [s]	5.0	5.0	4.0	4.0	5.0	5.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	89	89	31	31	89	89
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	7	7	0	0
Pedestrian Clearance [s]	0	0	13	13	0	0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	4.0	3.0	3.0	4.0	4.0
Minimum Recall	No		No			No
Maximum Recall	Yes		Yes			Yes
Pedestrian Recall	No		No			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	50.0	50.0	50.0	50.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	R	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.00	6.00	5.00	5.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	2.00
l2, Clearance Lost Time [s]	4.00	4.00	3.00	3.00	4.00
g_i, Effective Green Time [s]	83	83	26	26	83
g / C, Green / Cycle	0.69	0.69	0.22	0.22	0.69
(v / s)_i Volume / Saturation Flow Rate	0.29	0.29	0.02	0.02	0.19
s, saturation flow rate [veh/h]	1863	1862	1810	1615	1798
c, Capacity [veh/h]	1289	1288	392	350	1275
d1, Uniform Delay [s]	7.98	7.99	37.63	37.47	7.02
k, delay calibration	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.98	0.98	0.51	0.45	0.53
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.41	0.41	0.10	0.08	0.27
d, Delay for Lane Group [s/veh]	8.96	8.97	38.13	37.91	7.55
Lane Group LOS	A	A	D	D	A
Critical Lane Group	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.86	5.86	0.99	0.71	3.27
50th-Percentile Queue Length [ft/ln]	146.38	146.45	24.75	17.79	81.67
95th-Percentile Queue Length [veh/ln]	9.82	9.83	1.78	1.28	5.88
95th-Percentile Queue Length [ft/ln]	245.59	245.69	44.55	32.03	147.01

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	8.96	8.97	38.13	37.91	7.55	7.55
Movement LOS	A	A	D	D	A	A
d_A, Approach Delay [s/veh]	8.96		38.04		7.55	
Approach LOS	A		D		A	
d_I, Intersection Delay [s/veh]	9.95					
Intersection LOS	A					
Intersection V/C	0.332					

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report Intersection 17: US 1/43rd Avenue

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 36.3
Level Of Service: E
Volume to Capacity (v/c): 0.049

Intersection Setup

Name	US 1		US 1			
Approach	Northeastbound		Southwestbound		Southeastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0
Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	US 1		US 1			
Base Volume Input [veh/h]	112	331	895	57	6	85
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	13	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	112	334	908	57	6	85
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	84	227	14	2	21
Total Analysis Volume [veh/h]	112	334	908	57	6	85
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.16	0.00	0.01	0.00	0.05	0.16
d_M, Delay for Movement [s/veh]	11.02	0.00	0.00	0.00	36.33	13.96
Movement LOS	B	A	A	A	E	B
95th-Percentile Queue Length [veh/ln]	0.56	0.00	0.00	0.00	0.78	0.78
95th-Percentile Queue Length [ft/ln]	13.96	0.00	0.00	0.00	19.46	19.46
d_A, Approach Delay [s/veh]	2.77		0.00		15.44	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	1.76					
Intersection LOS	E					

Intersection Level Of Service Report

Intersection 18: US 1/42nd Place/Crittenden St

Control Type:	Signalized	Delay (sec / veh):	33.3
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.888

Intersection Setup

Name	42nd Pl			Crittenden St			US 1			US 1		
Approach	Southbound			Eastbound			Northeastbound			Southwestbound		
Lane Configuration												
Turning Movement	Left	Right	Right2	Left	Thru	Right	Left2	Left	Thru	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	42nd Pl			Crittenden St			US 1			US 1		
Base Volume Input [veh/h]	1	14	0	0	23	257	286	14	426	940	20	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	2.00	2.14	0.00	2.17	2.05	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	12	3	0	3	13	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	14	0	0	23	269	289	14	429	953	20	5
Peak Hour Factor	0.9000	0.9000	0.9000	1.0000	0.9000	0.9000	1.0000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	0	0	6	75	72	4	119	265	6	1
Total Analysis Volume [veh/h]	1	16	0	0	26	299	289	16	477	1059	22	6
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	12.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split
Signal group	4	4	4	0	3	3	0	6	6	6	6	6
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	Lag	-	-	-	-
Minimum Green [s]	5	5	5	0	5	5	0	20	20	20	20	20
Maximum Green [s]	19	19	19	0	25	25	0	60	60	60	60	60
Amber [s]	4.0	4.0	4.0	0.0	4.0	4.0	0.0	5.0	5.0	5.0	5.0	5.0
All red [s]	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0
Split [s]	24	24	24	0	30	30	0	66	66	66	66	66
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk	No				No				No	No		
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	3.0	0.0	3.0	3.0	0.0	4.0	4.0	4.0	4.0	4.0
Minimum Recall	No				No				No	No		
Maximum Recall	No				No				Yes	Yes		
Pedestrian Recall	No				No				No	No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	50.0	50.0	50.0	0.0	50.0	50.0	0.0	50.0	50.0	50.0	50.0	50.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	2	25	77	77	77	77
g / C, Green / Cycle	0.02	0.21	0.64	0.64	0.64	0.64
(v / s)_i Volume / Saturation Flow Rate	0.01	0.20	0.59	0.13	0.29	0.29
s, saturation flow rate [veh/h]	1625	1635	517	3541	1862	1845
c, Capacity [veh/h]	31	341	300	2263	1190	1179
d1, Uniform Delay [s]	58.34	46.94	37.68	9.03	11.03	11.07
k, delay calibration	0.11	0.38	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.13	32.73	56.10	0.21	1.26	1.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.95	1.02	0.21	0.46	0.46
d, Delay for Lane Group [s/veh]	72.47	79.67	93.79	9.24	12.29	12.37
Lane Group LOS	E	E	F	A	B	B
Critical Lane Group	Yes	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.64	12.72	13.75	2.52	7.25	7.28
50th-Percentile Queue Length [ft/ln]	15.96	318.06	343.75	62.98	181.19	182.00
95th-Percentile Queue Length [veh/ln]	1.15	18.57	20.09	4.53	11.66	11.71
95th-Percentile Queue Length [ft/ln]	28.73	464.31	502.13	113.36	291.56	292.63

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	72.47	72.47	72.47	0.00	79.67	79.67	93.79	93.79	9.24	12.33	12.37	12.37
Movement LOS	E	E	E		E	E	F	F	A	B	B	B
d_A, Approach Delay [s/veh]	72.47			79.67			42.21			12.33		
Approach LOS	E			E			D			B		
d_I, Intersection Delay [s/veh]	33.26											
Intersection LOS	C											
Intersection V/C	0.888											

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 19: US 1/41st Place/Charles Armentrout Drive

Control Type:	Signalized	Delay (sec / veh):	42.9
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.946

Intersection Setup

Name	US 1			US 1			Charles L Armentrout			41st		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	200.00	100.00	200.00	200.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	43.00			35.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 1			US 1			Charles L Armentrout			41st		
Base Volume Input [veh/h]	3	233	207	409	825	1	644	4	505	2	2	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	2.38	2.14	2.00	0.00	2.00	0.00	2.21	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	0	12	13	0	0	0	3	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	236	207	421	838	1	644	4	508	2	2	3
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	66	58	117	233	0	179	1	141	1	1	1
Total Analysis Volume [veh/h]	3	262	230	468	931	1	716	4	564	2	2	3
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	4			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	42.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Overlap	Permiss	Permiss	Permiss
Signal group	6	6	6	5	2	2	8	8	2	4	4	4
Auxiliary Signal Groups									2,5			
Lead / Lag	Lag	-	-	Lead	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	20	20	20	5	20	20	8	8	20	8	8	8
Maximum Green [s]	25	25	25	18	48	48	60	60	48	60	60	60
Amber [s]	5.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0	5.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0	2.0	2.0
Split [s]	31	31	31	23	54	54	66	66	54	66	66	66
Vehicle Extension [s]	6.0	6.0	6.0	3.0	6.0	6.0	3.0	3.0	6.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Recall		No		No	No			No	No		No	
Maximum Recall		Yes		No	Yes			No	Yes		No	
Pedestrian Recall		No		No	No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	0.0	50.0	50.0	50.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C	R	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	5.50	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	0.00	4.00	4.00	4.00	0.00	4.00
g_i, Effective Green Time [s]	25	25	25	48	48	48	60	48	60
g / C, Green / Cycle	0.21	0.21	0.21	0.40	0.40	0.40	0.50	0.40	0.50
(v / s)_i Volume / Saturation Flow Rate	0.00	0.07	0.15	0.33	0.25	0.25	0.50	0.36	0.00
s, saturation flow rate [veh/h]	610	3547	1577	1400	1863	1862	1443	1580	1874
c, Capacity [veh/h]	60	739	329	580	745	745	782	632	975
d1, Uniform Delay [s]	60.00	40.60	44.02	31.51	28.81	28.81	29.70	33.59	15.06
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.45	0.50	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.57	1.33	11.75	11.47	3.94	3.95	16.51	17.38	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

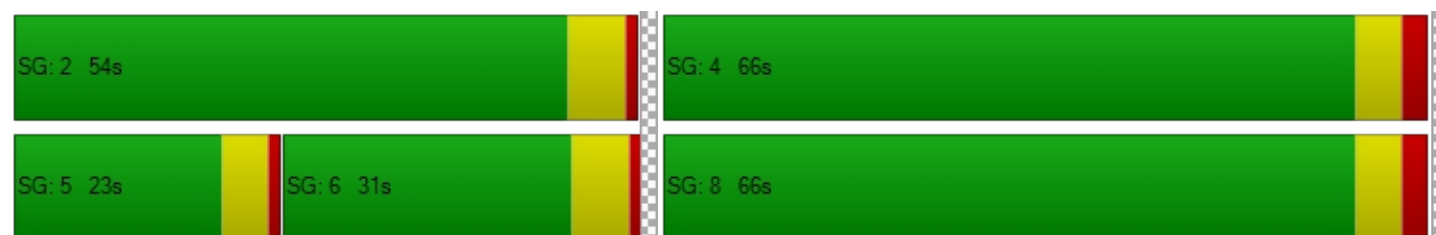
X, volume / capacity	0.05	0.35	0.70	0.81	0.63	0.63	0.92	0.89	0.01
d, Delay for Lane Group [s/veh]	61.57	41.94	55.77	42.98	32.75	32.75	46.22	50.97	15.06
Lane Group LOS	E	D	E	D	C	C	D	D	B
Critical Lane Group	No	No	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.12	3.38	7.24	12.59	11.31	11.31	23.68	18.26	0.10
50th-Percentile Queue Length [ft/ln]	2.89	84.45	181.07	314.74	282.86	282.79	591.96	456.51	2.48
95th-Percentile Queue Length [veh/ln]	0.21	6.08	11.66	18.41	16.83	16.83	31.66	25.27	0.18
95th-Percentile Queue Length [ft/ln]	5.21	152.01	291.41	460.22	420.77	420.69	791.47	631.72	4.47

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	61.57	41.94	55.77	42.98	32.75	32.75	46.22	46.22	50.97	15.06	15.06	15.06
Movement LOS	E	D	E	D	C	C	D	D	D	B	B	B
d_A, Approach Delay [s/veh]	48.48			36.17			48.30			15.06		
Approach LOS	D			D			D			B		
d_I, Intersection Delay [s/veh]	42.93											
Intersection LOS	D											
Intersection V/C	0.946											

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 20: MD 410/Toledo Terrace

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 180.1
 Level Of Service: F
 Volume to Capacity (v/c): 32.667

Intersection Setup

Name				Toledo Terrace			MD 410			MD 410		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	1	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	500.00	100.00	900.00	175.00	100.00	175.00
Speed [mph]	30.00			30.00			50.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Toledo Terrace			MD 410			MD 410		
Base Volume Input [veh/h]	93	5	80	167	22	235	135	683	153	71	1109	89
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.44	0.00	2.50	2.38	0.00	1.96	2.07	2.00	1.92	2.00	2.05	3.85
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	43	0	0	0	0	0	0	6	11	0	26	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	136	5	80	167	22	235	135	689	164	71	1135	89
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	1	22	46	6	65	38	191	46	20	315	25
Total Analysis Volume [veh/h]	151	6	89	186	24	261	150	766	182	79	1261	99
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	4			2			1			5		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	9.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	8	8	8	4	4	4	1	6	6	2	2	2
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lead	-	-	Lag	-	-
Minimum Green [s]	8	8	8	8	8	8	5	20	20	20	20	20
Maximum Green [s]	36	36	36	36	36	36	25	102	102	72	72	72
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.5
All red [s]	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.5	1.5	1.5	1.5	1.5
Split [s]	42	42	42	42	42	42	30	108	108	78	78	78
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	5.0	5.0	5.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0
Minimum Recall		No			No		No	No			No	
Maximum Recall		No			No		No	Yes			Yes	
Pedestrian Recall		No			No		No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	C	R	L	C	R	L	C	R
C, Cycle Length [s]	150	150	150	150	150	150	150	150	150	150
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	0.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	36	36	36	36	102	102	102	90	90	90
g / C, Green / Cycle	0.24	0.24	0.24	0.24	0.68	0.68	0.68	0.60	0.60	0.60
(v / s)_i Volume / Saturation Flow Rate	15.92	0.06	29.67	0.16	0.26	0.22	0.12	0.11	0.36	0.06
s, saturation flow rate [veh/h]	10	1566	7	1582	567	3547	1580	698	3545	1553
c, Capacity [veh/h]	49	376	47	380	357	2412	1074	394	2131	933
d1, Uniform Delay [s]	74.27	45.93	75.00	51.88	14.28	9.80	8.68	21.46	18.52	12.75
k, delay calibration	0.50	0.11	0.50	0.20	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1029.27	0.32	1610.42	4.08	3.59	0.35	0.34	1.14	1.22	0.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	3.17	0.24	4.47	0.69	0.42	0.32	0.17	0.20	0.59	0.11
d, Delay for Lane Group [s/veh]	1103.54	46.25	1685.42	55.95	17.87	10.14	9.02	22.60	19.74	12.98
Lane Group LOS	F	D	F	E	B	B	A	C	B	B
Critical Lane Group	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	16.06	2.75	22.83	9.43	1.92	4.78	2.06	1.68	13.12	1.44
50th-Percentile Queue Length [ft/ln]	401.39	68.74	570.66	235.66	48.00	119.42	51.61	41.88	327.93	35.95
95th-Percentile Queue Length [veh/ln]	28.90	4.95	40.28	14.46	3.46	8.36	3.72	3.02	19.06	2.59
95th-Percentile Queue Length [ft/ln]	722.51	123.73	1007.06	361.54	86.40	209.03	92.90	75.38	476.43	64.70

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	1103.54	1103.54	46.25	1685.42	1685.42	55.95	17.87	10.14	9.02	22.60	19.74	12.98
Movement LOS	F	F	D	F	F	E	B	B	A	C	B	B
d_A, Approach Delay [s/veh]	721.02			782.47			11.01			19.43		
Approach LOS	F			F			B			B		
d_I, Intersection Delay [s/veh]	180.08											
Intersection LOS	F											
Intersection V/C	32.667											

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 21: MD 410/Editors Park Dr

Control Type:	Two-way stop	Delay (sec / veh):	383.9
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.214

Intersection Setup

Name	Editors Park Dr		MD 410		MD 410		
Approach	Northbound		Eastbound		Westbound		
Lane Configuration							
Turning Movement	Left	Right	Thru	Right	U-turn	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	150.00	100.00	100.00
Speed [mph]	30.00		45.00		45.00		
Grade [%]	0.00		0.00		0.00		
Crosswalk	Yes		Yes		Yes		

Volumes

Name	Editors Park Dr		MD 410		MD 410		
Base Volume Input [veh/h]	58	54	821	102	1	65	1280
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.85	0.00	2.00	1.64	0.00	1.89	2.05
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	130	6	0	0	32	26
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	58	184	827	102	1	97	1306
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	51	230	28	0	27	363
Total Analysis Volume [veh/h]	64	204	919	113	1	108	1451
Pedestrian Volume [ped/h]	0		0		0		

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.21	0.37	0.01	0.00	0.01	0.16	0.01
d_M, Delay for Movement [s/veh]	383.85	322.07	0.00	0.00	25.83	11.47	0.00
Movement LOS	F	F	A	A	D	B	A
95th-Percentile Queue Length [veh/ln]	17.93	17.93	0.00	0.00	0.52	0.52	0.00
95th-Percentile Queue Length [ft/ln]	448.22	448.22	0.00	0.00	12.97	12.97	0.00
d_A, Approach Delay [s/veh]	336.83		0.00		0.81		
Approach LOS	F		A		A		
d_I, Intersection Delay [s/veh]	32.01						
Intersection LOS	F						

Intersection Level Of Service Report

Intersection 22: MD 410/Prince George's Plaza

Control Type:	Signalized	Delay (sec / veh):	13.2
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.400

Intersection Setup

Name	Metro			PG Plaza			MD 410			MD 410		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	2	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	250.00	100.00	250.00	225.00	100.00	100.00	325.00	100.00	100.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Metro			PG Plaza			MD 410			MD 410		
Base Volume Input [veh/h]	76	11	66	30	16	18	98	790	59	57	1244	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.54	3.85	2.22	0.00	0.00	3.85	2.22	2.07	1.74	2.21	2.00	3.85
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	136	0	0	58	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	76	11	66	30	16	18	98	926	59	57	1302	39
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	3	18	8	4	5	27	257	16	16	362	11
Total Analysis Volume [veh/h]	84	12	73	33	18	20	109	1029	66	63	1447	43
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	39.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	3	3	3	4	4	4	1	6	6	5	2	2
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	5	5	20	20	5	20	20
Maximum Green [s]	24	24	24	24	24	24	25	54	54	25	54	54
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	4.5
All red [s]	1.5	1.5	1.5	1.5	1.5	1.5	1.0	1.5	1.5	1.0	1.5	1.5
Split [s]	30	30	30	30	30	30	30	60	60	30	60	60
Vehicle Extension [s]	2.5	2.5	2.5	2.5	2.5	2.5	2.5	5.0	5.0	2.5	5.0	5.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.5	3.5	3.5	3.5	3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	Yes		No	Yes	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	294.0	294.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	30.0	30.0	30.0	30.0	6.0	6.0	30.0	5.0	5.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	150	150	150	150	150	150	150	150	150	150	150
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	5.50	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.50	3.50	3.50	3.50	3.50	0.00	4.00	4.00	0.00	4.00	4.00
g_i, Effective Green Time [s]	10	10	5	5	5	118	108	108	118	108	108
g / C, Green / Cycle	0.07	0.07	0.03	0.03	0.03	0.79	0.72	0.72	0.79	0.72	0.72
(v / s)_i Volume / Saturation Flow Rate	0.02	0.05	0.01	0.01	0.01	0.24	0.20	0.20	0.11	0.29	0.03
s, saturation flow rate [veh/h]	3461	1589	3514	1900	1555	461	3544	1805	594	5074	1555
c, Capacity [veh/h]	234	108	112	61	50	392	2561	1304	500	3656	1120
d1, Uniform Delay [s]	66.80	68.87	70.96	70.97	71.21	5.09	7.26	7.26	4.02	8.20	6.03
k, delay calibration	0.08	0.08	0.08	0.08	0.08	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.69	9.18	1.07	2.01	3.89	1.76	0.28	0.55	0.52	0.32	0.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.79	0.29	0.30	0.40	0.28	0.28	0.28	0.13	0.40	0.04
d, Delay for Lane Group [s/veh]	67.49	78.05	72.04	72.98	75.10	6.85	7.54	7.81	4.54	8.52	6.09
Lane Group LOS	E	E	E	E	E	A	A	A	A	A	A
Critical Lane Group	No	Yes	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.57	3.50	0.64	0.71	0.81	0.81	3.74	3.91	0.42	5.55	0.38
50th-Percentile Queue Length [ft/ln]	39.26	87.60	16.02	17.86	20.31	20.18	93.46	97.71	10.45	138.83	9.42
95th-Percentile Queue Length [veh/ln]	2.83	6.31	1.15	1.29	1.46	1.45	6.73	7.03	0.75	9.42	0.68
95th-Percentile Queue Length [ft/ln]	70.66	157.68	28.83	32.15	36.56	36.33	168.23	175.87	18.82	235.45	16.95

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	67.49	78.05	78.05	72.04	72.98	75.10	6.85	7.62	7.81	4.54	8.52	6.09
Movement LOS	E	E	E	E	E	E	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	72.80			73.14			7.56			8.29		
Approach LOS	E			E			A			A		
d_I, Intersection Delay [s/veh]	13.17											
Intersection LOS	B											
Intersection V/C	0.400											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 23: MD 410/Belcrest Rd

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 58.7
 Level Of Service: E
 Volume to Capacity (v/c): 0.774

Intersection Setup

Name	Belcrest Road			Belcrest Rd			MD 410			MD 410		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	100.00	250.00	100.00	100.00	225.00	100.00	100.00	225.00	100.00	100.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Belcrest Road			Belcrest Rd			MD 410			MD 410		
Base Volume Input [veh/h]	232	270	11	95	409	93	112	684	122	194	1021	62
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.21	2.00	3.85	2.00	2.21	2.63	2.00	2.00	2.38	2.63	2.00	2.63
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	18	0	0	40	0	3	17	44	75	32	37	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	250	270	11	135	409	96	129	728	197	226	1058	62
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	69	75	3	38	114	27	36	202	55	63	294	17
Total Analysis Volume [veh/h]	278	300	12	150	454	107	143	809	219	251	1176	69
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	26			10			91			71		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	144.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	4	4	4	3	3	3	1	6	6	5	2	2
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	5	8	20	20	8	20	20
Maximum Green [s]	21	21	21	33	33	33	21	50	50	21	50	50
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	4.5
All red [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Split [s]	27	27	27	39	39	39	27	57	57	27	57	57
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	4.5
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	Yes		No	Yes	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	30.0	30.0	30.0	30.0	30.0	30.0	5.0	5.0	30.0	5.0	5.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	150	150	150	150	150	150	150	150	150	150	150	150
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.50	6.50	6.00	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.50	4.50	4.00	4.50	4.50
g_i, Effective Green Time [s]	20	20	20	30	30	30	14	54	54	21	61	61
g / C, Green / Cycle	0.13	0.13	0.13	0.20	0.20	0.20	0.09	0.36	0.36	0.14	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.11	0.11	0.11	0.08	0.19	0.15	0.08	0.23	0.14	0.14	0.33	0.04
s, saturation flow rate [veh/h]	1770	1827	1652	1774	1859	1434	1774	3547	1544	1763	3547	1562
c, Capacity [veh/h]	232	239	216	361	378	291	168	1286	560	247	1447	637
d1, Uniform Delay [s]	63.82	63.78	63.89	52.01	58.55	55.95	66.84	39.47	35.50	64.49	39.33	27.51
k, delay calibration	0.20	0.19	0.20	0.11	0.31	0.19	0.11	0.50	0.50	0.39	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.95	14.11	16.83	0.77	21.26	6.13	11.30	2.34	2.05	54.63	5.10	0.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.85	0.87	0.42	0.92	0.73	0.85	0.63	0.39	1.02	0.81	0.11
d, Delay for Lane Group [s/veh]	78.77	77.90	80.73	52.77	79.81	62.08	78.14	41.81	37.55	119.13	44.43	27.85
Lane Group LOS	E	E	F	D	E	E	E	D	D	F	D	C
Critical Lane Group	No	No	Yes	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	8.42	8.60	8.04	5.04	15.18	8.11	5.84	12.46	6.19	13.01	19.57	1.58
50th-Percentile Queue Length [ft/ln]	210.57	214.97	201.05	126.11	379.51	202.71	146.06	311.60	154.64	325.21	489.21	39.56
95th-Percentile Queue Length [veh/ln]	13.18	13.41	12.69	8.73	21.57	12.78	9.81	18.25	10.26	19.08	26.82	2.85
95th-Percentile Queue Length [ft/ln]	329.55	335.20	317.32	218.20	539.26	319.46	245.17	456.35	256.61	476.88	670.58	71.21

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	78.51	79.55	80.73	52.77	75.64	62.08	78.14	41.81	37.55	119.13	44.43	27.85
Movement LOS	E	E	F	D	E	E	E	D	D	F	D	C
d_A, Approach Delay [s/veh]	79.09			68.78			45.45			56.20		
Approach LOS	E			E			D			E		
d_I, Intersection Delay [s/veh]	58.68											
Intersection LOS	E											
Intersection V/C	0.774											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 24: MD 410/MD 500/Adelphi Rd

Control Type:	Signalized	Delay (sec / veh):	110.7
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.058

Intersection Setup

Name	Adelphi Rd			MD 410			MD 410			MD 500		
Approach	Southbound			Eastbound			Westbound			Northeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	350.00	100.00	150.00	300.00	100.00	100.00	350.00	100.00	150.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			50.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Adelphi Rd			MD 410			MD 410			MD 500		
Base Volume Input [veh/h]	352	541	30	43	779	13	582	1233	526	8	591	381
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	1.56	2.63	2.00	0.00	2.00	2.04	2.09	3.85	2.13	2.15
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	2	0	84	0	10	21	0	8	12	35
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	352	544	32	43	863	13	592	1254	526	16	603	416
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	98	151	9	12	240	4	164	348	146	4	168	116
Total Analysis Volume [veh/h]	391	604	36	48	959	14	658	1393	584	18	670	462
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	6			5			9			3		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Protecte	Permiss	Unsigna	Protecte	Permiss	Overlap	Split	Split	Split
Signal group	4	4	0	1	6	0	5	2	2	3	3	0
Auxiliary Signal Groups									2,4			
Lead / Lag	Lag	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	5	25	0	5	5	5	7	7	0
Maximum Green [s]	23	23	0	9	30	0	44	30	30	26	26	0
Amber [s]	5.0	5.0	0.0	4.0	5.0	0.0	4.0	5.0	5.0	5.0	5.0	0.0
All red [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Split [s]	30	30	0	15	37	0	50	72	72	33	33	0
Vehicle Extension [s]	2.5	2.5	0.0	3.0	5.0	0.0	6.0	3.0	3.0	2.5	2.5	0.0
Walk [s]	0	0	0	0	0	0	0	5	5	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	10	10	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	5.0	5.0	0.0	4.0	5.0	0.0	4.0	5.0	5.0	5.0	5.0	0.0
Minimum Recall		No		No	No		No	No	No		No	
Maximum Recall		No		No	Yes		No	No	No		No	
Pedestrian Recall		No		No	No		No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	294.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	30.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	L	C	R	C	C	R
C, Cycle Length [s]	150	150	150	150	150	150	150	150	150	150	150
L, Total Lost Time per Cycle [s]	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	5.00	5.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	5.00	5.00
g_i, Effective Green Time [s]	23	23	23	80	53	80	65	110	26	26	26
g / C, Green / Cycle	0.15	0.15	0.15	0.53	0.36	0.53	0.43	0.73	0.17	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.19	0.19	0.20	0.13	0.27	0.36	0.39	0.37	0.19	0.19	0.30
s, saturation flow rate [veh/h]	1774	1851	1660	384	3547	1848	3545	1578	1856	1693	1556
c, Capacity [veh/h]	272	284	255	96	1259	807	1536	1157	322	293	270
d1, Uniform Delay [s]	63.50	63.50	63.50	40.10	42.76	28.50	39.67	8.47	62.00	62.00	62.00
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.31	0.38	0.50	0.45	0.45	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	147.88	146.89	149.95	17.21	4.39	5.80	7.30	1.57	83.55	85.61	335.93
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.27	1.27	1.27	0.50	0.76	0.82	0.91	0.50	1.12	1.12	1.71
d, Delay for Lane Group [s/veh]	211.38	210.39	213.45	57.31	47.15	34.30	46.97	10.04	145.55	147.61	397.93
Lane Group LOS	F	F	F	E	D	C	D	B	F	F	F
Critical Lane Group	No	No	No	Yes	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	21.36	22.21	20.14	1.55	16.07	7.01	24.30	7.29	19.48	17.94	35.25
50th-Percentile Queue Length [ft/ln]	534.06	555.34	503.52	38.80	401.76	175.36	607.39	182.27	487.02	448.49	881.30
95th-Percentile Queue Length [veh/ln]	32.20	33.33	30.59	2.79	22.64	11.36	32.38	11.72	28.28	26.32	55.13
95th-Percentile Queue Length [ft/ln]	805.04	833.25	764.65	69.83	566.11	283.95	809.48	292.97	706.93	657.99	1378.35

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	211.25	211.85	213.45	57.31	47.15	0.00	34.30	46.97	10.04	145.55	146.56	397.93
Movement LOS	F	F	F	E	D		C	D	B	F	F	F
d_A, Approach Delay [s/veh]	211.68			47.63			35.62			247.53		
Approach LOS	F			D			D			F		
d_I, Intersection Delay [s/veh]	110.72											
Intersection LOS	F											
Intersection V/C	1.058											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report Intersection 25: Ager Rd/23rd Ave

Control Type: Signalized
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 35.9
Level Of Service: D
Volume to Capacity (v/c): 0.579

Intersection Setup

Name	Rittenhouse St			23rd Ave			Ager Rd.			Ager Rd.		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Rittenhouse St			23rd Ave			Ager Rd.			Ager Rd.		
Base Volume Input [veh/h]	14	18	22	267	13	75	19	875	164	11	465	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	47	0	0	14	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	18	22	267	13	75	19	922	164	11	479	3
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	5	6	67	3	19	5	231	41	3	120	1
Total Analysis Volume [veh/h]	14	18	22	267	13	75	19	922	164	11	479	3
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	35	0	0	35	0
Maximum Green [s]	0	20	0	0	30	0	0	35	0	0	35	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	25	0	0	30	0	0	39	0	0	39	0
Vehicle Extension [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	21	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	0.00	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	20	25	35	35	35	35	35	35
g / C, Green / Cycle	0.22	0.28	0.39	0.39	0.39	0.39	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.03	0.25	0.02	0.33	0.33	0.02	0.14	0.14
s, saturation flow rate [veh/h]	1557	1392	822	1683	1596	467	1683	1679
c, Capacity [veh/h]	396	422	297	654	621	110	654	653
d1, Uniform Delay [s]	28.19	31.02	24.93	25.12	25.14	40.39	19.62	19.62
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.71	18.04	0.41	13.16	13.84	1.82	1.60	1.60
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.14	0.84	0.06	0.85	0.85	0.10	0.37	0.37
d, Delay for Lane Group [s/veh]	28.91	49.06	25.34	38.29	38.98	42.21	21.21	21.22
Lane Group LOS	C	D	C	D	D	D	C	C
Critical Lane Group	No	Yes	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	1.00	9.08	0.33	12.53	12.01	0.28	3.72	3.71
50th-Percentile Queue Length [ft/ln]	25.12	226.98	8.28	313.20	300.22	7.10	92.90	92.77
95th-Percentile Queue Length [veh/ln]	1.81	14.02	0.60	18.33	17.69	0.51	6.69	6.68
95th-Percentile Queue Length [ft/ln]	45.22	350.52	14.91	458.32	442.30	12.78	167.21	166.98

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.91	28.91	28.91	49.06	49.06	49.06	25.34	38.56	38.98	42.21	21.22	21.22
Movement LOS	C	C	C	D	D	D	C	D	D	D	C	C
d_A, Approach Delay [s/veh]	28.91			49.06			38.39			21.68		
Approach LOS	C			D			D			C		
d_I, Intersection Delay [s/veh]	35.92											
Intersection LOS	D											
Intersection V/C	0.579											

Other Modes

g_Walk,mi, Effective Walk Time [s]	34.0			34.0			20.0			11.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	17.42			17.42			27.22			34.67		
I_p,int, Pedestrian LOS Score for Intersection	1.757			1.970			3.181			2.661		
Crosswalk LOS	A			A			C			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	444			556			778			778		
d_b, Bicycle Delay [s]	27.22			23.47			16.81			16.81		
I_b,int, Bicycle LOS Score for Intersection	1.649			2.145			2.471			1.966		
Bicycle LOS	A			B			B			A		

Sequence

Ring 1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 26: Ager Rd/Oglethorpe St/School

Control Type:	Signalized	Delay (sec / veh):	39.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.420

Intersection Setup

Name	Oglethorpe St			School			Ager Rd.			Ager Rd.		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	1200.00	350.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Oglethorpe St			School			Ager Rd.			Ager Rd.		
Base Volume Input [veh/h]	27	12	36	14	0	4	25	936	80	122	718	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	47	0	0	14	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	27	12	36	14	0	4	25	983	80	122	732	12
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	3	9	4	0	1	6	246	20	31	183	3
Total Analysis Volume [veh/h]	27	12	36	14	0	4	25	983	80	122	732	12
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	4	0	0	8	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	10	0	5	10	0
Maximum Green [s]	0	20	0	0	20	0	20	30	0	20	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	4.0	4.0	0.0	4.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	30	0	0	30	0	30	45	0	30	45	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	6.0	0.0	3.0	6.0	0.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	27	0	0	11	0	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	C	C
C, Cycle Length [s]	109	109	109	109	109	109	109	109
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	0.00	3.00	3.00	0.00	3.00	3.00
g_i, Effective Green Time [s]	25	25	70	40	40	70	40	40
g / C, Green / Cycle	0.23	0.23	0.64	0.37	0.37	0.64	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.05	0.01	0.02	0.32	0.32	0.13	0.22	0.22
s, saturation flow rate [veh/h]	1422	1272	1028	1683	1639	928	1683	1673
c, Capacity [veh/h]	371	350	639	618	601	549	618	614
d1, Uniform Delay [s]	34.02	32.75	8.93	32.11	32.12	14.02	28.06	28.06
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.22	0.28	0.11	15.61	15.98	0.93	4.34	4.36
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.20	0.05	0.04	0.87	0.87	0.22	0.60	0.60
d, Delay for Lane Group [s/veh]	35.24	33.02	9.05	47.72	48.10	14.95	32.40	32.42
Lane Group LOS	D	C	A	D	D	B	C	C
Critical Lane Group	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.74	0.40	0.22	15.39	15.06	1.16	8.44	8.40
50th-Percentile Queue Length [ft/ln]	43.46	9.99	5.41	384.75	376.40	29.06	211.00	209.92
95th-Percentile Queue Length [veh/ln]	3.13	0.72	0.39	21.82	21.42	2.09	13.20	13.15
95th-Percentile Queue Length [ft/ln]	78.22	17.98	9.74	545.60	535.49	52.30	330.11	328.73

Movement, Approach, & Intersection Results

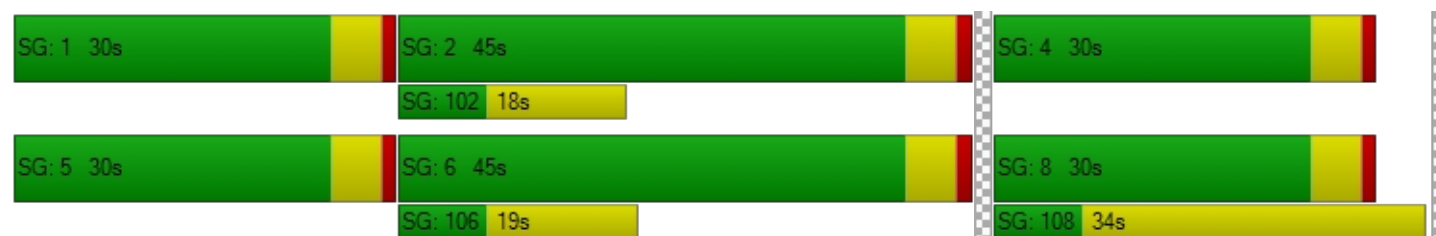
d_M, Delay for Movement [s/veh]	35.24	35.24	35.24	33.02	33.02	33.02	9.05	47.89	48.10	14.95	32.41	32.42
Movement LOS	D	D	D	C	C	C	A	D	D	B	C	C
d_A, Approach Delay [s/veh]	35.24			33.02			47.01			29.95		
Approach LOS	D			C			D			C		
d_I, Intersection Delay [s/veh]	39.24											
Intersection LOS	D											
Intersection V/C	0.420											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			25.0			11.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	34.67			34.67			23.47			34.67		
I_p,int, Pedestrian LOS Score for Intersection	1.783			1.894			2.729			2.765		
Crosswalk LOS	A			A			B			C		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	556			556			889			889		
d_b, Bicycle Delay [s]	23.47			23.47			13.89			13.89		
I_b,int, Bicycle LOS Score for Intersection	1.683			1.589			2.457			2.274		
Bicycle LOS	A			A			B			B		

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report Intersection 27: Ager Rd/Nicholson St

Control Type: Two-way stop
Analysis Method: HCM 2010
Analysis Period: 15 minutes

Delay (sec / veh): 1,934.8
Level Of Service: F
Volume to Capacity (v/c): 4.241

Intersection Setup

Name	Ager Rd.				Nicholson St			Nicholson St			Ager Rd.			
Approach	Northbound				Northeastbound			Southwestbound			Southeastbound			
Lane Configuration														
Turning Movement	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	1	0	0	0
Pocket Length [ft]	225.0	100.0	100.0	150.0	100.00	100.00	100.00	100.00	100.00	100.00	200.0	100.0	100.0	100.0
Speed [mph]	35.00				30.00			30.00			35.00			
Grade [%]	0.00				0.00			0.00			0.00			
Crosswalk	Yes				Yes			Yes			Yes			

Volumes

Name	Ager Rd.				Nicholson St			Nicholson St			Ager Rd.			
Base Volume Input [veh/h]	1	39	741	25	98	17	82	60	18	239	6	51	713	82
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	2.00	0.00	1.82	0.00	0.00	1.74	0.00	2.44	2.00	3.57
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	47	0	0	0	0	0	0	0	0	0	14	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	39	788	25	98	17	82	60	18	239	6	51	727	82
Peak Hour Factor	0.900	0.900	0.900	0.900	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.900	0.900	0.900	0.900
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	11	219	7	27	5	23	17	5	66	2	14	202	23
Total Analysis Volume [veh/h]	1	43	876	28	109	19	91	67	20	266	7	57	808	91
Pedestrian Volume [ped/h]	0				0			0			0			

Intersection Settings

Priority Scheme	Free	Stop	Stop	Free
Flared Lane		No	No	
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance		No	No	
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.06	0.01	0.00	4.24	0.36	0.16	1.53	0.40	0.48	0.05	0.08	0.01	0.00
d_M, Delay for Movement [s/veh]	19.76	10.03	0.00	0.00	1934.77	1863.70	1801.16	763.09	752.88	687.17	29.33	10.78	0.00	0.00
Movement LOS	C	B	A	A	F	F	F	F	F	F	D	B	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	24.93	24.93	24.93	30.22	30.22	30.22	0.03	0.03	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.10	0.10	0.00	0.00	623.21	623.21	623.21	755.58	755.58	755.58	0.87	0.87	0.00	0.00
d_A, Approach Delay [s/veh]	0.48				1873.09			705.30			0.85			
Approach LOS	A				F			F			A			
d_I, Intersection Delay [s/veh]	265.99													
Intersection LOS	F													

Intersection Level Of Service Report

Intersection 28: Ager Rd/Hamilton St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 16.3
 Level Of Service: B
 Volume to Capacity (v/c): 0.651

Intersection Setup

Name	Hamilton St			Hamilton St			Ager Rd.			Ager Rd.		
Approach	Eastbound			Westbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	1	0	0	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	1500.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Hamilton St			Hamilton St			Ager Rd.			Ager Rd.		
Base Volume Input [veh/h]	28	74	10	45	220	330	79	180	55	388	347	115
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.33	1.72	0.00	3.85	2.08	1.91	2.06	1.84	3.33	2.21	2.00	2.63
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	47	82	58	0	23	0	17	0	0	0	0	14
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	75	156	68	45	243	330	96	180	55	388	347	129
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	43	19	13	68	92	27	50	15	108	96	36
Total Analysis Volume [veh/h]	83	173	76	50	270	367	107	200	61	431	386	143
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	4	0	0	8	0	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	10	0	5	10	0
Maximum Green [s]	0	26	0	0	26	0	0	30	0	10	45	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	4.0	0.0	3.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	30	0	0	30	0	0	35	0	15	50	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	3.0	0.0	2.0	3.0	0.0
Minimum Recall		No			No			Yes		Yes	Yes	
Maximum Recall		No			No			No		No	No	
Pedestrian Recall		No			No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	C	R	L	C	C	L	C
C, Cycle Length [s]	64	64	64	64	64	64	64	64	64	64
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	3.00	3.00	3.00	0.00	3.00
g_i, Effective Green Time [s]	18	18	18	18	18	23	23	23	37	37
g / C, Green / Cycle	0.27	0.27	0.27	0.27	0.27	0.37	0.37	0.37	0.59	0.59
(v / s)_i Volume / Saturation Flow Rate	0.15	0.13	0.12	0.12	0.23	0.12	0.07	0.07	0.33	0.30
s, saturation flow rate [veh/h]	796	1599	1042	1694	1585	870	1866	1720	1322	1778
c, Capacity [veh/h]	314	439	365	465	435	253	684	631	888	1040
d1, Uniform Delay [s]	22.71	19.48	18.84	19.10	21.96	25.73	13.85	13.89	7.42	7.86
k, delay calibration	0.11	0.11	0.11	0.11	0.13	0.11	0.11	0.11	0.50	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.75	0.83	0.54	0.61	5.45	1.13	0.14	0.16	1.89	0.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.38	0.49	0.34	0.42	0.84	0.42	0.20	0.20	0.49	0.51
d, Delay for Lane Group [s/veh]	23.46	20.31	19.38	19.71	27.41	26.86	13.99	14.04	9.31	8.25
Lane Group LOS	C	C	B	B	C	C	B	B	A	A
Critical Lane Group	No	No	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.58	2.52	1.34	2.26	5.34	1.52	1.20	1.15	2.90	3.32
50th-Percentile Queue Length [ft/ln]	39.55	62.89	33.58	56.61	133.42	38.03	30.04	28.69	72.45	83.12
95th-Percentile Queue Length [veh/ln]	2.85	4.53	2.42	4.08	9.13	2.74	2.16	2.07	5.22	5.98
95th-Percentile Queue Length [ft/ln]	71.20	113.21	60.45	101.90	228.13	68.45	54.08	51.64	130.42	149.61

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	23.46	20.96	20.31	19.38	19.62	27.41	26.86	14.01	14.04	9.31	8.25	8.25
Movement LOS	C	C	C	B	B	C	C	B	B	A	A	A
d_A, Approach Delay [s/veh]	21.43			23.77			17.75			8.73		
Approach LOS	C			C			B			A		
d_I, Intersection Delay [s/veh]	16.34											
Intersection LOS	B											
Intersection V/C	0.651											

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 29: Toledo Rd/Belcrest Rd

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 8.6
 Level Of Service: A
 Volume to Capacity (v/c): 0.375

Intersection Setup

Name	Belcrest Rd				Belcrest Rd				Toledo Rd			Toledo Rd		
Approach	Northbound				Southbound				Eastbound			Westbound		
Lane Configuration														
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	400.0	100.0	100.0	100.0	200.0	100.0	100.0	100.0	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				30.00			30.00		
Grade [%]	0.00				0.00				0.00			0.00		
Crosswalk	Yes				No				Yes			Yes		

Volumes

Name	Belcrest Rd				Belcrest Rd				Toledo Rd			Toledo Rd		
Base Volume Input [veh/h]	15	96	258	53	2	78	497	73	28	18	28	57	23	90
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	3.03	1.83	1.37	0.00	2.00	2.02	0.00	0.00	2.86	0.00	2.86	3.45	2.13
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	18	0	0	0	3	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	96	276	53	2	78	500	73	28	18	28	57	23	90
Peak Hour Factor	0.900	0.900	0.900	0.900	0.900	0.900	0.900	0.900	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	27	77	15	1	22	139	20	8	5	8	16	6	25
Total Analysis Volume [veh/h]	17	107	307	59	2	87	556	81	31	20	31	63	26	100
Presence of On-Street Parking	No			No	No			No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	8				0				20			15		
Bicycle Volume [bicycles/h]	0				0				0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	2	2	2	2	6	6	6	6	4	4	4	8	8	8
Auxiliary Signal Groups														
Lead / Lag	Lag	Lag	-	-	Lag	Lag	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Maximum Green [s]	40	40	40	40	40	40	40	40	30	30	30	30	30	30
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	45	45	45	45	45	45	45	45	35	35	35	35	35	35
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Pedestrian Clearance [s]	15	15	15	15	15	15	15	15	21	21	21	21	21	21
Rest In Walk			No				No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall			No				No			No			No	
Maximum Recall			Yes				Yes			No			No	
Pedestrian Recall			No				No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	30.0	30.0	30.0	0.0	0.0	0.0	0.0	30.0	30.0	30.0	30.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	C
C, Cycle Length [s]	61	61	61	61	61	61	61	61	61	61
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	40	40	40	40	40	40	11	11	11	11
g / C, Green / Cycle	0.66	0.66	0.66	0.66	0.66	0.66	0.18	0.18	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.16	0.10	0.10	0.09	0.17	0.18	0.02	0.01	0.02	0.13
s, saturation flow rate [veh/h]	780	1866	1756	1007	1862	1773	1285	1847	1593	1508
c, Capacity [veh/h]	551	1231	1158	711	1228	1169	145	324	280	344
d1, Uniform Delay [s]	7.15	3.91	3.92	5.64	4.26	4.27	29.79	20.84	21.02	23.53
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.94	0.26	0.28	0.36	0.53	0.56	0.72	0.08	0.17	1.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

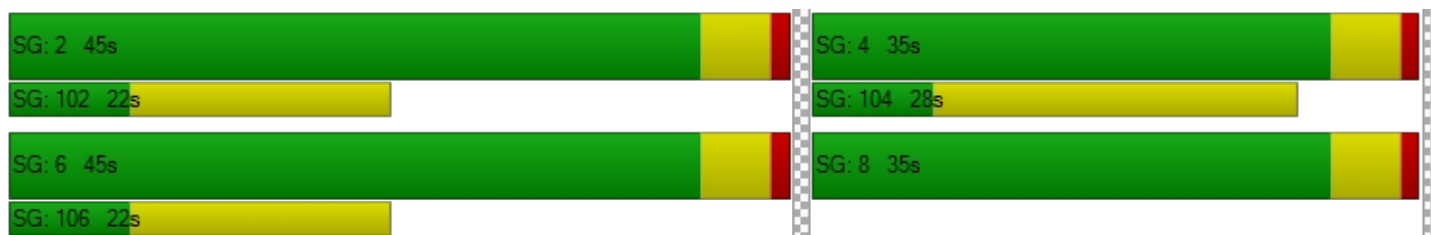
X, volume / capacity	0.22	0.15	0.15	0.13	0.26	0.27	0.21	0.06	0.11	0.55
d, Delay for Lane Group [s/veh]	8.10	4.17	4.20	6.00	4.79	4.83	30.51	20.91	21.19	24.90
Lane Group LOS	A	A	A	A	A	A	C	C	C	C
Critical Lane Group	No	No	No	No	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.83	0.69	0.67	0.47	1.31	1.27	0.46	0.23	0.36	2.51
50th-Percentile Queue Length [ft/ln]	20.74	17.18	16.63	11.74	32.84	31.76	11.54	5.74	9.03	62.74
95th-Percentile Queue Length [veh/ln]	1.49	1.24	1.20	0.85	2.36	2.29	0.83	0.41	0.65	4.52
95th-Percentile Queue Length [ft/ln]	37.32	30.93	29.93	21.13	59.11	57.16	20.78	10.33	16.26	112.94

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	8.10	8.10	4.18	4.20	6.00	6.00	4.80	4.83	30.51	20.91	21.19	24.90	24.90	24.90
Movement LOS	A	A	A	A	A	A	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	5.17				4.95				24.65			24.90		
Approach LOS	A				A				C			C		
d_I, Intersection Delay [s/veh]	8.65													
Intersection LOS	A													
Intersection V/C	0.375													

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 30: Adelphi Rd/Belcrest Rd

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 23.7
 Level Of Service: C
 Volume to Capacity (v/c): 0.783

Intersection Setup

Name	Belcrest Rd			Underwood St			Adelphi Rd				Adelphi Rd		
Approach	Northeastbound			Southwestbound			Northwestbound				Southeastbound		
Lane Configuration													
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.0	100.0	100.0	100.0	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00				30.00		
Grade [%]	0.00			0.00			0.00				0.00		
Crosswalk	No			Yes			Yes				Yes		

Volumes

Name	Belcrest Rd			Underwood St			Adelphi Rd				Adelphi Rd		
Base Volume Input [veh/h]	376	0	31	18	42	6	2	37	1013	0	0	735	680
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.98	0.00	0.00	1.99	1.94
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	18	0	0	0	0	0	0	0	12	0	0	5	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	394	0	31	18	42	6	2	37	1025	0	0	740	683
Peak Hour Factor	0.9000	1.0000	1.0000	0.9000	0.9000	0.9000	0.900	0.900	0.900	1.000	1.0000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	109	0	8	5	12	2	1	10	285	0	0	206	190
Total Analysis Volume [veh/h]	438	0	31	20	47	7	2	41	1139	0	0	822	759
Presence of On-Street Parking	No		No	No		No	No			No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			1				5		
Bicycle Volume [bicycles/h]	0			0			0				0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	15.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Permi	Prote	Permi	Permi	Permiss	Permiss	Permiss
Signal group	4	0	0	8	8	8	5	5	2	0	0	6	6
Auxiliary Signal Groups													
Lead / Lag	Lead	-	-	Lag	-	-	Lead	Lead	-	-	-	-	-
Minimum Green [s]	4	0	0	4	4	4	4	4	4	0	0	4	4
Maximum Green [s]	30	0	0	16	16	16	11	11	60	0	0	45	45
Amber [s]	4.0	0.0	0.0	3.0	3.0	3.0	3.5	3.5	3.5	0.0	0.0	4.0	4.0
All red [s]	1.0	0.0	0.0	1.0	1.0	1.0	0.5	0.5	1.0	0.0	0.0	1.0	1.0
Split [s]	30	0	0	30	30	30	30	30	30	0	0	30	30
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	0.0	3.0	3.0
Walk [s]	4	0	0	4	4	4	0	0	3	0	0	3	3
Pedestrian Clearance [s]	13	0	0	13	13	13	0	0	8	0	0	8	8
Rest In Walk	No				No				No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	0.0	0.0	2.0	2.0	2.0	2.0	2.0	2.5	0.0	0.0	3.0	3.0
Minimum Recall	No				No			No	No			No	
Maximum Recall	No				No			No	Yes			Yes	
Pedestrian Recall	No				No			No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	30.0	30.0	30.0	0.0	0.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C
C, Cycle Length [s]	94	94	94	94	94	94	94
L, Total Lost Time per Cycle [s]	5.00	5.00	4.00	4.25	4.50	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	2.00	0.00	2.50	3.00	3.00
g_i, Effective Green Time [s]	15	15	6	60	60	53	53
g / C, Green / Cycle	0.16	0.16	0.06	0.64	0.64	0.56	0.56
(v / s)_i Volume / Saturation Flow Rate	0.13	0.13	0.04	0.02	0.32	0.42	0.50
s, saturation flow rate [veh/h]	1772	1781	1844	1810	3547	1863	1593
c, Capacity [veh/h]	285	287	113	453	2251	1039	889
d1, Uniform Delay [s]	38.33	38.33	43.38	19.23	9.30	16.05	18.34
k, delay calibration	0.11	0.11	0.11	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.77	5.75	6.19	0.42	0.82	5.25	12.93
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.82	0.65	0.10	0.51	0.76	0.89
d, Delay for Lane Group [s/veh]	44.10	44.08	49.56	19.64	10.11	21.30	31.27
Lane Group LOS	D	D	D	B	B	C	C
Critical Lane Group	No	Yes	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.61	5.64	1.87	0.35	5.86	13.45	16.83
50th-Percentile Queue Length [ft/ln]	140.36	141.04	46.79	8.67	146.55	336.28	420.83
95th-Percentile Queue Length [veh/ln]	9.50	9.54	3.37	0.62	9.83	19.47	23.56
95th-Percentile Queue Length [ft/ln]	237.51	238.42	84.22	15.61	245.82	486.65	589.05

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	44.09	0.00	44.08	49.56	49.56	49.56	19.64	19.64	10.11	0.00	0.00	21.68	31.27
Movement LOS	D		D	D	D	D	B	B	B			C	C
d_A, Approach Delay [s/veh]	44.09			49.56			10.46			26.29			
Approach LOS	D			D			B			C			
d_I, Intersection Delay [s/veh]	23.67												
Intersection LOS	C												
Intersection V/C	0.783												

Sequence

Ring 1	-	2	-	4	-	8	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 31: Adelphi Rd/Campus Dr

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 31.8
 Level Of Service: C
 Volume to Capacity (v/c): 0.473

Intersection Setup

Name	Adelphi Rd.			Adelphi Rd.			Campus Dr.			Campus Dr.		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	0	0	0
Pocket Length [ft]	350.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	250.00	100.00	100.00	100.00
Speed [mph]	40.00			40.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Adelphi Rd.			Adelphi Rd.			Campus Dr.			Campus Dr.		
Base Volume Input [veh/h]	230	953	80	209	1338	0	0	140	206	73	127	66
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.27	2.08	2.27	2.00	2.05	0.00	0.00	2.00	2.21	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	30	0	0	8	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	230	983	80	209	1346	0	0	140	206	73	127	66
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	1.0000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	64	273	22	58	374	0	0	39	57	20	35	18
Total Analysis Volume [veh/h]	256	1092	89	232	1496	0	0	156	229	81	141	73
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	248
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	45.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Overlap	Overlap	Permiss	Permiss	Permiss	Permiss	Split	Split	Split
Signal group	3	8	8	1	1	0	0	2	2	6	6	6
Auxiliary Signal Groups				1,7	1,4							
Lead / Lag	Lag	-	-	Lag	-	-	-	-	-	Lag	-	-
Minimum Green [s]	5	8	8	15	15	0	0	25	25	5	5	5
Maximum Green [s]	30	60	60	40	40	0	0	60	60	30	30	30
Amber [s]	4.0	4.0	4.0	4.0	4.0	0.0	0.0	4.5	4.5	4.5	4.5	4.5
All red [s]	1.0	2.0	2.0	1.0	1.0	0.0	0.0	1.5	1.5	1.5	1.5	1.5
Split [s]	30	30	30	30	30	0	0	30	30	30	30	30
Vehicle Extension [s]	3.0	3.5	3.5	3.0	3.0	0.0	0.0	4.0	4.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	4.0	4.0	3.0	3.0	0.0	0.0	4.0	4.0	4.0	4.0	4.0
Minimum Recall	Yes	Yes		Yes	Yes			Yes			Yes	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	30.0	30.0	30.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	R	C	C	R
C, Cycle Length [s]	118	118	118	118	118	118	118	118	118	118
L, Total Lost Time per Cycle [s]	5.00	6.00	6.00	5.00	5.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	4.00	4.00	0.00	0.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	19	34	34	57	73	25	25	10	10	10
g / C, Green / Cycle	0.16	0.28	0.28	0.49	0.62	0.21	0.21	0.09	0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.14	0.22	0.06	0.07	0.42	0.04	0.14	0.06	0.06	0.05
s, saturation flow rate [veh/h]	1769	5070	1579	3445	3545	3547	1580	1800	1695	1583
c, Capacity [veh/h]	291	1447	451	1672	2179	751	335	154	145	135
d1, Uniform Delay [s]	48.22	38.46	31.98	16.78	15.18	38.40	42.93	52.79	52.73	51.80
k, delay calibration	0.12	0.13	0.13	0.11	0.17	0.15	0.15	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.40	0.99	0.26	0.04	0.62	0.19	3.51	7.10	7.08	3.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

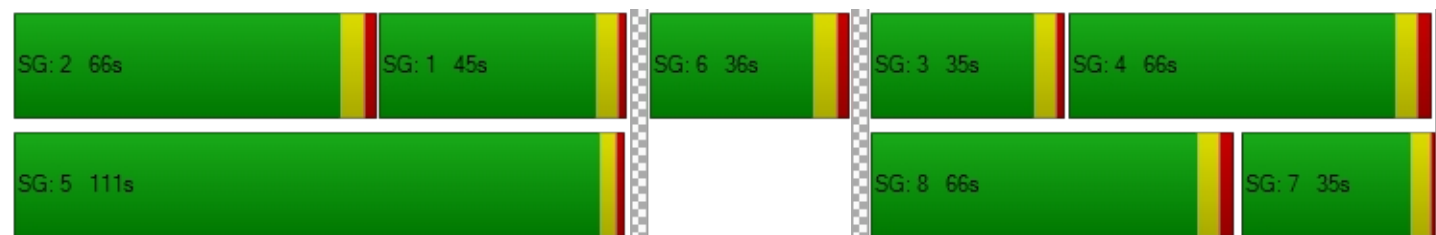
X, volume / capacity	0.88	0.75	0.20	0.14	0.69	0.21	0.68	0.75	0.74	0.54
d, Delay for Lane Group [s/veh]	57.61	39.45	32.24	16.82	15.80	38.59	46.44	59.89	59.82	55.11
Lane Group LOS	E	D	C	B	B	D	D	E	E	E
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.96	9.46	1.93	1.69	12.20	1.87	6.41	3.61	3.35	2.18
50th-Percentile Queue Length [ft/ln]	199.07	236.50	48.21	42.25	304.89	46.85	160.29	90.31	83.69	54.53
95th-Percentile Queue Length [veh/ln]	12.59	14.50	3.47	3.04	17.92	3.37	10.56	6.50	6.03	3.93
95th-Percentile Queue Length [ft/ln]	314.76	362.61	86.78	76.05	448.08	84.34	264.11	162.56	150.64	98.16

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	57.61	39.45	32.24	16.82	15.80	0.00	0.00	38.59	46.44	59.89	59.84	55.11
Movement LOS	E	D	C	B	B			D	D	E	E	E
d_A, Approach Delay [s/veh]	42.24			15.94			43.26			58.68		
Approach LOS	D			B			D			E		
d_I, Intersection Delay [s/veh]	31.78											
Intersection LOS	C											
Intersection V/C	0.473											

Sequence

Ring 1	1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	-	8	7	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 32: Adelphi Rd/Toledo Rd

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 6.3
 Level Of Service: A
 Volume to Capacity (v/c): 0.424

Intersection Setup

Name	Adelphi Rd			Adelphi Rd		Toledo Rd	
Approach	Northbound			Southbound		Eastbound	
Lane Configuration							
Turning Movement	U-turn	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0	1
Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00	200.00
Speed [mph]	45.00			30.00		30.00	
Grade [%]	0.00			0.00		0.00	
Crosswalk	Yes			No		Yes	

Volumes

Name	Adelphi Rd			Adelphi Rd		Toledo Rd	
Base Volume Input [veh/h]	6	156	1022	667	104	51	75
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	1.97	2.01	2.05	1.88	2.38	1.96
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	12	5	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	156	1034	672	104	51	75
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	43	287	187	29	14	21
Total Analysis Volume [veh/h]	7	173	1149	747	116	57	83
Presence of On-Street Parking	No		No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	6			0		6	
Bicycle Volume [bicycles/h]	0			0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Permissive	ProtectedP	Permissive	Permissive	Permissive	Split	Split
Signal group	5	5	2	6	6	4	4
Auxiliary Signal Groups							
Lead / Lag	Lead	Lead	-	-	-	Lag	-
Minimum Green [s]	4	4	4	4	4	4	4
Maximum Green [s]	15	15	65	45	45	25	25
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	20	20	70	50	50	30	30
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	7	7	7	7	7
Pedestrian Clearance [s]	0	0	6	6	6	13	13
Rest In Walk			No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall		No	No	No		No	
Maximum Recall		No	Yes	Yes		No	
Pedestrian Recall		No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	30.0	30.0	30.0	30.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	R
C, Cycle Length [s]	82	82	82	82	82	82
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	65	65	56	56	7	7
g / C, Green / Cycle	0.79	0.79	0.68	0.68	0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.22	0.32	0.21	0.07	0.03	0.05
s, saturation flow rate [veh/h]	834	3546	3545	1578	1767	1552
c, Capacity [veh/h]	718	2796	2390	1064	159	140
d1, Uniform Delay [s]	2.58	2.73	5.55	4.73	35.26	36.05
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.84	0.45	0.34	0.21	1.35	3.96
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.25	0.41	0.31	0.11	0.36	0.59
d, Delay for Lane Group [s/veh]	3.41	3.17	5.89	4.93	36.61	40.01
Lane Group LOS	A	A	A	A	D	D
Critical Lane Group	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.42	1.24	2.26	0.63	1.12	1.73
50th-Percentile Queue Length [ft/ln]	10.46	31.04	56.47	15.72	27.93	43.20
95th-Percentile Queue Length [veh/ln]	0.75	2.24	4.07	1.13	2.01	3.11
95th-Percentile Queue Length [ft/ln]	18.83	55.88	101.65	28.29	50.27	77.76

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	3.41	3.41	3.17	5.89	4.93	36.61	40.01
Movement LOS	A	A	A	A	A	D	D
d_A, Approach Delay [s/veh]	3.21			5.76		38.63	
Approach LOS	A			A		D	
d_I, Intersection Delay [s/veh]	6.28						
Intersection LOS	A						
Intersection V/C	0.424						

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 33: Hamilton St/40th Pl/39th Ave

Control Type:	All-way stop	Delay (sec / veh):	15.7
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.658

Intersection Setup

Name	Magruder Park Ent				39th Ave				Hamilton St			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				35.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	Yes				Yes				Yes			

Volumes

Name	Magruder Park Ent				39th Ave				Hamilton St			
Base Volume Input [veh/h]	4	1	0	2	0	6	2	29	62	0	335	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.85	0.00	2.15	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	12	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	1	0	2	0	6	2	29	62	0	347	8
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	0	1	0	2	1	8	17	0	96	2
Total Analysis Volume [veh/h]	4	1	0	2	0	7	2	32	69	0	386	9
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	576	623	705
Degree of Utilization, x	0.01	0.07	0.66

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.04	0.21	4.96
95th-Percentile Queue Length [ft]	0.92	5.27	124.00
Approach Delay [s/veh]	9.33	9.18	17.38
Approach LOS	A	A	C
Intersection Delay [s/veh]	15.66		
Intersection LOS	C		

Intersection Setup

Name	Hamilton St				Gallatin St			
Approach	Westbound				Northwestbound			
Lane Configuration								
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				35.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				Yes			

Volumes

Name	Hamilton St				Gallatin St			
Base Volume Input [veh/h]	6	6	112	2	12	375	2	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.20	0.00	0.00	2.18	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	3	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	6	112	2	12	378	2	0
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	2	31	1	3	105	1	0
Total Analysis Volume [veh/h]	7	7	124	2	13	420	2	0
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

Lanes

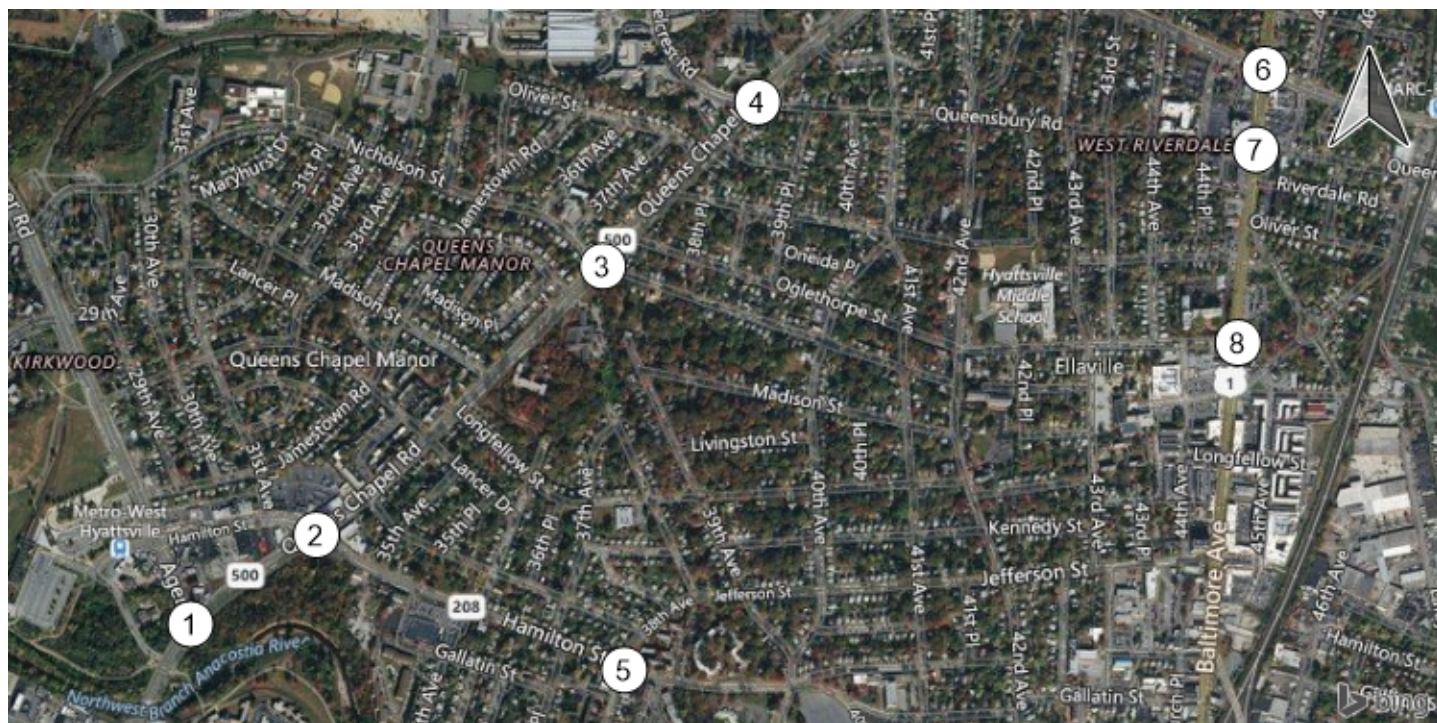
Capacity per Entry Lane [veh/h]	600	702
Degree of Utilization, x	0.23	0.62

Movement, Approach, & Intersection Results

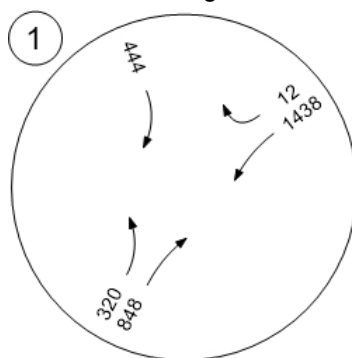
95th-Percentile Queue Length [veh]	0.90	4.32
95th-Percentile Queue Length [ft]	22.46	108.04
Approach Delay [s/veh]	10.81	16.09
Approach LOS	B	C
Intersection Delay [s/veh]	15.66	
Intersection LOS	C	

Version 6.00-00

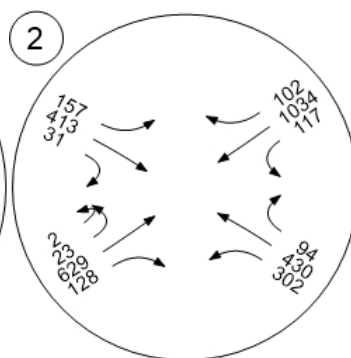
Traffic Volume - Future Total Volume



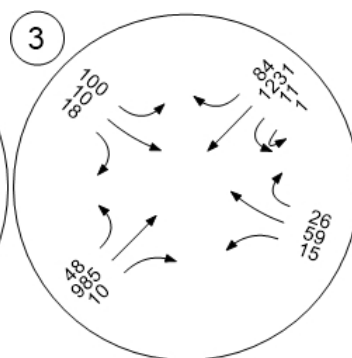
MD 500/Ager Rd



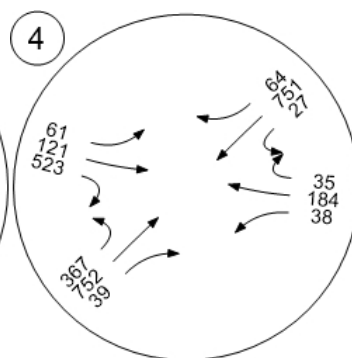
MD 500/Hamilton St



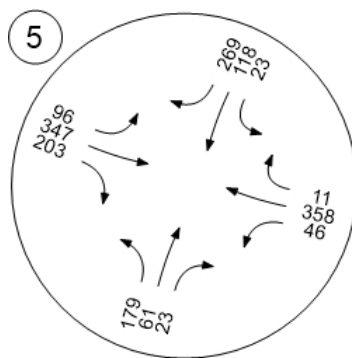
MD 500/Nicholson St



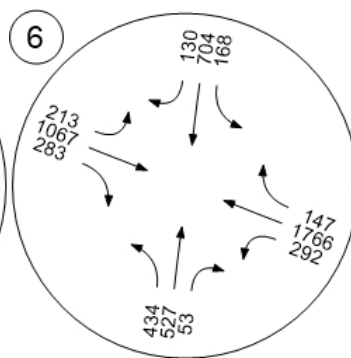
MD 500/Belcrest Rd/Queens



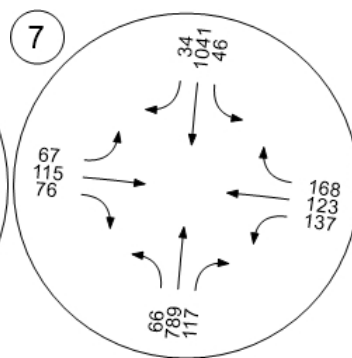
MD 208(Hamilton St)/38th Av



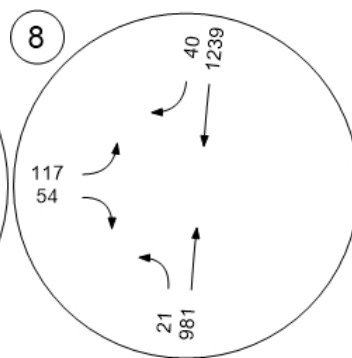
US 1/MD 410



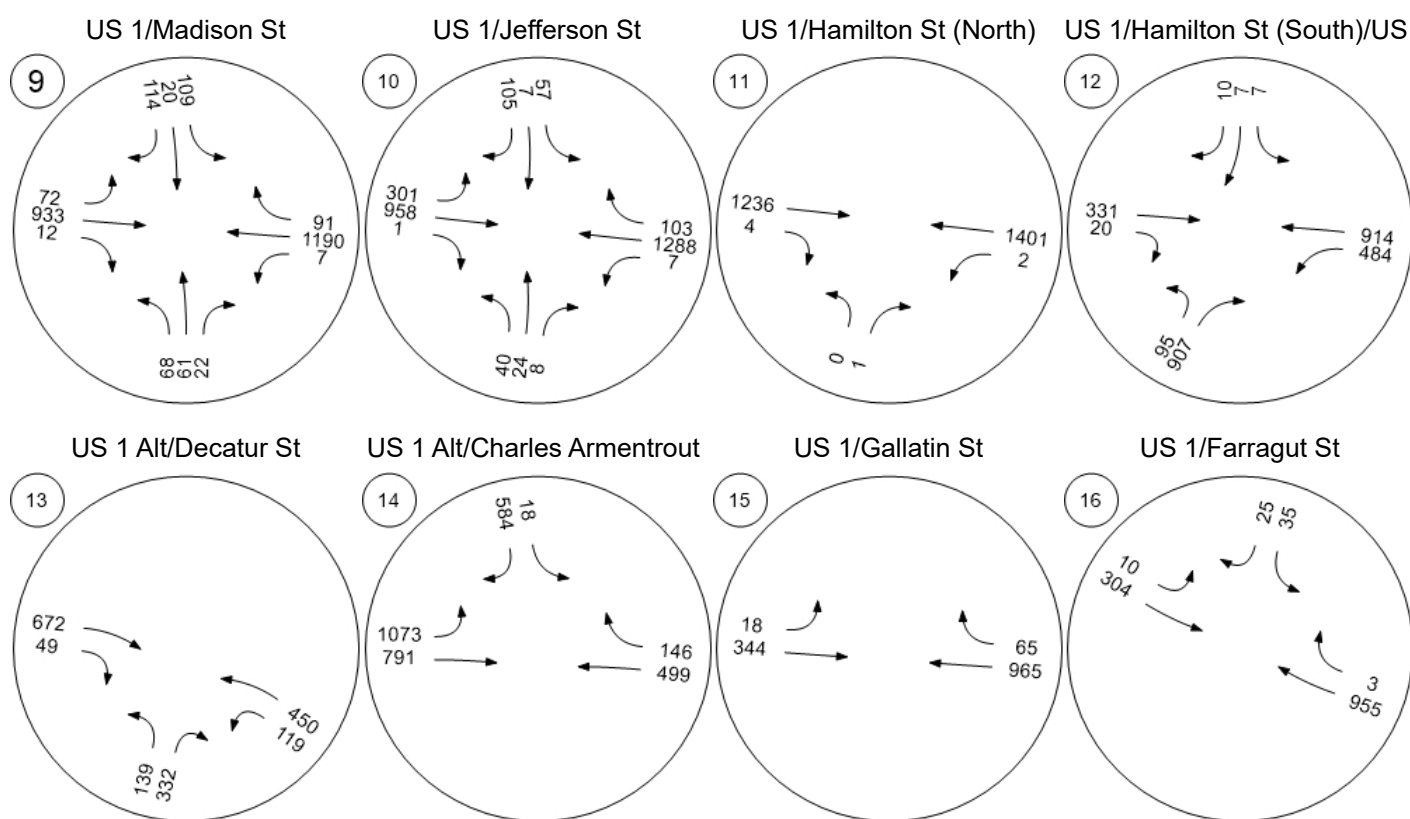
US 1/Queensbury Rd



US 1/Oglethorpe Rd

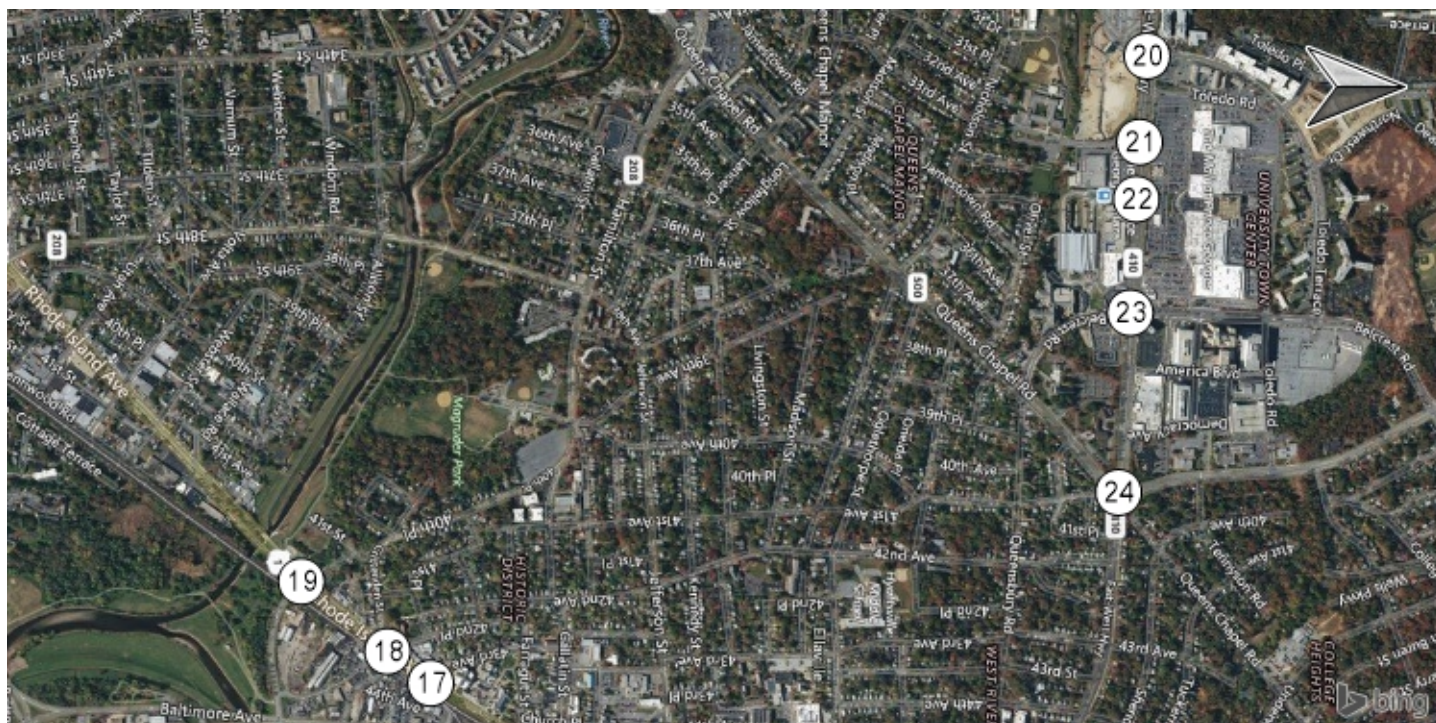


Traffic Volume - Future Total Volume

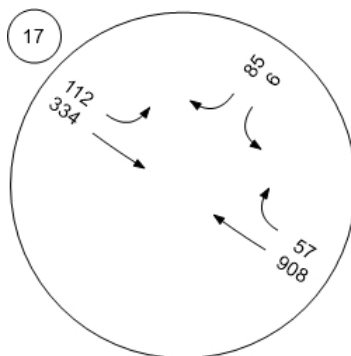


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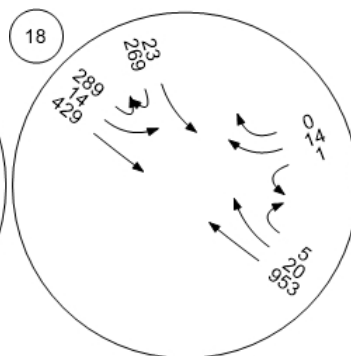
Traffic Volume - Future Total Volume



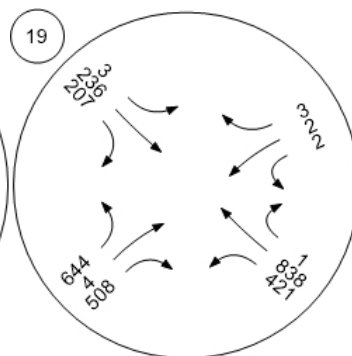
US 1/43rd Avenue



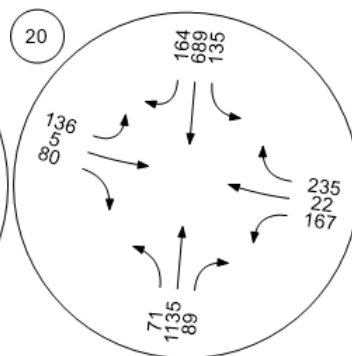
US 1/42nd Place/Crittendon



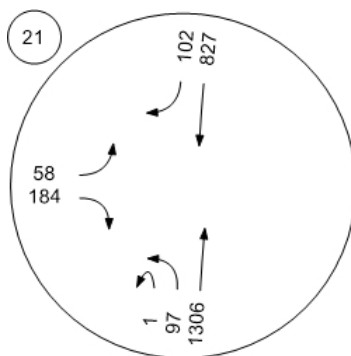
US 1/41st Place/Charles Arm



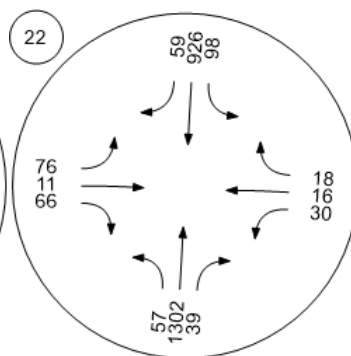
MD 410/Toledo Terrace



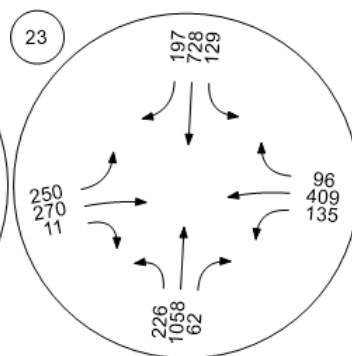
MD 410/Editors Park Dr



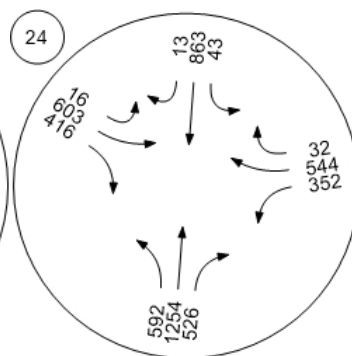
MD 410/Prince George's Plaz



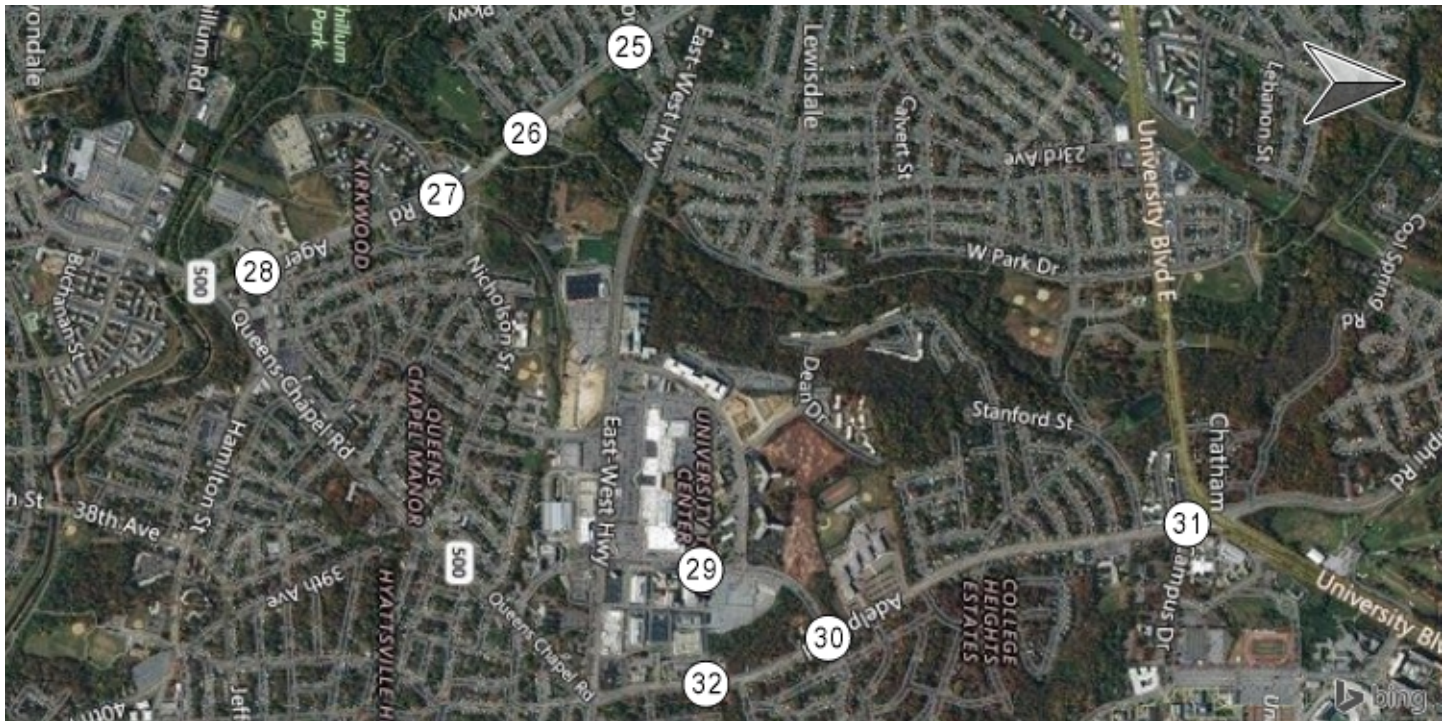
MD 410/Belcrest Rd



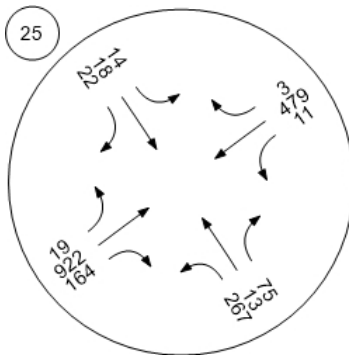
MD 410/MD 500/Adelphi Rd



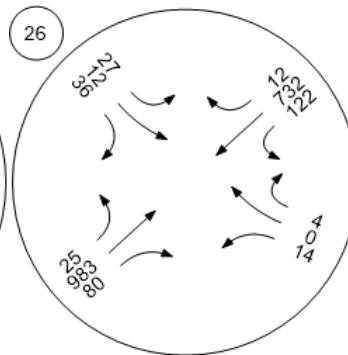
Traffic Volume - Future Total Volume



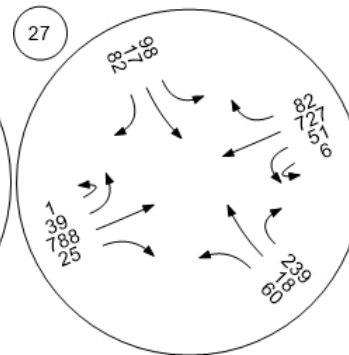
Ager Rd/23rd Ave



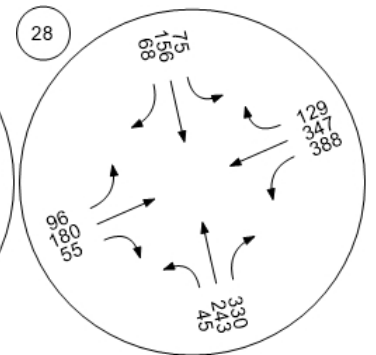
Ager Rd/Oglethorpe St/Scho



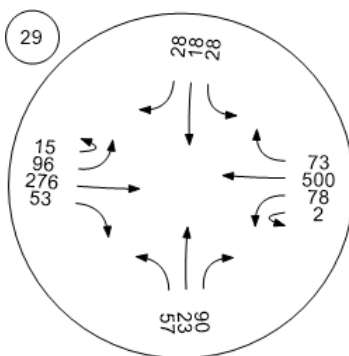
Ager Rd/Nicholson St



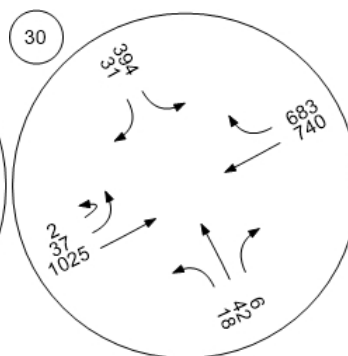
Ager Rd/Hamilton St



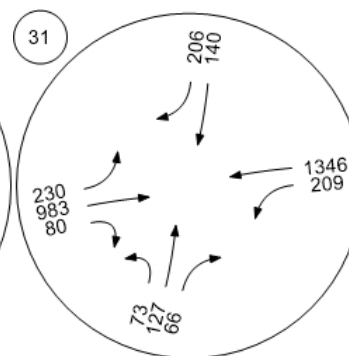
Toledo Rd/Belcrest Rd



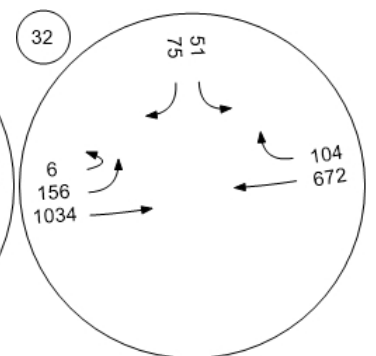
Adelphi Rd/Belcrest Rd



Adelphi Rd/Campus Dr



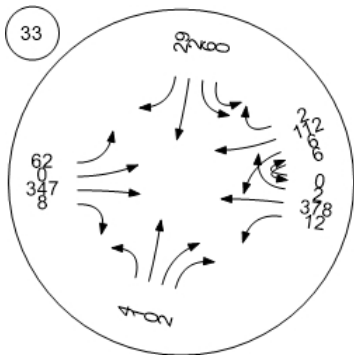
Adelphi Rd/Toledo Rd



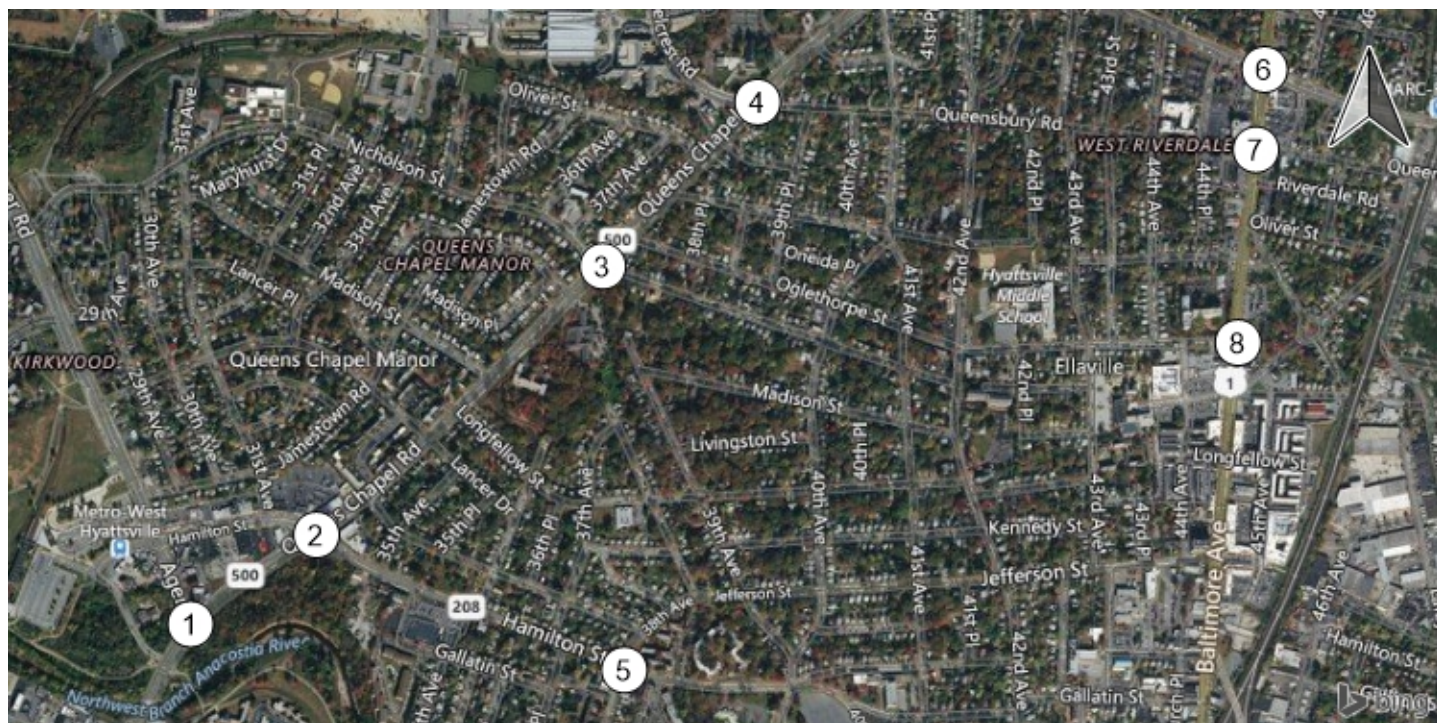
Traffic Volume - Future Total Volume



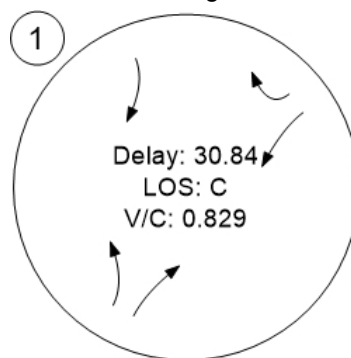
Hamilton St/40th Pl/39th Ave



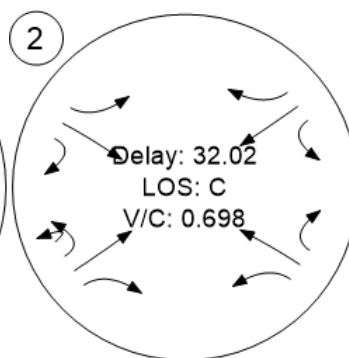
Traffic Conditions



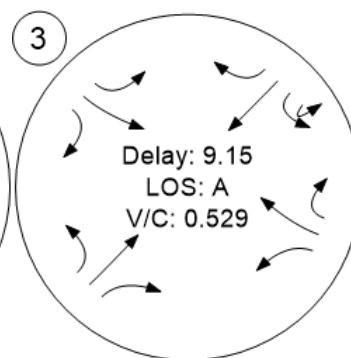
MD 500/Ager Rd



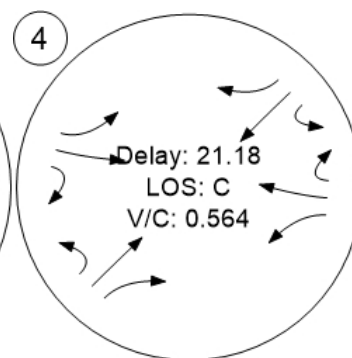
MD 500/Hamilton St



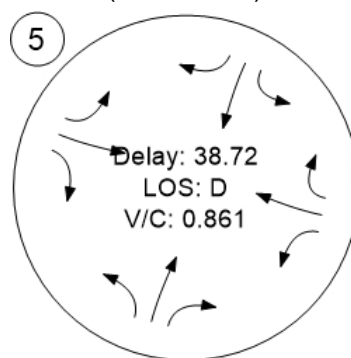
MD 500/Nicholson St



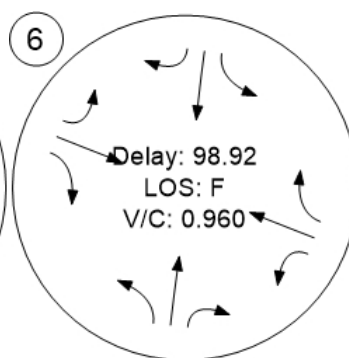
MD 500/Belcrest Rd/Queens



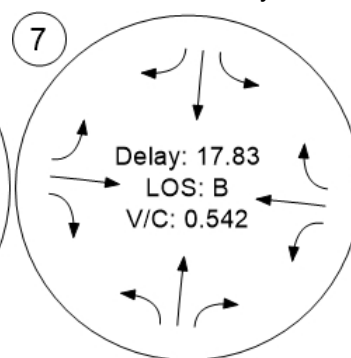
MD 208(Hamilton St)/38th Av



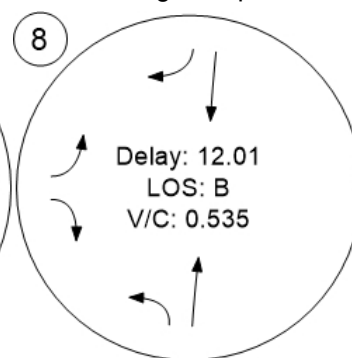
US 1/MD 410



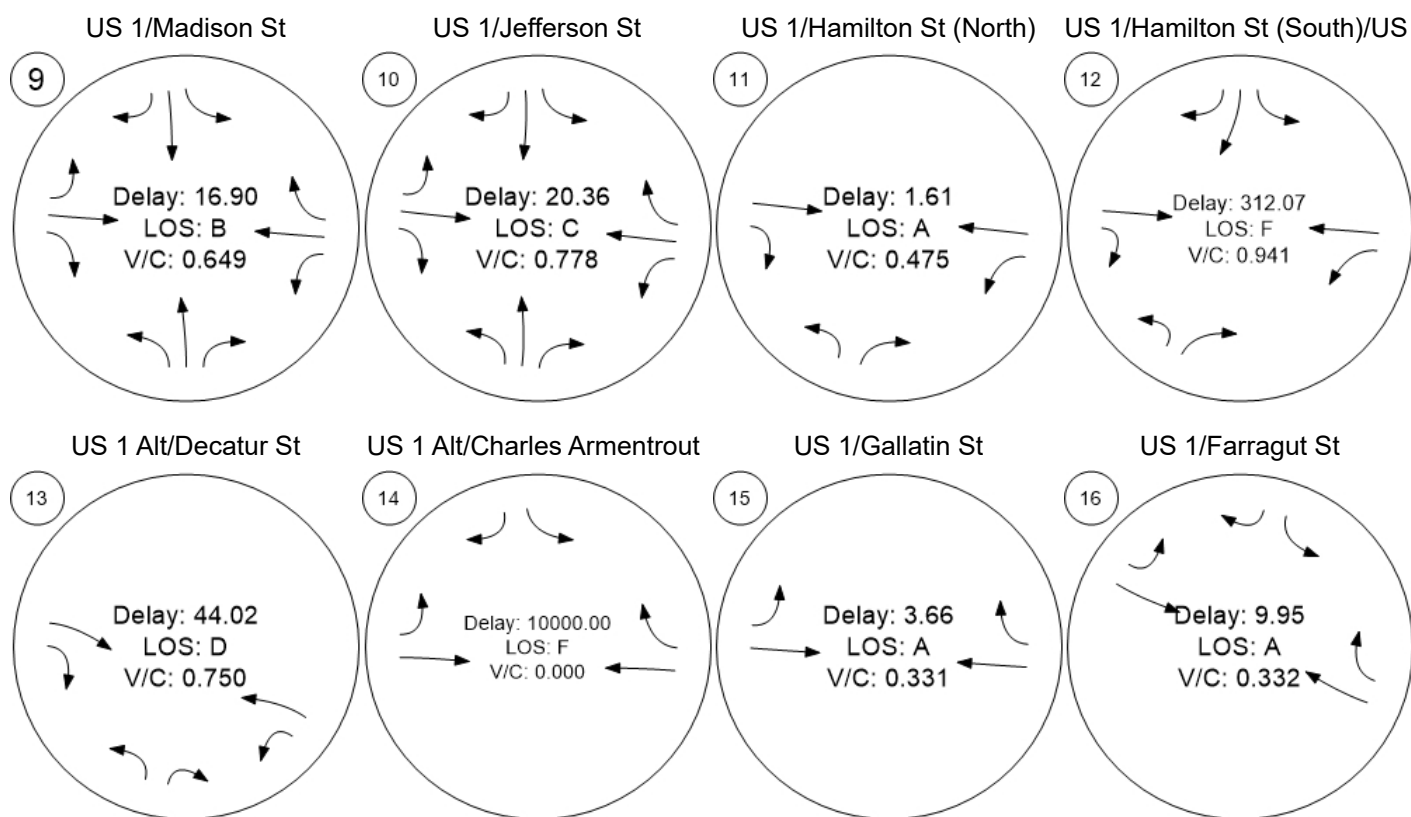
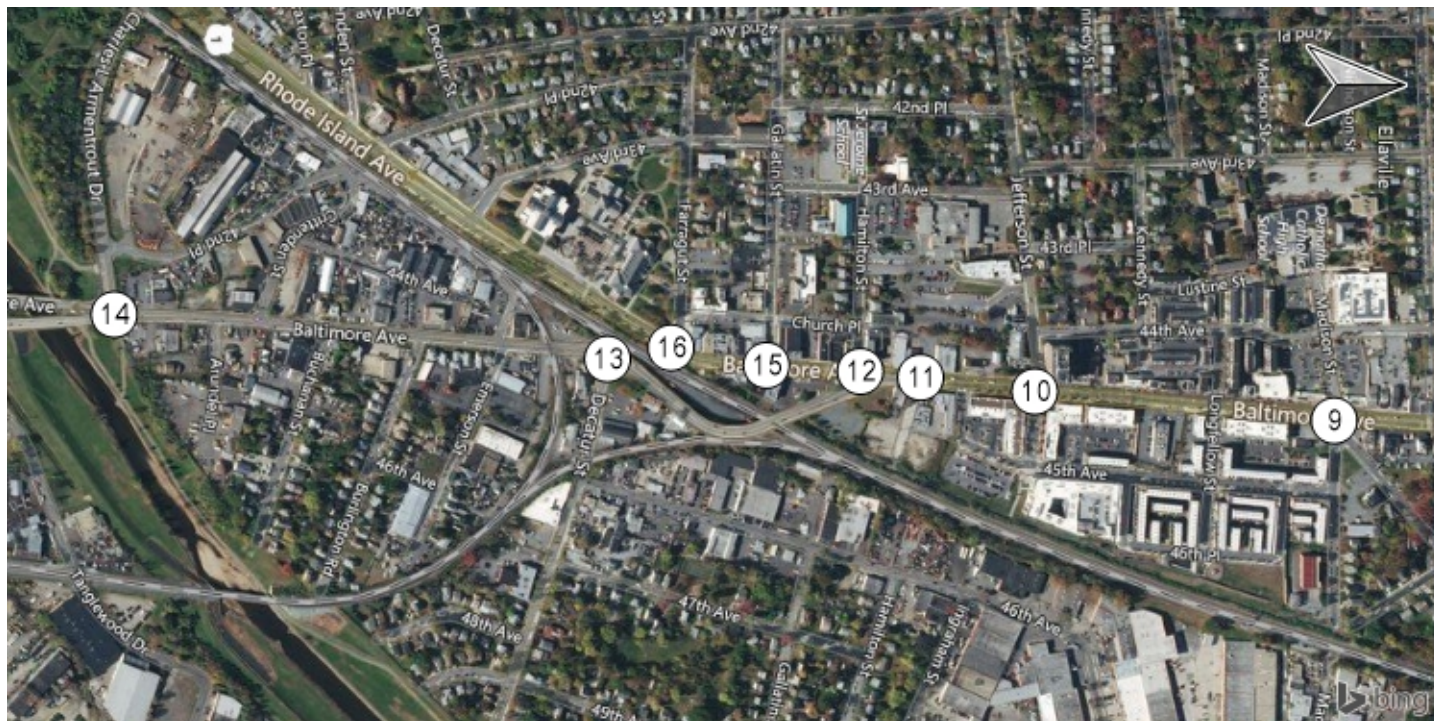
US 1/Queensbury Rd



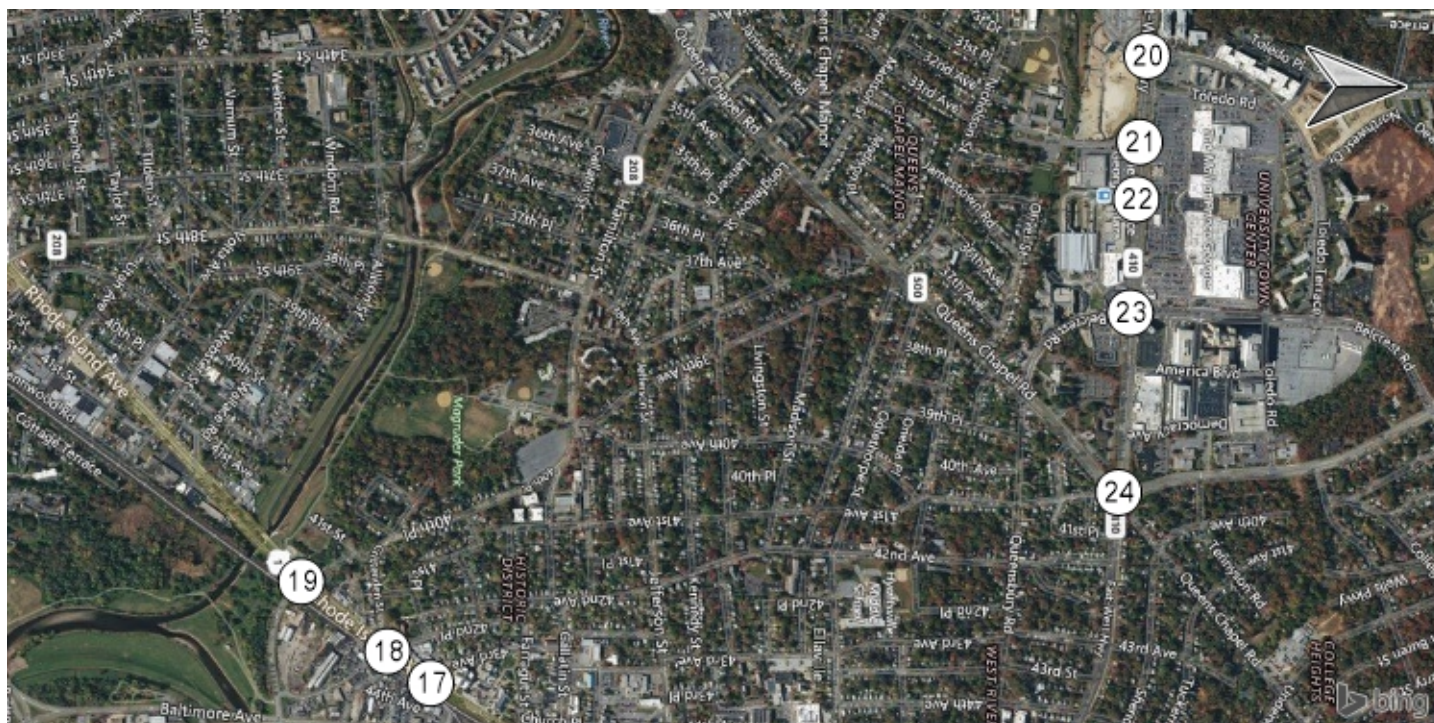
US 1/Oglethorpe Rd



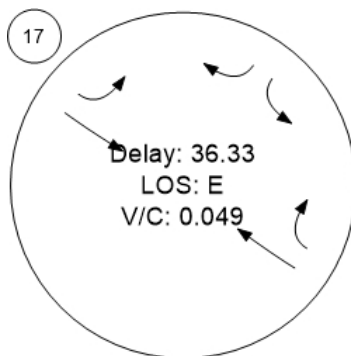
Traffic Conditions



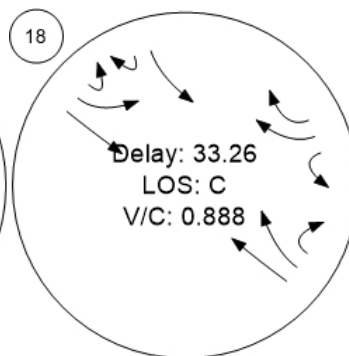
Traffic Conditions



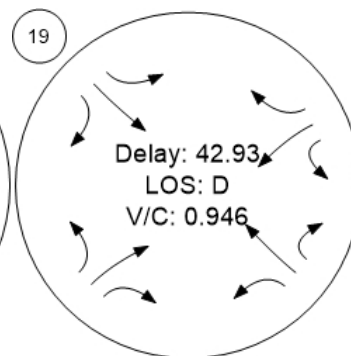
US 1/43rd Avenue



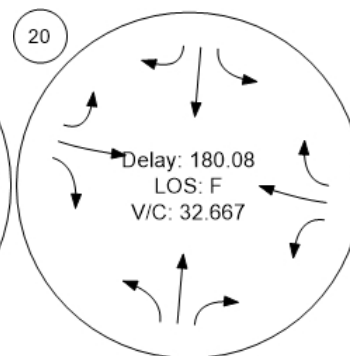
US 1/42nd Place/Crittendon



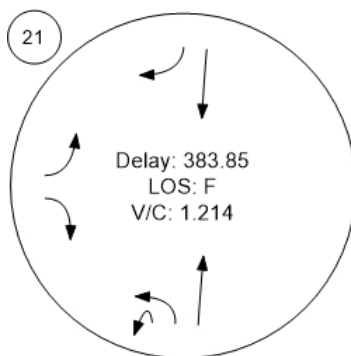
US 1/41st Place/Charles Arm



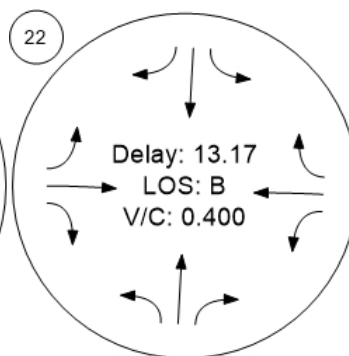
MD 410/Toledo Terrace



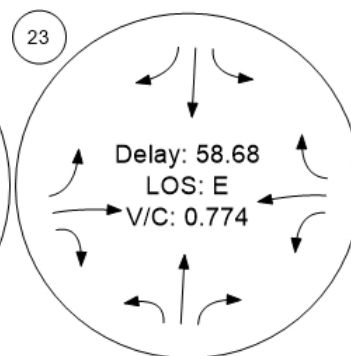
MD 410/Editors Park Dr



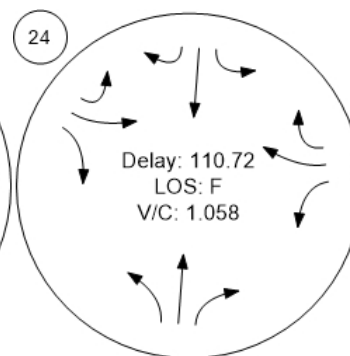
MD 410/Prince George's Plaz



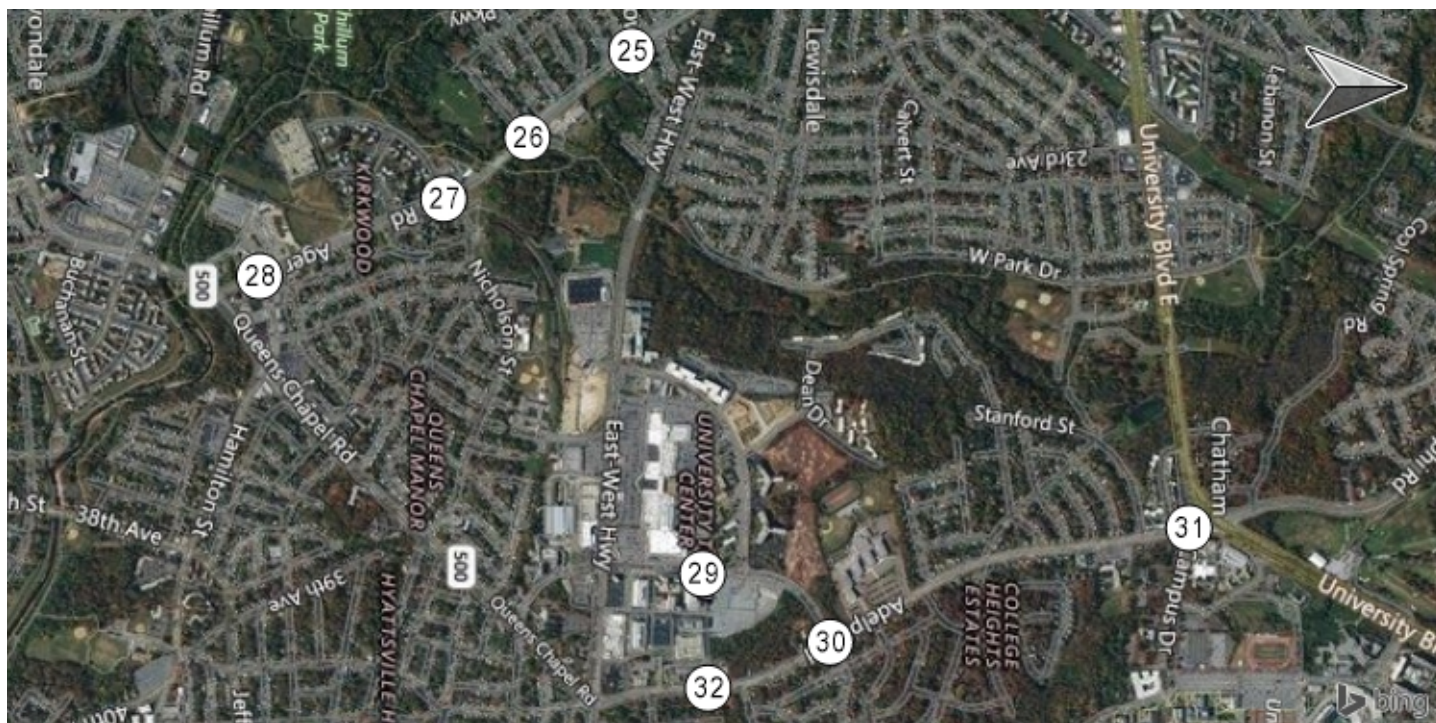
MD 410/Belcrest Rd



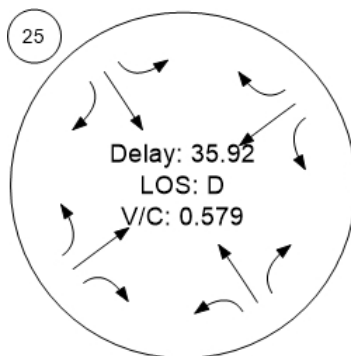
MD 410/MD 500/Adelphi Rd



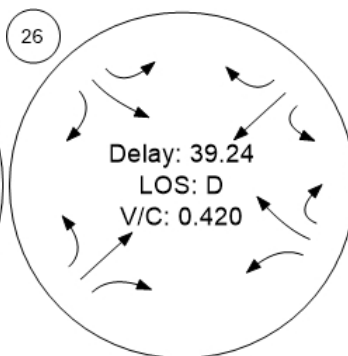
Traffic Conditions



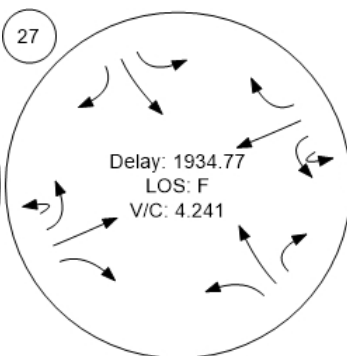
Ager Rd/23rd Ave



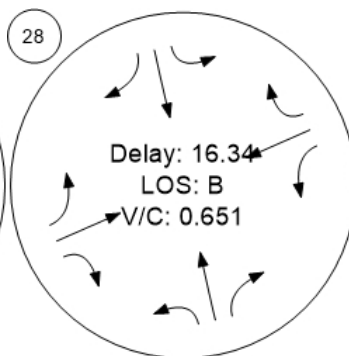
Ager Rd/Oglethorpe St/Scho



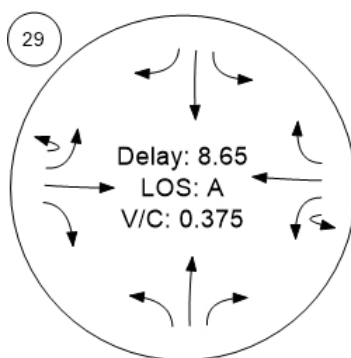
Ager Rd/Nicholson St



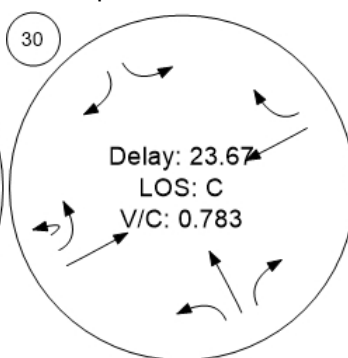
Ager Rd/Hamilton St



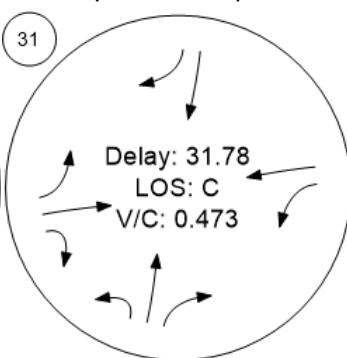
Toledo Rd/Belcrest Rd



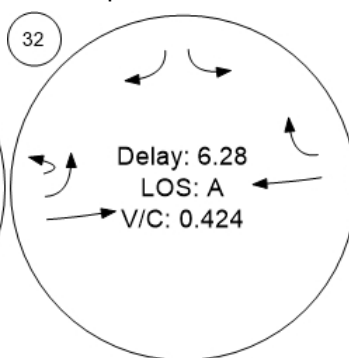
Adelphi Rd/Belcrest Rd



Adelphi Rd/Campus Dr



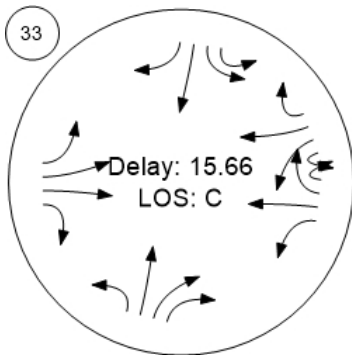
Adelphi Rd/Toledo Rd



Traffic Conditions



Hamilton St/40th Pl/39th Ave



Hyattsville Transportation Plan

Vistro File: K:\...\2037 PM Build.vistro

Scenario: Base Scenario

Report File: K:\...\2037 PM_Build.pdf

8/1/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	MD 500/Ager Rd	Signalized	HCM 2010	NEB Left	1.159	69.4	E
2	MD 500/Hamilton St	Signalized	HCM 2010	NEB Thru	1.038	108.3	F
3	MD 500/Nicholson St	Signalized	HCM 2010	SEB Left	0.631	13.7	B
4	MD 500/Belcrest Rd/Queensbury Rd	Signalized	HCM 2010	EB Thru	0.761	26.3	C
5	MD 208(Hamilton St)/38th Ave	Signalized	HCM 2010	SEB Left	0.957	48.4	D
6	US 1/MD 410	Signalized	HCM 2010	EB Left	1.038	122.4	F
7	US 1/Queensbury Rd	Signalized	HCM 2010	SB Left	0.861	28.9	C
8	US 1/Oglethorpe Rd	Signalized	HCM 2010	EB Left	0.505	6.6	A
9	US 1/Madison St	Signalized	HCM 2010	EB Right	0.475	10.7	B
10	US 1/Jefferson St	Signalized	HCM 2010	EB Right	0.595	18.4	B
11	US 1/Hamilton St (North)	Two-way stop	HCM 2010	WB Right	0.018	15.9	C
12	US 1/Hamilton St (South)/US 1 Alt	Signalized	HCM 2010	SB Left	0.953	51.9	D
13	US 1 Alt/Decatur St	Signalized	HCM 2010	WB Right	0.720	19.6	B
14	US 1 Alt/Charles Armentrout St	Signalized	HCM 2010	SB Thru	0.729	90.0	F
15	US 1/Gallatin St	Signalized	HCM 2010	EB Left	0.283	3.6	A
16	US 1/Farragut St	Signalized	HCM 2010	EB Left	0.565	10.3	B
17	US 1/43rd Ave	Two-way stop	HCM 6th Edition	SEB Left	0.099	21.6	C
18	US 1/42nd Place/Crittendon Street	Signalized	HCM 2010	EB Right	0.892	55.0	E
19	US 1/41st Place/Charles Armentrout Dr	Signalized	HCM 2010	NWB Left	0.904	33.0	C
20	MD 410/Toledo Terrace	Signalized	HCM 2010	NB Left	0.758	46.1	D
21	MD 410/Editors Park Dr	Signalized	HCM 2010	WB Left	0.777	8.4	A
22	MD 410/Prince George's Plaza	Signalized	HCM 2010	NB Right	0.535	24.8	C
23	MD 410/Belcrest Rd	Signalized	HCM 2010	WB Left	0.967	67.9	E
24	MD 410/MD 500/Adelphi Rd	Signalized	HCM 2010	NB Right	1.146	108.5	F
25	Ager Rd/23rd Ave	Signalized	HCM 6th Edition	NEB Thru	0.432	18.7	B
26	Ager Rd/Oglethorpe St/School	Signalized	HCM 6th Edition	SEB Right	0.394	47.2	D

27	Ager Rd/Nicholson St	Signalized	HCM 2010	NEB Right	0.512	11.0	B
28	Ager Rd/Hamilton St	Signalized	HCM 2010	EB Left	1,901.841	37.7	D
29	Toledo Rd/Belcrest Rd	Signalized	HCM 2010	EB Left	0.549	15.2	B
30	Adelphi Rd/Belcrest Rd	Signalized	HCM 2010	SWB Left	0.873	35.2	D
31	Adelphi Rd/Campus Dr	Signalized	HCM 2010	WB Left	1.208	180.6	F
32	Adelphi Rd/Toledo Rd	Signalized	HCM 2010	EB Left	0.501	9.7	A
33	Hamilton St/40th Pl/39th Ave	Roundabout	HCM 2010	EB Thru		8.9	A
4302	New Intersection	Two-way stop	HCM 6th Edition	NB Left	0.000	14.9	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: MD 500/Ager Rd

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 69.4
 Level Of Service: E
 Volume to Capacity (v/c): 1.159

Intersection Setup

Name	Ager Rd.		MD 500		MD 500	
Approach	Southbound		Northeastbound		Southwestbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	1
Pocket Length [ft]	100.00	100.00	400.00	100.00	100.00	300.00
Speed [mph]	35.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		No	

Volumes

Name	Ager Rd.		MD 500		MD 500	
Base Volume Input [veh/h]	0	364	633	1298	1027	58
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	2.00	2.00	2.00	3.85
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	37	61	81	44	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	401	694	1379	1071	58
Peak Hour Factor	1.0000	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	109	189	375	291	16
Total Analysis Volume [veh/h]	0	436	754	1499	1164	63
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	9		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	22.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Split	Split
Signal group	0	4	1	2	2	0
Auxiliary Signal Groups		1,4				
Lead / Lag	-	-	Lead	-	-	-
Minimum Green [s]	0	5	5	20	20	0
Maximum Green [s]	0	43	30	36	36	0
Amber [s]	0.0	4.0	3.0	5.0	5.0	0.0
All red [s]	0.0	1.0	1.0	1.0	1.0	0.0
Split [s]	0	14	50	26	26	0
Vehicle Extension [s]	0.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk		No		No	No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	2.0	4.0	4.0	0.0
Minimum Recall		No	No	No	No	
Maximum Recall		No	No	Yes	Yes	
Pedestrian Recall		No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	30.0	30.0	30.0	30.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	R	L	C	C	R
C, Cycle Length [s]	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	44	30	36	36	36
g / C, Green / Cycle	0.49	0.33	0.40	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate	0.28	0.43	0.42	0.33	0.04
s, saturation flow rate [veh/h]	1583	1774	3547	3547	1545
c, Capacity [veh/h]	775	590	1416	1416	617
d1, Uniform Delay [s]	16.20	30.07	27.07	24.20	16.95
k, delay calibration	0.32	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.92	137.44	41.00	5.49	0.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.56	1.28	1.06	0.82	0.10
d, Delay for Lane Group [s/veh]	18.11	167.51	68.08	29.69	17.28
Lane Group LOS	B	F	F	C	B
Critical Lane Group	Yes	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.23	34.37	21.86	11.22	0.83
50th-Percentile Queue Length [ft/ln]	155.72	859.25	546.59	280.41	20.63
95th-Percentile Queue Length [veh/ln]	10.32	50.86	30.73	16.71	1.49
95th-Percentile Queue Length [ft/ln]	258.05	1271.42	768.33	417.73	37.14

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	18.11	167.51	68.08	29.69	17.28
Movement LOS		B	F	F	C	B
d_A, Approach Delay [s/veh]	18.11		101.36		29.05	
Approach LOS	B		F		C	
d_I, Intersection Delay [s/veh]	69.43					
Intersection LOS	E					
Intersection V/C	1.159					

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 2: MD 500/Hamilton St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 108.3
 Level Of Service: F
 Volume to Capacity (v/c): 1.038

Intersection Setup

Name	MD 500				MD 500			Hamilton St			Hamilton St		
Approach	Northeastbound				Southwestbound			Northwestbound			Southeastbound		
Lane Configuration													
Turning Movement	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	1	0	1	1	0	0	0	0	1
Pocket Length [ft]	200.0	100.0	100.0	200.0	220.00	100.00	200.00	200.00	100.00	100.00	100.00	100.00	50.00
Speed [mph]	40.00				40.00			35.00			35.00		
Grade [%]	0.00				0.00			0.00			0.00		
Crosswalk	Yes				Yes			Yes			Yes		

Volumes

Name	MD 500				MD 500			Hamilton St			Hamilton St		
Base Volume Input [veh/h]	2	149	1342	316	166	784	143	199	459	89	168	462	38
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.63	2.00	2.00	2.63	2.27	2.11	2.00	2.00	2.27	3.85
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	81	0	11	44	48	0	36	20	29	22	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	149	1423	316	177	828	191	199	495	109	197	484	38
Peak Hour Factor	0.920	0.920	0.920	0.920	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	40	387	86	48	225	52	54	135	30	54	132	10
Total Analysis Volume [veh/h]	2	162	1547	343	192	900	208	216	538	118	214	526	41
Presence of On-Street Parking	No			No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0				0			0			0		
Bicycle Volume [bicycles/h]	0				0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	180
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	23.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Permi	Prote	Permi	Permi	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	1	6	6	5	2	2	3	8	8	7	4	4
Auxiliary Signal Groups													
Lead / Lag	Lead	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	20	20	5	5	5	5	5	5	5	5	5
Maximum Green [s]	29	29	30	30	30	30	30	25	75	75	25	75	75
Amber [s]	4.0	4.0	5.0	5.0	3.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	34	34	36	36	34	36	36	30	80	80	30	80	80
Vehicle Extension [s]	3.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk			No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	4.0	4.0	2.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall		No	No		No	No		No	No		No	No	
Maximum Recall		No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall		No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	30.0	5.0	5.0	5.0	5.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	180	180	180	180	180	180	180	180	180	180
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.00	4.00	0.00	4.00	4.00	0.00	3.00	0.00	3.00
g_i, Effective Green Time [s]	79	58	58	79	62	62	90	68	90	70
g / C, Green / Cycle	0.44	0.32	0.32	0.44	0.34	0.34	0.50	0.38	0.50	0.39
(v / s)_i Volume / Saturation Flow Rate	0.19	0.44	0.22	0.28	0.25	0.13	0.21	0.36	0.22	0.31
s, saturation flow rate [veh/h]	858	3547	1574	676	3547	1574	1025	1803	992	1834
c, Capacity [veh/h]	298	1152	511	249	1220	541	339	683	279	710
d1, Uniform Delay [s]	36.99	60.76	52.46	54.21	51.89	44.62	35.08	54.62	47.06	48.94
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.31	0.11	0.21
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.11	160.08	6.86	20.23	4.01	2.06	8.89	19.14	4.43	4.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

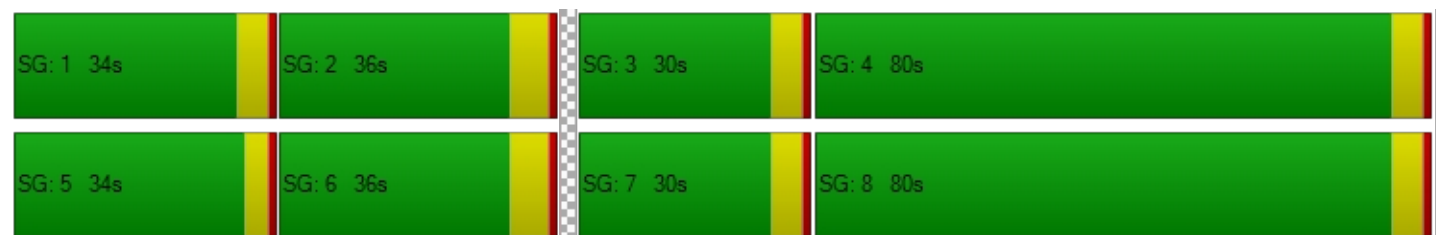
X, volume / capacity	0.55	1.34	0.67	0.77	0.74	0.38	0.64	0.96	0.77	0.80
d, Delay for Lane Group [s/veh]	44.11	220.84	59.32	74.44	55.90	46.68	43.97	73.76	51.48	53.01
Lane Group LOS	D	F	E	E	E	D	D	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	5.03	51.60	14.33	6.70	18.45	7.37	6.24	32.46	5.69	23.38
50th-Percentile Queue Length [ft/ln]	125.79	1289.89	358.17	167.61	461.33	184.35	156.07	811.44	142.27	584.55
95th-Percentile Queue Length [veh/ln]	8.71	75.30	20.53	10.95	25.50	11.83	10.34	41.80	9.60	31.31
95th-Percentile Queue Length [ft/ln]	217.76	1882.54	513.36	273.77	637.46	295.69	258.50	1045.03	240.07	782.80

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	44.11	44.11	220.8	59.32	74.44	55.90	46.68	43.97	73.76	73.76	51.48	53.01	53.01
Movement LOS	D	D	F	E	E	E	D	D	E	E	D	D	D
d_A, Approach Delay [s/veh]	179.75				57.17			66.38			52.59		
Approach LOS	F				E			E			D		
d_I, Intersection Delay [s/veh]	108.35												
Intersection LOS	F												
Intersection V/C	1.038												

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 3: MD 500/Nicholson St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 13.7
 Level Of Service: B
 Volume to Capacity (v/c): 0.631

Intersection Setup

Name	Nicholson St			MD 500			MD 500				Nicholson St		
Approach	Westbound			Northeastbound			Southwestbound				Southeastbound		
Lane Configuration													
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	150.00	100.00	100.00	150.0	100.0	100.0	100.0	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00				30.00		
Grade [%]	0.00			0.00			0.00				0.00		
Crosswalk	Yes			Yes			Yes				Yes		

Volumes

Name	Nicholson St			MD 500			MD 500				Nicholson St		
Base Volume Input [veh/h]	9	11	11	42	1548	41	1	35	1100	98	96	17	35
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	0.00	2.27	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	130	0	0	0	103	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	11	11	42	1678	41	1	35	1203	98	96	17	35
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.900	0.900	0.900	0.900	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	3	3	12	466	11	0	10	334	27	27	5	10
Total Analysis Volume [veh/h]	10	12	12	47	1864	46	1	39	1337	109	107	19	39
Presence of On-Street Parking	No		No	No		No	No			No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0				0		
Bicycle Volume [bicycles/h]	0			0			0				0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permi	Prote	Permi	Permi	Permiss	Permiss	Permiss
Signal group	0	4	0	5	2	0	0	1	6	0	0	8	0
Auxiliary Signal Groups													
Lead / Lag	-	-	-	Lead	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	30	30	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	25	0	10	85	0	0	10	85	0	0	25	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	10	0	0	10	0
Rest In Walk		No			No				No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No		No	No			No	No			No	
Maximum Recall		No		No	No			No	No			No	
Pedestrian Recall		No		No	No			No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	C	L	C	C	C
C, Cycle Length [s]	48	48	48	48	48	48	48	48
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
l2, Clearance Lost Time [s]	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	34	27	27	34	27	27	6
g / C, Green / Cycle	0.13	0.70	0.57	0.57	0.70	0.57	0.57	0.13
(v / s)_i Volume / Saturation Flow Rate	0.02	0.08	0.51	0.52	0.09	0.39	0.39	0.10
s, saturation flow rate [veh/h]	1772	560	1863	1847	430	1863	1814	1572
c, Capacity [veh/h]	331	514	1069	1060	418	1059	1031	331
d1, Uniform Delay [s]	18.41	4.36	8.92	9.00	8.22	7.33	7.37	20.08
k, delay calibration	0.11	0.11	0.32	0.32	0.11	0.18	0.18	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.13	0.08	7.71	8.38	0.10	1.32	1.41	1.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.10	0.09	0.89	0.90	0.10	0.69	0.69	0.50
d, Delay for Lane Group [s/veh]	18.55	4.43	16.63	17.38	8.32	8.65	8.78	21.24
Lane Group LOS	B	A	B	B	A	A	A	C
Critical Lane Group	No	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.31	0.06	7.74	7.97	0.06	3.81	3.78	1.69
50th-Percentile Queue Length [ft/ln]	7.80	1.59	193.50	199.18	1.40	95.32	94.50	42.35
95th-Percentile Queue Length [veh/ln]	0.56	0.11	12.30	12.60	0.10	6.86	6.80	3.05
95th-Percentile Queue Length [ft/ln]	14.04	2.86	307.56	314.90	2.53	171.58	170.11	76.24

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	18.55	18.55	18.55	4.43	16.99	17.38	8.32	8.32	8.71	8.78	21.24	21.24	21.24
Movement LOS	B	B	B	A	B	B	A	A	A	A	C	C	C
d_A, Approach Delay [s/veh]	18.55			16.70			8.70				21.24		
Approach LOS	B			B			A				C		
d_I, Intersection Delay [s/veh]	13.66												
Intersection LOS	B												
Intersection V/C	0.631												

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: MD 500/Belcrest Rd/Queensbury Rd

Control Type:	Signalized	Delay (sec / veh):	26.3
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.761

Intersection Setup

Name				Queensbury Road			MD 500			MD 500		
Approach	Eastbound			Westbound			Northeastbound			Southwestbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	150.00	100.00	100.00	100.00	375.00	100.00	100.00	200.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Queensbury Road			MD 500			MD 500		
Base Volume Input [veh/h]	85	211	614	66	203	37	472	1120	87	30	658	36
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.85	2.38	2.21	3.85	2.38	3.85	2.21	2.08	2.78	3.70	1.97	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	55	0	0	0	71	59	0	0	48	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	85	211	669	66	203	37	543	1179	87	30	706	36
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	59	186	18	56	10	151	328	24	8	196	10
Total Analysis Volume [veh/h]	94	234	743	73	226	41	603	1310	97	33	784	40
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	6			18			1			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	63.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	4	4	0	8	8	8	1	6	6	5	2	2
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	20	20	0	20	20	20	5	20	20	10	20	20
Maximum Green [s]	40	40	0	40	40	40	40	53	53	40	53	53
Amber [s]	4.0	4.0	0.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0	2.0
Split [s]	45	45	0	45	45	45	45	60	60	45	60	60
Vehicle Extension [s]	6.0	6.0	0.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
Minimum Recall		Yes			Yes		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	30.0	30.0	30.0	0.0	0.0	0.0	30.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	C	C
C, Cycle Length [s]	93	93	93	93	93	93	93	93
L, Total Lost Time per Cycle [s]	5.00	5.00	7.00	7.00	7.00	7.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	0.00	5.00	5.00	0.00	5.00	5.00
g_i, Effective Green Time [s]	29	29	52	41	41	52	34	34
g / C, Green / Cycle	0.31	0.31	0.56	0.44	0.44	0.56	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.26	0.25	0.31	0.38	0.39	0.05	0.22	0.22
s, saturation flow rate [veh/h]	1242	1383	1932	1861	1812	606	1863	1831
c, Capacity [veh/h]	437	478	1000	825	803	321	688	676
d1, Uniform Delay [s]	29.56	28.23	13.80	23.13	23.52	15.57	23.76	23.77
k, delay calibration	0.41	0.18	0.11	0.19	0.20	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.36	3.17	0.59	4.50	5.83	0.14	0.86	0.87
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	0.71	0.60	0.85	0.88	0.10	0.60	0.60
d, Delay for Lane Group [s/veh]	38.92	31.40	14.39	27.63	29.35	15.71	24.62	24.64
Lane Group LOS	D	C	B	C	C	B	C	C
Critical Lane Group	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.91	7.02	3.18	13.98	14.46	0.27	6.94	6.83
50th-Percentile Queue Length [ft/ln]	197.72	175.45	79.38	349.39	361.58	6.85	173.42	170.63
95th-Percentile Queue Length [veh/ln]	12.52	11.36	5.72	20.11	20.70	0.49	11.26	11.11
95th-Percentile Queue Length [ft/ln]	313.03	284.07	142.89	502.67	517.50	12.33	281.41	277.74

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	38.92	38.92	0.00	31.40	31.40	31.40	14.39	28.43	29.35	15.71	24.63	24.64
Movement LOS	D	D		C	C	C	B	C	C	B	C	C
d_A, Approach Delay [s/veh]	38.92			31.40			24.26			24.29		
Approach LOS	D			C			C			C		
d_I, Intersection Delay [s/veh]	26.31											
Intersection LOS	C											
Intersection V/C	0.761											

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 5: MD 208(Hamilton St)/38th Ave

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 48.4
 Level Of Service: D
 Volume to Capacity (v/c): 0.957

Intersection Setup

Name				Hamilton St			38th Ave			Hamilton St		
Approach	Northbound			Westbound			Southwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	125.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Hamilton St			38th Ave			Hamilton St		
Base Volume Input [veh/h]	244	185	32	23	424	35	63	125	185	197	369	162
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.27	3.33	0.00	3.70	2.00	0.00	0.00	2.22	1.89	1.69	1.88	1.65
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	44	0	0	0	12	0	0	0	0	0	7	26
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	288	185	32	23	436	35	63	125	185	197	376	188
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	51	9	6	121	10	18	35	51	55	104	52
Total Analysis Volume [veh/h]	320	206	36	26	484	39	70	139	206	219	418	209
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	5			4			5			6		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	2	8	8	8	6	6	6	4	4	4
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lag	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	5	15	15	20	20	20	15	15	15	20	20	20
Maximum Green [s]	15	45	45	35	35	35	20	20	20	35	35	35
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	25	50	50	40	40	40	25	25	25	40	40	40
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall	Yes	No			No			No			No	
Maximum Recall	Yes	Yes			Yes			Yes			Yes	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	2.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	45	35	35	25	35	35
g / C, Green / Cycle	0.50	0.39	0.39	0.28	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.49	0.03	0.28	0.25	0.25	0.36
s, saturation flow rate [veh/h]	1150	782	1838	1658	877	1757
c, Capacity [veh/h]	677	104	715	504	189	683
d1, Uniform Delay [s]	17.38	43.77	23.49	31.38	41.79	26.13
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.30	5.73	6.52	14.07	115.27	19.28
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.25	0.73	0.82	1.16	0.92
d, Delay for Lane Group [s/veh]	28.67	49.50	30.02	45.45	157.05	45.41
Lane Group LOS	C	D	C	D	F	D
Critical Lane Group	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	10.05	0.73	10.19	10.37	10.18	15.52
50th-Percentile Queue Length [ft/ln]	251.17	18.33	254.75	259.33	254.40	388.04
95th-Percentile Queue Length [veh/ln]	15.25	1.32	15.43	15.66	16.79	21.98
95th-Percentile Queue Length [ft/ln]	381.13	32.99	385.63	391.39	419.68	549.57

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.67	28.67	28.67	49.50	30.02	30.02	45.45	45.45	45.45	157.05	45.41	45.41
Movement LOS	C	C	C	D	C	C	D	D	D	F	D	D
d_A, Approach Delay [s/veh]	28.67			30.94			45.45			74.31		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	48.41											
Intersection LOS	D											
Intersection V/C	0.957											

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 6: US 1/MD 410

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 122.4
 Level Of Service: F
 Volume to Capacity (v/c): 1.038

Intersection Setup

Name	US 1			US 1			MD 410			MD 410		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	200.00	100.00	100.00	225.00	100.00	100.00	600.00	100.00	100.00	700.00	100.00	450.00
Speed [mph]	45.00			45.00			50.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 1			US 1			MD 410			MD 410		
Base Volume Input [veh/h]	450	549	64	232	606	199	336	1602	380	245	1383	158
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.15	2.00	2.38	2.07	2.00	2.00	2.00	2.00	2.00	2.00	2.03	1.67
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	28	0	0	0	0	28	15	33	15	0	56	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	478	549	64	232	606	227	351	1635	395	245	1439	158
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	133	153	18	64	168	63	98	454	110	68	400	44
Total Analysis Volume [veh/h]	531	610	71	258	673	252	390	1817	439	272	1599	176
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			3			6		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	180
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	9.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	6	5	2	0	7	4	4	3	8	8
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	15	15	5	25	0	5	15	15	5	25	25
Maximum Green [s]	29	38	38	29	38	0	24	66	66	24	66	66
Amber [s]	4.0	4.5	4.5	4.0	4.5	0.0	4.0	4.5	4.5	4.0	4.5	4.5
All red [s]	1.0	2.0	2.0	1.0	2.0	0.0	1.0	2.0	2.0	1.0	2.0	2.0
Split [s]	34	45	45	34	45	0	29	72	72	29	72	72
Vehicle Extension [s]	3.0	5.0	5.0	3.0	5.0	0.0	3.0	5.0	5.0	3.0	5.0	5.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	4.5	4.5	3.0	4.5	0.0	3.0	4.5	4.5	3.0	4.5	4.5
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	30.0	5.0	5.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	180	180	180	180	180	180	180	180	180	180	180	180
L, Total Lost Time per Cycle [s]	6.50	6.50	6.50	6.50	6.50	6.50	5.00	6.50	6.50	5.00	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.50	4.50	0.00	4.50	4.50	3.00	4.50	4.50	3.00	4.50	4.50
g_i, Effective Green Time [s]	72	46	46	72	43	43	24	73	73	17	66	66
g / C, Green / Cycle	0.40	0.26	0.26	0.40	0.24	0.24	0.13	0.41	0.41	0.09	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.26	0.19	0.19	0.23	0.26	0.26	0.22	0.51	0.28	0.08	0.33	0.34
s, saturation flow rate [veh/h]	2035	1863	1792	1098	1863	1688	1774	3547	1583	3445	3546	1770
c, Capacity [veh/h]	621	477	459	371	443	402	237	1437	642	317	1290	644
d1, Uniform Delay [s]	52.87	61.17	61.22	41.69	68.59	68.59	78.00	53.52	44.04	80.57	54.59	54.82
k, delay calibration	0.29	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.82	9.29	9.75	10.35	69.74	74.22	310.15	124.55	5.84	6.73	11.55	20.83
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

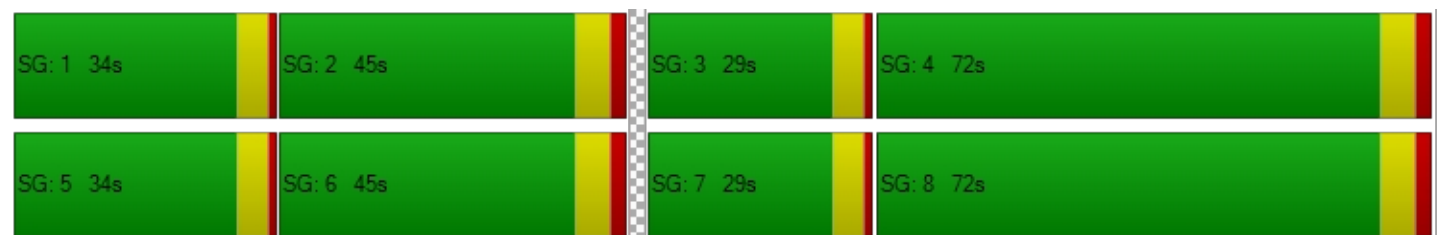
X, volume / capacity	0.86	0.73	0.73	0.70	1.09	1.10	1.65	1.26	0.68	0.86	0.92	0.92
d, Delay for Lane Group [s/veh]	61.69	70.46	70.98	52.04	138.32	142.81	388.15	178.07	49.88	87.30	66.14	75.65
Lane Group LOS	E	E	E	D	F	F	F	F	D	F	E	E
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	9.02	15.53	15.07	9.01	28.68	26.50	31.17	56.21	16.79	6.51	27.27	29.19
50th-Percentile Queue Length [ft/ln]	225.42	388.30	376.76	225.13	717.08	662.45	779.26	1405.14	419.81	162.72	681.72	729.74
95th-Percentile Queue Length [veh/ln]	13.94	22.00	21.44	13.93	39.48	36.93	48.20	80.07	23.51	10.69	35.83	38.05
95th-Percentile Queue Length [ft/ln]	348.53	549.88	535.93	348.17	987.02	923.35	1204.98	2001.70	587.82	267.32	895.82	951.25

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	61.69	70.68	70.98	52.04	139.58	142.81	388.15	178.07	49.88	87.30	68.63	75.65
Movement LOS	E	E	E	D	F	F	F	F	D	F	E	E
d_A, Approach Delay [s/veh]	66.76			121.18			187.77			71.71		
Approach LOS	E			F			F			E		
d_I, Intersection Delay [s/veh]	122.45											
Intersection LOS	F											
Intersection V/C	1.038											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 7: US 1/Queensbury Rd

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 28.9
 Level Of Service: C
 Volume to Capacity (v/c): 0.861

Intersection Setup

Name	US 1			US 1			Queensbury			Queensbury		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	250.00	100.00	100.00	150.00	100.00	100.00	350.00	100.00	100.00	200.00	100.00	200.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	US 1			US 1			Queensbury			Queensbury		
Base Volume Input [veh/h]	77	892	155	205	900	114	50	276	85	44	148	140
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	1.89	3.85	2.00	3.85	1.96	2.30	1.85	1.69	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	28	0	0	15	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	77	920	155	205	915	114	50	276	85	44	148	140
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	256	43	57	254	32	14	77	24	12	41	39
Total Analysis Volume [veh/h]	86	1022	172	228	1017	127	56	307	94	49	164	156
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			11			11			4		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	2	6	6	6	4	4	4	8	8	8
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lag	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	5	15	15	15	15	15	8	8	8	8	8	8
Maximum Green [s]	9	50	50	36	36	36	29	29	29	29	29	29
Amber [s]	3.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	14	56	56	42	42	42	34	34	34	34	34	34
Vehicle Extension [s]	3.0	5.0	5.0	5.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.5	3.5	3.5	3.5	3.5	3.5	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall	No	No			No			No			No	
Maximum Recall	No	Yes			Yes			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	294.0	294.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	6.0	6.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	5.50	5.50	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.50	3.50	3.50	3.50	3.50	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	52	52	52	43	43	43	27	27	27	27	27
g / C, Green / Cycle	0.58	0.58	0.58	0.48	0.48	0.48	0.30	0.30	0.30	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.13	0.33	0.33	0.50	0.31	0.32	0.05	0.22	0.05	0.09	0.10
s, saturation flow rate [veh/h]	661	1863	1769	458	1863	1786	1209	1784	983	1863	1566
c, Capacity [veh/h]	388	1080	1025	199	895	858	332	541	151	565	475
d1, Uniform Delay [s]	11.32	11.82	11.85	38.05	17.66	17.74	29.54	28.16	40.73	23.94	24.24
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.21	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.31	2.14	2.29	109.48	3.65	3.90	0.24	3.89	1.22	0.28	0.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.22	0.57	0.57	1.15	0.65	0.66	0.17	0.74	0.32	0.29	0.33
d, Delay for Lane Group [s/veh]	12.63	13.96	14.14	147.53	21.31	21.64	29.77	32.05	41.95	24.22	24.64
Lane Group LOS	B	B	B	F	C	C	C	C	D	C	C
Critical Lane Group	Yes	No	No	Yes	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.77	6.96	6.71	10.29	8.88	8.68	1.01	8.09	1.10	2.65	2.57
50th-Percentile Queue Length [ft/ln]	19.26	174.05	167.65	257.37	222.03	217.04	25.32	202.32	27.44	66.34	64.17
95th-Percentile Queue Length [veh/ln]	1.39	11.29	10.95	16.96	13.77	13.51	1.82	12.76	1.98	4.78	4.62
95th-Percentile Queue Length [ft/ln]	34.66	282.24	273.82	423.94	344.22	337.85	45.58	318.95	49.39	119.42	115.51

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	12.63	14.04	14.14	147.53	21.45	21.64	29.77	32.05	32.05	41.95	24.22	24.64
Movement LOS	B	B	B	F	C	C	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	13.96			42.42			31.78			26.75		
Approach LOS	B			D			C			C		
d_I, Intersection Delay [s/veh]	28.88											
Intersection LOS	C											
Intersection V/C	0.861											

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 8: US 1/Oglethorpe Rd

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 6.6
 Level Of Service: A
 Volume to Capacity (v/c): 0.505

Intersection Setup

Name	US 1		US 1		Oglethorpe	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00		40.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	US 1		US 1		Oglethorpe	
Base Volume Input [veh/h]	43	1153	1049	9	54	28
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.04	1.97	0.00	1.67	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	28	15	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	43	1181	1064	9	54	28
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	328	296	3	15	8
Total Analysis Volume [veh/h]	48	1312	1182	10	60	31
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	105.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Split	Split
Signal group	2	2	6	6	4	4
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	Lag	-
Minimum Green [s]	15	15	15	15	15	15
Maximum Green [s]	85	85	85	85	25	25
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	90	90	90	90	30	30
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall		No	No		No	
Maximum Recall		Yes	Yes		No	
Pedestrian Recall		No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	50.0	50.0	50.0	50.0	50.0	50.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	C	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	96	96	96	96	14
g / C, Green / Cycle	0.80	0.80	0.80	0.80	0.12
(v / s)_i Volume / Saturation Flow Rate	0.42	0.41	0.32	0.32	0.05
s, saturation flow rate [veh/h]	1615	1694	1863	1858	1738
c, Capacity [veh/h]	1318	1349	1484	1479	209
d1, Uniform Delay [s]	3.89	4.20	3.66	3.67	48.99
k, delay calibration	0.50	0.50	0.50	0.50	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.40	1.39	0.81	0.82	1.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.51	0.51	0.40	0.40	0.43
d, Delay for Lane Group [s/veh]	5.30	5.58	4.47	4.48	50.41
Lane Group LOS	A	A	A	A	D
Critical Lane Group	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.34	4.77	3.34	3.35	2.65
50th-Percentile Queue Length [ft/ln]	108.61	119.28	83.50	83.64	66.13
95th-Percentile Queue Length [veh/ln]	7.76	8.35	6.01	6.02	4.76
95th-Percentile Queue Length [ft/ln]	194.07	208.83	150.29	150.55	119.04

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	5.30	5.45	4.48	4.48	50.41	50.41
Movement LOS	A	A	A	A	D	D
d_A, Approach Delay [s/veh]	5.44		4.48		50.41	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	6.56					
Intersection LOS	A					
Intersection V/C	0.505					

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SG: 2 90s

SG: 4 30s

SG: 6 90s

Intersection Level Of Service Report

Intersection 9: US 1/Madison St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 10.7
 Level Of Service: B
 Volume to Capacity (v/c): 0.475

Intersection Setup

Name	US 1			US 1			Madison			Madison		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 1			US 1			Madison			Madison		
Base Volume Input [veh/h]	15	1162	85	19	1029	27	19	16	26	16	5	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	28	0	0	15	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	1190	85	19	1044	27	19	16	26	16	5	21
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	331	24	5	290	8	5	4	7	4	1	6
Total Analysis Volume [veh/h]	17	1322	94	21	1160	30	21	18	29	18	6	23
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			2			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	105.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	2	2	2	6	6	6	4	4	4	8	8	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	20	20	20	20	20	20	15	15	15	15	15	15
Maximum Green [s]	85	85	85	85	85	85	25	25	25	25	25	25
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	90	90	90	90	90	90	30	30	30	30	30	30
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall		No			No			No			No	
Maximum Recall		Yes			Yes			Yes			Yes	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	85	85	85	85	85	85	25	25
g / C, Green / Cycle	0.71	0.71	0.71	0.71	0.71	0.71	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.04	0.38	0.39	0.05	0.32	0.32	0.04	0.03
s, saturation flow rate [veh/h]	478	1863	1820	385	1863	1846	1633	1595
c, Capacity [veh/h]	325	1319	1289	257	1319	1308	380	374
d1, Uniform Delay [s]	12.32	8.28	8.31	15.13	7.51	7.52	39.11	38.64
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.31	1.60	1.65	0.62	1.12	1.14	1.03	0.69
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.05	0.54	0.54	0.08	0.45	0.45	0.18	0.13
d, Delay for Lane Group [s/veh]	12.63	9.88	9.96	15.75	8.64	8.65	40.14	39.33
Lane Group LOS	B	A	A	B	A	A	D	D
Critical Lane Group	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.23	8.25	8.14	0.34	6.23	6.18	1.79	1.22
50th-Percentile Queue Length [ft/ln]	5.86	206.21	203.52	8.42	155.69	154.53	44.68	30.45
95th-Percentile Queue Length [veh/ln]	0.42	12.96	12.82	0.61	10.32	10.26	3.22	2.19
95th-Percentile Queue Length [ft/ln]	10.54	323.96	320.51	15.15	258.01	256.47	80.42	54.81

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	12.63	9.92	9.96	15.75	8.64	8.65	40.14	40.14	40.14	39.33	39.33	39.33
Movement LOS	B	A	A	B	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	9.95			8.77			40.14			39.33		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	10.68											
Intersection LOS	B											
Intersection V/C	0.475											

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 10: US 1/Jefferson St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 18.4
 Level Of Service: B
 Volume to Capacity (v/c): 0.595

Intersection Setup

Name	US 1			US 1			Jefferson St			Jefferson St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	150.00	100.00	100.00	175.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	US 1			US 1			Jefferson St			Jefferson St		
Base Volume Input [veh/h]	171	1136	32	63	958	63	76	49	130	59	52	34
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.82	2.00	2.00	2.00	2.00	2.22	1.43	2.00	1.82	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	28	0	0	15	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	171	1164	32	63	973	63	76	49	130	59	52	34
Peak Hour Factor	0.9000	0.9000	1.0000	1.0000	0.9000	0.9000	0.9000	1.0000	0.9000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	48	323	8	16	270	18	21	12	36	15	13	9
Total Analysis Volume [veh/h]	190	1293	32	63	1081	70	84	49	144	59	52	34
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	108.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	6	4	4	4	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lag	-	-	-	-	-
Minimum Green [s]	8	20	0	0	20	20	20	20	20	0	20	0
Maximum Green [s]	15	85	0	0	65	65	25	25	25	0	25	0
Amber [s]	4.0	4.0	0.0	0.0	4.0	4.0	4.0	4.0	4.0	0.0	4.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	20	90	0	0	70	70	30	30	30	0	30	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	3.0	0.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	0.0
Minimum Recall	No	No			No			No			No	
Maximum Recall	No	Yes			Yes			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	85	85	85	72	72	72	25	25
g / C, Green / Cycle	0.71	0.71	0.71	0.60	0.60	0.60	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.29	0.36	0.36	0.15	0.31	0.31	0.19	0.13
s, saturation flow rate [veh/h]	655	1863	1847	412	1863	1823	1436	1074
c, Capacity [veh/h]	465	1322	1311	234	1119	1095	336	265
d1, Uniform Delay [s]	9.02	7.86	7.87	23.70	13.91	13.92	46.84	42.46
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.36	0.17
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.65	1.37	1.39	2.82	1.73	1.77	15.28	2.76
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.41	0.50	0.50	0.27	0.52	0.52	0.82	0.55
d, Delay for Lane Group [s/veh]	11.68	9.23	9.26	26.52	15.64	15.69	62.12	45.22
Lane Group LOS	B	A	A	C	B	B	E	D
Critical Lane Group	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.74	7.29	7.27	1.39	9.15	8.99	9.61	4.10
50th-Percentile Queue Length [ft/ln]	43.54	182.35	181.66	34.64	228.84	224.70	240.20	102.43
95th-Percentile Queue Length [veh/ln]	3.13	11.72	11.69	2.49	14.12	13.90	14.69	7.38
95th-Percentile Queue Length [ft/ln]	78.37	293.08	292.19	62.34	352.89	347.62	367.28	184.38

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	11.68	9.24	9.26	26.52	15.66	15.69	62.12	62.12	62.12	45.22	45.22	45.22
Movement LOS	B	A	A	C	B	B	E	E	E	D	D	D
d_A, Approach Delay [s/veh]	9.55			16.23			62.12			45.22		
Approach LOS	A			B			E			D		
d_I, Intersection Delay [s/veh]	18.38											
Intersection LOS	B											
Intersection V/C	0.595											

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 11: US 1/Hamilton St (North)

Control Type:	Two-way stop	Delay (sec / veh):	15.9
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.018

Intersection Setup

Name	US 1		US 1		Hamilton	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	150.00	100.00	100.00	100.00
Speed [mph]	30.00		35.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	US 1		US 1		Hamilton	
Base Volume Input [veh/h]	1394	0	3	999	0	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	3.85	0.00	2.04	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	28	0	0	15	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1422	0	3	1014	0	5
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	395	0	1	282	0	1
Total Analysis Volume [veh/h]	1580	0	3	1127	0	6
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.01	0.00	0.02
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	15.87
Movement LOS	A	A		A		C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.05
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	1.36
d_A, Approach Delay [s/veh]	0.00		0.00		15.87	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.04					
Intersection LOS	C					

Intersection Level Of Service Report

Intersection 12: US 1/Hamilton St (South)/US 1 Alt

Control Type:	Signalized	Delay (sec / veh):	51.9
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.953

Intersection Setup

Name	US 1			US 1			Hamilton			US 1 ALT		
Approach	Northbound			Southbound			Eastbound			Northwestbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00
Speed [mph]	30.00			30.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	US 1			US 1			Hamilton			US 1 ALT		
Base Volume Input [veh/h]	0	658	81	634	459	0	5	28	7	47	57	717
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.17	0.00	2.00	2.06	0.00	0.00	0.00	0.00	2.63	0.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	0	8	7	0	0	0	0	0	0	16
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	670	81	642	466	0	5	28	7	47	57	733
Peak Hour Factor	1.0000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	186	23	178	129	0	1	8	2	13	14	204
Total Analysis Volume [veh/h]	0	744	90	713	518	0	6	31	8	52	57	814
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			3			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Split	Split	Permiss	Permiss	Overlap
Signal group	0	6	6	5	2	0	3	3	3	8	8	8
Auxiliary Signal Groups												5,8
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lag	-	-
Minimum Green [s]	0	20	20	5	20	0	0	0	0	5	5	5
Maximum Green [s]	0	40	40	20	79	0	0	0	0	30	30	30
Amber [s]	0.0	4.0	4.0	3.5	4.0	0.0	0.0	0.0	0.0	3.0	3.0	3.0
All red [s]	0.0	1.0	1.0	1.5	1.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0
Split [s]	0	45	45	39	84	0	0	0	0	36	36	36
Vehicle Extension [s]	0.0	3.0	3.0	3.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	5	5	5
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	10	10	10
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	0.0	3.0	3.0	3.0	3.0	0.0	0.0	0.0	0.0	2.0	2.0	2.0
Minimum Recall		No		Yes	No						No	No
Maximum Recall		Yes		Yes	Yes						No	No
Pedestrian Recall		No		No	No						No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C		C	R
C, Cycle Length [s]	120	120	120	120	120		120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00		4.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	0.00	3.00	3.00		2.00	0.00
g_i, Effective Green Time [s]	40	40	79	79	79		32	70
g / C, Green / Cycle	0.33	0.33	0.66	0.66	0.66		0.27	0.58
(v / s)_i Volume / Saturation Flow Rate	0.22	0.23	0.71	0.18	0.18		0.06	0.51
s, saturation flow rate [veh/h]	1860	1791	1005	1470	1470		1856	1583
c, Capacity [veh/h]	620	597	610	968	968		495	924
d1, Uniform Delay [s]	34.37	34.76	27.35	8.50	8.50		34.28	21.44
k, delay calibration	0.50	0.50	0.50	0.50	0.50		0.11	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	5.74	6.65	92.62	0.68	0.68		0.22	11.85
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.67	0.70	1.17	0.27	0.27		0.22	0.88
d, Delay for Lane Group [s/veh]	40.12	41.41	119.97	9.18	9.18		34.50	33.28
Lane Group LOS	D	D	F	A	A		C	C
Critical Lane Group	No	Yes	Yes	No	No		No	Yes
50th-Percentile Queue Length [veh/ln]	11.38	11.61	24.89	2.86	2.86		2.55	21.85
50th-Percentile Queue Length [ft/ln]	284.59	290.34	622.29	71.41	71.41		63.83	546.33
95th-Percentile Queue Length [veh/ln]	16.92	17.20	37.27	5.14	5.14		4.60	29.52
95th-Percentile Queue Length [ft/ln]	422.93	430.07	931.67	128.53	128.53		114.90	738.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	40.68	41.41	119.97	9.18	9.18	0.00	0.00	0.00	34.50	34.50	33.28
Movement LOS		D	D	F	A	A				C	C	C
d_A, Approach Delay [s/veh]	40.76			73.35			0.00			33.43		
Approach LOS	D			E			A			C		
d_I, Intersection Delay [s/veh]	51.92											
Intersection LOS	D											
Intersection V/C	0.953											

Sequence

Ring 1	-	2	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 13: US 1 Alt/Decatur St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 19.6
 Level Of Service: B
 Volume to Capacity (v/c): 0.720

Intersection Setup

Name	US 1 ALT		Decatur St		US 1 ALT	
Approach	Northbound		Westbound		Southwestbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	75.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		No	

Volumes

Name	US 1 ALT		Decatur St		US 1 ALT	
Base Volume Input [veh/h]	652	169	87	212	312	574
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.13	2.13	1.97	2.00	2.63	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	16	0	0	0	0	8
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	668	169	87	212	312	582
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	186	47	24	59	87	162
Total Analysis Volume [veh/h]	742	188	97	236	347	647
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	15.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Permissive	Unsignalized	Split	Split	ProtectedPermissi	Permissive
Signal group	6	0	4	0	5	2
Auxiliary Signal Groups						
Lead / Lag	-	-	Lag	-	Lead	-
Minimum Green [s]	10	0	5	0	4	10
Maximum Green [s]	39	0	15	0	10	54
Amber [s]	5.0	0.0	4.0	0.0	4.0	5.0
All red [s]	1.0	0.0	1.0	0.0	1.0	1.0
Split [s]	30	0	30	0	30	30
Vehicle Extension [s]	0.2	0.0	3.0	0.0	3.0	0.2
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	0.0	3.0	0.0	3.0	4.0
Minimum Recall	No		No		No	No
Maximum Recall	Yes		No		No	Yes
Pedestrian Recall	No		No		No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	0.0	30.0	0.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	R	L	C
C, Cycle Length [s]	79	79	79	79	79
L, Total Lost Time per Cycle [s]	6.00	5.00	5.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	3.00	3.00	0.00	4.00
g_i, Effective Green Time [s]	41	14	14	54	54
g / C, Green / Cycle	0.52	0.17	0.17	0.69	0.69
(v / s)_i Volume / Saturation Flow Rate	0.40	0.05	0.15	0.37	0.35
s, saturation flow rate [veh/h]	1860	1775	1583	929	1863
c, Capacity [veh/h]	964	308	275	539	1278
d1, Uniform Delay [s]	15.20	28.40	31.55	12.79	5.93
k, delay calibration	0.50	0.11	0.23	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.91	0.58	14.54	5.81	1.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.31	0.86	0.64	0.51
d, Delay for Lane Group [s/veh]	21.12	28.98	46.09	18.60	7.36
Lane Group LOS	C	C	D	B	A
Critical Lane Group	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	10.98	1.61	5.32	2.58	4.43
50th-Percentile Queue Length [ft/ln]	274.44	40.15	132.98	64.52	110.83
95th-Percentile Queue Length [veh/ln]	16.41	2.89	9.10	4.65	7.89
95th-Percentile Queue Length [ft/ln]	410.28	72.28	227.54	116.13	197.16

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	21.12	0.00	28.98	46.09	18.60	7.36
Movement LOS	C		C	D	B	A
d_A, Approach Delay [s/veh]	21.12		41.11		11.29	
Approach LOS	C		D		B	
d_I, Intersection Delay [s/veh]	19.61					
Intersection LOS	B					
Intersection V/C	0.720					

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 14: US 1 Alt/Charles Armentrout St

Control Type:	Signalized	Delay (sec / veh):	90.0
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.729

Intersection Setup

Name	US 1 Alt		US 1 ALT		Charles L Armentrout	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	US 1 Alt		US 1 ALT		Charles L Armentrout	
Base Volume Input [veh/h]	662	724	623	71	95	1343
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.08	2.00	2.00	2.00	3.85	2.17
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	16	8	0	0	7
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	674	740	631	71	95	1350
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	187	206	175	20	26	375
Total Analysis Volume [veh/h]	749	822	701	79	106	1500
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtectedPermissi	Permissive	Permissive	Permissive	Permissive	Unsignalized
Signal group	5	2	6	0	3	3
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	5	5	5	0	5	5
Maximum Green [s]	30	30	30	0	30	30
Amber [s]	3.0	3.0	3.0	0.0	3.0	3.0
All red [s]	1.0	1.0	1.0	0.0	1.0	1.0
Split [s]	42	81	39	0	39	39
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	3.0
Walk [s]	0	5	5	0	5	5
Pedestrian Clearance [s]	0	10	10	0	10	10
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	0.0	2.0	2.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	77	77	35	35	35
g / C, Green / Cycle	0.64	0.64	0.29	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.59	0.44	0.38	0.05	0.06
s, saturation flow rate [veh/h]	1277	1863	1863	1583	1743
c, Capacity [veh/h]	693	1195	543	462	508
d1, Uniform Delay [s]	35.83	13.79	42.50	31.69	32.05
k, delay calibration	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	58.23	3.24	143.98	0.80	0.93
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.08	0.69	1.29	0.17	0.21
d, Delay for Lane Group [s/veh]	94.06	17.03	186.48	32.49	32.98
Lane Group LOS	F	B	F	C	C
Critical Lane Group	Yes	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	21.51	14.41	37.63	1.83	2.50
50th-Percentile Queue Length [ft/ln]	537.74	360.15	940.66	45.66	62.41
95th-Percentile Queue Length [veh/ln]	31.00	20.63	55.14	3.29	4.49
95th-Percentile Queue Length [ft/ln]	774.91	515.77	1378.54	82.19	112.33

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	94.06	17.03	186.48	32.49	32.98	0.00
Movement LOS	F	B	F	C	C	
d_A, Approach Delay [s/veh]	53.76		170.88		32.98	
Approach LOS	D		F		C	
d_I, Intersection Delay [s/veh]	90.04					
Intersection LOS	F					
Intersection V/C	0.729					

Sequence

Ring 1	2	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SG: 2 81s

SG: 3 39s

SG: 103 15s

SG: 5 42s

SG: 6 39s

SG: 106 15s

Intersection Level Of Service Report

Intersection 15: US 1/Gallatin St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 3.6
 Level Of Service: A
 Volume to Capacity (v/c): 0.283

Intersection Setup

Name	US 1		US 1		Gallatin St.	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		0.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		No	

Volumes

Name	US 1		US 1		Gallatin St.	
Base Volume Input [veh/h]	23	767	449	45	10	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.11	2.05	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	7	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	779	456	45	10	10
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	216	127	13	3	3
Total Analysis Volume [veh/h]	26	866	507	50	10	10
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		4		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	84.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	6	6	2	2	4	0
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	Lead	-
Minimum Green [s]	4	4	4	4	5	0
Maximum Green [s]	86	86	86	86	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	75	75	75	75	15	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	0	20	20	5	0
Pedestrian Clearance [s]	0	0	10	10	10	0
Rest In Walk						
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall		No	No		No	
Maximum Recall		Yes	No		No	
Pedestrian Recall		No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	50.0	50.0	50.0	50.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	8
Pedestrian Walk [s]	20
Pedestrian Clearance [s]	10

Lane Group Calculations

Lane Group	C	C	C	C	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	100	100	100	100	2
g / C, Green / Cycle	0.83	0.83	0.83	0.83	0.02
(v / s)_i Volume / Saturation Flow Rate	0.26	0.26	0.15	0.15	0.01
s, saturation flow rate [veh/h]	1778	1693	1862	1805	1707
c, Capacity [veh/h]	1504	1403	1542	1495	36
d1, Uniform Delay [s]	2.35	2.38	2.08	2.09	58.22
k, delay calibration	0.50	0.50	0.50	0.50	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.52	0.58	0.26	0.28	12.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.30	0.31	0.18	0.19	0.55
d, Delay for Lane Group [s/veh]	2.87	2.96	2.34	2.37	70.63
Lane Group LOS	A	A	A	A	E
Critical Lane Group	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.93	1.88	1.03	1.04	0.75
50th-Percentile Queue Length [ft/ln]	48.14	46.88	25.84	26.07	18.87
95th-Percentile Queue Length [veh/ln]	3.47	3.38	1.86	1.88	1.36
95th-Percentile Queue Length [ft/ln]	86.64	84.39	46.51	46.93	33.96

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	2.87	2.92	2.35	2.37	70.63	70.63
Movement LOS	A	A	A	A	E	E
d_A, Approach Delay [s/veh]	2.91		2.36		70.63	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	3.62					
Intersection LOS	A					
Intersection V/C	0.283					

Sequence

Ring 1	-	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SG: 2 75s

SG: 4 15s

SG: 8 30s

SG: 6 75s

Intersection Level Of Service Report

Intersection 16: US 1/Farragut St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 10.3
 Level Of Service: B
 Volume to Capacity (v/c): 0.565

Intersection Setup

Name	US 1		Farragut		US 1	
Approach	Southbound		Eastbound		Northeastbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		25.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	US 1		Farragut		US 1	
Base Volume Input [veh/h]	445	9	47	36	12	757
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.97	0.00	0.00	0.00	0.00	2.11
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	7	0	0	0	0	12
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	452	9	47	36	12	769
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	126	3	13	10	3	214
Total Analysis Volume [veh/h]	502	10	52	40	13	854
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	78.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Permissive	Permissive	Split	Split	Permissive	Permissive
Signal group	6	6	4	4	2	2
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lag	-
Minimum Green [s]	20	20	20	20	20	20
Maximum Green [s]	89	89	20	20	89	89
Amber [s]	5.0	5.0	4.0	4.0	5.0	5.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	95	95	25	25	95	95
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	4.0	3.0	3.0	4.0	4.0
Minimum Recall	No		No			No
Maximum Recall	Yes		Yes			Yes
Pedestrian Recall	No		No			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	50.0	50.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	C
C, Cycle Length [s]	120	120	120	120
L, Total Lost Time per Cycle [s]	6.00	6.00	5.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00
l2, Clearance Lost Time [s]	4.00	4.00	3.00	4.00
g_i, Effective Green Time [s]	89	89	20	89
g / C, Green / Cycle	0.74	0.74	0.17	0.74
(v / s)_i Volume / Saturation Flow Rate	0.14	0.14	0.05	0.47
s, saturation flow rate [veh/h]	1863	1851	1719	1848
c, Capacity [veh/h]	1382	1373	287	1401
d1, Uniform Delay [s]	4.64	4.65	44.02	7.50
k, delay calibration	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.30	0.30	2.94	2.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.19	0.19	0.32	0.62
d, Delay for Lane Group [s/veh]	4.94	4.95	46.96	9.56
Lane Group LOS	A	A	D	A
Critical Lane Group	No	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	1.81	1.82	2.68	9.73
50th-Percentile Queue Length [ft/ln]	45.33	45.40	66.89	243.28
95th-Percentile Queue Length [veh/ln]	3.26	3.27	4.82	14.85
95th-Percentile Queue Length [ft/ln]	81.59	81.72	120.41	371.18

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	4.94	4.95	46.96	46.96	9.56	9.56
Movement LOS	A	A	D	D	A	A
d_A, Approach Delay [s/veh]	4.94		46.96		9.56	
Approach LOS	A		D		A	
d_I, Intersection Delay [s/veh]	10.29					
Intersection LOS	B					
Intersection V/C	0.565					

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SG: 2 95s

SG: 4 25s

SG: 6 95s

Intersection Level Of Service Report

Intersection 17: US 1/43rd Ave

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 21.6
 Level Of Service: C
 Volume to Capacity (v/c): 0.099

Intersection Setup

Name	US 1		US 1			
Approach	Northeastbound		Southwestbound		Southeastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0
Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	US 1		US 1			
Base Volume Input [veh/h]	50	743	467	16	24	70
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	7	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	50	755	474	16	24	70
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	189	119	4	6	18
Total Analysis Volume [veh/h]	50	755	474	16	24	70
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.01	0.00	0.00	0.10	0.09
d_M, Delay for Movement [s/veh]	8.53	0.00	0.00	0.00	21.56	11.50
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.15	0.00	0.00	0.00	0.70	0.70
95th-Percentile Queue Length [ft/ln]	3.67	0.00	0.00	0.00	17.52	17.52
d_A, Approach Delay [s/veh]	0.53		0.00		14.07	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.26					
Intersection LOS	C					

Intersection Level Of Service Report

Intersection 18: US 1/42nd Place/Crittendon Street

Control Type:	Signalized	Delay (sec / veh):	55.0
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.892

Intersection Setup

Name	42nd Pl			Crittenden St			US 1			US 1		
Approach	Southbound			Eastbound			Northeastbound			Southwestbound		
Lane Configuration												
Turning Movement	Left	Right	Right2	Left	Thru	Right	Left2	Left	Thru	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	42nd Pl			Crittenden St			US 1			US 1		
Base Volume Input [veh/h]	5	16	0	0	38	355	346	50	778	518	30	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	2.00	2.14	0.00	2.17	2.05	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	7	12	0	12	7	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	16	0	0	38	362	358	50	790	525	30	5
Peak Hour Factor	0.9000	0.9000	0.9000	1.0000	0.9000	0.9000	1.0000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	4	0	0	11	101	90	14	219	146	8	1
Total Analysis Volume [veh/h]	6	18	0	0	42	402	358	56	878	583	33	6
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	42.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split
Signal group	4	4	4	0	3	3	0	6	6	2	6	6
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	Lag	-	-	-	-
Minimum Green [s]	5	5	5	0	5	5	0	20	20	20	20	20
Maximum Green [s]	19	19	19	0	25	25	0	60	60	60	60	60
Amber [s]	4.0	4.0	4.0	0.0	4.0	4.0	0.0	5.0	5.0	5.0	5.0	5.0
All red [s]	1.0	1.0	1.0	0.0	1.0	1.0	0.0	4.0	4.0	1.0	4.0	4.0
Split [s]	24	24	24	0	30	30	0	66	66	66	66	66
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk	No				No				No	No		
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	3.0	0.0	3.0	3.0	0.0	7.0	7.0	6.0	7.0	7.0
Minimum Recall	No				No				No	No		
Maximum Recall	No				No				Yes	Yes		
Pedestrian Recall	No				No				No	No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	50.0	50.0	50.0	0.0	50.0	50.0	0.0	50.0	50.0	50.0	50.0	50.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	9.00	9.00	8.00	8.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	7.00	7.00	6.00	6.00
g_i, Effective Green Time [s]	3	25	73	73	74	74
g / C, Green / Cycle	0.02	0.21	0.61	0.61	0.62	0.62
(v / s)_i Volume / Saturation Flow Rate	0.01	0.27	0.52	0.25	0.17	0.17
s, saturation flow rate [veh/h]	1660	1638	800	3541	1862	1821
c, Capacity [veh/h]	40	341	467	2158	1150	1125
d1, Uniform Delay [s]	58.00	47.51	29.93	12.18	10.53	10.58
k, delay calibration	0.11	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.72	155.40	21.13	0.57	0.58	0.61
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.60	1.30	0.89	0.41	0.27	0.28
d, Delay for Lane Group [s/veh]	71.72	202.91	51.06	12.75	11.11	11.19
Lane Group LOS	E	F	D	B	B	B
Critical Lane Group	Yes	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.88	24.96	14.10	5.95	3.78	3.80
50th-Percentile Queue Length [ft/ln]	22.00	623.98	352.38	148.68	94.39	94.93
95th-Percentile Queue Length [veh/ln]	1.58	37.70	20.25	9.95	6.80	6.83
95th-Percentile Queue Length [ft/ln]	39.60	942.48	506.31	248.66	169.90	170.87

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	71.72	71.72	71.72	0.00	202.91	202.91	51.06	51.06	12.75	11.14	11.19	11.19
Movement LOS	E	E	E		F	F	D	D	B	B	B	B
d_A, Approach Delay [s/veh]	71.72			202.91			25.02			11.15		
Approach LOS	E			F			C			B		
d_I, Intersection Delay [s/veh]	55.03											
Intersection LOS	E											
Intersection V/C	0.892											

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 19: US 1/41st Place/Charles Armentrout Dr

Control Type:	Signalized	Delay (sec / veh):	33.0
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.904

Intersection Setup

Name	US 1			US 1			Charles L Armentrout			41st		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	200.00	100.00	200.00	200.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	43.00			35.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 1			US 1			Charles L Armentrout			41st		
Base Volume Input [veh/h]	1	675	563	592	356	2	271	3	474	2	2	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	2.38	2.14	2.00	0.00	2.00	0.00	2.21	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	0	7	7	0	0	0	12	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	687	563	599	363	2	271	3	486	2	2	2
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	191	156	166	101	1	75	1	135	1	1	1
Total Analysis Volume [veh/h]	1	763	626	666	403	2	301	3	540	2	2	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	4			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	42.0
Offset Reference	LagEnd
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Overlap	Permiss	Permiss	Permiss
Signal group	6	6	6	5	2	2	8	8	2	4	4	4
Auxiliary Signal Groups									2,5			
Lead / Lag	Lag	-	-	Lead	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	20	20	20	5	20	20	8	8	20	8	8	8
Maximum Green [s]	49	49	49	25	78	78	30	30	78	30	30	30
Amber [s]	5.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0	5.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0	2.0	2.0
Split [s]	54	54	54	30	84	84	36	36	84	36	36	36
Vehicle Extension [s]	6.0	6.0	6.0	3.0	6.0	6.0	3.0	3.0	6.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Recall		No		No	No			No	No		No	
Maximum Recall		Yes		No	Yes			No	Yes		No	
Pedestrian Recall		No		No	No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	0.0	50.0	50.0	50.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C	R	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	5.50	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	0.00	4.00	4.00	4.00	0.00	4.00
g_i, Effective Green Time [s]	51	51	51	81	81	81	27	81	27
g / C, Green / Cycle	0.43	0.43	0.43	0.68	0.68	0.68	0.22	0.68	0.22
(v / s)_i Volume / Saturation Flow Rate	0.00	0.22	0.40	0.62	0.11	0.11	0.21	0.34	0.00
s, saturation flow rate [veh/h]	996	3547	1577	1069	1863	1860	1462	1580	1870
c, Capacity [veh/h]	427	1512	673	701	1260	1258	387	1069	458
d1, Uniform Delay [s]	23.98	25.16	32.74	20.35	7.05	7.05	45.38	9.55	36.29
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.29	0.50	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.01	1.21	21.34	23.75	0.27	0.27	9.09	1.71	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.50	0.93	0.95	0.16	0.16	0.79	0.51	0.01
d, Delay for Lane Group [s/veh]	23.99	26.36	54.07	44.10	7.33	7.33	54.47	11.26	36.30
Lane Group LOS	C	C	D	D	A	A	D	B	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.02	7.86	20.22	12.81	1.84	1.84	9.88	7.17	0.14
50th-Percentile Queue Length [ft/ln]	0.47	196.43	505.57	320.35	46.02	45.95	247.00	179.34	3.53
95th-Percentile Queue Length [veh/ln]	0.03	12.45	27.60	18.68	3.31	3.31	15.03	11.57	0.25
95th-Percentile Queue Length [ft/ln]	0.84	311.36	689.95	467.12	82.84	82.71	375.87	289.15	6.36

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	23.99	26.36	54.07	44.10	7.33	7.33	54.47	54.47	11.26	36.30	36.30	36.30
Movement LOS	C	C	D	D	A	A	D	D	B	D	D	D
d_A, Approach Delay [s/veh]	38.84			30.19			26.82			36.30		
Approach LOS	D			C			C			D		
d_I, Intersection Delay [s/veh]	32.98											
Intersection LOS	C											
Intersection V/C	0.904											

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 20: MD 410/Toledo Terrace

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 46.1
 Level Of Service: D
 Volume to Capacity (v/c): 0.758

Intersection Setup

Name				Toledo Terrace			MD 410			MD 410		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	1	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	500.00	100.00	900.00	175.00	100.00	175.00
Speed [mph]	30.00			30.00			50.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Toledo Terrace			MD 410			MD 410		
Base Volume Input [veh/h]	99	32	93	127	19	283	387	1306	145	81	998	155
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.44	0.00	2.50	2.38	0.00	1.96	2.07	2.00	1.92	2.00	2.05	3.85
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	22	0	0	0	0	0	0	24	41	0	13	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	121	32	93	127	19	283	387	1330	186	81	1011	155
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	9	26	35	5	79	108	369	52	23	281	43
Total Analysis Volume [veh/h]	134	36	103	141	21	314	430	1478	207	90	1123	172
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	4			2			1			5		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	66.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	8	8	8	4	4	4	1	6	6	2	2	2
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lead	-	-	Lag	-	-
Minimum Green [s]	8	8	8	8	8	8	5	20	20	20	20	20
Maximum Green [s]	39	39	39	39	39	39	31	99	99	63	63	63
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.5
All red [s]	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.5	1.5	1.5	1.5	1.5
Split [s]	45	45	45	45	45	45	36	105	105	69	69	69
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	5.0	5.0	5.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0
Minimum Recall		No			No		No	No			No	
Maximum Recall		No			No		No	Yes			Yes	
Pedestrian Recall		No			No		No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	C	L	C	C
C, Cycle Length [s]	150	150	150	150	150	150	150	150	150	150
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	0.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	39	39	39	39	99	99	99	65	65	65
g / C, Green / Cycle	0.26	0.26	0.26	0.26	0.66	0.66	0.66	0.44	0.44	0.44
(v / s)_i Volume / Saturation Flow Rate	0.13	0.08	0.11	0.21	0.50	0.45	0.47	0.31	0.35	0.36
s, saturation flow rate [veh/h]	1036	1673	1236	1629	856	1863	1784	291	1862	1776
c, Capacity [veh/h]	108	435	272	423	503	1229	1177	83	810	773
d1, Uniform Delay [s]	72.59	44.79	56.76	51.71	40.14	15.83	16.43	71.20	37.06	37.24
k, delay calibration	0.11	0.11	0.11	0.28	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	124.66	0.42	1.53	8.25	16.82	3.12	3.74	123.61	8.82	9.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.24	0.32	0.52	0.79	0.86	0.69	0.72	1.08	0.81	0.82
d, Delay for Lane Group [s/veh]	197.25	45.21	58.29	59.96	56.96	18.95	20.17	194.81	45.88	46.83
Lane Group LOS	F	D	E	E	E	B	C	F	D	D
Critical Lane Group	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	7.93	4.29	5.09	12.76	8.24	17.02	17.78	6.01	22.38	21.78
50th-Percentile Queue Length [ft/ln]	198.14	107.19	127.17	318.95	205.96	425.57	444.62	150.30	559.47	544.49
95th-Percentile Queue Length [veh/ln]	13.86	7.68	8.79	18.62	12.95	23.79	24.70	10.51	30.14	29.43
95th-Percentile Queue Length [ft/ln]	346.41	192.09	219.64	465.40	323.64	594.72	617.52	262.82	753.42	735.83

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	197.25	45.21	45.21	58.29	59.96	59.96	56.96	19.47	20.17	194.81	46.27	46.83
Movement LOS	F	D	D	E	E	E	E	B	C	F	D	D
d_A, Approach Delay [s/veh]	119.84			59.46			27.16			55.99		
Approach LOS	F			E			C			E		
d_I, Intersection Delay [s/veh]	46.13											
Intersection LOS	D											
Intersection V/C	0.758											

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 21: MD 410/Editors Park Dr

Control Type:	Signalized	Delay (sec / veh):	8.4
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.777

Intersection Setup

Name	Editors Park Dr		MD 410		MD 410		
Approach	Northbound		Eastbound		Westbound		
Lane Configuration							
Turning Movement	Left	Right	Thru	Right	U-turn	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	150.00	100.00	100.00
Speed [mph]	30.00		45.00		45.00		
Grade [%]	0.00		0.00		0.00		
Crosswalk	Yes		Yes		Yes		

Volumes

Name	Editors Park Dr		MD 410		MD 410		
Base Volume Input [veh/h]	64	67	1460	109	1	35	1282
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.85	0.00	2.00	1.64	0.00	1.89	2.05
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	64	24	0	0	121	13
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	64	131	1484	109	1	156	1295
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	36	412	30	0	43	360
Total Analysis Volume [veh/h]	71	146	1649	121	1	173	1439
Presence of On-Street Parking	No	No	No	No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0		
Bicycle Volume [bicycles/h]	0		0		0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	0	6	0	0	0	2
Auxiliary Signal Groups							
Lead / Lag	Lead	-	-	-	-	-	-
Minimum Green [s]	5	0	5	0	0	0	5
Maximum Green [s]	30	0	30	0	0	0	30
Amber [s]	3.0	0.0	3.0	0.0	0.0	0.0	3.0
All red [s]	1.0	0.0	1.0	0.0	0.0	0.0	1.0
Split [s]	74	0	46	0	0	0	46
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	0.0	3.0
Walk [s]	5	0	5	0	0	0	5
Pedestrian Clearance [s]	10	0	10	0	0	0	10
Rest In Walk	No		No				No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	0.0	0.0	2.0
Minimum Recall	No		No				No
Maximum Recall	No		No				No
Pedestrian Recall	No		No				No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	L	C
C, Cycle Length [s]	46	46	46	46	46
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	30	30	30	30
g / C, Green / Cycle	0.17	0.66	0.66	0.66	0.66
(v / s)_i Volume / Saturation Flow Rate	0.13	0.48	0.49	0.65	0.28
s, saturation flow rate [veh/h]	1674	1863	1819	269	5072
c, Capacity [veh/h]	284	1221	1192	230	3324
d1, Uniform Delay [s]	18.12	5.18	5.29	20.31	3.79
k, delay calibration	0.11	0.25	0.26	0.44	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.24	1.90	2.23	18.44	0.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

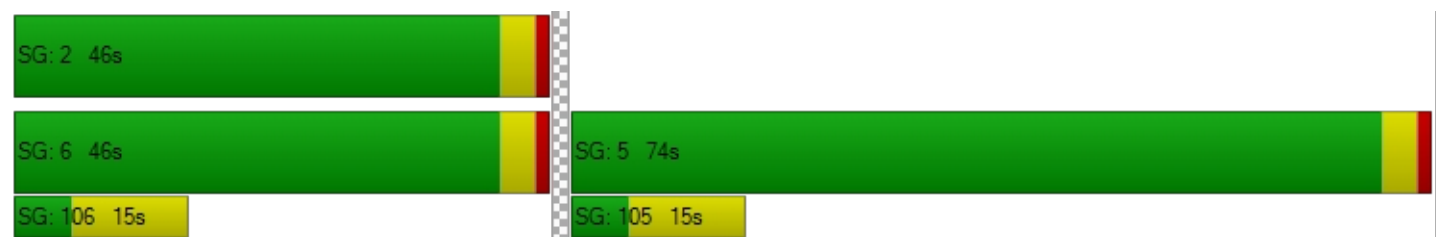
X, volume / capacity	0.76	0.72	0.74	0.76	0.43
d, Delay for Lane Group [s/veh]	22.37	7.08	7.53	38.74	3.88
Lane Group LOS	C	A	A	D	A
Critical Lane Group	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.25	2.00	2.12	2.77	0.56
50th-Percentile Queue Length [ft/ln]	56.20	49.89	53.00	69.17	14.09
95th-Percentile Queue Length [veh/ln]	4.05	3.59	3.82	4.98	1.01
95th-Percentile Queue Length [ft/ln]	101.15	89.81	95.40	124.51	25.36

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	22.37	22.37	7.29	7.53	38.74	38.74	3.88
Movement LOS	C	C	A	A	D	D	A
d_A, Approach Delay [s/veh]	22.37		7.30		7.64		
Approach LOS	C		A		A		
d_I, Intersection Delay [s/veh]	8.36						
Intersection LOS	A						
Intersection V/C	0.777						

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 22: MD 410/Prince George's Plaza

Control Type:	Signalized	Delay (sec / veh):	24.8
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.535

Intersection Setup

Name	Metro			PG Plaza			MD 410			MD 410		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	2	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	250.00	100.00	250.00	225.00	100.00	100.00	325.00	100.00	100.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Metro			PG Plaza			MD 410			MD 410		
Base Volume Input [veh/h]	175	17	165	126	12	34	132	1307	62	98	1139	70
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.54	3.85	2.22	0.00	0.00	3.85	2.22	2.07	1.74	2.21	2.00	3.85
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	88	0	0	134	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	175	17	165	126	12	34	132	1395	62	98	1273	70
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	49	5	46	35	3	9	37	388	17	27	354	19
Total Analysis Volume [veh/h]	194	19	183	140	13	38	147	1550	69	109	1414	78
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	75.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	3	3	3	4	4	4	1	6	6	5	2	2
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	5	5	20	20	5	20	20
Maximum Green [s]	24	24	24	24	24	24	25	54	54	25	54	54
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	4.5
All red [s]	1.5	1.5	1.5	1.5	1.5	1.5	1.0	1.5	1.5	1.0	1.5	1.5
Split [s]	30	30	30	30	30	30	30	60	60	30	60	60
Vehicle Extension [s]	2.5	2.5	2.5	2.5	2.5	2.5	2.5	5.0	5.0	2.5	5.0	5.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.5	3.5	3.5	3.5	3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	Yes		No	Yes	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	294.0	294.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	30.0	30.0	30.0	30.0	6.0	6.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	150	150	150	150	150	150	150	150	150	150	150
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	5.50	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.50	3.50	3.50	3.50	3.50	0.00	4.00	4.00	0.00	4.00	4.00
g_i, Effective Green Time [s]	21	21	8	8	8	103	93	93	103	92	92
g / C, Green / Cycle	0.14	0.14	0.06	0.06	0.06	0.69	0.62	0.62	0.69	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate	0.06	0.13	0.04	0.01	0.02	0.30	0.30	0.30	0.25	0.28	0.28
s, saturation flow rate [veh/h]	3461	1577	3514	1900	1555	482	3544	1821	432	3547	1813
c, Capacity [veh/h]	490	223	197	106	87	349	2192	1126	316	2170	1110
d1, Uniform Delay [s]	58.54	63.38	69.62	67.30	68.52	11.08	15.63	15.64	11.16	15.65	15.65
k, delay calibration	0.08	0.24	0.08	0.08	0.08	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.39	23.35	3.54	0.38	2.55	3.71	0.78	1.51	2.98	0.69	1.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.90	0.71	0.12	0.44	0.42	0.49	0.49	0.35	0.45	0.45
d, Delay for Lane Group [s/veh]	58.93	86.73	73.16	67.68	71.07	14.79	16.41	17.16	14.14	16.34	17.00
Lane Group LOS	E	F	E	E	E	B	B	B	B	B	B
Critical Lane Group	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.41	9.07	2.75	0.49	1.48	1.86	9.66	10.17	1.35	8.81	9.22
50th-Percentile Queue Length [ft/ln]	85.13	226.67	68.86	12.21	37.04	46.57	241.53	254.30	33.77	220.35	230.46
95th-Percentile Queue Length [veh/ln]	6.13	14.00	4.96	0.88	2.67	3.35	14.76	15.40	2.43	13.68	14.20
95th-Percentile Queue Length [ft/ln]	153.24	350.12	123.95	21.98	66.67	83.83	368.97	385.06	60.79	342.08	354.94

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.93	86.73	86.73	73.16	67.68	71.07	14.79	16.64	17.16	14.14	16.54	17.00
Movement LOS	E	F	F	E	E	E	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	73.11			72.37			16.51			16.40		
Approach LOS	E			E			B			B		
d_I, Intersection Delay [s/veh]	24.83											
Intersection LOS	C											
Intersection V/C	0.535											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 23: MD 410/Belcrest Rd

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 67.9
 Level Of Service: E
 Volume to Capacity (v/c): 0.967

Intersection Setup

Name				Belcrest Rd			MD 410			MD 410		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	100.00	250.00	100.00	100.00	225.00	100.00	100.00	225.00	100.00	100.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Belcrest Rd			MD 410			MD 410		
Base Volume Input [veh/h]	363	387	6	310	601	126	210	1114	276	239	867	122
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.21	2.00	3.85	2.00	2.21	2.63	2.00	2.00	2.38	2.63	2.00	2.63
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	71	0	0	20	0	10	29	21	38	17	53	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	434	387	6	330	601	136	239	1135	314	256	920	122
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	121	108	2	92	167	38	66	315	87	71	256	34
Total Analysis Volume [veh/h]	482	430	7	367	668	151	266	1261	349	284	1022	136
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	26			10			91			71		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	60.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap
Signal group	7	4	4	3	8	3	1	6	6	5	2	2
Auxiliary Signal Groups									6,7			2,3
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	5	5	20	20	5	20	20
Maximum Green [s]	30	29	29	30	30	30	17	53	53	11	47	47
Amber [s]	3.0	4.0	4.0	4.0	3.0	4.0	4.0	4.5	4.5	4.0	4.5	4.5
All red [s]	1.0	2.0	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Split [s]	30	36	36	20	46	20	30	60	60	24	54	54
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
Walk [s]	0	0	0	0	5	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	10	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	4.0	4.0	4.0	2.0	4.0	4.0	4.5	4.5	4.0	4.5	4.5
Minimum Recall	No	No		No	No		No	No	No	No	No	No
Maximum Recall	No	No		No	No		No	Yes	Yes	No	Yes	Yes
Pedestrian Recall	No	No		No	No		No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	30.0	5.0	5.0	30.0	5.0	5.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	150	150	150	150	150	150	150	150	150	150	150	150
L, Total Lost Time per Cycle [s]	4.00	6.00	6.00	4.00	4.00	4.00	6.00	6.50	4.00	6.00	6.50	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.00	4.00	0.00	2.00	2.00	4.00	4.50	0.00	4.00	4.50	0.00
g_i, Effective Green Time [s]	23	30	30	59	39	39	24	57	86	18	51	71
g / C, Green / Cycle	0.15	0.20	0.20	0.39	0.26	0.26	0.16	0.38	0.57	0.12	0.34	0.48
(v / s)_i Volume / Saturation Flow Rate	0.17	0.12	0.12	0.24	0.23	0.24	0.15	0.36	0.22	0.16	0.29	0.09
s, saturation flow rate [veh/h]	2757	1863	1844	1538	1859	1659	1774	3547	1556	1763	3547	1564
c, Capacity [veh/h]	508	374	370	601	478	426	283	1346	892	211	1204	745
d1, Uniform Delay [s]	63.40	54.32	54.35	36.56	53.57	54.42	62.29	44.80	17.62	66.02	45.96	22.50
k, delay calibration	0.11	0.11	0.11	0.50	0.32	0.36	0.35	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.95	1.46	1.50	4.58	14.56	23.21	31.45	13.45	1.29	183.59	7.55	0.54
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.95	0.59	0.59	0.61	0.88	0.93	0.94	0.94	0.39	1.35	0.85	0.18
d, Delay for Lane Group [s/veh]	73.35	55.78	55.84	41.14	68.13	77.63	93.74	58.25	18.92	249.60	53.50	23.04
Lane Group LOS	E	E	E	D	E	E	F	E	B	F	D	C
Critical Lane Group	No	No	No	Yes	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	9.82	7.70	7.67	11.60	17.25	17.38	12.31	24.34	6.73	18.70	18.47	2.83
50th-Percentile Queue Length [ft/ln]	245.47	192.55	191.65	290.06	431.33	434.43	307.83	608.54	168.28	467.56	461.84	70.83
95th-Percentile Queue Length [veh/ln]	14.96	12.25	12.21	17.19	24.07	24.21	18.07	32.43	10.99	28.93	25.52	5.10
95th-Percentile Queue Length [ft/ln]	373.94	306.34	305.16	429.71	601.63	605.34	451.70	810.82	274.65	723.13	638.06	127.50

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	73.35	55.81	55.84	41.14	71.62	77.63	93.74	58.25	18.92	249.60	53.50	23.04
Movement LOS	E	E	E	D	E	E	F	E	B	F	D	C
d_A, Approach Delay [s/veh]	65.01			62.96			55.97			89.25		
Approach LOS	E			E			E			F		
d_I, Intersection Delay [s/veh]	67.88											
Intersection LOS	E											
Intersection V/C	0.967											

Sequence

Ring 1	1	2	3	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 24: MD 410/MD 500/Adelphi Rd

Control Type:	Signalized	Delay (sec / veh):	108.5
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.146

Intersection Setup

Name	MD 500			Adelphi Rd			MD 410			MD 410		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Pocket Length [ft]	350.00	100.00	350.00	350.00	100.00	150.00	300.00	100.00	100.00	350.00	100.00	150.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	MD 500			Adelphi Rd			MD 410			MD 410		
Base Volume Input [veh/h]	35	657	480	525	352	47	101	1302	54	479	1205	400
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.85	2.13	2.15	2.00	2.00	1.56	2.63	2.00	0.00	2.00	2.04	2.09
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	30	7	22	0	12	6	0	41	0	36	76	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	65	664	502	525	364	53	101	1343	54	515	1281	400
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	184	139	146	101	15	28	373	15	143	356	111
Total Analysis Volume [veh/h]	72	738	558	583	404	59	112	1492	60	572	1423	444
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	3			6			5			9		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	75.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Unsigna	Protecte	Permiss	Overlap
Signal group	3	8	0	7	4	0	1	6	0	5	2	2
Auxiliary Signal Groups												2,4
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	25	0	5	5	5
Maximum Green [s]	5	30	0	30	29	0	12	46	0	27	61	61
Amber [s]	3.0	3.0	0.0	3.0	5.0	0.0	4.0	5.0	0.0	4.0	5.0	5.0
All red [s]	1.0	1.0	0.0	1.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Split [s]	12	39	0	25	52	0	18	53	0	33	68	68
Vehicle Extension [s]	3.0	3.0	0.0	3.0	2.5	0.0	3.0	5.0	0.0	6.0	3.0	3.0
Walk [s]	0	5	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	5.0	0.0	4.0	5.0	0.0	4.0	5.0	5.0
Minimum Recall	No	No		No	No		No	No		No	No	No
Maximum Recall	No	No		No	No		No	Yes		No	Yes	Yes
Pedestrian Recall	No	No		No	No		No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	294.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	30.0	6.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C	R
C, Cycle Length [s]	150	150	150	150	150	150	150	150	150	150	150
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	5.00	5.00	0.00	5.00	0.00	5.00	0.00
g_i, Effective Green Time [s]	5	35	35	21	48	48	79	51	79	66	130
g / C, Green / Cycle	0.03	0.23	0.23	0.14	0.32	0.32	0.53	0.34	0.53	0.44	0.87
(v / s)_i Volume / Saturation Flow Rate	0.04	0.21	0.36	0.17	0.11	0.04	0.20	0.42	0.36	0.40	0.28
s, saturation flow rate [veh/h]	1743	3542	1563	3445	3547	1583	563	3547	1598	3545	1579
c, Capacity [veh/h]	58	824	364	483	1133	505	230	1203	705	1566	1370
d1, Uniform Delay [s]	72.50	55.79	57.55	64.50	39.21	36.09	31.69	49.56	44.29	39.05	1.83
k, delay calibration	0.41	0.11	0.50	0.11	0.08	0.08	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	184.64	3.75	254.20	98.18	0.14	0.08	7.20	115.40	9.87	9.32	0.63
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.24	0.90	1.53	1.21	0.36	0.12	0.49	1.24	0.81	0.91	0.32
d, Delay for Lane Group [s/veh]	257.15	59.54	311.76	162.67	39.36	36.17	38.89	164.96	54.16	48.37	2.45
Lane Group LOS	F	E	F	F	D	D	D	F	D	D	A
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.21	13.88	39.34	15.76	5.78	1.56	2.45	41.51	6.66	26.00	1.72
50th-Percentile Queue Length [ft/ln]	130.31	346.91	983.39	393.99	144.39	38.93	61.13	1037.87	166.44	649.90	43.08
95th-Percentile Queue Length [veh/ln]	9.38	19.99	60.42	24.17	9.72	2.80	4.40	59.57	10.89	34.36	3.10
95th-Percentile Queue Length [ft/ln]	234.55	499.65	1510.42	604.15	242.92	70.08	110.03	1489.32	272.23	858.94	77.55

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	257.15	59.54	311.76	162.67	39.36	36.17	38.89	164.96	0.00	54.16	48.37	2.45
Movement LOS	F	E	F	F	D	D	D	F		D	D	A
d_A, Approach Delay [s/veh]	172.82			107.91			156.16			41.37		
Approach LOS	F			F			F			D		
d_I, Intersection Delay [s/veh]	108.51											
Intersection LOS	F											
Intersection V/C	1.146											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report Intersection 25: Ager Rd/23rd Ave

Control Type: Signalized
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 18.7
Level Of Service: B
Volume to Capacity (v/c): 0.432

Intersection Setup

Name							Ager Rd.			Ager Rd.		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name							Ager Rd.			Ager Rd.		
Base Volume Input [veh/h]	14	24	13	199	31	37	21	635	3	25	811	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	30	0	0	49	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	24	13	199	31	37	21	665	3	25	860	14
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	6	3	50	8	9	5	166	1	6	215	4
Total Analysis Volume [veh/h]	14	24	13	199	31	37	21	665	3	25	860	14
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	35	0	0	35	0
Maximum Green [s]	0	20	0	0	30	0	0	35	0	0	35	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	25	0	0	35	0	0	50	0	0	50	0
Vehicle Extension [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	21	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	0.00	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	20	30	45	45	45	45	45	45
g / C, Green / Cycle	0.22	0.33	0.50	0.50	0.50	0.50	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	0.03	0.19	0.04	0.20	0.20	0.04	0.26	0.26
s, saturation flow rate [veh/h]	1545	1443	571	1683	1680	692	1683	1673
c, Capacity [veh/h]	394	516	252	841	840	325	841	837
d1, Uniform Delay [s]	28.11	24.44	22.78	14.04	14.04	19.49	15.21	15.21
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.68	3.69	0.65	1.40	1.40	0.46	2.30	2.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.13	0.52	0.08	0.40	0.40	0.08	0.52	0.52
d, Delay for Lane Group [s/veh]	28.79	28.13	23.43	15.44	15.44	19.95	17.51	17.52
Lane Group LOS	C	C	C	B	B	B	B	B
Critical Lane Group	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.95	4.95	0.36	4.24	4.24	0.38	6.10	6.07
50th-Percentile Queue Length [ft/ln]	23.66	123.84	8.95	106.09	105.96	9.50	152.52	151.74
95th-Percentile Queue Length [veh/ln]	1.70	8.60	0.64	7.62	7.61	0.68	10.15	10.11
95th-Percentile Queue Length [ft/ln]	42.58	215.09	16.12	190.56	190.37	17.10	253.79	252.75

Movement, Approach, & Intersection Results

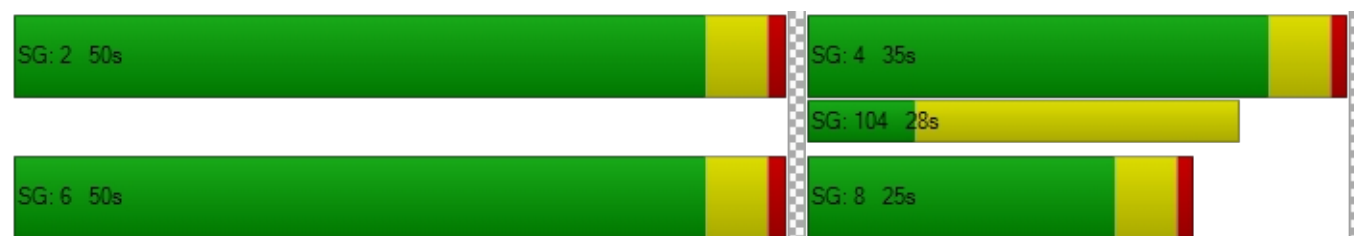
d_M, Delay for Movement [s/veh]	28.79	28.79	28.79	28.13	28.13	28.13	23.43	15.44	15.44	19.95	17.52	17.52
Movement LOS	C	C	C	C	C	C	C	B	B	B	B	B
d_A, Approach Delay [s/veh]	28.79			28.13			15.69			17.59		
Approach LOS	C			C			B			B		
d_I, Intersection Delay [s/veh]	18.68											
Intersection LOS	B											
Intersection V/C	0.432											

Other Modes

g_Walk,mi, Effective Walk Time [s]	45.0			45.0			20.0			11.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	11.25			11.25			27.22			34.67		
I_p,int, Pedestrian LOS Score for Intersection	1.756			1.860			3.019			2.687		
Crosswalk LOS	A			A			C			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	444			667			1000			1000		
d_b, Bicycle Delay [s]	27.22			20.00			11.25			11.25		
I_b,int, Bicycle LOS Score for Intersection	1.644			2.000			2.128			2.301		
Bicycle LOS	A			B			B			B		

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 26: Ager Rd/Oglethorpe St/School

Control Type:	Signalized	Delay (sec / veh):	47.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.394

Intersection Setup

Name							Ager Rd.			Ager Rd.		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	1200.00	350.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name							Ager Rd.			Ager Rd.		
Base Volume Input [veh/h]	21	0	32	2	0	0	51	981	2	3	1040	35
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	30	0	0	49	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	21	0	32	2	0	0	51	1011	2	3	1089	35
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	0	8	1	0	0	13	253	1	1	272	9
Total Analysis Volume [veh/h]	21	0	32	2	0	0	51	1011	2	3	1089	35
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	4	0	0	8	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	10	0	5	10	0
Maximum Green [s]	0	20	0	0	20	0	20	30	0	20	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	4.0	4.0	0.0	4.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	30	0	0	30	0	30	45	0	30	45	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	6.0	0.0	3.0	6.0	0.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	27	0	0	11	0	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	C	C
C, Cycle Length [s]	109	109	109	109	109	109	109	109
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	0.00	3.00	3.00	0.00	3.00	3.00
g_i, Effective Green Time [s]	25	25	70	40	40	70	40	40
g / C, Green / Cycle	0.23	0.23	0.64	0.37	0.37	0.64	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.04	0.00	0.06	0.30	0.30	0.00	0.34	0.34
s, saturation flow rate [veh/h]	1384	1255	912	1683	1682	942	1683	1665
c, Capacity [veh/h]	363	354	537	618	617	564	618	611
d1, Uniform Delay [s]	33.54	32.42	13.50	31.25	31.25	11.07	32.88	32.88
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.84	0.03	0.35	11.64	11.64	0.02	20.42	20.62
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.15	0.01	0.10	0.82	0.82	0.01	0.91	0.92
d, Delay for Lane Group [s/veh]	34.38	32.45	13.85	42.88	42.89	11.08	53.30	53.51
Lane Group LOS	C	C	B	D	D	B	D	D
Critical Lane Group	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.21	0.04	0.46	13.64	13.63	0.03	17.16	17.01
50th-Percentile Queue Length [ft/ln]	30.20	1.10	11.48	340.89	340.69	0.65	429.01	425.31
95th-Percentile Queue Length [veh/ln]	2.17	0.08	0.83	19.69	19.68	0.05	23.95	23.78
95th-Percentile Queue Length [ft/ln]	54.36	1.97	20.67	492.29	492.04	1.16	598.85	594.42

Movement, Approach, & Intersection Results

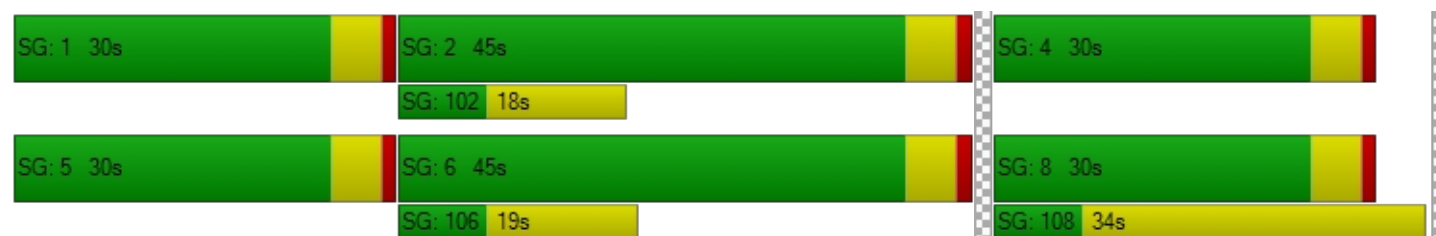
d_M, Delay for Movement [s/veh]	34.38	34.38	34.38	32.45	32.45	32.45	13.85	42.89	42.89	11.08	53.40	53.51
Movement LOS	C	C	C	C	C	C	B	D	D	B	D	D
d_A, Approach Delay [s/veh]	34.38			32.45			41.49			53.29		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	47.24											
Intersection LOS	D											
Intersection V/C	0.394											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			25.0			11.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	34.67			34.67			23.47			34.67		
I_p,int, Pedestrian LOS Score for Intersection	1.810			1.719			2.784			2.820		
Crosswalk LOS	A			A			C			C		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	556			556			889			889		
d_b, Bicycle Delay [s]	23.47			23.47			13.89			13.89		
I_b,int, Bicycle LOS Score for Intersection	1.647			1.563			2.437			2.489		
Bicycle LOS	A			A			B			B		

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report Intersection 27: Ager Rd/Nicholson St

Control Type: Signalized
Analysis Method: HCM 2010
Analysis Period: 15 minutes

Delay (sec / veh): 11.0
Level Of Service: B
Volume to Capacity (v/c): 0.512

Intersection Setup

Name	Ager Rd				Nicholson St			Nicholson St			Ager Rd.			
Approach	Northbound				Northeastbound			Southwestbound			Southeastbound			
Lane Configuration														
Turning Movement	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	1	0	0	0
Pocket Length [ft]	225.0	100.0	100.0	150.0	100.00	100.00	100.00	100.00	100.00	100.00	200.0	100.0	100.0	100.0
Speed [mph]	35.00				30.00			30.00			35.00			
Grade [%]	0.00				0.00			0.00			0.00			
Crosswalk	Yes				Yes			Yes			Yes			

Volumes

Name	Ager Rd				Nicholson St			Nicholson St			Ager Rd.			
Base Volume Input [veh/h]	1	78	838	96	69	14	70	25	10	107	6	175	742	93
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	2.00	0.00	1.82	0.00	0.00	1.74	0.00	2.44	2.00	3.57
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	30	0	0	0	0	0	0	0	0	0	49	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	78	868	96	69	14	70	25	10	107	6	175	791	93
Peak Hour Factor	0.900	0.900	0.900	0.900	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.900	0.900	0.900	0.900
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	22	241	27	19	4	19	7	3	30	2	49	220	26
Total Analysis Volume [veh/h]	1	87	964	107	77	16	78	28	11	119	7	194	879	103
Presence of On-Street Parking	No			No	No		No	No		No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0				0			0			0			
Bicycle Volume [bicycles/h]	0				0			0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permi	Permi	Permi	Permi
Signal group	0	0	2	0	0	8	0	0	4	0	0	0	6	0
Auxiliary Signal Groups														
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	5	0	0	5	0	0	0	5	0
Maximum Green [s]	0	0	30	0	0	30	0	0	30	0	0	0	30	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	0	68	0	0	22	0	0	22	0	0	0	68	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	5	0	0	5	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	0	10	0	0	10	0	0	10	0	0	0	10	0
Rest In Walk			No			No			No				No	
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall			No			No			No				No	
Maximum Recall			No			No			No				No	
Pedestrian Recall			No			No			No				No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	64	64	64	18	18	64	64	64
g / C, Green / Cycle	0.71	0.71	0.71	0.20	0.20	0.71	0.71	0.71
(v / s)_i Volume / Saturation Flow Rate	0.15	0.29	0.29	0.13	0.10	0.38	0.27	0.27
s, saturation flow rate [veh/h]	582	1863	1798	1340	1638	523	1863	1795
c, Capacity [veh/h]	419	1325	1279	326	375	378	1325	1277
d1, Uniform Delay [s]	9.23	5.31	5.31	33.03	31.80	13.56	5.13	5.14
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.14	0.95	0.98	5.93	3.46	5.29	0.82	0.85
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.21	0.41	0.41	0.52	0.42	0.53	0.38	0.38
d, Delay for Lane Group [s/veh]	10.37	6.25	6.29	38.96	35.25	18.85	5.95	5.99
Lane Group LOS	B	A	A	D	D	B	A	A
Critical Lane Group	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.89	3.51	3.41	3.93	3.35	3.05	3.11	3.01
50th-Percentile Queue Length [ft/ln]	22.28	87.80	85.22	98.32	83.63	76.37	77.73	75.36
95th-Percentile Queue Length [veh/ln]	1.60	6.32	6.14	7.08	6.02	5.50	5.60	5.43
95th-Percentile Queue Length [ft/ln]	40.11	158.04	153.39	176.98	150.54	137.47	139.92	135.65

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	10.37	10.37	6.27	6.29	38.96	38.96	38.96	35.25	35.25	35.25	18.85	18.85	5.97	5.99
Movement LOS	B	B	A	A	D	D	D	D	D	D	B	B	A	A
d_A, Approach Delay [s/veh]	6.58				38.96			35.25			8.16			
Approach LOS	A				D			D			A			
d_I, Intersection Delay [s/veh]	11.05													
Intersection LOS	B													
Intersection V/C	0.512													

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 28: Ager Rd/Hamilton St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 37.7
 Level Of Service: D
 Volume to Capacity (v/c): 1,901.841

Intersection Setup

Name	Hamilton St			Hamilton St			Ager Rd.			Ager Rd.		
Approach	Eastbound			Westbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	1	0	0	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	1500.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Hamilton St			Hamilton St			Ager Rd.			Ager Rd.		
Base Volume Input [veh/h]	65	158	16	130	83	488	28	388	125	454	290	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.33	1.72	0.00	3.85	2.08	1.91	2.06	1.84	3.33	2.21	2.00	2.63
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	30	51	37	0	84	0	61	0	0	0	0	49
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	95	209	53	130	167	488	89	388	125	454	290	99
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	58	15	36	46	136	25	108	35	126	81	28
Total Analysis Volume [veh/h]	106	232	59	144	186	542	99	431	139	504	322	110
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	8	0	0	4	0	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	10	0	5	10	0
Maximum Green [s]	0	26	0	0	26	0	0	30	0	10	45	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	4.0	0.0	3.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	30	0	0	30	0	0	35	0	15	50	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	3.0	0.0	2.0	3.0	0.0
Minimum Recall		No			No			Yes		Yes	Yes	
Maximum Recall		No			No			No		No	No	
Pedestrian Recall		No			No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	C	L	C	C	L	C
C, Cycle Length [s]	73	73	73	73	73	73	73	73	73
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	3.00	3.00	3.00	0.00	3.00
g_i, Effective Green Time [s]	26	26	26	26	24	24	24	38	38
g / C, Green / Cycle	0.36	0.36	0.36	0.36	0.33	0.33	0.33	0.52	0.52
(v / s)_i Volume / Saturation Flow Rate	1588.26	0.18	0.35	0.38	0.10	0.16	0.16	0.44	0.24
s, saturation flow rate [veh/h]	0	1641	950	1440	952	1866	1712	1133	1783
c, Capacity [veh/h]	99	586	411	514	234	610	559	625	925
d1, Uniform Delay [s]	36.39	18.27	25.63	23.39	29.92	19.61	19.64	15.00	11.11
k, delay calibration	0.50	0.11	0.42	0.48	0.11	0.11	0.11	0.50	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	111.02	0.65	13.23	53.95	1.22	0.60	0.67	10.65	0.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.07	0.50	0.80	1.05	0.42	0.49	0.49	0.81	0.47
d, Delay for Lane Group [s/veh]	147.41	18.93	38.87	77.34	31.14	20.21	20.30	25.66	11.48
Lane Group LOS	F	B	D	F	C	C	C	C	B
Critical Lane Group	Yes	No	No	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	4.75	3.61	6.79	15.63	1.65	3.80	3.53	6.51	3.86
50th-Percentile Queue Length [ft/ln]	118.66	90.25	169.85	390.85	41.32	94.93	88.19	162.73	96.60
95th-Percentile Queue Length [veh/ln]	8.54	6.50	11.07	22.89	2.97	6.83	6.35	10.69	6.96
95th-Percentile Queue Length [ft/ln]	213.59	162.46	276.71	572.14	74.37	170.87	158.74	267.33	173.89

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	147.41	18.93	18.93	38.87	38.87	77.34	31.14	20.24	20.30	25.66	11.48	11.48
Movement LOS	F	B	B	D	D	F	C	C	C	C	B	B
d_A, Approach Delay [s/veh]	53.23			62.78			21.86			19.11		
Approach LOS	D			E			C			B		
d_I, Intersection Delay [s/veh]	37.71											
Intersection LOS	D											
Intersection V/C	1901.841											

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 29: Toledo Rd/Belcrest Rd

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 15.2
 Level Of Service: B
 Volume to Capacity (v/c): 0.549

Intersection Setup

Name	Belcrest Rd				Belcrest Rd				Toledo Rd			Toledo Rd		
Approach	Northbound				Southbound				Eastbound			Westbound		
Lane Configuration														
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	400.0	100.0	100.0	100.0	200.0	100.0	100.0	100.0	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				30.00			30.00		
Grade [%]	0.00				0.00				0.00			0.00		
Crosswalk	Yes				No				Yes			Yes		

Volumes

Name	Belcrest Rd				Belcrest Rd				Toledo Rd			Toledo Rd		
Base Volume Input [veh/h]	15	192	383	78	2	93	444	144	157	69	179	56	80	87
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	3.03	1.83	1.37	0.00	2.00	2.02	0.00	0.00	2.86	0.00	2.86	3.45	2.13
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	8	0	0	0	10	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	192	391	78	2	93	454	144	157	69	179	56	80	87
Peak Hour Factor	0.900	0.900	0.900	0.900	0.900	0.900	0.900	0.900	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	53	109	22	1	26	126	40	44	19	50	16	22	24
Total Analysis Volume [veh/h]	17	213	434	87	2	103	504	160	174	77	199	62	89	97
Presence of On-Street Parking	No			No	No			No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	8				0				20			15		
Bicycle Volume [bicycles/h]	0				0				0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	2	2	2	2	6	6	6	6	4	4	4	8	8	8
Auxiliary Signal Groups														
Lead / Lag	Lag	Lag	-	-	Lag	Lag	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Maximum Green [s]	40	40	40	40	40	40	40	40	30	30	30	30	30	30
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Pedestrian Clearance [s]	15	15	15	15	15	15	15	15	21	21	21	21	21	21
Rest In Walk			No				No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall			No				No			No			No	
Maximum Recall			Yes				Yes			No			No	
Pedestrian Recall			No				No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	30.0	30.0	30.0	0.0	0.0	0.0	0.0	30.0	30.0	30.0	30.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	C
C, Cycle Length [s]	72	72	72	72	72	72	72	72	72	72
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	40	40	40	40	40	40	22	22	22	22
g / C, Green / Cycle	0.55	0.55	0.55	0.55	0.55	0.55	0.31	0.31	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.30	0.14	0.14	0.12	0.19	0.19	0.14	0.04	0.12	0.15
s, saturation flow rate [veh/h]	760	1866	1750	874	1862	1694	1217	1847	1602	1603
c, Capacity [veh/h]	414	1032	968	487	1031	937	328	570	494	557
d1, Uniform Delay [s]	17.81	8.42	8.43	12.72	8.85	8.88	27.85	18.04	19.74	20.24
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.30	0.61	0.66	1.01	0.88	0.99	1.34	0.11	0.53	0.56
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.56	0.26	0.26	0.22	0.34	0.34	0.53	0.14	0.40	0.45
d, Delay for Lane Group [s/veh]	23.11	9.03	9.09	13.74	9.73	9.87	29.19	18.15	20.27	20.80
Lane Group LOS	C	A	A	B	A	A	C	B	C	C
Critical Lane Group	Yes	No	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.54	2.08	1.98	1.13	2.83	2.64	2.85	0.90	2.57	3.28
50th-Percentile Queue Length [ft/ln]	88.47	51.89	49.42	28.14	70.76	66.03	71.23	22.53	64.33	82.09
95th-Percentile Queue Length [veh/ln]	6.37	3.74	3.56	2.03	5.09	4.75	5.13	1.62	4.63	5.91
95th-Percentile Queue Length [ft/ln]	159.24	93.40	88.95	50.66	127.37	118.86	128.22	40.55	115.79	147.77

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	23.11	23.11	9.05	9.09	13.74	13.74	9.77	9.87	29.19	18.15	20.27	20.80	20.80	20.80
Movement LOS	C	C	A	A	B	B	A	A	C	B	C	C	C	C
d_A, Approach Delay [s/veh]	13.36				10.33				23.36			20.80		
Approach LOS	B				B				C			C		
d_I, Intersection Delay [s/veh]	15.17													
Intersection LOS	B													
Intersection V/C	0.549													

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SG: 2 45s

SG: 102 22s

SG: 6 45s

SG: 106 22s

SG: 4 35s

SG: 104 28s

SG: 8 35s

Intersection Level Of Service Report

Intersection 30: Adelphi Rd/Belcrest Rd

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 35.2
 Level Of Service: D
 Volume to Capacity (v/c): 0.873

Intersection Setup

Name	Belcrest Rd			Underwood St			Adelphi Rd				Adelphi Rd		
Approach	Northeastbound			Southwestbound			Northwestbound				Southeastbound		
Lane Configuration													
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.0	100.0	100.0	100.0	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00				30.00		
Grade [%]	0.00			0.00			0.00				0.00		
Crosswalk	No			Yes			Yes				Yes		

Volumes

Name	Belcrest Rd			Underwood St			Adelphi Rd				Adelphi Rd		
Base Volume Input [veh/h]	693	0	68	10	8	1	2	17	1150	0	0	819	650
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.98	0.00	0.00	1.99	1.94
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	0	0	0	0	0	0	0	7	0	0	18	10
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	701	0	68	10	8	1	2	17	1157	0	0	837	660
Peak Hour Factor	0.9000	1.0000	1.0000	0.9000	0.9000	0.9000	0.900	0.900	0.900	1.000	1.0000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	195	0	17	3	2	0	1	5	321	0	0	233	183
Total Analysis Volume [veh/h]	779	0	68	11	9	1	2	19	1286	0	0	930	733
Presence of On-Street Parking	No		No	No		No	No			No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			1				5		
Bicycle Volume [bicycles/h]	0			0			0				0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	122
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Permi	Prote	Permi	Permi	Permiss	Permiss	Permiss
Signal group	4	4	0	8	8	8	5	5	2	0	0	6	6
Auxiliary Signal Groups													
Lead / Lag	Lead	-	-	Lag	-	-	Lead	Lead	-	-	-	-	-
Minimum Green [s]	4	4	0	4	4	4	4	4	4	0	0	4	4
Maximum Green [s]	30	30	0	17	17	17	11	11	60	0	0	46	46
Amber [s]	4.0	4.0	0.0	4.0	4.0	4.0	3.5	3.5	4.0	0.0	0.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.5	0.5	1.0	0.0	0.0	1.0	1.0
Split [s]	35	35	0	22	22	22	15	15	65	0	0	50	50
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	0.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk	No				No				No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	0.0	3.0	3.0	3.0	2.0	2.0	3.0	0.0	0.0	2.0	2.0
Minimum Recall	No				No			No	No			No	
Maximum Recall	No				No			No	Yes			Yes	
Pedestrian Recall	No				No			No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	30.0	30.0	30.0	0.0	0.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C
C, Cycle Length [s]	104	104	104	104	104	104	104
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	0.00	3.00	2.00	2.00
g_i, Effective Green Time [s]	27	27	2	60	60	55	55
g / C, Green / Cycle	0.26	0.26	0.02	0.58	0.58	0.53	0.53
(v / s)_i Volume / Saturation Flow Rate	0.24	0.24	0.01	0.05	0.36	0.45	0.52
s, saturation flow rate [veh/h]	1772	1775	1836	402	3547	1863	1612
c, Capacity [veh/h]	466	467	34	179	2038	982	850
d1, Uniform Delay [s]	37.18	37.30	50.87	24.18	14.84	21.07	24.09
k, delay calibration	0.31	0.31	0.11	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.99	17.28	16.15	1.34	1.50	8.94	25.97
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.91	0.61	0.12	0.63	0.85	0.98
d, Delay for Lane Group [s/veh]	53.18	54.58	67.02	25.51	16.34	30.00	50.06
Lane Group LOS	D	D	E	C	B	C	D
Critical Lane Group	No	Yes	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	12.27	12.60	0.70	0.27	9.92	18.61	24.63
50th-Percentile Queue Length [ft/ln]	306.80	314.98	17.44	6.66	248.08	465.35	615.71
95th-Percentile Queue Length [veh/ln]	18.02	18.42	1.26	0.48	15.09	25.69	32.77
95th-Percentile Queue Length [ft/ln]	450.43	460.52	31.39	11.99	377.23	642.23	819.18

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	53.82	0.00	54.58	67.02	67.02	67.02	25.51	25.51	16.34	0.00	0.00	32.13	50.06
Movement LOS	D		D	E	E	E	C	C	B			C	D
d_A, Approach Delay [s/veh]	53.88			67.02			16.48			40.03			
Approach LOS	D			E			B			D			
d_I, Intersection Delay [s/veh]	35.22												
Intersection LOS	D												
Intersection V/C	0.873												

Sequence

Ring 1	-	2	-	4	-	8	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report Intersection 31: Adelphi Rd/Campus Dr

Control Type: Signalized
Analysis Method: HCM 2010
Analysis Period: 15 minutes

Delay (sec / veh): 180.6
Level Of Service: F
Volume to Capacity (v/c): 1.208

Intersection Setup

Name	Adelphi Rd.			Adelphi Rd.			Campus Dr.			Campus Dr.		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	0	0	0
Pocket Length [ft]	350.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	250.00	100.00	100.00	100.00
Speed [mph]	40.00			40.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Adelphi Rd.			Adelphi Rd.			Campus Dr.			Campus Dr.		
Base Volume Input [veh/h]	242	1536	43	174	1132	0	0	111	340	125	169	355
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.27	2.08	2.27	2.00	2.05	0.00	0.00	2.00	2.21	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	15	0	0	28	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	242	1551	43	174	1160	0	0	111	340	125	169	355
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	1.0000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	431	12	48	322	0	0	31	94	35	47	99
Total Analysis Volume [veh/h]	269	1723	48	193	1289	0	0	123	378	139	188	394
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	248
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Overlap	Permiss	Permiss	Overlap	Overlap	Permiss	Permiss	Split	Split	Split	Split	Split
Signal group	3	8	8	1	1	0	0	2	2	6	6	6
Auxiliary Signal Groups	3,8			1,7	1,4							
Lead / Lag	Lag	-	-	Lag	-	-	-	-	-	Lag	-	-
Minimum Green [s]	5	8	8	15	15	0	0	25	25	5	5	5
Maximum Green [s]	30	60	60	40	40	0	0	60	60	30	30	30
Amber [s]	4.0	4.0	4.0	4.0	4.0	0.0	0.0	4.5	4.5	4.5	4.5	4.5
All red [s]	1.0	2.0	2.0	1.0	1.0	0.0	0.0	1.5	1.5	1.5	1.5	1.5
Split [s]	35	66	66	50	50	0	0	66	66	36	36	36
Vehicle Extension [s]	3.0	3.5	3.5	3.0	3.0	0.0	0.0	4.0	4.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	4.0	4.0	3.0	3.0	0.0	0.0	4.0	4.0	4.0	4.0	4.0
Minimum Recall	Yes	Yes		Yes	Yes			Yes			Yes	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	30.0	30.0	30.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	R	C	C	R
C, Cycle Length [s]	215	215	215	215	215	215	215	215	215	215
L, Total Lost Time per Cycle [s]	5.50	6.00	6.00	5.00	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.00	4.00	0.00	0.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	94	60	60	108	115	54	54	30	30	30
g / C, Green / Cycle	0.44	0.28	0.28	0.50	0.53	0.25	0.25	0.14	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.38	0.34	0.03	0.06	0.36	0.03	0.24	0.00	0.11	0.25
s, saturation flow rate [veh/h]	702	5070	1579	3445	3545	3547	1580	0	1695	1583
c, Capacity [veh/h]	323	1414	440	1732	1891	893	398	33	236	221
d1, Uniform Delay [s]	83.05	77.56	57.68	28.19	36.82	62.40	79.17	107.56	89.59	92.56
k, delay calibration	0.50	0.13	0.13	0.11	0.50	0.15	0.36	0.11	0.27	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	21.43	100.14	0.13	0.03	2.01	0.10	28.05	1434.06	13.71	370.65
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	1.22	0.11	0.11	0.68	0.14	0.95	4.15	0.80	1.78
d, Delay for Lane Group [s/veh]	104.48	177.70	57.81	28.22	38.83	62.50	107.22	1541.62	103.30	463.21
Lane Group LOS	F	F	E	C	D	E	F	F	F	F
Critical Lane Group	No	Yes	No	Yes	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	11.54	39.07	1.98	2.70	25.36	2.66	23.76	15.23	11.11	35.12
50th-Percentile Queue Length [ft/ln]	288.61	976.64	49.54	67.60	634.12	66.53	593.91	380.66	277.66	877.94
95th-Percentile Queue Length [veh/ln]	17.12	55.45	3.57	4.87	33.62	4.79	31.75	26.99	16.57	54.64
95th-Percentile Queue Length [ft/ln]	427.92	1386.21	89.17	121.68	840.61	119.75	793.75	674.69	414.29	1366.10

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	104.48	177.70	57.81	28.22	38.83	0.00	0.00	62.50	107.22	1541.62	103.30	463.21
Movement LOS	F	F	E	C	D			E	F	F	F	F
d_A, Approach Delay [s/veh]	165.23			37.45			96.24			577.27		
Approach LOS	F			D			F			F		
d_I, Intersection Delay [s/veh]	180.65											
Intersection LOS	F											
Intersection V/C	1.208											

Sequence

Ring 1	1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	5	-	8	7	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 32: Adelphi Rd/Toledo Rd

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 9.7
 Level Of Service: A
 Volume to Capacity (v/c): 0.501

Intersection Setup

Name	Adelphi Rd			Adelphi Rd		Toledo Rd	
Approach	Northbound			Southbound		Eastbound	
Lane Configuration							
Turning Movement	U-turn	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0	1
Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00	200.00
Speed [mph]	45.00			30.00		30.00	
Grade [%]	0.00			0.00		0.00	
Crosswalk	Yes			No		Yes	

Volumes

Name	Adelphi Rd			Adelphi Rd		Toledo Rd	
Base Volume Input [veh/h]	6	122	1087	758	118	169	90
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	1.97	2.01	2.05	1.88	2.38	1.96
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	7	18	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	122	1094	776	118	169	90
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	34	304	216	33	47	25
Total Analysis Volume [veh/h]	7	136	1216	862	131	188	100
Presence of On-Street Parking	No		No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	6			0		6	
Bicycle Volume [bicycles/h]	0			0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	20.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Permissive	ProtectedP	Permissive	Permissive	Permissive	Split	Split
Signal group	5	5	2	6	6	4	4
Auxiliary Signal Groups							
Lead / Lag	Lead	Lead	-	-	-	Lag	-
Minimum Green [s]	4	4	4	4	4	4	4
Maximum Green [s]	15	15	65	45	45	25	25
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	30	30	30	30	30	30	30
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	7	7	7	7	7
Pedestrian Clearance [s]	0	0	6	6	6	13	13
Rest In Walk			No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall		No	No	No		No	
Maximum Recall		No	Yes	Yes		No	
Pedestrian Recall		No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	30.0	30.0	30.0	30.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	R
C, Cycle Length [s]	87	87	87	87	87	87
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	65	65	56	56	12	12
g / C, Green / Cycle	0.74	0.74	0.64	0.64	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.19	0.34	0.24	0.08	0.11	0.06
s, saturation flow rate [veh/h]	766	3546	3545	1578	1767	1564
c, Capacity [veh/h]	612	2637	2261	1006	251	222
d1, Uniform Delay [s]	4.02	4.38	7.57	6.25	36.00	34.37
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.89	0.58	0.49	0.27	4.43	1.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.46	0.38	0.13	0.75	0.45
d, Delay for Lane Group [s/veh]	4.91	4.96	8.06	6.52	40.43	35.79
Lane Group LOS	A	A	A	A	D	D
Critical Lane Group	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.56	2.66	3.50	0.91	4.09	2.01
50th-Percentile Queue Length [ft/ln]	14.10	66.62	87.50	22.86	102.14	50.13
95th-Percentile Queue Length [veh/ln]	1.02	4.80	6.30	1.65	7.35	3.61
95th-Percentile Queue Length [ft/ln]	25.38	119.92	157.50	41.14	183.85	90.24

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	4.91	4.91	4.96	8.06	6.52	40.43	35.79
Movement LOS	A	A	A	A	A	D	D
d_A, Approach Delay [s/veh]	4.95			7.86		38.82	
Approach LOS	A			A		D	
d_I, Intersection Delay [s/veh]	9.74						
Intersection LOS	A						
Intersection V/C	0.501						

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 33: Hamilton St/40th Pl/39th Ave

Control Type: Roundabout
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 8.9
 Level Of Service: A

Intersection Setup

Name	Magruder Park Ent				39th Ave				Hamilton St			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				35.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	Yes				Yes				Yes			

Volumes

Name	Magruder Park Ent				39th Ave				Hamilton St			
Base Volume Input [veh/h]	18	8	0	2	0	21	16	46	22	0	418	25
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.85	0.00	2.15	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	7	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	8	0	2	0	21	16	46	22	0	425	25
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	2	0	1	0	6	4	13	6	0	118	7
Total Analysis Volume [veh/h]	20	9	0	2	0	23	18	51	24	0	472	28
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings

Number of Conflicting Circulating Lanes	1				1				1			
Circulating Flow Rate [veh/h]	530				609				52			
Exiting Flow Rate [veh/h]	57				49				649			
Demand Flow Rate [veh/h]	18	8	0	2	0	21	16	46	22	0	425	25
Adjusted Demand Flow Rate [veh/h]	20	9	0	2	0	23	18	51	24	0	472	28

Lanes

Overwrite Calculated Critical Headway	No				No				No			
User-Defined Critical Headway [s]	4.00				4.00				4.00			
Overwrite Calculated Follow-Up Time	No				No				No			
User-Defined Follow-Up Time [s]	3.00				3.00				3.00			
A (intercept)	1130.00				1130.00				1130.00			
B (coefficient)	0.00100				0.00100				0.00100			
HV Adjustment Factor	1.00				1.00				0.98			
Entry Flow Rate [veh/h]	31				92				536			
Capacity of Entry and Bypass Lanes [veh/h]	666				615				1073			
Pedestrian Impedance	1.00				1.00				1.00			
Capacity per Entry Lane [veh/h]	666				615				1051			
X, volume / capacity	0.05				0.15				0.50			

Movement, Approach, & Intersection Results

Lane LOS	A	A	A
95th-Percentile Queue Length [veh]	0.15	0.52	2.86
95th-Percentile Queue Length [ft]	3.66	13.10	71.53
Approach Delay [s/veh]	5.91	7.64	9.28
Approach LOS	A	A	A
Intersection Delay [s/veh]	8.87		
Intersection LOS	A		

Intersection Setup

Name	Hamilton St				Gallatin St			
Approach	Westbound				Northwestbound			
Lane Configuration								
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				35.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				Yes			

Volumes

Name	Hamilton St				Gallatin St			
Base Volume Input [veh/h]	0	0	67	5	10	431	8	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.20	0.00	0.00	2.18	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	12	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	67	5	10	443	8	0
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	19	1	3	123	2	0
Total Analysis Volume [veh/h]	0	0	74	6	11	492	9	0
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

Number of Conflicting Circulating Lanes	1				1			
Circulating Flow Rate [veh/h]	577				54			
Exiting Flow Rate [veh/h]	0				507			
Demand Flow Rate [veh/h]	0	0	67	5	10	443	8	0
Adjusted Demand Flow Rate [veh/h]	0	0	74	6	11	492	9	0

Lanes

Overwrite Calculated Critical Headway	No				No			
User-Defined Critical Headway [s]	4.00				4.00			
Overwrite Calculated Follow-Up Time	No				No			
User-Defined Follow-Up Time [s]	3.00				3.00			
A (intercept)	1130.00				1130.00			
B (coefficient)	0.00100				0.00100			
HV Adjustment Factor	0.98				0.98			
Entry Flow Rate [veh/h]	82				523			
Capacity of Entry and Bypass Lanes [veh/h]	635				1071			
Pedestrian Impedance	1.00				1.00			
Capacity per Entry Lane [veh/h]	623				1049			
X, volume / capacity	0.13				0.49			

Movement, Approach, & Intersection Results

Lane LOS	A				A			
95th-Percentile Queue Length [veh]	0.44				2.75			
95th-Percentile Queue Length [ft]	11.00				68.73			
Approach Delay [s/veh]	7.28				9.10			
Approach LOS	A				A			
Intersection Delay [s/veh]	8.87							
Intersection LOS	A							

Intersection Level Of Service Report

Intersection 4302: New Intersection

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 14.9
 Level Of Service: B
 Volume to Capacity (v/c): 0.000

Intersection Setup

Name							Queensbury			Queensbury		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name							Queensbury			Queensbury		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	363	0	0	319	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	363	0	0	319	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	91	0	0	80	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	363	0	0	319	0
Pedestrian Volume [ped/h]	0			0			0			0		

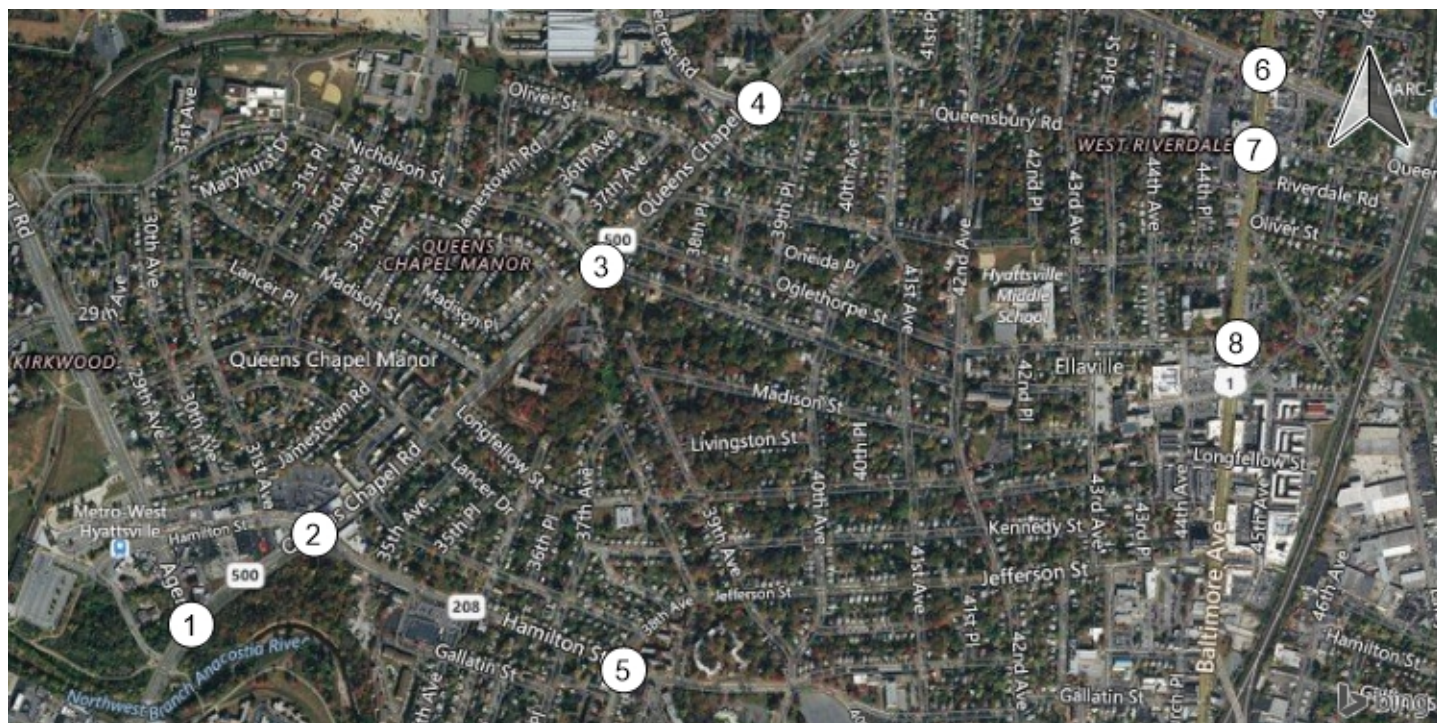
Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

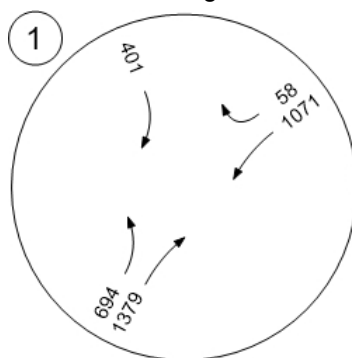
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	14.89	14.67	10.28	14.89	14.67	9.99	7.90	0.00	0.00	8.01	0.00	0.00
Movement LOS	B	B	B	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	13.28			13.19			0.00			0.00		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	0.00											
Intersection LOS	B											

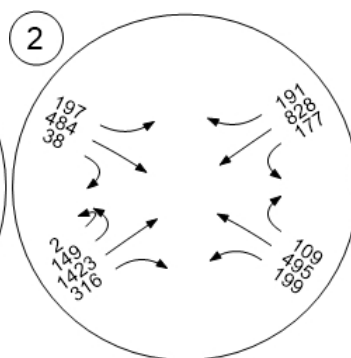
Traffic Volume - Future Total Volume



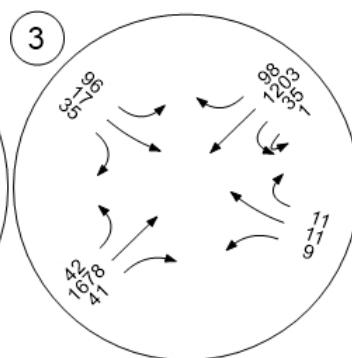
MD 500/Ager Rd



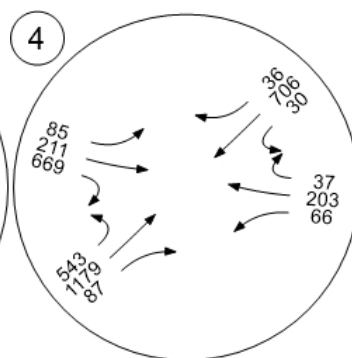
MD 500/Hamilton St



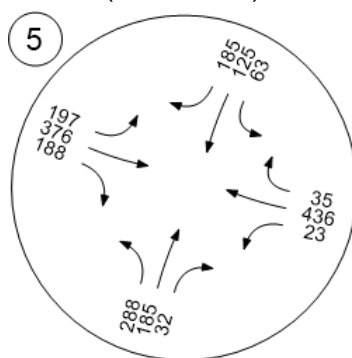
MD 500/Nicholson St



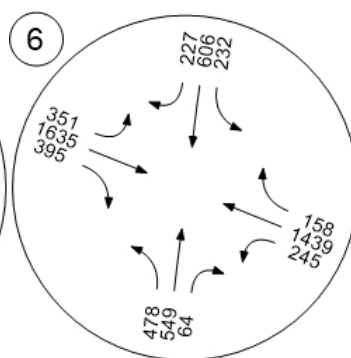
MD 500/Belcrest Rd/Queens



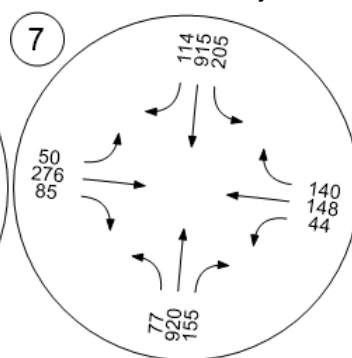
MD 208(Hamilton St)/38th Av



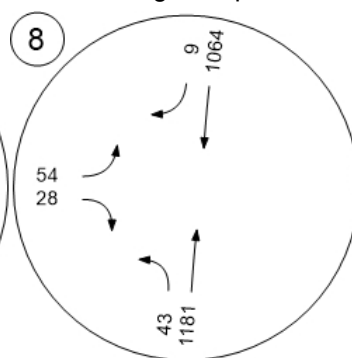
US 1/MD 410



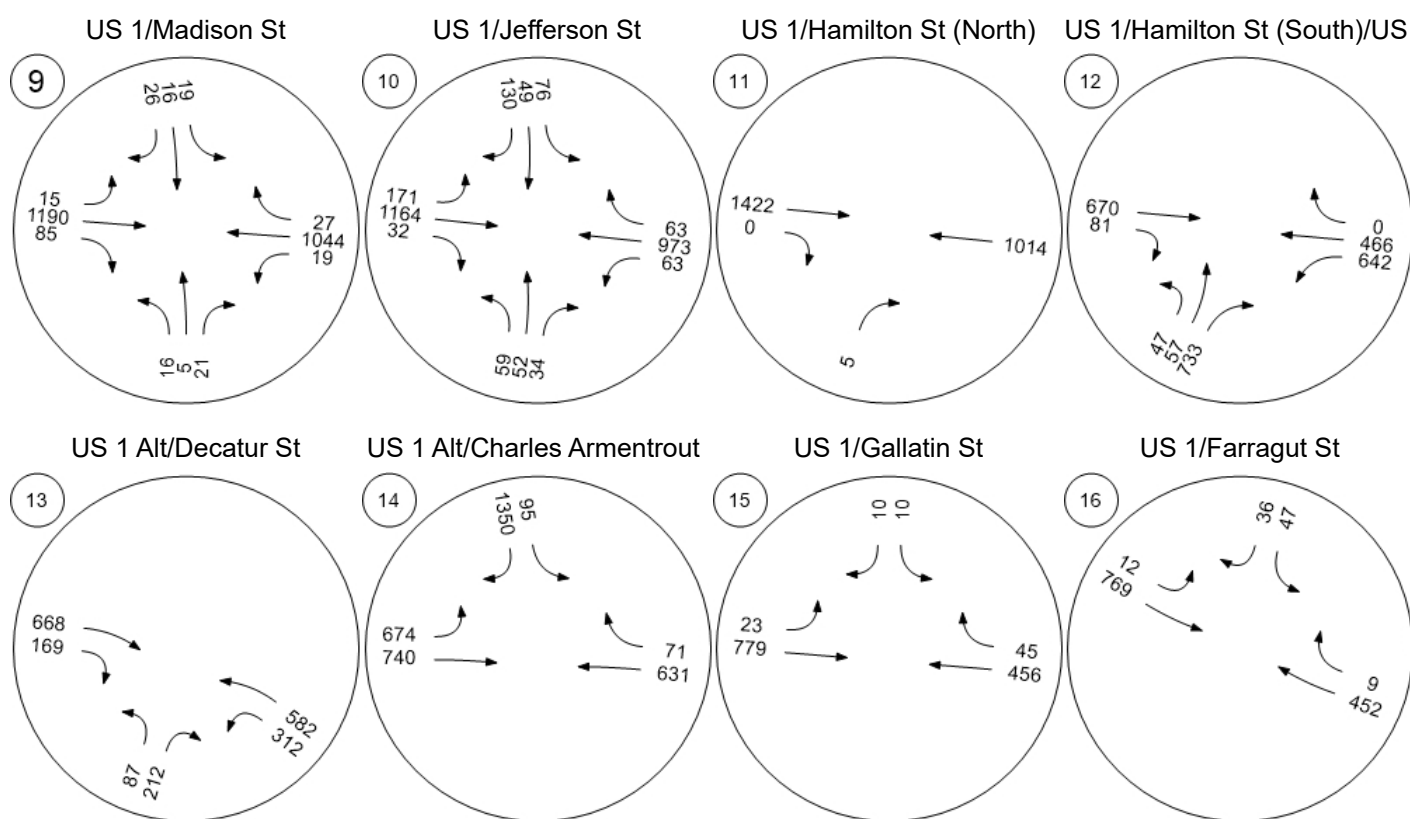
US 1/Queensbury Rd



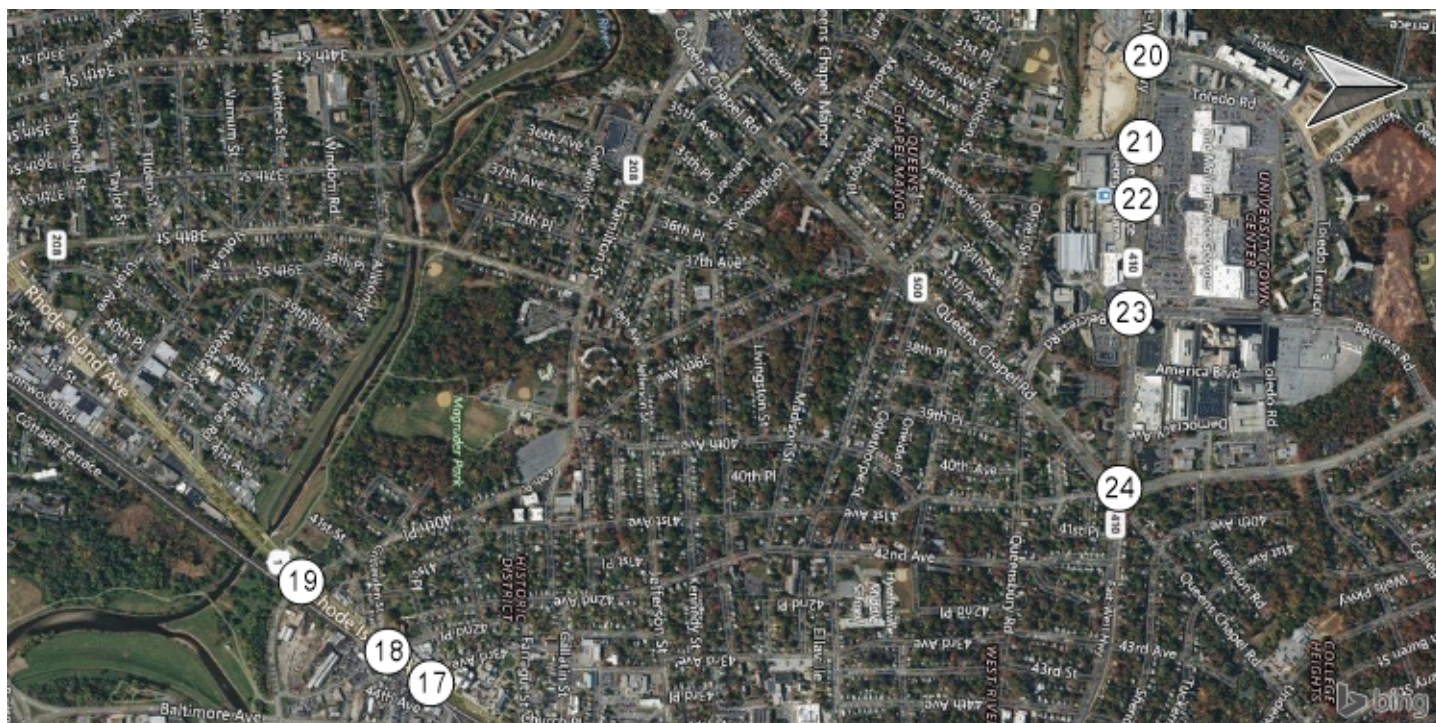
US 1/Oglethorpe Rd



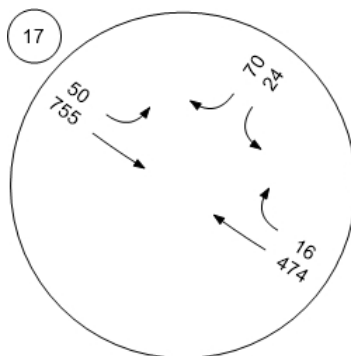
Traffic Volume - Future Total Volume



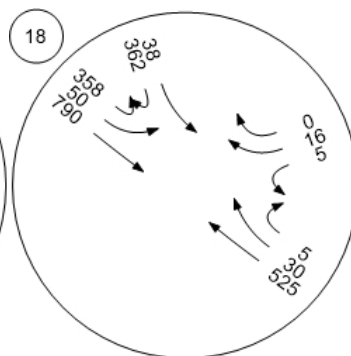
Traffic Volume - Future Total Volume



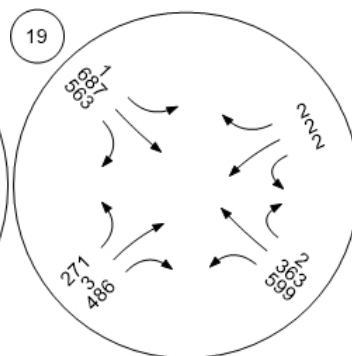
US 1/43rd Ave



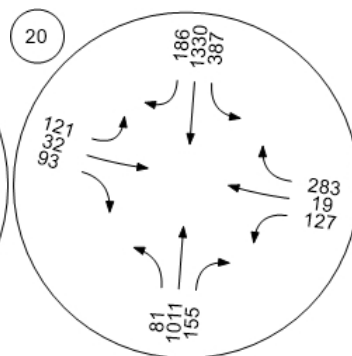
US 1/42nd Place/Crittendon



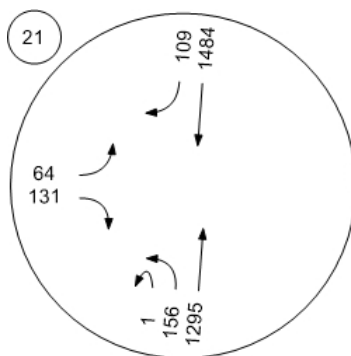
US 1/41st Place/Charles Arm



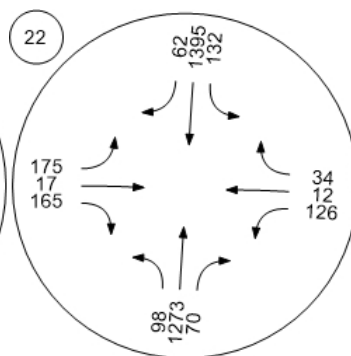
MD 410/Toledo Terrace



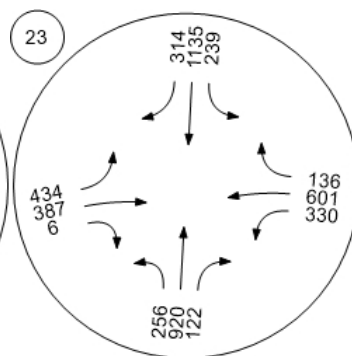
MD 410/Editors Park Dr



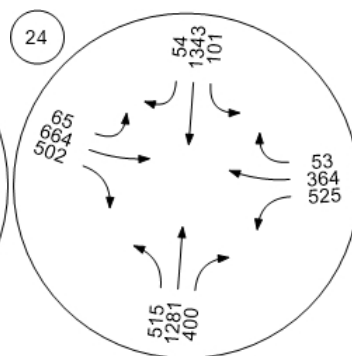
MD 410/Prince George's Plaz



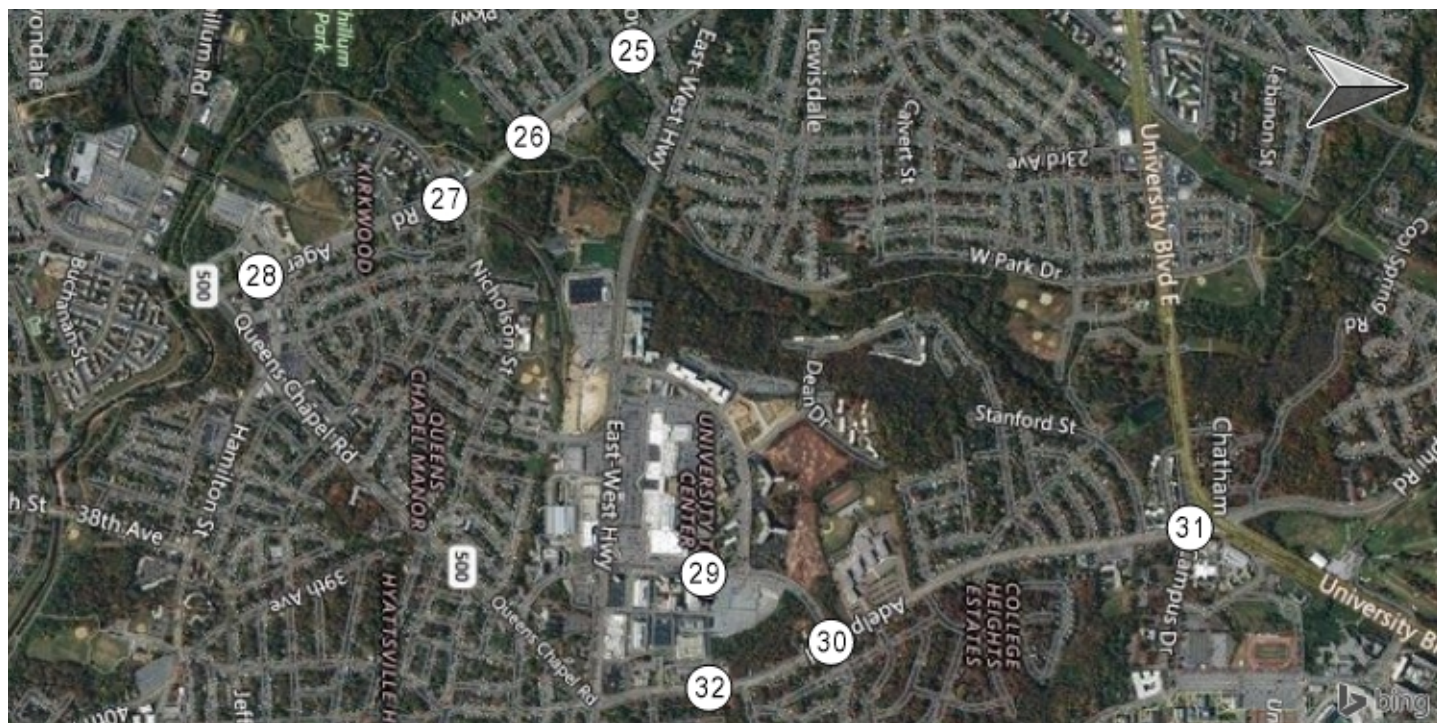
MD 410/Belcrest Rd



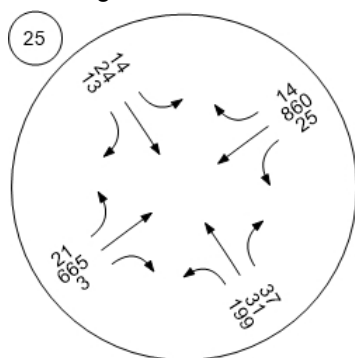
MD 410/MD 500/Adelphi Rd



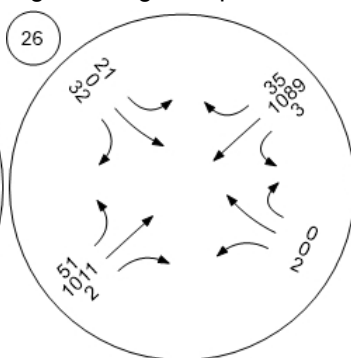
Traffic Volume - Future Total Volume



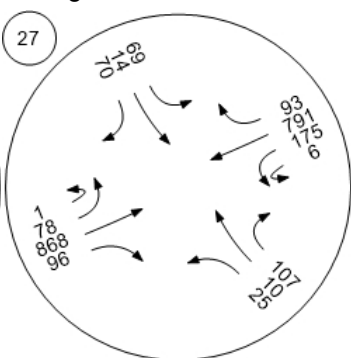
Ager Rd/23rd Ave



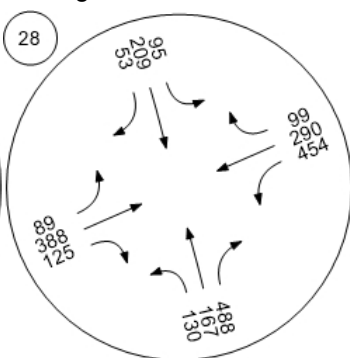
Ager Rd/Oglethorpe St/Scho



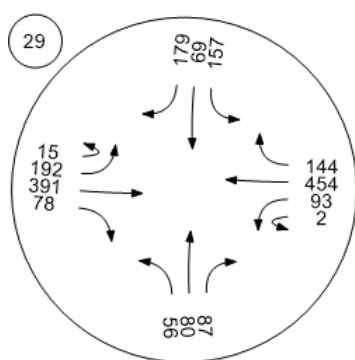
Ager Rd/Nicholson St



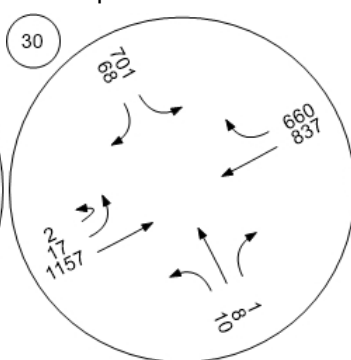
Ager Rd/Hamilton St



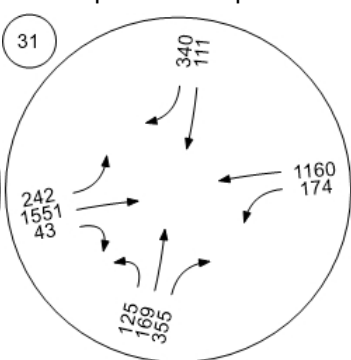
Toledo Rd/Belcrest Rd



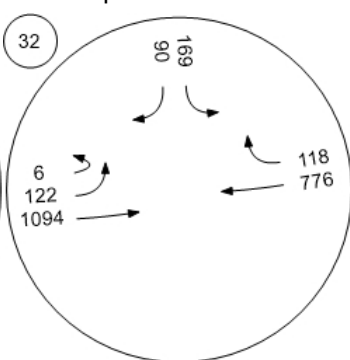
Adelphi Rd/Belcrest Rd



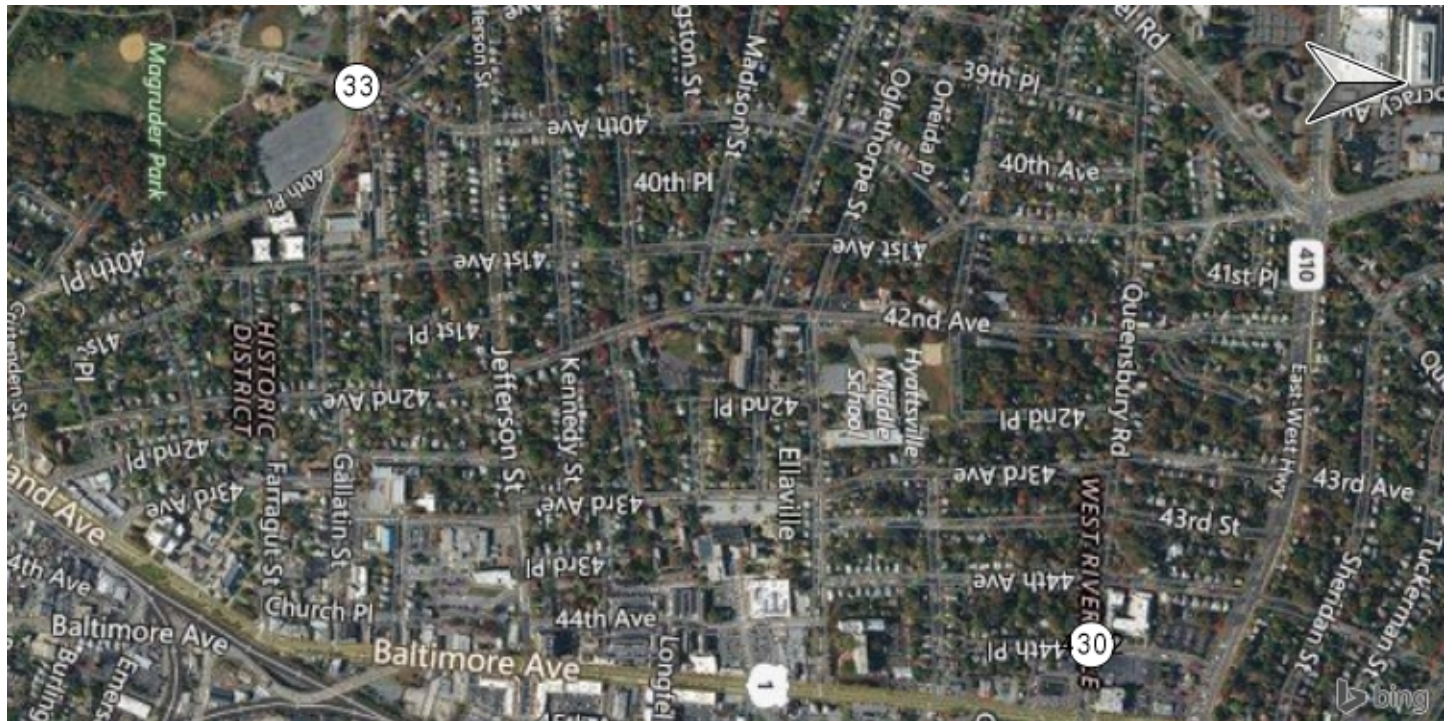
Adelphi Rd/Campus Dr



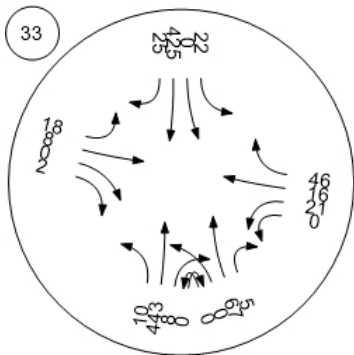
Adelphi Rd/Toledo Rd



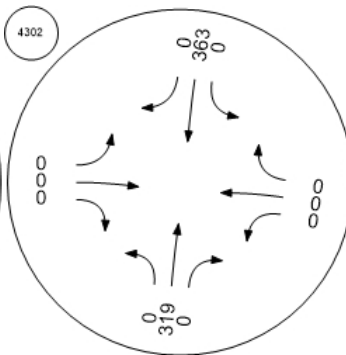
Traffic Volume - Future Total Volume



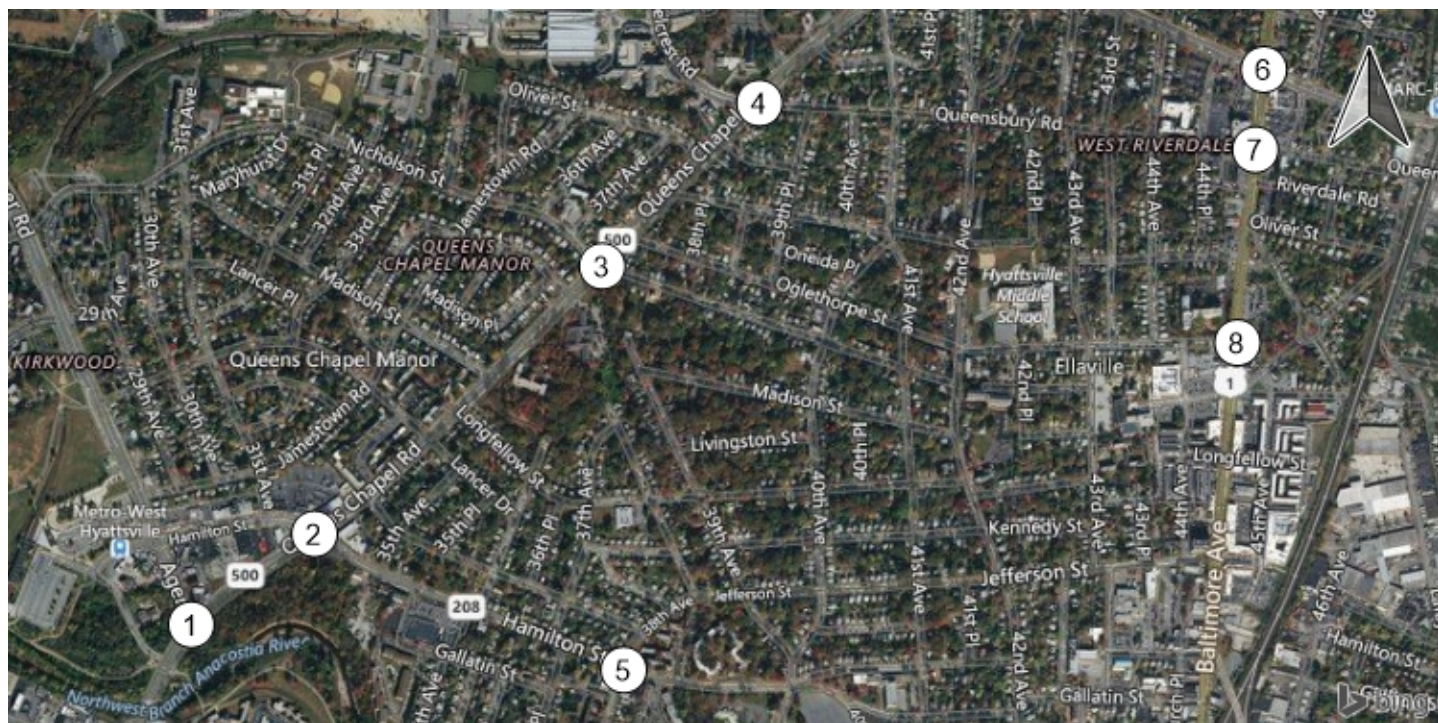
Hamilton St/40th Pl/39th Ave



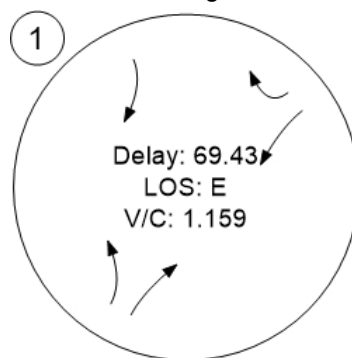
New Intersection



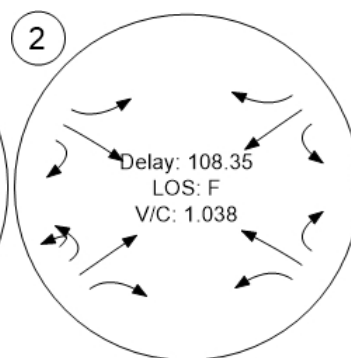
Traffic Conditions



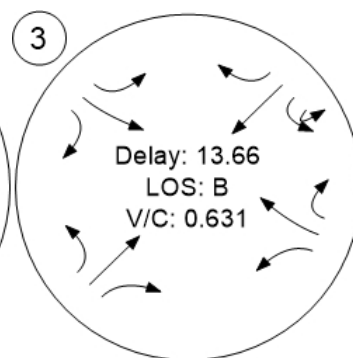
MD 500/Ager Rd



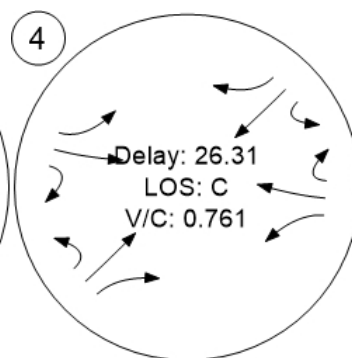
MD 500/Hamilton St



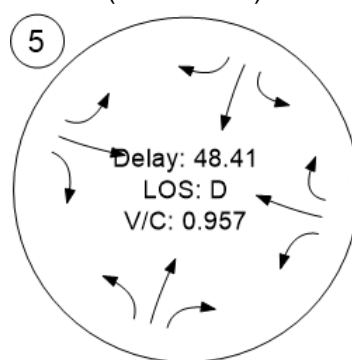
MD 500/Nicholson St



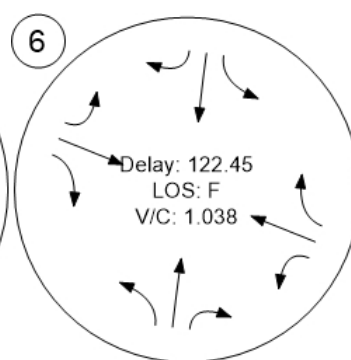
MD 500/Belcrest Rd/Queens



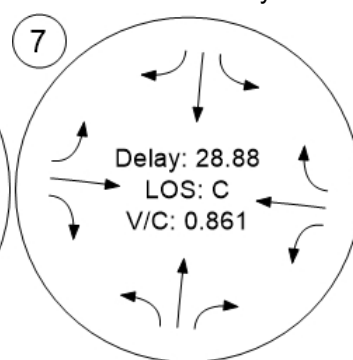
MD 208(Hamilton St)/38th Av



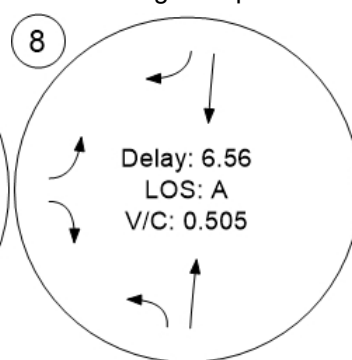
US 1/MD 410



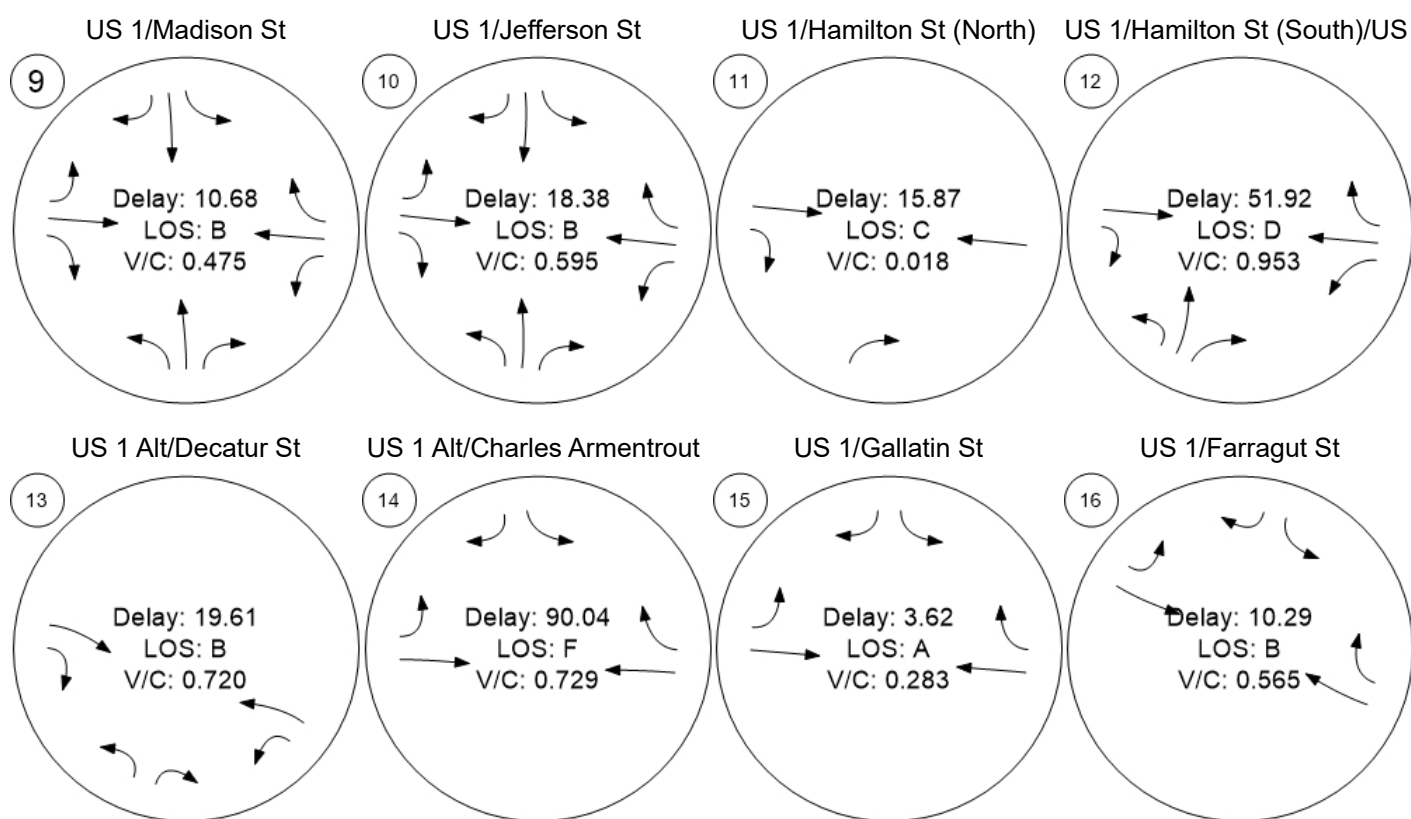
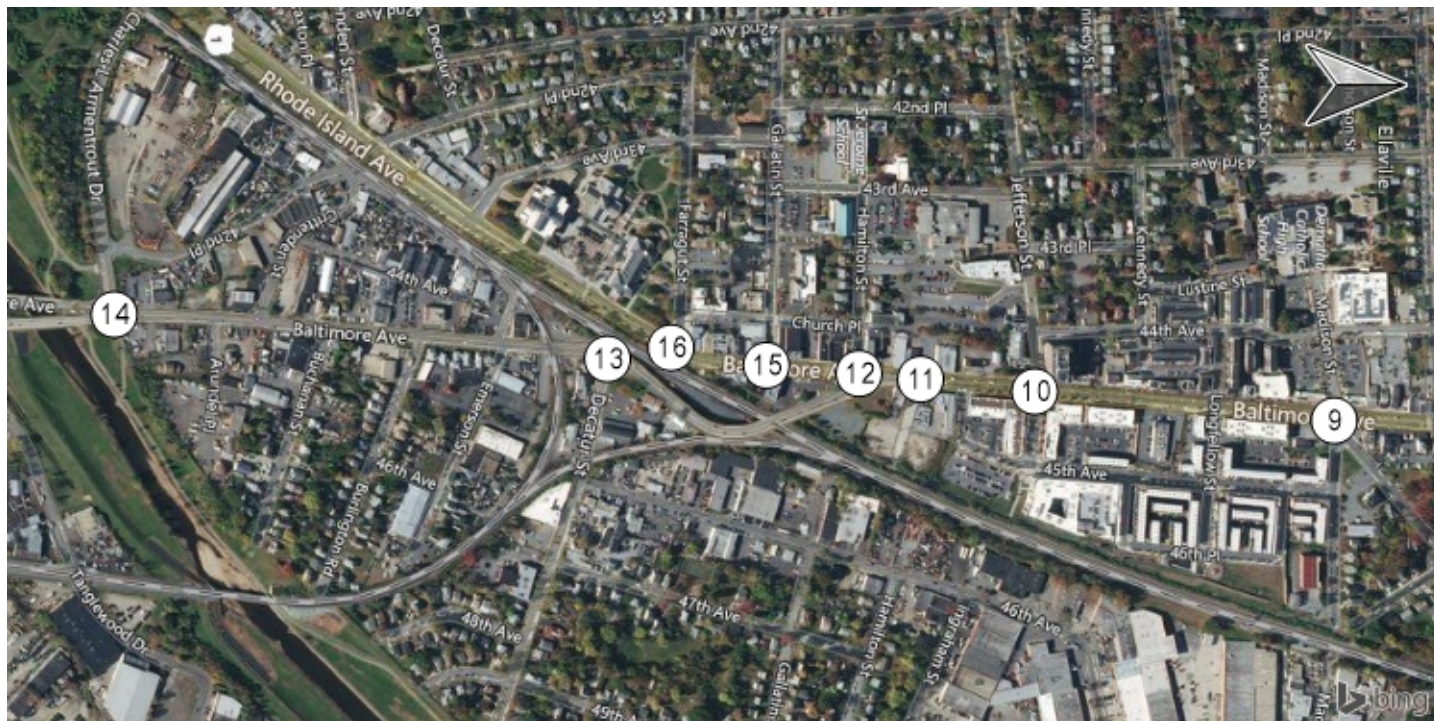
US 1/Queensbury Rd



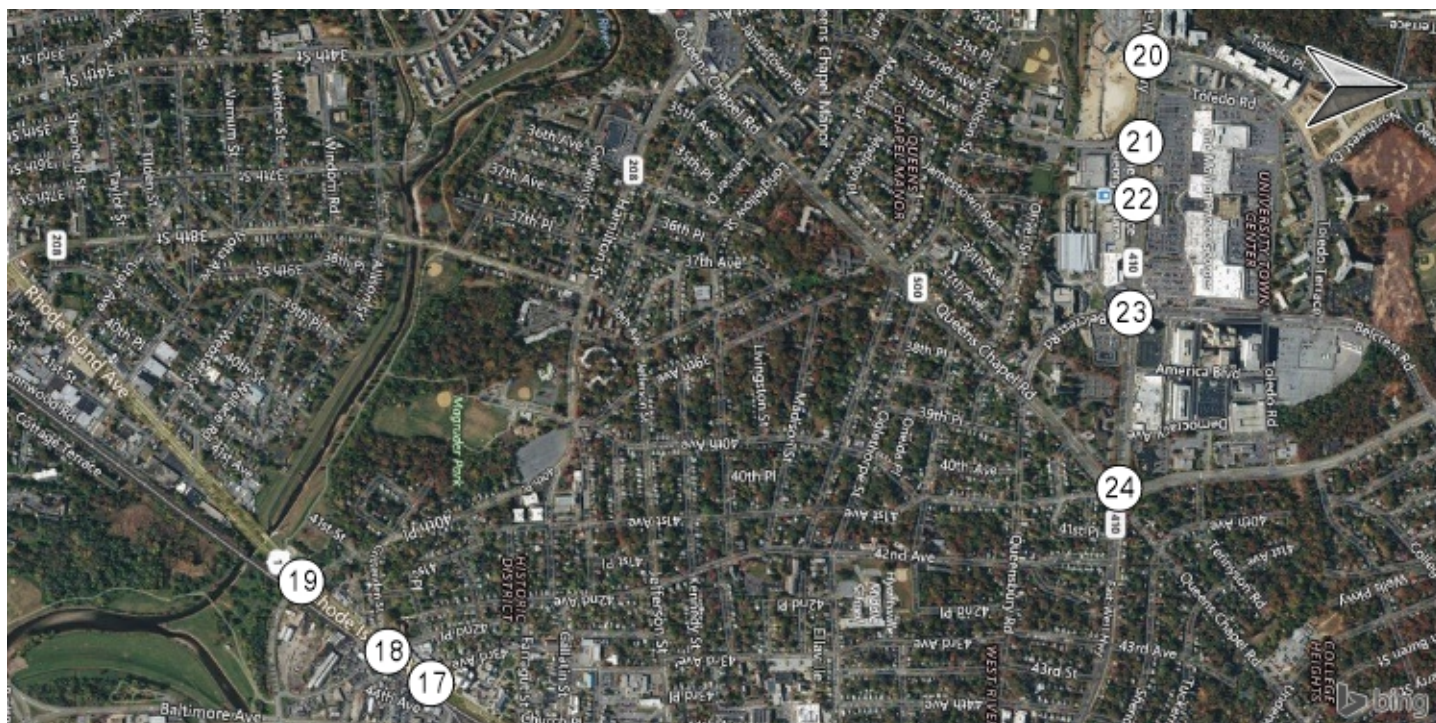
US 1/Oglethorpe Rd



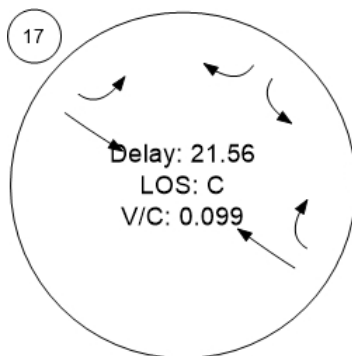
Traffic Conditions



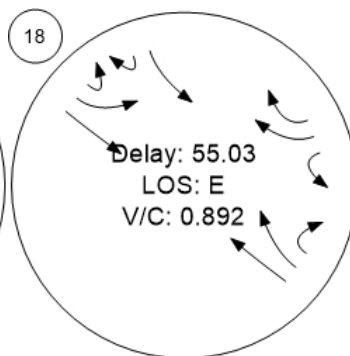
Traffic Conditions



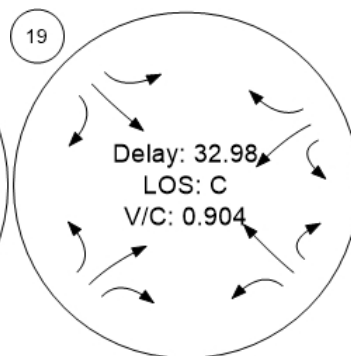
US 1/43rd Ave



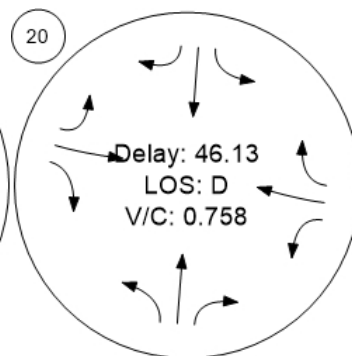
US 1/42nd Place/Crittendon



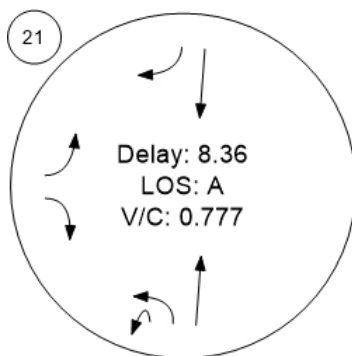
US 1/41st Place/Charles Arm



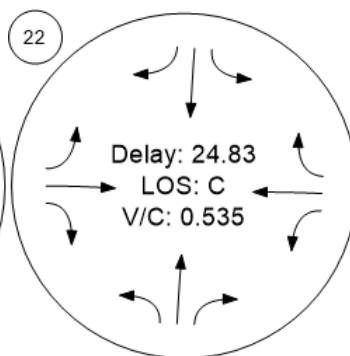
MD 410/Toledo Terrace



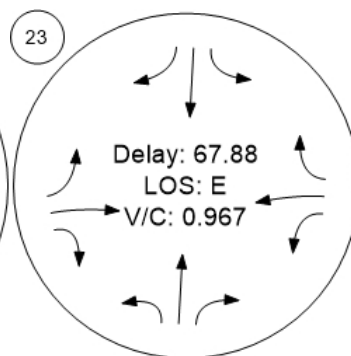
MD 410/Editors Park Dr



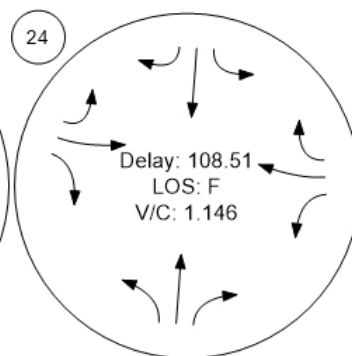
MD 410/Prince George's Plaz



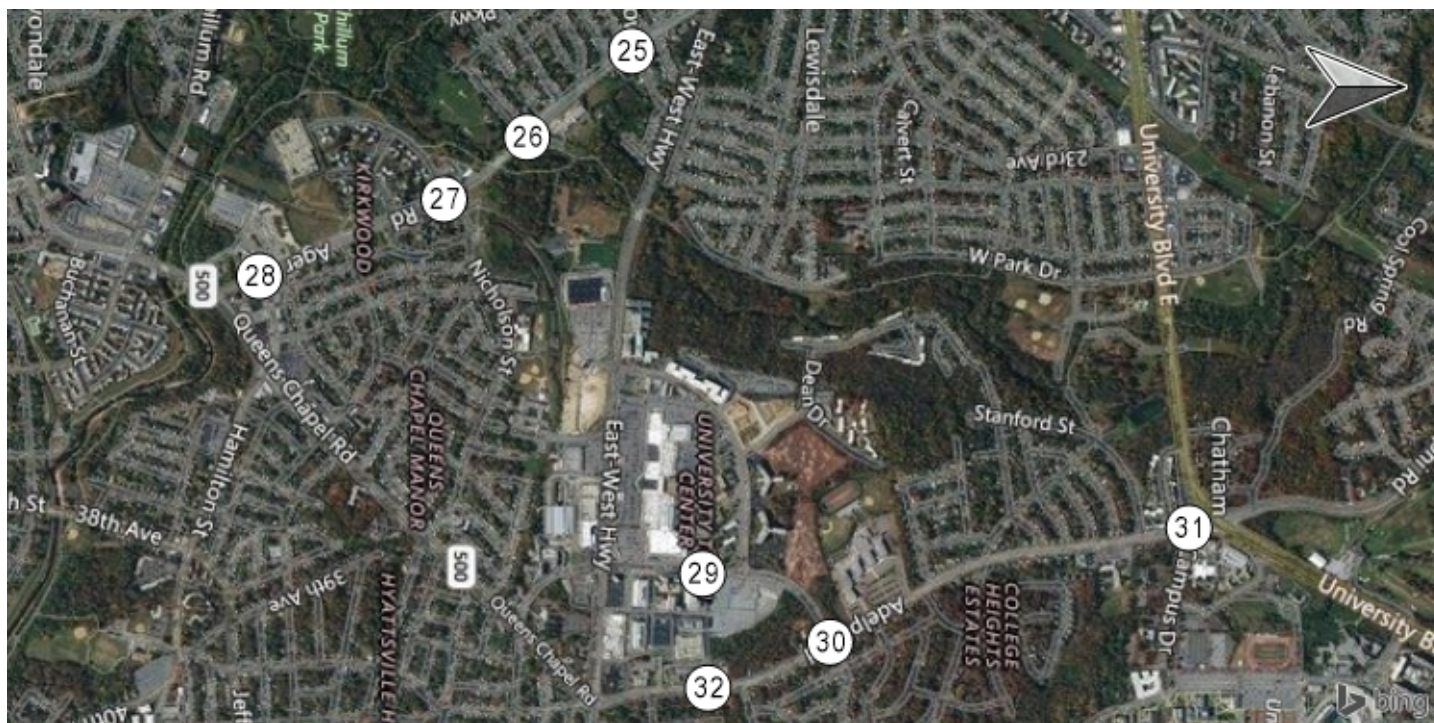
MD 410/Belcrest Rd



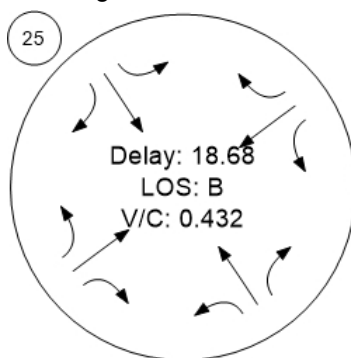
MD 410/MD 500/Adelphi Rd



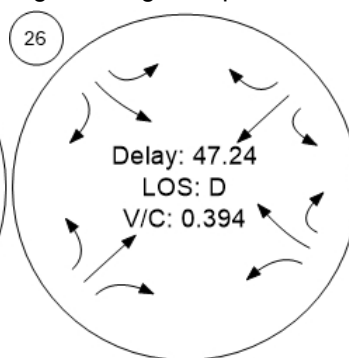
Traffic Conditions



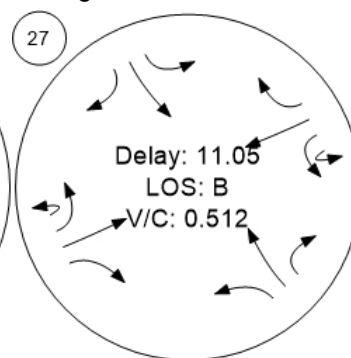
Ager Rd/23rd Ave



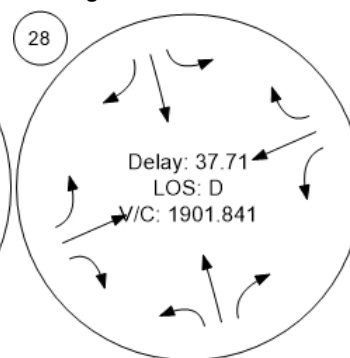
Ager Rd/Oglethorpe St/Scho



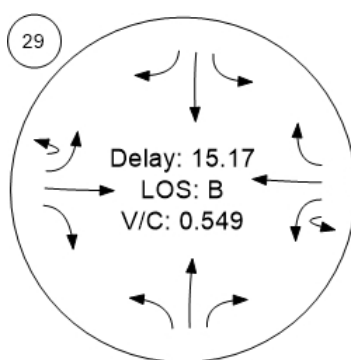
Ager Rd/Nicholson St



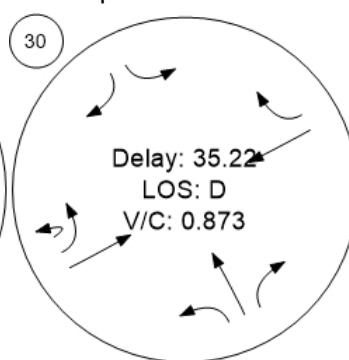
Ager Rd/Hamilton St



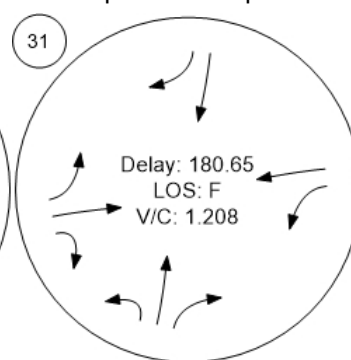
Toledo Rd/Belcrest Rd



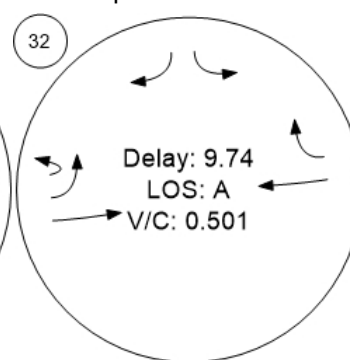
Adelphi Rd/Belcrest Rd



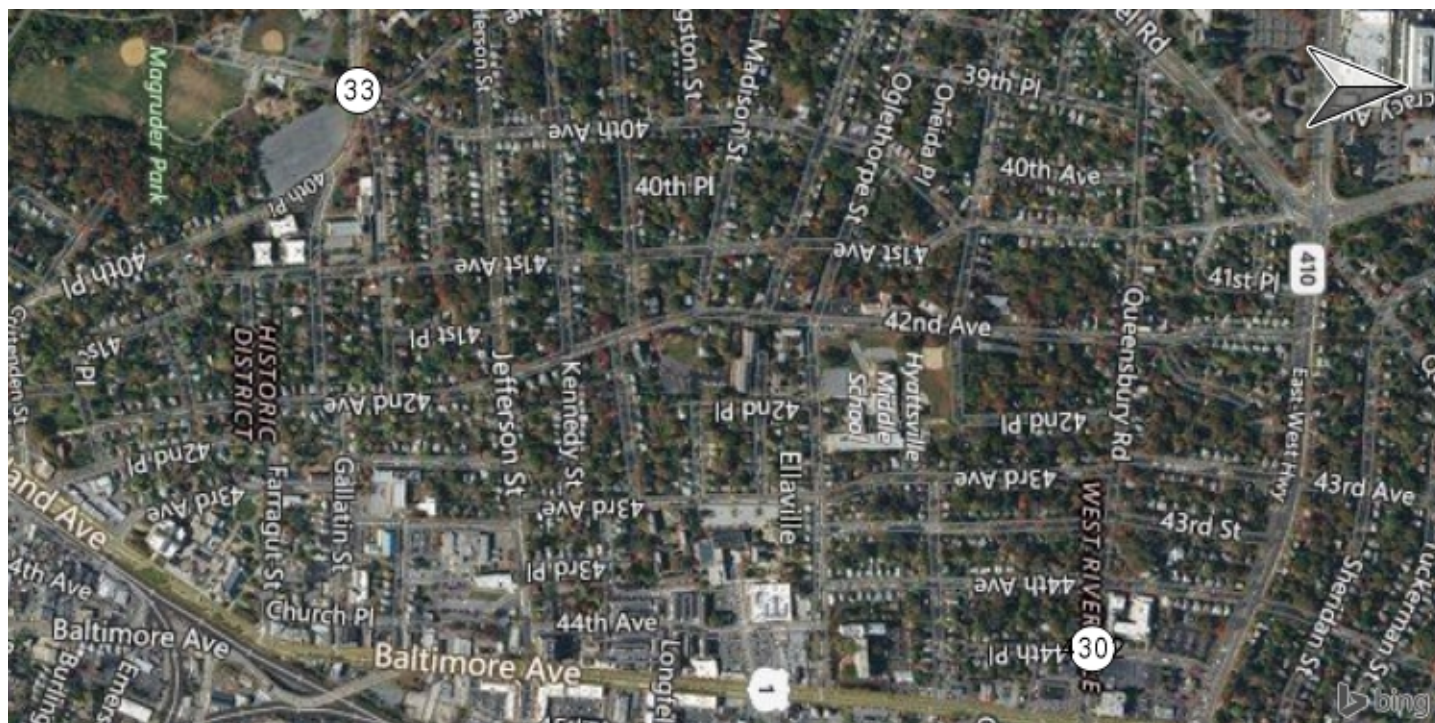
Adelphi Rd/Campus Dr



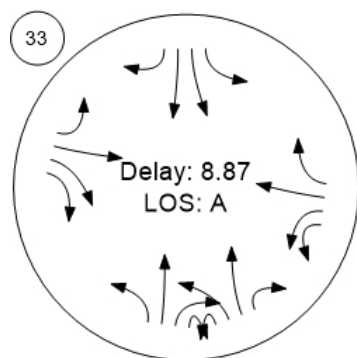
Adelphi Rd/Toledo Rd



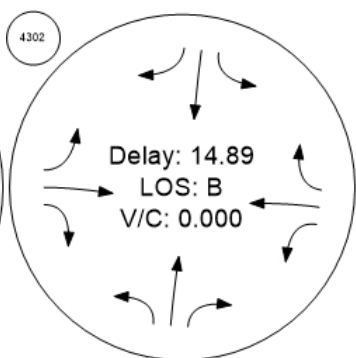
Traffic Conditions



Hamilton St/40th Pl/39th Ave



New Intersection



Hyattsville Transportation Plan

Vistro File: K:\...\2037 PM No Build.vistro
Report File: K:\...\2037 PM_No Build.pdf

Scenario: Base Scenario
6/21/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	MD 500/Ager Rd	Signalized	HCM 2010	NEB Thru	0.984	37.4	D
2	MD 500/Hamilton St	Signalized	HCM 2010	NWB Right	0.839	47.3	D
3	MD 500/Nicholson St	Signalized	HCM 2010	SEB Left	0.631	13.7	B
4	MD 500/Belcrest Rd/Queensbury Rd	Signalized	HCM 2010	EB Left	0.758	35.4	D
5	MD 208(Hamilton St)/38th Ave	Signalized	HCM 2010	SEB Left	0.957	48.4	D
6	US 1/MD 410	Signalized	HCM 2010	EB Left	1.117	144.0	F
7	US 1/Queensbury Rd	Signalized	HCM 2010	SB Left	0.861	28.9	C
8	US 1/Oglethorpe Rd	Signalized	HCM 2010	EB Left	0.505	6.6	A
9	US 1/Madison St	Signalized	HCM 2010	EB Right	0.475	10.7	B
10	US 1/Jefferson St	Signalized	HCM 2010	EB Right	0.595	18.4	B
11	US 1/Hamilton St (North)	Signalized	HCM 2010	WB Right	0.463	2.1	A
12	US 1/Hamilton St (South)/US 1 Alt	Signalized	HCM 2010	NWB Right	1.285	100.4	F
13	US 1 Alt/Decatur St	Signalized	HCM 2010	WB Right	0.720	19.6	B
14	US 1 Alt/Charles Armentrout St	Two-way stop	HCM 2010	EB Left	70.395	10,000.0	F
15	US 1/Gallatin St	Signalized	HCM 2010	NB Thru	0.271	1.4	A
16	US 1/Farragut St	Signalized	HCM 2010	EB Left	0.538	10.1	B
17	US 1/43rd Ave	Two-way stop	HCM 6th Edition	SEB Left	0.099	21.6	C
18	US 1/42nd Place/Crittendon Street	Signalized	HCM 2010	EB Right	0.892	53.2	D
19	US 1/41st Place/Charles Armentrout Dr	Signalized	HCM 2010	NWB Left	0.904	33.0	C
20	MD 410/Toledo Terrace	Signalized	HCM 2010	NB Left	8.025	115.5	F
21	MD 410/Editors Park Dr	Two-way stop	HCM 2010	NB Left	8.839	4,351.3	F
22	MD 410/Prince George's Plaza	Signalized	HCM 2010	NB Right	0.535	24.6	C
23	MD 410/Belcrest Rd	Signalized	HCM 2010	WB Left	1.021	120.3	F
24	MD 410/MD 500/Adelphi Rd	Signalized	HCM 2010	NEB Right	1.199	212.1	F
25	Ager Rd/23rd Ave	Signalized	HCM 6th Edition	NEB Thru	0.432	18.7	B
	Ager Rd/Oglethorpe		HCM 6th				

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26	Ager Rd/Greenhope St/School	Signalized	HCM 2010 Edition	SEB Right	0.394	47.2	D
27	Ager Rd/Nicholson St	Two-way stop	HCM 2010	SWB Thru	0.721	10,000.0	F
28	Ager Rd/Hamilton St	Signalized	HCM 2010	WB Right	0.821	25.5	C
29	Toledo Rd/Belcrest Rd	Signalized	HCM 2010	EB Left	0.549	15.2	B
30	Adelphi Rd/Belcrest Rd	Signalized	HCM 2010	SWB Left	0.873	35.2	D
31	Adelphi Rd/Campus Dr	Signalized	HCM 2010	WB Left	1.208	180.6	F
32	Adelphi Rd/Toledo Rd	Signalized	HCM 2010	EB Left	0.501	9.7	A
33	Hamilton St/40th Pl/39th Ave	All-way stop	HCM 2010	EB Thru	0.771	21.3	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: MD 500/Ager Rd

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 37.4
 Level Of Service: D
 Volume to Capacity (v/c): 0.984

Intersection Setup

Name	Ager Rd.		MD 500		MD 500	
Approach	Southbound		Northeastbound		Southwestbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	1
Pocket Length [ft]	100.00	100.00	400.00	100.00	100.00	300.00
Speed [mph]	35.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		No	

Volumes

Name	Ager Rd.		MD 500		MD 500	
Base Volume Input [veh/h]	0	364	633	1298	1027	58
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	2.00	2.00	2.00	3.85
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	37	61	81	44	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	401	694	1379	1071	58
Peak Hour Factor	1.0000	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	109	189	375	291	16
Total Analysis Volume [veh/h]	0	436	754	1499	1164	63
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	9		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	22.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Split	Split
Signal group	0	4	4	2	2	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lag	-	-	-
Minimum Green [s]	0	5	5	20	20	0
Maximum Green [s]	0	43	43	36	36	0
Amber [s]	0.0	4.0	4.0	5.0	5.0	0.0
All red [s]	0.0	1.0	1.0	1.0	1.0	0.0
Split [s]	0	48	48	42	42	0
Vehicle Extension [s]	0.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	5	0	0	0
Pedestrian Clearance [s]	0	10	10	0	0	0
Rest In Walk		No		No	No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	3.0	4.0	4.0	0.0
Minimum Recall		No	No	No	No	
Maximum Recall		No	No	Yes	Yes	
Pedestrian Recall		No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	30.0	30.0	30.0	30.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	R	L	C	C	R
C, Cycle Length [s]	87	87	87	87	87
L, Total Lost Time per Cycle [s]	5.00	5.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	40	40	36	36	36
g / C, Green / Cycle	0.46	0.46	0.42	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.28	0.43	0.42	0.33	0.04
s, saturation flow rate [veh/h]	1583	1774	3547	3547	1545
c, Capacity [veh/h]	724	811	1475	1475	642
d1, Uniform Delay [s]	17.60	22.19	25.29	22.00	15.41
k, delay calibration	0.12	0.34	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.92	13.97	27.64	4.37	0.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.60	0.93	1.02	0.79	0.10
d, Delay for Lane Group [s/veh]	18.52	36.15	52.94	26.37	15.71
Lane Group LOS	B	D	F	C	B
Critical Lane Group	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.17	15.89	19.16	10.16	0.76
50th-Percentile Queue Length [ft/ln]	154.20	397.25	479.09	254.10	18.92
95th-Percentile Queue Length [veh/ln]	10.24	22.43	26.66	15.39	1.36
95th-Percentile Queue Length [ft/ln]	256.03	560.69	666.46	384.81	34.06

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	18.52	36.15	52.94	26.37	15.71
Movement LOS		B	D	F	C	B
d_A, Approach Delay [s/veh]	18.52		47.32		25.82	
Approach LOS	B		D		C	
d_I, Intersection Delay [s/veh]	37.38					
Intersection LOS	D					
Intersection V/C	0.984					

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SG: 2 42s

SG: 4 48s

SG: 104 15s

Intersection Level Of Service Report

Intersection 2: MD 500/Hamilton St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 47.3
 Level Of Service: D
 Volume to Capacity (v/c): 0.839

Intersection Setup

Name	MD 500				MD 500			Hamilton St			Hamilton St		
Approach	Northeastbound				Southwestbound			Northwestbound			Southeastbound		
Lane Configuration													
Turning Movement	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	1	0	1	1	0	0	1	0	1
Pocket Length [ft]	200.0	100.0	100.0	200.0	220.00	100.00	200.00	200.00	100.00	100.00	180.00	100.00	50.00
Speed [mph]	40.00				40.00			35.00			35.00		
Grade [%]	0.00				0.00			0.00			0.00		
Crosswalk	Yes				Yes			Yes			Yes		

Volumes

Name	MD 500				MD 500			Hamilton St			Hamilton St		
Base Volume Input [veh/h]	2	149	1342	316	166	784	143	199	459	89	168	462	38
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.63	2.00	2.00	2.63	2.27	2.11	2.00	2.00	2.27	3.85
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	81	0	11	44	48	0	36	20	29	22	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	149	1423	316	177	828	191	199	495	109	197	484	38
Peak Hour Factor	0.920	0.920	0.920	0.920	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	40	387	86	48	225	52	54	135	30	54	132	10
Total Analysis Volume [veh/h]	2	162	1547	343	192	900	208	216	538	118	214	526	41
Presence of On-Street Parking	No			No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0				0			0			0		
Bicycle Volume [bicycles/h]	0				0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	180
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	23.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Permi	Prote	Permi	Permi	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	1	6	6	5	2	2	3	8	8	7	4	4
Auxiliary Signal Groups													
Lead / Lag	Lead	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	20	20	5	5	5	5	5	5	5	5	5
Maximum Green [s]	29	29	30	30	30	30	30	25	75	75	25	75	75
Amber [s]	4.0	4.0	5.0	5.0	3.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	34	34	36	36	34	36	36	30	80	80	30	80	80
Vehicle Extension [s]	3.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk			No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	4.0	4.0	2.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall		No	No		No	No		No	No		No	No	
Maximum Recall		No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall		No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	30.0	5.0	5.0	5.0	5.0	5.0	30.0	30.0	30.0	30.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	180	180	180	180	180	180	180	180	180	180	180	180
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.00	4.00	0.00	4.00	4.00	0.00	3.00	3.00	0.00	3.00	3.00
g_i, Effective Green Time [s]	108	92	92	108	94	94	61	37	37	61	37	37
g / C, Green / Cycle	0.60	0.51	0.51	0.60	0.52	0.52	0.34	0.21	0.21	0.34	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.21	0.44	0.22	0.36	0.25	0.13	0.18	0.18	0.18	0.19	0.15	0.03
s, saturation flow rate [veh/h]	766	3547	1574	531	3547	1574	1196	1861	1746	1132	3537	1555
c, Capacity [veh/h]	418	1803	800	252	1848	820	342	382	358	305	721	317
d1, Uniform Delay [s]	18.94	38.60	27.83	43.39	27.66	23.79	47.39	69.51	69.52	48.71	67.02	58.59
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.75	5.56	1.68	19.39	0.92	0.74	8.61	7.01	7.45	2.95	1.44	0.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

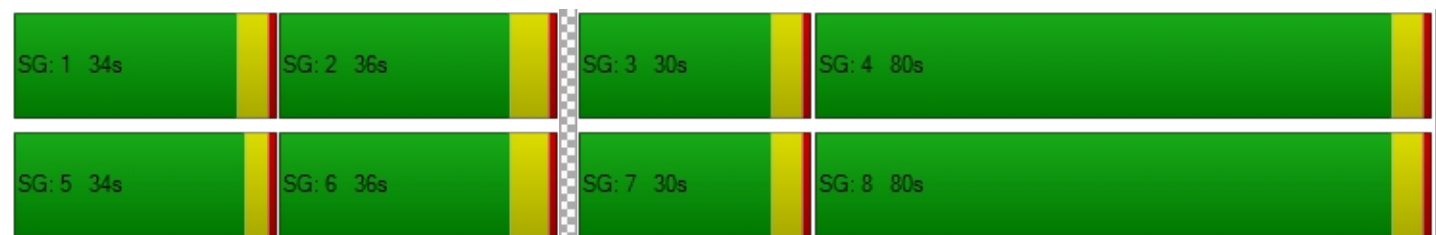
X, volume / capacity	0.39	0.86	0.43	0.76	0.49	0.25	0.63	0.89	0.89	0.70	0.73	0.13
d, Delay for Lane Group [s/veh]	21.69	44.16	29.51	62.78	28.58	24.53	56.00	76.52	76.97	51.66	68.45	58.78
Lane Group LOS	C	D	C	E	C	C	E	E	E	D	E	E
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.31	30.51	9.68	4.92	12.66	5.11	8.21	15.89	14.97	7.56	11.48	1.56
50th-Percentile Queue Length [ft/ln]	82.64	762.75	242.05	123.05	316.56	127.71	205.25	397.28	374.23	189.06	287.04	39.04
95th-Percentile Queue Length [veh/ln]	5.95	39.57	14.79	8.56	18.50	8.82	12.91	22.43	21.31	12.07	17.04	2.81
95th-Percentile Queue Length [ft/ln]	148.75	989.21	369.63	214.01	462.45	220.38	322.73	560.73	532.86	301.81	425.96	70.26

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	21.69	21.69	44.16	29.51	62.78	28.58	24.53	56.00	76.69	76.97	51.66	68.45	58.78
Movement LOS	C	C	D	C	E	C	C	E	E	E	D	E	E
d_A, Approach Delay [s/veh]	39.92				32.99			71.60			63.34		
Approach LOS	D				C			E			E		
d_I, Intersection Delay [s/veh]	47.29												
Intersection LOS	D												
Intersection V/C	0.839												

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 3: MD 500/Nicholson St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 13.7
 Level Of Service: B
 Volume to Capacity (v/c): 0.631

Intersection Setup

Name	Nicholson St			MD 500			MD 500				Nicholson St		
Approach	Westbound			Northeastbound			Southwestbound				Southeastbound		
Lane Configuration													
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	150.00	100.00	100.00	150.0	100.0	100.0	100.0	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00				30.00		
Grade [%]	0.00			0.00			0.00				0.00		
Crosswalk	Yes			Yes			Yes				Yes		

Volumes

Name	Nicholson St			MD 500			MD 500				Nicholson St		
Base Volume Input [veh/h]	9	11	11	42	1548	41	1	35	1100	98	96	17	35
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	0.00	2.27	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	130	0	0	0	103	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	11	11	42	1678	41	1	35	1203	98	96	17	35
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.900	0.900	0.900	0.900	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	3	3	12	466	11	0	10	334	27	27	5	10
Total Analysis Volume [veh/h]	10	12	12	47	1864	46	1	39	1337	109	107	19	39
Presence of On-Street Parking	No		No	No		No	No			No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0				0		
Bicycle Volume [bicycles/h]	0			0			0				0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permi	Prote	Permi	Permi	Permiss	Permiss	Permiss
Signal group	0	4	0	5	2	0	0	1	6	0	0	8	0
Auxiliary Signal Groups													
Lead / Lag	-	-	-	Lead	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	30	30	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	25	0	10	85	0	0	10	85	0	0	25	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	10	0	0	10	0
Rest In Walk		No			No				No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No		No	No			No	No			No	
Maximum Recall		No		No	No			No	No			No	
Pedestrian Recall		No		No	No			No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	C	L	C	C	C
C, Cycle Length [s]	48	48	48	48	48	48	48	48
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
l2, Clearance Lost Time [s]	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	34	27	27	34	27	27	6
g / C, Green / Cycle	0.13	0.70	0.57	0.57	0.70	0.57	0.57	0.13
(v / s)_i Volume / Saturation Flow Rate	0.02	0.08	0.51	0.52	0.09	0.39	0.39	0.10
s, saturation flow rate [veh/h]	1772	560	1863	1847	430	1863	1814	1572
c, Capacity [veh/h]	331	514	1069	1060	418	1059	1031	331
d1, Uniform Delay [s]	18.41	4.36	8.92	9.00	8.22	7.33	7.37	20.08
k, delay calibration	0.11	0.11	0.32	0.32	0.11	0.18	0.18	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.13	0.08	7.71	8.38	0.10	1.32	1.41	1.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.10	0.09	0.89	0.90	0.10	0.69	0.69	0.50
d, Delay for Lane Group [s/veh]	18.55	4.43	16.63	17.38	8.32	8.65	8.78	21.24
Lane Group LOS	B	A	B	B	A	A	A	C
Critical Lane Group	No	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.31	0.06	7.74	7.97	0.06	3.81	3.78	1.69
50th-Percentile Queue Length [ft/ln]	7.80	1.59	193.50	199.18	1.40	95.32	94.50	42.35
95th-Percentile Queue Length [veh/ln]	0.56	0.11	12.30	12.60	0.10	6.86	6.80	3.05
95th-Percentile Queue Length [ft/ln]	14.04	2.86	307.56	314.90	2.53	171.58	170.11	76.24

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	18.55	18.55	18.55	4.43	16.99	17.38	8.32	8.32	8.71	8.78	21.24	21.24	21.24
Movement LOS	B	B	B	A	B	B	A	A	A	A	C	C	C
d_A, Approach Delay [s/veh]	18.55			16.70			8.70				21.24		
Approach LOS	B			B			A				C		
d_I, Intersection Delay [s/veh]	13.66												
Intersection LOS	B												
Intersection V/C	0.631												

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: MD 500/Belcrest Rd/Queensbury Rd

Control Type:	Signalized	Delay (sec / veh):	35.4
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.758

Intersection Setup

Name				Queensbury Road			MD 500			MD 500		
Approach	Eastbound			Westbound			Northeastbound			Southwestbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	375.00	100.00	100.00	200.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Queensbury Road			MD 500			MD 500		
Base Volume Input [veh/h]	85	211	614	66	203	37	472	1120	87	30	658	36
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.85	2.38	2.21	3.85	2.38	3.85	2.21	2.08	2.78	3.70	1.97	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	55	0	0	0	71	59	0	0	48	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	85	211	669	66	203	37	543	1179	87	30	706	36
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	59	186	18	56	10	151	328	24	8	196	10
Total Analysis Volume [veh/h]	94	234	743	73	226	41	603	1310	97	33	784	40
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	6			18			1			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	63.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	4	3	0	8	4	8	1	6	6	5	2	2
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	8	8	0	0	8	0	8	25	25	8	25	25
Maximum Green [s]	30	30	0	0	30	0	40	53	53	40	53	53
Amber [s]	4.0	4.0	0.0	0.0	4.0	0.0	4.0	5.0	5.0	4.0	5.0	5.0
All red [s]	3.0	3.0	0.0	0.0	3.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0
Split [s]	82	82	0	0	82	0	14	38	38	30	54	54
Vehicle Extension [s]	4.0	4.0	0.0	0.0	4.0	0.0	5.0	6.0	6.0	3.5	6.0	6.0
Walk [s]	7	7	0	0	7	0	0	7	7	0	7	7
Pedestrian Clearance [s]	24	24	0	0	24	0	0	24	24	0	24	24
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	5.0	5.0	0.0	0.0	5.0	0.0	4.0	5.0	5.0	4.0	5.0	5.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	30.0	0.0	0.0	30.0	0.0	0.0	0.0	0.0	30.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	5.00	5.00	5.00	0.00	5.00	5.00	0.00	5.00	5.00
g_i, Effective Green Time [s]	30	30	30	61	50	50	61	39	39
g / C, Green / Cycle	0.28	0.28	0.28	0.58	0.48	0.48	0.58	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.09	0.13	0.27	0.30	0.38	0.39	0.06	0.22	0.22
s, saturation flow rate [veh/h]	1088	1856	1240	1990	1861	1812	576	1863	1831
c, Capacity [veh/h]	70	527	394	1065	890	866	313	694	682
d1, Uniform Delay [s]	52.74	30.92	38.75	14.29	23.07	23.47	15.75	26.71	26.71
k, delay calibration	0.15	0.15	0.38	0.23	0.43	0.44	0.39	0.39	0.39
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	184.84	0.84	17.15	1.02	6.19	7.23	0.53	2.99	3.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

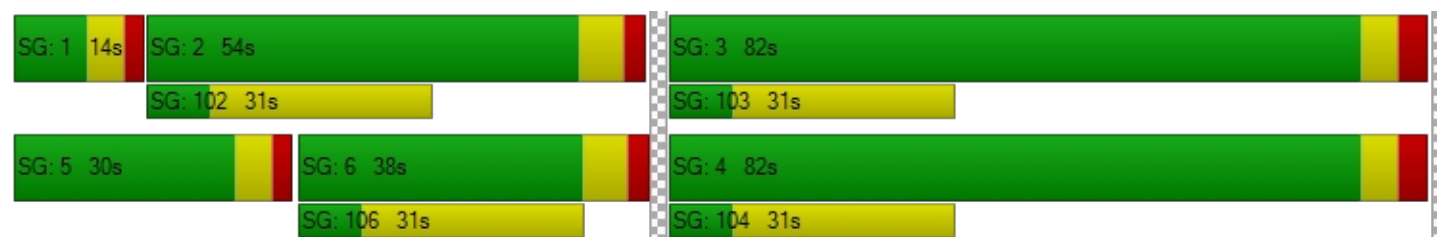
X, volume / capacity	1.35	0.44	0.86	0.57	0.79	0.81	0.11	0.60	0.60
d, Delay for Lane Group [s/veh]	237.57	31.75	55.90	15.31	29.27	30.69	16.28	29.69	29.76
Lane Group LOS	F	C	E	B	C	C	B	C	C
Critical Lane Group	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.40	4.96	10.49	3.56	15.55	15.99	0.34	8.50	8.37
50th-Percentile Queue Length [ft/ln]	135.08	123.98	262.14	89.08	388.64	399.77	8.44	212.41	209.16
95th-Percentile Queue Length [veh/ln]	9.73	8.61	15.80	6.41	22.01	22.55	0.61	13.28	13.11
95th-Percentile Queue Length [ft/ln]	243.15	215.28	394.91	160.35	550.30	563.73	15.18	331.92	327.75

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	237.57	31.75	0.00	55.90	55.90	55.90	15.31	29.93	30.69	16.28	29.72	29.76
Movement LOS	F	C		E	E	E	B	C	C	B	C	C
d_A, Approach Delay [s/veh]	90.74			55.90			25.58			29.21		
Approach LOS	F			E			C			C		
d_I, Intersection Delay [s/veh]	35.42											
Intersection LOS	D											
Intersection V/C	0.758											

Sequence

Ring 1	1	2	-	3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 5: MD 208(Hamilton St)/38th Ave

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 48.4
 Level Of Service: D
 Volume to Capacity (v/c): 0.957

Intersection Setup

Name				Hamilton St			38th Ave			Hamilton St		
Approach	Northbound			Westbound			Southwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	125.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Hamilton St			38th Ave			Hamilton St		
Base Volume Input [veh/h]	244	185	32	23	424	35	63	125	185	197	369	162
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.27	3.33	0.00	3.70	2.00	0.00	0.00	2.22	1.89	1.69	1.88	1.65
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	44	0	0	0	12	0	0	0	0	0	7	26
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	288	185	32	23	436	35	63	125	185	197	376	188
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	51	9	6	121	10	18	35	51	55	104	52
Total Analysis Volume [veh/h]	320	206	36	26	484	39	70	139	206	219	418	209
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	5			4			5			6		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	2	8	8	8	6	6	6	4	4	4
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lag	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	5	15	15	20	20	20	15	15	15	20	20	20
Maximum Green [s]	15	45	45	35	35	35	20	20	20	35	35	35
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	25	50	50	40	40	40	25	25	25	40	40	40
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall	Yes	No			No			No			No	
Maximum Recall	Yes	Yes			Yes			Yes			Yes	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	2.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	45	35	35	25	35	35
g / C, Green / Cycle	0.50	0.39	0.39	0.28	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.49	0.03	0.28	0.25	0.25	0.36
s, saturation flow rate [veh/h]	1150	782	1838	1658	877	1757
c, Capacity [veh/h]	677	104	715	504	189	683
d1, Uniform Delay [s]	17.38	43.77	23.49	31.38	41.79	26.13
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.30	5.73	6.52	14.07	115.27	19.28
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.25	0.73	0.82	1.16	0.92
d, Delay for Lane Group [s/veh]	28.67	49.50	30.02	45.45	157.05	45.41
Lane Group LOS	C	D	C	D	F	D
Critical Lane Group	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	10.05	0.73	10.19	10.37	10.18	15.52
50th-Percentile Queue Length [ft/ln]	251.17	18.33	254.75	259.33	254.40	388.04
95th-Percentile Queue Length [veh/ln]	15.25	1.32	15.43	15.66	16.79	21.98
95th-Percentile Queue Length [ft/ln]	381.13	32.99	385.63	391.39	419.68	549.57

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.67	28.67	28.67	49.50	30.02	30.02	45.45	45.45	45.45	157.05	45.41	45.41
Movement LOS	C	C	C	D	C	C	D	D	D	F	D	D
d_A, Approach Delay [s/veh]	28.67			30.94			45.45			74.31		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	48.41											
Intersection LOS	D											
Intersection V/C	0.957											

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 6: US 1/MD 410

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 144.0
 Level Of Service: F
 Volume to Capacity (v/c): 1.117

Intersection Setup

Name	US 1			US 1			MD 410			MD 410		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	200.00	100.00	100.00	225.00	100.00	100.00	600.00	100.00	100.00	700.00	100.00	450.00
Speed [mph]	45.00			45.00			50.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 1			US 1			MD 410			MD 410		
Base Volume Input [veh/h]	450	549	64	232	606	199	336	1602	380	245	1383	158
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.15	2.00	2.38	2.07	2.00	2.00	2.00	2.00	2.00	2.00	2.03	1.67
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	28	0	0	0	0	28	15	33	15	0	56	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	478	549	64	232	606	227	351	1635	395	245	1439	158
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	133	153	18	64	168	63	98	454	110	68	400	44
Total Analysis Volume [veh/h]	531	610	71	258	673	252	390	1817	439	272	1599	176
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			3			6		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	180
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	9.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	6	5	2	0	7	4	4	3	8	8
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	15	15	5	25	0	5	15	15	5	25	25
Maximum Green [s]	29	38	38	29	38	0	24	66	66	24	66	66
Amber [s]	4.0	4.5	4.5	4.0	4.5	0.0	4.0	4.5	4.5	4.0	4.5	4.5
All red [s]	1.0	2.0	2.0	1.0	2.0	0.0	1.0	2.0	2.0	1.0	2.0	2.0
Split [s]	34	45	45	34	45	0	29	72	72	29	72	72
Vehicle Extension [s]	3.0	5.0	5.0	3.0	5.0	0.0	3.0	5.0	5.0	3.0	5.0	5.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	4.5	4.5	3.0	4.5	0.0	3.0	4.5	4.5	3.0	4.5	4.5
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	294.0	294.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	30.0	5.0	5.0	30.0	6.0	6.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	180	180	180	180	180	180	180	180	180	180	180	180
L, Total Lost Time per Cycle [s]	6.50	6.50	6.50	6.50	6.50	6.50	5.00	6.50	6.50	5.00	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.50	4.50	0.00	4.50	4.50	3.00	4.50	4.50	3.00	4.50	4.50
g_i, Effective Green Time [s]	72	46	46	72	43	43	24	66	66	24	66	66
g / C, Green / Cycle	0.40	0.26	0.26	0.40	0.24	0.24	0.13	0.36	0.36	0.13	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.26	0.19	0.19	0.23	0.26	0.26	0.22	0.51	0.28	0.15	0.33	0.34
s, saturation flow rate [veh/h]	2035	1863	1792	1098	1863	1688	1774	3547	1583	1774	3546	1770
c, Capacity [veh/h]	621	477	459	371	443	402	237	1291	576	237	1290	644
d1, Uniform Delay [s]	52.87	61.17	61.22	41.69	68.59	68.59	78.00	57.25	50.38	78.00	54.59	54.82
k, delay calibration	0.29	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.82	9.29	9.75	10.35	69.74	74.22	310.15	188.17	9.20	104.97	11.55	20.83
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

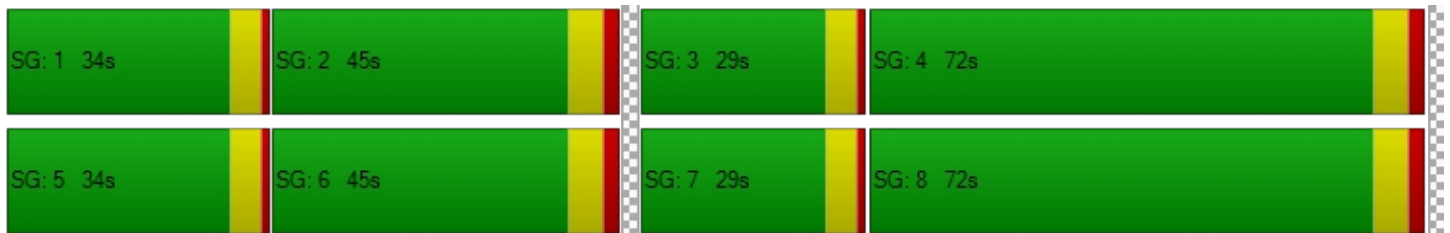
X, volume / capacity	0.86	0.73	0.73	0.70	1.09	1.10	1.65	1.41	0.76	1.15	0.92	0.92
d, Delay for Lane Group [s/veh]	61.69	70.46	70.98	52.04	138.32	142.81	388.15	245.41	59.58	182.97	66.14	75.65
Lane Group LOS	E	E	E	D	F	F	F	F	E	F	E	E
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	9.02	15.53	15.07	9.01	28.68	26.50	31.17	62.15	18.49	17.81	27.27	29.19
50th-Percentile Queue Length [ft/ln]	225.42	388.30	376.76	225.13	717.08	662.45	779.26	1553.85	462.19	445.33	681.72	729.74
95th-Percentile Queue Length [veh/ln]	13.94	22.00	21.44	13.93	39.48	36.93	48.20	91.86	25.54	26.34	35.83	38.05
95th-Percentile Queue Length [ft/ln]	348.53	549.88	535.93	348.17	987.02	923.35	1204.98	2296.39	638.48	658.47	895.82	951.25

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	61.69	70.68	70.98	52.04	139.58	142.81	388.15	245.41	59.58	182.97	68.63	75.65
Movement LOS	E	E	E	D	F	F	F	F	E	F	E	E
d_A, Approach Delay [s/veh]	66.76			121.18			235.62			84.42		
Approach LOS	E			F			F			F		
d_I, Intersection Delay [s/veh]	143.98											
Intersection LOS	F											
Intersection V/C	1.117											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 7: US 1/Queensbury Rd

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 28.9
 Level Of Service: C
 Volume to Capacity (v/c): 0.861

Intersection Setup

Name	US 1			US 1			Queensbury			Queensbury		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	250.00	100.00	100.00	150.00	100.00	100.00	350.00	100.00	100.00	200.00	100.00	200.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	US 1			US 1			Queensbury			Queensbury		
Base Volume Input [veh/h]	77	892	155	205	900	114	50	276	85	44	148	140
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	1.89	3.85	2.00	3.85	1.96	2.30	1.85	1.69	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	28	0	0	15	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	77	920	155	205	915	114	50	276	85	44	148	140
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	256	43	57	254	32	14	77	24	12	41	39
Total Analysis Volume [veh/h]	86	1022	172	228	1017	127	56	307	94	49	164	156
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			11			11			4		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	2	6	6	6	4	4	4	8	8	8
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lag	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	5	15	15	15	15	15	8	8	8	8	8	8
Maximum Green [s]	9	50	50	36	36	36	29	29	29	29	29	29
Amber [s]	3.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	14	56	56	42	42	42	34	34	34	34	34	34
Vehicle Extension [s]	3.0	5.0	5.0	5.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.5	3.5	3.5	3.5	3.5	3.5	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall	No	No			No			No			No	
Maximum Recall	No	Yes			Yes			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	294.0	294.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	6.0	6.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	5.50	5.50	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.50	3.50	3.50	3.50	3.50	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	52	52	52	43	43	43	27	27	27	27	27
g / C, Green / Cycle	0.58	0.58	0.58	0.48	0.48	0.48	0.30	0.30	0.30	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.13	0.33	0.33	0.50	0.31	0.32	0.05	0.22	0.05	0.09	0.10
s, saturation flow rate [veh/h]	661	1863	1769	458	1863	1786	1209	1784	983	1863	1566
c, Capacity [veh/h]	388	1080	1025	199	895	858	332	541	151	565	475
d1, Uniform Delay [s]	11.32	11.82	11.85	38.05	17.66	17.74	29.54	28.16	40.73	23.94	24.24
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.21	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.31	2.14	2.29	109.48	3.65	3.90	0.24	3.89	1.22	0.28	0.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.22	0.57	0.57	1.15	0.65	0.66	0.17	0.74	0.32	0.29	0.33
d, Delay for Lane Group [s/veh]	12.63	13.96	14.14	147.53	21.31	21.64	29.77	32.05	41.95	24.22	24.64
Lane Group LOS	B	B	B	F	C	C	C	C	D	C	C
Critical Lane Group	Yes	No	No	Yes	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.77	6.96	6.71	10.29	8.88	8.68	1.01	8.09	1.10	2.65	2.57
50th-Percentile Queue Length [ft/ln]	19.26	174.05	167.65	257.37	222.03	217.04	25.32	202.32	27.44	66.34	64.17
95th-Percentile Queue Length [veh/ln]	1.39	11.29	10.95	16.96	13.77	13.51	1.82	12.76	1.98	4.78	4.62
95th-Percentile Queue Length [ft/ln]	34.66	282.24	273.82	423.94	344.22	337.85	45.58	318.95	49.39	119.42	115.51

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	12.63	14.04	14.14	147.53	21.45	21.64	29.77	32.05	32.05	41.95	24.22	24.64
Movement LOS	B	B	B	F	C	C	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	13.96			42.42			31.78			26.75		
Approach LOS	B			D			C			C		
d_I, Intersection Delay [s/veh]	28.88											
Intersection LOS	C											
Intersection V/C	0.861											

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 8: US 1/Oglethorpe Rd

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 6.6
 Level Of Service: A
 Volume to Capacity (v/c): 0.505

Intersection Setup

Name	US 1		US 1		Oglethorpe	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00		40.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	US 1		US 1		Oglethorpe	
Base Volume Input [veh/h]	43	1153	1049	9	54	28
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.04	1.97	0.00	1.67	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	28	15	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	43	1181	1064	9	54	28
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	328	296	3	15	8
Total Analysis Volume [veh/h]	48	1312	1182	10	60	31
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	105.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Split	Split
Signal group	2	2	6	6	4	4
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	Lag	-
Minimum Green [s]	15	15	15	15	15	15
Maximum Green [s]	85	85	85	85	25	25
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	90	90	90	90	30	30
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall		No	No		No	
Maximum Recall		Yes	Yes		No	
Pedestrian Recall		No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	50.0	50.0	50.0	50.0	50.0	50.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	C	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	96	96	96	96	14
g / C, Green / Cycle	0.80	0.80	0.80	0.80	0.12
(v / s)_i Volume / Saturation Flow Rate	0.42	0.41	0.32	0.32	0.05
s, saturation flow rate [veh/h]	1615	1694	1863	1858	1738
c, Capacity [veh/h]	1318	1349	1484	1479	209
d1, Uniform Delay [s]	3.89	4.20	3.66	3.67	48.99
k, delay calibration	0.50	0.50	0.50	0.50	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.40	1.39	0.81	0.82	1.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.51	0.51	0.40	0.40	0.43
d, Delay for Lane Group [s/veh]	5.30	5.58	4.47	4.48	50.41
Lane Group LOS	A	A	A	A	D
Critical Lane Group	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.34	4.77	3.34	3.35	2.65
50th-Percentile Queue Length [ft/ln]	108.61	119.28	83.50	83.64	66.13
95th-Percentile Queue Length [veh/ln]	7.76	8.35	6.01	6.02	4.76
95th-Percentile Queue Length [ft/ln]	194.07	208.83	150.29	150.55	119.04

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	5.30	5.45	4.48	4.48	50.41	50.41
Movement LOS	A	A	A	A	D	D
d_A, Approach Delay [s/veh]	5.44		4.48		50.41	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	6.56					
Intersection LOS	A					
Intersection V/C	0.505					

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SG: 2 90s

SG: 4 30s

SG: 6 90s

Intersection Level Of Service Report

Intersection 9: US 1/Madison St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 10.7
 Level Of Service: B
 Volume to Capacity (v/c): 0.475

Intersection Setup

Name	US 1			US 1			Madison			Madison		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 1			US 1			Madison			Madison		
Base Volume Input [veh/h]	15	1162	85	19	1029	27	19	16	26	16	5	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	28	0	0	15	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	1190	85	19	1044	27	19	16	26	16	5	21
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	331	24	5	290	8	5	4	7	4	1	6
Total Analysis Volume [veh/h]	17	1322	94	21	1160	30	21	18	29	18	6	23
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			2			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	105.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	2	2	2	6	6	6	4	4	4	8	8	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	20	20	20	20	20	20	15	15	15	15	15	15
Maximum Green [s]	85	85	85	85	85	85	25	25	25	25	25	25
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	90	90	90	90	90	90	30	30	30	30	30	30
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall		No			No			No			No	
Maximum Recall		Yes			Yes			Yes			Yes	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	85	85	85	85	85	85	25	25
g / C, Green / Cycle	0.71	0.71	0.71	0.71	0.71	0.71	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.04	0.38	0.39	0.05	0.32	0.32	0.04	0.03
s, saturation flow rate [veh/h]	478	1863	1820	385	1863	1846	1633	1595
c, Capacity [veh/h]	325	1319	1289	257	1319	1308	380	374
d1, Uniform Delay [s]	12.32	8.28	8.31	15.13	7.51	7.52	39.11	38.64
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.31	1.60	1.65	0.62	1.12	1.14	1.03	0.69
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.05	0.54	0.54	0.08	0.45	0.45	0.18	0.13
d, Delay for Lane Group [s/veh]	12.63	9.88	9.96	15.75	8.64	8.65	40.14	39.33
Lane Group LOS	B	A	A	B	A	A	D	D
Critical Lane Group	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.23	8.25	8.14	0.34	6.23	6.18	1.79	1.22
50th-Percentile Queue Length [ft/ln]	5.86	206.21	203.52	8.42	155.69	154.53	44.68	30.45
95th-Percentile Queue Length [veh/ln]	0.42	12.96	12.82	0.61	10.32	10.26	3.22	2.19
95th-Percentile Queue Length [ft/ln]	10.54	323.96	320.51	15.15	258.01	256.47	80.42	54.81

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	12.63	9.92	9.96	15.75	8.64	8.65	40.14	40.14	40.14	39.33	39.33	39.33
Movement LOS	B	A	A	B	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	9.95			8.77			40.14			39.33		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	10.68											
Intersection LOS	B											
Intersection V/C	0.475											

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SG: 2 90s

SG: 4 30s

SG: 6 90s

SG: 8 30s

Intersection Level Of Service Report

Intersection 10: US 1/Jefferson St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 18.4
 Level Of Service: B
 Volume to Capacity (v/c): 0.595

Intersection Setup

Name	US 1			US 1			Jefferson St			Jefferson St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	150.00	100.00	100.00	175.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	US 1			US 1			Jefferson St			Jefferson St		
Base Volume Input [veh/h]	171	1136	32	63	958	63	76	49	130	59	52	34
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.82	2.00	2.00	2.00	2.00	2.22	1.43	2.00	1.82	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	28	0	0	15	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	171	1164	32	63	973	63	76	49	130	59	52	34
Peak Hour Factor	0.9000	0.9000	1.0000	1.0000	0.9000	0.9000	0.9000	1.0000	0.9000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	48	323	8	16	270	18	21	12	36	15	13	9
Total Analysis Volume [veh/h]	190	1293	32	63	1081	70	84	49	144	59	52	34
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	108.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	6	4	4	4	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lag	-	-	-	-	-
Minimum Green [s]	8	20	0	0	20	20	20	20	20	0	20	0
Maximum Green [s]	15	85	0	0	65	65	25	25	25	0	25	0
Amber [s]	4.0	4.0	0.0	0.0	4.0	4.0	4.0	4.0	4.0	0.0	4.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	20	90	0	0	70	70	30	30	30	0	30	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	3.0	0.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	0.0
Minimum Recall	No	No			No			No			No	
Maximum Recall	No	Yes			Yes			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	85	85	85	72	72	72	25	25
g / C, Green / Cycle	0.71	0.71	0.71	0.60	0.60	0.60	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.29	0.36	0.36	0.15	0.31	0.31	0.19	0.13
s, saturation flow rate [veh/h]	655	1863	1847	412	1863	1823	1436	1074
c, Capacity [veh/h]	465	1322	1311	234	1119	1095	336	265
d1, Uniform Delay [s]	9.02	7.86	7.87	23.70	13.91	13.92	46.84	42.46
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.36	0.17
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.65	1.37	1.39	2.82	1.73	1.77	15.28	2.76
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.41	0.50	0.50	0.27	0.52	0.52	0.82	0.55
d, Delay for Lane Group [s/veh]	11.68	9.23	9.26	26.52	15.64	15.69	62.12	45.22
Lane Group LOS	B	A	A	C	B	B	E	D
Critical Lane Group	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.74	7.29	7.27	1.39	9.15	8.99	9.61	4.10
50th-Percentile Queue Length [ft/ln]	43.54	182.35	181.66	34.64	228.84	224.70	240.20	102.43
95th-Percentile Queue Length [veh/ln]	3.13	11.72	11.69	2.49	14.12	13.90	14.69	7.38
95th-Percentile Queue Length [ft/ln]	78.37	293.08	292.19	62.34	352.89	347.62	367.28	184.38

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	11.68	9.24	9.26	26.52	15.66	15.69	62.12	62.12	62.12	45.22	45.22	45.22
Movement LOS	B	A	A	C	B	B	E	E	E	D	D	D
d_A, Approach Delay [s/veh]	9.55			16.23			62.12			45.22		
Approach LOS	A			B			E			D		
d_I, Intersection Delay [s/veh]	18.38											
Intersection LOS	B											
Intersection V/C	0.595											

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 11: US 1/Hamilton St (North)

Control Type:	Signalized	Delay (sec / veh):	2.1
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.463

Intersection Setup

Name	US 1		US 1		Hamilton	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	150.00	100.00	100.00	100.00
Speed [mph]	30.00		35.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	US 1		US 1		Hamilton	
Base Volume Input [veh/h]	1394	0	3	999	0	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	3.85	0.00	2.04	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	28	0	0	15	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1422	0	3	1014	0	5
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	395	0	1	282	0	1
Total Analysis Volume [veh/h]	1580	0	3	1127	0	6
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	78.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Split	Split
Signal group	2	2	6	6	4	4
Auxiliary Signal Groups						
Lead / Lag	-	-	Lag	-	Lag	-
Minimum Green [s]	20	20	20	20	15	15
Maximum Green [s]	89	89	89	89	20	20
Amber [s]	5.0	5.0	5.0	5.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	95	95	95	95	25	25
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	4.0	4.0	4.0	3.0	3.0
Minimum Recall	No			No	No	
Maximum Recall	Yes			Yes	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	50.0	50.0	50.0	50.0	50.0	50.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	3.00
g_i, Effective Green Time [s]	106	106	106	106	3
g / C, Green / Cycle	0.89	0.89	0.89	0.89	0.02
(v / s)_i Volume / Saturation Flow Rate	0.42	0.42	0.01	0.32	0.00
s, saturation flow rate [veh/h]	1863	1863	329	3545	1615
c, Capacity [veh/h]	1648	1648	314	3136	38
d1, Uniform Delay [s]	1.39	1.39	3.12	1.17	57.39
k, delay calibration	0.50	0.50	0.50	0.50	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.00	1.00	0.06	0.32	1.87
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.48	0.48	0.01	0.36	0.16
d, Delay for Lane Group [s/veh]	2.39	2.39	3.17	1.49	59.26
Lane Group LOS	A	A	A	A	E
Critical Lane Group	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.76	1.76	0.02	0.73	0.20
50th-Percentile Queue Length [ft/ln]	43.89	43.89	0.46	18.35	5.00
95th-Percentile Queue Length [veh/ln]	3.16	3.16	0.03	1.32	0.36
95th-Percentile Queue Length [ft/ln]	79.00	79.00	0.82	33.03	9.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	2.39	2.39	3.17	1.49	59.26	59.26
Movement LOS	A	A	A	A	E	E
d_A, Approach Delay [s/veh]	2.39		1.50		59.26	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	2.15					
Intersection LOS	A					
Intersection V/C	0.463					

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SG: 2 95s

SG: 4 25s

SG: 6 95s

Intersection Level Of Service Report

Intersection 12: US 1/Hamilton St (South)/US 1 Alt

Control Type:	Signalized	Delay (sec / veh):	100.4
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.285

Intersection Setup

Name	US 1			US 1			Hamilton			US 1 ALT		
Approach	Northbound			Southbound			Eastbound			Northwestbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00
Speed [mph]	30.00			30.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	US 1			US 1			Hamilton			US 1 ALT		
Base Volume Input [veh/h]	0	658	81	634	459	0	5	30	7	47	0	717
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.17	0.00	2.00	2.06	0.00	0.00	0.00	0.00	2.63	0.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	0	8	7	0	0	0	0	0	0	16
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	670	81	642	466	0	5	30	7	47	0	733
Peak Hour Factor	1.0000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000	0.9000	0.9000	0.9000	1.0000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	186	23	178	129	0	1	8	2	13	0	204
Total Analysis Volume [veh/h]	0	744	90	713	518	0	6	33	8	52	0	814
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			3			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Permiss	Permiss	Overlap
Signal group	0	6	6	5	2	0	3	3	3	8	0	8
Auxiliary Signal Groups												5.8
Lead / Lag	-	-	-	Lead	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	0	20	20	5	20	0	5	5	5	5	0	5
Maximum Green [s]	0	40	40	20	79	0	13	13	13	30	0	30
Amber [s]	0.0	4.0	4.0	3.5	4.0	0.0	3.5	3.5	3.5	3.0	0.0	3.0
All red [s]	0.0	1.0	1.0	1.5	1.0	0.0	1.5	1.5	1.5	1.0	0.0	1.0
Split [s]	0	45	45	39	84	0	18	18	18	18	0	18
Vehicle Extension [s]	0.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	0.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	5	0	5
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	10	0	10
Rest In Walk		No			No			No		No		
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	0.0	2.0
I2, Clearance Lost Time [s]	0.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0	2.0	0.0	2.0
Minimum Recall		No		Yes	No			No		No		No
Maximum Recall		Yes		Yes	Yes			No		No		No
Pedestrian Recall		No		No	No			No		No		No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	50.0	50.0	50.0	50.0	0.0	50.0	50.0	50.0	50.0	0.0	50.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	C	C	L	R
C, Cycle Length [s]	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	4.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	0.00	3.00	3.00	2.00	0.00
g_i, Effective Green Time [s]	40	40	79	79	4	23	61
g / C, Green / Cycle	0.33	0.33	0.66	0.66	0.03	0.19	0.51
(v / s)_i Volume / Saturation Flow Rate	0.22	0.23	0.88	0.39	0.03	0.03	0.65
s, saturation flow rate [veh/h]	1860	1791	806	1337	1833	1763	1250
c, Capacity [veh/h]	622	599	558	882	62	335	633
d1, Uniform Delay [s]	34.25	34.63	21.90	11.35	57.49	40.56	29.60
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.66	6.55	138.11	2.86	17.10	0.21	140.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.67	0.70	1.28	0.59	0.76	0.16	1.29
d, Delay for Lane Group [s/veh]	39.91	41.18	160.01	14.21	74.59	40.78	169.72
Lane Group LOS	D	D	F	B	E	D	F
Critical Lane Group	No	No	Yes	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	11.36	11.59	29.30	7.87	1.72	1.32	42.32
50th-Percentile Queue Length [ft/ln]	284.03	289.72	732.38	196.78	42.99	33.08	1058.04
95th-Percentile Queue Length [veh/ln]	16.89	17.17	45.51	12.47	3.10	2.38	62.93
95th-Percentile Queue Length [ft/ln]	422.22	429.30	1137.76	311.81	77.38	59.54	1573.23

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	40.47	41.18	160.01	14.21	0.00	74.59	74.59	74.59	40.78	0.00	169.72
Movement LOS		D	D	F	B		E	E	E	D		F
d_A, Approach Delay [s/veh]	40.54			98.66			74.59			161.98		
Approach LOS	D			F			E			F		
d_I, Intersection Delay [s/veh]	100.42											
Intersection LOS	F											
Intersection V/C	1.285											

Sequence

Ring 1	-	2	3	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 13: US 1 Alt/Decatur St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 19.6
 Level Of Service: B
 Volume to Capacity (v/c): 0.720

Intersection Setup

Name	US 1 ALT		Decatur St		US 1 ALT	
Approach	Northbound		Westbound		Southwestbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		No	

Volumes

Name	US 1 ALT		Decatur St		US 1 ALT	
Base Volume Input [veh/h]	652	169	87	212	312	574
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.13	2.13	1.97	2.00	2.63	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	16	0	0	0	0	8
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	668	169	87	212	312	582
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	186	47	24	59	87	162
Total Analysis Volume [veh/h]	742	188	97	236	347	647
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	15.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Permissive	Unsignalized	Split	Split	ProtectedPermissi	Permissive
Signal group	6	0	4	0	5	2
Auxiliary Signal Groups						
Lead / Lag	-	-	Lag	-	Lead	-
Minimum Green [s]	10	0	5	0	4	10
Maximum Green [s]	39	0	15	0	10	54
Amber [s]	5.0	0.0	4.0	0.0	4.0	5.0
All red [s]	1.0	0.0	1.0	0.0	1.0	1.0
Split [s]	30	0	30	0	30	30
Vehicle Extension [s]	0.2	0.0	3.0	0.0	3.0	0.2
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	0.0	3.0	0.0	3.0	4.0
Minimum Recall	No		No		No	No
Maximum Recall	Yes		No		No	Yes
Pedestrian Recall	No		No		No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	0.0	30.0	0.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	R	L	C
C, Cycle Length [s]	79	79	79	79	79
L, Total Lost Time per Cycle [s]	6.00	5.00	5.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	3.00	3.00	0.00	4.00
g_i, Effective Green Time [s]	41	14	14	54	54
g / C, Green / Cycle	0.52	0.17	0.17	0.69	0.69
(v / s)_i Volume / Saturation Flow Rate	0.40	0.05	0.15	0.37	0.35
s, saturation flow rate [veh/h]	1860	1775	1583	929	1863
c, Capacity [veh/h]	964	308	275	539	1278
d1, Uniform Delay [s]	15.20	28.40	31.55	12.79	5.93
k, delay calibration	0.50	0.11	0.23	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.91	0.58	14.54	5.81	1.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.31	0.86	0.64	0.51
d, Delay for Lane Group [s/veh]	21.12	28.98	46.09	18.60	7.36
Lane Group LOS	C	C	D	B	A
Critical Lane Group	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	10.98	1.61	5.32	2.58	4.43
50th-Percentile Queue Length [ft/ln]	274.44	40.15	132.98	64.52	110.83
95th-Percentile Queue Length [veh/ln]	16.41	2.89	9.10	4.65	7.89
95th-Percentile Queue Length [ft/ln]	410.28	72.28	227.54	116.13	197.16

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	21.12	0.00	28.98	46.09	18.60	7.36
Movement LOS	C		C	D	B	A
d_A, Approach Delay [s/veh]	21.12		41.11		11.29	
Approach LOS	C		D		B	
d_I, Intersection Delay [s/veh]	19.61					
Intersection LOS	B					
Intersection V/C	0.720					

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 14: US 1 Alt/Charles Armentrout St

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	70.395

Intersection Setup

Name	US 1 Alt		US 1 ALT		Charles L Armentrout	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	US 1 Alt		US 1 ALT		Charles L Armentrout	
Base Volume Input [veh/h]	662	724	623	71	95	1343
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.08	2.00	2.00	2.00	3.85	2.17
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	16	8	0	0	7
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	674	740	631	71	95	1350
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	187	206	175	20	26	375
Total Analysis Volume [veh/h]	749	822	701	79	106	1500
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.90	0.01	0.01	0.00	70.39	3.42
d_M, Delay for Movement [s/veh]	33.54	0.00	0.00	0.00	10000.00	1114.29
Movement LOS	D	A	A	A	F	F
95th-Percentile Queue Length [veh/ln]	12.14	0.00	0.00	0.00	15.61	136.81
95th-Percentile Queue Length [ft/ln]	303.62	0.00	0.00	0.00	390.21	3420.21
d_A, Approach Delay [s/veh]	15.99		0.00		1700.77	
Approach LOS	C		A		F	
d_I, Intersection Delay [s/veh]	696.63					
Intersection LOS	F					

Intersection Level Of Service Report

Intersection 15: US 1/Gallatin St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 1.4
 Level Of Service: A
 Volume to Capacity (v/c): 0.271

Intersection Setup

Name	US 1		US 1		Gallatin St.	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		0.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		No	

Volumes

Name	US 1		US 1		Gallatin St.	
Base Volume Input [veh/h]	23	767	449	45	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.11	2.05	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	7	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	779	456	45	0	0
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	216	127	13	0	0
Total Analysis Volume [veh/h]	26	866	507	50	0	0
Presence of On-Street Parking	No	No	No	No		
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		4		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	84.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	6	6	2	2	5	0
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	-	-
Minimum Green [s]	4	4	4	4	0	0
Maximum Green [s]	86	86	86	86	0	0
Amber [s]	4.0	4.0	4.0	4.0	0.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	90	90	90	90	0	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	0.0	0.0
Walk [s]	0	0	20	20	0	0
Pedestrian Clearance [s]	0	0	10	10	0	0
Rest In Walk						
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	0.0	0.0
Minimum Recall		No	No			
Maximum Recall		Yes	No			
Pedestrian Recall		No	No			
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	50.0	50.0	50.0	50.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	8
Pedestrian Walk [s]	20
Pedestrian Clearance [s]	10

Lane Group Calculations

Lane Group	C	C	C	C	
C, Cycle Length [s]	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	106	106	106	106	
g / C, Green / Cycle	0.88	0.88	0.88	0.88	
(v / s)_i Volume / Saturation Flow Rate	0.26	0.26	0.15	0.15	
s, saturation flow rate [veh/h]	1773	1693	1862	1805	
c, Capacity [veh/h]	1595	1494	1642	1592	
d1, Uniform Delay [s]	1.11	1.12	0.98	0.99	
k, delay calibration	0.50	0.50	0.50	0.50	
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.45	0.50	0.22	0.24	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.29	0.29	0.17	0.17	
d, Delay for Lane Group [s/veh]	1.56	1.62	1.21	1.23	
Lane Group LOS	A	A	A	A	
Critical Lane Group	Yes	No	No	No	
50th-Percentile Queue Length [veh/ln]	0.82	0.81	0.44	0.44	
50th-Percentile Queue Length [ft/ln]	20.51	20.20	10.95	11.10	
95th-Percentile Queue Length [veh/ln]	1.48	1.45	0.79	0.80	
95th-Percentile Queue Length [ft/ln]	36.92	36.35	19.72	19.98	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	1.56	1.59	1.22	1.23	0.00	0.00
Movement LOS	A	A	A	A		
d_A, Approach Delay [s/veh]	1.59		1.22		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.45					
Intersection LOS	A					
Intersection V/C	0.271					

Sequence

Ring 1	-	2	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SG: 2 90s

SG: 8 30s

SG: 6 90s

Intersection Level Of Service Report Intersection 16: US 1/Farragut St

Control Type: Signalized
Analysis Method: HCM 2010
Analysis Period: 15 minutes

Delay (sec / veh): 10.1
Level Of Service: B
Volume to Capacity (v/c): 0.538

Intersection Setup

Name	US 1		Farragut		US 1	
Approach	Southbound		Eastbound		Northeastbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	150.00	100.00	100.00
Speed [mph]	30.00		25.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	US 1		Farragut		US 1	
Base Volume Input [veh/h]	445	9	47	36	12	757
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.97	0.00	0.00	0.00	0.00	2.11
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	7	0	0	0	0	12
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	452	9	47	36	12	769
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	126	3	13	10	3	214
Total Analysis Volume [veh/h]	502	10	52	40	13	854
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	78.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Permissive	Permissive	Split	Split	Permissive	Permissive
Signal group	6	6	4	4	2	2
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lag	-
Minimum Green [s]	20	20	20	20	20	20
Maximum Green [s]	89	89	20	20	89	89
Amber [s]	5.0	5.0	4.0	4.0	5.0	5.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	95	95	25	25	95	95
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	4.0	3.0	3.0	4.0	4.0
Minimum Recall	No		No			No
Maximum Recall	Yes		Yes			Yes
Pedestrian Recall	No		No			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	50.0	50.0	50.0	50.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	R	C
C, Cycle Length [s]	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.00	6.00	5.00	5.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	2.00
l2, Clearance Lost Time [s]	4.00	4.00	3.00	3.00	4.00
g_i, Effective Green Time [s]	89	89	20	20	89
g / C, Green / Cycle	0.74	0.74	0.17	0.17	0.74
(v / s)_i Volume / Saturation Flow Rate	0.14	0.14	0.03	0.02	0.47
s, saturation flow rate [veh/h]	1863	1851	1810	1615	1848
c, Capacity [veh/h]	1382	1373	302	269	1401
d1, Uniform Delay [s]	4.64	4.65	42.90	42.72	7.50
k, delay calibration	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.30	0.30	1.24	1.16	2.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.19	0.19	0.17	0.15	0.62
d, Delay for Lane Group [s/veh]	4.94	4.95	44.14	43.89	9.56
Lane Group LOS	A	A	D	D	A
Critical Lane Group	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	1.81	1.82	1.45	1.12	9.73
50th-Percentile Queue Length [ft/ln]	45.33	45.40	36.22	27.93	243.28
95th-Percentile Queue Length [veh/ln]	3.26	3.27	2.61	2.01	14.85
95th-Percentile Queue Length [ft/ln]	81.59	81.72	65.19	50.28	371.18

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	4.94	4.95	44.14	43.89	9.56	9.56
Movement LOS	A	A	D	D	A	A
d_A, Approach Delay [s/veh]	4.94		44.03		9.56	
Approach LOS	A		D		A	
d_I, Intersection Delay [s/veh]	10.11					
Intersection LOS	B					
Intersection V/C	0.538					

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SG: 2 95s

SG: 4 25s

SG: 6 95s

Intersection Level Of Service Report

Intersection 17: US 1/43rd Ave

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 21.6
 Level Of Service: C
 Volume to Capacity (v/c): 0.099

Intersection Setup

Name	US 1		US 1			
Approach	Northeastbound		Southwestbound		Southeastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0
Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	US 1		US 1			
Base Volume Input [veh/h]	50	743	467	16	24	70
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	7	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	50	755	474	16	24	70
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	189	119	4	6	18
Total Analysis Volume [veh/h]	50	755	474	16	24	70
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.01	0.00	0.00	0.10	0.09
d_M, Delay for Movement [s/veh]	8.53	0.00	0.00	0.00	21.56	11.50
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.15	0.00	0.00	0.00	0.70	0.70
95th-Percentile Queue Length [ft/ln]	3.67	0.00	0.00	0.00	17.52	17.52
d_A, Approach Delay [s/veh]	0.53		0.00		14.07	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.26					
Intersection LOS	C					

Intersection Level Of Service Report

Intersection 18: US 1/42nd Place/Crittendon Street

Control Type:	Signalized	Delay (sec / veh):	53.2
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.892

Intersection Setup

Name	42nd Pl			Crittenden St			US 1			US 1		
Approach	Southbound			Eastbound			Northeastbound			Southwestbound		
Lane Configuration												
Turning Movement	Left	Right	Right2	Left	Thru	Right	Left2	Left	Thru	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	42nd Pl			Crittenden St			US 1			US 1		
Base Volume Input [veh/h]	5	16	0	0	38	355	346	50	778	518	30	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	2.00	2.14	0.00	2.17	2.05	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	7	12	0	12	7	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	16	0	0	38	362	358	50	790	525	30	5
Peak Hour Factor	0.9000	0.9000	0.9000	1.0000	0.9000	0.9000	1.0000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	4	0	0	11	101	90	14	219	146	8	1
Total Analysis Volume [veh/h]	6	18	0	0	42	402	358	56	878	583	33	6
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	42.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split
Signal group	4	4	4	0	3	3	0	6	6	2	6	6
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	Lag	-	-	-	-
Minimum Green [s]	5	5	5	0	5	5	0	20	20	20	20	20
Maximum Green [s]	19	19	19	0	25	25	0	60	60	60	60	60
Amber [s]	4.0	4.0	4.0	0.0	4.0	4.0	0.0	5.0	5.0	5.0	5.0	5.0
All red [s]	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0
Split [s]	24	24	24	0	30	30	0	66	66	66	66	66
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk	No				No				No	No		
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	3.0	0.0	3.0	3.0	0.0	4.0	4.0	6.0	4.0	4.0
Minimum Recall	No				No				No	No		
Maximum Recall	No				No				Yes	Yes		
Pedestrian Recall	No				No				No	No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	50.0	50.0	50.0	0.0	50.0	50.0	0.0	50.0	50.0	50.0	50.0	50.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	6.00	6.00	8.00	8.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	4.00	4.00	6.00	6.00
g_i, Effective Green Time [s]	3	25	76	76	74	74
g / C, Green / Cycle	0.02	0.21	0.63	0.63	0.62	0.62
(v / s)_i Volume / Saturation Flow Rate	0.01	0.27	0.52	0.25	0.17	0.17
s, saturation flow rate [veh/h]	1660	1638	800	3541	1862	1821
c, Capacity [veh/h]	40	341	487	2246	1150	1125
d1, Uniform Delay [s]	57.99	47.50	27.03	10.67	10.53	10.58
k, delay calibration	0.11	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.74	155.29	16.77	0.51	0.58	0.61
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.60	1.30	0.85	0.39	0.27	0.28
d, Delay for Lane Group [s/veh]	71.74	202.79	43.80	11.18	11.11	11.19
Lane Group LOS	E	F	D	B	B	B
Critical Lane Group	Yes	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.88	24.95	12.92	5.45	3.78	3.80
50th-Percentile Queue Length [ft/ln]	22.00	623.82	322.96	136.23	94.39	94.93
95th-Percentile Queue Length [veh/ln]	1.58	37.69	18.81	9.28	6.80	6.83
95th-Percentile Queue Length [ft/ln]	39.60	942.20	470.33	231.94	169.89	170.87

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	71.74	71.74	71.74	0.00	202.79	202.79	43.80	43.80	11.18	11.15	11.19	11.19
Movement LOS	E	E	E		F	F	D	D	B	B	B	B
d_A, Approach Delay [s/veh]	71.74			202.79			21.63			11.15		
Approach LOS	E			F			C			B		
d_I, Intersection Delay [s/veh]	53.17											
Intersection LOS	D											
Intersection V/C	0.892											

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 19: US 1/41st Place/Charles Armentrout Dr

Control Type:	Signalized	Delay (sec / veh):	33.0
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.904

Intersection Setup

Name	US 1			US 1			Charles L Armentrout			41st		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	200.00	100.00	200.00	200.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	43.00			35.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 1			US 1			Charles L Armentrout			41st		
Base Volume Input [veh/h]	1	675	563	592	356	2	271	3	474	2	2	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	2.38	2.14	2.00	0.00	2.00	0.00	2.21	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	0	7	7	0	0	0	12	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	687	563	599	363	2	271	3	486	2	2	2
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	191	156	166	101	1	75	1	135	1	1	1
Total Analysis Volume [veh/h]	1	763	626	666	403	2	301	3	540	2	2	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	4			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	42.0
Offset Reference	LagEnd
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Overlap	Permiss	Permiss	Permiss
Signal group	6	6	6	5	2	2	8	8	2	4	4	4
Auxiliary Signal Groups									2,5			
Lead / Lag	Lag	-	-	Lead	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	20	20	20	5	20	20	8	8	20	8	8	8
Maximum Green [s]	49	49	49	25	78	78	30	30	78	30	30	30
Amber [s]	5.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0	5.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0	2.0	2.0
Split [s]	54	54	54	30	84	84	36	36	84	36	36	36
Vehicle Extension [s]	6.0	6.0	6.0	3.0	6.0	6.0	3.0	3.0	6.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Recall		No		No	No			No	No		No	
Maximum Recall		Yes		No	Yes			No	Yes		No	
Pedestrian Recall		No		No	No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	0.0	50.0	50.0	50.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C	R	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	5.50	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	0.00	4.00	4.00	4.00	0.00	4.00
g_i, Effective Green Time [s]	51	51	51	81	81	81	27	81	27
g / C, Green / Cycle	0.43	0.43	0.43	0.68	0.68	0.68	0.22	0.68	0.22
(v / s)_i Volume / Saturation Flow Rate	0.00	0.22	0.40	0.62	0.11	0.11	0.21	0.34	0.00
s, saturation flow rate [veh/h]	996	3547	1577	1069	1863	1860	1462	1580	1870
c, Capacity [veh/h]	427	1512	673	701	1260	1258	387	1069	458
d1, Uniform Delay [s]	23.98	25.16	32.74	20.35	7.05	7.05	45.38	9.55	36.29
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.29	0.50	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.01	1.21	21.34	23.75	0.27	0.27	9.09	1.71	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.50	0.93	0.95	0.16	0.16	0.79	0.51	0.01
d, Delay for Lane Group [s/veh]	23.99	26.36	54.07	44.10	7.33	7.33	54.47	11.26	36.30
Lane Group LOS	C	C	D	D	A	A	D	B	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.02	7.86	20.22	12.81	1.84	1.84	9.88	7.17	0.14
50th-Percentile Queue Length [ft/ln]	0.47	196.43	505.57	320.35	46.02	45.95	247.00	179.34	3.53
95th-Percentile Queue Length [veh/ln]	0.03	12.45	27.60	18.68	3.31	3.31	15.03	11.57	0.25
95th-Percentile Queue Length [ft/ln]	0.84	311.36	689.95	467.12	82.84	82.71	375.87	289.15	6.36

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	23.99	26.36	54.07	44.10	7.33	7.33	54.47	54.47	11.26	36.30	36.30	36.30
Movement LOS	C	C	D	D	A	A	D	D	B	D	D	D
d_A, Approach Delay [s/veh]	38.84			30.19			26.82			36.30		
Approach LOS	D			C			C			D		
d_I, Intersection Delay [s/veh]	32.98											
Intersection LOS	C											
Intersection V/C	0.904											

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 20: MD 410/Toledo Terrace

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 115.5
 Level Of Service: F
 Volume to Capacity (v/c): 8.025

Intersection Setup

Name				Toledo Terrace			MD 410			MD 410		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	1	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	500.00	100.00	900.00	175.00	100.00	175.00
Speed [mph]	30.00			30.00			50.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Toledo Terrace			MD 410			MD 410		
Base Volume Input [veh/h]	99	32	93	127	19	283	387	1306	145	81	998	155
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.44	0.00	2.50	2.38	0.00	1.96	2.07	2.00	1.92	2.00	2.05	3.85
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	22	0	0	0	0	0	0	24	41	0	13	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	121	32	93	127	19	283	387	1330	186	81	1011	155
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	9	26	35	5	79	108	369	52	23	281	43
Total Analysis Volume [veh/h]	134	36	103	141	21	314	430	1478	207	90	1123	172
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	4			2			1			5		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	66.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	8	8	8	4	4	4	1	6	6	2	2	2
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lead	-	-	Lag	-	-
Minimum Green [s]	8	8	8	8	8	8	5	20	20	20	20	20
Maximum Green [s]	39	39	39	39	39	39	31	99	99	63	63	63
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.5
All red [s]	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.5	1.5	1.5	1.5	1.5
Split [s]	45	45	45	45	45	45	36	105	105	69	69	69
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	5.0	5.0	5.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0
Minimum Recall		No			No		No	No			No	
Maximum Recall		No			No		No	Yes			Yes	
Pedestrian Recall		No			No		No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	C	R	L	C	R	L	C	R
C, Cycle Length [s]	150	150	150	150	150	150	150	150	150	150
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	0.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	39	39	39	39	99	99	99	70	70	70
g / C, Green / Cycle	0.26	0.26	0.26	0.26	0.66	0.66	0.66	0.47	0.47	0.47
(v / s)_i Volume / Saturation Flow Rate	4.82	0.07	6.94	0.20	0.51	0.42	0.13	0.25	0.32	0.11
s, saturation flow rate [veh/h]	35	1566	23	1582	845	3547	1580	356	3545	1552
c, Capacity [veh/h]	52	406	51	410	506	2343	1044	124	1659	726
d1, Uniform Delay [s]	69.94	44.03	72.12	51.32	30.88	14.82	9.94	61.48	31.06	23.87
k, delay calibration	0.50	0.11	0.50	0.26	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1066.60	0.32	1030.06	6.93	16.24	1.30	0.43	30.77	2.24	0.77
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	3.26	0.25	3.18	0.77	0.85	0.63	0.20	0.73	0.68	0.24
d, Delay for Lane Group [s/veh]	1136.55	44.35	1102.19	58.25	47.12	16.12	10.37	92.24	33.30	24.63
Lane Group LOS	F	D	F	E	D	B	B	F	C	C
Critical Lane Group	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	17.45	3.12	16.55	11.74	8.16	13.55	2.59	4.49	15.80	3.75
50th-Percentile Queue Length [ft/ln]	436.22	77.98	413.81	293.61	204.12	338.82	64.80	112.22	394.91	93.79
95th-Percentile Queue Length [veh/ln]	31.41	5.61	29.79	17.36	12.85	19.59	4.67	7.96	22.31	6.75
95th-Percentile Queue Length [ft/ln]	785.19	140.37	744.85	434.12	321.27	489.75	116.64	199.08	557.86	168.82

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	1136.55	1136.55	44.35	1102.19	1102.19	58.25	47.12	16.12	10.37	92.24	33.30	24.63
Movement LOS	F	F	D	F	F	E	D	B	B	F	C	C
d_A, Approach Delay [s/veh]	724.47			413.54			21.86			36.05		
Approach LOS	F			F			C			D		
d_I, Intersection Delay [s/veh]	115.51											
Intersection LOS	F											
Intersection V/C	8.025											

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 21: MD 410/Editors Park Dr

Control Type: Two-way stop
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 4,351.3
 Level Of Service: F
 Volume to Capacity (v/c): 8.839

Intersection Setup

Name	Editors Park Dr		MD 410		MD 410		
Approach	Northbound		Eastbound		Westbound		
Lane Configuration							
Turning Movement	Left	Right	Thru	Right	U-turn	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	150.00	100.00	100.00
Speed [mph]	30.00		45.00		45.00		
Grade [%]	0.00		0.00		0.00		
Crosswalk	Yes		Yes		Yes		

Volumes

Name	Editors Park Dr		MD 410		MD 410		
Base Volume Input [veh/h]	64	67	1460	109	1	35	1282
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.85	0.00	2.00	1.64	0.00	1.89	2.05
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	64	24	0	0	121	13
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	64	131	1484	109	1	156	1295
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	36	412	30	0	43	360
Total Analysis Volume [veh/h]	71	146	1649	121	1	173	1439
Pedestrian Volume [ped/h]	0		0		0		

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	8.84	0.46	0.02	0.00	0.02	0.50	0.01
d_M, Delay for Movement [s/veh]	4351.30	3914.38	0.00	0.00	87.64	26.19	0.00
Movement LOS	F	F	A	A	F	D	A
95th-Percentile Queue Length [veh/ln]	27.20	27.20	0.00	0.00	2.34	2.34	0.00
95th-Percentile Queue Length [ft/ln]	679.96	679.96	0.00	0.00	58.58	58.58	0.00
d_A, Approach Delay [s/veh]	4057.34		0.00		2.86		
Approach LOS	F		A		A		
d_I, Intersection Delay [s/veh]	245.85						
Intersection LOS	F						

Intersection Level Of Service Report

Intersection 22: MD 410/Prince George's Plaza

Control Type:	Signalized	Delay (sec / veh):	24.6
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.535

Intersection Setup

Name	Metro			PG Plaza			MD 410			MD 410		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	2	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	250.00	100.00	250.00	225.00	100.00	100.00	325.00	100.00	100.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Metro			PG Plaza			MD 410			MD 410		
Base Volume Input [veh/h]	175	17	165	126	12	34	132	1307	62	98	1139	70
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.54	3.85	2.22	0.00	0.00	3.85	2.22	2.07	1.74	2.21	2.00	3.85
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	88	0	0	134	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	175	17	165	126	12	34	132	1395	62	98	1273	70
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	49	5	46	35	3	9	37	388	17	27	354	19
Total Analysis Volume [veh/h]	194	19	183	140	13	38	147	1550	69	109	1414	78
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	75.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	3	3	3	4	4	4	1	6	6	5	2	2
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	5	5	20	20	5	20	20
Maximum Green [s]	24	24	24	24	24	24	25	54	54	25	54	54
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	4.5
All red [s]	1.5	1.5	1.5	1.5	1.5	1.5	1.0	1.5	1.5	1.0	1.5	1.5
Split [s]	30	30	30	30	30	30	30	60	60	30	60	60
Vehicle Extension [s]	2.5	2.5	2.5	2.5	2.5	2.5	2.5	5.0	5.0	2.5	5.0	5.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.5	3.5	3.5	3.5	3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	Yes		No	Yes	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	294.0	294.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	30.0	30.0	30.0	30.0	6.0	6.0	30.0	5.0	5.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	150	150	150	150	150	150	150	150	150	150	150
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	5.50	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.50	3.50	3.50	3.50	3.50	0.00	4.00	4.00	0.00	4.00	4.00
g_i, Effective Green Time [s]	21	21	8	8	8	103	93	93	103	92	92
g / C, Green / Cycle	0.14	0.14	0.06	0.06	0.06	0.69	0.62	0.62	0.69	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate	0.06	0.13	0.04	0.01	0.02	0.29	0.30	0.30	0.25	0.28	0.05
s, saturation flow rate [veh/h]	3461	1577	3514	1900	1555	507	3544	1821	433	5074	1555
c, Capacity [veh/h]	490	223	197	106	87	362	2190	1125	316	3105	952
d1, Uniform Delay [s]	58.54	63.38	69.62	67.30	68.52	10.93	15.68	15.69	11.17	15.66	11.89
k, delay calibration	0.08	0.24	0.08	0.08	0.08	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.39	23.35	3.54	0.38	2.55	3.37	0.78	1.52	2.96	0.48	0.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.90	0.71	0.12	0.44	0.41	0.49	0.49	0.34	0.46	0.08
d, Delay for Lane Group [s/veh]	58.93	86.73	73.16	67.68	71.07	14.30	16.47	17.21	14.13	16.14	12.06
Lane Group LOS	E	F	E	E	E	B	B	B	B	B	B
Critical Lane Group	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.41	9.07	2.75	0.49	1.48	1.84	9.68	10.19	1.35	8.36	1.08
50th-Percentile Queue Length [ft/ln]	85.13	226.67	68.86	12.21	37.04	46.05	242.03	254.82	33.74	209.03	26.95
95th-Percentile Queue Length [veh/ln]	6.13	14.00	4.96	0.88	2.67	3.32	14.78	15.43	2.43	13.10	1.94
95th-Percentile Queue Length [ft/ln]	153.24	350.12	123.95	21.98	66.67	82.90	369.60	385.72	60.74	327.58	48.51

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.93	86.73	86.73	73.16	67.68	71.07	14.30	16.70	17.21	14.13	16.14	12.06
Movement LOS	E	F	F	E	E	E	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	73.11			72.37			16.52			15.81		
Approach LOS	E			E			B			B		
d_I, Intersection Delay [s/veh]	24.60											
Intersection LOS	C											
Intersection V/C	0.535											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 23: MD 410/Belcrest Rd

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 120.3
 Level Of Service: F
 Volume to Capacity (v/c): 1.021

Intersection Setup

Name				Belcrest Rd			MD 410			MD 410		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	100.00	250.00	100.00	100.00	225.00	100.00	100.00	225.00	100.00	100.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Belcrest Rd			MD 410			MD 410		
Base Volume Input [veh/h]	363	387	6	310	601	126	210	1114	276	239	867	122
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.21	2.00	3.85	2.00	2.21	2.63	2.00	2.00	2.38	2.63	2.00	2.63
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	71	0	0	20	0	10	29	21	38	17	53	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	434	387	6	330	601	136	239	1135	314	256	920	122
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	121	108	2	92	167	38	66	315	87	71	256	34
Total Analysis Volume [veh/h]	482	430	7	367	668	151	266	1261	349	284	1022	136
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	26			10			91			71		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	60.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	4	4	4	3	3	3	1	6	6	5	2	2
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	5	5	20	20	5	20	20
Maximum Green [s]	29	29	29	32	32	32	17	53	53	11	47	47
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	4.5
All red [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Split [s]	35	35	35	38	38	38	23	60	60	17	54	54
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	4.5
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	Yes		No	Yes	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	30.0	30.0	30.0	30.0	30.0	30.0	5.0	5.0	30.0	5.0	5.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	150	150	150	150	150	150	150	150	150	150	150	150
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.50	6.50	6.00	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.50	4.50	4.00	4.50	4.50
g_i, Effective Green Time [s]	28	28	28	32	32	32	17	54	54	11	48	48
g / C, Green / Cycle	0.19	0.19	0.19	0.21	0.21	0.21	0.11	0.36	0.36	0.07	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.17	0.17	0.17	0.21	0.25	0.24	0.15	0.36	0.23	0.16	0.29	0.09
s, saturation flow rate [veh/h]	1770	1813	1682	1774	1859	1475	1774	3547	1543	1763	3547	1559
c, Capacity [veh/h]	335	343	318	379	397	315	201	1280	557	129	1138	500
d1, Uniform Delay [s]	59.72	59.72	59.76	58.48	58.97	58.97	66.47	47.53	39.58	69.47	48.59	37.89
k, delay calibration	0.34	0.34	0.34	0.39	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	25.07	24.64	26.59	33.98	96.17	94.48	175.45	21.92	5.26	562.46	11.23	1.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.92	0.93	0.97	1.16	1.14	1.32	0.99	0.63	2.20	0.90	0.27
d, Delay for Lane Group [s/veh]	84.79	84.36	86.35	92.46	155.14	153.45	241.92	69.46	44.85	631.93	59.82	39.23
Lane Group LOS	F	F	F	F	F	F	F	E	D	F	E	D
Critical Lane Group	No	No	Yes	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	13.89	14.18	13.37	17.40	25.67	20.22	17.37	26.45	11.21	25.10	19.52	3.87
50th-Percentile Queue Length [ft/ln]	347.13	354.45	334.31	435.05	641.77	505.59	434.34	661.19	280.24	627.51	487.93	96.72
95th-Percentile Queue Length [veh/ln]	20.00	20.35	19.37	24.24	36.82	29.61	26.93	34.88	16.70	39.82	26.76	6.96
95th-Percentile Queue Length [ft/ln]	499.91	508.84	484.25	606.08	920.46	740.36	673.23	872.04	417.51	995.56	669.06	174.10

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	84.63	85.69	86.35	92.46	154.61	153.45	241.92	69.46	44.85	631.93	59.82	39.23
Movement LOS	F	F	F	F	F	F	F	E	D	F	E	D
d_A, Approach Delay [s/veh]	85.14			135.23			89.33			170.55		
Approach LOS	F			F			F			F		
d_I, Intersection Delay [s/veh]	120.26											
Intersection LOS	F											
Intersection V/C	1.021											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 24: MD 410/MD 500/Adelphi Rd

Control Type:	Signalized	Delay (sec / veh):	212.1
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.199

Intersection Setup

Name	Adelphi Rd			MD 410			MD 410			MD 500		
Approach	Southbound			Eastbound			Westbound			Northeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	350.00	100.00	150.00	300.00	100.00	100.00	350.00	100.00	150.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Adelphi Rd			MD 410			MD 410			MD 500		
Base Volume Input [veh/h]	525	352	47	101	1302	54	479	1205	400	46	727	497
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	1.56	2.63	2.00	0.00	2.00	2.04	2.09	3.85	2.13	2.15
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	6	0	41	0	36	76	0	30	7	22
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	525	364	53	101	1343	54	515	1281	400	76	734	519
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	146	101	15	28	373	15	143	356	111	21	204	144
Total Analysis Volume [veh/h]	583	404	59	112	1492	60	572	1423	444	84	816	577
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	6			5			9			3		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	75.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Protecte	Permiss	Unsigna	Protecte	Permiss	Overlap	Split	Split	Split
Signal group	4	4	0	1	6	0	5	2	2	3	3	0
Auxiliary Signal Groups									2,4			
Lead / Lag	Lag	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	5	25	0	5	5	5	7	7	0
Maximum Green [s]	29	29	0	12	46	0	27	61	61	21	21	0
Amber [s]	5.0	5.0	0.0	4.0	5.0	0.0	4.0	5.0	5.0	5.0	5.0	0.0
All red [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Split [s]	36	36	0	18	53	0	33	68	68	28	28	0
Vehicle Extension [s]	2.5	2.5	0.0	3.0	5.0	0.0	6.0	3.0	3.0	2.5	2.5	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	5.0	5.0	0.0	4.0	5.0	0.0	4.0	5.0	5.0	5.0	5.0	0.0
Minimum Recall		No		No	No		No	No	No		No	
Maximum Recall		No		No	Yes		No	Yes	Yes		No	
Pedestrian Recall		No		No	No		No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	294.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	30.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	L	C	R	C	C	R
C, Cycle Length [s]	150	150	150	150	150	150	150	150	150	150	150
L, Total Lost Time per Cycle [s]	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	5.00	5.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	5.00	5.00
g_i, Effective Green Time [s]	29	29	29	79	51	79	61	115	21	21	21
g / C, Green / Cycle	0.19	0.19	0.19	0.53	0.34	0.53	0.41	0.77	0.14	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.20	0.20	0.20	0.30	0.42	0.36	0.40	0.28	0.25	0.25	0.37
s, saturation flow rate [veh/h]	1774	1806	1640	373	3547	1598	3545	1578	1844	1693	1551
c, Capacity [veh/h]	343	349	317	96	1201	707	1442	1210	258	237	217
d1, Uniform Delay [s]	60.50	60.50	60.50	48.60	49.60	43.83	44.11	5.68	64.50	64.50	64.50
k, delay calibration	0.40	0.40	0.40	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	53.18	52.76	55.43	143.57	116.13	9.71	20.81	0.86	383.72	383.08	759.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.04	1.04	1.04	1.17	1.24	0.81	0.99	0.37	1.82	1.82	2.66
d, Delay for Lane Group [s/veh]	113.68	113.26	115.93	192.16	165.73	53.54	64.92	6.54	448.22	447.58	823.68
Lane Group LOS	F	F	F	F	F	D	E	A	F	F	F
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	18.03	18.32	16.88	5.53	41.56	6.65	29.85	4.37	37.34	34.24	54.04
50th-Percentile Queue Length [ft/ln]	450.87	457.95	421.88	138.24	1038.96	166.24	746.35	109.34	933.46	856.00	1350.94
95th-Percentile Queue Length [veh/ln]	25.49	25.83	24.09	9.95	59.67	10.88	38.81	7.80	57.99	53.56	84.48
95th-Percentile Queue Length [ft/ln]	637.26	645.86	602.28	248.84	1491.80	271.96	970.37	195.08	1449.63	1339.00	2112.08

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	113.51	115.04	115.93	192.16	165.73	0.00	53.54	64.92	6.54	448.22	447.88	823.68
Movement LOS	F	F	F	F	F		D	E	A	F	F	F
d_A, Approach Delay [s/veh]	114.24			167.58			51.62			594.71		
Approach LOS	F			F			D			F		
d_I, Intersection Delay [s/veh]	212.09											
Intersection LOS	F											
Intersection V/C	1.199											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report Intersection 25: Ager Rd/23rd Ave

Control Type: Signalized
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 18.7
Level Of Service: B
Volume to Capacity (v/c): 0.432

Intersection Setup

Name							Ager Rd.			Ager Rd.		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name							Ager Rd.			Ager Rd.		
Base Volume Input [veh/h]	14	24	13	199	31	37	21	635	3	25	811	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	30	0	0	49	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	24	13	199	31	37	21	665	3	25	860	14
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	6	3	50	8	9	5	166	1	6	215	4
Total Analysis Volume [veh/h]	14	24	13	199	31	37	21	665	3	25	860	14
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	35	0	0	35	0
Maximum Green [s]	0	20	0	0	30	0	0	35	0	0	35	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	25	0	0	35	0	0	50	0	0	50	0
Vehicle Extension [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	21	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	0.00	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	20	30	45	45	45	45	45	45
g / C, Green / Cycle	0.22	0.33	0.50	0.50	0.50	0.50	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	0.03	0.19	0.04	0.20	0.20	0.04	0.26	0.26
s, saturation flow rate [veh/h]	1545	1443	571	1683	1680	692	1683	1673
c, Capacity [veh/h]	394	516	252	841	840	325	841	837
d1, Uniform Delay [s]	28.11	24.44	22.78	14.04	14.04	19.49	15.21	15.21
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.68	3.69	0.65	1.40	1.40	0.46	2.30	2.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.13	0.52	0.08	0.40	0.40	0.08	0.52	0.52
d, Delay for Lane Group [s/veh]	28.79	28.13	23.43	15.44	15.44	19.95	17.51	17.52
Lane Group LOS	C	C	C	B	B	B	B	B
Critical Lane Group	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.95	4.95	0.36	4.24	4.24	0.38	6.10	6.07
50th-Percentile Queue Length [ft/ln]	23.66	123.84	8.95	106.09	105.96	9.50	152.52	151.74
95th-Percentile Queue Length [veh/ln]	1.70	8.60	0.64	7.62	7.61	0.68	10.15	10.11
95th-Percentile Queue Length [ft/ln]	42.58	215.09	16.12	190.56	190.37	17.10	253.79	252.75

Movement, Approach, & Intersection Results

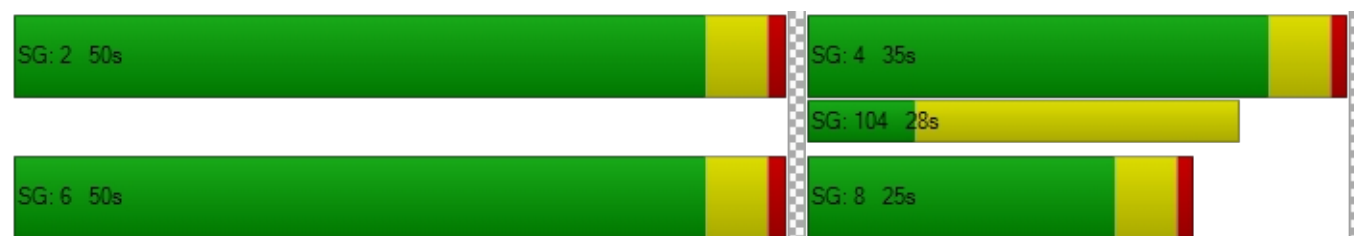
d_M, Delay for Movement [s/veh]	28.79	28.79	28.79	28.13	28.13	28.13	23.43	15.44	15.44	19.95	17.52	17.52
Movement LOS	C	C	C	C	C	C	C	B	B	B	B	B
d_A, Approach Delay [s/veh]	28.79			28.13			15.69			17.59		
Approach LOS	C			C			B			B		
d_I, Intersection Delay [s/veh]	18.68											
Intersection LOS	B											
Intersection V/C	0.432											

Other Modes

g_Walk,mi, Effective Walk Time [s]	45.0			45.0			20.0			11.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	11.25			11.25			27.22			34.67		
I_p,int, Pedestrian LOS Score for Intersection	1.756			1.860			3.019			2.687		
Crosswalk LOS	A			A			C			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	444			667			1000			1000		
d_b, Bicycle Delay [s]	27.22			20.00			11.25			11.25		
I_b,int, Bicycle LOS Score for Intersection	1.644			2.000			2.128			2.301		
Bicycle LOS	A			B			B			B		

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 26: Ager Rd/Oglethorpe St/School

Control Type:	Signalized	Delay (sec / veh):	47.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.394

Intersection Setup

Name							Ager Rd.			Ager Rd.		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	1200.00	350.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name							Ager Rd.			Ager Rd.		
Base Volume Input [veh/h]	21	0	32	2	0	0	51	981	2	3	1040	35
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	30	0	0	49	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	21	0	32	2	0	0	51	1011	2	3	1089	35
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	0	8	1	0	0	13	253	1	1	272	9
Total Analysis Volume [veh/h]	21	0	32	2	0	0	51	1011	2	3	1089	35
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	4	0	0	8	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	10	0	5	10	0
Maximum Green [s]	0	20	0	0	20	0	20	30	0	20	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	4.0	4.0	0.0	4.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	30	0	0	30	0	30	45	0	30	45	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	6.0	0.0	3.0	6.0	0.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	27	0	0	11	0	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	C	C
C, Cycle Length [s]	109	109	109	109	109	109	109	109
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	0.00	3.00	3.00	0.00	3.00	3.00
g_i, Effective Green Time [s]	25	25	70	40	40	70	40	40
g / C, Green / Cycle	0.23	0.23	0.64	0.37	0.37	0.64	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.04	0.00	0.06	0.30	0.30	0.00	0.34	0.34
s, saturation flow rate [veh/h]	1384	1255	912	1683	1682	942	1683	1665
c, Capacity [veh/h]	363	354	537	618	617	564	618	611
d1, Uniform Delay [s]	33.54	32.42	13.50	31.25	31.25	11.07	32.88	32.88
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.84	0.03	0.35	11.64	11.64	0.02	20.42	20.62
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.15	0.01	0.10	0.82	0.82	0.01	0.91	0.92
d, Delay for Lane Group [s/veh]	34.38	32.45	13.85	42.88	42.89	11.08	53.30	53.51
Lane Group LOS	C	C	B	D	D	B	D	D
Critical Lane Group	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.21	0.04	0.46	13.64	13.63	0.03	17.16	17.01
50th-Percentile Queue Length [ft/ln]	30.20	1.10	11.48	340.89	340.69	0.65	429.01	425.31
95th-Percentile Queue Length [veh/ln]	2.17	0.08	0.83	19.69	19.68	0.05	23.95	23.78
95th-Percentile Queue Length [ft/ln]	54.36	1.97	20.67	492.29	492.04	1.16	598.85	594.42

Movement, Approach, & Intersection Results

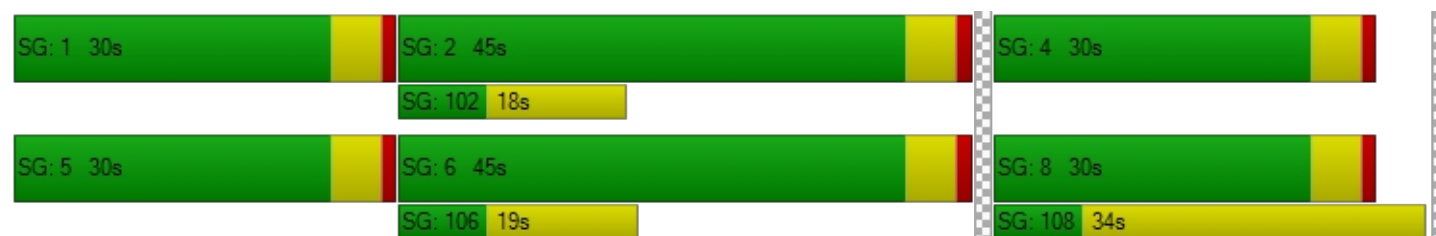
d_M, Delay for Movement [s/veh]	34.38	34.38	34.38	32.45	32.45	32.45	13.85	42.89	42.89	11.08	53.40	53.51
Movement LOS	C	C	C	C	C	C	B	D	D	B	D	D
d_A, Approach Delay [s/veh]	34.38			32.45			41.49			53.29		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	47.24											
Intersection LOS	D											
Intersection V/C	0.394											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			25.0			11.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	34.67			34.67			23.47			34.67		
I_p,int, Pedestrian LOS Score for Intersection	1.810			1.719			2.784			2.820		
Crosswalk LOS	A			A			C			C		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	556			556			889			889		
d_b, Bicycle Delay [s]	23.47			23.47			13.89			13.89		
I_b,int, Bicycle LOS Score for Intersection	1.647			1.563			2.437			2.489		
Bicycle LOS	A			A			B			B		

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 27: Ager Rd/Nicholson St

Control Type: Two-way stop
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 10,000.0
 Level Of Service: F
 Volume to Capacity (v/c): 0.721

Intersection Setup

Name	Ager Rd				Nicholson St			Nicholson St			Ager Rd.			
Approach	Northbound				Northeastbound			Southwestbound			Southeastbound			
Lane Configuration														
Turning Movement	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	1	0	0	0
Pocket Length [ft]	225.0	100.0	100.0	150.0	100.00	100.00	100.00	100.00	100.00	100.00	200.0	100.0	100.0	100.0
Speed [mph]	35.00				30.00			30.00			35.00			
Grade [%]	0.00				0.00			0.00			0.00			
Crosswalk	Yes				Yes			Yes			Yes			

Volumes

Name	Ager Rd				Nicholson St			Nicholson St			Ager Rd.			
Base Volume Input [veh/h]	1	78	838	96	69	14	70	25	10	107	6	175	742	93
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	2.00	0.00	1.82	0.00	0.00	1.74	0.00	2.44	2.00	3.57
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	30	0	0	0	0	0	0	0	0	0	49	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	78	868	96	69	14	70	25	10	107	6	175	791	93
Peak Hour Factor	0.900	0.900	0.900	0.900	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.900	0.900	0.900	0.900
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	22	241	27	19	4	19	7	3	30	2	49	220	26
Total Analysis Volume [veh/h]	1	87	964	107	77	16	78	28	11	119	7	194	879	103
Pedestrian Volume [ped/h]	0				0			0			0			

Intersection Settings

Priority Scheme	Free	Stop	Stop	Free
Flared Lane		No	No	
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance		No	No	
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.12	0.01	0.00	9.63	1.05	0.15	0.00	0.72	0.24	0.04	0.30	0.01	0.00
d_M, Delay for Movement [s/veh]	21.90	10.81	0.00	0.00	5115.45	4902.15	4672.28	10000.0	10000.0	10000.0	28.97	13.74	0.00	0.00
Movement LOS	C	B	A	A	F	F	F	F	F	F	D	B	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	22.28	22.28	22.28	22.40	22.40	22.40	0.03	0.03	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.11	0.11	0.00	0.00	556.98	556.98	556.98	559.89	559.89	559.89	0.77	0.77	0.00	0.00
d_A, Approach Delay [s/veh]	0.83				4893.34			10000.00			2.42			
Approach LOS	A				F			F			A			
d_I, Intersection Delay [s/veh]	906.25													
Intersection LOS	F													

Intersection Level Of Service Report

Intersection 28: Ager Rd/Hamilton St

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 25.5
 Level Of Service: C
 Volume to Capacity (v/c): 0.821

Intersection Setup

Name	Hamilton St			Hamilton St			Ager Rd.			Ager Rd.		
Approach	Eastbound			Westbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	1	0	0	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	1500.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Hamilton St			Hamilton St			Ager Rd.			Ager Rd.		
Base Volume Input [veh/h]	65	158	16	130	83	488	28	388	125	454	290	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.33	1.72	0.00	3.85	2.08	1.91	2.06	1.84	3.33	2.21	2.00	2.63
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	30	51	37	0	84	0	61	0	0	0	0	49
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	95	209	53	130	167	488	89	388	125	454	290	99
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	58	15	36	46	136	25	108	35	126	81	28
Total Analysis Volume [veh/h]	106	232	59	144	186	542	99	431	139	504	322	110
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	8	0	0	4	0	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	10	0	5	10	0
Maximum Green [s]	0	26	0	0	26	0	0	30	0	10	45	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	4.0	0.0	3.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	30	0	0	30	0	0	35	0	15	50	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	3.0	0.0	2.0	3.0	0.0
Minimum Recall		No			No			Yes		Yes	Yes	
Maximum Recall		No			No			No		No	No	
Pedestrian Recall		No			No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	C	R	L	C	C	L	C
C, Cycle Length [s]	73	73	73	73	73	73	73	73	73	73
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	3.00	3.00	3.00	0.00	3.00
g_i, Effective Green Time [s]	26	26	26	26	26	24	24	24	38	38
g / C, Green / Cycle	0.36	0.36	0.36	0.36	0.36	0.33	0.33	0.33	0.52	0.52
(v / s)_i Volume / Saturation Flow Rate	0.16	0.14	0.21	0.11	0.34	0.10	0.16	0.16	0.44	0.24
s, saturation flow rate [veh/h]	1033	1628	672	1694	1585	952	1866	1712	1134	1783
c, Capacity [veh/h]	451	581	339	605	566	234	608	558	626	925
d1, Uniform Delay [s]	20.83	17.54	25.36	16.85	22.80	29.86	19.60	19.63	14.95	11.09
k, delay calibration	0.11	0.11	0.15	0.11	0.41	0.11	0.11	0.11	0.50	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.48	0.45	1.18	0.29	25.33	1.22	0.60	0.67	10.58	0.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.41	0.42	0.31	0.96	0.42	0.49	0.49	0.80	0.47
d, Delay for Lane Group [s/veh]	21.31	17.99	26.55	17.13	48.12	31.08	20.21	20.30	25.53	11.46
Lane Group LOS	C	B	C	B	D	C	C	C	C	B
Critical Lane Group	No	No	No	No	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	2.19	2.79	2.21	2.11	12.12	1.65	3.79	3.53	6.49	3.86
50th-Percentile Queue Length [ft/ln]	54.75	69.86	55.15	52.80	303.01	41.23	94.86	88.13	162.32	96.48
95th-Percentile Queue Length [veh/ln]	3.94	5.03	3.97	3.80	17.83	2.97	6.83	6.35	10.67	6.95
95th-Percentile Queue Length [ft/ln]	98.55	125.75	99.27	95.05	445.75	74.22	170.75	158.63	266.79	173.67

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	21.31	18.79	17.99	26.55	17.13	48.12	31.08	20.24	20.30	25.53	11.46	11.46
Movement LOS	C	B	B	C	B	D	C	C	C	C	B	B
d_A, Approach Delay [s/veh]	19.34			37.95			21.85			19.04		
Approach LOS	B			D			C			B		
d_I, Intersection Delay [s/veh]	25.47											
Intersection LOS	C											
Intersection V/C	0.821											

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 29: Toledo Rd/Belcrest Rd

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 15.2
 Level Of Service: B
 Volume to Capacity (v/c): 0.549

Intersection Setup

Name	Belcrest Rd				Belcrest Rd				Toledo Rd			Toledo Rd		
Approach	Northbound				Southbound				Eastbound			Westbound		
Lane Configuration														
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	400.0	100.0	100.0	100.0	200.0	100.0	100.0	100.0	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				30.00			30.00		
Grade [%]	0.00				0.00				0.00			0.00		
Crosswalk	Yes				No				Yes			Yes		

Volumes

Name	Belcrest Rd				Belcrest Rd				Toledo Rd			Toledo Rd		
Base Volume Input [veh/h]	15	192	383	78	2	93	444	144	157	69	179	56	80	87
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	3.03	1.83	1.37	0.00	2.00	2.02	0.00	0.00	2.86	0.00	2.86	3.45	2.13
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	8	0	0	0	10	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	192	391	78	2	93	454	144	157	69	179	56	80	87
Peak Hour Factor	0.900	0.900	0.900	0.900	0.900	0.900	0.900	0.900	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	53	109	22	1	26	126	40	44	19	50	16	22	24
Total Analysis Volume [veh/h]	17	213	434	87	2	103	504	160	174	77	199	62	89	97
Presence of On-Street Parking	No			No	No			No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	8				0				20			15		
Bicycle Volume [bicycles/h]	0				0				0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	2	2	2	2	6	6	6	6	4	4	4	8	8	8
Auxiliary Signal Groups														
Lead / Lag	Lag	Lag	-	-	Lag	Lag	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Maximum Green [s]	40	40	40	40	40	40	40	40	30	30	30	30	30	30
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Pedestrian Clearance [s]	15	15	15	15	15	15	15	15	21	21	21	21	21	21
Rest In Walk			No				No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall			No				No			No			No	
Maximum Recall			Yes				Yes			No			No	
Pedestrian Recall			No				No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	30.0	30.0	30.0	0.0	0.0	0.0	0.0	30.0	30.0	30.0	30.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	C
C, Cycle Length [s]	72	72	72	72	72	72	72	72	72	72
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	40	40	40	40	40	40	22	22	22	22
g / C, Green / Cycle	0.55	0.55	0.55	0.55	0.55	0.55	0.31	0.31	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.30	0.14	0.14	0.12	0.19	0.19	0.14	0.04	0.12	0.15
s, saturation flow rate [veh/h]	760	1866	1750	874	1862	1694	1217	1847	1602	1603
c, Capacity [veh/h]	414	1032	968	487	1031	937	328	570	494	557
d1, Uniform Delay [s]	17.81	8.42	8.43	12.72	8.85	8.88	27.85	18.04	19.74	20.24
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.30	0.61	0.66	1.01	0.88	0.99	1.34	0.11	0.53	0.56
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.56	0.26	0.26	0.22	0.34	0.34	0.53	0.14	0.40	0.45
d, Delay for Lane Group [s/veh]	23.11	9.03	9.09	13.74	9.73	9.87	29.19	18.15	20.27	20.80
Lane Group LOS	C	A	A	B	A	A	C	B	C	C
Critical Lane Group	Yes	No	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.54	2.08	1.98	1.13	2.83	2.64	2.85	0.90	2.57	3.28
50th-Percentile Queue Length [ft/ln]	88.47	51.89	49.42	28.14	70.76	66.03	71.23	22.53	64.33	82.09
95th-Percentile Queue Length [veh/ln]	6.37	3.74	3.56	2.03	5.09	4.75	5.13	1.62	4.63	5.91
95th-Percentile Queue Length [ft/ln]	159.24	93.40	88.95	50.66	127.37	118.86	128.22	40.55	115.79	147.77

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	23.11	23.11	9.05	9.09	13.74	13.74	9.77	9.87	29.19	18.15	20.27	20.80	20.80	20.80
Movement LOS	C	C	A	A	B	B	A	A	C	B	C	C	C	C
d_A, Approach Delay [s/veh]	13.36				10.33				23.36			20.80		
Approach LOS	B				B				C			C		
d_I, Intersection Delay [s/veh]	15.17													
Intersection LOS	B													
Intersection V/C	0.549													

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SG: 2 45s

SG: 4 35s

SG: 102 22s

SG: 104 28s

SG: 6 45s

SG: 8 35s

SG: 106 22s

Intersection Level Of Service Report

Intersection 30: Adelphi Rd/Belcrest Rd

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 35.2
 Level Of Service: D
 Volume to Capacity (v/c): 0.873

Intersection Setup

Name	Belcrest Rd			Underwood St			Adelphi Rd				Adelphi Rd		
Approach	Northeastbound			Southwestbound			Northwestbound				Southeastbound		
Lane Configuration													
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.0	100.0	100.0	100.0	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00				30.00		
Grade [%]	0.00			0.00			0.00				0.00		
Crosswalk	No			Yes			Yes				Yes		

Volumes

Name	Belcrest Rd			Underwood St			Adelphi Rd				Adelphi Rd		
Base Volume Input [veh/h]	693	0	68	10	8	1	2	17	1150	0	0	819	650
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.98	0.00	0.00	1.99	1.94
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	0	0	0	0	0	0	0	7	0	0	18	10
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	701	0	68	10	8	1	2	17	1157	0	0	837	660
Peak Hour Factor	0.9000	1.0000	1.0000	0.9000	0.9000	0.9000	0.900	0.900	0.900	1.000	1.0000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	195	0	17	3	2	0	1	5	321	0	0	233	183
Total Analysis Volume [veh/h]	779	0	68	11	9	1	2	19	1286	0	0	930	733
Presence of On-Street Parking	No		No	No		No	No			No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			1				5		
Bicycle Volume [bicycles/h]	0			0			0				0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	122
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Permi	Prote	Permi	Permi	Permiss	Permiss	Permiss
Signal group	4	4	0	8	8	8	5	5	2	0	0	6	6
Auxiliary Signal Groups													
Lead / Lag	Lead	-	-	Lag	-	-	Lead	Lead	-	-	-	-	-
Minimum Green [s]	4	4	0	4	4	4	4	4	4	0	0	4	4
Maximum Green [s]	30	30	0	17	17	17	11	11	60	0	0	46	46
Amber [s]	4.0	4.0	0.0	4.0	4.0	4.0	3.5	3.5	4.0	0.0	0.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	0.5	0.5	1.0	0.0	0.0	1.0	1.0
Split [s]	35	35	0	22	22	22	15	15	65	0	0	50	50
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	0.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk	No				No				No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	0.0	3.0	3.0	3.0	2.0	2.0	3.0	0.0	0.0	2.0	2.0
Minimum Recall	No				No			No	No			No	
Maximum Recall	No				No			No	Yes			Yes	
Pedestrian Recall	No				No			No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	30.0	30.0	30.0	0.0	0.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C
C, Cycle Length [s]	104	104	104	104	104	104	104
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	0.00	3.00	2.00	2.00
g_i, Effective Green Time [s]	27	27	2	60	60	55	55
g / C, Green / Cycle	0.26	0.26	0.02	0.58	0.58	0.53	0.53
(v / s)_i Volume / Saturation Flow Rate	0.24	0.24	0.01	0.05	0.36	0.45	0.52
s, saturation flow rate [veh/h]	1772	1775	1836	402	3547	1863	1612
c, Capacity [veh/h]	466	467	34	179	2038	982	850
d1, Uniform Delay [s]	37.18	37.30	50.87	24.18	14.84	21.07	24.09
k, delay calibration	0.31	0.31	0.11	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.99	17.28	16.15	1.34	1.50	8.94	25.97
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.91	0.61	0.12	0.63	0.85	0.98
d, Delay for Lane Group [s/veh]	53.18	54.58	67.02	25.51	16.34	30.00	50.06
Lane Group LOS	D	D	E	C	B	C	D
Critical Lane Group	No	Yes	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	12.27	12.60	0.70	0.27	9.92	18.61	24.63
50th-Percentile Queue Length [ft/ln]	306.80	314.98	17.44	6.66	248.08	465.35	615.71
95th-Percentile Queue Length [veh/ln]	18.02	18.42	1.26	0.48	15.09	25.69	32.77
95th-Percentile Queue Length [ft/ln]	450.43	460.52	31.39	11.99	377.23	642.23	819.18

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	53.82	0.00	54.58	67.02	67.02	67.02	25.51	25.51	16.34	0.00	0.00	32.13	50.06
Movement LOS	D		D	E	E	E	C	C	B			C	D
d_A, Approach Delay [s/veh]	53.88			67.02			16.48			40.03			
Approach LOS	D			E			B			D			
d_I, Intersection Delay [s/veh]	35.22												
Intersection LOS	D												
Intersection V/C	0.873												

Sequence

Ring 1	-	2	-	4	-	8	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 31: Adelphi Rd/Campus Dr

Control Type: Signalized
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 180.6
 Level Of Service: F
 Volume to Capacity (v/c): 1.208

Intersection Setup

Name	Adelphi Rd.			Adelphi Rd.			Campus Dr.			Campus Dr.		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	0	0	0
Pocket Length [ft]	350.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	250.00	100.00	100.00	100.00
Speed [mph]	40.00			40.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Adelphi Rd.			Adelphi Rd.			Campus Dr.			Campus Dr.		
Base Volume Input [veh/h]	242	1536	43	174	1132	0	0	111	340	125	169	355
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.27	2.08	2.27	2.00	2.05	0.00	0.00	2.00	2.21	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	15	0	0	28	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	242	1551	43	174	1160	0	0	111	340	125	169	355
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	1.0000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	431	12	48	322	0	0	31	94	35	47	99
Total Analysis Volume [veh/h]	269	1723	48	193	1289	0	0	123	378	139	188	394
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	248
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Overlap	Permiss	Permiss	Overlap	Overlap	Permiss	Permiss	Split	Split	Split	Split	Split
Signal group	3	8	8	1	1	0	0	2	2	6	6	6
Auxiliary Signal Groups	3,8			1,7	1,4							
Lead / Lag	Lag	-	-	Lag	-	-	-	-	-	Lag	-	-
Minimum Green [s]	5	8	8	15	15	0	0	25	25	5	5	5
Maximum Green [s]	30	60	60	40	40	0	0	60	60	30	30	30
Amber [s]	4.0	4.0	4.0	4.0	4.0	0.0	0.0	4.5	4.5	4.5	4.5	4.5
All red [s]	1.0	2.0	2.0	1.0	1.0	0.0	0.0	1.5	1.5	1.5	1.5	1.5
Split [s]	35	66	66	50	50	0	0	66	66	36	36	36
Vehicle Extension [s]	3.0	3.5	3.5	3.0	3.0	0.0	0.0	4.0	4.0	3.0	3.0	3.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	4.0	4.0	3.0	3.0	0.0	0.0	4.0	4.0	4.0	4.0	4.0
Minimum Recall	Yes	Yes		Yes	Yes			Yes			Yes	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	30.0	30.0	30.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	R	C	C	R
C, Cycle Length [s]	215	215	215	215	215	215	215	215	215	215
L, Total Lost Time per Cycle [s]	5.50	6.00	6.00	5.00	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.00	4.00	0.00	0.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	94	60	60	108	115	54	54	30	30	30
g / C, Green / Cycle	0.44	0.28	0.28	0.50	0.53	0.25	0.25	0.14	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.38	0.34	0.03	0.06	0.36	0.03	0.24	0.00	0.11	0.25
s, saturation flow rate [veh/h]	702	5070	1579	3445	3545	3547	1580	0	1695	1583
c, Capacity [veh/h]	323	1414	440	1732	1891	893	398	33	236	221
d1, Uniform Delay [s]	83.05	77.56	57.68	28.19	36.82	62.40	79.17	107.56	89.59	92.56
k, delay calibration	0.50	0.13	0.13	0.11	0.50	0.15	0.36	0.11	0.27	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	21.43	100.14	0.13	0.03	2.01	0.10	28.05	1434.06	13.71	370.65
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	1.22	0.11	0.11	0.68	0.14	0.95	4.15	0.80	1.78
d, Delay for Lane Group [s/veh]	104.48	177.70	57.81	28.22	38.83	62.50	107.22	1541.62	103.30	463.21
Lane Group LOS	F	F	E	C	D	E	F	F	F	F
Critical Lane Group	No	Yes	No	Yes	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	11.54	39.07	1.98	2.70	25.36	2.66	23.76	15.23	11.11	35.12
50th-Percentile Queue Length [ft/ln]	288.61	976.64	49.54	67.60	634.12	66.53	593.91	380.66	277.66	877.94
95th-Percentile Queue Length [veh/ln]	17.12	55.45	3.57	4.87	33.62	4.79	31.75	26.99	16.57	54.64
95th-Percentile Queue Length [ft/ln]	427.92	1386.21	89.17	121.68	840.61	119.75	793.75	674.69	414.29	1366.10

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	104.48	177.70	57.81	28.22	38.83	0.00	0.00	62.50	107.22	1541.62	103.30	463.21
Movement LOS	F	F	E	C	D			E	F	F	F	F
d_A, Approach Delay [s/veh]	165.23			37.45			96.24			577.27		
Approach LOS	F			D			F			F		
d_I, Intersection Delay [s/veh]	180.65											
Intersection LOS	F											
Intersection V/C	1.208											

Sequence

Ring 1	1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	5	-	8	7	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report Intersection 32: Adelphi Rd/Toledo Rd

Control Type: Signalized
Analysis Method: HCM 2010
Analysis Period: 15 minutes

Delay (sec / veh): 9.7
Level Of Service: A
Volume to Capacity (v/c): 0.501

Intersection Setup

Name	Adelphi Rd			Adelphi Rd		Toledo Rd	
Approach	Northbound			Southbound		Eastbound	
Lane Configuration							
Turning Movement	U-turn	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0	1
Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00	200.00
Speed [mph]	45.00			30.00		30.00	
Grade [%]	0.00			0.00		0.00	
Crosswalk	Yes			No		Yes	

Volumes

Name	Adelphi Rd			Adelphi Rd		Toledo Rd	
Base Volume Input [veh/h]	6	122	1087	758	118	169	90
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	1.97	2.01	2.05	1.88	2.38	1.96
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	7	18	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	122	1094	776	118	169	90
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	34	304	216	33	47	25
Total Analysis Volume [veh/h]	7	136	1216	862	131	188	100
Presence of On-Street Parking	No		No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	6			0		6	
Bicycle Volume [bicycles/h]	0			0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	20.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing

Control Type	Permissive	ProtectedP	Permissive	Permissive	Permissive	Split	Split
Signal group	5	5	2	6	6	4	4
Auxiliary Signal Groups							
Lead / Lag	Lead	Lead	-	-	-	Lag	-
Minimum Green [s]	4	4	4	4	4	4	4
Maximum Green [s]	15	15	65	45	45	25	25
Amber [s]	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	30	30	30	30	30	30	30
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	0	7	7	7	7	7
Pedestrian Clearance [s]	0	0	6	6	6	13	13
Rest In Walk			No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall		No	No	No		No	
Maximum Recall		No	Yes	Yes		No	
Pedestrian Recall		No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	30.0	30.0	30.0	30.0	30.0	30.0	30.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	R
C, Cycle Length [s]	87	87	87	87	87	87
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	65	65	56	56	12	12
g / C, Green / Cycle	0.74	0.74	0.64	0.64	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.19	0.34	0.24	0.08	0.11	0.06
s, saturation flow rate [veh/h]	766	3546	3545	1578	1767	1564
c, Capacity [veh/h]	612	2637	2261	1006	251	222
d1, Uniform Delay [s]	4.02	4.38	7.57	6.25	36.00	34.37
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.89	0.58	0.49	0.27	4.43	1.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.46	0.38	0.13	0.75	0.45
d, Delay for Lane Group [s/veh]	4.91	4.96	8.06	6.52	40.43	35.79
Lane Group LOS	A	A	A	A	D	D
Critical Lane Group	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.56	2.66	3.50	0.91	4.09	2.01
50th-Percentile Queue Length [ft/ln]	14.10	66.62	87.50	22.86	102.14	50.13
95th-Percentile Queue Length [veh/ln]	1.02	4.80	6.30	1.65	7.35	3.61
95th-Percentile Queue Length [ft/ln]	25.38	119.92	157.50	41.14	183.85	90.24

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	4.91	4.91	4.96	8.06	6.52	40.43	35.79
Movement LOS	A	A	A	A	A	D	D
d_A, Approach Delay [s/veh]	4.95			7.86		38.82	
Approach LOS	A			A		D	
d_I, Intersection Delay [s/veh]	9.74						
Intersection LOS	A						
Intersection V/C	0.501						

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 33: Hamilton St/40th Pl/39th Ave

Control Type: All-way stop
 Analysis Method: HCM 2010
 Analysis Period: 15 minutes

Delay (sec / veh): 21.3
 Level Of Service: C
 Volume to Capacity (v/c): 0.771

Intersection Setup

Name	Magruder Park Ent				39th Ave				Hamilton St			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				35.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	Yes				Yes				Yes			

Volumes

Name	Magruder Park Ent				39th Ave				Hamilton St			
Base Volume Input [veh/h]	18	8	0	2	0	21	16	46	22	0	418	25
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.85	0.00	2.15	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	7	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	8	0	2	0	21	16	46	22	0	425	25
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	2	0	1	0	6	4	13	6	0	118	7
Total Analysis Volume [veh/h]	20	9	0	2	0	23	18	51	24	0	472	28
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	522	571	680
Degree of Utilization, x	0.06	0.16	0.77

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.19	0.57	7.33
95th-Percentile Queue Length [ft]	4.72	14.27	183.17
Approach Delay [s/veh]	10.33	10.51	23.77
Approach LOS	B	B	C
Intersection Delay [s/veh]	21.28		
Intersection LOS	C		

Intersection Setup

Name	Hamilton St				Gallatin St			
Approach	Westbound				Northwestbound			
Lane Configuration								
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				35.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				Yes			

Volumes

Name	Hamilton St				Gallatin St			
Base Volume Input [veh/h]	0	0	67	5	10	431	8	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.20	0.00	0.00	2.18	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	12	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	67	5	10	443	8	0
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	19	1	3	123	2	0
Total Analysis Volume [veh/h]	0	0	74	6	11	492	9	0
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

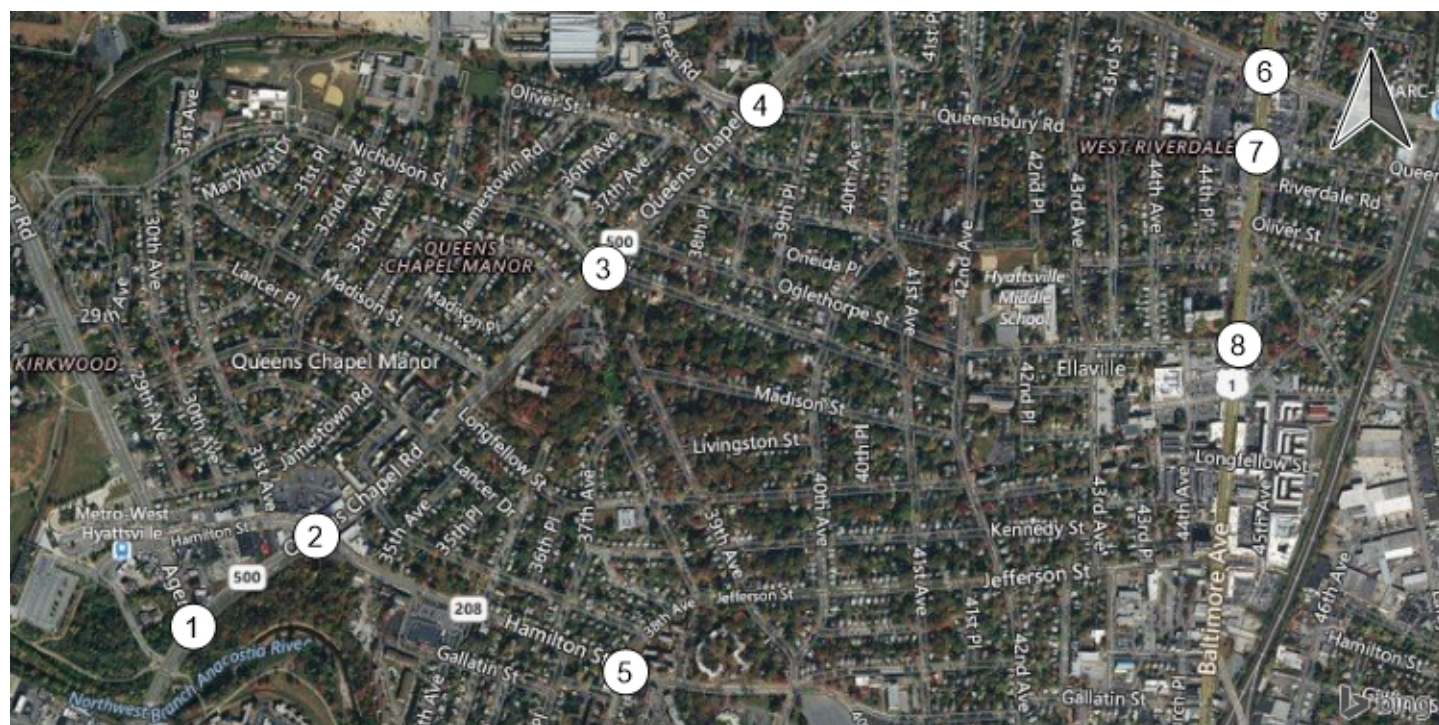
Lanes

Capacity per Entry Lane [veh/h]	544	676
Degree of Utilization, x	0.15	0.76

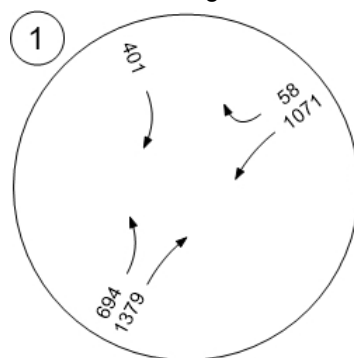
Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.51	6.98
95th-Percentile Queue Length [ft]	12.81	174.57
Approach Delay [s/veh]	10.75	22.97
Approach LOS	B	C
Intersection Delay [s/veh]	21.28	
Intersection LOS	C	

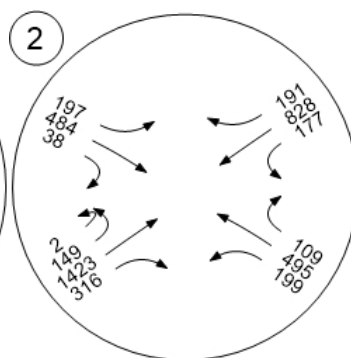
Traffic Volume - Future Total Volume



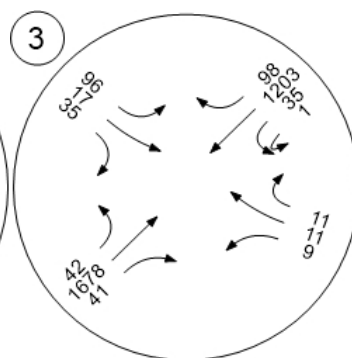
MD 500/Ager Rd



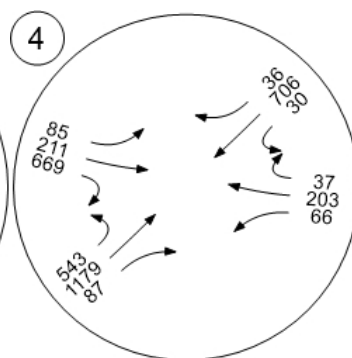
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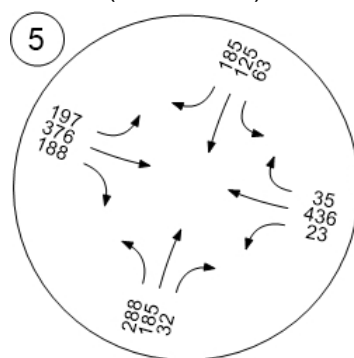
MD 500/Nicholson St



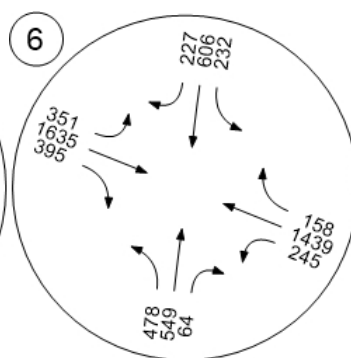
MD 500/Belcrest Rd/Queens



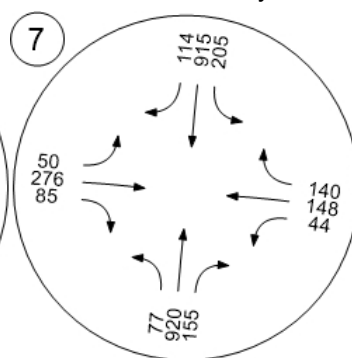
MD 208(Hamilton St)/38th Av



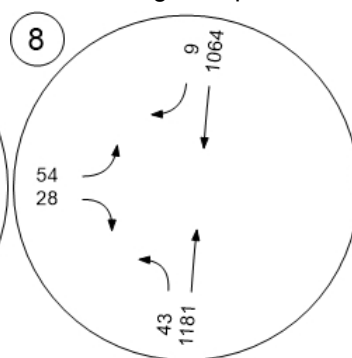
US 1/MD 410



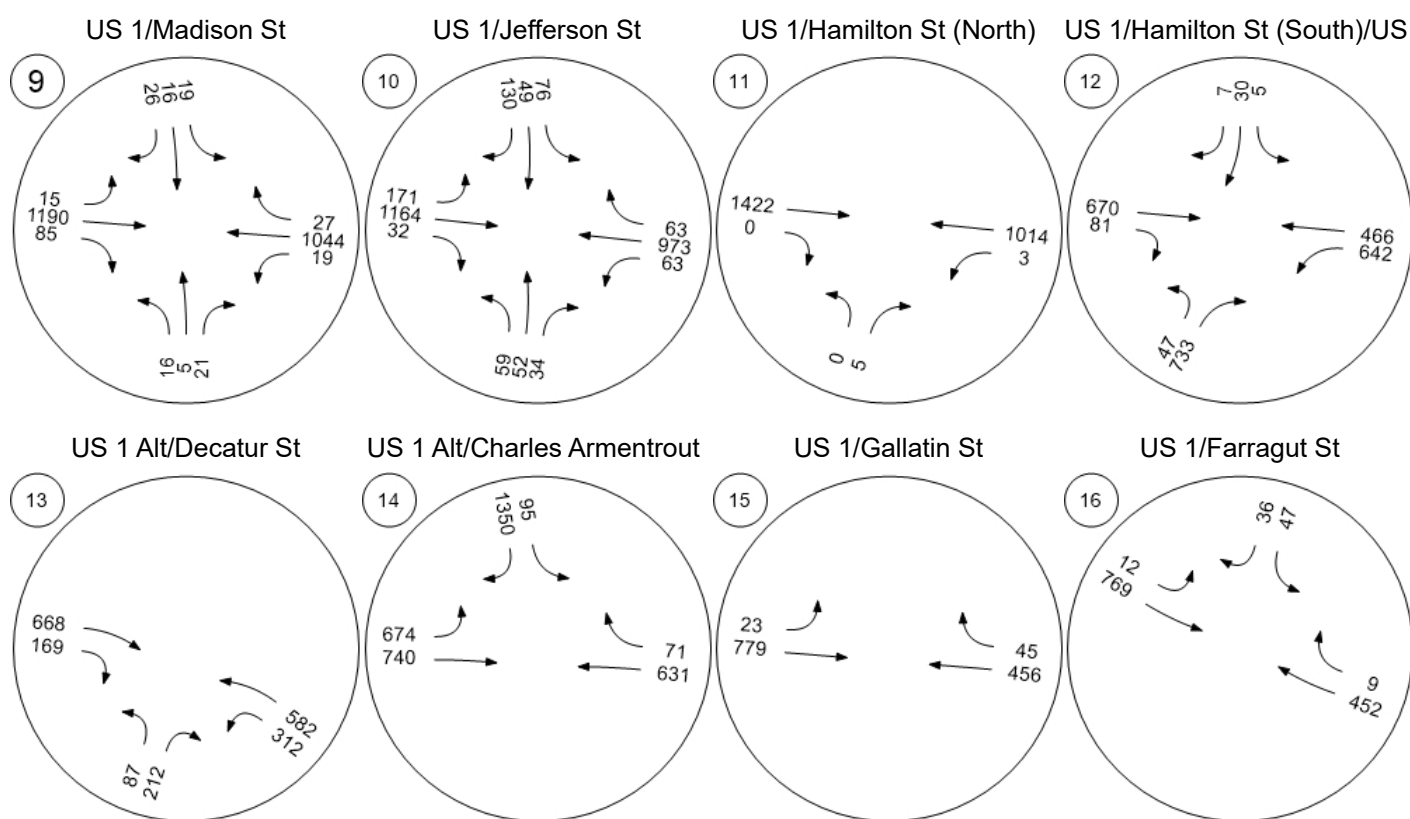
US 1/Queensbury Rd



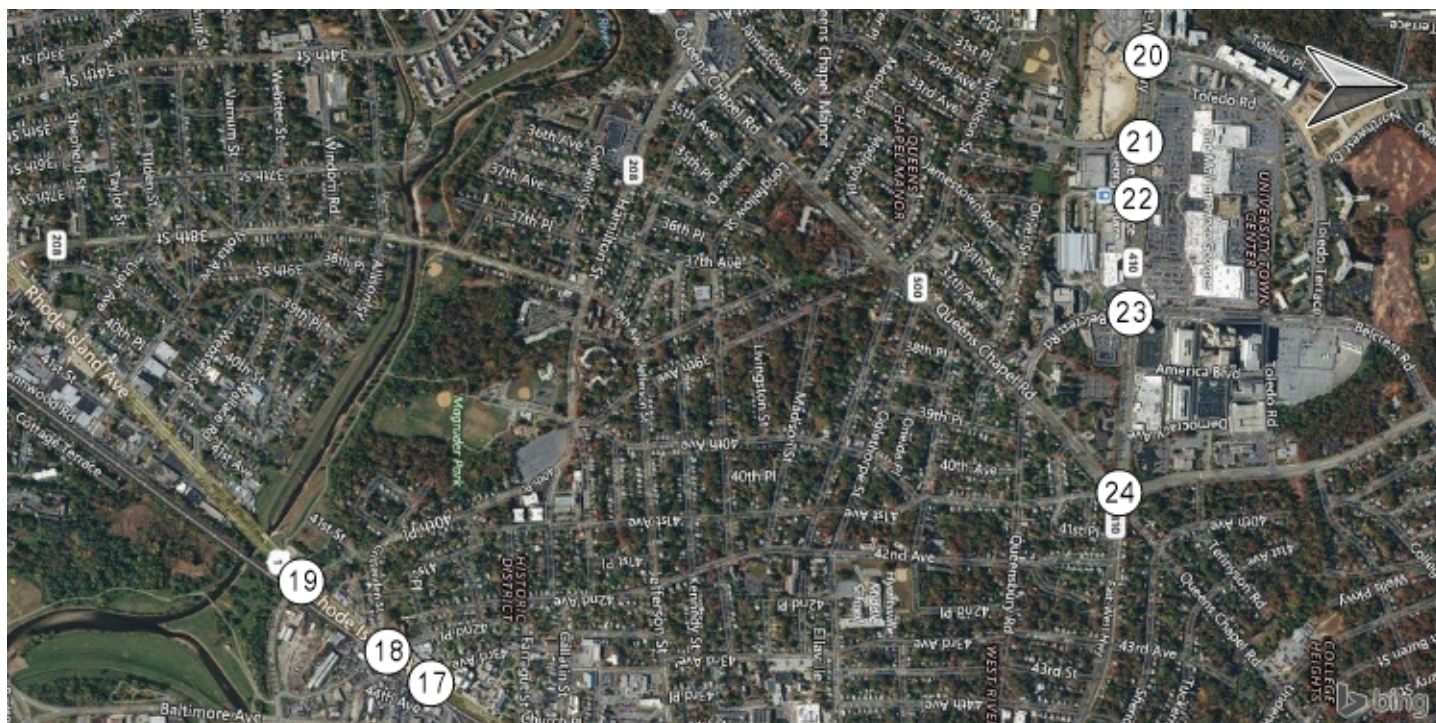
US 1/Oglethorpe Rd



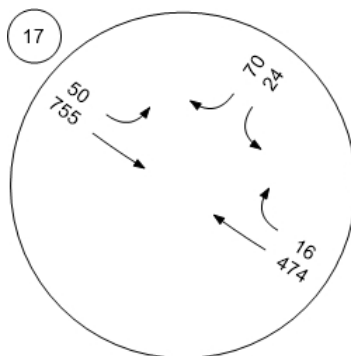
Traffic Volume - Future Total Volume



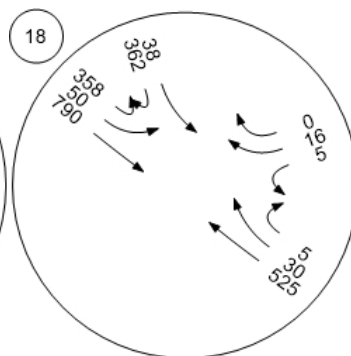
Traffic Volume - Future Total Volume



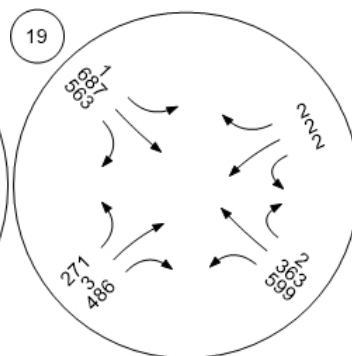
US 1/43rd Ave



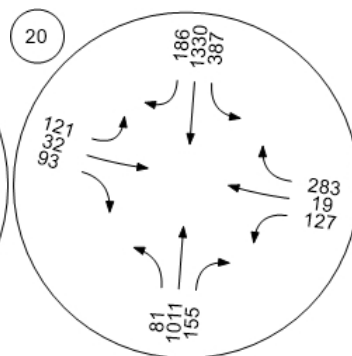
US 1/42nd Place/Crittendon



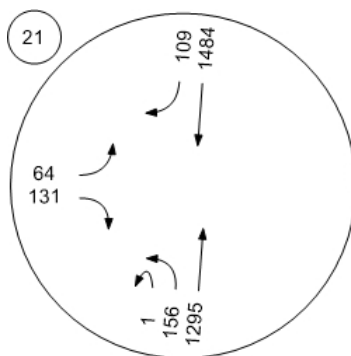
US 1/41st Place/Charles Arm



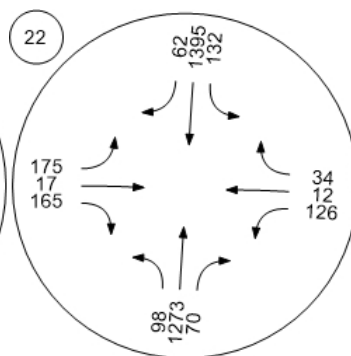
MD 410/Toledo Terrace



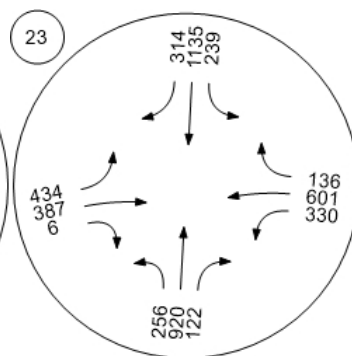
MD 410/Editors Park Dr



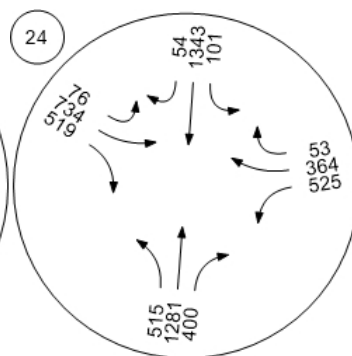
MD 410/Prince George's Plaz



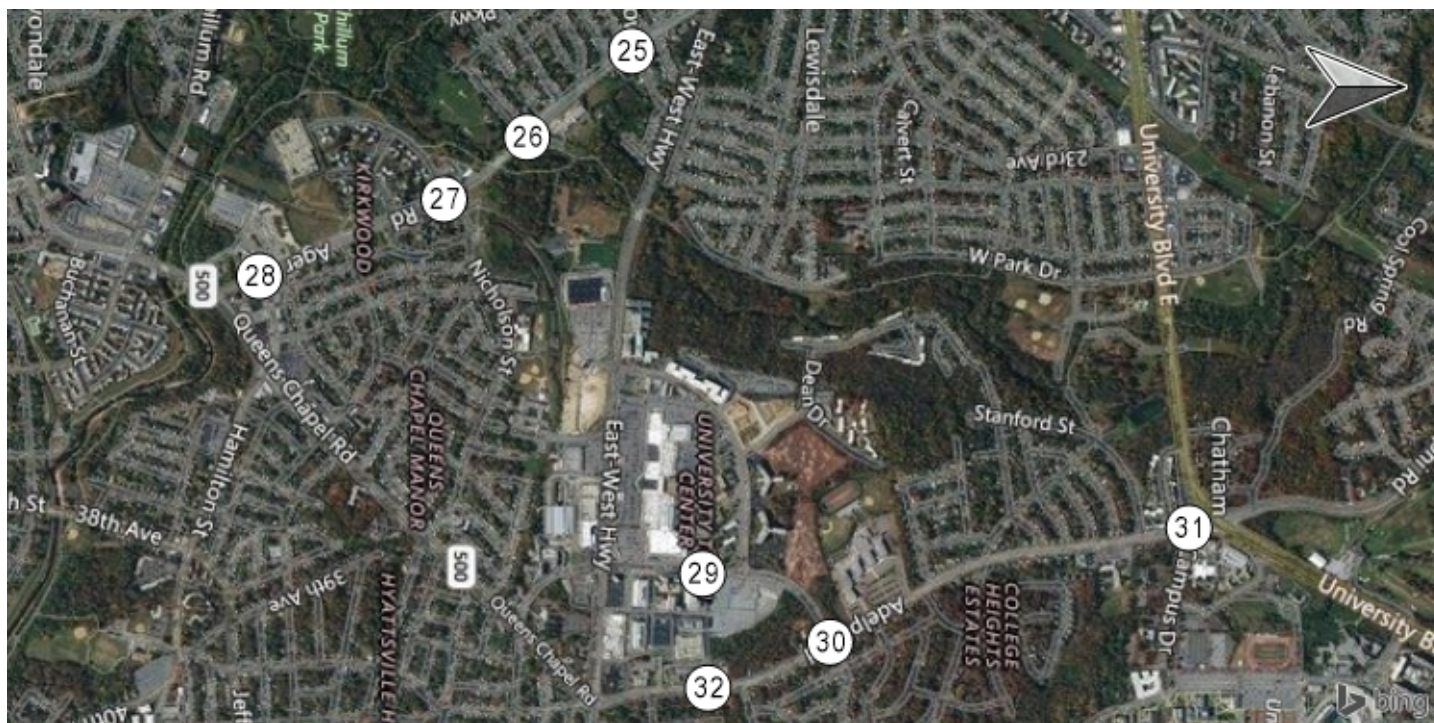
MD 410/Belcrest Rd



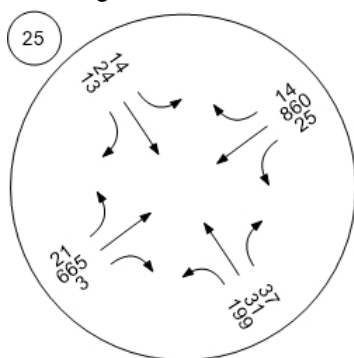
MD 410/MD 500/Adelphi Rd



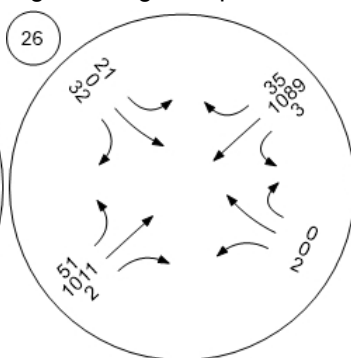
Traffic Volume - Future Total Volume



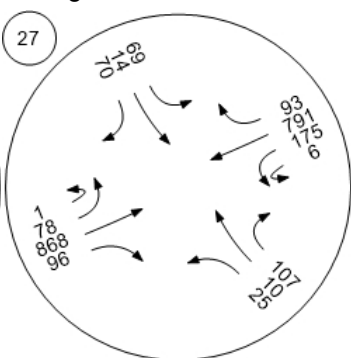
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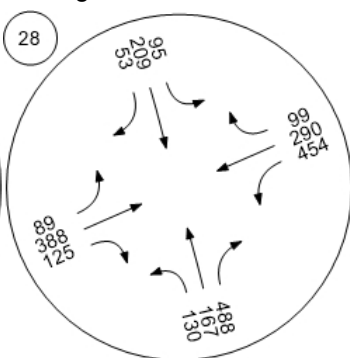
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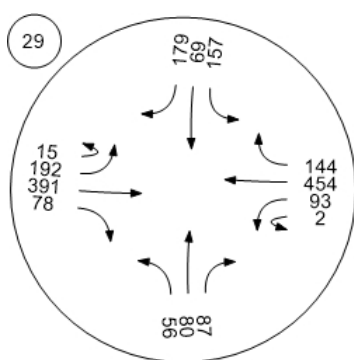
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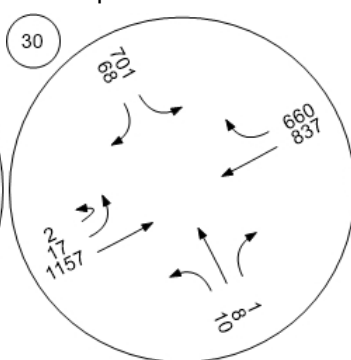
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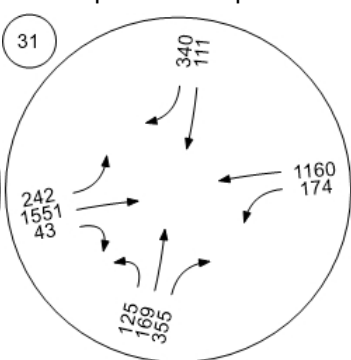
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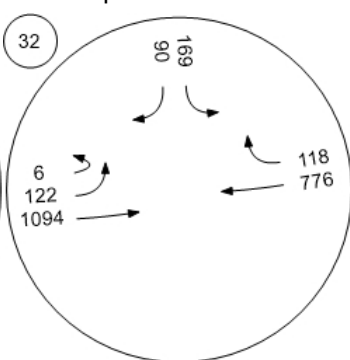
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Adelphi Rd/Campus Dr



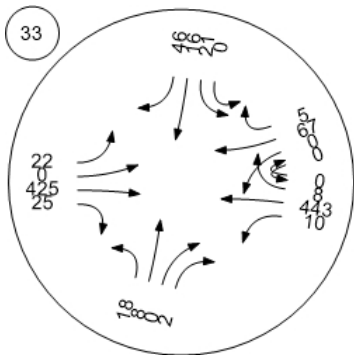
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Traffic Volume - Future Total Volume



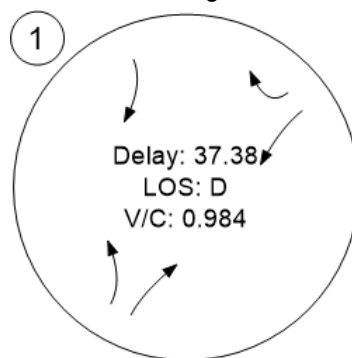
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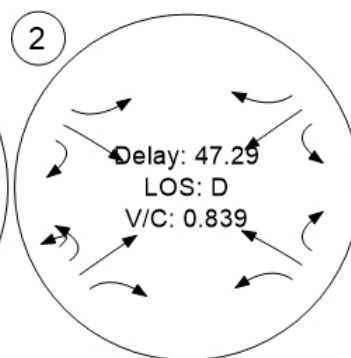
Traffic Conditions



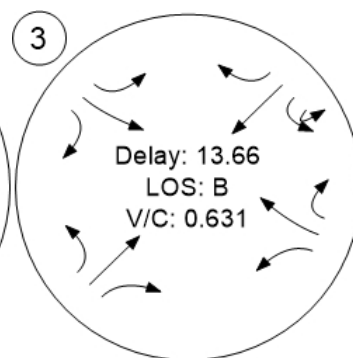
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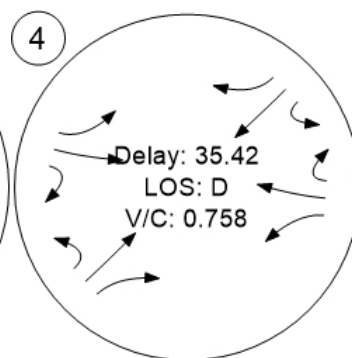
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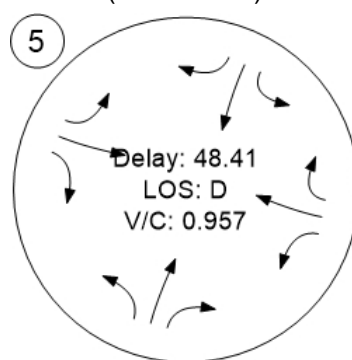
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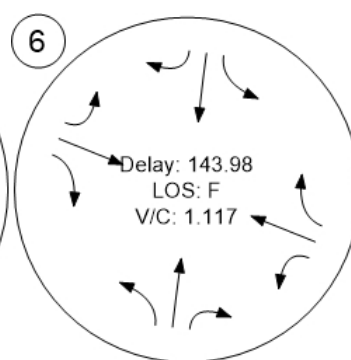
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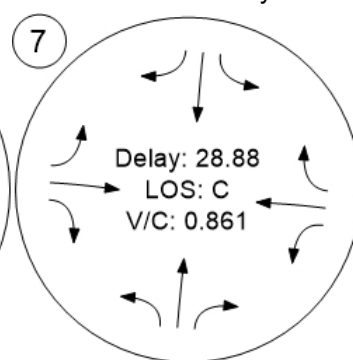
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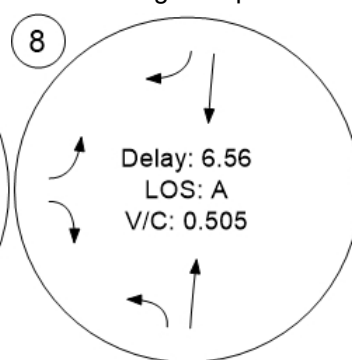
US 1/MD 410



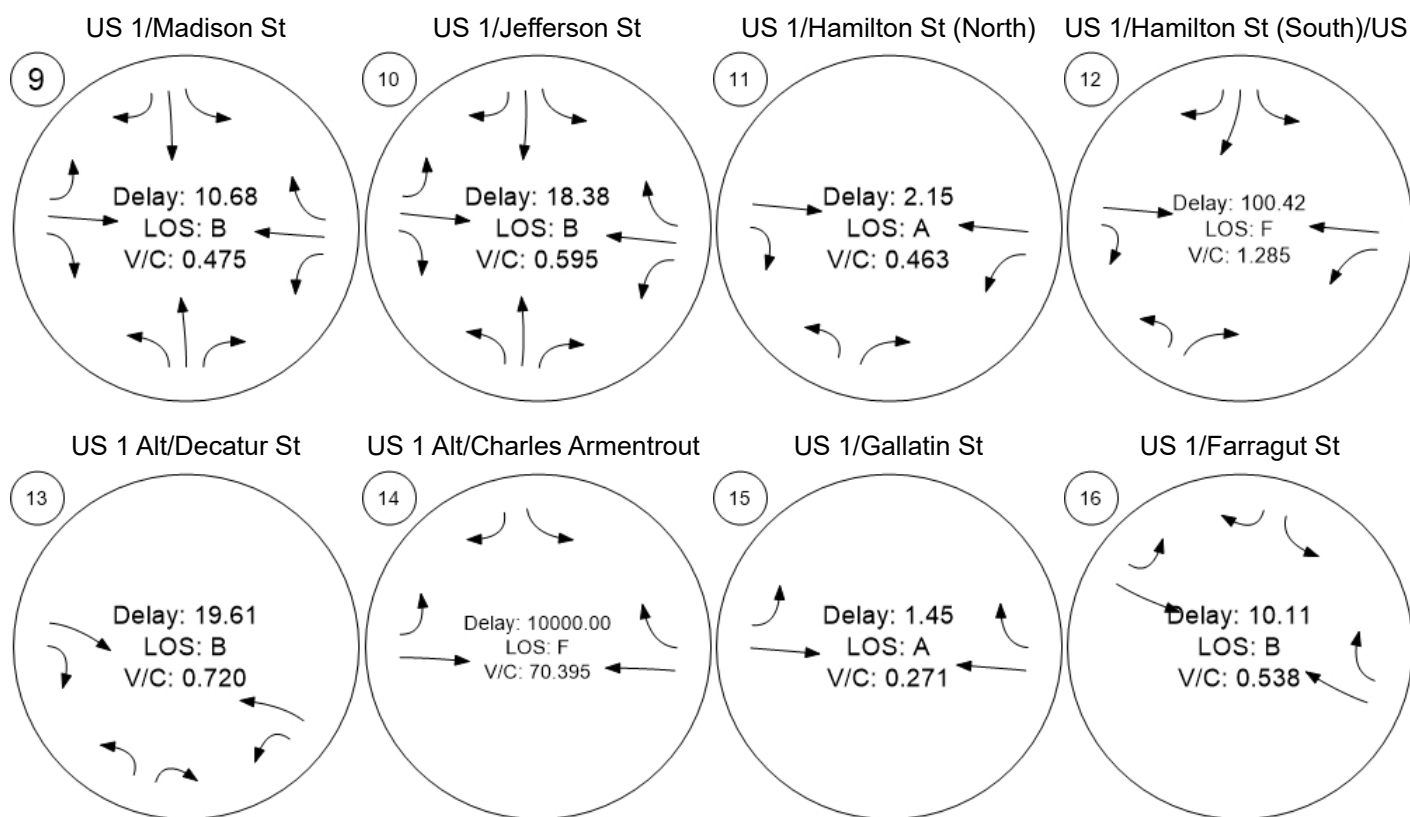
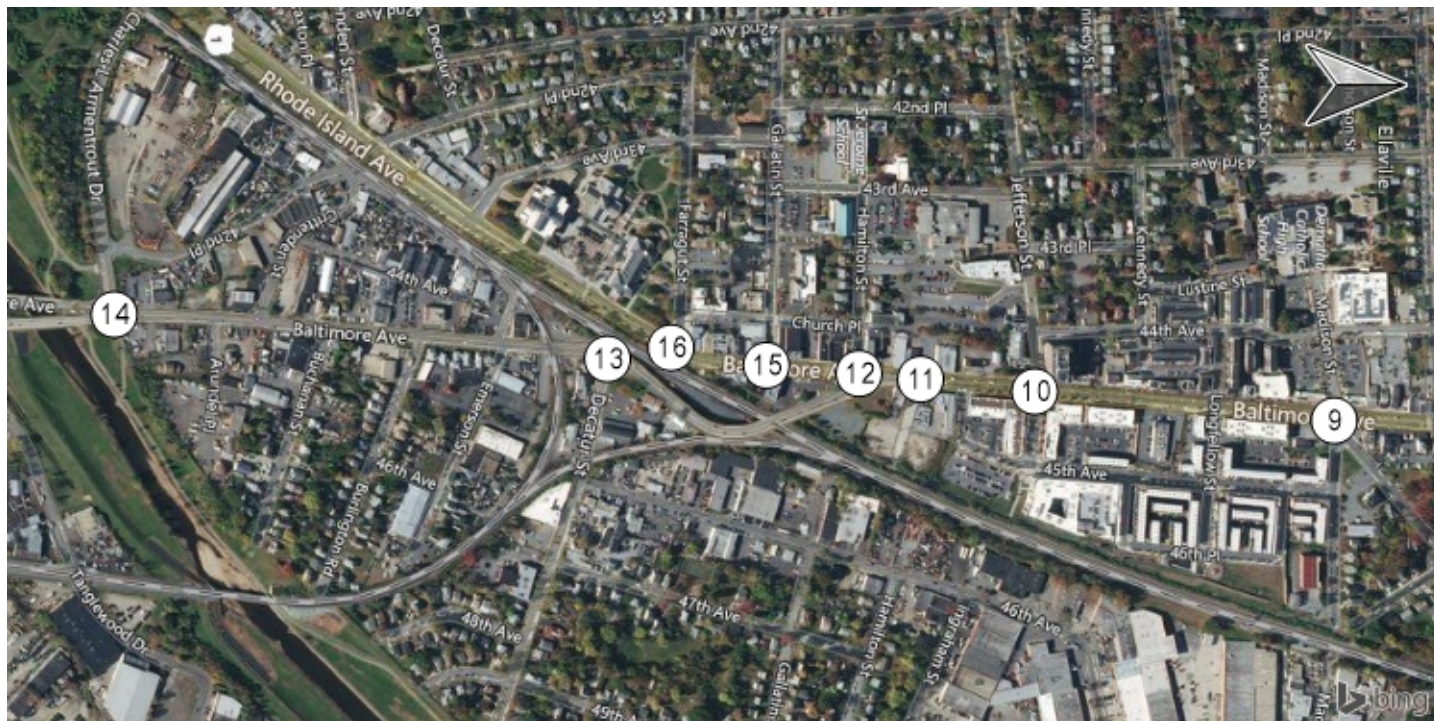
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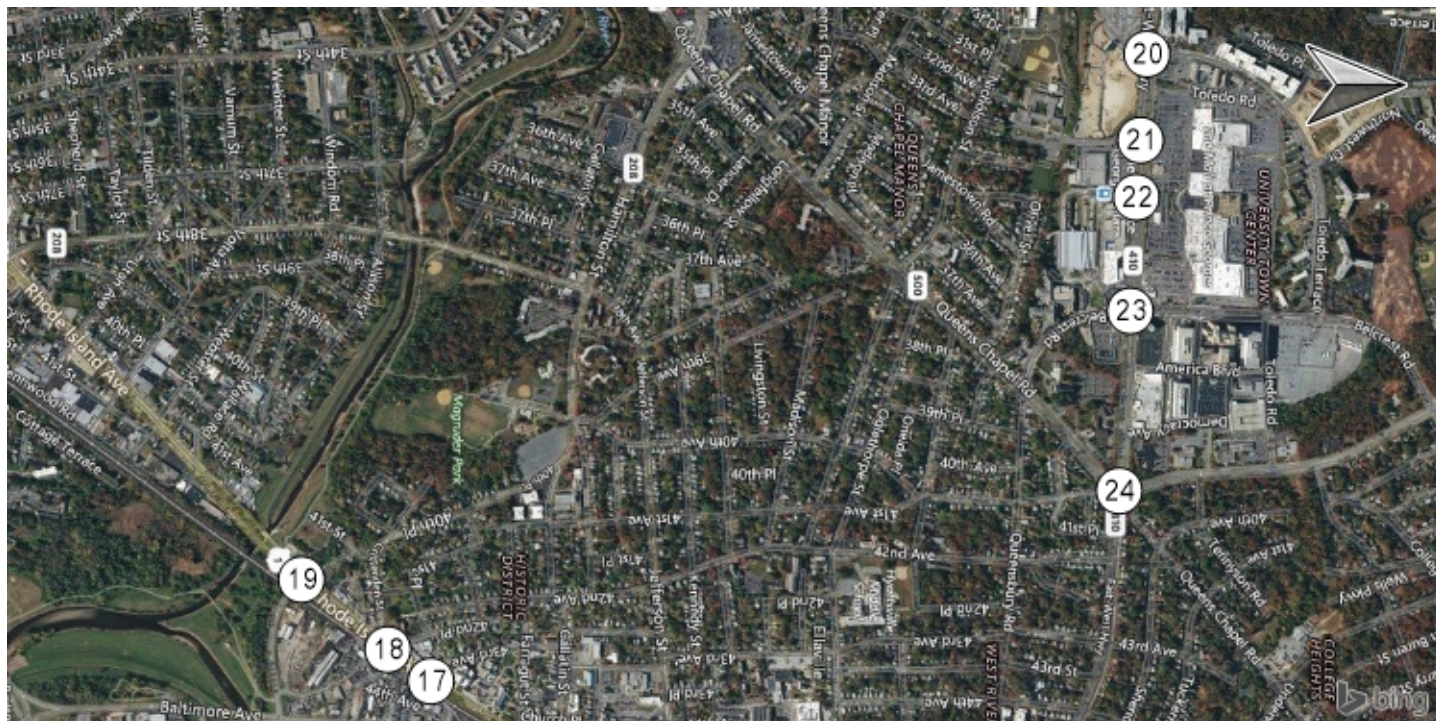
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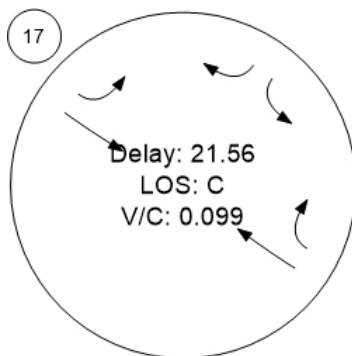
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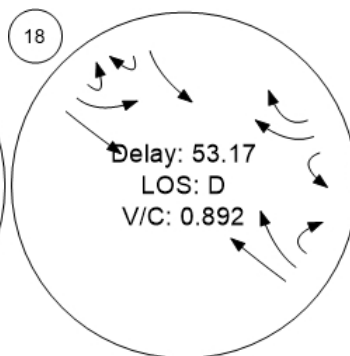
Traffic Conditions



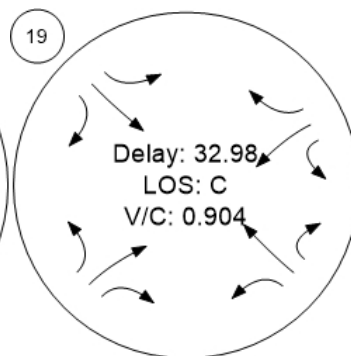
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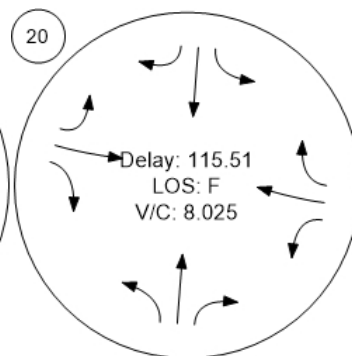
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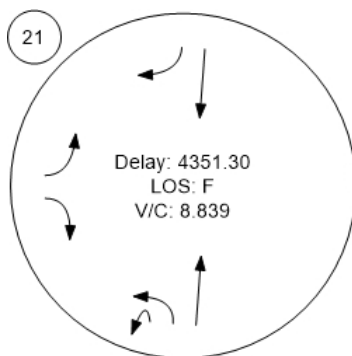
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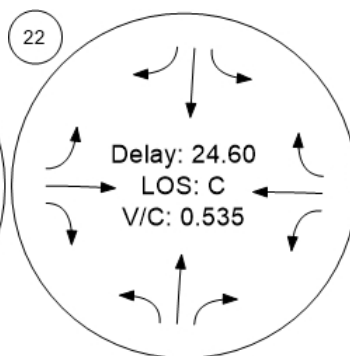
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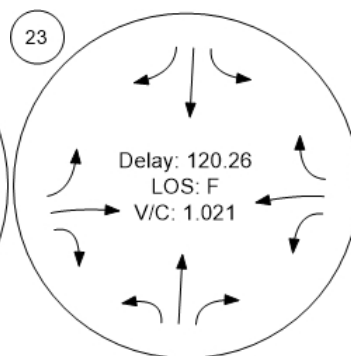
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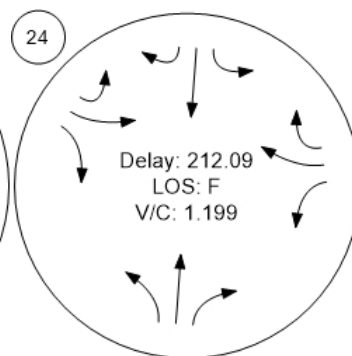
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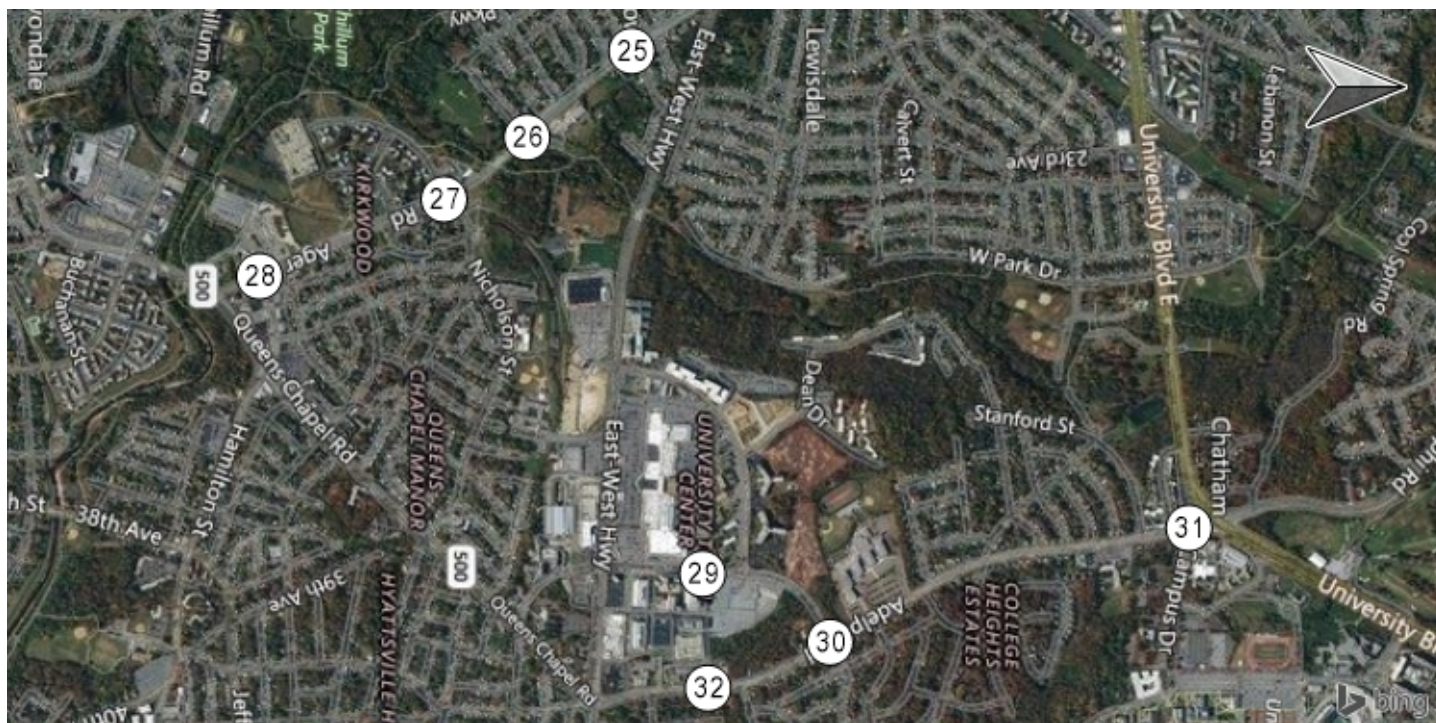
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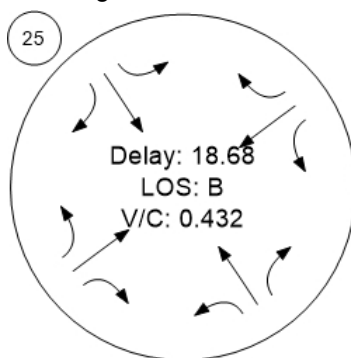
MD 410/MD 500/Adelphi Rd



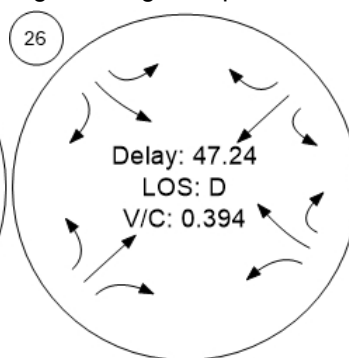
Traffic Conditions



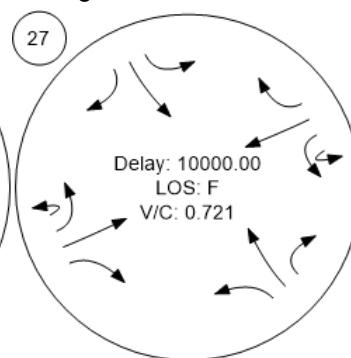
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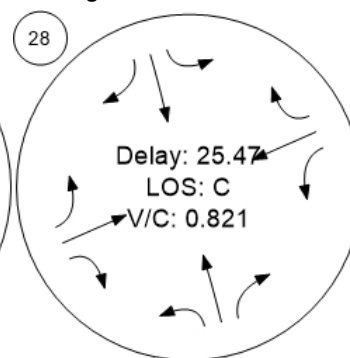
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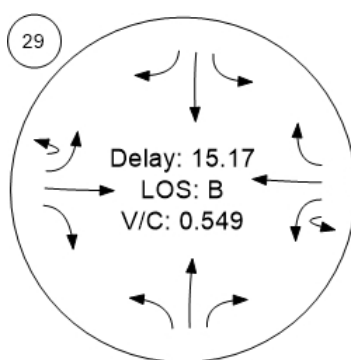
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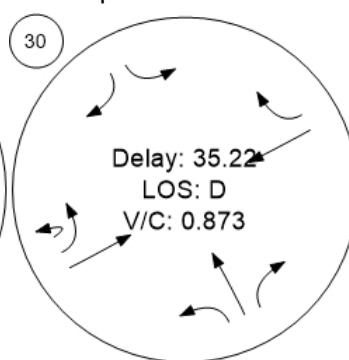
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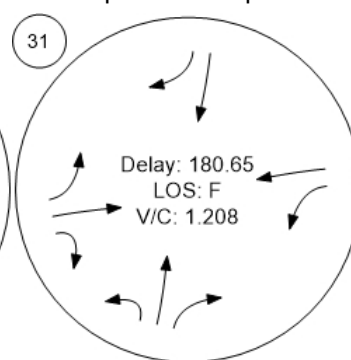
Toledo Rd/Belcrest Rd



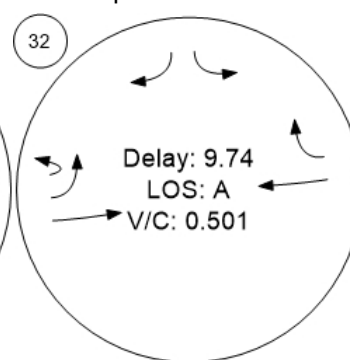
Adelphi Rd/Belcrest Rd



Adelphi Rd/Campus Dr



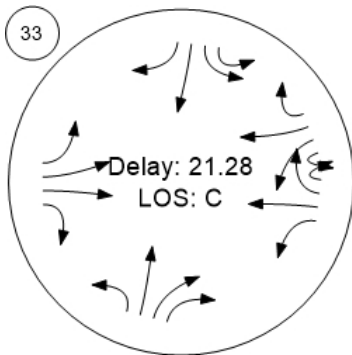
Adelphi Rd/Toledo Rd



Traffic Conditions



Hamilton St/40th Pl/39th Ave



APPENDIX C: WAYFINDING SUBMITTAL

INCLUDES:

1. Wayfinding Memorandum
2. Wayfinding Reference Guides: Bicycle, Vehicle, Pedestrian
3. General Notes and Installation Details
4. Fabrication Details: Bicycle, Vehicle, Pedestrian
5. Wayfinding Cost Estimate

SUBMITTED SEPARATELY:

1. 3 KML files containing all sign locations: Bicycle, Vehicle, Pedestrian
2. Maps for the 5 Pedestrian Kiosks



Date: August 8, 2018
To: Hal Metzler, Jr.
Organization: City of Hyattsville
From: Clea Baumhofer, EIT; Megan McCarty, EIT; Laura Barna, PE
Project: Hyattsville Transportation Plan
Re: Hyattsville Wayfinding Report

HYATTSVILLE WAYFINDING REPORT

As part of the comprehensive Hyattsville Transportation Plan, Toole Design Group has prepared a wayfinding implementation plan, with content and fabrication details for wayfinding directed at pedestrians, bicyclists, and motor vehicle operators. This Wayfinding Report lays out both the methodology used to develop that plan and recommendations for its implementation.

OBJECTIVES

Together with TDG, the City of Hyattsville identified and prioritized the objectives of this plan. These include:

- A cohesive system of wayfinding signage throughout the City of Hyattsville
- A custom design that reflects the City of Hyattsville and its history
- An MUTCD-compliant design
- A plan that can be implemented over time and will adapt well to future expansion.

The decision-making throughout the process of creating a wayfinding plan was centered around achieving these objectives.

GUIDANCE ON CURRENT REGULATIONS

TDG researched current local and regional regulations that could potentially restrict the ability to implement the new wayfinding signs, or could impede their efficacy. These laws are noted below, along with recommendations on how to implement wayfinding signs and bicycle routes within the current laws, and on how to amend the existing laws to prevent conflicts with implementation.

SIGNS AND SIDEWALKS

From the Hyattsville Charter and Code, Chapter 105—Streets and Sidewalks:

“§ 105-7. Projecting signs. [Amended 3-3-80 by HB No. 9-80] No sign or board shall project over any sidewalk without permission from the City Council.”

While the wayfinding signs are to be placed adjacent to the roadway and in a landscaped buffer where it exists, there are locations where the sidewalks in Hyattsville are directly adjacent to the roadway where wayfinding signage will project over the sidewalk, such as in the Gateway Arts District. To comply with MUTCD standards, all signs will be installed a minimum of 7' above the roadway and sidewalk to promote pedestrian safety.

However, the five pedestrian kiosk signs are to be placed on the sidewalk in commercial centers. This is not governed by the MUTCD and should follow the Hyattsville Charter and Code, which requires permission from the City Council.

SIDEWALK BICYCLE RIDING

In order to create a connected network of bicycle routes that serve the desired destinations, there are specific routes that direct bicyclists to use the sidewalk to make brief connections.

The current law states:

“§ 105-18. Riding bicycles upon sidewalks prohibited; exception. It shall be unlawful for any person to ride a bicycle upon any sidewalk in the City; provided, however, that this shall not be construed to apply to small children’s toy velocipedes or other light toy vehicles.”

Without using the sidewalk, some of the crossings or connections required may not be comfortable for most bicyclists to ride on, due to high speeds and/or volumes of vehicles, but these streets include key sections of the route. For this reason, TDG recommends that this law be changed to, at a minimum, exclude sidewalks along these key connections. In order of importance:

1. Queens Chapel Road, near the intersection with Hamilton Street
2. Adelphi Road
3. Hamilton Street between Queens Chapel Road and the West Hyattsville Metro
4. Belcrest Road

DETERMINING DESTINATIONS

In order to develop a useful and practical wayfinding system, the first step was to determine key destinations throughout the City of Hyattsville. The following is a list of priorities identified by the City of Hyattsville for selecting destinations:

- Existing public transportation (Metro stations)
- Developed hubs, such as the Gateway Arts District and the Mall
- Trail networks surrounding Hyattsville
- Schools
- Parks

Using these priorities, TDG and the City of Hyattsville developed a list of destinations to be used in the wayfinding system. These destinations were sorted into a hierarchy of regional destinations, major local destinations, and other local destinations to prioritize frequency and placement of wayfinding signs along each route and for each mode. The destinations identified include:

Regional Destinations:

- Northwest Branch Trail
- University of Maryland
- Gateway Arts District
- Mall at Prince George's

Major Local Destinations:

- West Hyattsville Metro Station
- Prince George's Plaza Metro Station
- Historic District
- Magruder Park
- Queens Chapel Town Center
- Rhode Island Avenue Trolley Trail
- University Town Center

Other Local Destinations:

- Heurich Park
- University Hills Duck Pond Park
- Hyattsville Elementary
- Edward M. Felegy Elementary
- Nicholas Orem Middle
- Hyattsville Middle
- Northwestern High
- Hyattsville Branch Library
- Hyattsville Municipal Building
- Heritage Center
- Police Department
- Parking (Gateway Arts District, University Town Center, Queens Chapel Town Center)

ROUTE DEVELOPMENT METHODOLOGY

After determining which specific destinations were to be served, TDG developed routes to connect destinations on bicycle, on foot, or by car.

BICYCLE WAYFINDING

For bicycle wayfinding, comfort and safety of the bicyclist were the most important factors in identifying routes between destinations. Directness of route also played an important role. Bicyclists will be most willing to use short, lower-stress routes.

To identify lower-stress routes, the streets connecting the identified destinations were reviewed using Google Earth and Google Streetview. Particularly challenging intersections to traverse by bicycle were studied in person. Additionally, data was collected from the Hyattsville community through an online Wikimap and used to identify preferred routes throughout Hyattsville. This data is displayed in heat maps below.

Streets with multiple lanes of traffic and higher posted speeds were avoided where possible. Routes identified by the community as difficult for walking and biking or as carrying high volumes of traffic were also avoided where possible. See Figure 1: Difficult Routes for Walking and Biking and Figure 2: High Traffic Corridors, below.

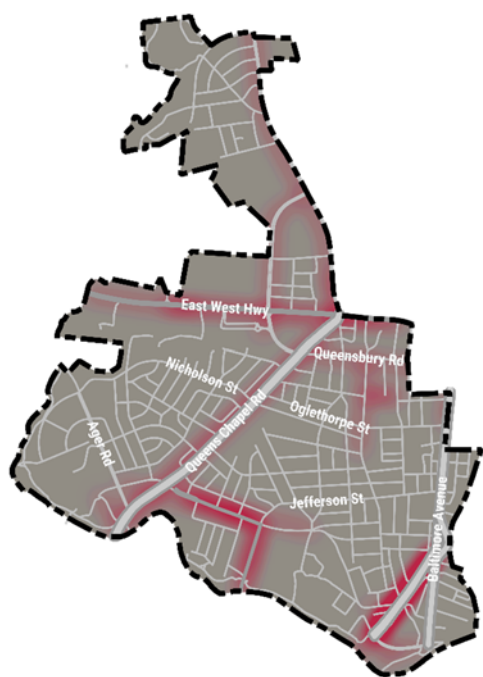


Figure 1: Difficult Routes for Walking and Biking

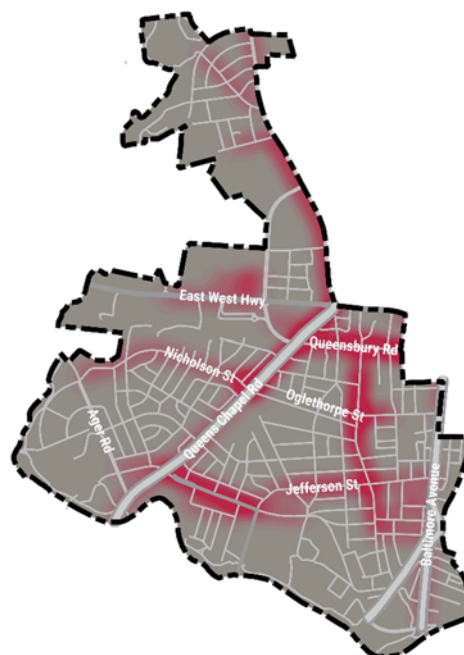


Figure 2: High Traffic Corridors

In the Google Earth and Google Streetview review, streets currently supported by bicycle signage and pavement markings were preferred. Streets currently used by bicyclists, as identified in the Wikimap survey, were also preferred. See Figure 3: Routes Users Walk and Bike, below.

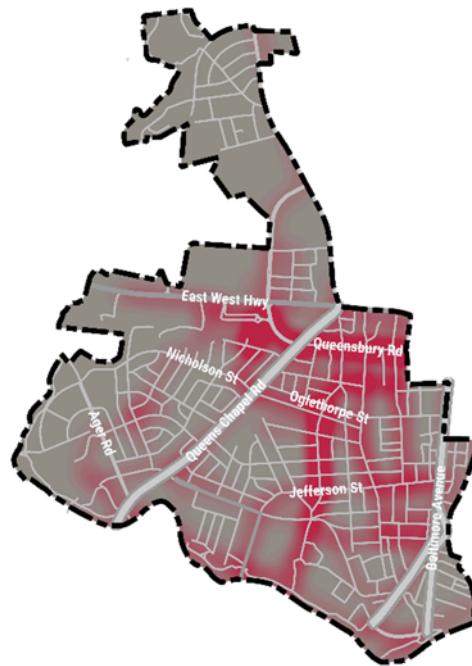


Figure 3: Routes Users Walk and Bike

Overall, the Bicycle Wayfinding Signage was designed to be the most comprehensive of the mode types. Bicyclists have more difficulty in accessing GPS or other mapping technologies than other modes, and must therefore have each turn mapped out along a route. Additionally, while a pedestrian has a limited distance he or she is willing to travel, a bicyclist can reasonably traverse the city of Hyattsville in a single trip. Therefore, the scope of bicycle wayfinding signage is larger and frequency of signage is higher than in pedestrian wayfinding.

PEDESTRIAN WAYFINDING

The existing pedestrian wayfinding is concentrated in the most highly developed areas of Hyattsville, where pedestrians have many destinations within a half-mile distance. Existing pedestrian wayfinding in the Gateway Arts District was found to be adequate and functional. When it comes time to replace the existing signage, TDG recommends the sign locations be moved directly onto Baltimore Ave where the sidewalk is wide enough to allow it. Existing signs belong to the Anacostia Trail Heritage Area, Inc. (ATHA) and modifications would need approval. TDG recommends that these signs remain in place until their normal replacement cycle.

New pedestrian kiosks at five key areas will supplement existing wayfinding. These kiosks will be both functional and statement pieces highlighting the new wayfinding design throughout Hyattsville. The kiosks will be placed at dense areas of high pedestrian use and at pedestrian entrance points to Hyattsville. Kiosk locations include:

- The heart of the Gateway Arts District
- Between the Mall at Prince George's and University Town Center
- The Trolley Trail entrance at the southern end of the Gateway Arts District
- West Hyattsville Metro Station

- Prince George's Plaza Metro Station

Additionally, the new bicycle signage will be accessible to pedestrians, and will supplement the existing pedestrian wayfinding and the new kiosk signs.

VEHICULAR WAYFINDING

Overall, existing vehicular wayfinding signage in Hyattsville was found to provide good information, but did not have a cohesive look. Some locations need additional signage to guide users, especially around one-way streets. A combined treatment of adding key signage and identifying other signs for replacement over time will create the most economical path to a comprehensive wayfinding system with a cohesive style.

Additional signs are necessary at key destinations, including entrances to metro stations, schools, and parking lots. These have been included in the current wayfinding design.

TDG recommends the following existing signage be highlighted for future replacement by signage with the same content but using Hyattsville's new signature wayfinding design:

- School signs
- Some Metro signs
- Parking signs

Currently, there are multiple styles of signage in use throughout the city. As other signage needs replacement with time, it should be replaced with basic, MUTCD-compliant signage. TDG recommends that Hyattsville standardize its requirements so that signage will become more cohesive over time. Signs for basic vehicle guidance, such as signs leading to highways or other local roads, should get a standard MUTCD-compliant treatment.

FUTURE EXPANSION

As the City of Hyattsville changes over time, a corresponding update of the wayfinding system may be required. By following the principals in this report and using the new wayfinding design details, the wayfinding system can be expanded and adapted over time to continue to meet the needs of the City of Hyattsville.

Bicycle Wayfinding Sign Reference Guide

Sign Point	Intersection- See KML for Exact Location	Sign Face Orientation	Sign Type	Destination 1				Destination 2				Destination 3				Destination 4				Sign Text Block Height (Inches)	Notes
				Arrow Direc	Symbol	Text	Detail Number	Arrow Direc	Symbol	Text	Detail Number	Arrow Direc	Symbol	Text	Detail Number	Arrow Direc	Symbol	Text	Detail Number		
- THROUGH (T) - LEFT (L) - DIAGONAL LEFT (DL) - ADVANCE TURN ARROW "THROUGH-LEFT" (TL) - RIGHT (R) - DIAGONAL RIGHT (DR) ADVANCE TURN ARROW "THROUGH-RIGHT" (TR)																					
B1	Wells Blvd and Stanford St	NW	Destination	T		Mall at Prince George's	1/2/3	T		Gateway Arts Dist	1/2/3									13	
B2	Wells Blvd and Stanford St	SE	Destination	T		University Hills Duck Pond Park	1/2/3	TL		NW Branch Trail	1/2/3									13	
B3	Wells Blvd and Adelphi Rd	NW	Destination	R		Mall at Prince George's	1/2/3	R		Gateway Arts Dist	1/2/3									13	
B4	Adelphi Rd and Wells Blvd	SE	Destination	T		Univ of Maryland	1/2/3	L		University Hills Duck Pond Park	1/2/3	L		NW Branch Trail	1/2/3					28	
B5	Adelphi Rd and Van Buren St	SE	Destination	T		NW Branch Trail	1/2/3	T		Univ of Maryland	1/2/3									13	
B6	Adelphi Rd and Belcrest Rd	NW	Destination with Metro Symbol	R		Mall at Prince George's	1/2/3	R	Metro	Pr George's Pl	1/2/4	R		Gateway Arts Dist	1/2/3					28	
B7	Belcrest Rd and Adelphi Rd	SW	Destination	L		NW Branch Trail	1/2/3	L		Univ of Maryland	1/2/3									13	
B8	Belcrest Rd and Toledo Rd	N	Destination with Metro Symbol	T		Mall at Prince George's	1/2/3	T	Metro	Pr George's Pl	1/2/4	L		Library	1/2/3					28	
B9	Belcrest Rd and Toledo Rd	S	Destination	T		Univ of Maryland	1/2/3	R		Library	1/2/3									13	
B10	Belcrest Rd and Liberty Ln	N	Destination with Metro Symbol	T	Metro	Pr George's Pl	1/2/4	TL		Univ Town Center	1/2/3	R		Mall at Prince George's	1/2/3					28	
B11	Belcrest Rd and Liberty Ln	S	Destination	TL		Mall at Prince George's	1/2/3	R		Univ Town Center	1/2/3									13	
B12	Metro Driveway and Belcrest Rd	W	Destination	L		Mall at Prince George's	1/2/3	R		Gateway Arts Dist	1/2/3									13	May need to move off Metro property. Confirm with City of Hyattsville before installation.
B13	Belcrest Rd and Metro Driveway	SE	Destination with Metro Symbol	T		Mall at Prince George's	1/2/3	T		Univ Town Center	1/2/3	L	Metro	Pr George's Pl	1/2/4					28	
B14	Queensbury Rd and Queens Chapel Rd	SE	Destination with Metro Symbol	T	Metro	Pr George's Pl	1/2/4													13	
B15	Belcrest Rd and Queens Chapel Rd	W	Bike Route	T	Bicycle		1/6													13	
B16	Queensbury Rd and 41st Ave	W	Destination Double Arrow	T		Trolley Trail	1/2/3	T		Hyattsville Middle School	1/2/3	T&R		Gateway Arts Dist	1/2/5					28	
B17	41st Ave and Queensbury Rd	S	Destination with Metro Symbol	L	Metro	Pr George's Pl	1/2/4	L		Mall at Prince George's	1/2/3	R		Trolley Trail	1/2/3					28	
B18	Queensbury Rd and 41st Ave	E	Destination with Metro Symbol	T	Metro	Pr George's Pl	1/2/4	T		Mall at Prince George's	1/2/3	L		Gateway Arts Dist	1/2/3					28	
B19	Queensbury Rd and 42nd Ave	W	Destination	T		Trolley Trail	1/2/3	R		Hyattsville Middle School	1/2/3									13	
B20	Queensbury Rd and 43rd Ave	W	Destination	T		Trolley Trail	1/2/3	R		Gateway Arts Dist	1/2/3									13	
B21	43rd Ave and Queensbury Rd	S	Destination with Metro Symbol	L	Metro	Pr George's Pl	1/2/4	L		Mall at Prince George's	1/2/3									13	
B22	43rd Ave and Oglethorp St	N	Bike Route	T	Bicycle		1/6													13	
B23	43rd Ave and Oglethorp St	S	Bike Route	T	Bicycle		1/6													13	
B24	43rd Ave and Jefferson St	N	Destination with Metro Symbol	L		Gateway Arts Dist	1/2/3	R	Metro	W Hyattsville	1/2/4									13	
B25	Jefferson St and 43rd Ave	W	Destination	T		Gateway Arts Dist	1/2/3	R		Hyattsville Elementary	1/2/3									13	
B26	Jefferson St and 43rd Ave	E	Destination with Metro Symbol	T	Metro	W Hyattsville	1/2/4	R		Pr George's Pl	1/2/3	R		Mall at Prince George's	1/2/3					28	

Bicycle Wayfinding Sign Reference Guide

Sign Point	Intersection- See KML for Exact Location	Sign Face Orientation	Sign Type	Destination 1				Destination 2				Destination 3				Destination 4				Sign Text Block Height (Inches)	Notes
				Arrow Direc	Symbol	Text	Detail Number	Arrow Direc	Symbol	Text	Detail Number	Arrow Direc	Symbol	Text	Detail Number	Arrow Direc	Symbol	Text	Detail Number		
- THROUGH (T) - LEFT (L) - DIAGONAL LEFT (DL) - ADVANCE TURN ARROW "THROUGH-LEFT" (TL) - RIGHT (R) - DIAGONAL RIGHT (DR) ADVANCE TURN ARROW "THROUGH-RIGHT" (TR)																					
B27	Jefferson St and 42nd Ave	E	Destination with Metro Symbol	T		Magruder Park TO NW Branch Trail	1/2/3	T	Metro	W Hyattsville	1/2/4	L		Historic District	1/2/3					28	
B28	42nd Ave and Jefferson St	S	Destination with Metro Symbol	T		Hyattsville Middle School	1/2/3	L	Metro	W Hyattsville	1/2/4	R		Gateway Arts Dist	1/2/3					28	
B29	42nd Ave and Jefferson St	N	Destination	T		Trolley Trail	1/2/3	T		Gateway Arts Dist	1/2/3	L		Magruder Park TO NW Branch Trail	1/2/3					28	
B30	42nd Ave and Hamilton St	S	Destination with Metro Symbol	T		Gateway Arts Dist	1/2/3	L		Magruder Park	1/2/3	L	Metro	W Hyattsville	1/2/4					28	
B31	Gallatin St and 42nd Ave	E	Destination with Metro Symbol	R	Metro	W Hyattsville	1/2/4													13	
B32	Church Pl and Gallatin St	S	Destination with Metro Symbol	T		Heritage Center	1/2/3	L		Municipal Bldg	1/2/3	L		Historic District	1/2/3	L	Metro	W Hyattsville	1/2/4	28	
B33	Farragut St and Baltimore Ave	W	Destination	T		Trolley Trail Use Crosswalk	1/2/3	L		Heritage Center	1/2/3	L		Municipal Bldg	1/2/3					28	
B34	Farragut St and Baltimore Ave	E	Destination with Metro Symbol	R		Heritage Center	1/2/3	R		Municipal Bldg	1/2/3	R	Metro	W Hyattsville	1/2/4					28	
B35	Baltimore Ave and Trolley Trail	W	Destination	L		Univ of Maryland Via Trolley Trail	1/2/3	L		College Park Via Trolley Trail	1/2/3									28	
B36	42nd Ave and Farragut St	N	Destination	T		NW Branch Trail	1/2/3	L		Trolley Trail	1/2/3	L		Gateway Arts Dist	1/2/3					28	
B37	42nd St and Farragut St	S	Destination with Metro Symbol	T		Historic District	1/2/3	T	Metro	W Hyattsville	1/2/4	R		Gateway Arts Dist	1/2/3					28	
B38	42nd Ave and Decatur St	N	Destination	R		NW Branch Trail	1/2/3													13	
B39	Decatur St and 42nd Ave	W	Destination with Metro Symbol	L		Gateway Arts Dist	1/2/3	L	Metro	W Hyattsville	1/2/4									13	
B40	Decatur St and 42nd Ave	E	Destination	L		NW Branch Trail	1/2/3													13	
B41	42nd Ave and Decatur St	S	Destination with Metro Symbol	R		Gateway Arts Dist	1/2/3	R	Metro	W Hyattsville	1/2/4									13	
B42	42nd Ave and Crittendon St	N	Destination	R		NW Branch Trail	1/2/3													13	
B43	Crittendon St and 42nd Ave	W	Destination with Metro Symbol	L		Gateway Arts Dist	1/2/3	L	Metro	W Hyattsville	1/2/4									13	
B44	Crittendon St and Trail Connection	E	Destination	L		NW Branch Trail	1/2/3													13	
B45	Trail Connection and Crittendon St	SW	Destination with Metro Symbol	R		Gateway Arts Dist	1/2/3	R	Metro	W Hyattsville	1/2/4									13	
B46	41st Ave and Oliver St	N	Destination	DR		Gateway Arts Dist	1/2/3													13	
B47	40th Ave and Nicholson St	NE	Destination	T		Gateway Arts Dist	1/2/3	L		Hyattsville Middle School	1/2/3									13	
B48	Nicholson St and 40th Ave	SE	Destination with Metro Symbol	L		Gateway Arts Dist	1/2/3	R		Mall at Prince George's	1/2/3	R	Metro	Pr George's Pl	1/2/4					28	
B49	40th Ave and Nicholson St	SW	Destination with Metro Symbol	T	Metro	Pr George's Pl	1/2/4	T		Mall at Prince George's	1/2/3	R		Hyattsville Middle School	1/2/3					28	
B50	Nicholson St and 42nd Ave	NW	Destination	L		Hyattsville Middle School	1/2/3													13	
B51	40th St and Longfellow Ave	N	Bike Route	T	Bicycle		1/6													13	
B52	40th St and Longfellow Ave	S	Bike Route	T	Bicycle		1/6													13	
B53	40th Ave and Jefferson St	N	Destination with Metro Symbol	T		Magruder Park	1/2/3	L		Historic District	1/2/3	L		Gateway Arts Dist	1/2/3	R	Metro	W Hyattsville	1/2/4	28	
B54	Jefferson St and 40th Ave	E	Destination with Metro Symbol	T	Metro	W Hyattsville	1/2/4	L		Magruder Park	1/2/3	R		Mall at Prince George's	1/2/3					28	

Bicycle Wayfinding Sign Reference Guide

Sign Point	Intersection- See KML for Exact Location	Sign Face Orientation	Sign Type	Destination 1				Destination 2				Destination 3				Destination 4				Sign Text Block Height (Inches)	Notes
				Arrow Direc	Symbol	Text	Detail Number	Arrow Direc	Symbol	Text	Detail Number	Arrow Direc	Symbol	Text	Detail Number	Arrow Direc	Symbol	Text	Detail Number		
↑ ← ↙ - THROUGH (T) - LEFT (L) - DIAGONAL LEFT (DL) ↖ → ↗ - ADVANCE TURN ARROW "THROUGH-LEFT" (TL) - RIGHT (R) - DIAGONAL RIGHT (DR) ADVANCE TURN ARROW "THROUGH-RIGHT" (TR)																					
B55	40th Ave and Jefferson St	S	Destination with Metro Symbol	T		Mall at Prince George's	1/2/3	L	Metro	W Hyattsville	1/2/4	R		Historic District	1/2/3	R		Gateway Arts Dist	1/2/3	28	
B56	Jefferson St and 40th Ave	W	Destination	T		Historic District	1/2/3	T		Gateway Arts Dist	1/2/3	L		Mall at Prince George's	1/2/3	R		Magruder Park TO NW Branch Trail	1/2/3	28	
B57	Hamilton St and 40th Ave	S	Destination with Metro Symbol	T		Gateway Arts Dist	1/2/3	L	Metro	W Hyattsville	1/2/4									13	
B58	38th St and Gaines Alley	N	Destination	L&R		NW Branch Trail	1/2/5	T		Brentwood	1/2/3									13	
B59	Hamilton St and 38th St	SE	Destination with Metro Symbol	T		Police Dept	1/2/3	L		NW Branch Trail	1/2/3	R	Metro	W Hyattsville	1/2/4					28	
B60	38th St and Jefferson St	NE		T		NW Branch Trail	1/2/3	L		Magruder Park	1/2/3	R		Police Dept	1/2/3					28	
B61	38th St and Jefferson St	SW	Destination with Metro Symbol	L	Metro	W Hyattsville	1/2/4													13	
B62	38th St and Jefferson St	NE	Destination with Metro Symbol	T		Police Dept	1/2/3	R	Metro	W Hyattsville	1/2/4									13	
B63	Jefferson St and 38th St	NW	Destination	L		Gateway Arts Dist	1/2/3	R		Magruder Park	1/2/3									13	
B64	Jefferson St and Queens Chapel Rd	SE	Destination with Metro Symbol	L		Queens Chapel Town Center Use Sidewalk	1/2/3	L	Metro	W Hyattsville	1/2/4									28	
B65	Queens Chapel Rd and Jefferson Dr	SW	Destination	R		Magruder Park	1/2/3	R		Gateway Arts Dist	1/2/3									13	
B66	Hamilton St and Queens Chapel Rd	NE	Destination with Metro Symbol	R	Metro	W Hyattsville Use Crosswalk	1/2/4													13	Note: back to back with B67
B67	Hamilton St and Queens Chapel Rd	SW	Bike Route	T	Bicycle		1/6													13	Note: back to back with B66
B68	Hamilton St and Queens Chapel Rd	SW	Destination	R		Gateway Arts Dist Use Crosswalk	1/2/3													13	
B69	Hamilton St and Queens Chapel Rd	NW	Destination	TL		Gateway Arts Dist Use Crosswalks	1/2/3													13	
B70	Hamilton St and 31st Ave	E	Destination with Metro Symbol	T	Metro	W Hyattsville	1/2/4	T		NW Branch Trail	1/2/3	R		Heurich Park	1/2/3					28	
B71	31st Ave and Hamilton St	N	Destination with Metro Symbol	L		Gateway Arts Dist	1/2/3	R	Metro	W Hyattsville	1/2/4									13	
B72	Hamilton St and Metro Driveway	NE	Destination with Metro Symbol	T	Metro	W Hyattsville	1/2/4	T		NW Branch Trail	1/2/3									13	Location: Could be blocking the pedestrian warning sign. Would it be acceptable to replace one of the two "1 Hour Parking" Signs at this group of 5 parking spaces?
B73	Hamilton St and 31st Ave	W	Destination	T		Gateway Arts Dist	1/2/3	TL		Mall at Prince George's	1/2/3	TL		Heurich Park	1/2/3					28	
B74	Jamestown Rd and 31st Ave	NE	Destination with Metro Symbol	L		Queens Chapel Town Center	1/2/3	L	Metro	W Hyattsville	1/2/4	L		Gateway Arts Dist	1/2/3					28	
B75	31st St and Lancer Dr	SE	Bike Route	T	Bicycle		1/6													13	

Bicycle Wayfinding Sign Reference Guide

Sign Point	Intersection- See KML for Exact Location	Sign Face Orientation	Sign Type	Destination 1				Destination 2				Destination 3				Destination 4				Sign Text Block Height (Inches)	Notes
				Arrow Direc	Symbol	Text	Detail Number	Arrow Direc	Symbol	Text	Detail Number	Arrow Direc	Symbol	Text	Detail Number	Arrow Direc	Symbol	Text	Detail Number		
↑ ← ↙ - THROUGH (T) - LEFT (L) - DIAGONAL LEFT (DL) ↖ → ↗ -ADVANCE TURN ARROW "THROUGH-LEFT" (TL) - RIGHT (R) - DIAGONAL RIGHT (DR) ADVANCE TURN ARROW "THROUGH-RIGHT" (TR)																					
B76	31st St and Lancer Dr	NW	Bike Route	T	Bicycle		1/6													13	
B77	31st Ave and Nicholson St	S	Destination	L		NW Branch Trail	1/2/3	R		Ed. Felegy ES	1/2/3	R		Nich. Orem MS	1/2/3	R		Mall at Prince George's	1/2/3	28	
B78	Nicholson St and 31st Ave	NE	Destination	T		NW Branch Trail	1/2/3	T		Heurich Park	1/2/3	L		Queens Chapel Town Center	1/2/3					28	
B79	Nicholson St and 31st Ave	SW	Destination with Metro Symbol	R		Queens Chapel Town Center	1/2/3	R	Metro	W Hyattsville	1/2/4	R		Gateway Arts Dist	1/2/3					28	
B80	Nicholson St and Heurich Park Rd	NE	Destination	R		Heurich Park	1/2/3	R		NW Branch Trail	1/2/3									13	
B81	Heurich Park Rd and Nicholson St	NW	Destination with Metro Symbol	L		Queens Chapel Town Center	1/2/3	L	Metro	W Hyattsville	1/2/4	L		Gateway Arts Dist	1/2/3					28	
B82	Heurich Park Parking Lot	S	Destination	DL		Heurich Park	1/2/3	L		NW Branch Trail	1/2/3									13	
B83	Nicholson St and 33rd Ave	NW	Destination	T		Gateway Arts Dist	1/2/3	L		Nich. Orem MS	1/2/3									13	
B84	Nicholson St and 33rd Ave	SE	Destination	T		NW Branch Trail	1/2/3	T		Heurich Park	1/2/3	R		Nich. Orem MS	1/2/3					28	
B85	Nicholson St and Jamestown Rd	NW	Destination with Metro Symbol	L	Metro	Pr George's Pl Via Stairs	1/2/4	R		Queens Chapel Town Center	1/2/3	R		Gateway Arts Dist	1/2/3					28	
B86	Jamestown Rd and Nicholson St	NE	Destination	T		Queens Chapel Town Center	1/2/3	T		Gateway Arts Dist	1/2/3	R		NW Branch Trail	1/2/3					28	
B87	Oliver St and Jamestown Rd	S	Destination with Metro Symbol	T	Metro	Pr George's Pl Use Stairs	1/2/4													13	Note: Back to back with B88
B88	Oliver St and Jamestown Rd	N	Destination	T		Queens Chapel Town Center	1/2/3	T		Gateway Arts Dist	1/2/3									13	Note: Back to back with B87

Vehicle Wayfinding Sign Reference Guide

Sign Point	Intersection- See KML for Exact Location	Sign Face Orientation	Destination 1				Destination 2				Destination 3				Notes	Text Block Height (Inches)
			Arrow Direc	Symbol	Text	Detail #	Arrow Direc	Symbol	Text	Detail #	Arrow Direc	Symbol	Text	Detail #		
↑ - THROUGH (T) ← - LEFT (L) ↙ - DIAGONAL LEFT (DL) ↖ - ADVANCE TURN ARROW "THROUGH-LEFT" (TL) → - RIGHT (R) ↘ - DIAGONAL RIGHT (DR) ↗ ADVANCE TURN ARROW "THROUGH-RIGHT" (TR)																
C1	Belcrest Rd and Toledo Rd	S	R	Parking		7/11										16
C2	Belcrest Rd and Liberty Ln/Freedom Wy	N	T	Metro	Pr George's Pl	7/8/10	L		Univ Town Center	7/8/9	R		Mall at Pr George's	7/8/9		24
C3	Ln/Freedom Wy	S	R		Univ Town Center	7/8/9	R		Parking	7/8/9						16
C4	Queensbury Rd and Queens Chapel Rd	E	T	Metro	Pr George's Pl	7/8/10										8
C5	Queensbury Rd and Queens Chapel Rd	E	T	Metro	Pr George's Pl	7/8/10										8
C6	Oglethorpe st and 42nd Ave	NW	T		Hyattsville MS	7/8/9										8
C7	42nd Ave and Oglethorpe St	S	R		Hyattsville MS	7/8/9										8
C8	Baltimore Ave at the limit of Hyattsville	S	T		Univ of Maryland	7/8/9	T		Mall at Pr George's Via East West Hwy	7/8/9						24
C9	Baltimore Ave and Jefferson St	N	R		Hyattsville ES	7/8/9	R	Metro	W Hyattsville	7/8/10						16
C10	Baltimore Ave and Jefferson St	S	L		Hyattsville ES	7/8/9	L	Metro	W Hyattsville	7/8/10						16
C11	Jefferson St and Baltimore Ave	W	T	Parking		7/11										16
C12	Jefferson St and 43rd Ave	E	L		Hyattsville ES	7/8/9										8
C13	Jefferson St and 43rd Ave	W	R		Hyattsville ES	7/8/9										8
C14	42nd Pl and Jefferson St	S	R		Hyattsville ES	7/8/9	R		Parking	7/8/9						16
C15	Jefferson St and 40th St	E	L		Magruder Park	7/8/9										8
C16	Baltimore Ave and Gallatin St	N	R		Municipal Bldg	7/8/9	R		Parking Lot 3	7/8/9	R	Metro	W Hyattsville	7/8/10		24
C17	Baltimore Ave and Gallatin St	S	L		Municipal Bldg	7/8/9	L		Parking Lot 3	7/8/9	L	Metro	W Hyattsville	7/8/10		24
C18	Baltimore Ave and Farragut St	N	T		Public Parking at Justice Center	7/8/9										16
C19	Gallatin St and 42nd Pl	E	R		Hyattsville ES	7/8/9										8
C20	Gallatin St and 42nd Ave	E	R		Queens Chapel Town Center	7/8/9	R	Metro	W Hyattsville	7/8/10						24
C21	42nd Ave and Hamilton St	S	L		Magruder Park	7/8/9	L		Queens Chapel Town Center	7/8/9	L	Metro	W Hyattsville	7/8/10		24
C22	Hamilton St and 39th Ave	NE	DR	Metro	W Hyattsville	7/8/10									Before installation, relocate existing stop signs into the existing curb extensions. May need to place sign after the intersection on Hamilton if it is obscuring the stop signs. In that case, change the directional arrow to plain "Through"	8
C23	40th Ave and Hamilton St	N	T		Magruder Park	7/8/9	T		Parking	7/8/9						16
C24	Hamilton St and 40th Ave	W	R		Magruder Park	7/8/9	R		Parking	7/8/9						16
C25	Jefferson St and Hamilton St	NE	R	Metro	W Hyattsville	7/8/10										8

Vehicle Wayfinding Sign Reference Guide

Sign Point	Intersection- See KML for Exact Location	Sign Face Orientation	Destination 1				Destination 2				Destination 3				Notes	Text Block Height (Inches)
			Arrow Direc	Symbol	Text	Detail #	Arrow Direc	Symbol	Text	Detail #	Arrow Direc	Symbol	Text	Detail #		
↑ - THROUGH (T) ← - LEFT (L) ↙ - DIAGONAL LEFT (DL) ↖ -ADVANCE TURN ARROW "THROUGH-LEFT" (TL) → - RIGHT (R) ↗ - DIAGONAL RIGHT (DR) ↘ ADVANCE TURN ARROW "THROUGH-RIGHT" (TR)																
C26	Hamilton St and Jefferson St	W	L		Gateway Arts Dist	7/8/9	T		Magruder Park	7/8/9						16
C27	Hamilton St and Queens Chapel Rd	SE	T	Metro	W Hyattsville	7/8/10	R		Mall at Pr George's	7/8/9						16
C28	Queens Chapel Rd and Ager Rd	NE	R	Metro	W Hyattsville	7/8/10										8
C29	Hamilton and 31st Ave	SE	R	Parking		7/11										16
C30	31st Ave N of Hamilton St	S	R	Parking		7/11										16
C31	Hamilton and 31st Ave	SW	L	Parking		7/11										16
C32	Ager Rd and Hamilton St	SE	L	Metro	W Hyattsville	7/8/10										8

Pedestrian Wayfinding Sign Reference Guide

Sign Point	Intersection- See KML for Exact Location	General Location	Location Title	Location Description
Kiosk 1	Baltimore Ave and Farragut St	Trolley Trail Entrance	Gateway Arts District	Recommended placement at the southern end of the Gateway Arts District, at the entrance to the Trolley Trail. This kioks is intended to serve as a 'gateway' / welcome feature for bicyclists and pedestrians using Trolley Trail.
Kiosk 2	Baltimore Ave and Jefferson St	NE corner of intersection	Gateway Arts District	Recommended placement at the “heart” of the Gateway Arts District, identified by the City as high pedestrian traffic area.
Kiosk 3	Belcrest Rd and Liberty Lane	East Side (UTC side)	University Town Center	Recommended placment is in area identified as having high pedestrian traffic in front of bus stop. It will serve as a 'gateway'/welcome feature to the University Town Center (UTC) and the Mall at Prince George's.
Kiosk 4	MD 410 and Metro Entrance	In plaza next to ped bridge	Hyattsville Crossing	Recommended location will serve as a 'gateway'/welcome feature to the City of Hyattsville via the Prince George’s Plaza Metro Station. Final location of kiosk will depend on right-of-way ownership, existing space, and other agreements with Metro/SHA. Another location north of the Metro exit may also be considered.
Kiosk 5	Hamilton and 31st Ave	NW corner of intersection	Queens Chapel Town Center	Recommended placement will serve as a 'gateway' feature to the Queens Chapel Town Center area for pedestrians and bicyclists coming from the West Hyattsville Metro Station.

Note: Kiosk signs to be installed such that the map panels are facing towards the south.

Kiosk Destination and Mileage Lists:

Kiosk	Destination	Distance (Miles)
Kiosk 1	Municipal Complex	0.1
	Heritage Center	0.1
	Historic District	0.3
	Hyattsville Elementary School	0.3
	Northwest Branch Trail	0.5
	Magruder Park	0.7
	Hyattsville Middle School	0.8
Kiosk 2	Hyattsville Elementary School	0.1
	Trolley Trail	0.1
	Heritage Center	0.2
	Municipal Complex	0.3
	Historic District	0.4
	Hyattsville Middle School	0.6
	Northwest Branch Trail	0.7
	Magruder Park	0.8
Kiosk 3	Mall at Prince George's	0.1
	Hyattsville Crossing	0.2
	Prince George's Plaza Metro Station	0.2
	Hyattsville Branch Library	0.3
	Northwestern High School	0.6
	Nicholas Orem Middle School	0.6
	Edward M. Felegy Elementary School	0.7
Kiosk 4	Mall at Prince George's	0.1
	Prince George's Plaza Metro Station	0.1
	University Town Center	0.2
	Nicholas Orem Middle School	0.4
	Hyattsville Branch Library	0.5
	Edward M. Felegy Elementary School	0.5
	Hyattsville Middle School	0.9
	Heurich Park	1.2
Kiosk 5	West Hyattsville Metro Station	0.3
	Northwest Branch Trail	0.3
	Nicholas Orem Middle School	0.8
	Heurich Park	0.9

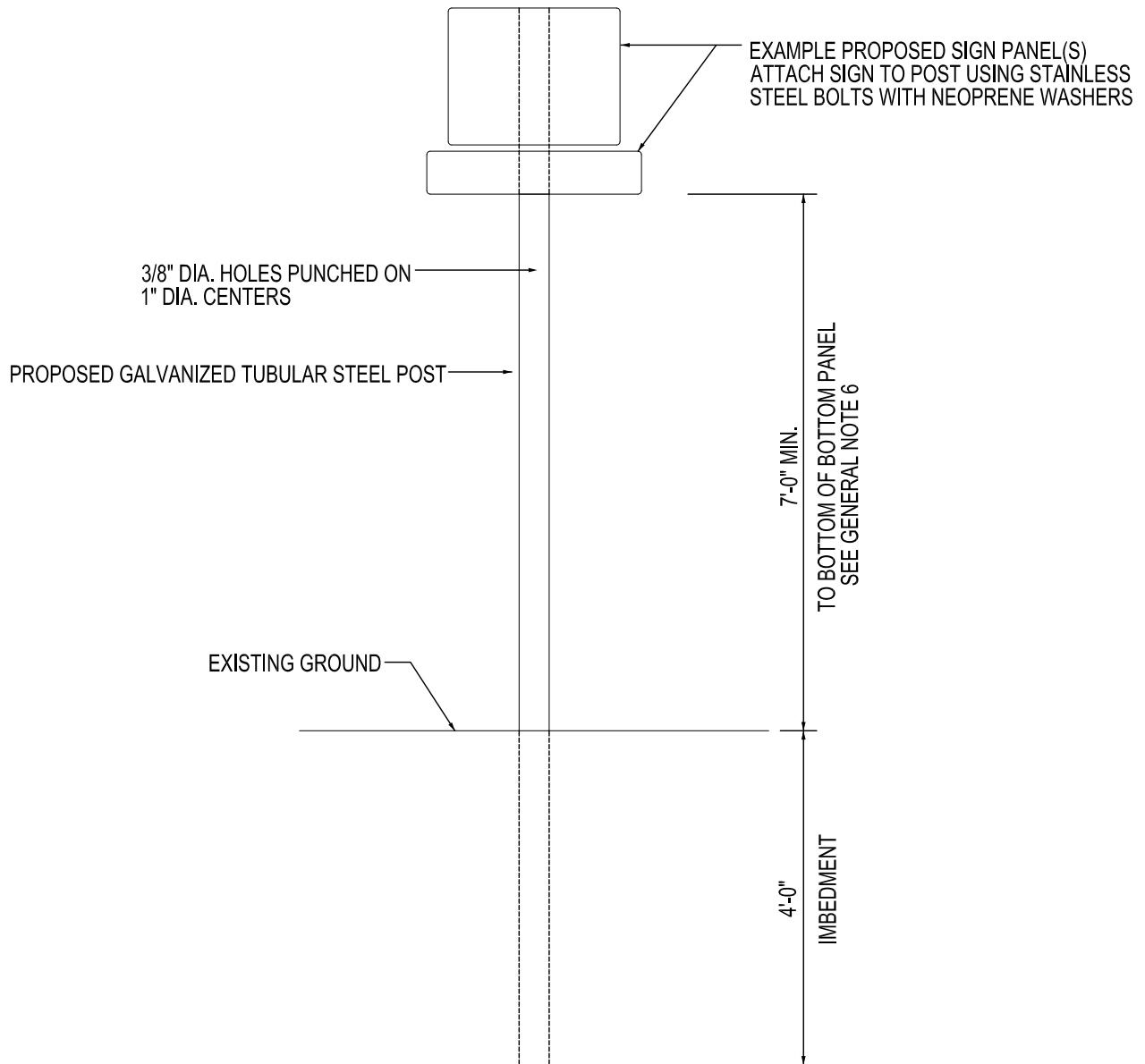
GENERAL NOTES

1. All work shall meet all applicable Prince George's County Department of Public Works and Transportation (DPW&T) latest standards and specifications. Work shall also meet all applicable requirements of the Manual of Uniform Traffic Control Devices (MUTCD).
2. Sign locations were developed based on information from Google Earth and field visits to key intersections. The Contractor shall verify all dimensions in the field prior to installing proposed work. When these plans are in conflict with actual site conditions, proposed work may be adjusted as directed by the City of Hyattsville (City). Costs are incidental to the appropriate pay items.
3. All sign panels shown are proposed unless otherwise noted.
4. All signs shall be high intensity sheeting meeting the requirements of AASHTO M268
5. Lateral clearance between proposed sign posts and edge of adjacent roadway shall be in accordance with Prince George's County DPW&T and MUTCD standards and specifications. In general, signs shall have a lateral offset of 2 feet from face of curb. In urban settings where space is restricted, signs shall have a lateral offset of 1 foot from face of curb. When installing sign posts adjacent to or within an existing sidewalk, a minimum clear width of 32" on the existing sidewalk shall be maintained, and a preferred clear width of 48" shall be maintained where feasible.
6. All signs shall have a minimum vertical clearance of 7 feet from the ground to the bottom of the sign. If the Contractor cannot meet the 7-foot clearance on an existing sign post, the Contractor shall extend the sign post and install both proposed and existing signs in order to meet the vertical clearance. All signs that are installed on existing traffic structures such as signal pole, light poles, etc. shall have the 7-foot minimum clearance from the ground to the bottom of the sign panel. If at any point the Contractor cannot meet the vertical clearance required, the Contractor shall contact the City for further instructions prior to installation of the sign in question.
7. Proposed sign panels for bicyclists shall be mounted so they are visible by a bicyclist at a minimum of 80 feet. Proposed sign panels for motor vehicle operators shall be mounted so they are visible by the operator at a minimum of 180 feet. Contractor shall bring any needed vegetation trimming or other obstructions to the attention of the City.
8. Proposed signs at new locations shall be installed so they do not block the visibility of any existing signs or signals and so they do not block sight lines at intersections, driveways, and bicycle and pedestrian crossings.
9. Proposed signs and posts shall be clear of existing fire hydrants, surface utility, and overhead utility equipment a minimum of 10 feet. If this clearance cannot be met, the Contractor shall contact the City for further instructions prior to installation.
10. For new post installation, the Contractor shall verify that there are no conflicting underground or overhead utilities, and shall call Miss Utility before beginning installations.

11. Square steel sign post installation, sign panel mounting and hardware shall be in accordance with MDSHA standards and specifications. Signs shall be mounted on proposed square steel metal posts unless otherwise noted in the plans. See sheets 3-6 for mounting details.
12. All signs shall be securely fastened so as to hold the sign in a permanent position and resist movement by the wind or displacement by vandals.
13. The Contractor shall submit proofs/shop drawings of the proposed sign content to the City for approval prior to fabrication and installation.
14. At the direction and approval of the City, sign panels to be mounted on new posts may be mounted on appropriate existing posts if available.
15. Signs mounted to existing light, signal or utility poles shall be fastened with a manufactured steel banding system. Poles shall not be drilled directly. The Contractor shall submit manufacturer information on the banding system to the City for approval prior to installation.
16. If sign installation is shown on a pole that is not owned by the City, written permission must be obtained from the owner (utility company, SHA, or property owner). The Contractor is responsible for obtaining required permission.
17. Existing signs (panels, hardware and/or posts) that are called for to be removed and not reused shall be disposed of.
18. All sign locations shown on the plans are schematic and may not reflect actual field locations. The Contractor shall verify each location prior to installing a sign. If at any point the Contractor finds a conflict, the Contractor shall contact the City prior to installing the proposed sign.
19. The Contractor shall verify all dimensions in the field prior to installing signing. Additional adjustments of existing signs beyond those called for in these plans may be necessary, as directed by the City.
20. The Contractor shall mark all sign locations in the field for City of Hyattsville to review prior to installation.

ELEVATION

PROPOSED POST AND SIGN INSTALLATION DETAIL



NOTE:

1. SIGN IS ASSOCIATED WITH SIGNAGE PLANS. SEE SIGN REFERENCE GUIDE, KMLS, DETAILS, AND GENERAL NOTES FOR SIGN LOCATIONS, PANEL, POST AND MOUNTING DETAIL.

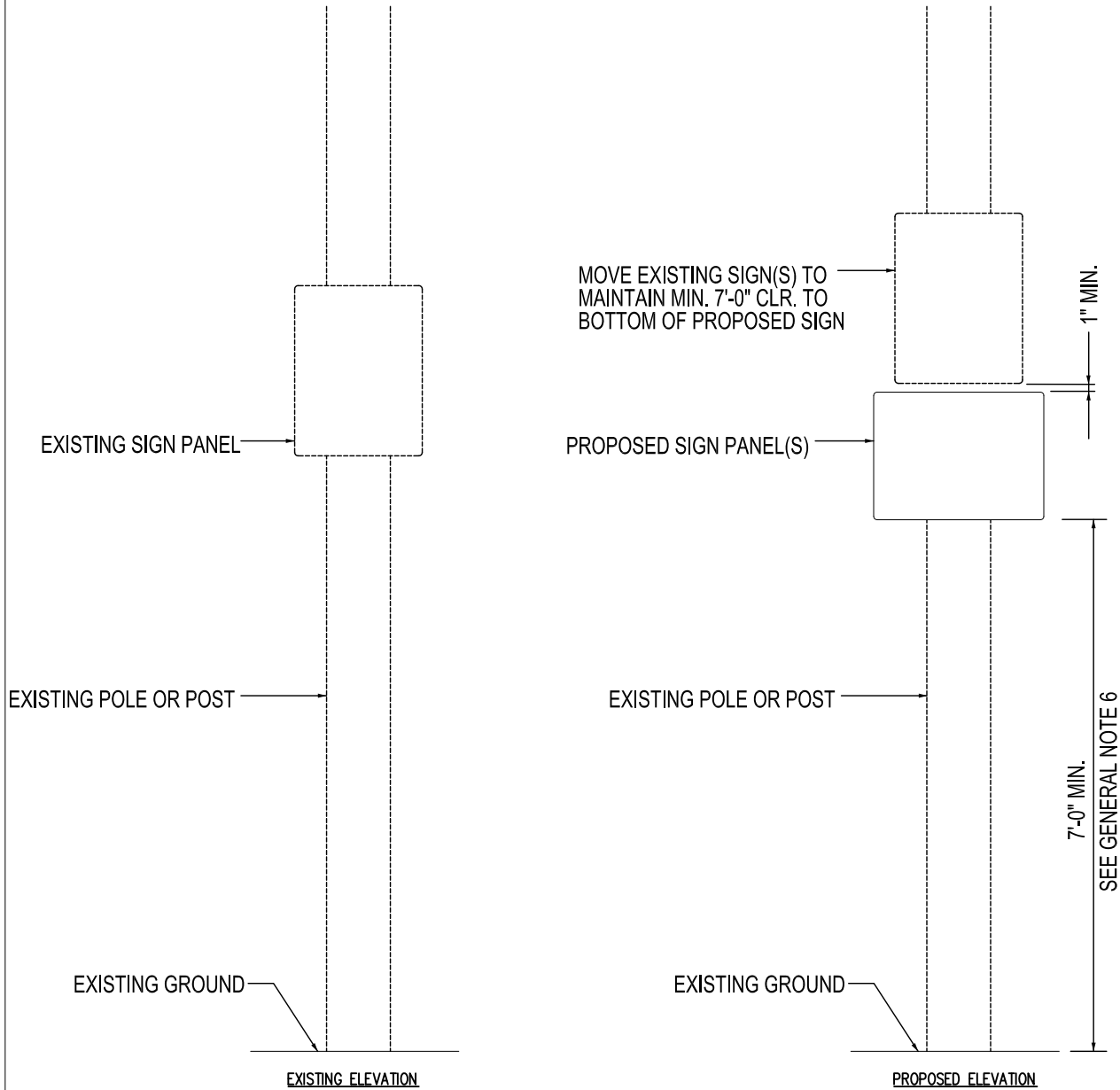
GENERAL NOTES

HYATTSTVILLE WAYFINDING
SIGN TYPICAL DETAIL - 1
PROPOSED MOUNTING OF SIGNS

SHEET 3 OF 6
N.T.S.

ELEVATION

EXAMPLE MOUNTING DETAIL BELOW AN EXISTING SIGN



NOTE:

1. SIGN IS ASSOCIATED WITH SIGNAGE PLANS. SEE SIGN REFERENCE GUIDE, DETAILS, AND GENERAL NOTES FOR SIGN LOCATIONS, PANEL, POST AND MOUNTING DETAIL.

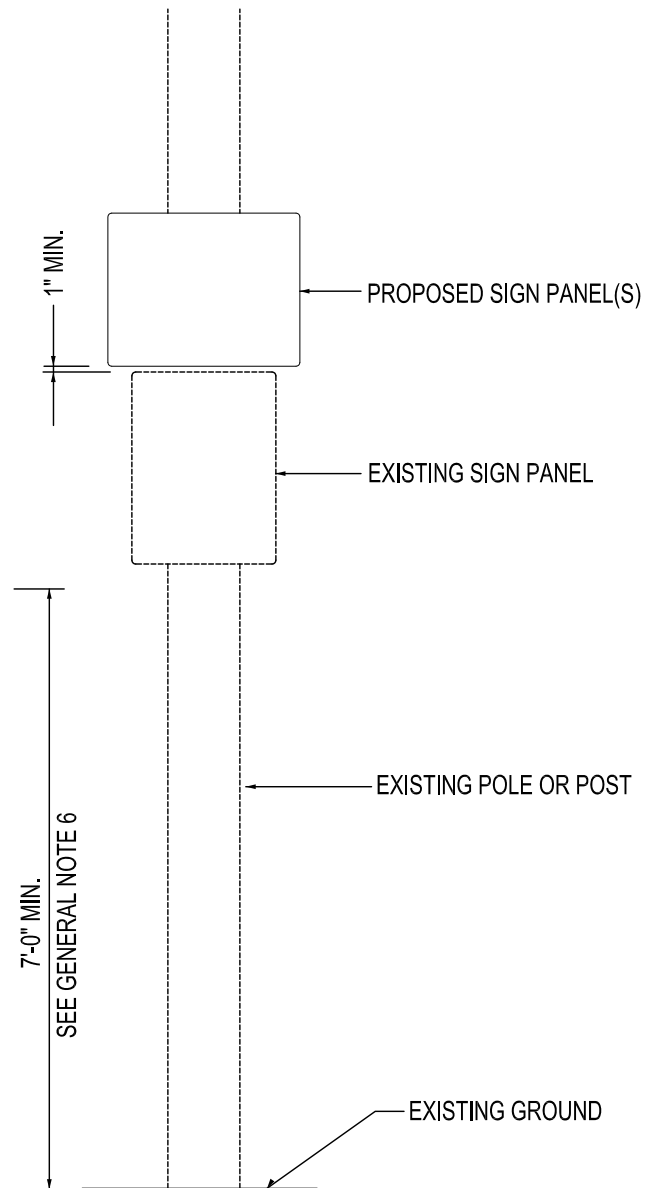
GENERAL NOTES

HYATTSVILLE WAYFINDING
SIGN TYPICAL DETAIL - 2
MOUNTING BELOW EXISTING SIGNS

SHEET 4 OF 6
N.T.S.

ELEVATION

EXAMPLE MOUNTING DETAIL ABOVE AN EXISTING SIGN



NOTE:
1. SIGN IS ASSOCIATED WITH SIGNAGE PLANS. SEE SIGN REFERENCE GUIDE, KMLS, DETAILS, AND GENERAL NOTES FOR SIGN LOCATIONS, PANEL, POST AND MOUNTING DETAIL.

GENERAL NOTES
HYATTSVILLE WAYFINDING
SIGN TYPICAL DETAIL - 3
MOUNTING ABOVE EXISTING SIGNS

SHEET 5 OF 6
N.T.S.

ELEVATION

PROPOSED TUBULAR
STEEL POST

DRILL HOLE 2" LARGER THAN
POST ON ALL SIDES, INSTALL
POST, FILL VOID WITH
CONCRETE (SEE NOTE 2)

EXISTING SIDEWALK

EXAMPLE PROPOSED SIGN PANEL(S)
ATTACH SIGN TO POST USING STAINLESS
STEEL BOLTS WITH NEOPRENE WASHERS

TO BOTTOM OF BOTTOM PANEL
SEE GENERAL NOTE 6

CLEAR SIDEWALK SPACE
32" MINIMUM
48" PREFERRED

2" TYP.

2'-6"

NOTE:
1. SIGN IS ASSOCIATED WITH SIGNAGE PLANS. SEE SIGN REFERENCE GUIDE, KMLS,
DETAILS, AND GENERAL NOTES FOR SIGN LOCATIONS, PANEL, POST AND MOUNTING
DETAIL.

GENERAL NOTES

SHEET 6 OF 6
N.T.S.

WAYFINDING SIGNAGE FABRICATION DETAILS

- 1. BICYCLE WAYFINDING SIGN FABRICATION DETAILS: SHEETS 2-5
- 2. VEHICLE WAYFINDING SIGN FABRICATION DETAILS: SHEETS 6-8
- 3. PEDESTRIAN KIOSK SIGN FABRICATION DETAILS: SHEETS 9-10



8484 GEORGIA AVENUE, SUITE 800, SILVER SPRING, MD 20910
PHONE: (301) 927-1900 FAX: (301) 927-2800
www.tooledesign.com

HYATTSVILLE WAYFINDING
FABRICATION DETAILS
HYATTSVILLE, MD

PREPARED: CB
CHECKED: MMG

DATE
8/3/18

REV. 1 -
REV. 2 -
REV. 3 -

SHEET NAME
COVER SHEET
SIGN DETAILS

DRAWING NUMBER
C-1

SHEET NUMBER
1 OF 10

HYATTSVILLE WAYFINDING
FABRICATION DETAILS
HYATTSVILLE, MD

PREPARED: CB
CHECKED: MMG

DATE
8/3/18

REV. 1 -
REV. 2 -
REV. 3 -

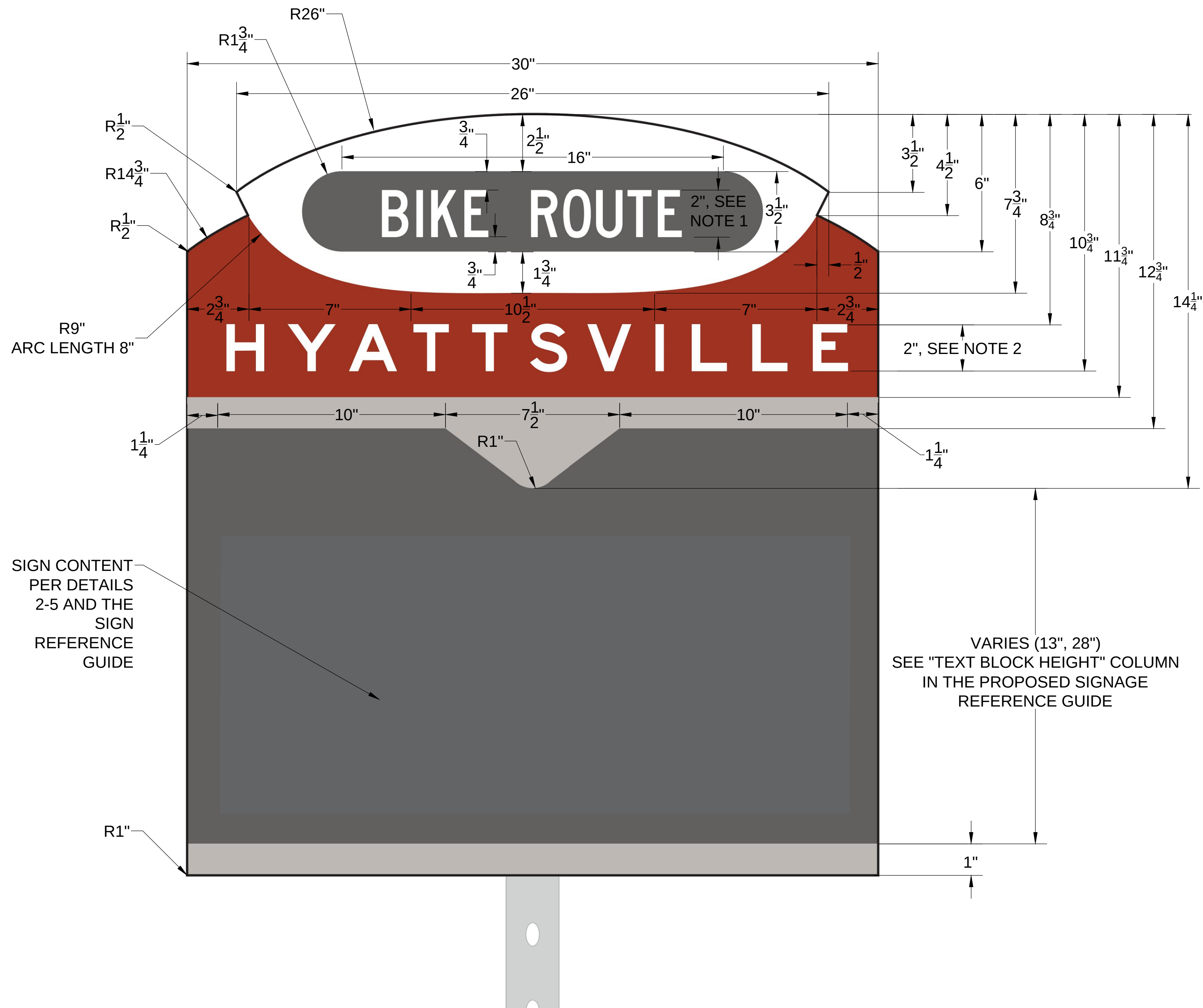
SHEET NAME
BICYCLE WAYFINDING
DETAILS

DRAWING NUMBER

B-1

SHEET NUMBER

2 OF **10**



DETAIL 1: BICYCLE WAYFINDING SIGN EXTERIOR LAYOUT

N.T.S.

- NOTES:
1. FONT: HIGHWAY GOTHIC SERIES C
COLOR: WHITE
 2. FONT: HIGHWAY GOTHIC SERIES E
COLOR: WHITE
 3. SIGN COLORS AS SHOWN:
WHITE (R255, G255, B255)
LIGHT GRAY (R189, G196, B191)
DARK GRAY (R81, G92, B92)
RED (R151, G18, B4)
 4. EACH BICYCLE WAYFINDING SIGN TO BE INSTALLED ON A
SQUARE STEEL POST
 5. DETAIL 1 APPLIES TO ALL BICYCLE WAYFINDING SIGNAGE
 6. SEE SHEETS B-2 THROUGH B-4 AND THE BICYCLE WAYFINDING
SIGN REFERENCE GUIDE FOR CONTENT FOR EACH SIGN



DETAIL 2: BICYCLE WAYFINDING "DESTINATION" SIGN TYPE
VERTICAL LAYOUT ALIGNMENT
N.T.S.

- NOTES:
1. FONT: HIGHWAY GOTHIC SERIES C
COLOR: WHITE
 2. SIGN COLORS AS SHOWN:
WHITE (R255, G255, B255)
LIGHT GRAY (R189, G196, B191)
DARK GRAY (R81, G92, B92)
RED (R151, G18, B4)
 3. EACH BICYCLE WAYFINDING SIGN TO BE
INSTALLED ON A SQUARE STEEL POST
 4. WHITE DOTTED LINES ARE INTENDED TO BE
USED AS GUIDE LINES ONLY AND ARE NOT TO
BE PRINTED.
 5. DETAIL 2 APPLIES TO ALL VARIATIONS OF
BICYCLE "DESTINATION" SIGN TYPES.

ARROW LAYOUT GUIDE

ARROWS TO BE PLACED IN 3"X3" DOTTED BOX,
CENTERED HORIZONTALLY AND VERTICALLY
(DOTTED BOX IS A GUIDE AND NOT TO BE PRINTED)

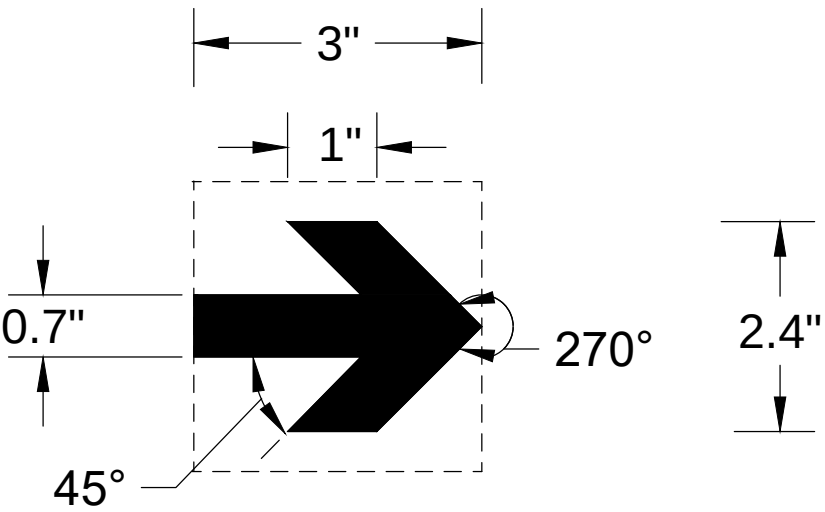
ARROW OPTIONS
PLACED TO THE RIGHT OF TEXT/SYMBOL

- - RIGHT (R)
- ↗ - DIAGONAL RIGHT (DR)
- ↘ - THROUGH RIGHT (TR)

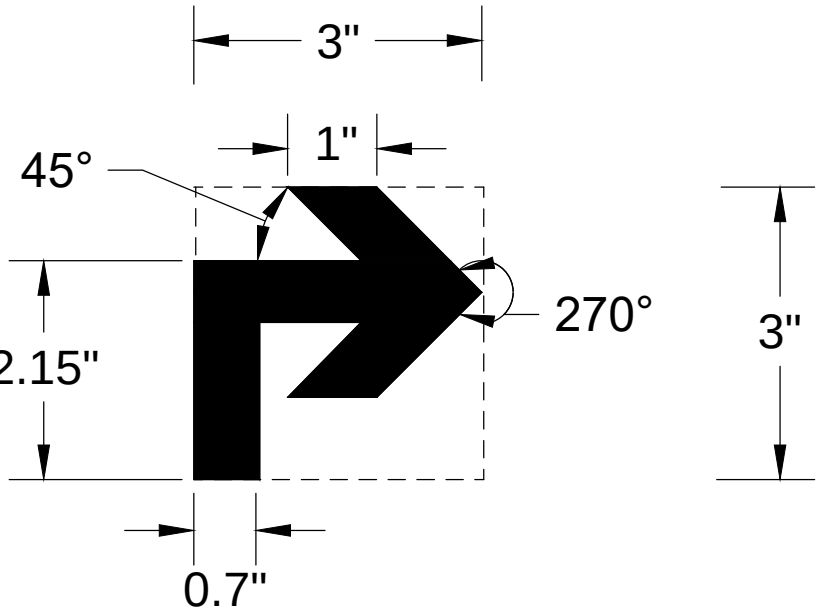
ARROW OPTIONS
PLACED TO THE LEFT OF TEXT

- ← - THROUGH (T)
- ↖ - LEFT (L)
- ↙ - DIAGONAL LEFT (DL)
- ↗ - THROUGH LEFT (TL)

LEFT/RIGHT, STRAIGHT,
DIAGONAL LEFT/RIGHT
ARROW

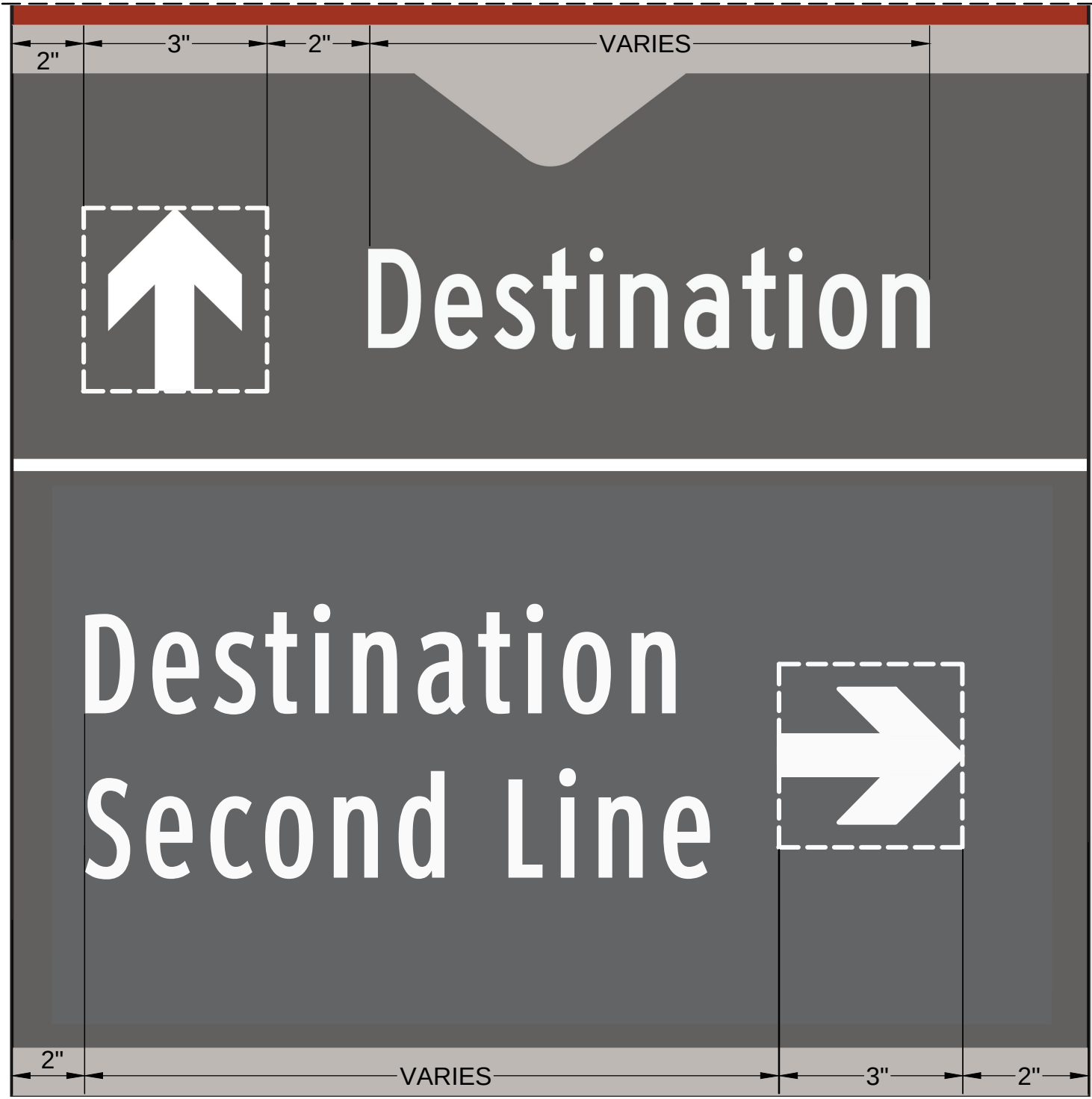


THROUGH LEFT/THROUGH RIGHT ARROW



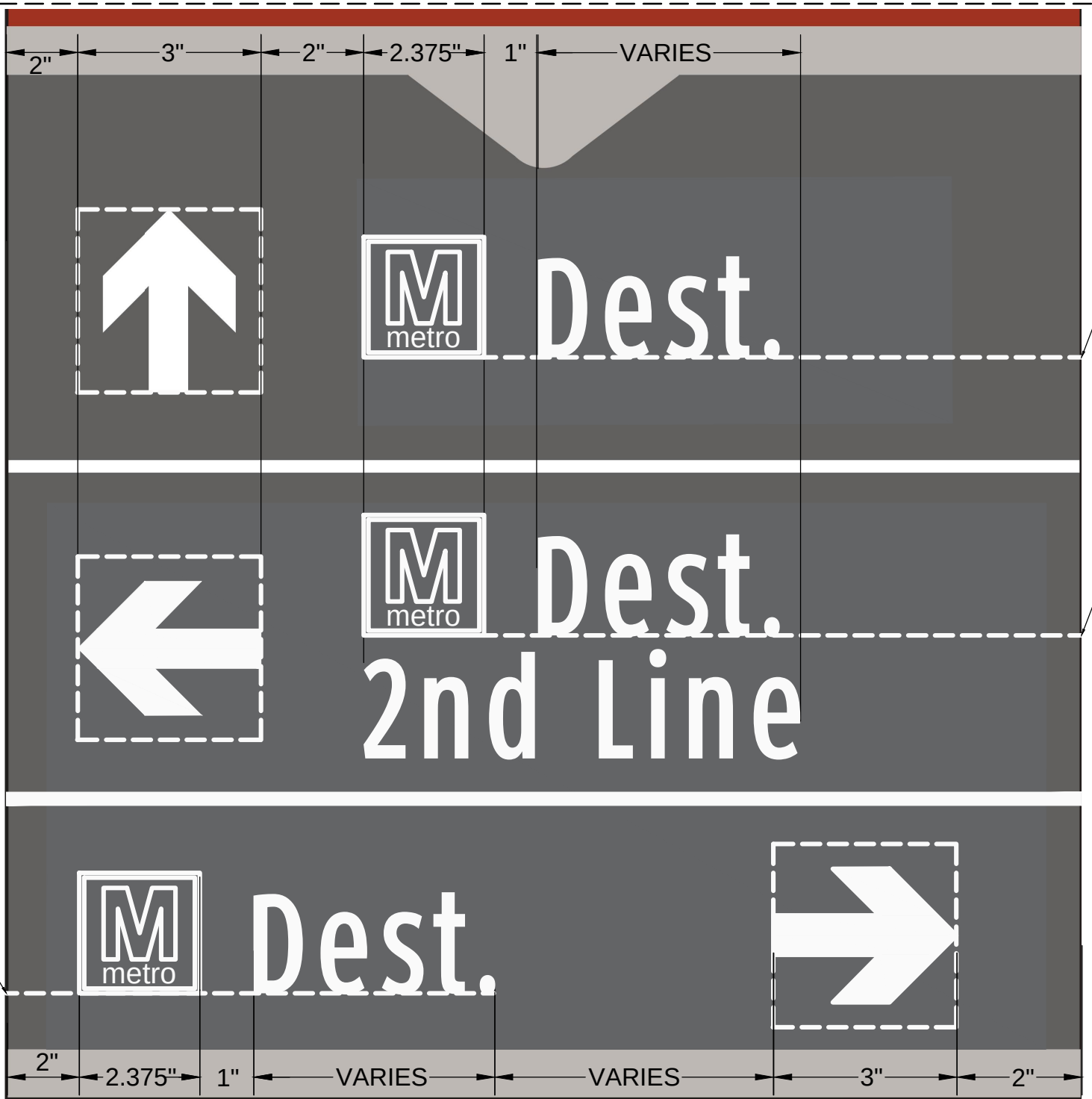
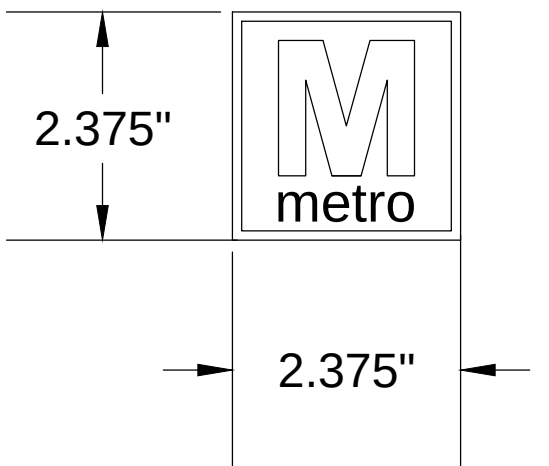
HYATTSVILLE WAYFINDING
FABRICATION DETAILS
HYATTSVILLE, MD

PREPARED: CB
CHECKED: MMG
DATE
8/3/18
REV. 1 -
REV. 2 -
REV. 3 -
SHEET NAME
BICYCLE WAYFINDING
DETAILS
DRAWING NUMBER
B-2
SHEET NUMBER
3 OF 10



DETAIL 3: BICYCLE WAYFINDING "DESTINATION" SIGN TYPE
HORIZONTAL LAYOUT ALIGNMENT
N.T.S.

METRO SYMBOL

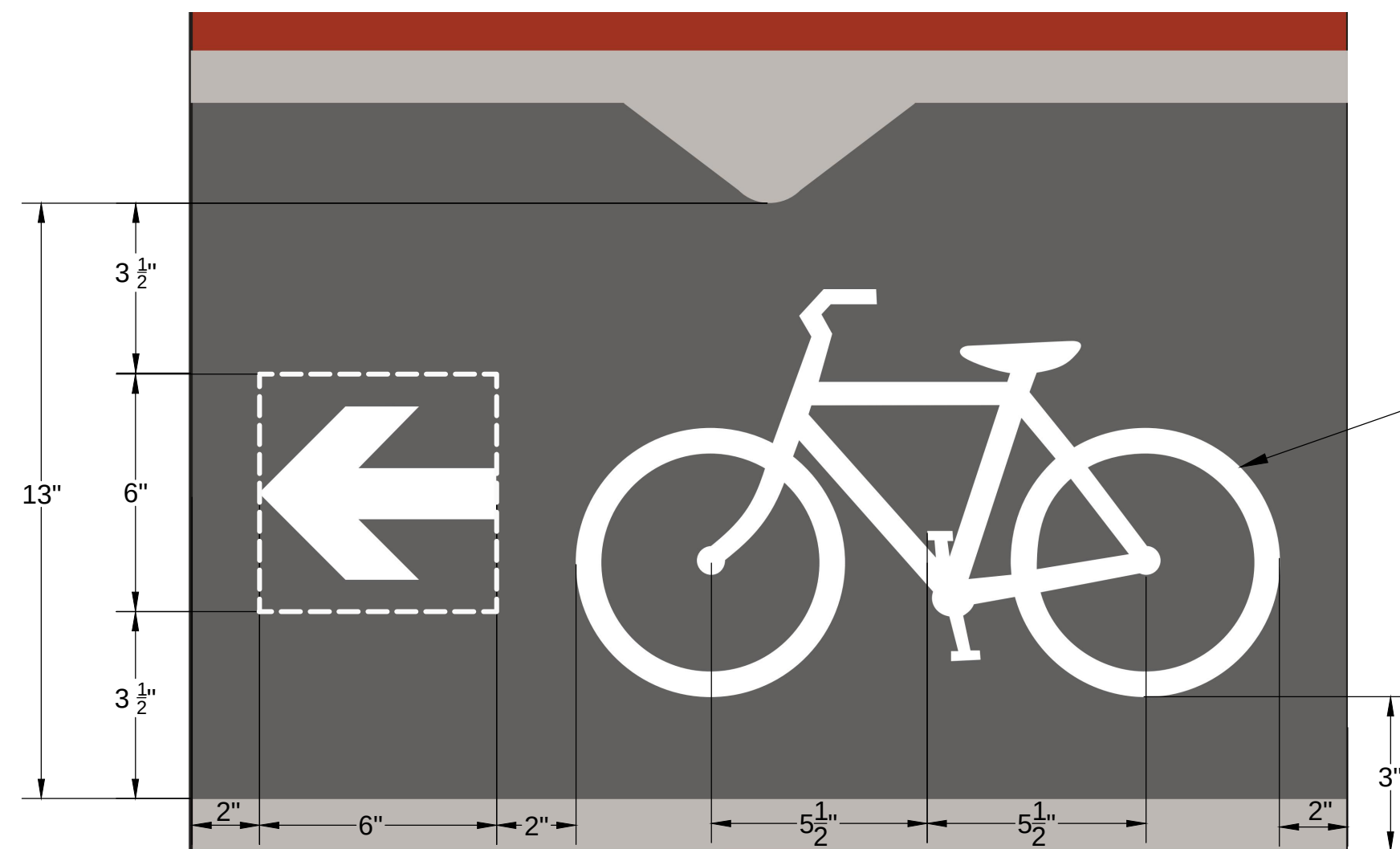
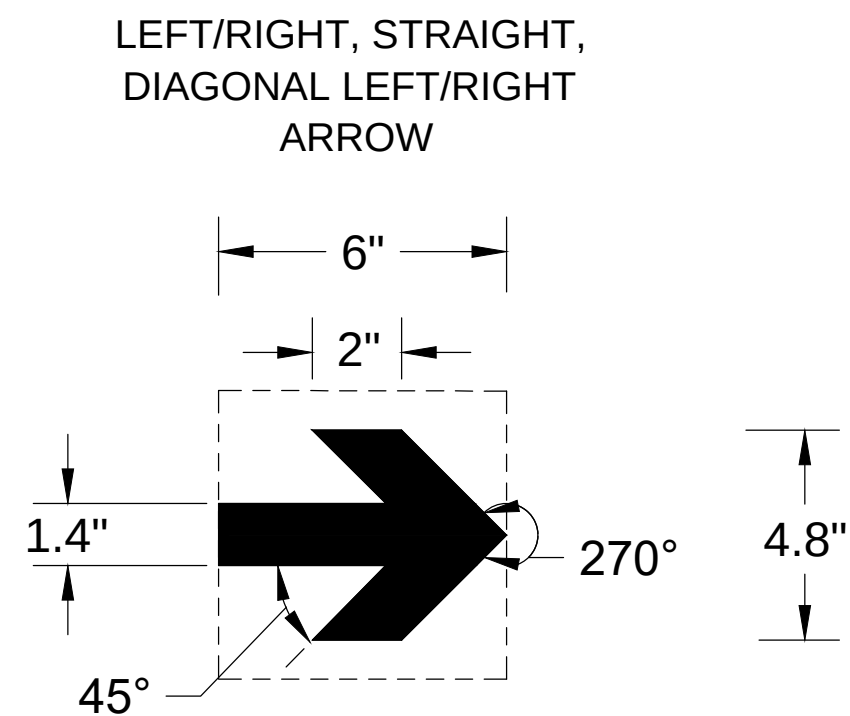


DETAIL 4: BICYCLE WAYFINDING "DESTINATION" SIGN TYPE
FOR DESTINATIONS WITH A METRO SYMBOL
HORIZONTAL LAYOUT ALIGNMENT
N.T.S.



DETAIL 5: BICYCLE WAYFINDING "DESTINATION" SIGN TYPE
FOR DESTINATIONS WITH TWO DIRECTIONAL ARROWS
HORIZONTAL LAYOUT ALIGNMENT
N.T.S.

- NOTES:
1. SEE SHEET B-2 FOR VERTICAL LAYOUT OF ALL "DESTINATION" SIGN TYPES
 2. SEE SHEET B-2 FOR FONT AND SYMBOL DETAILS
 3. SIGN COLORS AS SHOWN:
WHITE (R255, G255, B255)
LIGHT GRAY (R189, G196, B191)
DARK GRAY (R81, G92, B92)
RED (R151, G18, B4)
 4. EACH BICYCLE WAYFINDING SIGN TO BE INSTALLED ON A SQUARE STEEL POST
 5. DOTTED WHITE LINES ARE INTENDED TO BE USED AS GUIDE LINES ONLY AND ARE NOT TO BE PRINTED.
 6. HORIZONTAL LAYOUT ALIGNMENTS SHOWN IN DETAILS 3-5 APPLY TO BICYCLE WAYFINDING "DESTINATION" SIGN TYPES. DETAIL 3 APPLIES TO REGULAR DESTINATIONS. DETAIL 4 APPLIES TO DESTINATIONS THAT INCLUDE A METRO SYMBOL. DETAIL 5 APPLIES TO DESTINATIONS THAT REQUIRE TWO DIRECTIONAL ARROWS. SEE BICYCLE WAYFINDING SIGN REFERENCE GUIDE FOR WHICH DETAIL APPLIES TO WHICH DESTINATIONS.
 7. SEE DETAIL 1 ON SHEET B-1 FOR OVERALL SIGN SHAPE AND DETAIL.

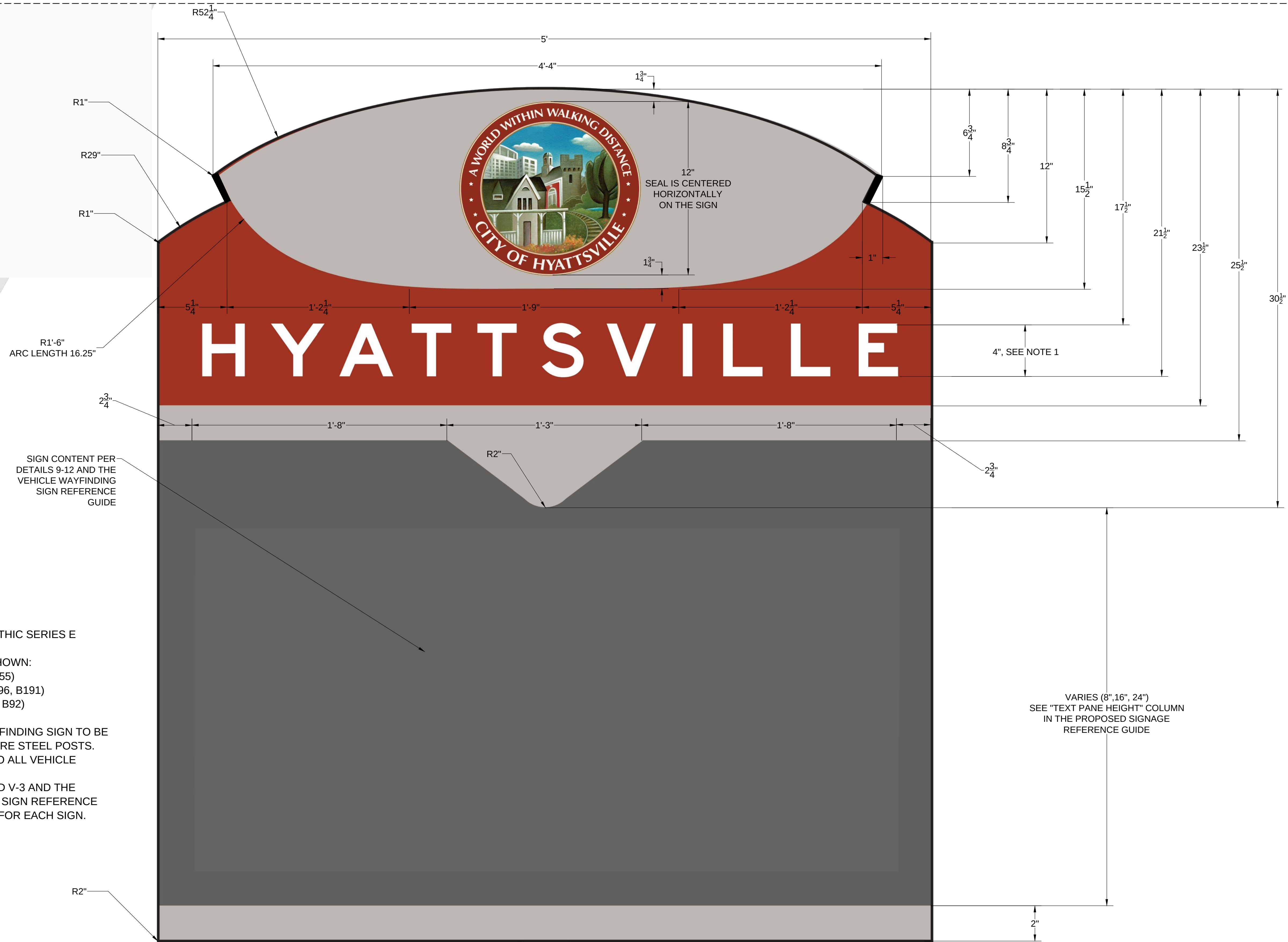


STANDARD MUTCD BICYCLE SYMBOL.
SEE 2004 STANDARD HIGHWAY SIGNS GUIDE,
APPENDIX, SHEET 6-7

DETAIL 6: BICYCLE WAYFINDING "BIKE ROUTE" SIGN TYPE
HORIZONTAL AND VERTICAL LAYOUT ALIGNMENTS

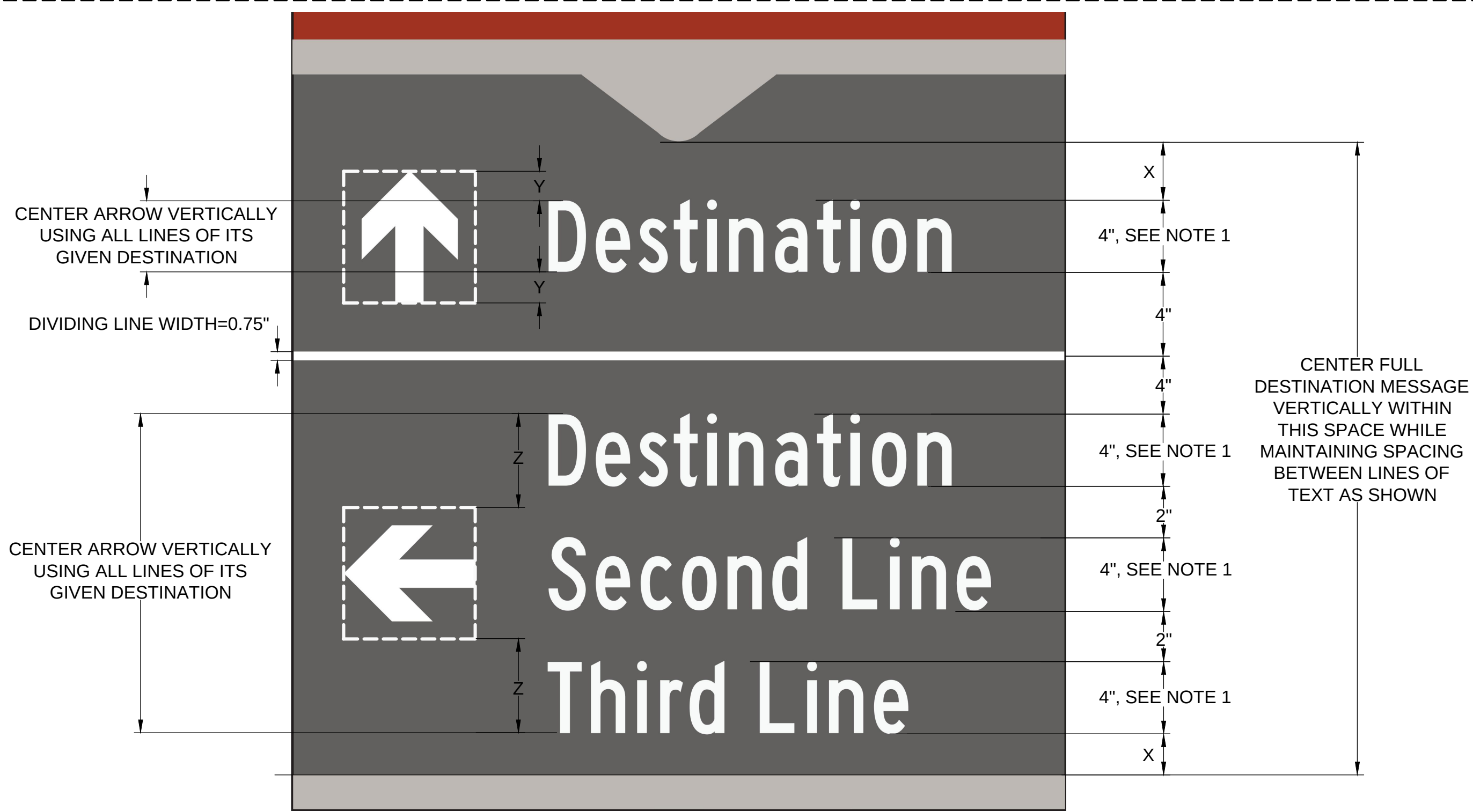
N.T.S.

- NOTES:
1. SIGN COLORS AS SHOWN:
WHITE (R255, G255, B255)
LIGHT GRAY (R189, G196, B191)
DARK GRAY (R81, G92, B92)
RED (R151, G18, B4)
 2. DOTTED WHITE LINES ARE INTENDED TO BE USED AS GUIDE LINES ONLY AND ARE NOT TO BE PRINTED
 3. EACH BICYCLE WAYFINDING SIGN TO BE INSTALLED ON A SQUARE STEEL POST
 4. DETAIL 6 APPLIES TO BICYCLE WAYFINDING "BIKE ROUTE" SIGN TYPES. SEE BICYCLE WAYFINDING SIGN REFERENCE GUIDE FOR MORE DETAILS.
 5. SEE DETAIL 1 ON SHEET B-1 FOR OVERALL SIGN SHAPE AND DIMENSIONS.



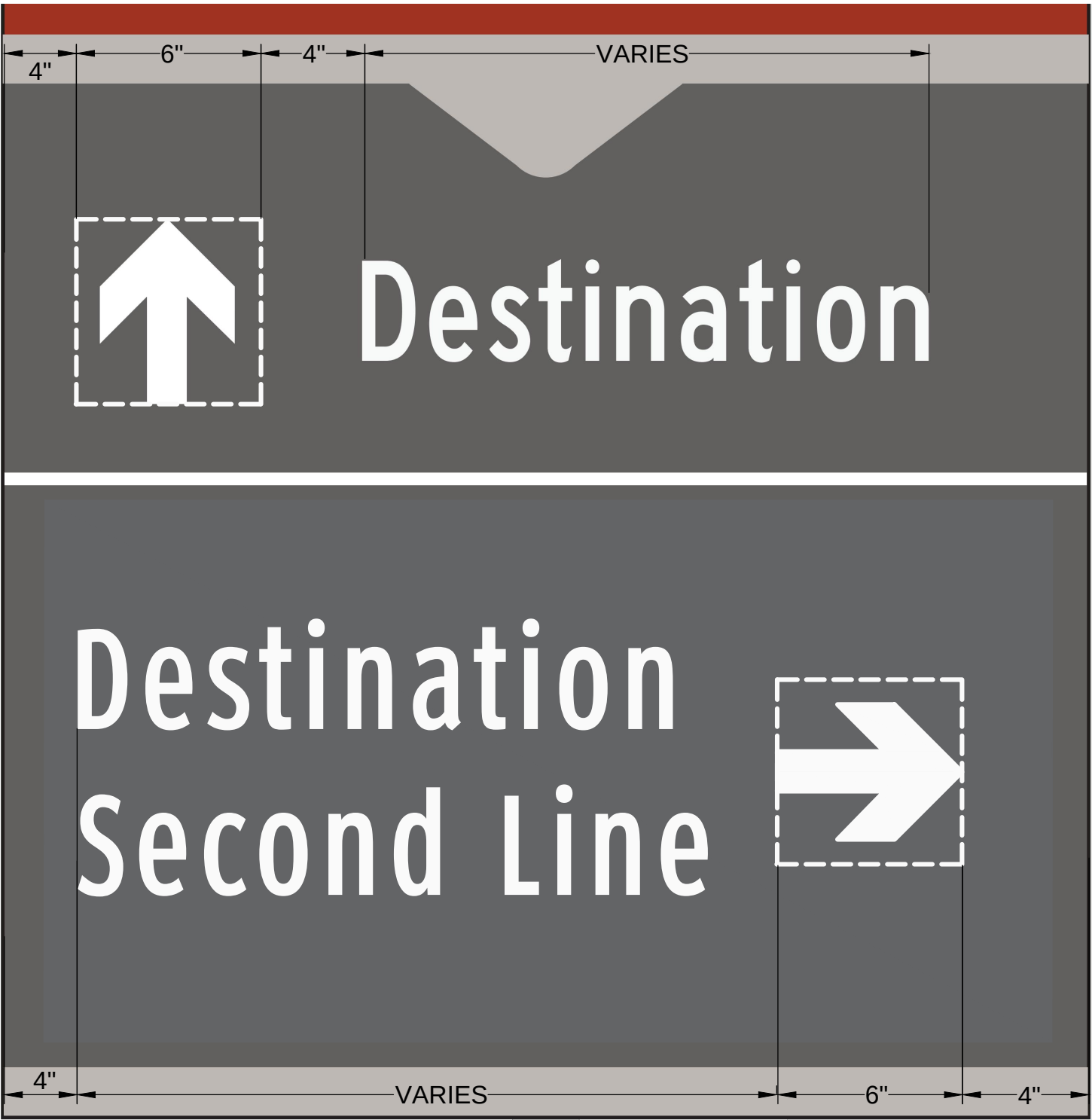
- NOTES:
1. FONT: HIGHWAY GOTHIC SERIES E
COLOR: WHITE
 3. SIGN COLORS AS SHOWN:
WHITE (R255, G255, B255)
LIGHT GRAY (R189, G196, B191)
DARK GRAY (R81, G92, B92)
RED (R151, G18, B4)
 4. EACH VEHICLE WAYFINDING SIGN TO BE
INSTALLED ON 2 SQUARE STEEL POSTS.
 5. DETAIL 7 APPLIES TO ALL VEHICLE
WAYFINDING SIGNS.
 6. SEE SHEETS V-2 AND V-3 AND THE
VEHICLE WAYFINDING SIGN REFERENCE
GUIDE FOR CONTENT FOR EACH SIGN.

DETAIL 7: VEHICLE WAYFINDING SIGN EXTERIOR LAYOUT
N.T.S.



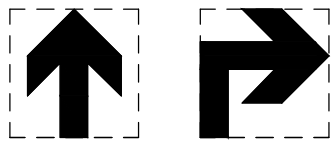
DETAIL 8: VEHICLE WAYFINDING SIGN
VERTICAL LAYOUT ALIGNMENT
N.T.S.

- NOTES:
1. FONT: HIGHWAY GOTHIC SERIES C
COLOR: WHITE
 2. SIGN COLORS AS SHOWN:
WHITE (R255, G255, B255)
LIGHT GRAY (R189, G196, B191)
DARK GRAY (R81, G92, B92)
RED (R151, G18, B4)
 3. EACH VEHICLE WAYFINDING SIGN TO BE
INSTALLED ON 2 SQUARE METAL POSTS.
 4. DOTTED WHITE LINES ARE INTENDED TO BE
USED AS GUIDE LINES ONLY AND ARE NOT TO
BE PRINTED.
 5. DETAIL 8- VERTICAL LAYOUT APPLIES TO
ALL VEHICLE WAYFINDING SIGN
DESTINATIONS EXCEPT THOSE WITH A
PARKING SYMBOL INCLUDED. SEE VEHICLE
WAYFINDING GUIDE FOR WHICH
DESTINATIONS APPLY.
 6. HORIZONTAL LAYOUT ALIGNMENTS SHOWN
IN DETAILS 9-10 APPLY TO DIFFERENT
VEHICLE WAYFINDING SIGN DESTINATIONS.
DETAIL 9 APPLIES TO ALL DESTINATIONS THAT
HAVE NO SYMBOL. DETAIL 10 APPLIES TO
DESTINATIONS THAT INCLUDE A METRO
SYMBOL. SEE VEHICLE WAYFINDING SIGN
REFERENCE GUIDE FOR WHICH DETAIL
APPLIES TO WHICH DESTINATIONS.
 7. SEE DETAIL 7 ON SHEET V-1 FOR OVERALL
SIGN SHAPE AND DIMENSIONS FOR ALL SIGNS.



DETAIL 9: VEHICLE WAYFINDING SIGN
HORIZONTAL LAYOUT ALIGNMENT
N.T.S.

ARROW LAYOUT GUIDE



ARROWS TO BE PLACED IN 6"X6" DOTTED BOX,
CENTERED HORIZONTALLY AND VERTICALLY
(DOTTED BOX IS A GUIDE AND NOT TO BE PRINTED)

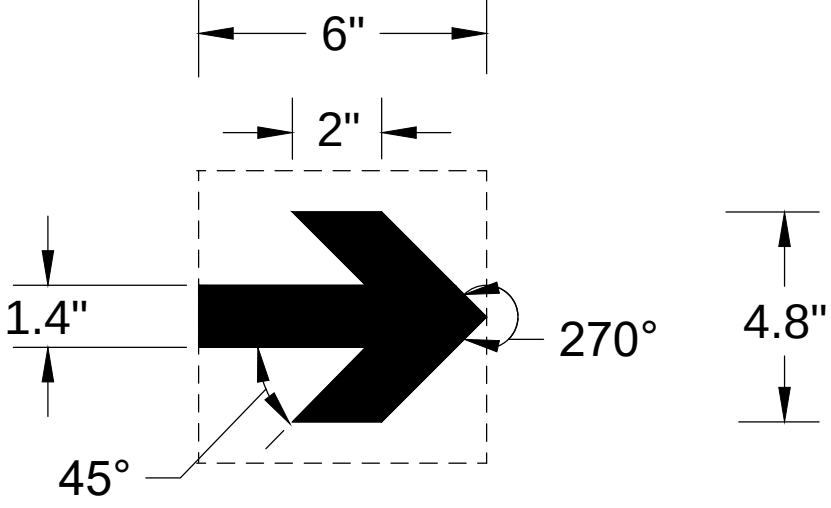
ARROW OPTIONS
PLACED TO THE RIGHT OF TEXT/SYMBOL

- ➔ - RIGHT (R)
- - DIAGONAL RIGHT (DR)
- ➞ - THROUGH RIGHT (TR)

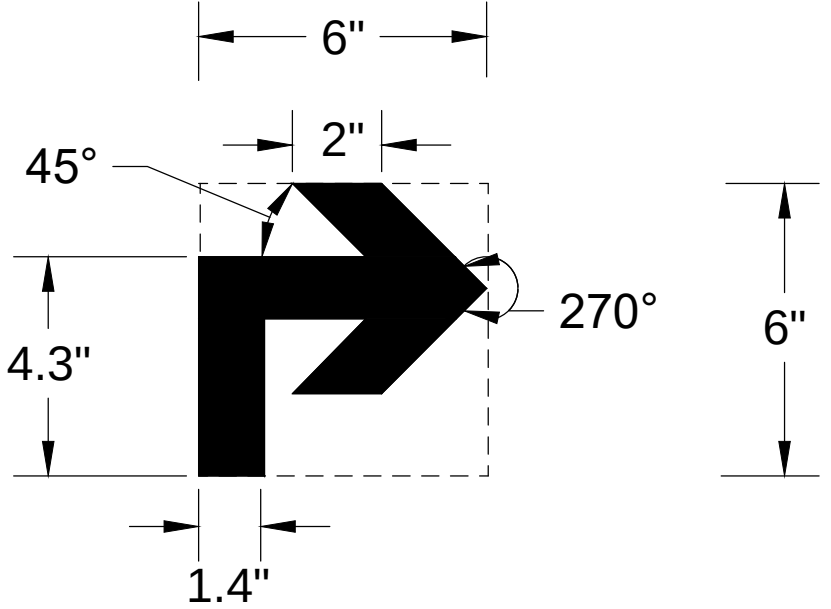
ARROW OPTIONS
PLACED TO THE LEFT OF TEXT

- ➞ - THROUGH (T)
- - LEFT (L)
- - DIAGONAL LEFT (DL)
- - THROUGH LEFT (TL)

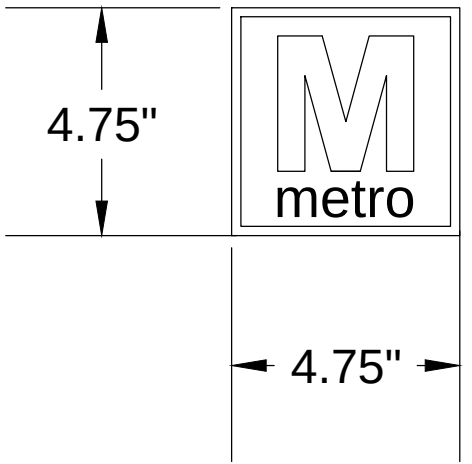
LEFT/RIGHT, STRAIGHT,
DIAGONAL LEFT/RIGHT
ARROW



THROUGH LEFT/THROUGH RIGHT ARROW



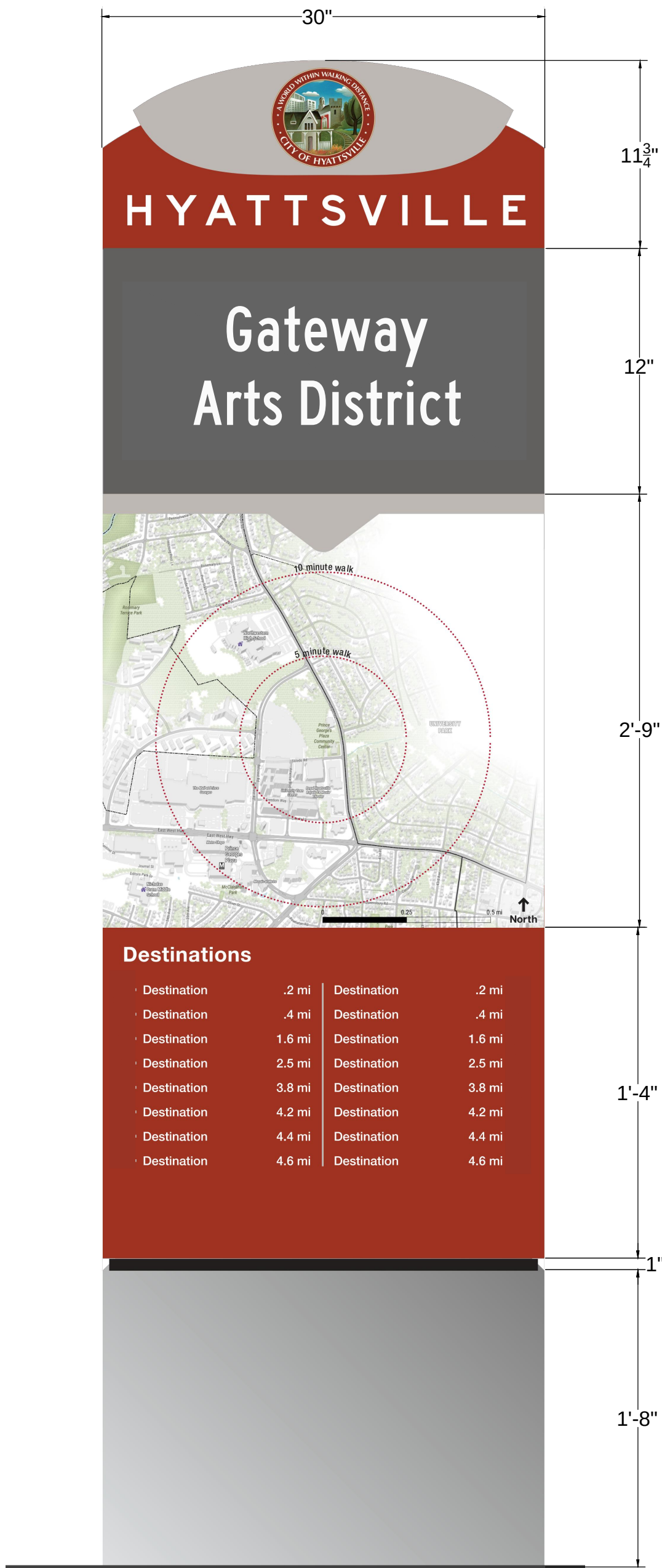
METRO SYMBOL



ALIGN BOTTOM OF
METRO SYMBOL WITH
BOTTOM OF TEXT

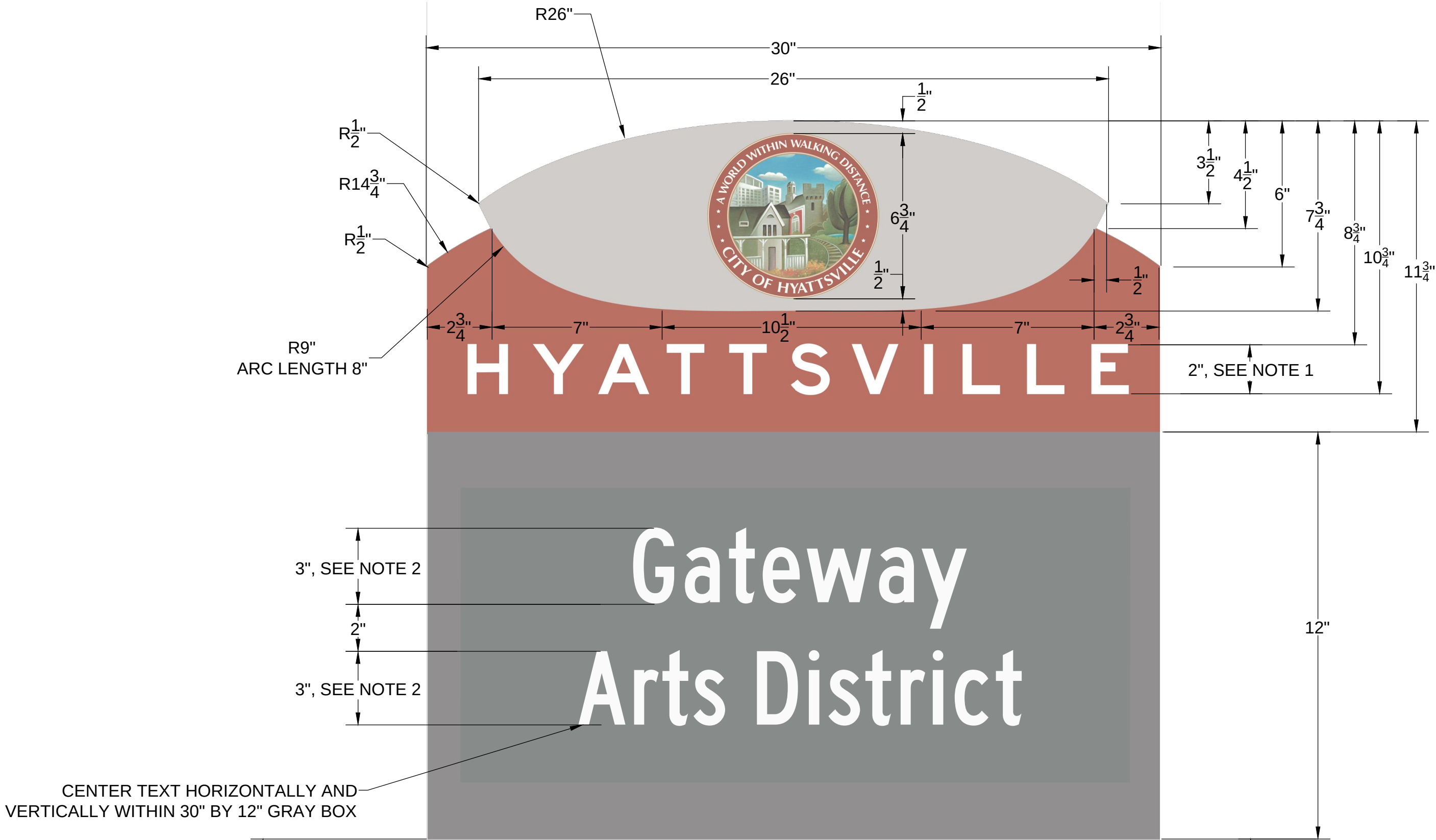


DETAIL 10: VEHICLE WAYFINDING SIGN
WHEN A METRO SYMBOL IS INCLUDED
HORIZONTAL LAYOUT ALIGNMENT
N.T.S.

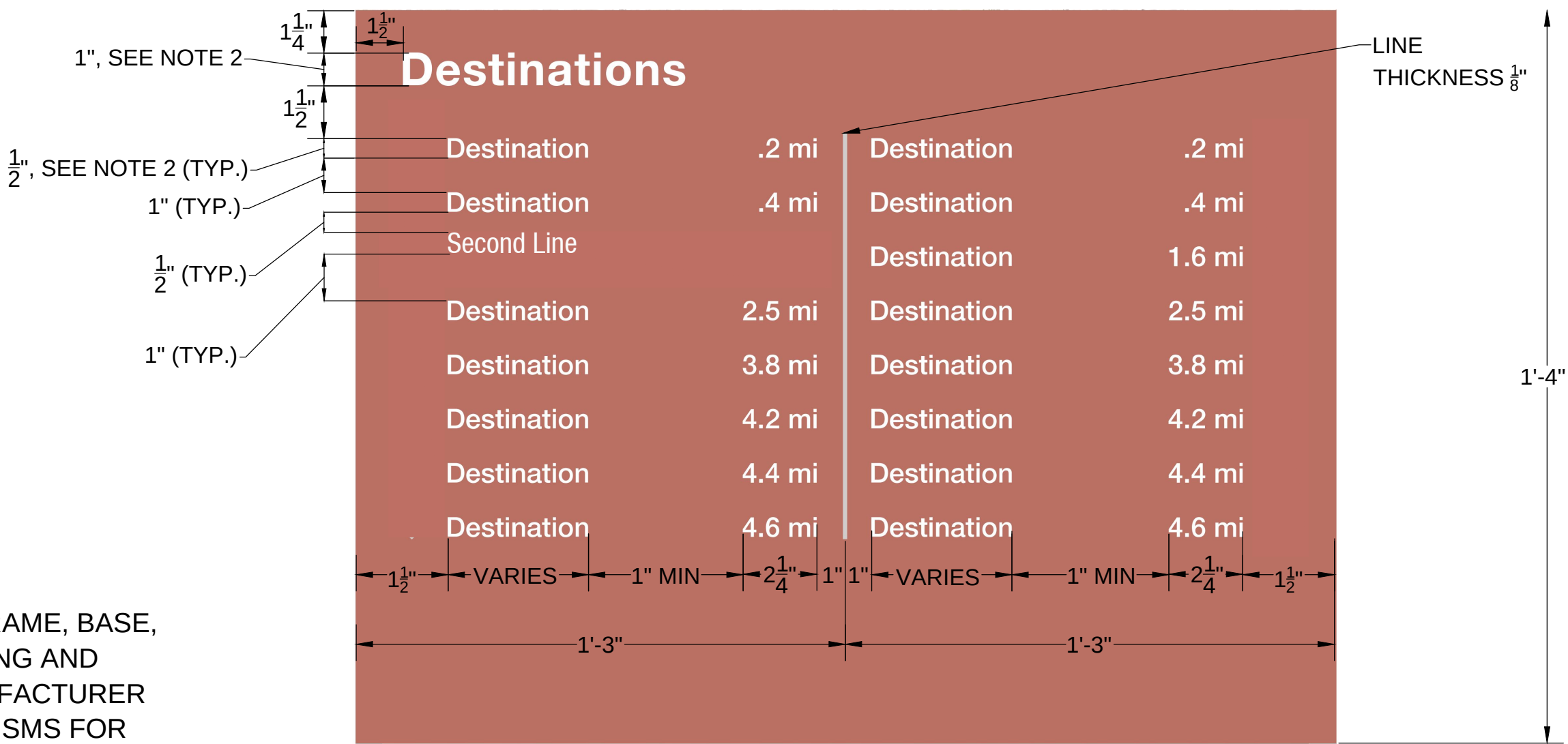


DETAIL 12: PEDESTRIAN KIOSK SIGN
FULL LENGTH LAYOUT
N.T.S.

- NOTES:
1. FONT: HIGHWAY GOTHIC SERIES E. COLOR: WHITE
 2. FONT: HIGHWAY GOTHIC SERIES C. COLOR: WHITE
 3. SIGN COLOR CODES: WHITE (255, 255, 255); LIGHT GRAY (R189, G196, B191); DARK GRAY (R81, G92, B92); RED (R151, G18, B4)
 4. PEDESTRIAN KIOSK TO CONSIST OF AN ALUMINUM FRAME MOUNTED ON A CONCRETE BASE, WITH EXTERIOR ALUMINUM PANELS. FRAME, BASE, ANCHOR BOLTS, AND PANEL FASTENERS TO BE MANUFACTURED AND ASSEMBLED TO WITHSTAND NORMAL EAST COAST WIND LOADING AND APPROPRIATE STRUCTURAL LOADING. ALUMINUM PANELS TO BE SECURELY FASTENED SO AS TO RESIST MOVEMENT BY WIND. MANUFACTURER TO SUBMIT SHOP DRAWINGS TO CITY OF HYATTSVILLE PRIOR TO FABRICATION, DETAILING FRAME, BASE, AND ATTACHMENT MECHANISMS FOR SECURING THE PANELS TO THE FRAME, AND SECURING THE FRAME TO THE BASE. SHOP DRAWINGS TO BE STAMPED BY STRUCTURAL ENGINEER REGISTERED IN THE STATE OF MARYLAND.
 5. ALL PANELS, (TOP PANEL, MAP PANEL, DESTINATION DIRECTORY PANEL, BOTH SIDE PANELS AND BACK PANEL) TO BE ALUMINUM SHEETS PRINTED WITH A POWDER COAT. DESTINATION DIRECTORY PANEL AND MAP PANEL TO BE EASILY REMOVEABLE AND REPLACEABLE. MANUFACTURER TO SUBMIT SAMPLES OF ALUMINUM PANELS TO THE CITY OF HYATTSVILLE FOR COLOR AND FINISH APPROVAL FOR ALL COLORS.
 6. FOR UNIQUE MAP FOR EACH KIOSK, REFER TO SIGN REFERENCE GUIDE AND FIVE ACCOMPANYING MAP IMAGE FILES.
 7. TWO SIDE PANELS AND BACK PANEL TO BE FINISHED WITH DARK GRAY POWDER COAT, SEE NOTE 3 ABOVE.



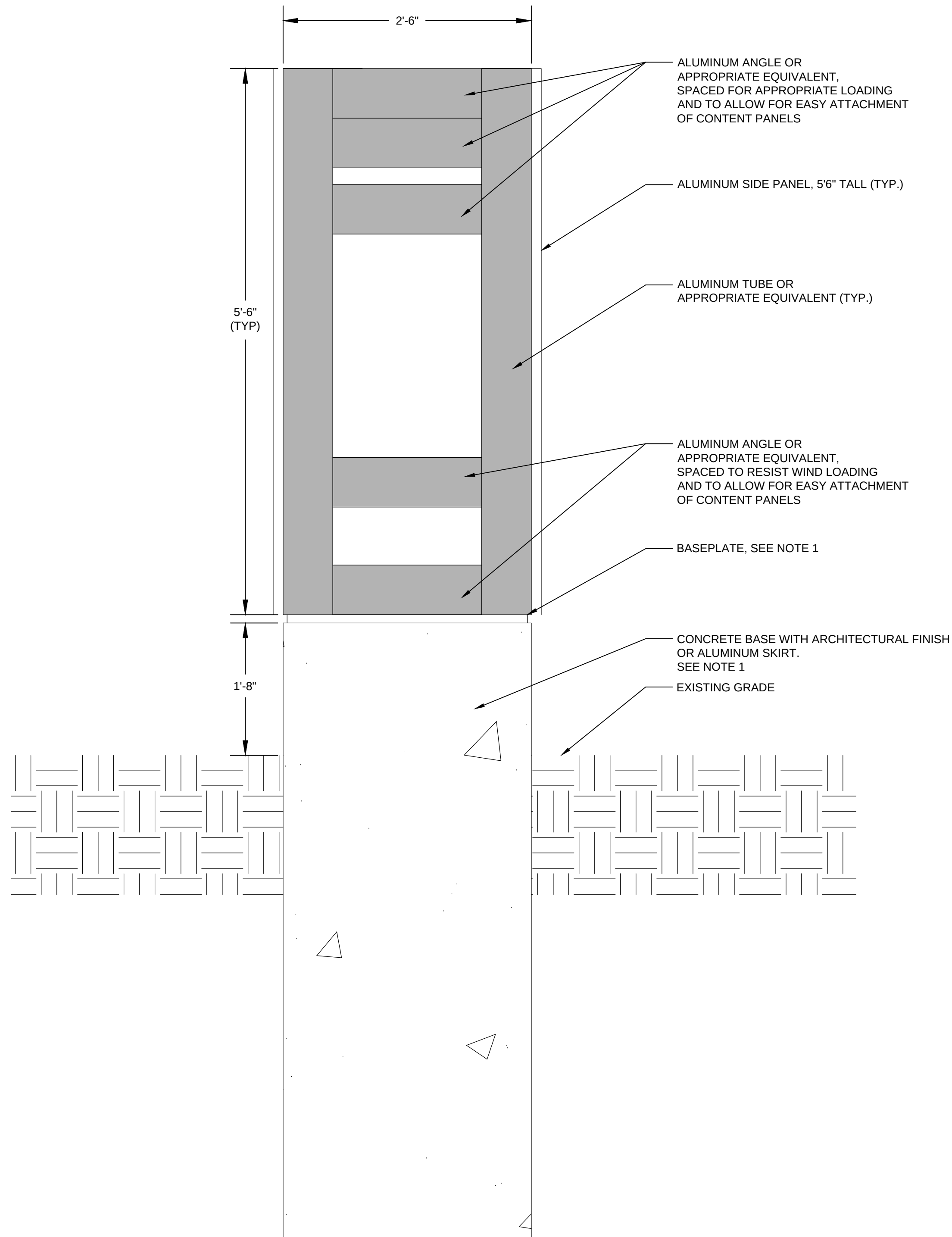
DETAIL 13: PEDESTRIAN KIOSK SIGN
TOP PANEL AND TEXT PANEL LAYOUT
N.T.S.



DETAIL 14: PEDESTRIAN KIOSK SIGN
DESTINATIONS PANEL LAYOUT
N.T.S.

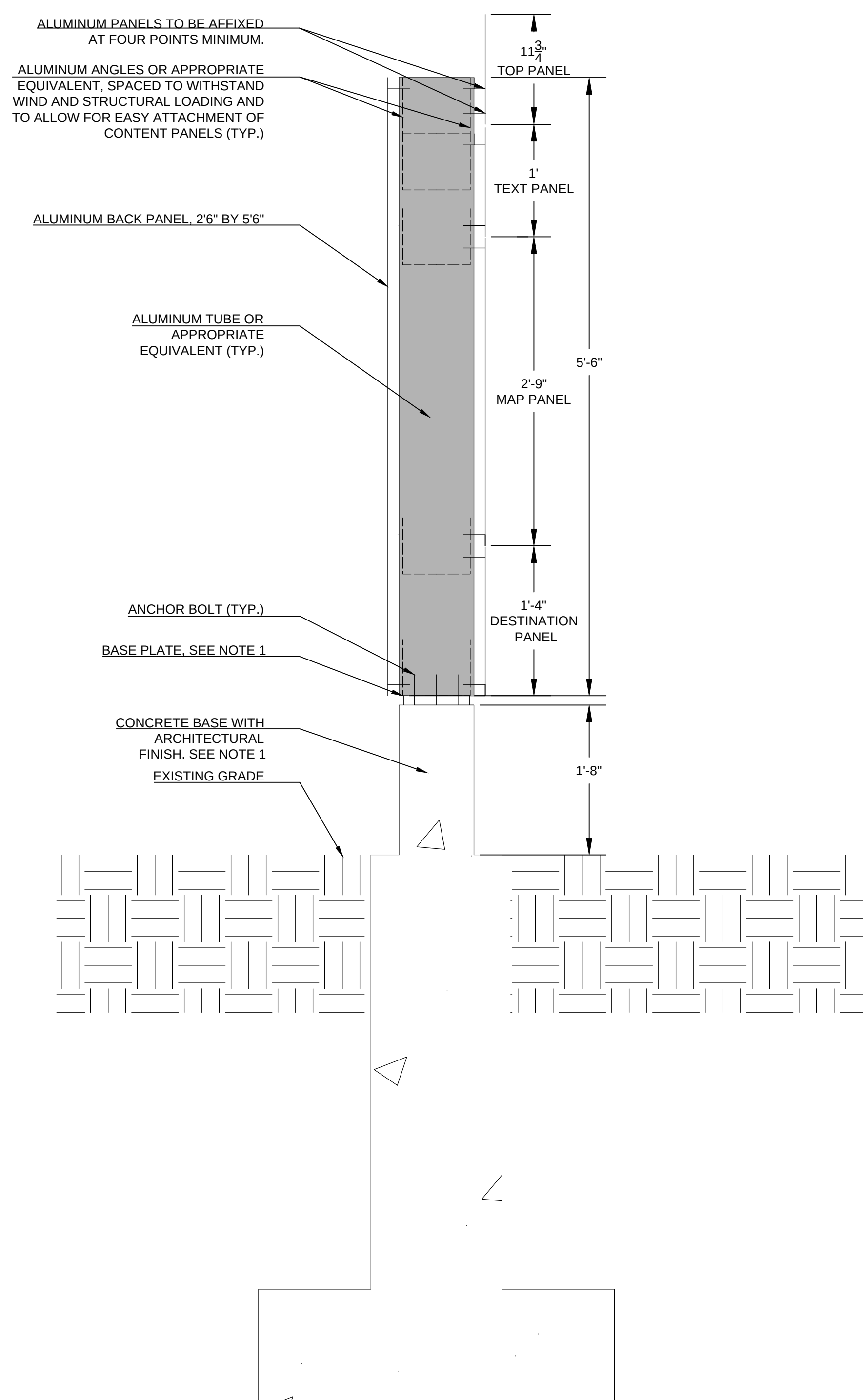
HYATTSVILLE WAYFINDING
FABRICATION DETAILS
HYATTSVILLE, MD

PREPARED: CB
CHECKED: MMG
DATE 8/3/18
REV. 1 -
REV. 2 -
REV. 3 -
SHEET NAME PEDESTRIAN KIOSK DETAILS
DRAWING NUMBER P-2
SHEET NUMBER 10 OF 10



DETAIL 15: PEDESTRIAN KIOSK FRAME AND BASE
ELEVATION 1

N.T.S.



DETAIL 16: PEDESTRIAN KIOSK FRAME AND BASE
ELEVATION 2

N.T.S.

NOTES:

1. PEDESTRIAN KIOSK TO CONSIST AN ALUMINUM FRAME MOUNTED ON A CONCRETE BASE, WITH EXTERIOR ALUMINUM PANELS. FRAME, BASE, ANCHOR BOLTS, AND PANEL FASTENERS TO BE MANUFACTURED AND ASSEMBLED TO WITHSTAND NORMAL EAST COAST WIND LOADING AND APPROPRIATE STRUCTURAL LOADING. ALUMINUM PANELS TO BE SECURELY FASTENED SO AS TO RESIST MOVEMENT BY WIND. MANUFACTURER TO SUBMIT SHOP DRAWINGS TO CITY OF HYATTSVILLE PRIOR TO FABRICATION, DETAILING FRAME, BASE, AND ATTACHMENT MECHANISMS FOR SECURING THE PANELS TO THE FRAME, AND SECURING THE FRAME TO THE BASE. SHOP DRAWINGS TO BE STAMPED BY STRUCTURAL ENGINEER REGISTERED IN THE STATE OF MARYLAND.
2. ALL PANELS, (TOP PANEL, MAP PANEL, DESTINATION DIRECTORY PANEL, BOTH SIDE PANELS, AND BACK PANEL) TO BE ALUMINUM SHEETS PRINTED WITH A POWDER COAT. DESTINATION DIRECTORY PANEL AND MAP PANEL TO BE EASILY REMOVEABLE AND REPLACEABLE. MANUFACTURER TO SUBMIT SAMPLES OF ALUMINUM PANELS TO THE CITY OF HYATTSVILLE FOR COLOR AND FINISH APPROVAL FOR ALL COLORS.

Hyattsville Wayfinding Cost Estimate				
August 3rd, 2018				
Item	Quantity	Unit	Unit Cost Range	Total Cost Range
Bicycle Wayfinding	88	EA	\$ 125	\$ 11,000
Vehicle Wayfinding	32	EA	\$ 250	\$ 8,000
2" Square Metal Post (Furnish and Install)	88	EA	\$ 100	\$ 8,800
5" Square Metal Post (Furnish and Install)	64	EA	\$ 200	\$ 12,800
Pedestrian Kiosk	5	EA	\$ 4,500 to \$ 14,500	\$ 22,500 to \$ 72,500
Kiosk Installation (Per Kiosk)	5	LS	\$ 1,800	\$ 9,000
Total:				\$ 72,100 to \$ 122,100

Note: Fabrication costs and end product can vary widely based upon materials and production methods chosen. For the pedestrian kiosk, different printing materials for the maps such as a layer of vinyl with a UV clear coat could be more expensive than paint directly on aluminum, but may appear brighter or last longer. Another example of material decisions that could affect costs include whether to leave the kiosk base as concrete with an architectural finish or to complete it with an aluminum skirt. Additionally, different construction methods such as fabricating the kiosk as one "box" piece may be more economical, but may not allow for easy updates of the map panel in the future. Toole Design suggests working more closely with a sign fabricator to find the right final product and associated cost desired by the City of Hyattsville. Costs are an estimate and could vary beyond this range.

City of Hyattsville Transportation Study
Project Recommendations - Planning Level Cost Estimate

Project ID	Project Category	Project Name	Qty/Len(Mi)	Cost Estimate
BB-1	Bike boulevard	Jefferson Street or Gallatin Street Bike Blvd (40th Ave to Trolley Trail)	0.58	\$26,225.38
BB-2	Bike boulevard	Nicholson Street Bike Blvd from Ager Rd to 40th Ave	1.10	\$49,940.00
BB-3	Bike boulevard	Jamestown Road Bike Blvd from Ager Rd to Oliver Rd	0.80	\$36,320.00
BB-4	Bike boulevard	40th/41st Avenue Bike Blvd	1.10	\$49,940.00
BB-5	Bike boulevard	Oglethorpe Street Bike Blvd	0.80	\$36,466.17
BP-1	Bike/Ped Crosssing	NW Branch Trail Crossing at 38th Street (MD 208) south of Gaines Alley	1	\$3,100.00
BP-2	Bike/Ped Crosssing	NW Branch Trail Crossing at Queens Chapel Road (MD 500) south of Jamestown Road	1	\$20,900.00
CC-1	Circulation Change	Gallatin Street two-way conversion	0.24	\$57,561.74
CC-2	Circulation Change	Hamilton Street one-way flip	0.30	\$1,294.89
CC-3	Circulation Change	Circulation Change Implementation	N/A	N/A
I-1	Intersection	Route 1, Route 1-Alt & Hamilton Street Improvement (major)	1	\$1,715,000.00
I-2	Intersection	40th Avenue, Gallatin Street, & Hamilton St. Roundabout	1	\$2,450,000.00
I-3	Intersection	East-West Highway & Toledo Terrace Improvement (major)	1	\$1,715,000.00
I-4	Intersection	East-West Highway, Queens Chapel Road, & Adelphi Rd Improvements (major)	1	\$1,715,000.00
I-5	Intersection	East-West Highway & Belcrest Road improvement (minor)	1	\$420,000.00
I-6	Intersection	East-West Highway, Queens Chapel Road, & Adelphi Rd Improvements (major)	1	\$1,715,000.00
I-7	Intersection	East-West Highway & Route 1 Improvement (minor)	1	\$420,000.00
I-8	Intersection	Queens Chapel Road & Queensbury Road-Belcrest Road (major)	1	\$1,715,000.00
I-9	Intersection	Route 1 and Farragut Street Reconfiguration (major)	1	\$1,715,000.00
I-10	Intersection	Ager Road & Hamilton Street Reconfiguration (major)	1	\$1,715,000.00
MU-1	Multiuse Path	East-West Highway Multiuse Path (Toledo Terrace to 23rd Avenue)	0.60	\$115,560.00
MU-2	Multiuse Path	East-West Highway Multiuse Path (Toledo Terrace to Adelphi Road)	0.70	\$134,820.00
MU-3	Multiuse Path	Northwestern High School Multiuse Trail Connection	0.28	\$54,715.91
NS-1	New street	Toledo Terrace to Heurich Park Road Connection	0.25	\$439,585.98
NS-2	New street	Editors Park Drive Connection from East-West Highway to Toledo Road	0.29	\$494,698.26
NS-3	New street	Freedom Way Connection from Toledo Terrace to Belcrest Road	0.42	\$735,486.40

City of Hyattsville Transportation Study

Project Recommendations - Planning Level Cost Estimate

Project ID	Project Category	Project Name	Qty/Len(Mi)	Cost Estimate
NS-4	New street	39th Avenue extension from Madison Street to Nicholson Street	0.11	\$198,141.74
NS-5	New street	Calverton Drive extension to Dean Drive	0.06	\$118,034.09
NS-6	New street	Oliver Street extension from 43rd Avenue to 42nd Place	0.07	\$114,817.23
NS-7	New street	New street network around the West Hyattsville Metro station	0.85	\$1,472,285.00
NS-8	New street	America Boulevard between East-West Highway and Queens Chapel Road	0.19	\$328,049.24
NS-9	New street	America Boulevard extension from Toledo Road to Belcrest Road	0.24	\$423,183.52
NS-10	New street	Toledo Terrace extension between Belcrest Road and Adelphi Road	0.24	\$421,871.33
NS-11	New street	Sentinel Drive between Editors Park Drive and Prince George's Plaza Metro entrance	0.09	\$152,542.90
PC-1	Pedestrian Crossings	Citywide pedestrian improvements (cost per intersection)	10	\$401,000.00
PP-1	Pedestrian Plaza	33rd Avenue to Editors Park Drive Plaza	1.00	\$6,700.00
PP-2	Pedestrian Plaza	Jamestown Road Plaza	1.00	\$6,700.00
R-1	Reconstruction	Hamilton Street Complete Street Design and Construction	0.60	\$766,080.00
R-2	Reconstruction	Toledo Road Complete Street Design and Construction	0.80	\$1,021,440.00
S-1	Sidewalk installation	East-West Highway to mall at Editors Park Drive	0.14	\$27,123.96
S-2	Sidewalk installation	34th Avenue to Middle School Ped Connection	0.04	\$7,587.12
S-3	Sidewalk installation	38th Avenue Sidewalk from Hamilton St to Northwest Branch Trail	0.25	\$49,809.45
S-4	Sidewalk installation	Oliver Street Ped connection to NO Middle School	0.07	\$13,846.50
S-5	Sidewalk installation	41st Avenue Sidewalk from Nicholson Street to Oglethorpe St	0.05	\$9,977.06
S-6	Sidewalk installation	42nd Place to 42nd Ave Ped Connection near Macaroy Street	0.01	\$2,655.49
S-7	Sidewalk installation	Nicholson St Sidewalk installation	0.08	\$16,501.99
S-8	Sidewalk installation	Oliver Street Sidewalk between 42nd Avenue and 43rd Avenue	0.14	\$28,451.70
SBL-1	Separated Bike lanes	Adelphi Road Protected Bike Lanes	1.40	\$261,380.00
SBL-2	Separated Bike lanes	Belcrest Road Protected Bike Lanes	0.83	\$155,052.94
SBL-3	Separated Bike lanes	Toledo Terrace Protected Bike Lanes	0.60	\$112,408.96
SS-1	Streetscape	Various streets (City Wide)	N/A	N/A
TC-1	Traffic Calming	Revamp the traffic calming program	N/A	N/A

City of Hyattsville Transportation Study

Project Recommendations - Planning Level Cost Estimate

Project ID	Project Category	Project Name	Qty/Len(Mi)	Cost Estimate
TC-2	Traffic Calming	3900 Block of Jefferson Street Traffic Calming	1.00	\$27,800.00
TC-3	Traffic Calming	Queensbury Road Traffic Calming	1.00	\$140,800.00
TS-1	Traffic signal	Ager Road and Lancer Drive Traffic signal	1	\$ 367,500.00
TS-2	Traffic signal	Queens Chapel Road and Nicholson Street Traffic Signal	1	\$ 367,500.00
TS-3	Traffic signal	Ager Road and Nicholson Street Traffic Signal	1	\$ 367,500.00
TS-4	Traffic signal	Queens Chapel Road and Lancer Drive Traffic Signal	1	\$ 367,500.00
TS-5	Traffic signal	East-West Highway and America Boulevard Traffic Signal	1	\$ 367,500.00
TS-6	Traffic signal	Route 1 Alternate and Armentrout Drive Traffic Signal	1	\$ 367,500.00
WF-1	Wayfinding	Wayfinding Overhaul	LS	117342.75

Cost estimates were developed by identifying pay items and establishing rough quantities, including a 35% contingency. Please note that the estimates include approximate costs for asphalt, concrete, drainage improvements, limited utility relocation, pavement markings, signs and traffic signal adjustments. The estimate does not include easement, right-of-way acquisition, environmental permitting or the cost for ongoing maintenance. A 40% contingency has been added for soft costs (engineering, survey, permitting, inspection, etc). A cost has been assigned to some general categories such as utility relocations; however, these costs can vary widely depending on the exact details and nature of the work. The overall estimates are intended to be general and used for planning purposes. Construction costs will vary based on the ultimate project scope (i.e. potential combination of projects), schedule, and economic conditions at the time of construction.

Bike Boulevard (per mile)

Assumes a shared lane marking symbol pair every 200 feet, along with regulatory signs with posts every 1000 feet.

Assumes shared lane marking symbols can be added without the need for modifications to existing roadway pavement markings.

Assumes additional traffic calming project types can be implemented in conjunction with Neighborhood Bikeway.

Unit prices are based on Prince George's County DPWT or MSHA

Item	Unit	Quantity	Unit Cost	Opinion of Probable Construction Costs
Regulatory Signs/Posts	EA	5	\$330.00	\$1,742
Bikeway Sign	EA	8	\$420.00	\$3,360
Shared Lane Marking Symbol	EA	53	\$350.00	\$18,480
Subtotal				\$23,582

Lump Sum Items	\$2,358.24
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Maintenance of Traffic (5%)

Mobilization (5%)

Subtotal	\$25,940.64
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35% Contingency \$9,079.22

40% Project Soft Costs \$10,376.26

Estimated Total Cost	\$45,400.00
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Actual costs may vary based on project scope and current market conditions.

Costs do not include environmental permitting, easement or property acquisition.

Project Soft Costs assume engineering, surveying, permitting, project management, and inspection services.

Lump sum items includes anticipated work associated with implementation of project type.

Bike / Pedestrian Crossing (BP-1)

Assumes installation of standard raised crosswalk DPWT Standard 700.02

Assumes 26' wide, two-lane roadway.

Assume 4 signs per raised crosswalk.

Unit prices are based on Prince George's County DPWT or MSHA

Item	Unit	Quantity	Unit Cost	Opinion of Probable Construction Costs
2" Mill Notch in Existing Pavement	SY	9	5	\$43
2" Hot Mix Asphalt, 9.5mm PG 64-22	SY	35	8	\$277
3" Hot Mix Asphalt, 9.5mm PG 64-23	SY	29	11	\$318
High Visibility Crosswalk	EA	1	2,500	\$2,500
Regulatory Signs/Posts	EA	4	\$330	\$1,320
Subtotal				\$1,320

Lump Sum Items	\$462.00
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Drainage/Erosion & Sediment Control (10%)

Landscaping (5%)

Maintenance of Traffic (5%)

Mobilization (5%)

Utility Adjustments (10%)

Subtotal	\$1,782.00
35% Contingency	\$623.70
40% Project Soft Costs	\$712.80

Estimated Total Cost	\$3,100.00
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Actual costs may vary based on project scope and current market conditions.

Costs do not include environmental permitting, easement or property acquisition.

Project Soft Costs assume engineering, surveying, permitting, project management, and inspection services.

Lump sum items includes anticipated work associated with implementation of project type.

Bike / Pedestrian Crossing (BP-2)

Assumes installation of standard raised crosswalk DPWT Standard 700.02

Assumes 100' wide crossing with 6 lanes and median refuge.

Assume 4 signs per raised crosswalk.

Unit prices are based on Prince George's County DPWT or MSHA

Item	Unit	Quantity	Unit Cost	Opinion of Probable Construction Costs
2" Mill Notch in Existing Pavement	SY	26	5	\$130
2" Hot Mix Asphalt, 9.5mm PG 64-22	SY	140	8	\$1,120
3" Hot Mix Asphalt, 9.5mm PG 64-23	SY	116	11	\$1,276
High Visibility Crosswalk	EA	2	2,500	\$5,000
Regulatory Signs/Posts	EA	4	\$330	\$1,320
Subtotal				\$8,846

Lump Sum Items	\$3,096.10
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Drainage/Erosion & Sediment Control (10%)

Landscaping (5%)

Maintenance of Traffic (5%)

Mobilization (5%)

Utility Adjustments (10%)

Subtotal	\$11,942.10
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35% Contingency \$4,179.74

40% Project Soft Costs \$4,776.84

Estimated Total Cost	\$20,900.00
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Actual costs may vary based on project scope and current market conditions.

Costs do not include environmental permitting, easement or property acquisition.

Project Soft Costs assume engineering, surveying, permitting, project management, and inspection services.

Lump sum items includes anticipated work associated with implementation of project type.

Circulaton Change (CC-1 per mile)

Assume eradication of existing markings only; repaving not included.

Unit prices are based on Prince George's County DPWT or MSHA

Item	Unit	Quantity	Unit Cost	Opinion of Probable Construction Costs
Regulatory Signs/Posts	EA	5	\$330.00	\$1,742
Thermoplastic Yellow Lane Line (4")	LF	5280	\$3.00	\$15,840
Erradicate Ex Pave Mark Symbols	EA	6	\$75.00	\$450
Erradicate Ex linear Pave Markings	LF	5280	\$20.00	\$105,600
Subtotal				\$123,632

Lump Sum Items	\$12,363.24
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Maintenance of Traffic (5%)

Mobilization (5%)

Subtotal	\$135,995.64
35% Contingency	\$47,598.47
40% Project Soft Costs	\$54,398.26

Estimated Total Cost	\$238,000.00
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Actual costs may vary based on project scope and current market conditions.

Costs do not include environmental permitting, easement or property acquisition.

Project Soft Costs assume engineering, surveying, permitting, project management, and inspection services.

Lump sum items includes anticipated work associated with implementation of project type.

Circulation Change (CC-2 per mile)

Assume 5 intersections per mile.

Unit prices are based on Prince George's County DPWT or MSHA

Item	Unit	Quantity	Unit Cost	Opinion of Probable Construction Costs
Regulatory Signs/Posts	EA	5	\$330.00	\$1,742
Thermoplastic Stop Bar, 24 inch	LF	80	\$6.00	\$480
Subtotal				\$2,222

Lump Sum Items	\$222.24
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Maintenance of Traffic (5%)

Mobilization (5%)

Subtotal	\$2,444.64
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35% Contingency	\$855.62
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40% Project Soft Costs	\$977.86
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Estimated Total Cost	\$4,300.00
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Actual costs may vary based on project scope and current market conditions.

Costs do not include environmental permitting, easement or property acquisition.

Project Soft Costs assume engineering, surveying, permitting, project management, and inspection services.

Lump sum items includes anticipated work associated with implementation of project type.

Intersection Reconfiguration (Major)

Assumes major construction to intersection (re-aligning legs, removal of slip lanes, changes in curb and radi, medians, etc)

Assumes reconstruction of sidewalks and handicap ramps

Assume lump sum for lighting and traffic signal modifications per intersections.

Unit prices are based on similar project recommendations

Item	Unit	Quantity	Unit Cost	Opinion of Probable Construction Costs
Major Intersection Reconstruction	EA	1	\$700,000.00	\$700,000
Subtotal				\$700,000

Lump Sum Items	\$280,000.00
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Drainage/Erosion & Sediment Control (10%)

Landscaping (5%)

Maintenance of Traffic (5%)

Mobilization (10%)

Utility Adjustments (10%)

Subtotal	\$980,000.00
35% Contingency	\$343,000.00
40% Project Soft Costs	\$392,000.00
Estimated Total Cost	\$1,715,000.00

Actual costs may vary based on project scope and current market conditions.

Costs do not include environmental permitting, easement or property acquisition.

Project Soft Costs assume engineering, surveying, permitting, project management, and inspection services.

Lump sum items includes anticipated work associated with implementation of project type.

Intersection Reconfiguration (Minor)

Assumes only minor construction to curb ramps

Assumes realignment and space allocation of travel lanes (Pavement Marking)

Assumes no changes to traffic signals (if applicable) and minimal utility work

Assume minimal lighting modifications

Unit prices are based on similar project recommendations

Item	Unit	Quantity	Unit Cost	Opinion of Probable Construction Costs
Minor Intersection Reconfiguration	EA	1	\$200,000.00	\$200,000
Subtotal				\$200,000

Lump Sum Items	\$40,000.00
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Maintenance of Traffic (5%)

Mobilization (10%)

Utility Adjustments (5%)

Subtotal	\$240,000.00
35% Contingency	\$84,000.00
40% Project Soft Costs	\$96,000.00

Estimated Total Cost	\$420,000.00
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Actual costs may vary based on project scope and current market conditions.

Costs do not include environmental permitting, easement or property acquisition.

Project Soft Costs assume engineering, surveying, permitting, project management, and inspection services.

Lump sum items includes anticipated work associated with implementation of project type.

Intersection Reconfiguration (Roundabout)

Assume 100' diameter single lane roundabout

Assume 5 leg intersection

Assumes sidewalk is 5 feet wide

Assume lump sum for lighting and traffic signal modifications per intersections.

Unit prices are based on similar project recommendations

Item	Unit	Quantity	Unit Cost	Opinion of Probable Construction Costs
100' dia. Single Lane Roundabout	EA	1	\$1,000,000.00	\$1,000,000
Subtotal				\$1,000,000

Lump Sum Items	\$400,000.00
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Drainage/Erosion & Sediment Control (10%)

Landscaping (5%)

Maintenance of Traffic (5%)

Mobilization (10%)

Utility Adjustments (10%)

Subtotal	\$1,400,000.00
35% Contingency	\$490,000.00
40% Project Soft Costs	\$560,000.00

Estimated Total Cost	\$2,450,000.00
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Actual costs may vary based on project scope and current market conditions.

Costs do not include environmental permitting, easement or property acquisition.

Project Soft Costs assume engineering, surveying, permitting, project management, and inspection services.

Lump sum items includes anticipated work associated with implementation of project type.

Multituse Path (per mile)

Assumes a 12' wide multituse path.

Assumes 16' of grading, 1' down.

Assumes standard pavement from Prince George's County Standard DPWT 100.17

Unit prices are based on Prince George's County DPWT or MSHA

Item	Unit	Quantity	Unit Cost	Opinion of Probable Construction Costs
Earthwork/Excavation/Grading	CY	3129	\$10.00	\$31,289
3" Hot Mix Asphalt (12.5mm)	SY	1760	\$11.00	\$19,360
4" Graded Aggregate Subbase	SY	2323	\$5.00	\$11,616
Regulatory Signs/Posts	EA	5	\$330.00	\$1,742
Bike Signs	EA	4	\$420.00	\$1,680
Thermoplastic Yellow 4" (Dashed)	LF	5280	\$3.00	\$15,840
Subtotal				\$81,527

Lump Sum Items	\$28,534.55
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Drainage/Erosion & Sediment Control (10%)

Landscaping (5%)

Maintenance of Traffic (5%)

Mobilization (5%)

Utility Adjustments (10%)

Subtotal	\$110,061.84
35% Contingency	\$38,521.64
40% Project Soft Costs	\$44,024.74

Estimated Total Cost	\$192,600.00
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Actual costs may vary based on project scope and current market conditions.

Costs do not include environmental permitting, easement or property acquisition.

Project Soft Costs assume engineering, surveying, permitting, project management, and inspection services.

Lump sum items includes anticipated work associated with implementation of project type.

New Street (per mile)

Assume 36' wide standard Prince George's County Urban Primary Residential Road.

Assumes one streetlight every 150' per DPW&T Standards

Assumes street trees are included in landscaping contingency.

Unit prices are based on Prince George's County DPWT of MSHA

Item	Unit	Quantity	Unit Cost	Opinion of Probable Construction Costs
Subgrade; CBR>7 (12" gravel)	CY	7040	\$ 40.00	\$281,600
6" Graded Aggregate Subbase Course	SY	10560	\$ 7.00	\$73,920
3" Hot Mix Asphalt Base Course; 19mm	SY	5280	\$ 11.00	\$58,080
1-1/2" Intermediate Surface Course; 9.5mm	SY	2640	\$ 6.00	\$15,840
1-1/2" Final Surface Course; 9.5mm	SY	2640	\$ 6.00	\$15,840
Street Lighting: Pendant or Colonial	EA	36	\$ 1,450.00	\$52,200
Thermoplastic White Pavement Marking, 4 inch	LF	10560	\$ 2.00	\$21,120
Thermoplastic Yellow Pavement Marking, 4 inch	LF	10560	\$ 2.00	\$21,120
5" Sidewalk	SF	31680	\$6.00	\$190,080
Subtotal				\$729,800

Lump Sum Items	\$255,430.00
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Drainage/Erosion & Sediment Control (10%)

Landscaping (5%)

Maintenance of Traffic (5%)

Mobilization (5%)

Utility Adjustments (10%)

Subtotal	\$989,800.00
35% Contingency	\$346,430.00
40% Project Soft Costs	\$395,920.00

Estimated Total Cost	\$1,732,100.00
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Actual costs may vary based on project scope and current market conditions.

Costs do not include environmental permitting, easement or property acquisition.

Project Soft Costs assume engineering, surveying, permitting, project management, and inspection services.

Lump sum items includes anticipated work associated with implementation of project type.

New Street with Bike Lanes (per mile)

Assume 46' wide standard Prince George's County Urban Primary Residential Road.

Assumes one-way, 5' wide bike lanes on either side.

Assumes one streetlight every 150' per DPW&T Standards

Unit prices are based on Prince George's County DPWT or MSHA

Item	Unit	Quantity	Unit Cost	Opinion of Probable Construction Costs
Subgrade; CBR>7 (12" of gravel)	CY	8,996	\$ 40.00	\$359,822
6" Graded Aggregate Subbase Course	SY	13,493	\$ 7.00	\$94,453
3" Hot Mix Asphalt Base Course; 19mm	SY	6,747	\$ 11.00	\$74,213
1-1/2" Intermediate Surface Course; 9.5mm	SY	3,373	\$ 6.00	\$20,240
1-1/2" Final Surface Course; 9.5mm	SY	3,373	\$ 6.00	\$20,240
Street Lighting: Pendant or Colonial	EA	36	\$ 1,450.00	\$52,200
Thermoplastic White Pavement Marking, 4 inch	LF	21,120	\$ 2.00	\$42,240
Thermoplastic Yellow Pavement Marking, 4 inch	LF	10,560	\$ 2.00	\$21,120
Bicycle Lane Symbol	EA	10	\$ 250.00	\$2,500
5" Sidewalk	SF	31,680	\$6.00	\$190,080
Subtotal				\$877,109

Lump Sum Items	\$306,988.11
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Drainage/Erosion & Sediment Control (10%)

Landscaping (5%)

Maintenance of Traffic (5%)

Mobilization (5%)

Utility Adjustments (10%)

Subtotal	\$1,187,108.89
35% Contingency	\$415,488.11
40% Project Soft Costs	\$474,843.55

Estimated Total Cost	\$2,077,400.00
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Actual costs may vary based on project scope and current market conditions.

Costs do not include environmental permitting, easement or property acquisition.

Project Soft Costs assume engineering, surveying, permitting, project management, and inspection services.

Lump sum items includes anticipated work associated with implementation of project type.

Pedestrian Crossings (per intersection)

Assume 6 foot wide by 20 feet long by 6 inch depth per curb extension.

Assume 35 feet of 24" curb and gutter on each curb extension

Assumes sidewalk is 5 feet wide by 20 feet long and 4 inches deep.

Assume one ADA-compliant curb ramp (Type A) per curb extension.

Assumes standard pedestrian crosswalk at all legs of 4-leg intersection.

Unit prices are based on Prince George's County DPWT or MSHA

Item	Unit	Quantity	Unit Cost	Opinion of Probable Construction Costs
Earthwork/Excavation/Grading	CY	9	\$10.00	\$90
Remove Pavement	SY	60	\$4.00	\$240
Remove curb and gutter	LF	100	\$4.00	\$400
Remove sidewalk	LF	80	\$2.00	\$160
Concrete sidewalk 4"	LF	80	\$20.00	\$1,600
Concrete Curb & Gutter	LF	140	\$15.00	\$2,100
ADA-compliant ramp (type Ramp A)	EA	4	\$600.00	\$2,400
Standard high-visibility Pedestrian Crosswalk	EA	4	\$ 2,500.00	\$10,000
Subtotal				\$16,990

Lump Sum Items	\$5,946.50
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Drainage/Erosion & Sediment Control (10%)

Landscaping (5%)

Maintenance of Traffic (5%)

Mobilization (5%)

Utility Adjustments (10%)

Subtotal	\$22,936.50
35% Contingency	\$8,027.78
40% Project Soft Costs	\$9,174.60

Estimated Total Cost	\$40,100.00
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Actual costs may vary based on project scope and current market conditions.

Costs do not include environmental permitting, easement or property acquisition.

Project Soft Costs assume engineering, surveying, permitting, project management, and inspection services.

Lump sum items includes anticipated work associated with implementation of project type.

Pedestrian Plaza

Assumes decorative pavers, grading and signs

Unit prices are based on Prince George's County DPWT or MSHA

Item	Unit	Quantity	Unit Cost	Opinion of Probable Construction Costs
Signs/Posts	EA	2	\$330.00	\$660
Concrete removal	SF	100	\$2.00	\$200
Mild Grading	EA	1	\$1,000.00	\$1,000
Concrete Pavers	SF	100	\$18.00	\$1,800
Subtotal				\$3,660

Lump Sum Items	\$183.00
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Mobilization (5%)

Subtotal	\$3,843.00
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35% Contingency \$1,345.05

40% Project Soft Costs \$1,537.20

Estimated Total Cost	\$6,700.00
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Actual costs may vary based on project scope and current market conditions.

Costs do not include environmental permitting, easement or property acquisition.

Project Soft Costs assume engineering, surveying, permitting, project management, and inspection services.

Lump sum items includes anticipated work associated with implementation of project type.

Reconstruction- Complete Street (per mile)

Assume road diet and bike lanes

Assumes one-way, 5' wide bike lanes on either side.

Assumes one streetlight every 150' per DPW&T Standards

Unit prices are based on Prince George's County DPWT or MSHA

Item	Unit	Quantity	Unit Cost	Opinion of Probable Construction Costs
Street Lighting: Pendant or Colonial	EA	36	\$1,450	\$52,200
Thermoplastic White Pavement Marking, 4 inch	LF	21120	\$2	\$42,240
Thermoplastic Yellow Pavement Marking, 4 inch	LF	10560	\$2	\$21,120
Bicycle Lane Symbol	EA	10	\$250	\$2,500
8' Sidewalk with concrete pavers	LF	10560	\$40	\$422,400
Subtotal				\$540,460

Lump Sum Items	\$189,161
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Drainage/Erosion & Sediment Control (10%)

Landscaping (5%)

Maintenance of Traffic (5%)

Mobilization (5%)

Utility Adjustments (10%)

Subtotal	\$729,621
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35% Contingency \$255,367

40% Project Soft Costs \$291,848

Estimated Total Cost	\$1,276,800
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Actual costs may vary based on project scope and current market conditions.

Costs do not include environmental permitting, easement or property acquisition.

Project Soft Costs assume engineering, surveying, permitting, project management, and inspection services.

Lump sum items includes anticipated work associated with implementation of project type.

Sidewalk Installation (per mile)

Assume concrete sidewalk is a minimum 5 feet wide and 4 inches in depth.

Assumes no right of way acquisition.

Unit prices are based on Prince George's County DPWT or MSHA

Item	Unit	Quantity	Unit Cost	Opinion of Probable Construction Costs
Concrete Sidewalk	LF	5280	\$16.00	\$84,480
Subtotal				\$84,480

Lump Sum Items	\$29,568.00
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Drainage/Erosion & Sediment Control (10%)

Landscaping (5%)

Maintenance of Traffic (5%)

Mobilization (5%)

Utility Adjustments (10%)

Subtotal	\$114,480.00
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35% Contingency \$40,068.00

40% Project Soft Costs \$45,792.00

Estimated Total Cost	\$200,300.00
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Actual costs may vary based on project scope and current market conditions.

Costs do not include environmental permitting, easement or property acquisition.

Project Soft Costs assume engineering, surveying, permitting, project management, and inspection services.

Lump sum items includes anticipated work associated with implementation of project type.

Separated Bike Lanes (per mile)

Assume flexposts and pavement markings to create bike lane protection.

Assumes diagonal pavement marking buffer with flex posts; 20' o.c.

Assumes one-way, 5' wide bike lanes on either side with 2' painted buffer.

Unit prices are based on Prince George's County DPWT or MSHA

Item	Unit	Quantity	Unit Cost	Opinion of Probable Construction Costs
Thermoplastic White Pavement Marking, 4 inch	LF	14784	\$ 2.00	\$29,568
Thermoplastic White Pavement Marking, 5 inch	LF	10560	\$ 3.00	\$31,680
Regulatory Signs	EA	5	\$ 330.00	\$1,650
Bikeway Signs	EA	8	\$ 420.00	\$3,360
Flexible Delineators	EA	264	\$ 30.00	\$7,920
Bicycle Lane Symbol	EA	10	\$ 250.00	\$2,500
Subtotal				\$76,678

Lump Sum Items	\$26,837.30
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Drainage/Erosion & Sediment Control (10%)

Landscaping (5%)

Maintenance of Traffic (5%)

Mobilization (5%)

Utility Adjustments (10%)

Subtotal	\$106,678.00
35% Contingency	\$37,337.30
40% Project Soft Costs	\$42,671.20

Estimated Total Cost	\$186,700.00
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Actual costs may vary based on project scope and current market conditions.

Costs do not include environmental permitting, easement or property acquisition.

Project Soft Costs assume engineering, surveying, permitting, project management, and inspection services.

Lump sum items includes anticipated work associated with implementation of project type.

Traffic Calming (TC-1)

Assume 4 legged intersections.

Unit prices are based on Prince George's County DPWT or MSHA

Item	Unit	Quantity	Unit Cost	Opinion of Probable Construction Costs
Traffic Signal - 4 Legged Intersection	EA	1	\$150,000.00	\$150,000
Subtotal				\$150,000

Lump Sum Items	\$52,500.00
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Drainage/Erosion & Sediment Control (10%)

Landscaping (5%)

Maintenance of Traffic (5%)

Mobilization (5%)

Utility Adjustments (10%)

Subtotal	\$210,000.00
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35% Contingency	\$73,500.00
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40% Project Soft Costs	\$84,000.00
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Estimated Total Cost	\$367,500.00
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Actual costs may vary based on project scope and current market conditions.

Costs do not include environmental permitting, easement or property acquisition.

Project Soft Costs assume engineering, surveying, permitting, project management, and inspection services.

Lump sum items includes anticipated work associated with implementation of project type.

Traffic Calming (TC-2)

Assume 3-legged intersection and two curb extensions

Curb Extensions at the intersection of 38th Street and Jefferson Street.

Assume 6 foot wide by 20 feet long by 6 inch depth per curb extension.

Assume 35 feet of curb and gutter.

Assumes sidewalk is 5 feet wide by 20 feet long and 4 inches deep.

Assume one ADA-compliant curb ramp per curb extension.

Unit prices are based on Prince George's County DPWT or MSHA

Item	Unit	Quantity	Unit Cost	Opinion of Probable Construction Costs
Pavement Removal	SY	27	4	\$108
Earthwork/Excavation/Grading	EA	1	\$3,000.00	\$3,000
Subbase	SY	27	\$7.00	\$189
Concrete sidewalk 4"	LF	40	\$20.00	\$800
Concrete Curb & Gutter	LF	70	\$15.00	\$1,050
ADA-compliant ramp	EA	2	\$600.00	\$1,200
Landscape modifications	LS	1	\$5,000.00	\$5,000
Subtotal				\$11,347

Lump Sum Items	\$4,538.80
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Drainage/Erosion & Sediment Control (10%)

Landscaping (5%)

Maintenance of Traffic (5%)

Mobilization (10%)

Utility Adjustments (10%)

Subtotal	\$15,885.80
35% Contingency	\$5,560.03
40% Project Soft Costs	\$6,354.32

Estimated Total Cost	\$27,800.00
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Actual costs may vary based on project scope and current market conditions.

Costs do not include environmental permitting, easement or property acquisition.

Project Soft Costs assume engineering, surveying, permitting, project management, and inspection services.

Lump sum items includes anticipated work associated with implementation of project type.

Traffic Calming (TC-3)

Assumes 4 curb extensions, two concrete islands and two neighborhood mini circles

Assume 6 foot wide by 20 feet long by 6 inch depth per curb extension.

Assume 35 feet of curb and gutter.

Assumes sidewalk is 5 feet wide by 20 feet long and 4 inches deep.

Assume one ADA-compliant curb ramp per curb extension.

Assume concrete islands are 120 SF or smaller

Neighborhood mini circle assumes 4 way intersection, a concrete circle 16' diameter and all associated pavement markings and signage

Unit prices are based on Prince George's County DPWT, MSHA or similar project information

Item	Unit	Quantity	Unit Cost	Opinion of Probable Construction Costs
Pavement Removal	SY	54	\$4.00	\$216
Earthwork/Excavation/Grading	EA	1	\$5,000.00	\$5,000
Subbase	SY	54	\$7.00	\$378
Concrete sidewalk 4"	LF	80	\$20.00	\$1,600
Concrete Curb & Gutter	LF	140	\$15.00	\$2,100
ADA-compliant ramp	EA	4	\$600.00	\$2,400
Concrete Islands (2)	SY	13	\$60.00	\$780
Neighborhood Mini Circle	EA	2	\$20,000.00	\$40,000
Landscape modifications	LS	1	\$5,000.00	\$5,000
Subtotal				\$57,474

Lump Sum Items	\$22,989.60
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Drainage/Erosion & Sediment Control (10%)

Landscaping (5%)

Maintenance of Traffic (5%)

Mobilization (10%)

Utility Adjustments (10%)

Subtotal	\$80,463.60
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35% Contingency \$28,162.26

40% Project Soft Costs \$32,185.44

Estimated Total Cost	\$140,800.00
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Actual costs may vary based on project scope and current market conditions.

Costs do not include environmental permitting, easement or property acquisition.

Project Soft Costs assume engineering, surveying, permitting, project management, and inspection services.

Lump sum items includes anticipated work associated with implementation of project type.

Traffic Signal

Assume 4 legged intersections.

Unit prices are based on similar projects

Item	Unit	Quantity	Unit Cost	Opinion of Probable Construction Costs
Traffic Signal - 4 Legged Intersection	EA	1	\$150,000.00	\$150,000
Subtotal				\$150,000

Lump Sum Items	\$52,500.00
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Drainage/Erosion & Sediment Control (10%)

Landscaping (5%)

Maintenance of Traffic (5%)

Mobilization (5%)

Utility Adjustments (10%)

Subtotal	\$210,000.00
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35% Contingency	\$73,500.00
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40% Project Soft Costs	\$84,000.00
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Estimated Total Cost	\$367,500.00
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Actual costs may vary based on project scope and current market conditions.

Costs do not include environmental permitting, easement or property acquisition.

Project Soft Costs assume engineering, surveying, permitting, project management, and inspection services.

Lump sum items includes anticipated work associated with implementation of project type.

Wayfinding

Unit prices are based on MDSHA Historic Pricing Data and fabricator estimates.

Item	Unit	Quantity	Unit Cost	Opinion of Probable Construction Costs
Bicycle Wayfinding	EA	88	\$ 125	\$11,000
Vehicle Wayfinding	EA	32	\$ 250	\$8,000
2" Square Metal Post (Furnish and Install)	EA	88	\$ 100	\$8,800
5" Square Metal Post (Furnish and Install)	EA	64	\$ 200	\$12,800
Pedestrian Kiosk	EA	5	\$ 4,500	\$22,500
Kiosk Installation (Per Kiosk)	EA	5	\$ 1,800	\$9,000
Subtotal				\$72,100

Lump Sum Items	\$3,605.00
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Mobilization (5%)

Subtotal	\$75,705.00
35% Contingency	\$26,496.75
20% Project Soft Costs	\$15,141.00

Estimated Total Cost	\$117,342.75
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Actual costs may vary based on project scope and current market conditions.

Project Soft Costs include permitting, project management, and inspection services.

Lump sum items includes anticipated work associated with implementation of project type.

Note: Fabrication costs and end product can vary widely based upon materials and production methods chosen. For the pedestrian kiosk, different printing materials for the maps such as a layer of vinyl with a UV clear coat could be more expensive than paint directly on aluminum, but may appear brighter or last longer. Another example of material decisions that could affect costs include whether to leave the kiosk base as concrete with an architectural finish or to complete it with an aluminum skirt. Additionally, different construction methods such as fabricating the kiosk as one "box" piece may be more economical, but may not allow for easy updates of the map panel in the future. Toole Design suggests working more closely with a sign fabricator to find the right final product and associated cost desired by the City of Hyattsville. Costs are an estimate and could vary beyond this range.



HYATTSVILLE

TRANSPORTATION STUDY

City Council Update – October 1, 2018



TOOLE
DESIGN

Agenda

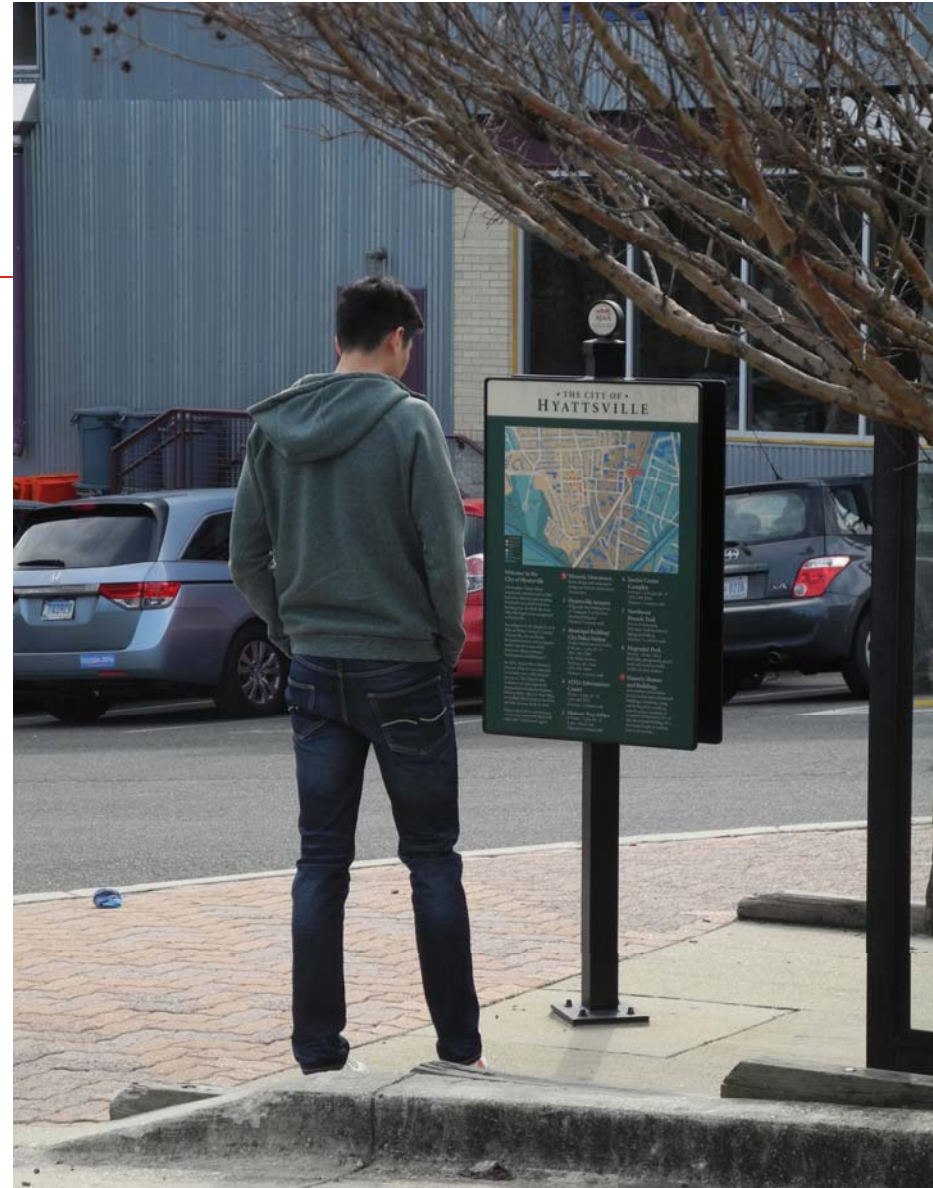
- Project Goals
- Future Needs
- Vision
- Planning Process
- Project Scoring



Project Goals

- Identify **bicycle** and **pedestrian** needs of the city
- Evaluate existing and future **roadway needs**
- Evaluate **traffic calming** and one-way streets
- Evaluate **parking issues** in target areas
- Prepare a **wayfinding plan**
- Evaluate **school traffic** and infrastructure

Develop implementation-oriented
Sequential Action Plan



Future Needs

- **Increasing vehicle traffic** through the City may require revisiting intersection design and signal timing
- **Growing/changing commercial areas** require strategic approach to parking
- **Increasing pedestrian and bicycle traffic** require making the best use of limited space and consideration of community priorities
- **Critical street connections:** Investigate completing missing links and change street circulation



Vision

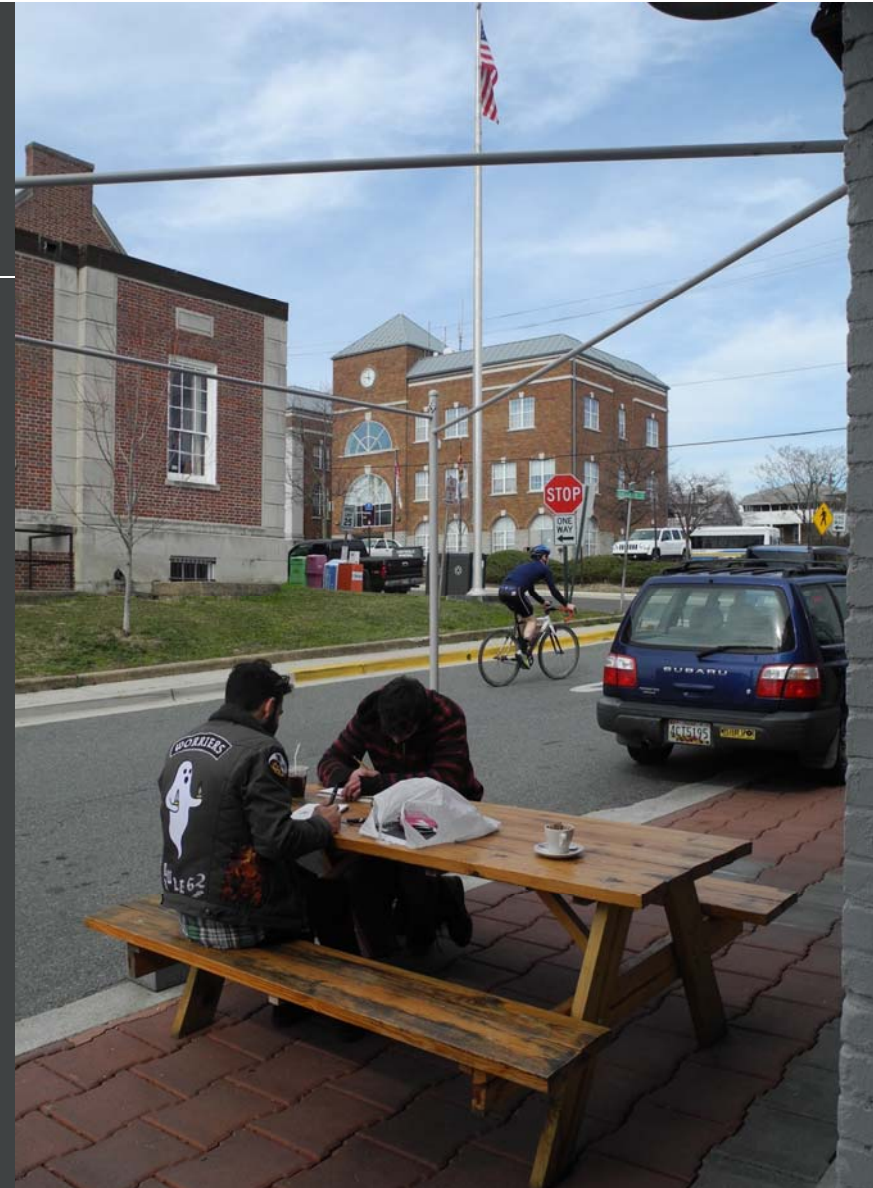
- In the very near future, Hyattsville will be a place where anyone, regardless of age, background, or ability, can travel safely, comfortably, and affordably.
- Its transportation network will prioritize people-friendly streets that add energy and vitality to their surroundings while accommodating the inevitable flow of traffic into and out of the City.

TOOLE
DESIGN

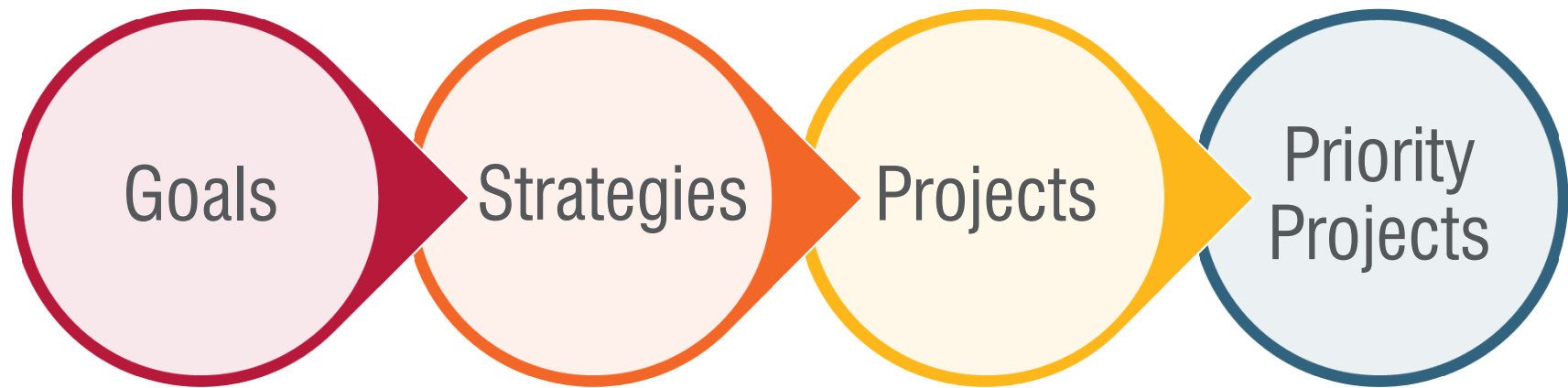


Vision

- The transportation system will support its sustainability goals, prioritizing active transportation for shorter trips and access to rapid transit for longer trips.
- Hyattsville's streets will serve as the backdrop for community events and festivals, as well as the rhythms of everyday life.



Planning Process



Goals

Six Speak Up HVL! Goals

- Improve safety along major roads
- Improve traffic flow within neighborhoods
- Enhance and increase safe connectivity for pedestrians
- Strengthen connectivity for cyclists
- Support development around the Metro stations and Gateway Arts District
- Support environmentally friendly, sustainable growth

Key Inputs

- Review of previous plans
- Public input
 - Project website
 - Wikimap
 - Several community meetings and events
- Stakeholder conversations
- Field inventory
- Data analysis



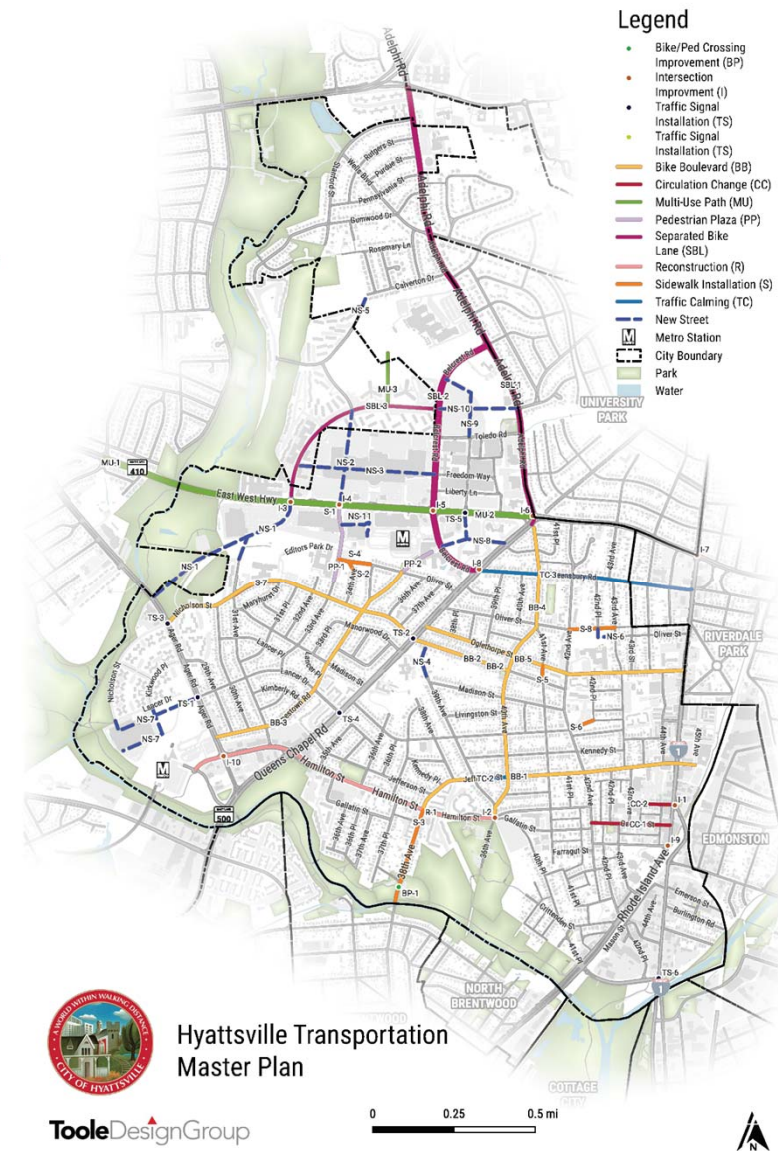
Strategies

Derived from Goals and Key Inputs

1. Design streets for lower speeds
2. Prioritize people on foot in street design
3. Where appropriate, change traffic circulation
4. Prioritize the comfort of people on bikes in street design
5. Design intersections to prioritize local connections
6. Prioritize connections to and from the Metro stations and Arts District
7. Integrate trails into the local transportation network
8. Complete the City's street grid with new street connections

Recommendation Categories

- Improved trail crossings
- Shared-use paths and sidewalks
- Bike lanes
- Signal timing improvements
- Limited new street connections
- Pedestrian plazas
- New traffic signals



Project Scoring

- Six Speak Up HVL! Goals, each assigned a point value
- These six principles were used to rate each of 51 proposed projects around the City
- 23-point scale used to score projects

	Improve safety on major roads	Safe connectivity for pedestrians	Traffic flow in neighborhoods	Strengthen connectivity for cyclists	Support Metro/Arts District	Sustainable growth	
	4	5	3	5	4	2	SUM
	1	0	1	1	1	0	16
	0	0	1	1	1	0	12
	0	0	1	1	1	0	12
	0	0	1	1	0	0	8
	0	0	1	1	0	0	8

Project Scoring



Speak Up HVL! Goal	Points
Improve safety along major roads	4
Improve traffic flow within neighborhoods	3
Enhance and increase safe connectivity for pedestrians	5
Strengthen connectivity for cyclists	5
Support development around the Metro stations and Gateway Arts District	4
Support environmentally friendly, sustainable growth (Points assigned if project meets the prior three goals)	2

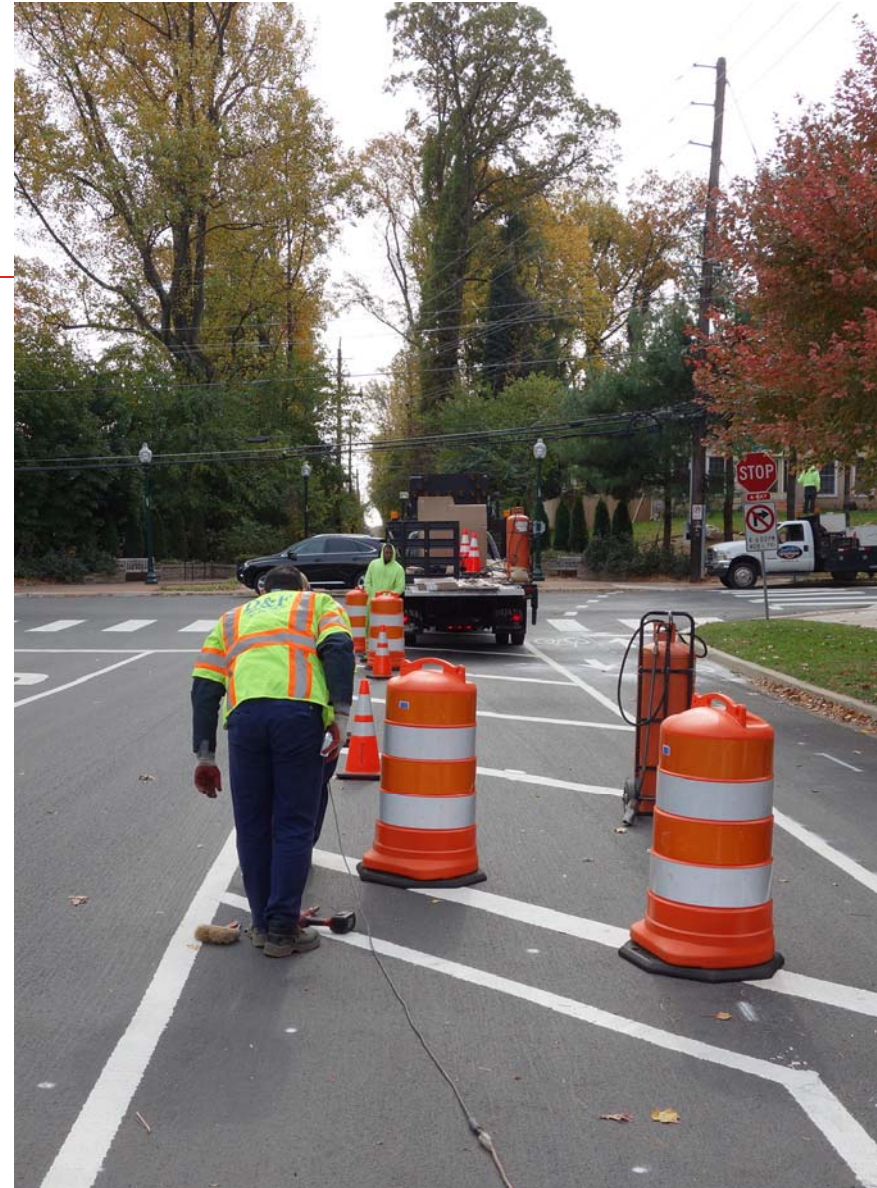
Sequential Action Plan

- Groups of projects that can be implemented as a package
 - Projects from the same neighborhood
 - Project type (e.g. sidewalks, wayfinding)
 - Key corridor projects with multiple elements
 - Operationally-linked projects (e.g. intersection improvements)



Next Steps

- Finalize Transportation Study
- Select priority projects for implementation
- Identify and secure funding (local funding, grants, partnerships)
- Collaborate with partners (PG DPWT, MD SHA, MNCPPC-PG, developers, etc.)





THANK YOU



T'OOLE
DESIGN



Hyattsville City Council Agenda Item Report

Meeting Date: November 5, 2018

Submitted by: Katie Gerbes

Submitting Department: Community & Economic Development

Item Type: Planning & Development

Agenda Section: Discussion Items (8:55 p.m. - 10:00 p.m.)

SUBJECT

Rhode Island Avenue Trolley Trail Extension (15 minutes)

HCC-128-FY19

Recommendation:

Sponsor(s):

At the Request of the City Administrator

Co-Sponsor(s):

N/A

ATTACHMENTS

[Trolley Trail 30% Design Discussion Memo](#)

[Planning Committee Minutes - 10.16.18.docx](#)

[Rhode Island Trolley Trail Presentation.pdf](#)

Summary Background:

The Rhode Island Avenue Trolley Trail (RIATT) Extension Project is currently being performed by Maryland Department of Transportation State Highway Administration (SHA) to create a shared use path for pedestrians and cyclists that connect the Trolley Trail at its current terminus at Farragut Street to the Anacostia Tributary Trails System at Charles Armentrout Drive. The primary goal of the project is to provide connectivity to the existing trail systems and neighboring communities. Staff has reviewed the 30% design drawings and made several recommendations for the City Council to consider for submission to SHA regarding the 30% design plans.

Next Steps:

The 30% design of the project will be brought back to the City Council on the Action agenda on November 19, 2018. The City Council's comments on the design will be transmitted to SHA to take into consideration as they move forward into the next step of project design.

Fiscal Impact:

TBD

City Administrator Comments:

See Summary Above

Community Engagement:

SHA presented the 30% design plans to the City Council on October 1, 2018, as well as at the Planning Committee meeting on October 16, 2018. Before the close of 2018, SHA anticipates an additional public meeting to take place in Hyattsville. The date of that meeting is to be determined.

Strategic Goals:

Goal 3 – Promote a Safe and Vibrant Community

Legal Review Required?

N/A



Memo

To: Mayor and Council

From: Jim Chandler, Assistant City Administrator and Director, Community & Economic Development
Katie Gerbes, City Planner

Date: October 26, 2018

Re: Rhode Island Avenue Trolley Trail Extension – 30% Design

Attachments: 30% Design Drawings
October Planning Committee Minutes
Staff Recommendation Map

The purpose of this memorandum is to provide the Mayor and members of the City Council with an update on the Rhode Island Avenue Trolley Trail Extension Project's 30% design, as presented by the Maryland Department of Transportation State Highway Administration (SHA) on October 1, 2018. Further, the designs were discussed at the Planning Committee meeting on October 16, 2018, which also served as a community meeting on the project.

- Maryland Department of Transportation State Highway Administration (SHA) has provided the City of Hyattsville and M-NCPPC with 30% design of the Rhode Island Avenue Trolley Trail (RIATT) Extension Project.
- The project is proposed to include a shared use path for pedestrians and cyclists that connect the Trolley Trail at its current terminus at Farragut Street to the Anacostia Tributary Trails System at Charles Armentrout Drive
- Maryland SHA presented the 30% design at the October 2018 Planning Committee meeting.
- Staff is providing the City Council with recommendations to submit to Maryland SHA for the agency's to consider incorporating into the project design and are included on page 3 of this memorandum.
- In order to maintain the project design schedule, it is necessary for the City Council to adopt recommendations to be submitted to Maryland SHA on, or by, November 19, 2018.

Project Details

The Rhode Island Avenue Trolley Trail (RIATT) Extension Project is project currently being performed by Maryland Department of Transportation State Highway Administration (SHA) to create a shared use path for pedestrians and cyclists that connect the Trolley Trail at its current terminus at Farragut Street to the Anacostia Tributary Trails System at Charles Armentrout Drive. According to SHA, the primary goal of the project is to provide connectivity amongst the existing trail systems and neighboring communities.

The project scope includes a 10-foot-wide shared use path to connect the two existing trail systems. To accommodate the path, SHA is proposing a road diet on the northbound side of the road, north of Charles Armentrout Drive. Currently, Rhode Island Avenue at Charles Armentrout Drive provides for two vehicle lanes northbound until it reduces into one vehicle lane approaching Farragut Street. The RIATT 30% design is proposed to eliminate one traffic lane at Charles Armentrout Drive and repurposing the eliminated lane into the shared use path. SHA has studied the impact of the elimination of one lane, assessed 2040 transportation projections and have concluded that it will not have a significant impact on the flow of traffic or level of service for the intersection. There is a proposed grass buffer between the trail and the roadway along most of the path.

The northbound lane of Rhode Island Avenue south of the Charles Armentrout Drive intersection will be restriped so that there will be one left turn lane, one through lane and one right turn lane. Similarly, Charles Armentrout will be resurfaced so there is one lane for left and through traffic and one dedicated right turn lane. Both right turn lanes will be signed to be no right turn on red.

In addition to the path itself, the project will also add sidewalk to the southbound side of Rhode Island Avenue from Braxton Place to 41st Place. There is currently no sidewalk in that area. To accommodate the addition of this sidewalk, the shoulder on the right side of southbound Rhode Island Avenue will be reduced. Owners of the adjacent properties have been notified of this process and will be consulted as the plans progress. The new sidewalk sections will be Americans with Disabilities Act compliant.

On the northbound side of Rhode Island Avenue one bus stop will be removed, and two others will remain. Bus turnouts will be located at the two continuing bus stops to allow passengers to alight without causing a backup of traffic. As currently designed, there is no waiting or respite area for bus passengers other than the shared use path. As a result, passengers will be waiting and alighting onto the path itself.

Throughout the corridor, SHA is proposing several turning restrictions or lane modifications. These changes include increasing the storage capacity for cars turning left onto Crittenden Street from Rhode Island Avenue; restricting left turns onto Rhode Island Avenue from 43rd Place and restricting U-turns and eliminating the left turn lane on southbound Rhode Island Avenue at 42nd Place.

Despite the best efforts of SHA to avoid it, right-of-way will need to be acquired from CSX in order to facilitate this design. Land is needed from CSX south of the intersection of Rhode Island Avenue and Charles Armentrout Drive in order to accommodate the stormwater management facilities associated with this development. It is also possible that right-of-way may be needed on along Rhode Island Avenue north of Charles Armentrout in order to accommodate buffers between the road and the trail. The extent of the right-of-way needs has not yet been finalized, but is anticipated to be complete before the end of 2018. The project schedule moving forward is allocates one year to complete the right-of-way transaction. Any delay in the right-of-way entitlements could further delay the project.

The project was initiated in 2016, and August 2018 marked the completion of the 30% design of the trail. If the project design stays on schedule, it is feasible for construction activities to commence in 2020.

Planning Committee Review

SHA presented their 30% design plans to the community at the October 16, 2018 Planning Committee meeting. The meeting was well attended, with approximately 30 guests, in addition to the 9 committee members. The Committee and guests had several questions for SHA representatives and made several dozen comments and recommendations to the project team. A summary of comments and recommendations are as follows:

- Supportive of this project and hope that SHA can accelerate the completion of the project to the greatest extent possible.
- Planning Committee recommends that the City Council do anything it can to help achieve right-of-way approvals from CSX.
- Support the road diet on Rhode Island Avenue necessary to facilitate this project.
- Support all of the aforementioned comments about crosswalk improvements listed on Page 6 of the meeting minutes.
- Support the idea that the Charles Armentrout and Rhode Island Avenue intersection needs to be carefully designed to ensure there is adequate crossing time for cyclists and pedestrians, that a crosswalk on the north side of the intersection is considered and that SHA look into ways to reduce the risk of injury as a result of blind turns and small queueing areas.
- Support the necessity of a study to look at the ripple effects of restricting the left turn onto Rhode Island Avenue from 43rd Avenue and the impacts that restriction will have on the adjacent streets.
- Support investigation into other traffic calming measures that can be taken on Rhode Island Avenue to slow the flow of traffic.
- Adequate lighting, supported and taken into the system by Pepco, is needed on this extension.
- Support the concept of incorporating branding opportunities into the plan and this segment of the trail as possible.
- Support the need for revisions to the plan to incorporate larger bicycle/pedestrian queueing areas at intersections, particularly at the intersection of Rhode Island Avenue and Charles Armentrout Drive.

Though the adopted recommendations by the Planning Committee are listed above, Staff highly recommends that members of the City Council review the meeting minutes to see the full list of questions and comments posed by the community. Meeting minutes from the October meeting are attached.

Staff Recommendations

Community and Economic Development and Department of Public Works staff have met to review the comments from the community meeting, as well as the design drawings provided by SHA. After reviewing the plans and public comment, Staff are recommending that the following feedback be relayed to the State Highway Administration:

1. Generally speaking, supportive of the project, including the road diet, and look forward to its completion;
2. Staff support SHA's design to eliminate the U-turn lane at 42nd Place. See label "4" on map;

3. Staff support SHA's design to extend the stacking capacity of Rhode Island Avenue at Crittenden Street. See label "5" on map;
4. A buffer is needed between the bus loading/unloading area and the trail itself. As currently designed, passengers waiting to board the bus have no dedicated waiting area. Instead, they will be forced to stand on the trail until a bus arrives, creating a conflict point between cyclists and pedestrians. Staff believes that a buffer is needed to provide an appropriate space out of the flow of trail traffic for bus riders to wait. Staff would prefer if the additional right-of-way was purchased from CSX that would allow the trail to shift slightly to the east, creating a landing space for bus riders. If that option is not feasible, Staff believe that the width of the trail should be reduced at these points in order to create a landing area. See labels "2A" and "2B" on map;
5. Staff is concerned that a 'No Left' turn for northbound vehicles at 43rd Place will have significant negative impact on motorists behavior and will create significant additional vehicle trips on adjacent City roadways. Staff would like confirmation from SHA on the median proposed on Rhode Island Avenue north of the intersection with 43rd Place. The SHA presentation provided to the community showed that the median will be removed, but the construction drawings indicate that a median will be added. Prior to adopting a position on the proposed left turn restriction from 43rd Avenue, Staff recommends that SHA confirm the proposed geometry of the roadway in this area. See label "3" on map;
6. SHA should remove the mid-block crosswalk currently located at the County Services Building and replace it with a crosswalk at the intersection of Rhode Island Avenue and 43rd Place. The existing crossing is duplicative of the signalized crossing at Farragut Street and has limited usage due to the vacancies in the County Services Building. A crosswalk at 43rd Place would provide direct access to the adjacent commercial uses and is the intersection location is more consistent with acceptable pedestrian standards. See label "1" on map;
7. Staff does not recommend the installation at the northern edge of the intersection of Rhode Island Avenue and Charles Armentrout Drive. While it could improve walkability, Staff believe that the existing southern crossing, if widened, as proposed by the 30% drawings, is sufficient to provide cyclists and pedestrians with an east-to-west crossing of Rhode Island Avenue. The northern edge of the intersection has a very limited line of sight from vehicles turning onto Rhode Island Avenue from Charles Armentrout Drive and believe that a crosswalk in this location could create conflicts with vehicles and pedestrians or cyclists. See label "6" on map;
8. Staff recommends that the next set of plans needs to incorporate an expanded queuing area for pedestrians/cyclists at the intersection of Rhode Island Avenue and Charles Armentrout Drive. It is anticipated that this intersection will see a significant increase in non-motorized vehicle traffic and there needs to be assurance that there is sufficient waiting space for those that need to cross Rhode Island Avenue. See label "7" on map;
9. Crosswalks should incorporated at intersections throughout the project site, they shall be well marked and signalized to the extent feasible by SHA. If a signal or beacon is not feasible, standalone crosswalks are to striped, reflective and highly visible to motorists;
10. Staff recommends the incorporation of overhead lighting into this segment of the trail.

Next Steps

Staff feedback on the project will be presented to the City Council during the "Discussion" agenda on November 5, 2018 City Council meeting. The project will be brought back to the City Council on the

“Action” agenda on November 19, 2018. The action requested of the City Council is a list of comments to provide SHA as they move into the next phase of project design.

CITY OF HYATTSVILLE
PLANNING COMMITTEE MINUTES
OCTOBER 16, 2018

- Introduction of Committee & Guests Members (7:37 PM)
 - o Maureen Foster
 - o Wil Maxwell
 - o Todd Dengel
 - o Jonathan Mueller
 - o David Marshall
 - o Nkosi Yearwood
 - o Thomas Sheffer
 - o Tom Wright
 - o Jim Chandler
 - o Katie Gerbes
 - o Michael Baird, State Highway Administration
 - o Kidus Debasu, State Highway Administration
 - o Simon Chacha, State Highway Administration
 - o Sam Deres, Resident
 - o Jeff Lemieux, Resident
 - o Yohannes Bennehoff, Resident
 - o Brian Suhoem, Delegate Alonzo Washington's Office
 - o Garrett Hennigan, WABA
 - o Rumi Matsuyama, Resident
 - o Flawn Williams, Resident
 - o CJ Militello, Resident
 - o Chris Davidson, Resident
 - o Christy Reganhardy, Resident
 - o Ken Carter, Resident
 - o Heather Olson, Resident
 - o Laurie Lemieux, WABA/Proteus Bikes
 - o Scott Wilson, Resident
 - o Ben Simasek, Resident
 - o Delegate Anne Healy, District 22 Delegate & Resident
 - o Jeff Clark, Brentwood Resident
 - o James Hellic
- Committee Business (9:10 PM)
 - o Adoption of Minutes from September 2018
 - Adopted with edits
 - o Several committee members have terms expiring at the end of the year, so you will soon be receiving an email with directions to reapply. If you do not any to renew your term, let Jim or Katie know so we can fill the seat.

- Rhode Island Avenue Trolley Trail Extension (7:37 PM)
 - o Proposed 10-foot shared use path that will connect the Anacostia Tributary Trails System and the Rhode Island Avenue Trolley Trail
 - Will also be constructing an ADA compliant sidewalk on the southbound side of Rhode Island Avenue from Crittenden down to Charles Armentrout where there is currently no sidewalk
 - o Project Milestones:
 - Requested by the City of Hyattsville in 2016
 - Design initiation in August 2017
 - Right of Way needs in December 2018
 - Right of Way cleared and construction start in Spring 2020
 - o There are currently five bus stops along the route, but one is proposed to be removed due to low passenger usage and a nearby stop served by the same bus routes
 - o Project proposed a road diet on northbound Rhode Island Avenue in order to accommodate the trail extension. Rhode Island Avenue northbound will be one lane only from Charles Armentrout to Farragut Street (where it currently merges into one lane)
 - Traffic analysis has shown that this change will not impact the level of service of the road
 - o There will be two bus turnouts on northbound Rhode Island Avenue to get the buses off of the street to reduce backup
 - o Will be reducing median north of 43rd Avenue to reduce a pinch point for stalled vehicles
 - Also proposing restricting left turns from 43rd Avenue onto Rhode Island Avenue for safety reasons
 - o Need to acquire significant right-of-way on the northbound side of the road, and temporary right-of-access easements necessary on the southbound side to construct the sidewalk
 - o A mandatory referral meeting with City of Hyattsville and M-NCPPC will be held before the end of the year
 - o Clarifying questions:
 - o You said you will no longer allow left turns from 43rd Avenue to Route 1. Where will those cars go?
 - They can make a right onto US-1 and then make a U-turn to go north or use the signalized intersection at Farragut Street.
 - o Can you talk about the road diet a little bit?
 - Repurposing the right-most lane of northbound traffic to construct the trail. With the road diet and new path, our studies show there will be no significant change in traffic operations. It will become a one lane at Charles Armentrout instead of at Farragut Street.
 - o Are there any sort of precautionary bollards or anything buffering the trail?
 - There will be a grass buffer.

- Will be increasing the storage area for left turns onto Crittenden Street or 42nd Place.
- o What is the critical length volume standard?
 - Not sure.
- o Was there a certain growth factor taken into consideration here for future conditions?
 - We are using level of service calculations. We don't have the numbers right now but can provide them to the City.
- o The main reason for this is to connect the trail from Franklin's to the Anacostia Trail, right?
 - That is the express purpose.
 - One of the issues is the adjacent CSX right-of-way. If we need to take their land, this project can be stalled for years. The alternative we have here is to take a part of the road to accommodate the trail and ensure it gets completed.
- o We're these the only two times you looked at traffic counts? Is there any time taken around 5 PM?
 - Yes, we look at range of peak hours.
- o What is the lighting plan for the path? I don't think there is lighting right now.
 - Looking into the design of that, but haven't reached that point yet as we are only at 30% design.
- o The buffer seems to be about 5 feet. Does that change at the bus stop?
 - Where there are bus stops, the buffer will be reduced to zero, so there will be no grass in front of the bus stop.
- o The 2040 PM has it goes from an E to and F, then optimized it comes back to an E. Does that mean it is not currently optimized? What about it will bring it back up? How do you optimize and why aren't we doing it now?
 - We look at the level of service and gauge the condition and optimization all the time. It is not that we don't do it, we are always doing it.
 - How far up Route 1 do we have to optimize to make these changes? How large of an area is affected?
 - The main issue is at Charles Armentrout, so all of the optimization's will be there.
- o The crosswalk at Charles Armentrout will be on the south side or the north side to access the trail? Currently the crosswalk is on the south side of the intersection.
 - The current crosswalk will be widened and pushed back slightly. There will be a north/south crosswalk on the west side of Rhode Island Avenue.
- o At the bus stop you said the buffer goes down to zero buffer. Where do passengers get on/off the bus?
 - There is an open space for them to step onto.
 - Is the open space the shared use path?
 - o Yes.

- We are working to see if we can acquire CSX right of way to build in a landing area.
- o On the traffic analysis, was a lower stress route for cycling taken into account?
 - No, the traffic numbers were done for the corridor as a whole in advance of this analysis.
- o Northbound automotive traffic from Charles Armentrout has two lanes reducing to one. Will one of those lanes have a priority or will it be an alternate merge?
 - Right most lane will be a dedicated right turn only, and the center lane will be through traffic only south of the Armentrout intersection.
- o The timeline does not seem correct. We tried to get this project going in 2008. When you come up to Route 1 from Armentrout, what is the time of the pedestrian crossing? It is currently 14 seconds and that is not enough time.
- o On 43rd where you make it no left turn, has there been any study on how that will impact the traffic of the neighborhood.
 - There is currently a huge traffic conflict by turning, so we want to make it safer by removing.
- o Has there been any study about the negative impact of businesses on the corridor with the project not starting until 2020. Has there been a study looking at the negative impacts of this not happening sooner?
 - There has not.
- o Where are the pinch points between CSX and the existing right-of-way?
 - There was a pinch point by 42nd Place where we needed to put our storm water management facilities, but we've redesigned to ensure we don't cross that line.
- o Will there be squared off corners to discourage right turns and will right turns on red be prohibitive at Charles Armentrout?
 - Yes, and we are looking to install bike/ped specific lights.
- o The sidewalk on the southbound side looks like you are hoping to put it where the current road shoulder is. Is that correct?
 - Yes.
- o Going southbound on Route 1, is there a way to do a little bit of traffic calming as well?
 - The road diet should accomplish that.
- o I am finding it hard to understand a lot of these maps because they don't have legends and are very technical. Is it possible to have a version of this presentation available to where it is legible to those who are not traffic engineers?
 - Is it possible to get a blow up of these maps with better keys and legends? Is there a way to improve the presentation to make it more clear?
 - We can provide you with some public displays.

- o Is it possible to have a meeting where people meet on-site to talk about this?
 - It has happened in the past, we could possibly arrange something similar to this on site, but it would likely have to be in the daytime or in the spring when it gets darker later in the day.
- o Are there going to be any traffic calming measures at the intersection with Armentrout?
 - The right most lane will turn into right turn only both going northbound on Route 1 and from Charles Armentrout. There will also be an activated pedestrian signal which will help reduce conflicts.
- o Are the lanes narrower with this plan?
 - The lanes will be narrowed and there will be a curb adjacent to the right most side of the lane. It will seem a lot tighter when you remove the shoulder and have some narrow lanes. The footprint available for vehicles will be reduced and will be perceived as narrower.
- o Is the City or State studying the impact of restricting the left turn on 43rd on adjacent intersections. You might have to take Crittenden or Farragut. Has it been studied or will it be studied?
 - We will add to list of comments.
- o Are there similar improvements proposed for other crossings of Route 1 as there are at Armentrout?
 - So far, we have not done anything to the other crosswalks.
- o In terms of consultation with CSX, what is the status of those discussions?
 - We are trying to contact the correct person at CSX. Right-of-way acquisition has not been discussed yet.
 - M-NCPPC has stated they would be willing to pick up acquisition costs through the program open space project.
- Comments from Committee & Guests:
 - o General Comments:
 - It is important that the physical barriers and buffers are sufficient, because cars have driven through many of the buildings in this area, so that could do significant damage to a cyclist. Separation of the trail from the roadway but also to protect the buildings in the area. Buffer is especially important at the bus turnouts
 - There is a need for traffic calming on southbound Route 1 after Crittenden Street.
 - What is the timing of some of these looking at feedback you are getting?
 - Within the next 30 days.
 - When you come back, it will be helpful to know what standards you are using.
 - From the cyclist community, if there is come compromise that needs to be made because of issues with CSX, I think the community will be pleased to get the best we can get, even if the trail is narrower than 10 feet, to make this happen.

- Important to keep up the public conversation throughout this process.
- There are areas with extra right of way which are good ideas for trail identity and branding.
- What is the speed limit going to be in this area?
 - Currently 25 miles per hour.
- Is there anything legally preventing you from going to 10-foot lanes?
 - It is too narrow.
 - Suggest that 10-foot lanes could be used here.
- Would like to see no right turn on red off of Armentrout onto Route 1
- Consider 10-foot lanes to calm traffic.
- Tell us what we can do and how public support will best accelerate this process.
- Where you are creating a wetland and the median in the middle are great opportunities for plantings or branding to beautify the project.
- Heading into North Brentwood, perhaps make a gap in the guardrail so people can access that trail from Rhode Island Avenue
- Lighting on the trail would be great to increase visibility
- o Crosswalks/Sidewalks:
 - Need to look at improvements to all of the crosswalks in the corridor, as there will be increased pedestrian and bicycle demand to those crosswalks when this project is completed, so make sure those are accommodated.
 - Look at optimizing location of the crosswalks in the area – there may be better places for crosswalks.
 - Need to look at the crosswalk timing to the intersection of Farragut Street and Route 1, as well as Charles Armentrout and Route 1 to ensure there is enough time to cross.
 - I notice that you have crosswalks at intersections that are not signalized. Pedestrians will not be comfortable crossing in areas where there are not signals and cars do not stop here. I hope you find a way to eliminate them, as they are a safety standard.
 - Need a crosswalk crossing Route 1 at Armentrout on the north side of the intersection.
 - Intersection at Farragut Street was rebuilt not too long ago, so it has ramps and marked sidewalks. The signal call buttons have not worked there for months, so maintenance there is lacking and necessary.
 - Another example of a blind intersection.
 - Support the striping of the crosswalks, but believe flashing yellow lights or stop signs/stop lights would also be great.
 - Is there a plan to link a sidewalk south of Armentrout? That would be helpful for those coming from the south.
- o CSX:
 - Could be a huge impediment to the implementation of this plan, so encourage to leverage elected officials and other residents to make that happen.
- o Charles Armentrout Intersection:

- Westbound on Armentrout there is a blind intersection because of the CSX overpass. Perhaps a large fisheye mirror that would allow better visual on that intersection for cyclists and vehicles.
 - Everywhere there is a crosswalk there needs to be adequate space for people to queue up, so they are not standing in the middle of the trail and blocking it. This is especially important at Armentrout. The more space we can give people to wait for the light, the more people who will wait to use that light. Larger queuing spaces are also more visible.
- o 43rd Avenue Left Turn Restriction:
 - Need to study if there is a ripple effect on other intersections as a result of this one no longer being able to be used to go northbound.
 - How will the no turn be enforced?
 - Would like to study the impact of this restriction on the neighborhood and nearby businesses.
 - By removing this intersection, we are asking cars to make a u-turn onto a road that has now been limited down to one lane which is dangerous.
 - Support terminating left turn on 43rd
- o Buffer:
 - Worried about conflicts with buses and trail – the more buffer between the trail and moving traffic, even one foot, the better.
 - Wherever we can, we should minimize shoulder and maximize buffer.
 - There needs to be a physical barrier between the trail and traffic, especially in places where there is a limited buffer or potential conflict with vehicles. Having a curb there is not enough.
- Adopted Committee Recommendations:
 - o Supportive of this project and hope that SHA can accelerate the completion of the project to the greatest extent possible.
 - o Planning Committee recommends that the City Council do anything it can to help achieve right-of-way approvals from CSX.
 - o Support the road diet on Rhode Island Avenue necessary to facilitate this project.
 - o Support all of the aforementioned comments about crosswalk improvements listed on Page 6 of the meeting minutes.
 - o Support the idea that the Charles Armentrout and Rhode Island Avenue intersection needs to be carefully designed to ensure there is adequate crossing time for cyclists and pedestrians, that a crosswalk on the north side of the intersection is considered and that SHA look into ways to reduce the risk of injury as a result of blind turns and small queueing areas.
 - o Support the necessity of a study to look at the ripple effects of restricting the left turn onto Rhode Island Avenue from 43rd Avenue and the impacts that restriction will have on the adjacent streets.
 - o Support investigation into other traffic calming measures that can be taken on Rhode Island Avenue to slow the flow of traffic.
 - o Adequate lighting, supported and taken into the system by Pepco, is needed on this extension.
 - o Support the concept of incorporating branding opportunities into the plan and this segment of the trail as possible.

- o Support the need for revisions to the plan to incorporate larger bicycle/pedestrian queuing areas at intersections, particularly at the intersection of Rhode Island Avenue and Charles Armentrout Drive.
- Development Updates (9:13 PM)
 - o Landy:
 - Planning Board hearing will take place on Thursday. Roadways are public and will be dedicated to the City once the units are sold. Architectural DSP likely submitted in end 2018/early 2019.
 - o Armory Apartments:
 - Subdivision Review Committee scheduled for Friday. Will come back to the City Council for action in November.
 - There is a variance being requested for the public utility easement; staff support this request.
 - Their bike/pedestrian plan includes a Trolley Trail marker, crosswalk improvements and potentially a Capital Bikeshare station. Working with the applicant and County to solidify that.
 - The applicant may not be required to file a detailed site plan, but they have agreed to present it to the community anyways to get feedback.
 - o Magruder Pointe:
 - Applicant has requested that it be sent back to the Planning Board in order to file an additional ethics affidavit and ensure there is 2 weeks between the staff report issued and the Planning Board hearing.
 - o Riverfront at West Hyattsville:
 - Grading should conclude in November, at which point the infrastructure component will kick in.
 - o Economic Development Report is out for Fall 2018. Copies are available and the report will be posted on the City's website
 - o Transportation study is on Speak Up and comments will be accepted until October 29.
 - o Sustainability Plan will be receiving an award for "Outstanding Plan" from the National Capital Area Chapter of the American Planning Association on Thursday.
 - o Hyatt Park:
 - Waiting to get electric permits from Pepco to begin electric and ground work. Hoping to get electric installed before the ground freezes.
 - o DM: The former gas station on north end of EYA project – do you know what is going there?
 - Believe it is still up for lease without a tenant.
 - o MF: When will the commercial façade project for Dr. Lilly to be complete?
 - Before the end of the year. They told us 6 weeks of work.
 - o NY: What is happening on Hamilton Street? It is a very bumpy ride.
 - It is part of WSSC water main repair work. They will be required to replace, but will wait until the entire section is complete.
 - o MF: What is the latest with the townhouses on Oglethorpe?

- We have not heard anything. If the applicant does not meet a single standard, he will need a detailed site plan. We believe he is evaluating his options at this point.
 - DM: Could they put a multifamily on that site by right?
 - I believe so, but don't quote me.
 - o NY: Any update on the Ager Road project?
 - They have not put out a bid for construction.
 - o TD: Is the TESST building project still going on?
 - Yes, but has not started. We are waiting on formal award from the state in order to issue our local awards.
 - o MF: Had the community shred date been rescheduled?
 - Yes, but we don't have an exact date yet.
 - o TD: What is the timing on the police station and the next steps for this building?
 - The engineering design will be approved in January 2019, at which point we will go to bid for a construction contract. Construction time is approximately 13 months. We are planning to have them in the building by April 2020, on a conservative timeline.
 - Nothing will happen on this building until the police building and the new DPW site are financed and know what our debt service looks like.
 - o MF: The new electric signs look nice.
- Adjourn (9:48 PM)



RHODE ISLAND TROLLEY TRAIL

From Charles Armentrout Dr to Farragut St



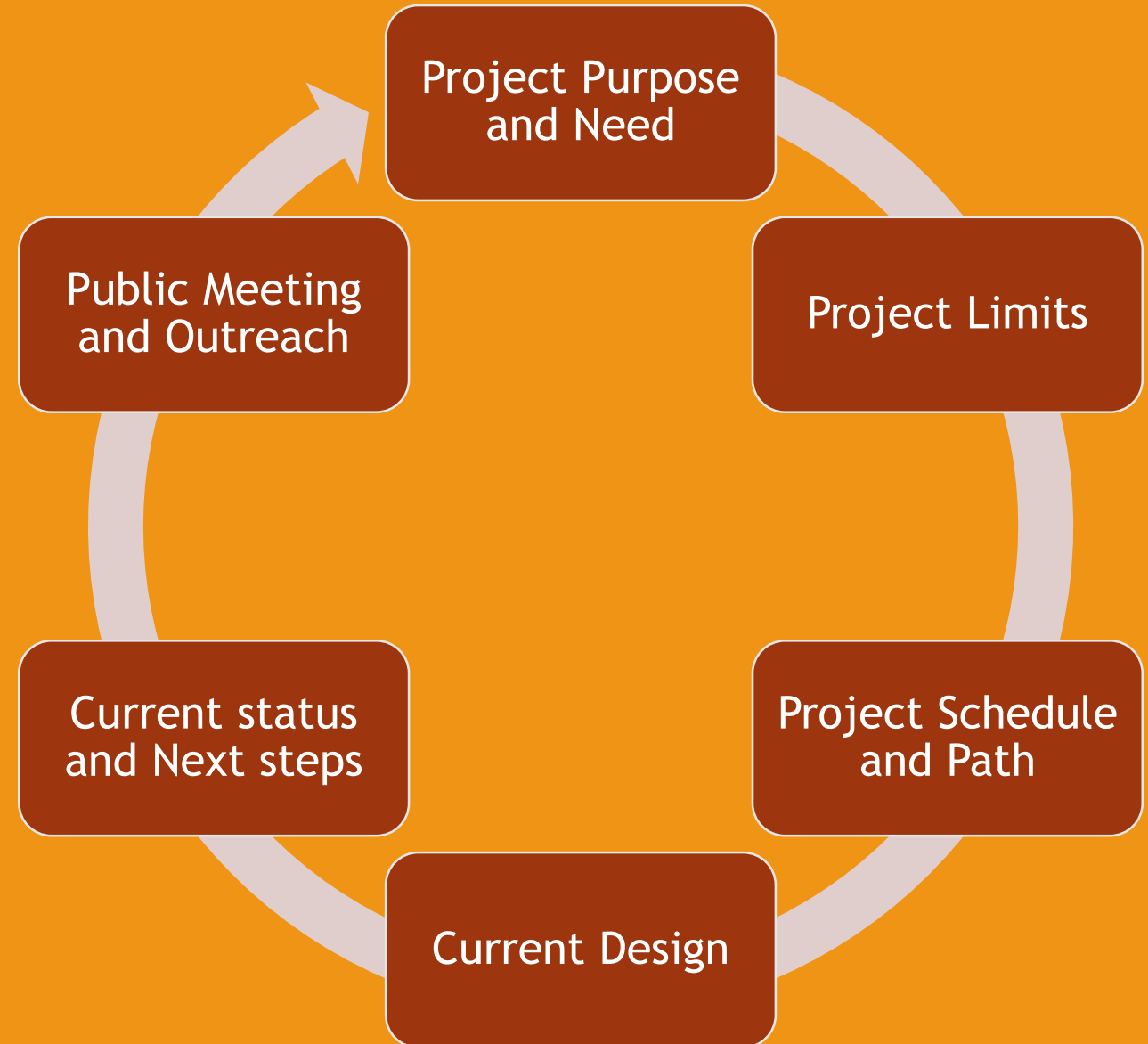
Kidus Debasu

Transportation Engineer, Office of Highway Development 953

MDOT State Highway Administration

Kdebasu@sha.state.md.us

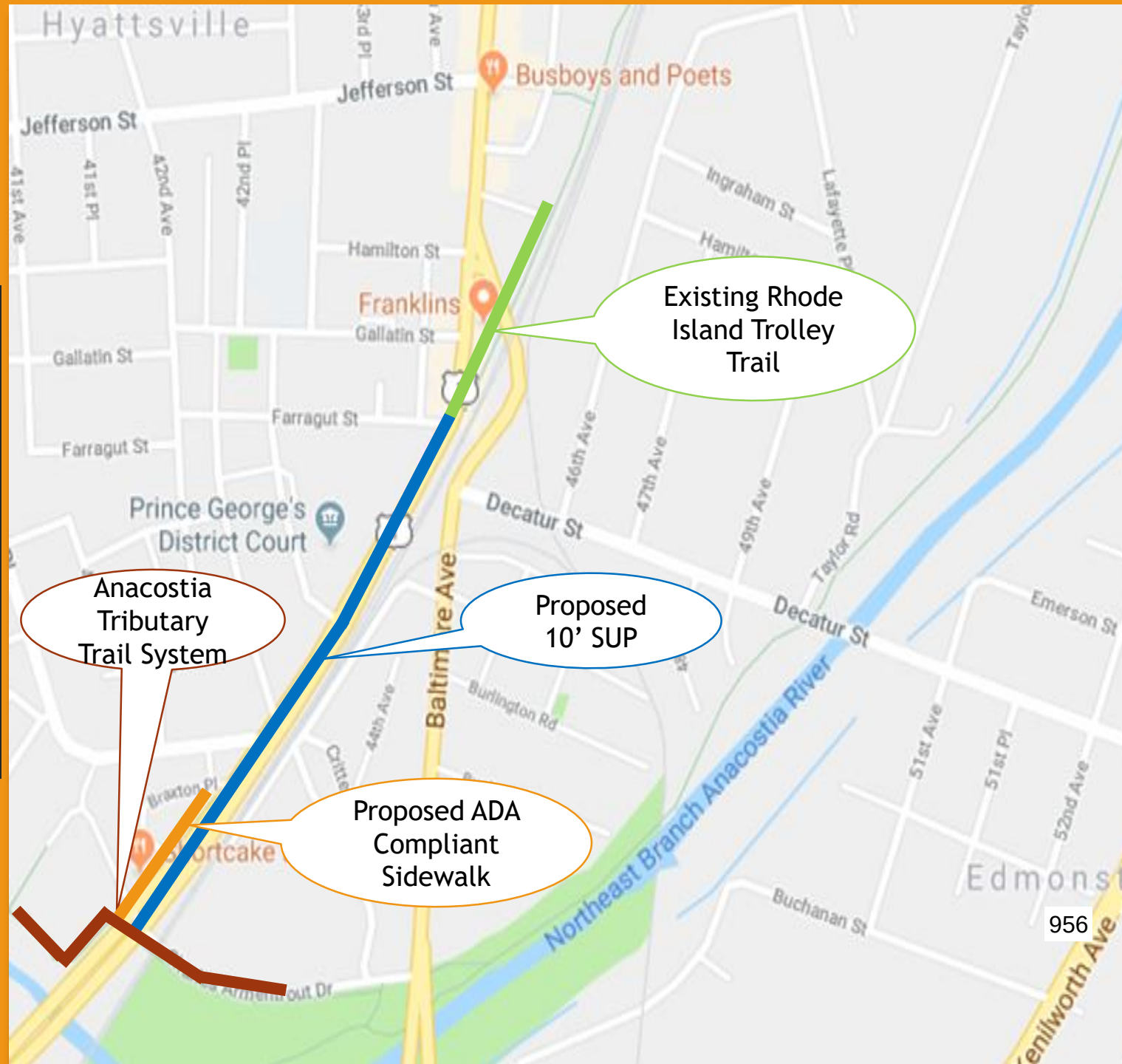
Topics



Purpose and Need

- The project aims to construct a shared use path for both pedestrians and bicyclist that connects to two trails namely, the Existing Rhode Island Trolley Trail and the Anacostia Tributary Trail system.
- While the primary aim of this project is to improve the connectivity amongst the existing trail systems it will also further enhance connectivity between neighboring towns.

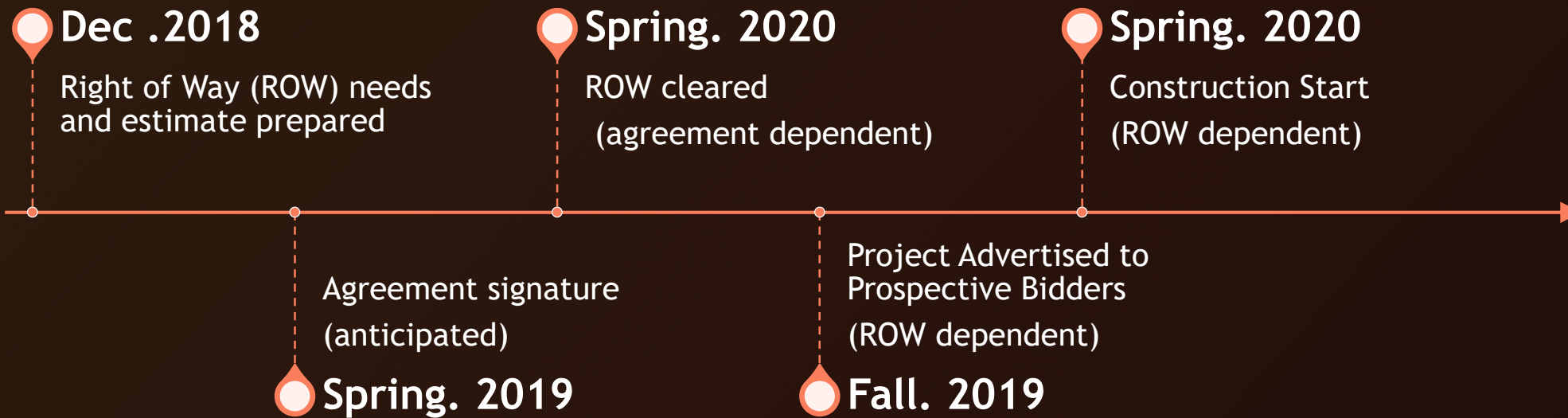
Project Limits



Milestones to Date



Project Schedule



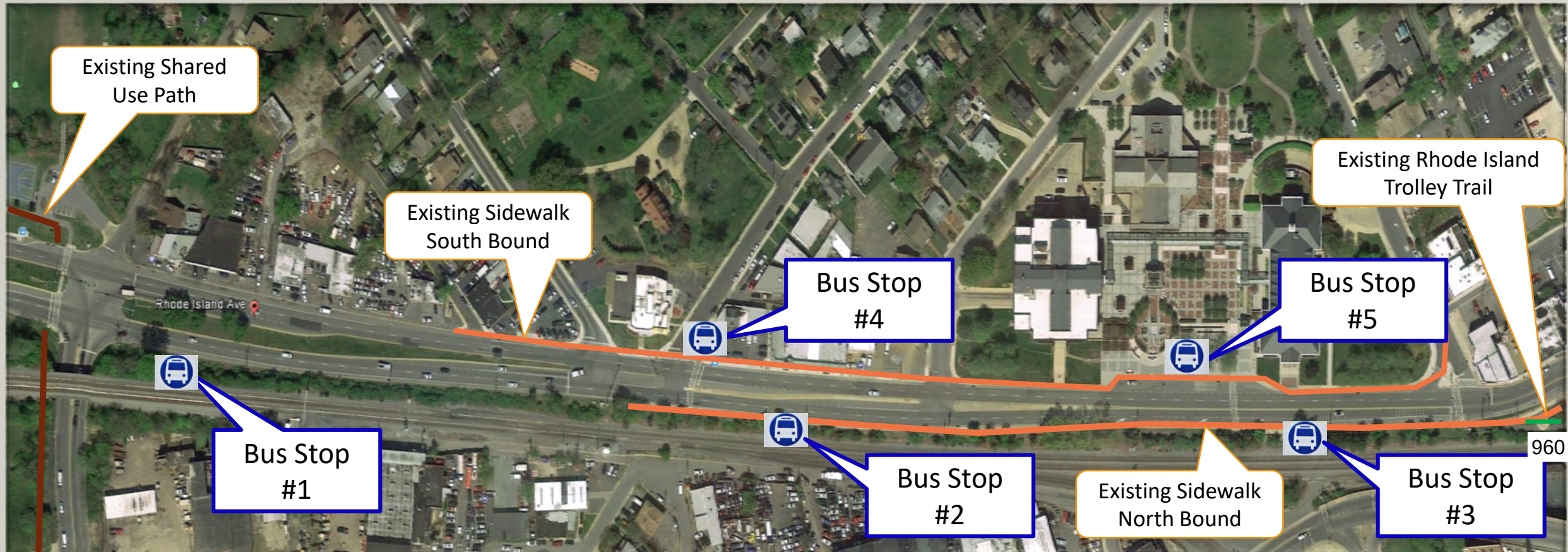
Existing Condition

Existing Condition :-

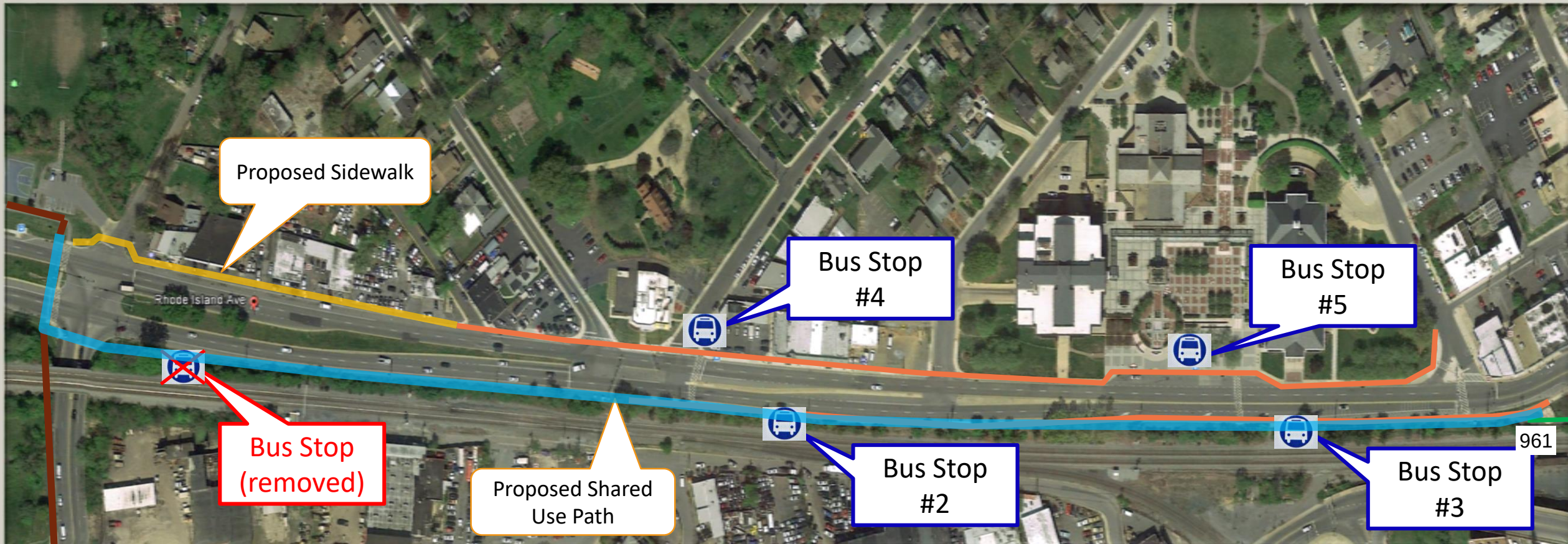
- 4-Lane high way, two lanes on each direction.
- Intersection of Charles Armentrout Dr with Rhode Island Ave
- Adjacent to North Bound lane is the CSX trainline.



Existing Bicycle and Pedestrian Facilities



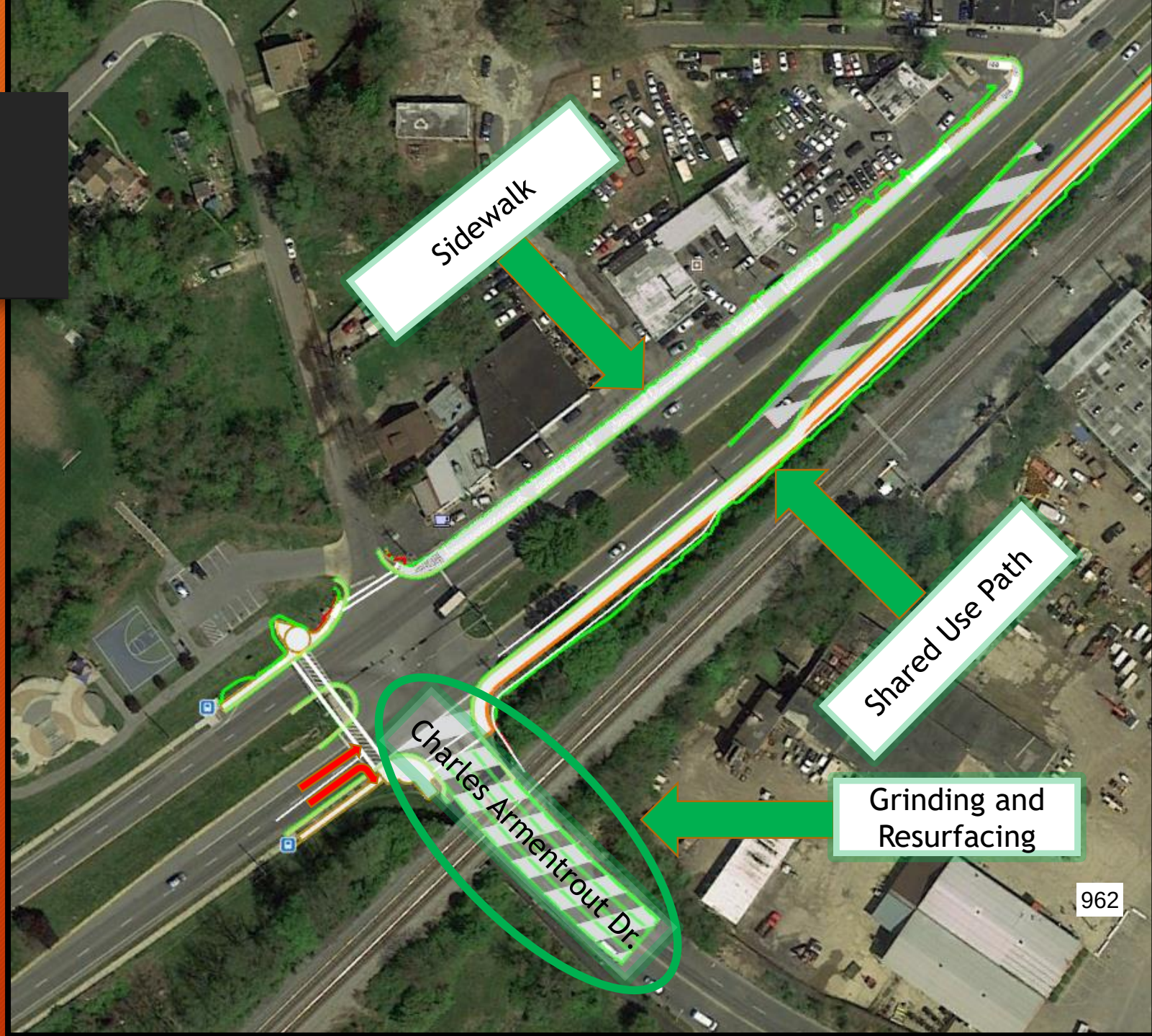
Proposed Bicycle and Pedestrian Facilities

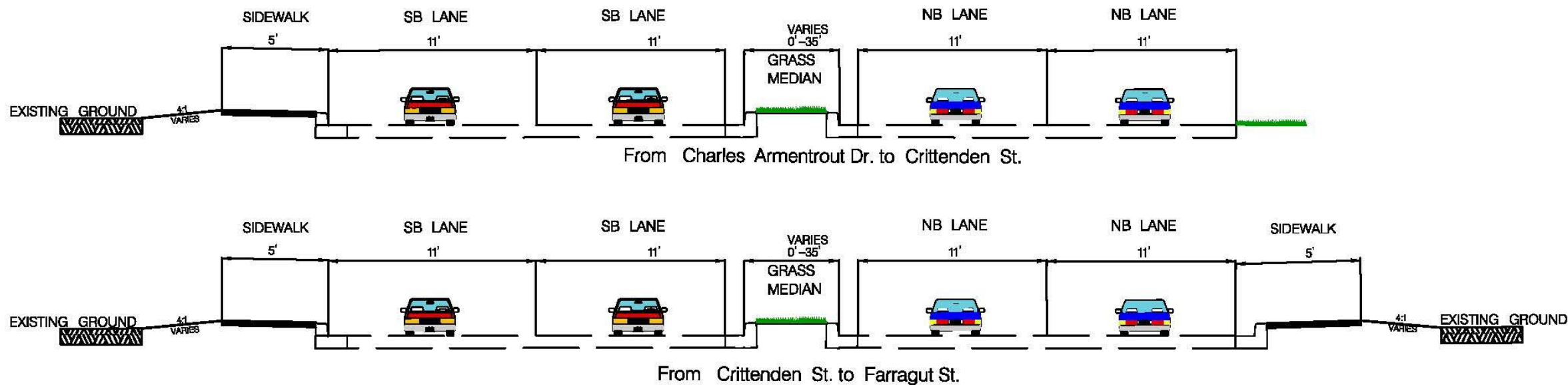


Current Design

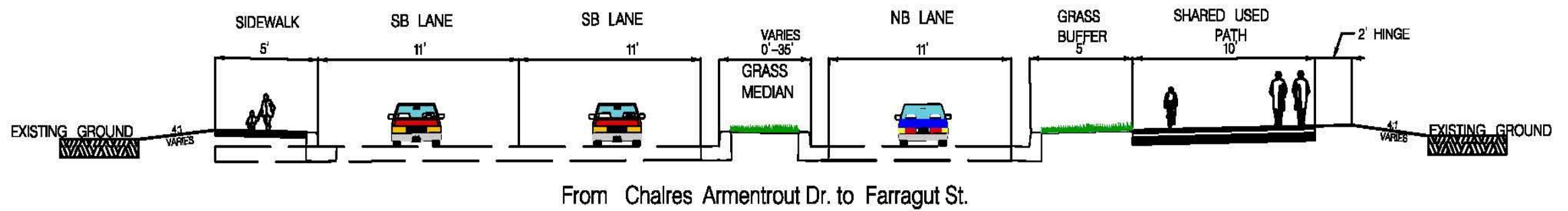
- Proposed:-

- Resurfacing on Charles Armentrout Dr. to increase separation between vehicular traffic and the existing Shared Use Path.
- Construct a Shared Use Path from Charles Armentrout to Farragut Street NB side.
- Construct ADA Compliant Sidewalk from 41st St. up until Braxton Pl.
- A road diet on US 1 is proposed to accommodate these improvements.





Existing Typical Section

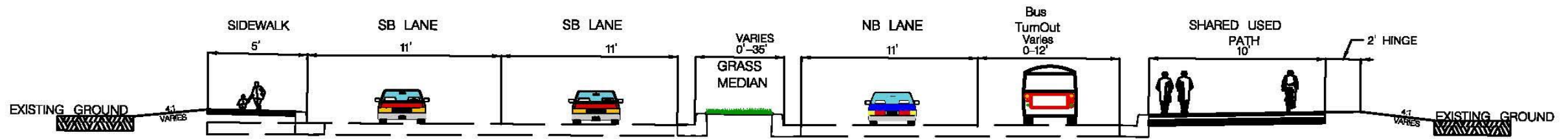


Proposed Design Typical Section (Road Diet)

Traffic Analysis

- Road Diet Analysis
- Traffic analysis was completed by MDOT SHA.
- Traffic analysis numbers predict future traffic conditions with a road diet will be comparable to the existing traffic condition.
- Traffic signals will be optimized throughout the corridor to minimize exasperating vehicular traffic operations.

Intersection	2040 AM		2040 PM		
	No Build	Road Diet	No Build	Road Diet	Road Diet (Optimized)
US 1 at 41 st Pl/Charles Armentrout Dr	E 66.6	E 67.4	E 74.1	F 88.3	E 77.5
US 1 at Crittenden St/ 42 nd St	B 13.9	B 14.1	C 32.4	C 30	C 28.2
US 1 at Farragut St	A 3.8	A 3.7	A 6.7	A 5.2	A 4.9
US 1 at Gallatin St	A 4.3	A 4.2	A 3.6	A 3.6	A 3



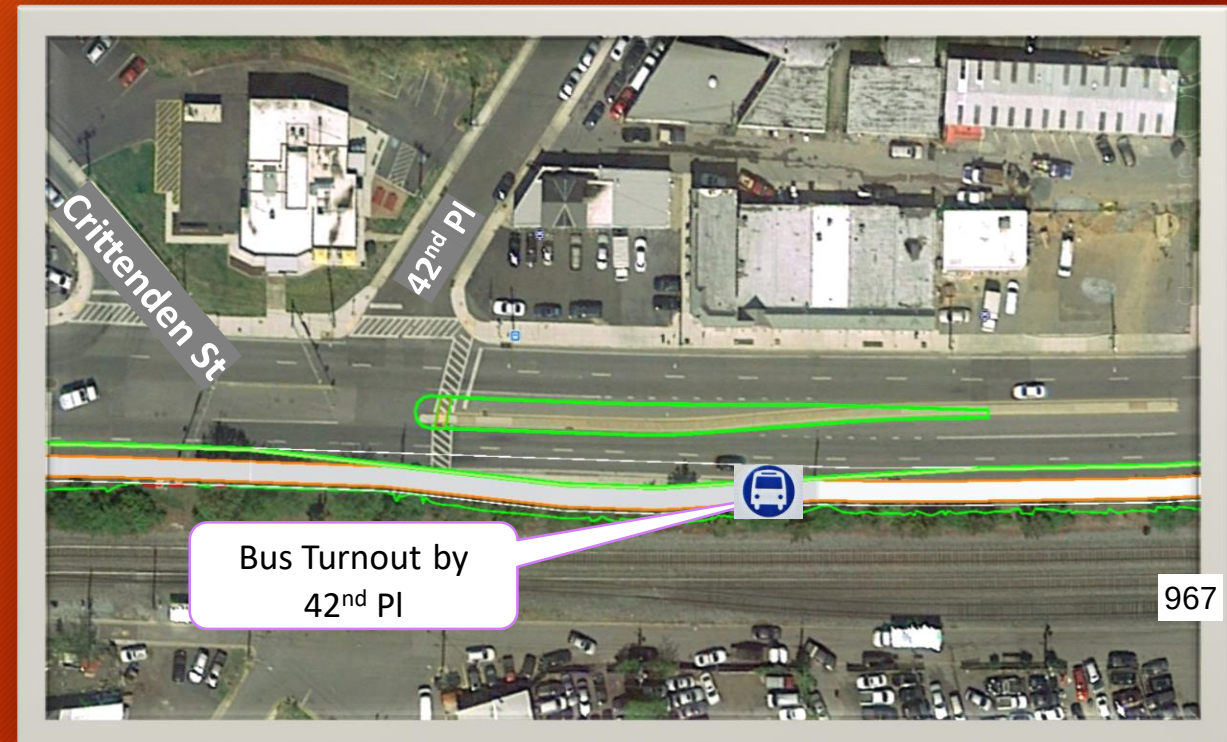
Proposed Design Bus Turnouts

Bus Turnout Design

Existing

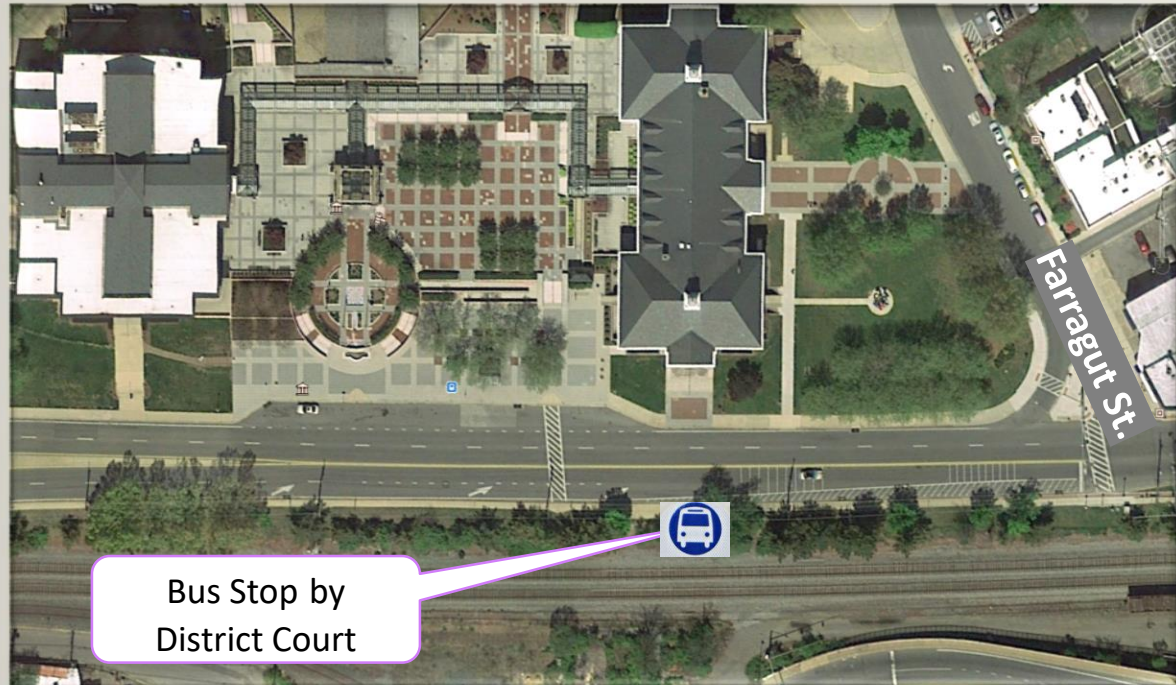


Proposed

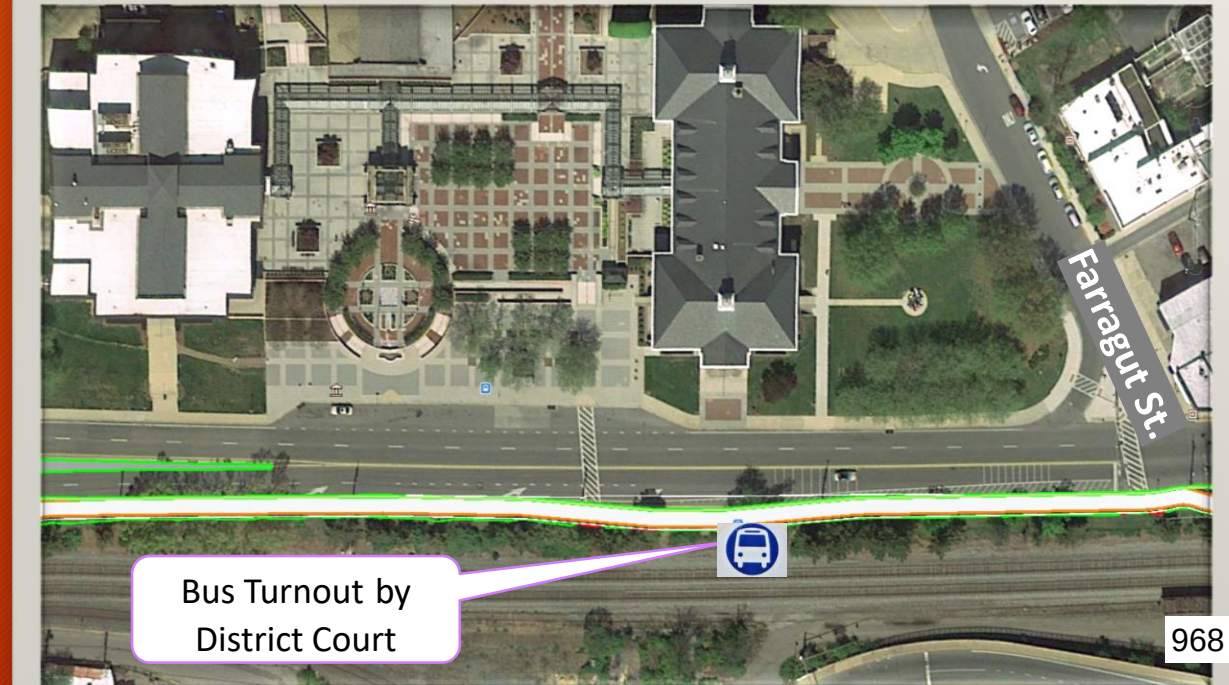


Bus Turnout Design

Existing



Proposed



Other Road Diet treatments

Left turn lanes



- Increasing Storage on left turn onto Crittenden St.

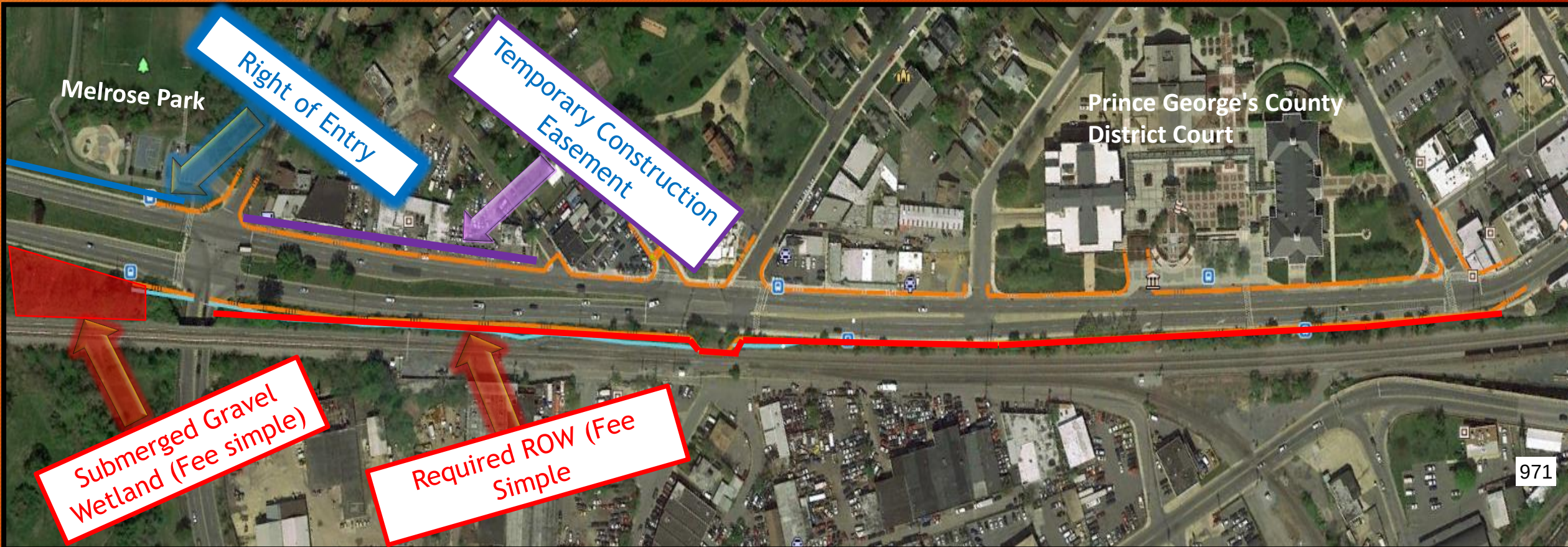
Other Road Diet treatments

Provisions for stalled vehicles



- Removing Median at US 1 north of 43rd Ave.
- Restricting Left Turn from 43rd Ave onto US 1.

ROW (Right of Way) Information



Current Status and Next Steps

- Design has reached 30% design completion.
- Additional Right of way (ROW) will be required for Storm Water Management.
- The extent of right of way need will be finalized after supplemental metes and bounds surveys are complete. Anticipated to be done by the end of October.
- Coordination with CSX transportation will be required to ensure smooth ROW transaction.
- Estimated construction date would be based on right of way.



Public Meeting and Outreach



- A mandatory referral in partnership with the city of Hyattsville and M-NCPPC (Maryland-National Capital Park and Planning Commission) will be scheduled prior to the end of the year.
- A public meeting will be coordinated with City officials subsequent to the Mandatory referral.

Need information /Have Questions

US 1 from Chapman Avenue to Farragut Street Bicycle Retrofit
(Rhode Island Trolley Trail)

Kidus Debasu- MDOT SHA

Project Manager

Phone: 410-545-8824

Email: Kdebasu@sha.state.md.us

Questions



Hyattsville City Council Agenda Item Report

Meeting Date: November 5, 2018

Submitted by: Laura Reams

Submitting Department: City Clerk

Item Type: Legislative

Agenda Section: Discussion Items (8:55 p.m. - 10:00 p.m.)

SUBJECT

Proposed Changes to City Election Policies (20 minutes)

HCC-97-FY19

Recommendation:

Sponsor(s):

At the Request of the City Administrator

Co-Sponsor(s):

N/A

ATTACHMENTS

[Ch. 8 Election Code Revisions Presentation_FINAL \(1\).pptx](#)

[Chapter 8 Revisions 11.2.18.pdf](#)

[Ethics Ordinance Amendment Re. Chapter 8 Changes 10.11.18\[67917\].docx](#)

[BOE Rules and Regulations 11.2.18\[70084\].pdf](#)

Summary Background:

A joint meeting of the Election Board and Ethics Commission was held after the 2017 election to review the City Code. At this meeting, the stakeholders discussed lessons learned from the 2017 election and recommendations for improvements. The drafted legislation was reviewed and revised several times by both bodies and staff before coming forward to Council.

The proposed revisions to the City Election, Ethics Code, and the Board of Supervisors of Elections Rules and Regulations make each document easier to understand, aligns all documents to ensure cohesive policies, and includes recommended changes to improve voter and candidate experiences and facilitates fair and efficient City elections.

Council discussed the proposed changes on October 15. An updated version of the Election Code and Board of Supervisors of Elections Rules and Regulations is attached. Items highlighted in yellow require additional Council direction. Additionally, staff updated Section 8-26 to explicitly state that candidates who file an Affidavit of Limited Contributions and Expenditures and then accept or expend in excess of \$1,000 shall immediately comply with all campaign finance reporting requirements. A change recommended by the City Attorney was made to the Appeals section.

Next Steps:

Staff recommends that the City Council repeal and replace the existing Election Code with the proposed legislation, adopt a change to the Ethics Code, and adopt the Board of Supervisors of Elections Rules and Regulations.

Adoption of all documents is planned for later this Fall/Winter. A proposed adoption schedule can be found in the presentation.

Fiscal Impact:

N/A

City Administrator Comments:

For Discussion.

Community Engagement:

The presentation will be posted on the City's Speak Up site for feedback. Additionally, comments on the proposed legislation can be emailed to cityclerk@hyattsville.org.

The Clerk's Office will publish Candidate Packets and Election Guides for the 2019 Election.

Strategic Goals:

Goal 1 – Ensure Transparent and Accessible Governance

Legal Review Required?

Complete



CITY OF HYATTSVILLE

Elections and Ethics Code

Board of Supervisors of Elections Rules and Regulations

2018 Revisions

AGENDA

- Background
- Lessons Learned
- Goals
- Revision Highlights
- Election 2019 Sneak Peek
- Next Steps
- Open for Council Discussion



BACKGROUND

Election Code (Amended 2017)

- City-only Voter Registry
- Same Day Registration (SDR) (2019)
- Campaign Finance

Board of Supervisors of Elections (BOSE) Rules and Regulations (2012)

- Updates Required for City-only Registry, SDR, Complaint Process

Post Election 2017 Stakeholder Review (August 2017-2018)

- BOSE, Ethics Commission, Staff, and City Attorney



LESSONS LEARNED

- Generally, the Code Lacked Clarity and was Difficult to Follow
- Some Code Sections Belonged in the Rules and Regulations
- Some Penalties were Unenforceable
- Campaign Finance
 - Lacked Key Details and was Overly Complicated in Parts
 - Administrative Burden was High
- Ethics Code Inconsistent on Candidate Withdrawal Date



LESSONS LEARNED

- Enhancements Could be Made to Make Voting and Running for Elected Office Easier



GOALS

1. Facilitate Fair and Efficient Elections
2. Encourage Voter and Candidate Participation by Improving the Experience
3. Ensure Candidates Understand their Rights, Responsibilities, and Obligations in City Elections
4. Update Policies and Procedures in Accordance with City Code
5. Draft and Reorganize the Code for Easier Reading and Clarity



RECOMMENDED LEGISLATIVE ACTIONS

1. Repeal and Replace Election Code
2. Adopt Updated Board of Elections Rules and Regulations
3. Adopt Updated Ethics Code



REVISION HIGHLIGHTS

- Defining Roles and Terms
- Voter Experience Improvements
- Candidate Experience Improvements
- Campaign Finance
- Penalties



DEFINING ROLES & TERMS

- Revised Key Definitions for Clarity
 - Contributions and In-Kind Contributions
- Defining Roles:
 - Board of Supervisors of Elections
 - Ethics Commission
 - Review of Financial Disclosure Forms
 - Financial Advisor to the Board for the Review of Campaign Finance Reports



DEFINING ROLES & TERMS

- Campaign Treasurer
 - Detailed Duties and Authority
- City Clerk's Office
 - Administration and Record Keeping



VOTER EXPERIENCE IMPROVEMENTS

- Same Day Voter Registration
 - Authorized by Council in 2017 for Implementation in 2019
 - Added SDR Procedures to Rules and Regulations
- Permanent Vote-by-Mail (VBM)
 - Opt In Process
 - Voter may Revoke their Status at their Discretion
 - Procedures for Removal from Permanent VBM List



VOTER EXPERIENCE IMPROVEMENTS

- Updated Timeline for Delivery of Vote-by-Mail Ballots
- Removed Requirement to Cite Section of Code when Filing a Complaint



CANDIDATE EXPERIENCE IMPROVEMENTS

- Aligned Threshold Amounts in Election Code - \$1,000
 - Appointment of Campaign Treasurer
 - Requirement to Open a Campaign Bank Account
 - Requirement to File Finance Reports
- Affidavit of Limited Contributions and Expenditures
 - Candidates who will not Raise/Spend over \$1,000 can File an Affidavit for Exemption from the Above Listed Items.



CANDIDATE EXPERIENCE IMPROVEMENTS

- Percentage of Candidates with Contributions/Expenditures < \$1K
 - 2013: 70% (7 out of 10 Candidates)
 - 2015: 53% (8 out of 15 Candidates)
 - 2017: 42% (5 out of 12 Candidates)
- Streamlined Finance Reporting Schedule
- Clearly Defined Expectations for Finance Reports



CANDIDATE EXPERIENCE IMPROVEMENTS

- Added Candidate Withdrawal Deadline
 - Short Timeline to Account for VBM Ballots Printing
 - Update to Ethics Code Referencing Withdrawal Date



CAMPAIGN FINANCE

- Timeline for Submission and Correction of Reports
 - Eliminated Third Report
 - Adjusted Deadline for Annual Report
- Changed Report Terminology
 - “Final Report” to “Annual Report”
- Disposition of Surplus Campaign Funds
 - Affidavit and Report Required within 30 days, or by 1st Tues in Sept



CAMPAIGN FINANCE

- Documentation Requirement for Campaign Loans
 - Affidavit of Payment in Full Required within 30 Days
- Removed Requirement for Political Committees to File Reports
- Clarified Restrictions for Personal Use



PENALTIES

- Corrected Discrepancy in Penalties Section
- Revised Penalties
 - Failure to Appoint Campaign Treasurer: \$500
 - Failure to File Reports (Initial or Corrected) \$500
 - Failure to Open a Campaign Account: \$500
 - Failure to Appear at a Board Hearing: \$200
 - Willfully Violate a Provision of 8-36 (B) : \$1,000



PENALTIES

- Authority to Impose Fines for Each Day a Violation Continues
- Mitigating Circumstances Considered for Application of Penalties
- The Board may Refuse to Certify any Candidate who has Failed to File Required Reports, or has Consistently Failed to Observe Required Election Procedures



PENALTIES

- An Elected Candidate shall not be Seated, Sworn In, or Receive a Salary until all Reports Required by the Election and Ethics Code are Filed in Compliance with these Chapters



ELECTION 2019 – SNEAK PEEK

- Same Day Voter Registration
 - Implemented Early Voting and Election Day
 - Election Day SDR Planned for One Location with Voting for All Wards
- Candidate Engagement
 - Continuation of Candidate Information Sessions
 - Updated Candidate Guide



ELECTION 2019 – SNEAK PEEK

- Voter Engagement
 - Continue Successful VoteHVL Initiative
 - Registration Drives at City/Community Events, Local Schools, and Businesses
- Two Days of Early Voting
 - Continued Partnership with City Carnival
 - Pop Up Polls/VBM Locations



NEXT STEPS

- Schedule Leading to Adoption of Election/Ethics Code
 - Initial Presentation/Discussion: October 15
 - Follow Up Discussion: November 5
 - First Reading: November 19
 - Second Reading/Adoption: December 3
 - Effective Date: December 23



NEXT STEPS

- Schedule Leading to Adoption of Rules and Regulations
 - Initial Presentation/Discussion: October 15
 - Follow Up Discussion: November 5
 - Adoption: November 19
- Election Vendor Selection
 - Discussion: December 17
 - Action: January 7, 2019



NEXT STEPS

- Election 2019 Kickoff
 - Candidate Mailing: January 2019
 - Candidate Information Sessions: March 2019
 - Candidate Registration: February 25 – March 29
 - Early Voting: April 27 and May 4
 - Election Day: May 7
 - Seating of New Council: May 20



COUNCIL DISCUSSION



CITY OF HYATTSVILLE

ORDINANCE 2018-00

An ordinance whereby the City Council repeals and replaces, in its entirety, Chapter 8 of the Hyattsville Code to update, reorganize, and refine Chapter 8 to improve its overall clarity and better define the City's election policies and procedures.

WHEREAS, Maryland Annotated Code, The Local Government Article, Section 5-202 grants to municipal corporations of the State of Maryland, including the City of Hyattsville, the power to protect the health, comfort, and convenience of their citizens; and

WHEREAS, after the 2017 City election, the Mayor and City Council recognized that the City's election laws needed updating; and

WHEREAS, the Mayor and City Council deem it in the best interest of its citizens to update and clarify the elections Chapter to ensure that residents, City officials, and election participants alike can understand their rights, responsibilities, and obligations in City elections rules, to facilitate efficient and fair elections.

NOW, THEREFORE, BE IT ORDAINED, by the City Council of the City of Hyattsville in regular session assembled that Chapter 8 of the Hyattsville Code is hereby REPEALED in its entirety, and it is hereby REPLACED as follows:

Chapter 8

ELECTIONS

ARTICLE I

General Provisions

§ 8-1 Definitions.

§ 8-2 Powers and Duties of the Board of Supervisors of Elections.

ARTICLE II

General Election Procedures

§ 8-3 Election Day.

§ 8-4 Early Voting.

§ 8-5. Special Elections.

§ 8-6. Applications for Candidacy; Certification of Candidates; Withdrawal.

§ 8-7. Qualifications for Election Judges; Oath of Office.

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ARTICLE III

City Supplemental Voter Registry

- § 8-8. Supplemental Voter Registry.
- § 8-9 Application and Procedure.

ARTICLE IV

Provisional Ballots

- § 8-10. Eligibility for a Provisional Ballot
- § 8-11. Application.
- § 8-12. Locations and Procedure.
- § 8-13. Canvass of Provisional Ballots.

ARTICLE V

Vote-by-Mail Ballots

- § 8-14. General Provisions.
- § 8-15. Applications for Vote-by-Mail Ballots.
- § 8-16. Rejection or Approval of Applications for Vote-by-Mail Ballots.
- § 8-17. Form and Contents of Vote-by-Mail Ballots and Related Materials.
- § 8-18. Assistance in Marking Vote-by-Mail Ballots.
- § 8-19. Delivery of Completed Vote-by-Mail Ballots.
- § 8-20. Procedure for Canvassing Vote-by-Mail Ballots.
- § 8-21. Records and Retention of Ballots and Related Materials.

ARTICLE VI

Campaign Material and Other Persuasive Election Material

- § 8-22. Authority Lines.
- § 8-23. Posting Campaign Materials.

ARTICLE VII

Campaign Finance

- § 8-24. Appointment of a Treasurer.
- § 8-25. Duties and Authority of a Campaign Treasurer.
- § 8-26. Reports Required.
- § 8-27. Filing Reports.
- § 8-28. Form and Contents of Reports.
- § 8-29. Review of Reports; Financial Advisors.
- § 8-30. Campaign Accounts.

- 1 § 8-31. Restrictions on Campaign Contributions.
2 § 8-32. Restrictions on the Use of Campaign Funds.
3 § 8-33. Investigation of Campaign Finance Violations.
4

5 **ARTICLE VIII**

6 **Complaints**

- 7 § 8-34. Scope of Duty and Authority.
8

9 **ARTICLE IX**

10 **Enforcement, Prohibited Conduct, Penalties, and Appeals**

- 11 § 8-35. Enforcement.
12 § 8-36. Prohibited Conduct.
13 § 8-37. Penalties.
14 § 8-38. Appeals.
15

16 [HISTORY: Adopted by the Mayor and Council of the City of Hyattsville 12-1-69. Section 8-7C amended at time of adoption of Code;
17 see Ch. 1, amended 02-20-07 by HO-2007-03 General Provisions, Art. I. Other amendments noted where applicable.]

18 **GENERAL REFERENCES**

- 19 Registration, nominations and elections - See Charter, Art. IV.
20 Administration of government - See Ch. 4.
21 Code of Ethics - See Ch. 10.
22 Peace and good order - See Ch. 87.

23 **ARTICLE I**

24 **General Provisions**

25 **§ 8-1. Definitions.**

26 As used in this chapter, the following terms have the meanings indicated:

27 Board: Board of Supervisors of Elections for the City.

28 Campaign funds: Money that is contributed or loaned to a candidate.

29 Campaign material: Any material that: (1) contains text, graphics, or other images; (2) relates
30 to a candidate, a prospective candidate, or the approval or rejection of a question; and (3) is
31 published or distributed to anyone by, at the request of, or under the authority of, a candidate.

32 Candidate: Individual who seeks nomination for election, or seeks election, to City office.

33 Contribution: A donation, grant, or gift, or a promise to make a donation, grant, or gift, whether
34 money or in-kind, to any candidate or representative, with exception to certain loans as set
35 forth in this Chapter.

1 Contributor: Any person who makes a contribution.

2 Corporation: Any organization or entity that is formed or organized under the laws of
3 Maryland, the United States, or any other state or foreign government.

4 Domestic Partner: Means an individual who is in a “domestic partnership” with another person
5 that meets the requirements set forth in Maryland Code, § 6-101 of the Health--General Article,
6 which may be amended from time to time.

7 Early voting day: A day close to, but in advance of, Election Day on which the City Council
8 has authorized the polls to be open to qualified voters (referred to in the Charter, § C4-9 as
9 “advance voting day”).

10 Election: General or special elections, referenda, or other questions at any election held by the
11 City.

12 Election Day: The day on which voting for the offices of Mayor and Council and any other
13 included referenda is regularly scheduled to occur as set forth by the City Charter and § 8-3 of
14 this Chapter, which does not include special elections or early voting days.

15 Expenditure: Any transfer, disbursement, or promise of money or valuable thing, to include
16 in-kind expenditures, by a candidate, treasurer, or other agent of a candidate to promote or
17 assist in the promotion of the success or defeat of a candidate or proposition submitted to a
18 vote at any election.

19 Financial institution: Any bank licensed to receive deposits and make loans which is insured
20 by the Federal Deposit Insurance Corporation or a credit union insured by the National Credit
21 Union Insurance Fund.

22 In-kind contribution: The fair market value, which shall be the usual and normal charge of
23 anything of value other than direct contributions of money including goods, or services for
24 which the contributor normally charges, and payments made on behalf of a candidate, except
25 that volunteering the contributor’s own time or use of a personal vehicle to a campaign shall
26 not constitute an in-kind contribution.

27 Political committee: Any combination of two (2) or more persons formed in any manner, which
28 independently collects or expends a cumulative amount of one hundred dollars (\$100.00) or
29 more to assist in the promotion of the success or defeat of any candidate or slate of candidates
30 for City elective office or any cause to be submitted to the voters.

31 Report: A report of expenditures, loans, and contributions received by any candidate.

32 Surplus campaign funds: Unexpended funds contributed to a candidate that remain after the
33 election is certified and all campaign debts, including all loans, have been paid.

34 Treasurer: Any person appointed by a candidate to receive or disburse money or other items
35 of value to promote or assist in the promotion of any candidate or proposition.

1 Vote-by-Mail: The process whereby voters make application for and submit completed ballots
2 by either mail or in-person drop-off at a location authorized by the Board.

3 **§ 8-2. Powers and Duties of the Board of Supervisors of Elections.**

4 A. Assistance from City Staff. In addition to any power, duty, or responsibility provided in
5 the City Charter, the Board may obtain the assistance and support of City staff, with the
6 approval of the City Administrator, to aid the Board in its official duties.

7 B. Administration and record-keeping. In addition to any power, duty, or responsibility
8 provided in the City Charter, the Board shall have the authority to direct the City Clerk in:

9 (1) Issuing and maintaining all election records in a separate filing system provided by the
10 City; and

11 (2) Keeping, maintaining, administering, and updating the City Supplemental Voter
12 Registry and accepting, examining, and, as appropriate, approving registration applications
13 for the Supplemental Voter Registry.

14 C. Campaign finance. The Board shall have authority to provide, receive, and review campaign
15 reports, and certify that campaign reports are timely and complete as outlined in this Chapter,
16 and the Board may delegate some or all of these responsibilities.

17 D. Election duties. In addition to any power, duty, or responsibility provided in the City
18 Charter, the Board shall:

19 (1) Provide for the nominations for elected City officers;

20 (2) Verify the eligibility of election candidates and certify eligible candidates;

21 (3) Select and train election judges to assist in the operation of the polling places for City
22 elections;

23 (4) Issue the official election ballot;

24 (5) Provide a form for the certificate of polling place challengers and watchers;

25 (6) Provide for voting by Vote-by-Mail ballot and provisional ballot;

26 (7) Prescribe and print or obtain all necessary election forms and related materials in
27 sufficient time for their respective use, including applications for candidacy, Vote-by-Mail
28 applications, Vote-by-Mail ballots, voter instructions, ballot envelopes, and related
29 affidavits and statements as the Board deems necessary;

30 (8) Oversee the operations of the polling places;

31 (9) Validate the authenticity of returned Vote-by-Mail ballots and completed provisional
32 ballots;

1 (10) Certify all election results; and

2 (11) Provide for recount of ballots.

3 E. Enforcement and review. In addition to any power, duty, or responsibility provided in the
4 City Charter, the Board shall:

5 (1) Administer and enforce all election laws;

6 (2) Conduct administrative review of complaints as set forth in Article VIII of this Chapter;
7 and

8 (3) Delegate the investigation and review of violations of Article VII to the City Ethics
9 Commission per Chapter 10, § 10-1 of the City Code.

10 **ARTICLE II**

11 **General Election Procedures**

12 **§ 8-3. Election Day.**

13 Elections, other than special elections, shall be held on the first Tuesday in May of each year
14 an election for Mayor and/or Council regularly occurs. Polls shall be open to qualified voters
15 and public notice provided in accordance with C4-9 of the City Charter.

16 **§ 8-4. Early Voting.**

17 A. The City Council or Board may provide for one or more early voting days in any election.

18 B. Any early voting day shall be held no more than fifteen (15) days prior to the Election Day
19 established in § 8-3 of this Article.

20 C. On a designated early voting day, the polls shall be open to qualified voters at the times and
21 places specified and advertised by the Board, which shall be open a minimum of eight (8) hours
22 if early voting is conducted on a Saturday and at least four (4) hours if early voting is conducted
23 on any other day of the week.

24 **§ 8-5. Special Elections.**

25 A. Generally. In addition to regularly scheduled elections, other special elections shall be held
26 to resolve tie votes in any election and/or to fill vacancies that arise a substantial amount of
27 time before the next regularly scheduled election, which shall be conducted pursuant to this
28 Section.

29 B. Runoff elections.

30 (1) If, in any election directed by the Charter, any two (2) or more candidates for the office
31 of Mayor or Councilmember who have received the highest number of votes receive an

1 equal number of votes, or the vote upon any binding referendum results in a tie, a runoff
2 special election between these candidates and/or tied referenda shall be ordered and
3 conducted by the Board.

4 (2) Any runoff special election required by Paragraph (1) of this Subsection shall be held
5 within seventy-five (75) days of the election in which the tie vote occurred, shall include
6 those offices for which the equal number of votes was cast or referendum questions which
7 resulted in a tie vote.

8 C. Special elections to fill vacancy.

9 (1) If, at any point the office of Mayor and/or one or more seats on the Council become
10 vacant, the Board shall, at the direction of the Council, conduct a vacancy special election
11 to fill the vacancies.

12 (2) Except as provided in the City Charter, any special election shall be held within
13 seventy-five (75) days of the date the vacancy was created.

14 (3) Notwithstanding any other provision of this Subsection, no special election to fill a
15 vacancy shall be held if the special election can be conducted on any day that is within one
16 hundred fifty (150) days of any regularly scheduled City election, and the office shall
17 remain vacant until the regularly scheduled City election.

18 D. Combination special elections. If, in the event that an additional seat on the Council
19 becomes vacant after a general election, but before a necessary runoff special election is held
20 pursuant to Subsection (B) of this Section, the Board may extend the time for the runoff special
21 election to any day within seventy-five (75) days of the date the vacancy was created and both
22 the runoff and the vacancy elections shall be conducted at the same time.

23 **§ 8-6. Applications for Candidacy; Certification of Candidates; Withdrawal.**

24 A. All individuals wishing to have their name included on a ballot as a candidate for the offices
25 of Mayor or Councilmember shall:

26 (1) file an application for candidacy on a form prescribed by the Board on or before 5:00
27 p.m. on the last Friday in March in the year that the election is to be held;

28 (2) comply with any financial disclosure requirements of Chapter 10, § 10-9 of the City
29 Code.

30 B. The Board shall timely review all applications for candidacy and conduct any necessary
31 investigations to determine the eligibility of each applicant for candidacy, including verifying
32 that candidates are residents of the City.

33 C. The Board may refuse to certify for candidacy any individual who, in any previous election,
34 failed to file all reports required by this Chapter or has repeatedly or consistently failed to
35 observe required election procedures.

1 D. The Board shall consider any mitigating circumstances in ruling on whether to certify an
2 application for candidacy.

3 E. Candidates may withdraw their candidacy at any time on or before the Monday following
4 the filing deadline for applications for candidacy set forth in this Section. Any candidate who
5 withdraws shall file a disposition of funds report.

6 **§ 8-7. Qualifications for Election Judges; Oath of Office.**

7 A. All Election Judges appointed by the City Council or by the Board shall be registered voters
8 of the City.

9 B. All persons listed in Subsection (A) of this Section shall, before engaging in their duties,
10 take the oath set forth in § C12-1 of the City Charter and Article I, § 9 of the Maryland
11 Constitution.

12 **ARTICLE III**

13 **City Supplemental Voter Registry**

14 **§ 8-8. Supplemental Voter Registry.**

15 A. The City Clerk shall maintain a supplemental voter registry of qualified voters who are not
16 registered to vote pursuant to the State Universal Registration Act at the direction of the Board.

17 B. Any person qualified to vote in a City election and who is not registered to vote pursuant to
18 the State Universal Registration Act is eligible to register for the City Supplemental Voter
19 Registry.

20 C. Upon satisfaction of the application requirements as set forth in this Article, the City Clerk
21 shall register the applicant on the City Supplemental Registry unless otherwise directed by the
22 Board.

23 **§ 8-9. Application and Procedure.**

24 A. Any qualified person who wishes to be placed on the City Supplemental Voter Registry
25 shall complete and submit an application to the Board.

26 B. Each City Supplemental Voter Registry application shall include, and each applicant shall
27 be required to provide:

28 (1) the applicant's full name;

29 (2) the address of the applicant's primary residence;

30 (3) a declaration that the applicant meets the qualifications to vote in a City election as set
31 forth in § C4-1 of the City Charter;

1 (4) a statement executed under the penalties of perjury declaring that all of the information
2 included in the application is true to the best of the applicant's knowledge; and

3 (5) the applicant's signature.

4 C. In addition to the statements set forth in Subsection (B) of this Section, applicants are
5 required to show proof of identity, age, and residency within the City.

6 D. Notwithstanding Subsection (C) of this Section, if the applicant is unable to provide
7 sufficient documentary proof, the Board may waive one or more of those requirements if the
8 applicant provides an additional affidavit executed under the penalties of perjury, stating that
9 the applicant does not currently possess documentation that could be used to prove identity,
10 age, and/or residency.

11 ARTICLE IV

12 Provisional Ballots

13 § 8-10. Eligibility for a Provisional Ballot.

14 An individual is eligible to cast a provisional ballot if:

15 A. The individual declares in a written affirmation under oath submitted with the
16 provisional ballot that the individual is a registered voter in the State or the City and is
17 eligible to vote in that election; and

18 B.(1) The individual's name does not appear on the City's election register or list of
19 voters; or

20 (2) An election official asserts the individual is not eligible to vote.

21 § 8-11. Application.

22 Before an individual may cast a provisional ballot, the individual shall:

23 A. Complete and sign the provisional ballot application prescribed by the Board of
24 Supervisors of Elections; and

25 B. Be provided a data sheet on how the individual may obtain information on whether the
26 provisional vote was counted or not counted and the reasons therefore.

27 § 8-12. Locations and Procedure.

28 A. An eligible voter who completes an application shall be issued and may cast a provisional
29 ballot at a polling location on Election Day or at an early voting location during early voting.

1 B. When cast, a provisional ballot shall either be enclosed in an envelope and secured in a
2 locked box designated for such ballots or stored in an electronic format as specified by the
3 Board.

4 **§ 8-13. Canvass of Provisional Ballots.**

5 A. The Board shall adopt regulations regarding the handling and canvassing of provisional
6 ballots.

7 B. The envelope of a provisional ballot shall not be opened until the Board has approved the
8 provisional ballot application for that ballot.

9 C. The Board may not reject a provisional ballot except by unanimous vote.

10 D. The Board shall reject a provisional ballot if:

11 (1) The individual is not qualified to vote in the election;

12 (2) The individual failed to sign the oath on the provisional ballot application;

13 (3) The individual cast more than one (1) ballot for the same election; or

14 (4) The provisional ballot is marked by an identifying mark that is clearly evident and can
15 be used to identify the ballot.

16 E. The Board shall establish a system that permits individuals who have cast provisional ballots
17 to determine whether their ballot was counted.

18 **ARTICLE V**

19 **Vote-by-Mail Ballots**

20 **§ 8-14. General Provisions.**

21 A. Any person qualified to vote in any election may use a Vote-by-Mail ballot pursuant to the
22 provisions of this Article.

23 B. Subject to the provisions set forth in § 8-14. E., voters that have applied for and received a
24 Vote-by-Mail ballot may only vote in that election by Vote-by-Mail ballot and are prohibited
25 from voting in person at any polling place for that election.

26 C. No Vote-by-Mail ballot, completed or otherwise, shall be handled or delivered by a
27 candidate or any individual volunteering or working for a candidate, except for their own ballot
28 or that of their immediate family member or a member of their household.

29 D. No person may cast a vote using a Vote-by-Mail ballot that was issued by the City for
30 another person.

1 E. Voters may choose to Vote-by-Mail permanently by completing the required form
2 provided by the City Clerk's office. The form must be submitted to the City Clerk no less than
3 10 days before any City election. The City Clerk shall maintain a list of all permanent Vote-
4 by-Mail voters. Any permanent Vote-by-Mail voter may revoke their status as a permanent
5 Vote-by-Mail voter at any time. The City Clerk shall remove from the list any permanent
6 Vote-by-Mail voter who has not voted in three consecutive election cycles.

7 **§ 8-15. Applications for Vote-by-Mail Ballots.**

8 A. Printed forms of applications for Vote-by-Mail ballots in accordance with the requirements
9 of this Chapter shall be provided by the Board and shall be available to any qualified voter.

10 B. A qualified voter desiring to vote at any election with a Vote-by-Mail ballot shall make an
11 application, in writing, to the Board prior to the deadline established in Subsection (D) of this
12 Section.

13 C. Applications for Vote-by-Mail ballots shall include the following:

14 (1) the applicant's name and residence address, including the street and number;

15 (2) a statement indicating that the applicant is a qualified voter at the residence address
16 given;

17 (3) whether the ballot should be held for pick-up at the City Municipal Building or mailed
18 to the applicant, and if mailed, the address to which the ballot is to be delivered if different
19 from the applicant's resident address;

20 (4) an affidavit executed under the penalties of perjury stating that all of the information
21 included in the application is true to the best of the applicant's knowledge; and

22 (5) the applicant's signature.

23 D. Application deadlines. (1) Applications that request a ballot be held for pick-up at the City
24 Municipal Building shall be filed with the Board no later than 10:00 a.m. on the last day the
25 City offices are open for regular business before Election Day.

26 (2) Applications that request delivery of a ballot by mail shall be filed with the Board no
27 later than the close of business ten (10) days prior to Election Day.

28 **§ 8-16. Rejection or Approval of Applications for Vote-by-Mail Ballots.**

29 A. Review of applications. (1) The Board shall review and approve or reject all Vote-by-Mail
30 applications as soon as reasonably practicable and without delay.

31 (2) All applications that request delivery of a Vote-by-Mail ballot by mail shall be approved
32 or rejected no later than seven (7) days prior to Election Day.

1 B. Rejection of applications. (1) The Board shall reject any application for a Vote-by-Mail
2 ballot if:

3 (a) the application is not filed before the applicable deadline;

4 (b) the application is missing any of the information required by § 8-15 of this Article;

5 (c) the applicant is not eligible to vote;

6 (d) the Board has already granted a previous application filed by that applicant; or

7 (e) the voter has already voted in person on an early voting day.

8 (2) The Board may not reject the Vote-by-Mail application of any person except by
9 unanimous vote.

10 (3) If a Vote-by-Mail application is rejected, the Board shall promptly notify the applicant
11 of the reason(s) therefore.

12 C. Approval of applications; delivery of Vote-by-Mail ballots. (1) If an application is not
13 rejected under Subsection (B) of this Section, the Board shall, as soon as reasonably
14 practicable, mail the applicant's ballot or make the ballot available for pickup at the office of
15 the Board if the applicant so indicated on their application.

16 (2) The Board shall mail all ballots that approved applicants have requested to be delivered
17 by mail no later than seven (7) days prior to Election Day.

18 (3) If the applicant is entitled to free postage privileges under any federal law, rule, or
19 regulation, the Board shall take full advantage of these privileges.

20 (4) Not more than one (1) Vote-by-Mail ballot may be mailed or provided to any applicant
21 unless the Board has reasonable grounds to believe that the Vote-by-Mail ballot previously
22 mailed has been lost, destroyed, or spoiled.

23 (5) Upon the mailing or delivery of a Vote-by-Mail ballot, the Board shall:

24 (a) remove the approved applicant's voter record card from the precinct binder and
25 place it in a separate binder marked "Registered Vote-by-Mail Voters," which shall be
26 retained in the office of the City Clerk; and

27 (b) place a marker in the regular precinct binder that indicates the voter's name, that a
28 Vote-by-Mail ballot has been mailed or delivered, and the date on which the ballot was
29 sent or delivered.

30 **§ 8-17. Form and Contents of Vote-by-Mail Ballots and Related Materials.**

31 A. The Board shall prescribe the size, form, arrangement, and printed contents of Vote-by-Mail
32 ballots, except that all such ballots shall:

(1) be in paper form;

(2) display the heading “Vote-by-Mail Ballot” printed in large letters in a clear space at the top of each paper ballot;

(3) display the following instructions printed in large letters in a clear space below the ballot heading: “Mark ballot by placing X in proper blank after each candidate or question. Do not erase or make identifying marks.”;

(4) clearly display the applicable election ward;

(5) list candidates by office and then alphabetically by last name within each office; and

(6) list referendum questions following the listing of candidates for all offices.

B. The Board shall prescribe the size, form, arrangement, and printed contents of the following materials, which shall be included with every Vote-by-Mail ballot:

(1) Vote-by-Mail ballot material envelopes, providing for a covering envelope, a ballot envelope, and a return envelope;

(2) printed instructions for the marking and casting of Vote-by-Mail ballots; and

(3) a certification of assistance form.

§ 8-18. Assistance in Marking Vote-by-Mail Ballots.

A. Any qualified voter who is unable to mark their own ballot due to a physical disability may receive assistance in marking a Vote-by-Mail ballot.

B. Any person assisting another voter in the marking of a Vote-by-Mail ballot shall complete the required certification of assistance included with the ballot, which shall be executed under the penalties of perjury and returned with the completed ballot.

§ 8-19. Delivery of Completed Vote-by-Mail Ballots.

Completed Vote-by-Mail ballots may be delivered:

A. by mail to the address designated by the Board; or

B. by hand to any of the following:

(1) the City Clerk’s office during normal business hours;

(2) the Board or a chief election judge during voting hours at any polling place on any Election Day or early voting day; or

(3) the Board at any other place and time designated by the Board.

1 **§ 8-20. Procedure for Canvassing Vote-by-Mail Ballots.**

2 A. Time for opening or unfolding ballots. The Board shall not open or unfold any Vote-by-
3 Mail ballot at any time before the closing of the polls and the beginning of the canvass of the
4 ballots.

5 B. Procedure generally. (1) Immediately following the canvass of the votes cast at the regular
6 voting places in the City on Election Day, the Board shall meet at the City Municipal Building
7 and shall proceed to count, certify, and canvass the Vote-by-Mail ballots contained in the ballot
8 envelopes received before the closing of the polls on Election Day.

9 (2) This canvass shall be conducted by ward in accordance with the applicable provisions
10 of § C4-11 of the City Charter.

11 (3) All Vote-by-Mail voters' applications, certifications, ballot envelopes, and ballots shall
12 be kept separate and apart from other ballot types and election materials.

13 (4) Before opening any ballot, the Board shall inspect the ballot and determine the
14 following:

15 (a) that the provisions for filling out and signing the oath on the outside of the ballot
16 envelope have been substantially complied with;

17 (b) that the voter is entitled to vote under this Chapter in a ward of the City; and

18 (c) that the voter has not already voted on Election Day.

19 (5) If the Board is satisfied that a ballot meets all of the criteria set forth in Paragraph (4)
20 of this Subsection, the Board shall open the ballot envelope, remove the ballot therefrom,
21 place the ballot in a Vote-by-Mail ballot box, and enter in the appropriate register the fact
22 that the voter whose name appears thereon has voted, using the initials "VBM" to indicate
23 the vote has been by a Vote-by-Mail ballot.

24 C. Rejection of Vote-by-Mail ballots. (1) The Board may reject a Vote-by-Mail ballot only by
25 unanimous vote of the entire Board.

26 (2) Vote-by-Mail ballots may be marked by any kind of ~~pencil or~~ ink so long as it permits
27 the Board to ascertain the voter's unambiguous choices.

28 (3) Vote-by-Mail ballots shall be rejected and not counted if:

29 (a) the ballot was received by the Board after the closing of the polls on Election Day;

30 (b) the voter's oath is not sufficiently executed;

31 (c) there is more than one (1) ballot in the ballot envelope, in which case all shall be
32 rejected;

33 (d) the ballot was cast by a person not eligible to vote;

1 (e) the voter has already voted in person;

2 (f) the voter has marked more choices than is permissible for a specific contest or the
3 ballot is marked in a manner that makes the voter's choice(s) ambiguous, in which case
4 the Board shall invalidate only the vote(s) for the specific contest(s) that are improperly
5 or ambiguously marked and shall not invalidate the remainder of the ballot, which shall
6 be counted, certified, and canvassed unless rejected for another reason;

7 (g) the Board receives from the same person before the closing of the polls on election
8 day more than one (1) Vote-by-Mail ballot, in which case the Board shall count, certify,
9 and canvass only the Vote-by-Mail ballot with the earliest date and the other shall be
10 rejected, or, if both are undated or dated the same, both ballots shall be rejected;

11 (h) the ballot contains a vote for a person who has ceased to be a candidate, in which
12 case the Board shall invalidate only that vote for that specific contest and shall not
13 invalidate the remainder of the ballot, which shall be counted, certified, and canvassed
14 unless rejected for another reason; and/or

15 (i) the Board determines that the voter has died before Election Day as set forth in
16 Subsection (D) of this Section.

17 D. Death of a Voter. (1) Whenever the Board determines from proof of investigation that any
18 person who has cast a Vote-by-Mail ballot has died before Election Day, the Board shall not
19 count the ballot of the deceased voter, but it shall be preserved with the rest of the canvassed
20 ballots pursuant to § 8-21 of this Article.

21 (2) Notwithstanding Paragraph (1) of this Subsection, if, at or before the time of counting
22 and canvassing, the Board has not determined that a person who cast a Vote-by-Mail ballot
23 had died before Election Day, that voter's ballot shall be counted, and the fact that the voter
24 may later be shown to have been actually dead on Election Day shall not invalidate the
25 ballot or the election.

26 **§ 8-21. Records and Retention of Ballots and Related Materials.**

27 A. The Board shall keep, pursuant to the City's Record Retention Policy, a record of
28 Vote-by-Mail applications and shall retain Vote-by-Mail ballots, ballot envelopes,
29 certifications, and applications received.

30 B. The records retained pursuant to this Section shall be made available for examination by
31 any registered voter or as the Maryland Public Information Act or other State or federal law
32 may require or prohibit such disclosure.

1 **ARTICLE VI**

2 **Campaign Material and Other Persuasive Election Material**

3 **§ 8-22. Authority Lines.**

4 A. Except as otherwise provided in this section, each item of campaign material shall contain
5 an authority line, set apart from any other message, that states the name, title, and address of
6 the person responsible for the publication or distribution of the same, except that an address
7 need not be included if the responsible person is registered with the City Clerk.

8 B. Any material that is published or distributed in support of, or in opposition to, a candidate,
9 referendum, or election question without being directly or indirectly authorized by the
10 candidate as provided in this Section shall include the following statement: "Authorized and
11 paid for by (name of payer or any organization affiliated with the payer). This message has not
12 been authorized or approved by any candidate."

13 C. The provisions of this Section apply to all campaign materials, including those that are
14 distributed and published electronically and through social media.

15 D. Notwithstanding any other provision in this Section, material need not contain an authority
16 line if the item is too small to include all the information required by this Section in a legible
17 form, except that reasonable effort shall be made to include as much legible information as
18 possible, even if in truncated form.

19 **§ 8-23. Posting Campaign Materials.**

20 The posting or display of campaign materials, including, but not limited to, signs, clothing,
21 flyers, and other displays, shall be conducted in compliance with any applicable federal,
22 state, and local laws.

23 **ARTICLE VII**

24 **Campaign Finance**

25 **§ 8-24. Appointment of a Treasurer.**

26 A. Each candidate shall appoint one (1) treasurer and shall file the name and address of the
27 treasurer, together with the treasurer's acceptance of the appointment in writing, on a form
28 provided by, and returned to, the City Clerk prior to the filing deadline for candidacy set forth
29 in § 8-6 of this Chapter.

30 B. In the event of the resignation of an appointed treasurer, the candidate must immediately
31 inform the Board and shall within seventy-two (72) hours appoint a new treasurer and so
32 inform the Board in writing.

1 C. A candidate may serve as treasurer so long as the candidate has not received and does not
2 intend to receive total contributions of more than one thousand dollars (\$1000.00), excluding
3 contributions to a candidate's campaign if made by a candidate or the candidate's spouse or
4 domestic partner.

5 D. In the event the contributions exceed the amount in Subsection (C) of this Section, the
6 candidate must, within two (2) days, report such to the City Clerk, appoint a treasurer, and file
7 the appropriate form(s).

8 E. The Board or the Clerk shall promptly send a written notice to any candidate who is required
9 to appoint a treasurer but who fails to do so. Such notice shall also be posted on the City's
10 website and on the City's bulletin board.

11 **§ 8-25. Duties and Authority of a Campaign Treasurer.**

12 A. All campaign assets shall be delivered to, and maintained by, a candidate's treasurer.

13 B. No campaign assets may be disbursed or disposed of by any person other than the treasurer.

14 C. Treasurers are responsible for timely filing reports as required by this Chapter.

15 D. The duties of a treasurer may not be transferred or delegated to another person, except that
16 a candidate may simultaneously be a candidate and serve as treasurer pursuant to § 8-24(C) of
17 this Article.

18 **§ 8-26. Reports Required.**

19 A. The treasurer for each candidate for the office of Council or Mayor, or the candidate serving
20 as their own treasurer, shall file reports in accordance with this Article.

21 B. Notwithstanding any other provision in this Article, a candidate is not required to file reports
22 otherwise required by this Article if the candidate files an Affidavit of Limited Contributions
23 and Expenditures averring that the candidate will not accept campaign contributions in excess
24 of one thousand dollars (\$1000.00) cumulatively or make expenditures in excess of one
25 thousand dollars (\$1000.00) cumulatively. Any candidate who files an Affidavit of Limited
26 Contributions and then accepts or expends in excess of one thousand dollars (\$1000.00) shall
27 immediately comply with the requirements for candidates who have not filed an Affidavit of
28 Limited Contributions and have received more than one thousand dollars (\$1000.00).

29 C. The City Clerk shall make all reports and/or affidavits filed pursuant to this Article available
30 for examination by any member of the public.

31 D. Any report filed with the City as required by this Chapter shall also be filed with the State
32 Board of Elections as required by State law, including pursuant to Maryland Code, § 4-108.2
33 of the Local Government Article, which may be amended from time to time.

1 E. A candidate shall not be seated and sworn as an elected official and shall not receive a salary
2 until all reports required by this Chapter are filed in substantial compliance with the
3 requirements of this Chapter as well as all reports required by the City's Ethics Ordinance.

4 **§ 8-27. Filing Reports.**

5 A. Reports required by this Article shall be filed pursuant to the following schedule:

6 (1) Initial Report: An initial report shall be filed on the twenty-first (21st) day proceeding
7 Election Day.

8 (2) Second Report: A second report shall be filed on the seventh (7th) day preceding
9 Election Day.

10 (3) Annual Reports: An annual report shall be filed on or before the first Tuesday in
11 September of each year until the cash balance, unpaid bill(s), or deficit is eliminated and a
12 final annual report reflecting the disposition of funds is filed with the City Clerk's Office
13 per § 8-32.

14 (4) Corrected Reports: Corrected reports shall be filed in the time frame established in
15 § 8-29(B) of this Article.

16 B. Reports must be filed with the office of the City Clerk by 1:00 p.m. on the day they are due.

17 C. The City Clerk shall promptly send a written notice to any candidate and the candidate's
18 treasurer who fails to timely file a campaign finance report. Such notice shall also be posted
19 on the City's website and on the City's bulletin board.

20 **§ 8-28. Form and Contents of Reports.**

21 A. All reports shall be made on forms or in a format provided by the City Clerk and approved
22 by the City Attorney.

23 B. Each report shall include the information set forth in Subsection C of this Section that
24 occurred during the following time frames:

25 (1) The initial report shall include information from the preceding election, or the most
26 recent annual report, if applicable, up to and including the full day before the filing of the
27 initial report.

28 (2) All other reports shall include information starting from the full day that the previous
29 report was filed up to and including the full day before the filing of the current report.

30 C. Each report filed shall include:

31 (1) the total and individual amounts of all contributions the candidate or candidate's
32 treasurer received;

(2) the total and individual amounts of all expenditures which the candidate or candidate's treasurer, or any person acting on their behalf made;

(3) receipts and/or other documentation for all expenditures reported, which shall include dates, amounts, and information to identify each contributor and recipient of funds;

(4) the total and individual amounts of all loans the candidate or candidate's treasurer received;

(5) documentation indicating the nature, terms, and status of each loan; and

(6) any balance from the prior reporting period.

D. Notwithstanding any other provision in this Article, a report need not itemize the campaign contributions made by the candidate or the candidate's spouse or domestic partner but may aggregate these contributions under one line or total.

E. Unless otherwise provided by the Board, all reports shall be executed under the penalties of perjury by the treasurer of the candidate or by the candidate if the candidate is not required to have a treasurer.

§ 8-29. Review of Reports; Financial Advisors.

A. Responsibility to ensure accurate reporting. The Board is responsible for ensuring that all forms and campaign finance reports are in substantial compliance with this Chapter.

B. Notification and correction of deficient reporting. (1) If the Board or their designee discovers a reporting inaccuracy or other deficiency in a report filed pursuant to this Article, it shall notify in writing the candidate and the treasurer of the candidate, if any, and a corrected report shall be filed by the treasurer within:

(a) forty-eight (48) hours after the City Clerk sends notice if the report to be corrected was filed pursuant to Paragraphs (1) or (2) of § 8-27(A) of this Chapter; or

(b) seven (7) days after the City Clerk sends notice if the report to be corrected is an annual report required to be filed pursuant to Paragraph (3) of § 8-27(A) of this Chapter.

(2) Failure to file a corrected report within applicable time established by this Subsection shall render the report overdue and may result in penalties pursuant to Article IX of this Chapter.

(3) Notwithstanding any other provision of this Subsection, if the inaccuracy or deficiency in a report is de minimis or other good cause is shown, the Board may, with or without a hearing, waive the inaccuracy or deficiency and the requirement to file a corrected report.

C. Financial advisors. (1) The Board may appoint one or more individuals with some expertise in reading financial statements to aid the Board in reviewing reports filed pursuant to this Article.

(2) The Board may direct financial advisor(s) to:

(a) promptly review all reports filed pursuant to this Article;

(b) notify the candidate, treasurer, and/or Board of any irregularities, discrepancies, or errors the reports;

(c) recommend actions to the Board, if any.

§ 8-30. Campaign Accounts.

If contributions received by a candidate exceed a total of one thousand dollars (\$1000.00), all campaign funds must be deposited into one account opened with a financial institution and such funds shall not be commingled with any other funds or accounts.

§ 8-31. Restrictions on Campaign Contributions.

A. Maximum contribution. No candidate or treasurer may accept from a single person, and no person may give or promise to any single candidate, contributions that total over five hundred dollars (\$500.00) per election.

B. Candidate and spouse or domestic partner contributions and loans. (1) The contributions or loans of a candidate or the candidate's spouse or domestic partner to the candidate's own campaign shall not be subject to, or included in, the dollar limitations set forth in this Section.

(2) Any contributions or loans made by a candidate or candidate's spouse or domestic partner to the candidate's own campaign shall pass through the candidate's campaign account, if any, and be reported, however, they need not be itemized and can be aggregated under one line or total.

C. Contributions from prohibited persons. No candidate shall knowingly accept or solicit a contribution from:

(1) an anonymous contributor;

(2) a corporation, including labor unions and political committees;

(3) a person making a contribution in the name of another; or

(4) a foreign national, which includes:

(a) a person outside of the United States who is not a citizen of the United States;

(b) an individual within the United States who is not a citizen of the United States and who is not lawfully admitted for permanent residence;

(c) a government of a foreign country;

(d) a political party of a foreign country;

1 (e) any partnership, association, corporation, organization, or other combination of
2 persons organized under the laws of, or having its principal place of business in, a
3 foreign country; or

4 (f) any other foreign person that is prohibited from making contributions by federal
5 law, including 52 U.S.C. § 30121 and 11 CFR 110.20, which may be amended from
6 time to time.

7 D. If any candidate or treasurer receives a contribution prohibited by this Section, that
8 candidate shall either return the contribution to the contributor promptly or shall forfeit that
9 contribution to the City promptly, which forfeiture may be used for any public purpose.

10 E. Campaign loans. (1) Except as set forth in Subsection (B) of this Section, the total amount
11 of all loans to a candidate for any election shall not exceed five thousand dollars (\$5,000.00),
12 and no one person or entity may loan a candidate more than one thousand dollars (\$1000.00).

13 (2) A loan to a candidate is considered a contribution unless:

14 (a) the loan is from a financial institution or other entity in the business of making
15 loans; or

16 (b) the loan is to the candidate and repayment is personally guaranteed by the candidate
17 and is due within one year of the date of the loan.

18 (3) If the amount of interest actually charged on a loan to a candidate is less than the prime
19 rate on the day the loan is made, the difference between the actual interest charged and that
20 prime rate shall constitute a contribution.

21 (4) All campaign loans shall be documented on campaign finance reports in a format
22 provided by the City Clerk and approved by the City Attorney.

23 **§ 8-32. Restrictions on the Use of Campaign Funds.**

24 A. Personal use of campaign funds prohibited. (1) No candidate may use campaign funds for
25 any personal use, which is an obligation or expense of any person that would exist irrespective
26 of the campaign of a candidate.

27 (2) Personal use includes, but is not limited to:

28 (a) household food items or supplies;

29 (b) clothing, other than items of de minimis value that are used in the campaign
30 (examples of de minimis campaign clothing include, but are not limited to, campaign
31 logo “T-shirts” and caps with campaign slogans);

32 (c) mortgage or rent payments for the personal residence or property of a candidate or
33 the candidate’s family;

- (d) vacations;
- (e) tickets or admission to entertainment, such as a concert or theater performance; and
- (f) salary payments to a member of the candidate's family.
- B. Campaign funds may not be utilized in any election other than one held by the City.
- C. Cash withdrawals are prohibited.
- D. Campaign funds shall not be used to pay a fine for a violation of this Chapter.
- E. No person other than a candidate, treasurer, or other agent with specific written authorization by the candidate shall make an expenditure from any campaign account.
- F. Retention and disposition of surplus funds. (1) After an election, surplus funds may be retained and may be used by the candidate in any election to support the candidate's election or reelection to any City office. The candidate and the candidate's treasurer shall meet all applicable requirements of this Chapter with respect to maintaining and accounting for the surplus funds including, but not limited to filing all annual reports. (2) The candidate may also choose to dispose of surplus funds in accordance with § 8-32F(2)(a) – (d).
- (a) Returned, pro rata, to the contributors by the treasurer;
- (b) Paid to a charitable organization registered or exempt from registration pursuant to Maryland Code, Title 6 of the Business Regulation Article, which may be amended from time to time;
- (c) Paid to a local board of education or to a recognized nonprofit organization providing services or funds for the benefit of pupils or teachers; and/or
- (d) Paid to any public or private institution of higher education in the State for scholarship or loan purposes.
- (3) Except where surplus campaign funds are returned to contributors, such funds shall not be converted to personal use.
- (4) Candidates or their treasurers shall make a record of all dispositions of surplus campaign funds.
- (5) Within 30 days of the disposition of all of a candidate's surplus funds, or on or before the first Tuesday in September following the complete disposition of the candidate's surplus funds, whichever is earlier, the candidate or the candidate's treasurer shall file:
- (a) an annual report as set forth in § 8-27(A)(3) and 8-28 of this Article VII; and
- (b) an affidavit with the City Clerk stating that the campaign accounts are closed and detailing how the funds were distributed.

1 (c) Within 30 days of paying off a campaign loan, a candidate shall cause to be filed an
2 affidavit stating that the loan is paid in full with supporting documentation from the
3 lender.

4 **§ 8-33. Investigation of Campaign Finance Violations.**

5 A. Notwithstanding any other provision in this Chapter, the Board or their designee shall have
6 concurrent jurisdiction to investigate any violations of this Article and enforce the provisions
7 thereof, and the Board is not required to investigate or resolve matters being addressed by the
8 City Ethics Commission.

9 B. The City Administrator and/or the City Clerk shall monitor and make appropriate
10 recommendations to the Board and the Ethics Commission in the event of duplicative
11 investigations or hearings.

12 **ARTICLE VIII**

13 **Complaints**

14 **§ 8-34. Scope of Duty and Authority.**

15 A. The Board shall investigate and resolve any written complaints or contests relating to
16 voting, the validity of any ballot, candidate certification, violations of this Chapter, or other
17 City election matters within the authority granted to the Board by the City Charter or Code.

18 B. When reviewing a complaint, contest, or other potential violation within its authority
19 pursuant to this Article, the Board has the power to:

20 (1) conduct a reasonable investigation;

21 (2) conduct one or more hearings;

22 (3) adopt reasonable rules and procedures for the conduct of hearings that are not
23 inconsistent with this Article;

24 (4) summon concerned parties and/or necessary witnesses to hearings;

25 (5) dismiss a complaint;

26 (6) conciliate a complaint;

27 (7) issue orders;

28 (8) implement enforcement actions as provided by this Section; and

29 (9) extend the time for any hearing and the issuance of any finding, opinion, and/or orders.

ARTICLE IX

Enforcement, Prohibited Conduct, Penalties, and Appeals

§ 8-35. Enforcement.

The Board may enforce the provisions of this Chapter by:

A. issuing cease and desist orders;

B. imposing fines as set forth in this Article;

C. imposing conditions, mandates, or prohibitions on any violator as the Board determines to be appropriate, including requiring a violator to take corrective action;

D. seeking judicial enforcement of its decisions by application to courts of competent jurisdiction for injunctions, mandamus, and other appropriate judicial review when conducting an administrative review; and

E. referral of complaints to the Office of the State's Attorney for prosecution as the circumstance may warrant.

§ 8-36. Prohibited Conduct.

A. It is unlawful to violate any provision of this Chapter.

B. It is unlawful for any person to knowingly and willfully:

(1) sign, under oath, affirmation, and/or the penalties of perjury any application, affidavit, or other document pursuant to this Chapter that contains false information;

(2) violate any provision of this Chapter with the intent to cast an illegal vote;

(3) apply for, cast, or attempt to cast a ballot, including a provisional or Vote-by-Mail ballot, under any name other than their own name;

(4) cast or attempt to cast a Vote-by-Mail ballot that was not issued by the City for that person;

(5) publish or distribute, for the purpose of influencing votes, any material that contains a false or substantially misleading authority line;

(6) canvass or open any Vote-by-Mail ballot or envelope, other than their own, prior to the time for canvassing set forth in Article V of this Chapter;

(7) accept, make, or solicit any contribution prohibited by this Chapter or State or federal law;

(8) fail to promptly forfeit unlawful contributions as required by this Chapter or State or federal law;

(9) use or dispose of campaign funds in violation of this Chapter or State or federal law; or

(10) handle a completed voter registration application other than the voter's own application, except that this prohibition does not apply to City, State, or Federal government officials and employees engaging in official business.

§ 8-37. Penalties.

A. Any person who commits any violation set forth in Subsection (B) of § 8-36 of this Article, or knowingly aids or abets another in committing such a violation, shall be guilty of a misdemeanor and, upon conviction, be subject to a fine of not more than one thousand dollars (\$1000.00), imprisonment of not more than six (6) months, or both, at the discretion of the Court.

B. The Board may impose a fine of up to five hundred dollars (\$500.00) on any person who fails to:

(1) include an authority line on campaign materials, if required, that is in substantial compliance with the requirements set forth in § 8-22 of this Chapter;

(2) timely appoint a treasurer and file the correct forms as required by § 8-24 of this Chapter;

(3) promptly establish, and properly maintain, a campaign account as required by § 8-30 of this Chapter; or

(4) comply with an order of the Board.

C. The Board or its designee may impose a fine of up to five hundred dollars (\$500.00) on any candidate and/or any treasurer of a candidate if any report or affidavit required by Article VII is not timely filed.

D. The Board or its designee may impose a fine of up to one hundred dollars (\$100.00) for any violation of this Chapter, including the prohibited conduct set forth in § 8-36 of this Article, except that a person may not be fined under this Subsection if a fine or penalty is imposed under Subsections (A), (B), or (C) of this Section.

E. After notification of a violation and for each day the violation continues, the Board may impose additional fines up to the amounts indicated in Subsections (B), (C), and (D) of this Section, respectively, if an infraction set forth in those Subsections is not abated within a reasonable time.

F. The Board may impose a fine of up to two hundred dollars (\$200.00) on any person that fails to appear at a hearing after receiving a summons from the Board.

1 G. In addition to any other fine, penalty, or sanctions, the City Council may, after notice and a
2 hearing, impose such censure or penalty on any person elected who has violated Article VII of
3 this Chapter that the Council deems reasonable and appropriate, including a refusal to seat the
4 individual, removal from office, and a declaration that the seat is vacant.

5 **§ 8-38. Appeals.**

6 ~~A. Any person who is aggrieved by any decision or action of the Board, or the City Ethics~~
7 ~~Commission when it is enforcing any provision of this Chapter, shall have the right to appeal~~
8 ~~the decision within thirty days to the Council by submitting a written petition to the City Clerk~~
9 ~~within fifteen (15) days of the decision or action. Circuit Court for Prince George's County,~~
10 ~~which shall review the matter *de novo* and without a jury.~~

11 ~~B. If any person who appeals pursuant to Subsection (A) of this Section is aggrieved by the~~
12 ~~decision of the Council, they may appeal the Council's decision to the Circuit Court for Prince~~
13 ~~George's County, which shall review the matter *de novo* and without a jury.~~

14 **AND BE IT FURTHER ORDAINED** that if any provision of this Ordinance or the
15 application thereof to any person or circumstance is held invalid for any reason, such invalidity
16 shall not affect the other provisions or any other applications of the Ordinance which can be
17 given effect without the invalid provision or applications, and to this end, all the provisions of
18 this Ordinance are hereby declared to be severable;

19 **AND BE IT FURTHER ORDAINED** that this Ordinance shall take effect twenty (20)
20 days from the date of its adoption;

21 **AND BE IT FURTHER ORDAINED** that a fair summary of this ordinance shall
22 forthwith be published twice in a newspaper having general circulation in the City and otherwise
23 be made available to the public.

24 **INTRODUCED** by the City Council of the City of Hyattsville, Maryland, at a regular
25 public meeting on _____, 2018.

26 **ADOPTED** by the City Council of the City of Hyattsville, Maryland, at a regular public
27 meeting on _____, 2018.

Adopted: _____

Attest: _____
Laura Reams, City Clerk

Candace B. Hollingsworth, Mayor

30 { } indicate deletions

31 __/BOLD indicates additions

1 Asterisks * * * Indicate matter retained in existing law but omitted herein

2

3 Effective Date:

**CITY OF HYATTSVILLE
ORDINANCE 2018__**

An Ordinance whereby the City of Hyattsville amends its ethics provisions to conform with contemporaneous changes to the City's Election laws.

WHEREAS, the City of Hyattsville repealed and re-enacted Chapter 8 of its Code which governs the City's elections; and

WHEREAS, the Council finds it necessary and in the public interest to amend Chapter 10 of the City of Hyattsville Code to be consistent with the repealed and re-enacted Chapter 8.

NOW, THEREFORE, BE IT ORDAINED by the City Council of the City of Hyattsville in regular session assembled that Chapter 10 is hereby amended as follows:

§ 10-9. Filing of financial disclosure statement.

* * *

B. Candidates to be local elected officials. . . .

* * *

3. If a candidate fails to file a statement required by this section ~~after written notice is provided by the City Clerk or Board of Election Supervisors at least 20 days before the last day for the withdrawal of candidacy, the candidate is deemed to have withdrawn the candidacy in accordance with the deadline for filing applications for candidacy established in Chapter 8 of this Code, the candidate must file the statement required by this section no later than 5:00 p.m. on the second full business day after the City Clerk sends written notice to the candidate of the deficiency or the candidate is deemed to have withdrawn the application for candidacy. For the purposes of this subparagraph, time commences running upon the Clerk transmitting the written notice by electronic or other means.~~

AND BE IT FURTHER ORDAINED that if any provision of this Ordinance or the application thereof to any person or circumstance is held invalid for any reason, such invalidity shall not affect the other provisions or any other applications of the Ordinance which can be given effect without the invalid provision or applications, and to this end, all the provisions of this Ordinance are hereby declared to be severable;

AND BE IT FURTHER ORDAINED that this Ordinance shall take effect twenty (20) days from the date of its adoption;

AND BE IT FURTHER ORDAINED that a fair summary of this ordinance shall forthwith be published twice in a newspaper having general circulation in the City and otherwise be made available to the public.

INTRODUCED by the City Council of the City of Hyattsville, Maryland, at a regular public meeting on October 11, 2018.

ADOPTED by the City Council of the City of Hyattsville, Maryland, at a regular public meeting on _____, 2018.

Adopted: _____

Attest: _____
Laura Reams, City Clerk

Candace B. Hollingsworth, Mayor

[] indicate deletions

Underline indicates additions

Asterisks * * * Indicate matter retained in existing law but omitted herein

Effective Date: August 26, 2018

**CITY OF HYATTSVILLE
BOARD OF SUPERVISORS OF ELECTIONS
RULES & REGULATIONS**

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PART 1—BOARD OF SUPERVISORS OF ELECTIONS

Sec. 1.1 – The Board.

(a) Composition. The Board of Supervisors of Elections (hereinafter the “Board”) shall consist of five (5) members who shall be appointed by the Mayor with the approval of the Council for a four (4) year term as set forth in § C4-2 of the City Charter.

(b) Qualifications. The members of the Board shall be qualified voters for City elections and shall not hold or be candidates for any other City office during their term. (Charter, §§ C4-1, C4-2).

(c) Oath. Prior to assuming the duties of office, each member of the Board shall take an oath before any officer of Maryland duly authorized to take an affidavit to the effect that they will obey the Constitution of the United States, the Constitution and laws of the State of Maryland, and the laws of the City of Hyattsville, and will fairly and impartially administer the duties of this office.

(d) Participation in Elections. Members of the Board and their designees must maintain an appearance of impartiality with respect to City electoral issues, and therefore, Board members are strictly prohibited from campaigning for any City candidate or referendum issue or otherwise participating in any City election other than voting and carrying out official duties. This prohibition includes contributing to any campaign or political committee, offering public support for any candidate or electoral issue, and/or engaging in any activity that might give the appearance of bias or partiality.

(e) Removal. The Council may remove any member of the Board for good cause provided that the Board member is given a written copy of the charges and an opportunity for a hearing before the Council. (Charter, § C4-3).

(f) Chairperson. The Board shall elect a Chairperson from among their members.

(g) Counsel. The City Attorney serves as counsel to the Board. The Board should seek advice from the City Attorney on all matters of law.

(h) Role of the City Clerk. The City Clerk shall coordinate communication between the Board and the City Council and between Board members and shall generally facilitate the conduct of City elections. The City Clerk shall also be the record-keeper for the Board.

Sec. 1.2 – Duties and Powers.

(a) General. The Board shall be in charge of the conduct of all City elections and may appoint election judges or other employees to assist the Board. (Charter, § C4-4)

(b) Powers.

(1) The Board shall have all the powers described in § C4-4 of the City Charter and § 8-2 of Chapter 8 of the City Code.

(2) Additionally, the Board shall have the power to make and publish regulations regarding the conduct of City elections and make decisions on all disputes and controversies arising from the administration of the City election laws consistent with Article IV of the City Charter and Chapter 8 of the City Code.

Sec. 1.3 – Meetings.

(a) Quorum. For the exercise of its powers and duties, a majority of the members of the Board shall be sufficient for quorum and decision.

(b) Meetings. The Board shall meet at regular intervals and shall be authorized to hold such special meetings as the Board may require. Meetings will be called as needed by the Chairman or by the request of any other two members.

(c) Attendance of the City Clerk. The City Clerk, or their designee, shall attend all meetings of the Board.

(d) Notice of Meetings; Open Meetings Act. All Board meetings shall be publicly advertised and open to the public unless otherwise permitted by State law. The Board shall comply with the notice and other requirements of the Maryland Open Meetings Act.

(e) Rules. To the extent parliamentary guidance is required, and consistent with the City Charter and Code, the Board may use Roberts Rules of Order, Revised, during internal deliberations a guide.

(f) Minutes. Minutes of each meeting shall be kept by a person appointed by the Board. After the minutes are reduced to a writing, a copy shall be promptly forwarded to City Clerk who shall retain them consistent with the City's record retention policy.

PART 2—ELECTION JUDGES

Sec. 2.1 – Election Judges.

(a) Appointment. The Board must appoint such election judges as allowed by the City budget and as needed for the election.

(b) Removal. The Board must remove or replace any judge if in the Board's estimation such is necessary.

(c) Oath. Prior to assuming the duties of office, each judge shall take an oath before any officer duly authorized to take an affidavit, to the effect that the judge will obey the Constitution of the United States and the constitution and laws of the State of Maryland, and the laws of the City of Hyattsville, and will fairly and impartially administer the duties of the office.

Sec. 2.2 – Responsibilities.

Judges shall assist the Board in the conduct of elections in the manner prescribed by the Board.

Sec. 2.3 – Training and Qualifications.

The Board shall provide each judge with appropriate instructions and training prior to each general or special election and as otherwise required. Judges shall be thoroughly familiar with procedures for registration of voters, Vote-by-Mail ballot procedures, and candidate petition procedures. Judges shall be thoroughly familiar with operation of the polls on election days and such other matters relating to maintenance of the election days and such other matters relating to maintenance of the election rolls as may be pertinent to their assigned duties.

Sec. 2.4 – Compensation.

Compensation of the Board members and judges of elections and expenditure for their duty shall be determined by the Council in the annual budget.

PART 3—QUALIFICATION AND REGISTRATION OF VOTERS

Sec. 3.1 – Voter Qualifications.

The qualifications of a voter are set forth in § C4-1 of the City Charter, which may be amended from time to time.

Sec. 3.2 – Registration Generally.

(a) Generally. A person who is qualified to vote in a City election may register for the purposes of voting in a City election in one of two ways:

(1) By applying to become a registered voter of Prince George’s County; or

(2) By submitting an application on a form provided by the Board to be placed on the City Supplemental Voter Registry, which is maintained by the City Clerk.

(b) Proof of Identity, Age, and Residency. An applicant may prove identity, age, and residency for the purposes of registering for the City Supplemental Voter Registry as follows:

(1) Identity may be established through a valid photo identification card or document issued by a federal, state, or local government entity of the United States, any foreign

country, or any school, provided that the identification card or document contains, at minimum, a clear photo, the person's full name, and the name or identifying marks of the document's issuer.

(2) Age may be established though the **identity** documents set forth in Paragraph (1) of this Subsection if the documents include proof of the applicant's age, or through other documentation such as a birth certificate.

(3) Residency may be established though the **identity** documents set forth in Paragraph (1) of this Subsection if the documents include proof of residency, or through other documentation, including a copy of a deed, house or apartment lease, utility bill, paycheck, bank statement, school record, or other official or government document that shows the applicant's name and current address in the City.

(4) If the applicant is unable to provide sufficient documentary proof, the Board may waive one or more of those requirements that the applicant produce documentation if the applicant provides an additional affidavit executed under the penalties of perjury, stating that the applicant does not currently possess documentation that could be used to prove identity, age, and/or residency. The affidavit shall be executed under the penalties of perjury and contain the following information:

(i) The applicant's name and residence address including street number,

(ii) A statement that the applicant meets the registration requirements of the City Charter to be a qualified voter in the City,

(iii) That the address on the application is the applicant's primary residence;

(iv) The applicant has lived in the City of Hyattsville for at least (30) days, and

(v) The applicant does not claim the right to vote elsewhere in the United States.

Sec. 3.3 – Same Day Registration.

(a) Same Day Registration Permitted. A qualified voter who is not already registered with the City or County may register to vote on any City Election Day or Early Voting Day.

(b) Choice of Registry. Pursuant to Article III of Chapter 8 of the City Code, a voter may not remain registered in both the City Supplemental Voter Registry and the County election registry. In order to vote in a City election on the same day the voter registers, the applicant must be registered in the City Supplemental Voter Registry, at least temporarily for the purposes of that election. Applicants may then choose to remain registered in the City Supplemental Voter Registry only, or they may elect to have their application forwarded to the Prince George's County Board of Elections to apply for County registration. If the applicant chooses to have their application forwarded to the Prince George's County Board of Elections, pursuant to Subsection (e) of this

Section, the voter's name must be removed the City Supplemental Voter Registration upon verification that the voter application has been processed by the County.

(c) Procedure for Same Day Registration. Same day registration shall be conducted in accordance with the following procedures:

(1) Applicants shall be given a Prince George's County Board of Elections voter registration application or a City supplemental voter registration application.

(2) To register, the applicant must present a completed application and provide verification of identity, age, and residency per § C4-1 of the City Charter, § 8-9 of the Hyattsville City Code, and § 3.2 of these Regulations.

(3) The City Clerk or their designee shall then verify the following:

(i) review the application to ensure that all the necessary information has been provided and that it has been signed by the applicant;

(ii) verify that the applicant satisfies the age requirements

(iii) verify that the applicant's address is within City limits; and

(iv) check the City Supplemental Voter Registry and contact the Prince George's County Board of Elections to verify that the applicant is not registered in either voter database.

(4) If it is determined that the applicant is a qualified City voter and is not already a registered voter with either the City or County, the City Clerk or their designee shall:

(i) enter the applicant's registration information into the City Supplemental Voter Registry system;

(ii) issue the applicant a voter identification number;

(iii) prepare and issue a Same Day Voter Registration Voter Authority Card by completing the voter authority card, entering the voter identification number on the certificate, and having the voter sign the voter authority card; and

(iv) forward the application to the Prince George's County Board of Elections to be processed by the County Board if the applicant so desires.

(5) If it is determined that the applicant is not a qualified City voter, by reason of age, residence, or otherwise, the City Clerk or their designee:

(i) shall not register the voter in the City Supplemental Voter Registry;

(ii) shall promptly inform the applicant of the reason for rejection;

(iii) shall promptly inform the applicant that the voter is not permitted to vote in any City election until the voter becomes qualified and registered; and

(iv) may forward the application to the Prince George's County Board of Elections to be processed by the County Board if the applicant so desires.

(d) Authorization to Vote Same Day. An applicant who has been registered in the City Supplemental Voter Registry and issued a Same Day Voter Registration Voter Authority Card after completing the same day registration process as set forth in this Section may proceed to vote in that election.

(e) Post Same Day Registration Procedures. Within three business days after Election Day, the City Clerk or their designee shall forward all Prince George's County voter registration applications to the Prince George's County Board of Elections except those applications where the applicants opted to be registered in the City Supplemental Voter Registry only. Upon verification from the Prince George's County Board of Elections that voter registrations have been processed, the City Clerk or their designee shall remove the voter from the City Supplemental Voter Registry.

(f) In the event that a same day voter registration applicant's information cannot be verified, the applicant may cast a provisional ballot if otherwise eligible to do so.

Sec. 3.4 – Registration Lists.

The Board shall annually obtain from the County Board an alphabetical list of County-registered voters who were shown as residing within the corporate boundaries of the City immediately prior to the period beginning thirty (30) days before each general and special election, which list shall be utilized as the registration roll of County-registered voters for purpose of a City election. The Board may also periodically request the County Board of Election Supervisors to provide the registration status of City residents on such occasions and in such form as the Board deems necessary. As required, the Board shall obtain a list of registered voters from the County Board, which may be utilized as the registration roll of County-registered voters for purposes of eligibility to sign a candidate petition under § C4-8 of the City Charter (see Part 4 of these Regulations). Such list is requested to be provided in two (2) formats: alphabetical (entire City) and by ward (street listing).

Sec. 3.5 – Reporting Voter Participation.

The Board assists the County Board in maintaining its registration records by advising the County Board of the participation of voters in City elections. Such participation is credited by the County Board and ensures that no voter who has voted in a City election will be stricken from the County registration polls.

PART 4—CANDIDATES FOR OFFICE AND PETITIONS

Sec. 4.1 – Candidate Applications.

(a) Applications. Any qualified person desiring to be a candidate for an elective office shall file an application with the City Clerk on or before 5:00 p.m. on the last Friday in March in the year that the election is to be held for any elected position that will become vacant after the upcoming election. The application shall be on a form provided by the Board. No fee shall be charged for such filing. (Charter, § C4-8 and Code, § 8-6).

(b) Contents of Application. An application for candidacy shall be executed under oath and shall state:

- (1) That said candidate is a registered voter of the City;
- (2) That said candidate will be a resident of the City at the date of election;
- (3) The ward in which said candidate will reside on Election Day; and
- (4) The name of the office sought. (Charter, § C2-2(B) and Code, § 8-6).

(c) Reports Required. Each application for candidacy shall include a Financial Disclosure Statement pursuant to Chapter 10, § 10-9 of the City Code.

(d) Notice. The Board shall publicly announce the time and place by which candidates must formally file their applications as set forth in Subsection (a) of this Section. Notice of the availability of applications at the time and place for their filing shall be given twice in a newspaper of general circulation in the City once a week during the two (2) weeks preceding the filing deadline as well as on the City website and other publications. (Charter, § C4-8(B))

(e) Filing of Applications. When any application is received by the Board, the Board member or City Clerk will note the time and date of receipt in the upper right corner of the first page and initial under the time and date. All applications will be kept in a secure place until they are verified at a certification meeting.

Sec. 4.2 – Evaluation and Certification of Candidate Applications.

As soon as reasonably practicable, the Board will meet and review each application to determine whether it conforms to the City's Charter and Code requirements. The qualifications of the prospective candidate shall be verified and the Board will certify to the Mayor and City Council the name of each person filing a verified application of candidacy and the respective office for which the person has filed. This certification shall be sent to the City Council at its first regular meeting following the last Friday in March of each election year.

Sec. 4.3 – Publication.

The Board shall publicize within the City the names of certified candidates and the offices each candidate seeks, and shall post all such names and offices conspicuously at the polls.

Sec. 4.4 – Candidate Notices.

Prior to the opening of the polls on Election Day or the first Early Voting Day, each candidate is to be provided with a notice concerning candidate rights and responsibilities during the conduct of the election procedure. Such notice includes a statement in a form approved by the City Attorney describing restrictions on size and placement of signs, banners and other written messages.

Sec. 4.5 – Certification of Petitions for Referenda and Ballot Initiatives.

In the event the Board is called upon by the Mayor and City Council or the Charter to certify any petition, the Board shall meet as soon as reasonably practicable to verify the signatures on such petition using the following criteria:

(1) Only original signatures supporting a petition are valid. The Board shall not verify any signature on any petition or certify any petition unless the Board has received the original document with original signatures. Documents with petition signatures that are copied, scanned, or faxed (i.e., documents do not include the original signature) shall not be accepted by the Board as a timely filing or for any other purpose.

(2) Each person signing a petition shall indicate thereon their name, their address and ward. It is preferred that the person signing also print their name prior to signing to facilitate verification.

(3) No signature may be verified if it was obtained more than one (1) year prior to the date the petition is filed with the Clerk.

(4) A petition may consist of several pages, but each page shall contain the exact subject matter of the petition. At the bottom of each page of signatures shall be an affidavit of the person procuring the signatures on such page that to the best knowledge and belief of that person, every signature on the page is genuine and bona fide and that the signers are qualified voters of the City.

(5) The Board shall certify all petitions to the Mayor and City Council if they conform to the Charter or ordinances or regulations of the City. Whether or not the Board certifies a petition, it shall list the number of verified signatures, the total number of voters registered to vote at (or as close in time as practicable to) the time the petition was submitted to the Mayor and City Council, and the date used for counting the total number of registered voters in the City. When the Board fails to certify a petition, it shall notify the Mayor and City Council as soon as reasonably practicable.

(6) Petitions that require signatures of registered voters must have typewritten at the top of each signature page the purpose of the petition stated in such a manner as to define the issue at hand without confusion. The Board, in certifying such petitions, may comment to the Mayor and City Council on the adequacy of the language of the petition, the form of the petition, or any other matter regarding the petition. However, the Board cannot ordinarily withhold certification of a petition unless the number of verifiable signatures on the petition is inadequate,

the issue is not typewritten at the top of each page of the petition, or the petition lacks essential information necessary to verify signatures.

(7) In verifying signatures on a petition, the Board need not compare a signature sample of the registered voter with the signature on the petition. However, each signer of a petition shall sign their name as it appears on the election records of the City, and under each signature may be typed or printed each petitioner's name, address and ward. If the name of a petitioner is not identical to the name as it appears in the City's election records, the Board may certify the name if there is no reasonable doubt that the petitioner is the particular registered voter in question, and that all other requirements have been met.

INTERPRETATION: As a general matter, a signature "A. Jones" will never suffice, and "Tony Jones" will ordinarily not suffice for "Anthony Jones." Further, the signature "John L. Smith, Jr." will not ordinarily suffice for "John L. Smith," or the signature "John L. Smith" for "John L. Smith, Jr.." Further, the signature "John Jones" will not suffice for "John L. Jones" because the name is so common, and the Board cannot be certain that no other person bearing that name lives in the City or at that address. However, a signature "Frank Carmane" may suffice for "Frank L. Carmane"—as well as the signature "Frank L. Carmane" for "Frank Carmane,"—but only if there are no other persons with that name within the City and all other information (address and ward) is identical to the City's election records and the Board has personal knowledge that no other person with a similar name lives at that address.

(8) Regardless of whether the Board finds sufficient signatures on the petition to make it effective for the stated purpose, the Board shall keep locked in a secure place the original petition and shall not return the same to any petitioner. Working copies of such petition shall be copies made by the Board and certified by the Board or its authorized representative as a true and complete reproduction of the original petition.

PART 5—ELECTIONS

Sec. 5.1 – Election Procedure, Generally.

(a) Voting Days. Election Day and any Early Voting Days shall be scheduled pursuant to § C4-9 of the City Charter and Article II of Chapter 8 of the City Code.

(b) Wards. The Mayor shall be elected by the combined vote of all the wards of the City, and Ward Council members shall be elected by the votes of the wards in which they reside.

(c) Voting Machines. All City elections shall be conducted using mechanical or electronic machines or computers.

(d) Vote Count. Votes shall be counted and the winner of each contest or question shall be determined pursuant to § C4-11 of the City Charter.

Sec. 5.2 – Public Notice of Election.

In all City elections, it shall be the duty of the Board of Elections to give public notice of the times, place and purpose thereof. (Charter, § C4-5). Such public notice shall be given on the City's website, on government access cable channel, in the City newsletter, in a newspaper of general circulation within the City and in the City's public notice board in the Municipal Building. Such public notice shall be given at least ten (10) days before the date of election. In the case of notice in a newspaper of general circulation in the City, notice shall be posted twice prior to the election. In the case of notice on the government access cable channel and the public notice board, such notice shall continue to be advertised until the date of the election. At the discretion of the Board, notices may also be posted in such public places in each ward in such manner as the Board may determine.

Sec. 5.3 – Candidate Rules.

(a) Distance from Polls.

(1) Candidates and persons campaigning for candidates, whether or not authorized to do so by the candidate, are required to remain at least 100 feet from the entrance door to any voting location when campaigning, greeting voters, or handing out materials. Candidates and persons campaigning for candidates may enter the building to use the rest rooms, to use a telephone for non-election purposes, and to go via the office corridor to get refreshments provided no contact is made with voters to promote any candidate or issue. Candidates and persons campaigning for candidates using the building shall not linger in the voting location.

(b) Pollwatchers.

(1) Each candidate may designate by the appropriate form one (1) observer who shall be present in a polling place 5:00 p.m. the day prior to the election prior to the opening of the polls and may be present during the period of the election and thereafter until the results are tallied.

(2) The observer may not participate in or interfere with the conduct of the election in any way and, while in the polling place, must remain at a position designated by the Board. The observer must direct any questions or comments concerning conduct of the election to a Board member, and the Board member may require that the discussion be conducted outside the immediate polling place.

(3) A Board member may require the observer to leave the polling place for cause, including disruption of election activities and/or any attempt to influence the casting of a ballot.

Sec. 5.4 – Polls Opened and Closed; Attendance.

(a) General. The polls shall be opened at 7:00 a.m. and closed at 8:00 p.m. on Election Day. The polls may be open at specified Early Voting Days prior to Election Day, as specified by the Board.

(b) Prior to Opening of Polls.

(1) Prior to Election Day and any Early Voting Day, the Board and election judges should review the procedures for Election Day or Early Voting.

(2) All judges shall report to their designated polling place at least one (1) hour before the polls open, unless specifically authorized by the Board to report at a later time. Board members will report in at the City Building no later than 6:00 a.m.

(3) It is the policy of the Board that it shall only allow an absence of a judge or Board member in the case of an emergency.

(4) If any judge has not taken the required oath of office prior to this time, an authorized officer will administer it. The judge(s) will sign the certificate, which shall be filed with the City Clerk.

(c) Continuous Presence.

(1) No judge shall leave the polling place until it closes unless excused by the Board for valid reasons.

(2) No Board member or judge may leave the polling place until completion of the tally, unless excused by the Board for valid reasons.

Sec. 5.5 – Inspection of Voting Machines.

The chief judge shall conduct an appropriate inspection of each machine prior to the opening of the polls to determine that they are set up correctly and operating properly.

Sec. 5.6 – Responsibility of Judges.

(a) Judges. Judges will be assigned, as required in the judgment of the Board, to serve as poll book judges or voting machine judges (or both). The Board may change such assignments during the course of an election day as it may see fit.

(b) Responsibility of Chief Judges. A chief judge is responsible for:

(1) supervising other election judges;

(2) inspecting voting machines to ensure machines are operating correctly;

(3) ensuring proper order and election procedures are followed;

(4) ensuring that candidates, supporters of candidates, and others comply with the distance rule and refrain from electioneering in and near the polling place.

(c) Responsibility of Poll Book Judges. A poll book judge is responsible for:

(1) checking voter identification by requesting the voter's month and day of birth and checking the information declared by the voter against a relevant portion of the list of registered voters prepared for polling;

(2) assigning the voter a sequential number on a tally sheet;

(3) completing an authorization card for each registered voter who seeks to vote bearing the judge's initials and presenting the card to the voter; and

(4) making a record that the authorization card has been presented by putting a checkmark (✓) in the poll book next to the voter's name.

(d) Responsibility of Voting Machine Judges. The voting machine judge is responsible for:

(1) accepting the authorization card;

(2) directing the voter to the proper ward machine and, if necessary, aiding the voter in preparing or initializing the machine; and

(3) providing instruction to voters regarding the operation of the voting machine as necessary.

(4) The voting machine judge will enter the voting machine polling booth only for the purpose of explaining the functioning of the machine prior to the voter entering the polling booth to cast his/her ballot.

Sec. 5.7 – Arrangement of Polling Places.

Within the polling place, the area shall be divided as follows:

(1) A sample ballot display near the entrance to the polling place containing the names and ward designations of all duly certified candidates;

(2) A table for polling book judges, with responsibility divided on an alphabetical basis and signs prominently indicating this arrangement; and

(3) An area for one or more voting booths, as required.

Sec. 5.8 – Voting Procedures.

(a) Authorization.

(1) Upon entering the polling place, the voter shall approach the proper polling book desk which shows the first letter of the voter's surname and state the voter's name. The polling book judge should find the name in the registration list and shall ask the voter for their address (even if the voter is known to the judge).

(2) The polling book judge will check the voter's authorization card to ensure that the signature is as required and then initial the card on the line provided and present the card to the voter.

(b) Status Changes Not Reflected in Registration Books, Procedure on Election Day.

(1) *Voter moved within the City.* If a City voter has moved to a new address in the City, whether within a ward or from one ward to another ward, the voter may still vote from the voter's new address, provided all other voting requirements are met upon demonstration of convincing evidence of the change. The chief judge shall immediately call a Board member to ensure that the change is made on all appropriate records. The voter shall complete a change of address card. A copy of such card shall be provided to the County Board with the request that the County Board commence appropriate action under its own procedures.

(2) *Voter has moved into the City.* A voter registered with the County Board who has moved from a residence elsewhere in the County to a residence in the City may vote in the City election with a provisional ballot.

(3) *Change of name by marriage or decree.* In the event an otherwise qualified registered voter presents themselves by a name other than that shown on the voting rolls on account of a change of the voter's name by marriage or court decree (or other means sufficient under the laws of the pertinent jurisdiction), the poll book and/or chief judge shall refer the voter to a Board member. The voter shall be instructed to take action appropriate to correct the registration maintained by either the Prince George's Board of Election Supervisors or the City Supplemental Voter Registry, whichever is applicable.

(4) *Disqualifying condition.* If an allegation is lodged on Election Day that a voter is not currently qualified to vote because of guardianship for mental disability or other cause, the voter denies such disqualifying condition, and the Board has no personal knowledge of the disqualifying condition, the voter is permitted to vote unless the person alleging such disqualification presents a certified true copy of the judgment or order giving rise to such disqualification.

(5) *Voter Purged from Registration.* If the voter has been purged for any reason and the voter claims this is erroneous, the judge will ask a Board member to have the applicant voter execute a provisional ballot application. The voter may then vote with a provisional ballot.

(c) Voting.

(1) Voter will form a line approaching the polling booths, if necessary, and shall, in turn, present their authorization cards to the voting machine judge. The judge will set the machine, if necessary, as the voter approaches the machine. The voter shall then approach and/or enter the polling booth enclosure and make ballot selections.

(2) The voting machine judge will retain the authorization cards until they are presented to the Board.

(3) The voter must make ballot selections at or in a voting booth alone, except that a parent or guardian may be accompanied by children not more than seven (7) years of age. If a

voter, because of infirmity, blindness or unfamiliarity with the voting machine shall need and request assistance, they will be provided with an affidavit of assistance form or audio assist.

(d) Periodic Checks. If voting machines are used, periodically during the day, the Board will check voter tally sheets against authorization cards and the voting machine counters to ensure that proper recording and documentation of vote action.

Sec. 5.9 – Vote-by-Mail Voting.

(a) Generally. Vote-by-Mail voting shall be conducted in strict conformity with Article V of the City Code.

(b) Applications.

(1) Applications for Vote-by-Mail ballots may be obtained from the City Clerk, the Board, or the City website. Requests may be made by mail, telephone, or in person. Copies will be kept in the files of the Board.

(2) Clerks and Board members receiving applications for Vote-by-Mail ballots shall enter the date and time of receipt of such applications on the upper right-hand corner of the application, together with the initials of the person accepting receipt. (If a time stamp is used, the stamp is endorsed with the initials of the person accepting receipt).

(c) Processing of Applications.

(1) Vote-by-Mail ballot applications shall be promptly placed in a secure cabinet or file pending review by the Board. Delivery will be made to the Board as soon as possible by the City Clerk.

(2) Pursuant to § 8-16 of Chapter 8 of the City Code, the Board shall review the applications regularly to determine that the application is from a registered voter and, if so, that the application is correctly and completely executed and no known impediment exists to the voter's eligibility.

(d) Application Rejected. If an application is rejected, the Board must notify the applicant, in writing and by phone, of the reasons. The notice will be sent within 24 hours of the Board decision. A full record of each such action will be kept for one year in the file folder for the particular election in the Board's files.

(e) Application Approved. If an application is approved, the Board shall update the precinct and Vote-By-Mail binders and other registers accordingly.

(f) Restrictions on Vote-by-Mail Ballots. No more than one (1) Vote-by-Mail ballot shall be mailed or delivered to any one applicant unless the Board has reasonable grounds to believe that the Vote-by-Mail ballot previously mailed has been lost, stolen, destroyed or spoiled. When a voter designates an agent to pick up or to return a ballot, neither the Mayor, a Councilmember, a candidate for such office, an individual working for a candidate, nor any member of their

immediate families may serve as such agent. A Board member may pick up or drop off applications or ballots when need requires it.

(g) Receipt of Ballot; Handling. The Clerk or Board member receiving a Vote-by-Mail ballot shall note date and time of receipt and initial on the left front of the envelope. (If a date stamp is used, the stamp is endorsed with the initials of the person accepting receipt). The envelope shall not be opened by anyone until the time for canvassing. All ballots received prior to the closing of the polls will be placed in a secure file. Ballots received at the City Office will be delivered to the custody of a Board member or the Clerk as soon as practicable. The name of the person doing this will be entered in the register described below.

(h) Election Day. On Election Day, the Board will maintain all Vote-by-Mail ballots in a separate secure file box with the register and related poll book cards, until the polls close. Any Vote-by-Mail ballot, including any emergency Vote-by-Mail ballot, received after the time of closing of the polling place on Election Day shall not be counted.

(i) Register. The Board will maintain a register of applications for Vote-by-Mail ballots in which applications shall be entered chronologically by receipt. A separate line entry will be made for each application and will be extended to show final disposition of the application and the sending and return of the ballot. Items to be recorded are as follows:

(1) *Application received.* The Board shall enter the following items after resolving any discrepancies between the application and the information on the registration books:

- (i) Applicant's name;
- (ii) Applicant's address (street, number, apartment number);
- (iii) Applicant's ward; and
- (iv) Date and time received by Board or City Office.

(2) *Board action.* Check under "Approved" or "Disapproved" and enter date of action. (See Sec. 5.9(c) for procedures on processing of application).

(3) *Ballot package sent.* Enter date, time and method of sending the absentee ballot package to the applicant.

(4) *Ballot received back.* Enter date and time of receipt and method of delivery and to whom delivered (Clerk at City Office, Board member).

(5) *Securement of ballot.* Upon receipt, the Board member secures the ballot (with envelopes unopened).

Sec. 5.10 – Canvassing and Reporting Election Results.

(a) Generally. Immediately upon closing of the polls, the judges of the election shall proceed to count the ballots. The counting of the ballots or checking of the votes on voting machines shall be announced publicly.

(b) Ballots Not Counted. No ballot cast by a voter dwelling in one ward for a candidate for the office of Councilmember of another ward, and no ballot cast for more than one candidate for the office of Mayor, shall be counted.

(c) Written Returns. The Board shall prepare written returns of the vote counts fully completed with the names of the judges and Board signed thereon. One (1) copy of such returns shall be sent to the City Clerk for filing among the records of the City.

(d) Dissenting Judge. Any judge or member of the Board who declines to sign said return shall immediately prepare, sign, and seal in an envelope and send as aforesaid an individual return, giving their reasons therefor.

(e) Sealing of Voting Information. Upon completion of the tabulation of the votes cast, the voting machines shall be sealed as provided by law for general elections of state and county officials. There shall be no postponement or adjournment of the above actions until they are completed. The voting cartridges, if any, shall then be retained by the Board for a period of thirty (30) days, exclusive of Sundays and legal holidays, provided, however, that if there be a contest of the election, said cartridge shall not be destroyed or unsealed until after the decision of the Circuit Court for Prince George's County.

Sec. 5.11 – Eligibility to Serve.

The Charter does not confer upon the Board the power or responsibility for determining whether a successful candidate is qualified to serve (as distinct from determining whether a candidate is qualified to stand for election at the time a petition is filed). Therefore, the Board certifies elected candidates based exclusively upon the votes cast by registered voters qualified to vote. Certification is without prejudice to the jurisdiction of any other appropriate body or court to ascertain the eligibility of the successful candidate to serve in the capacity to which the individual was elected.

PART 6—COMPLAINTS

Sec. 6.1 – Complaints, Generally.

All disputes as to election results or any of the policies and procedures set forth in Chapter 8 of the City Code or these Regulations shall be governed by Article VIII of Chapter 8 of the City Code and the rules and regulations set forth in this Part.

Sec. 6.2 – Procedure for Filing Complaints.

(a) Eligibility to File a Complaint.

(1) Any applicant whose application or certification pursuant to Chapter 8 of the City Code has been denied by the Board;

(2) Any person who is a qualified voter of the City and believes that a violation of Chapter 8 of the City Code or a provision of the City Charter related to an election matter has occurred, except for those set forth in Paragraph (1) of this Subsection, which must be filed by the person whose application or certification was denied.

(b) Time for Filing a Complaint.

(1) A complaint regarding denial of certification of candidacy must be filed within seven (7) days of the Board's decision on certification.

(2) All other complaints must be filed within one hundred eighty (180) days from the date that the alleged violation was discovered or reasonably could have been discovered with the exercise of due diligence, but in no case may a complaint be filed more than one hundred eighty (180) days after the election to which the alleged violation pertains.

(c) Contents of Complaint. Complaints shall include:

(1) a reasonably detailed explanation of the allegation(s);

(2) supporting documentation if necessary; and

(3) the name, address, and signature of the complaining party.

Sec. 6.3 – Initial Review of Complaint by Board.

(a) Initial Review. Upon the filing of any complaint, the Board shall conduct an appropriate investigation to ascertain whether there are reasonable grounds to believe the allegation is true.

(b) Assistance. The Board may request the assistance of the City Clerk and/or other City employees in this investigation.

(c) Post-Investigation Procedure.

(1) If, after conducting a reasonable investigation of a complaint, the Board determines there are no reasonable grounds to believe that the allegations in the complaint are true, the Board shall issue a written order dismissing the complaint.

(2) If, after conducting a reasonable investigation of a complaint, the Board determines that there are reasonable grounds to believe that the allegations in the complaint are true, the Board or its designee shall attempt to conciliate the matter by methods of initial

conference and persuasion with all interested parties and such representative as the parties may choose to assist them.

(3) If a complaint is conciliated, the terms of the conciliation agreed to by the parties may be reduced to writing and incorporated into a consent agreement as needed.

(4) If a complaint is not conciliated after the Board concludes that there are reasonable grounds to believe the complaint is true, the Board shall conduct one or more hearings as set forth in this Article.

Sec. 6.4 – Conduct of Hearing by Board.

(a) General Procedure.

(1) If a complaint is not dismissed or conciliated as set forth in Sec. 6.3 of these Regulations, the Board shall:

(i) serve upon the person against whom the complaint has been filed (designated as the “respondent”), if any, a summons and statement of charges;

(ii) schedule and hold one or more hearings;

(iii) serve upon all interested parties a copy of the statement of charges and notice of the time and place of hearings; and

(iv) promptly inform the City Clerk of the time and place of any hearing.

(2) Hearings shall be held not less than seven (7) days and not more than thirty (30) days after service of the statement of charges and summons, unless the Board determines that emergency circumstances require an earlier hearing.

(3) Hearings conducted by the Board shall be open to the public.

(4) Notwithstanding paragraph (3) of this Subsection, the Board may conduct a closed hearing if:

(i) one of the parties submits a written request;

(ii) the Board finds a compelling reason to conduct a closed hearing; and

(iii) closing the hearing to the public is not otherwise prohibited by State law.

(5) The parties or their representatives may file statements prior to any hearing and present testimony and evidence at hearings.

(6) Any testimony given shall be under oath or affirmation.

(b) Summons, Appearance, and Representation.

(1) Any summons to a hearing held pursuant to this Section must be signed by the chairperson of the Board or their designee and shall require the attendance of named persons and/or the production of relevant documents and records.

(2) The parties may, at their option, appear before the Board in person or by one or more duly authorized representatives and may have the assistance of an attorney.

(3) Unless otherwise provided, the City Attorney shall advise the Board during the administrative review of any complaint.

Sec. 6.5 – Deliberation and Decision by Board.

(a) Deliberation. After all necessary hearings are conducted, the Board shall deliberate and make a determination as to alleged violations of the elections provisions of the Charter or City Code or related disputes within its authority.

(b) Confidentiality. The deliberations of the Board shall not be public.

(c) Disposition and Orders.

(1) If, after deliberation, the Board determines, upon the preponderance of the evidence of record, that the respondent has not violated Chapter 8 of the City Code or any applicable election law, or that the complainant is not entitled to relief, the Board shall state and publish its findings and issue an order dismissing the complaint.

(2) If, after deliberation, the Board determines, upon the preponderance of the evidence of the record, that the respondent has violated Chapter 8 of the City Code or any applicable election law, or that the complainant is entitled to relief, the Board shall state and publish its findings and issue an order requiring any party to cease and desist conduct in violation of this Chapter or other applicable election laws and/or granting any appropriate relief as permitted by Article IX of Chapter 8.

Sec. 6.6 – Records.

The Board shall keep a full record of all hearings, decisions, and other records relevant to any review conducted under this Section which shall be transmitted to the City Clerk and retained pursuant to the City's record retention policy.

ADOPTED by the City Council of the City of Hyattsville, Maryland, at a regular public meeting on TBD.

Adopted: _____

Attest: _____
Laura Reams, City Clerk

Candace B. Hollingsworth, Mayor

Greta Mosher, Chair
Board of Supervisors of Elections

{ } indicate deletions

Underline indicates additions

Asterisks * * * Indicate matter retained in existing law but omitted herein

Effective Date: TBD



Hyattsville City Council Agenda Item Report

Meeting Date: November 5, 2018

Submitted by: Candace Hollingsworth, Mayor

Submitting Department: Legislative

Item Type: Legislative

Agenda Section: Discussion Items (8:55 p.m. - 10:00 p.m.)

SUBJECT

Educational Facilities Task Force (15 minutes)

HCC-111-FY19

Recommendation:

I move that the Mayor and Council establish the Educational Facilities Task Force. The mission of this task force is to ensure that the County addresses the local school infrastructure needs as reported in the 2017 Facilities Master Plan or as needs develop, and does so in a timely manner informed by local needs and conditions. The initial focus of the task force will be Cycle 1 of the Approved FY17 Educational Facilities Master Plan as it relates to local school facilities. The task force shall meet at least 6 times a year and be composed of up to 9 members knowledgeable in, for example, local public school needs, architecture, land use/acquisition, urban planning, and Prince George's Public Schools policy. Members shall serve two-year terms. The task force shall have up to two Council liaisons. At least once a year, the task force shall present to the Council progress made on its mission and any recommendations for Council action. If there comes a time that the task force members feel that its mission is fulfilled, they may recommend the task force's dissolution to the Mayor and Council.

Sponsor(s):

Hollingsworth

Co-Sponsor(s):

Lawrence, Ward

ATTACHMENTS

[Education Facilities Task Force Worksheet.docx](#)

Summary Background:

The Prince George's County Public School System (PGCPS) faces a school facilities crisis nearly a half century in the making. As a result, we as a community send our public school students to functionally obsolete schools. Students experience overcrowding, mold, flooding, under-lighting, and more. This crisis is not the fault of any one elected official or any one organization. Decades of under-funding and under-planning for our public school facilities is the fault of State, County, and local stakeholders.

To its credit, in 2017 PGCPS released its Educational Facilities Master Plan (EFMP), which documents school facility needs and presents a timeline for addressing these needs. The EFMP includes three Hyattsville area schools for major renovations within the first two cycles (Hyattsville Elementary and Middle, Cycle 1; Nicholas Orem, Cycle 2). However, the EFMP's schedule has already been allowed to slip, with no concrete funding coming from the State or County. For example, the planned Hyattsville Elementary School renovation was scheduled to begin in FY18. That did not happen as scheduled, and with the nominal funding that appeared in the County's 2019 CIP budget, there's no reason to expect real work to begin on the HES renovation before FY20, if then. Because we've already seen a two-year delay in the proposed plan, our community needs to advocate for the fulfillment of these needs. The County's relatively new CIP delivery method, which would use alternative financing methods including Public-Private Partnerships (P3), is also likely to affect area schools.

The mission of this committee is to ensure that the State and County address the local infrastructure needs as reported in the Approved 2017 Facilities Master Plan or as needs develop, and do so in a manner informed by local needs and conditions. The committee shall advise the Mayor and City Council on matters related to its goal, and to accomplish its goal shall recommend action within its authority under advisement of City staff and Council liaisons.

Additional Relevance to the Community

The principal reason to address these school facility needs is to ensure that our community's children receive the educational facilities they deserve, facilities that provide safe and supportive environments that are technologically equipped to meet the learning needs of the 21st century. Such modern facilities are a necessary component to increase student achievement. However, the physical state of the county's schools serves to reinforce the negative perception of the system as a whole. It is well known that the school system's, often undeserved, reputation causes would-be Hyattsville residents to look for housing elsewhere in the DMV, and some current residents chose to move from the city when their children approach school age.

Next Steps:

TBD

Fiscal Impact:

TBD

City Administrator Comments:

Recommend Support

Community Engagement:

This committee is proposed to harness the significant existing community activism on this topic.

Strategic Goals:

Goal 2 – Ensure the Long-Term Economic Viability of the City

Legal Review Required?

N/A

COMMITTEE WORKSHEET

Educational Facilities Task Force

Mission Statement: The mission of this committee is to ensure that the State and County address the local infrastructure needs as reported in the Approved 2017 Facilities Master Plan or as needs develop, and do so in a manner informed by local needs and conditions.

Scope: The committee shall advise the Mayor and City Council on matters related to its goal, and to accomplish its goal shall recommend action within its authority under advisement of City staff and Council liaisons.

Deliverables: Ongoing advisement and recommendations.

Frequency of meetings: At the committee's discretion, not more than 6.

Minimum number of meetings per year: 6

The Committee is temporary/permanent: Permanent

Composition of members: 9 members, up to 1 non-resident appointment.

Council Liaison: TBD

City Staff: TBD

Committee Member term of office: Two Years

Grounds for removal for any Committee Member: Upon resignation or absence from more than 50% of the scheduled meetings.



Hyattsville City Council Agenda Item Report

Meeting Date: November 5, 2018

Submitted by: Nicola Konigkramer

Submitting Department: City Clerk

Item Type: Community Notices

Agenda Section: Community Notices and Meetings

SUBJECT

City Calendar: November 6 - November 19, 2018

HCC-115-FY19

Recommendation:

Sponsor(s):

At the Request of the City Administrator

Co-Sponsor(s):

ATTACHMENTS

[Main City Calendar_Nov 6 - Nov 19 2018.docx](#)

Summary Background:

N/A

Next Steps:

N/A

Fiscal Impact:

None

City Administrator Comments:

N/A

Community Engagement:

N/A

Strategic Goals:

Goal 1 – Ensure Transparent and Accessible Governance

Legal Review Required?

N/A

Main City Calendar: November 6 – November 19, 2018

Weekly Program Offerings

Ageless Grace Senior Exercise Classes

Wednesdays and Fridays, 10:00 AM @ City Municipal Building

Creative Minds

Tuesdays and Thursdays, 10:00 AM @ Magruder Park Recreation Center

Senior Art Class

Tuesdays, 10:30 AM – 12:30 PM @ Art Works Now

The City is offering free senior art classes in partnership with Art Works Now. Seating is limited, and registration is required.

City Calendar: November 6 – November 19, 2018

Race and Equity Task Force Meeting

November 7, 7:00 PM – 9:00 PM @ City Building, 1st Floor Multipurpose Room

Cards for Veterans Workshop

November 10, 10:00 AM – 12:00 PM @ City Building, 1st Floor Multipurpose Room

Join us as we decorate blank greeting cards to help veterans send well wishes to family and friends.

Hyattsville Environment Committee Meeting

November 13, 7:00 – 8:30 PM @ City Building, 2nd Floor Prangley Room

Race and Equity Task Force Meeting

November 14, 7:00 PM – 9:00 PM @ City Building, 1st Floor Multipurpose

Seniors on the Go: Visit to the Museum of the Bible

November 15, 9:15 AM – 4:00 PM

Bus pick-up is at the City Building at 9:15 AM and at Friendship Arms Apartments at 9:25 AM.

Hyattsville Heroes Bowl

November 17, 1:00 @ Magruder Park

The Police Department will take on the Volunteer Fire Department for the eighth annual Heroes Bowl. All proceeds will benefit the Sonny Frazier Toy Drive.

Council Meeting

November 19, 8:00 PM – 10:00 PM @ City Building, 3rd Floor Council Chambers