

Mayor and Council Work Session

700 Doug Davis Drive
Hapeville, GA 30354

October 15, 2019 6:00PM

Agenda

1. Call To Order
2. Roll Call
 - Mayor Alan Hallman
 - Alderman Mike Rast
 - Councilman at Large Travis Horsley
 - Councilman Ward I Mark Adams
 - Councilman Ward II Chloe Alexander
3. Welcome
4. Presentation
 - 4.I. Presentation Of Donated Funds To Ms. Barbara Riley Of The Amanda Riley Foundation
By Chief Bloodworth
 - Background:**
Fire Chief Bloodworth will give recognition to all those that made contributions to the Amanda Riley Foundation on behalf of the Hapeville Fire Department and will present the donated funds to Ms. Barbara Riley, President of the Amanda Riley Foundation.
5. Public Hearing
 - 5.I. Consideration And Action On A Special Exception At 600 South Central Avenue
 - Background:**
Michael Foster on behalf of Regions Bank is requesting approval of a special exception to authorize the installation of an Automated Teller Machine (ATM) at 600 South Central Avenue, Parcel Identification Number 14 009800200513. The property is zoned RMU, Residential Mixed Use and is located in the Arts District Overlay (A-D). The Planning Commission considered this item on Tuesday, October 8, 2019 and recommended the Mayor and Council grant the special exception as requested. Staff supported their recommendation.
 - Staff Comment
 - Applicant Comment
 - Public Comment
 - Documents:
 - [600 SOUTH CENTRAL AVENUE - SPECIAL EXCEPTION _REDACTED.PDF](#)
 - [PLANNERS REPORT SPECIAL EXCEPTION 600 S CENTRAL AVE ATM \(002\).PDF](#)
 - [LEGAL ADV. - 600 SOUTH CENTRAL AVENUE, SPECIAL EXCEPTION 10-15-2019.PDF](#)
 - [MINUTES 10-8-2019 \(DRAFT\).PDF](#)
6. Questions On Agenda Items
 - The public is encouraged to communicate their questions, concerns, and suggestions during Public Comments. The Council does listen to your concerns and will have Staff

follow-up on any questions you raise. Any and all comments should be addressed to the Governing Body, not to the general public and delivered in a civil manner in keeping with common courtesy and decorum.

7. Consent Agenda

8. Old Business

8.I. Consideration And Action To Amend And Update Mobile Food Vendor Ordinance To Be Consistent With Transient Merchant Ordinance - 1st Reading

Background:

Attached for approval is an amended Mobile Food Vendor ordinance. Legal has updated the language in this ordinance so that it is identical and consistent with the Transient Merchant ordinance.

Staff respectfully requests Mayor and Council to waive first reading due to the upcoming events this month

Documents:

[ORDINANCE - MOBILE FOOD VENDOR.PDF](#)

9. New Business

9.I. Consideration And Action To Renew The Annual Water & Sewer And Stormwater Repair Contract With The Corbett Group, LLC.

Background:

An RFP was issued in 2018 for Annual Repairs to the Water & Sewer and Stormwater infrastructure. This annual contract is for jobs that require the assistance of a contractor due to the complexity of the repair. The Corbett Group was the low bidder and the annual contract has two additional one year options to renew. Staff recommends renewal of the first year option with no changes in the bid unit pricing.

Documents:

[CHANGE ORDER NO. 2 WATER.PDF](#)

[CHANGE ORDER NO. 1 STORM.PDF](#)

[SKM_368E19100811380.PDF](#)

9.II. Consideration And Action On Acceptance Of LCI Wayfinding And Virginia Avenue Roundabout Project

Background:

As a follow up to the 2017 LCI study, with funding from the Atlanta Regional Commission, the City of Hapeville engaged Stantec Consulting Services, Inc. to perform a feasibility study for the Virginia Avenue Roundabout and Wayfinding recommendations for the Virginia Avenue Corridor. The study and recommendations were completed in September 2019 and are now being presented to Council. Staff recommendation is for the Council to accept delivery of the study. Staff requests the Council review the results of the study and direct Staff at a later date for any desired action.

Documents:

[VIRGINIA_AVE_FEASIBILITY_STUDY_ROUNDABOUT.PDF](#)

[2019_09_26_HAPEVILLEWAYFINDING_REPORT \(002\).PDF](#)

9.III. Consideration On Ordinance Amendment For Mayor And Council Regular Meeting Schedule - 1st Reading

Background:

Attached for consideration is an ordinance amendment for the Mayor and Council regular meeting schedule. The ordinance has been amended to include November 19, 2019 as a regular meeting date.

Documents:

[AMENDMENT TO ORDINANCE FOR REGULAR MEETINGS.PDF](#)

10. City Manager Report

11. Public Comments

Members of the public wishing to speak shall sign in with the City Clerk prior to the start of the meeting. Time limitations for Registered Comments are three (3) minutes per person. The total Registered Comment session shall not last more than fifteen (15) minutes unless extended by Council. Each member of the public, who fails to sign up with the City Clerk prior to the start of the meeting, wishing to address Mayor and Council shall have a total of two (2) minutes. The entire general comment session for Unregistered Comments shall not last more than ten (10) minutes unless extended by Council.

12. Mayor And Council Comments

13. Executive Session

When Executive Session is Required one will be called for the following issues: 1) Litigation O.C.G.A. §50-14-2; 2) Real Estate O.C.G.A. §50-14-3(b)(1); or 3) Personnel O.C.G.A. §50-14-3(b)(2).

14. Adjourn

Public involvement and citizen engagement is welcome as Hapeville operates a very open, accessible and transparent government. We do however remind our attendees/residents that there are times allocated for public comments on the agenda. In order for council to conduct their necessary business at each meeting, we respectfully ask that side-bar conversations and comments be reserved for the appropriate time during the meeting. This will allow the City Council to conduct the business at hand and afford our meeting attendees ample time for comments at the appropriate time during the meeting.

19-PC-10-23

**CITY OF HAPEVILLE
ECONOMIC DEVELOPMENT DEPARTMENT
PLANNING COMMISSION APPLICATION**

Name of Applicant Michael Foster

Mailing Address: 2100 First Avenue North, Birmingham, AL 35203

Telephone 205-252-8222 Mobile # [REDACTED] Email michael.foster@bdgllp.com

Property Owner (s) Regions Bank (John Earley)

Mailing Address 250 Riverchase Parkway East, Birmingham, AL 35244

Telephone 205-560-5348 Mobile #

Address/Location of Property: 600 South Central Avenue

Parcel I.D. # **(INFORMATION MUST BE PROVIDED):** 14 009800200513

Present Zoning Classification: RMU Size of Tract: 1.4053 acre(s)

Present Land Use: Bank

Please check the following as it applies to this application

☐ Site Plan Review

☐ Conditional Use Permit

☐ Temporary Use Permit

Other (Please State) Special Exception

I hereby make application to the City of Hapeville, Georgia for the above referenced property. I do hereby swear or affirm that the information provided here and above is true, complete and accurate, and I understand that any inaccuracies may be considered just cause for invalidation of this application and any action taken on this application. I understand that the City of Hapeville, Georgia, reserves the right to enforce any and all ordinances. I further understand that it is my/our responsibility to conform with all of City of Hapeville's Ordinances in full. I hereby acknowledge that all requirements of the City of Hapeville shall be adhered too. I can read and write the English language and/or this document has been read and explained to me and I have full and voluntarily completed this application. I understand that it is a felony to make false statements or writings to the City of Hapeville, Georgia pursuant to O.C.G.A. 16-10-20 and I may be prosecuted for a violation thereof.

[Signature]
Applicant's signature

Date: 9/5/2019

Sworn to and subscribed before me

This 5 day of September 2019
Kay D. Milstead
Notary Public

Kay D. Milstead
Notary Public
State of Alabama at Large
My Commission Expires 2/9/2020

**CITY OF HAPEVILLE
ECONOMIC DEVELOPMENT DEPARTMENT
PLANNING COMMISSION APPLICATION**

WRITTEN SUMMARY

In detail, provide a summary of the proposed project in the space provided below. (Please type or print legibly.)

Addition of a new thru-wall ATM and removal of existing drive-thru window.

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

CITY OF HAPEVILLE
ECONOMIC DEVELOPMENT DEPARTMENT
PLANNING COMMISSION APPLICATION

AUTHORIZATION OF PROPERTY OWNER

I CERTIFY THAT I AM THE OWNER OF THE PROPERTY LOCATED AT:

600 South Central Avenue

Hapeville, GA

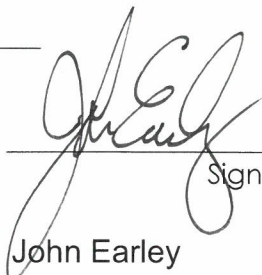
City of Hapeville, County of Fulton, State of Georgia

WHICH IS THE SUBJECT MATTER OF THIS APPLICATION. I AUTHORIZE THE APPLICANT NAMED BELOW TO ACT AS THE APPLICANT IN THE PURSUIT OF THIS APPLICATION FOR PLANNING COMMISSION REVIEW.

Name of Applicant Michael Foster

Address of Applicant
2100 First Avenue North, Birmingham, AL 35203

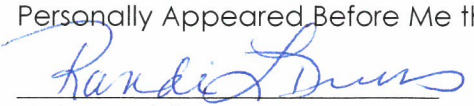
Telephone of Applicant
205-252-8222



Signature of Owner
John Earley

Print Name of Owner

Personally Appeared Before Me this 4 day of September, 2019.



Notary Public

RANDI L. DICUS
Notary Public
Alabama State at Large

Site Plan Checklist – Please include with your application.

A site plan is used to determine the practical ability to develop a particular property within the City of Hapeville. Information relating to environmental condition, zoning, development impact, consistency with the Hapeville Comprehensive Plan and relevant town master plans will be considered in the decision process. To be considered, a site plan **must** contain the following information:

(Please **initial** each item on the list above certifying the all required information has been included on the site plan)

MF A brief project report shall be provided to include an explanation of the character of the proposed development, verification of the applicant's ownership and/or contractual interest in the subject site, and the anticipated development schedule. Please complete and submit all forms contained within the application for site plan review.

MF Site plans shall be submitted indicating project name, applicant's name, adjoining streets, scale, north arrow and date drawn.

MF The locations, size (sf) and height (ft) of all existing and proposed structures on the site. Height should be assessed from the base of the foundation at grade to the peak of the tallest roofline.

MF Site plans shall include the footprint/outline of existing structures on adjoining properties. For detached single-family residential infill development, the front yard setback shall be assessed based on the average setback of existing structures on adjoining lots. Where practical, new construction shall not deviate more than ten (10) feet from the average front yard setback of the primary residential structure on an adjoining lot. Exemption from this requirement due to unnecessary hardship or great practical difficulty can be approved at the discretion of the Planning Commission. To be considered for an exemption, the applicant must submit a "Request for Relief" in writing with their site plan application, including the conditions that necessitate relief (i.e. floodplain, wetland encroachment, excessive slope, unusual lot configuration, legally nonconforming lot size, unconventional sitting of adjoining structures, etc).

MF

The location and general design cross-section characteristics of all driveways, curb cuts and sidewalks including connections to building entrances. A walkway from the primary entrance directly to the public sidewalk is required for all single-family residential development.

MF

The locations, area and number of proposed parking spaces. Please refer to Article 22.1 Chart of Dimensional Requirements to determine the correct number of parking spaces for your particular type of development.

MF

Existing and proposed grades at an interval of five (5) feet or less.

N/A

The location and general type of all existing trees over six (6) inch caliper and, in addition, an identification of those to be retained. Requirements for the tree protection plan are available in Code Section 93-2-14(f). Please refer to Sec. 93-2-14(y) to determine the required tree density for your lot(s).

N/A

A Landscape Plan: The location and approximate size of all proposed plant material to be used in landscaping, by type such as hardwood deciduous trees, evergreen trees, flowering trees and shrub masses, and types of ground cover (grass, ivies, etc.). Planting in parking areas should be included, as required in Section 93-23-18.

N/A

The proposed general use and development of the site, including all recreational and open space areas, plazas and major landscape areas by function, and the general location and description of all proposed, outdoor furniture (seating, lighting, telephones, etc.). Detached single-family residential development may be exempt from this requirement.

N/A

The location of all retaining walls, fences (including privacy fences around patios, etc.) and earth berms. Detached single-family residential development may be exempt from this requirement.

N/A

The identification and location of all refuse collection facilities, including screening to be provided. Detached single-family residential development may be exempt from this requirement.

N/A

Provisions for both on-site and offsite storm-water drainage and detention related to the proposed development.

MF

Location and size of all signs. Detached single-family residential development may be exempt from this requirement.

MF

Typical elevations of proposed building provided at a reasonable scale (1/8" = 1'0") and include the identification of proposed exterior building materials. Exterior elevations should show all sides of a proposed building.

MF

Site area (square feet and acres).

MF

Allocation of site area by building coverage, parking, loading and driveways, and open space areas, including total open space, recreation areas, landscaped areas and others. Total dwelling units and floor area distributed generally by dwelling unit type (one-bedroom, two-bedroom, etc.) where applicable.

N/A

Floor area in nonresidential use by category. Detached single-family residential development may be exempt from this requirement.

N/A

Total floor area ratio and/or residential density distribution.

MF

Number of parking spaces and area of paved surface for parking and circulation

MF

At the discretion of the planning commission, analyses by qualified technical personnel or consultants may be required as to the market and financial feasibility, traffic impact, environmental impact, storm water and erosion control, etc. of the proposed development.

Please **initial** each item on the list above certifying the all required information has been included on the site plan, sign and submit this form with your site plan application. Failure to include this form and information required herein may result in additional delays for the consideration of your application.

Applicant Signature: 

Date 9/5/2019



August 9, 2019

To Whom it May Concern:

We are writing in support of the proposed text amendment to the code to allow construction of drive thru lanes on a limited basis. Drive thru ATM usage is central to the modern banking experience, and the level of service and convenience these stations afford our customers is widely used and universally expected.

We understand the intent of the drive thru restriction is to protect the character of the City of Hapeville, but suggest that this should not apply to financial institutions because they do not produce the negative results associated with other uses. The modern fast food chain drive thru, for example, is often associated with wide swathes of impervious surfaces; dramatically increased vehicular traffic; long lines of queuing cars that can stack out and obstruct adjacent roadways; large, garish lighting and signage infrastructure for wayfinding and branding. In contrast, bank drive thru ATMs are small, limited in number, and rarely stack up beyond one or two cars.

The most important distinction, however, is related to customer service. Bank drive thru ATMs allow us to deliver a high level of financial service to our customers during nights and weekends when such services would otherwise be unavailable. Bank drive thru ATMs are useful and convenient during normal branch operations, but absolutely essential when bank branches are closed. Our goal is to make this level of service available to our Hapeville branch patrons.

In our view, bank drive thrus deliver a high level of service to the community without the drawbacks often associated with other drive thru lane usage. They provide valuable services to the community when no other such service can be delivered. Further, with any new drive thru construction, we are committed to doing all that is required to meet the City of Hapeville's high standards and further enhance this community. With these considerations in mind, we encourage the Commission to approve the zoning amendment at issue.

Thank you for your consideration.

Sincerely,

A handwritten signature in blue ink, appearing to read "John Earley", written over a circular blue ink stamp.

John Earley
Vice President
Corporate Real Estate & Properties Department

Post Office Box 11007
Birmingham, Alabama 35288



HAPEVILLE MAIN
EXTERIOR PHOTO
EXISTING CONDITIONS





"REGIONS GREEN"
CANVAS AWNING ON
ALUMINUM FRAME

TYPICAL SURROUND

THRU-WALL DRIVE-UP ATM

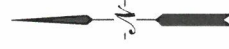


HAPEVILLE MAIN
EXTERIOR PHOTO
NEW WORK





RFC # OP015475
Project Number:
Site Name: 600 South Central Ave.
Address: Hapeville, GA 30354
City, ST, Zip: Hapeville, GA 30354
Date: 6/5/19



Site Approved: _____
Date: _____

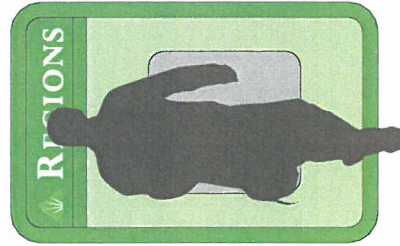
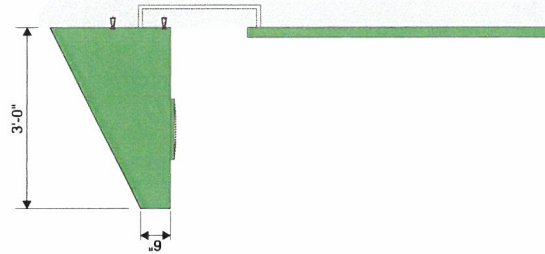
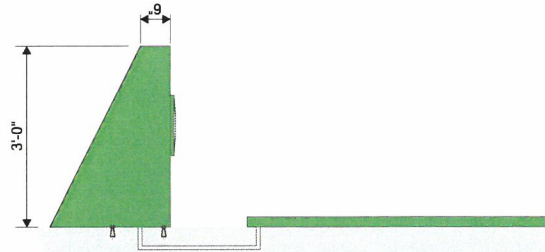
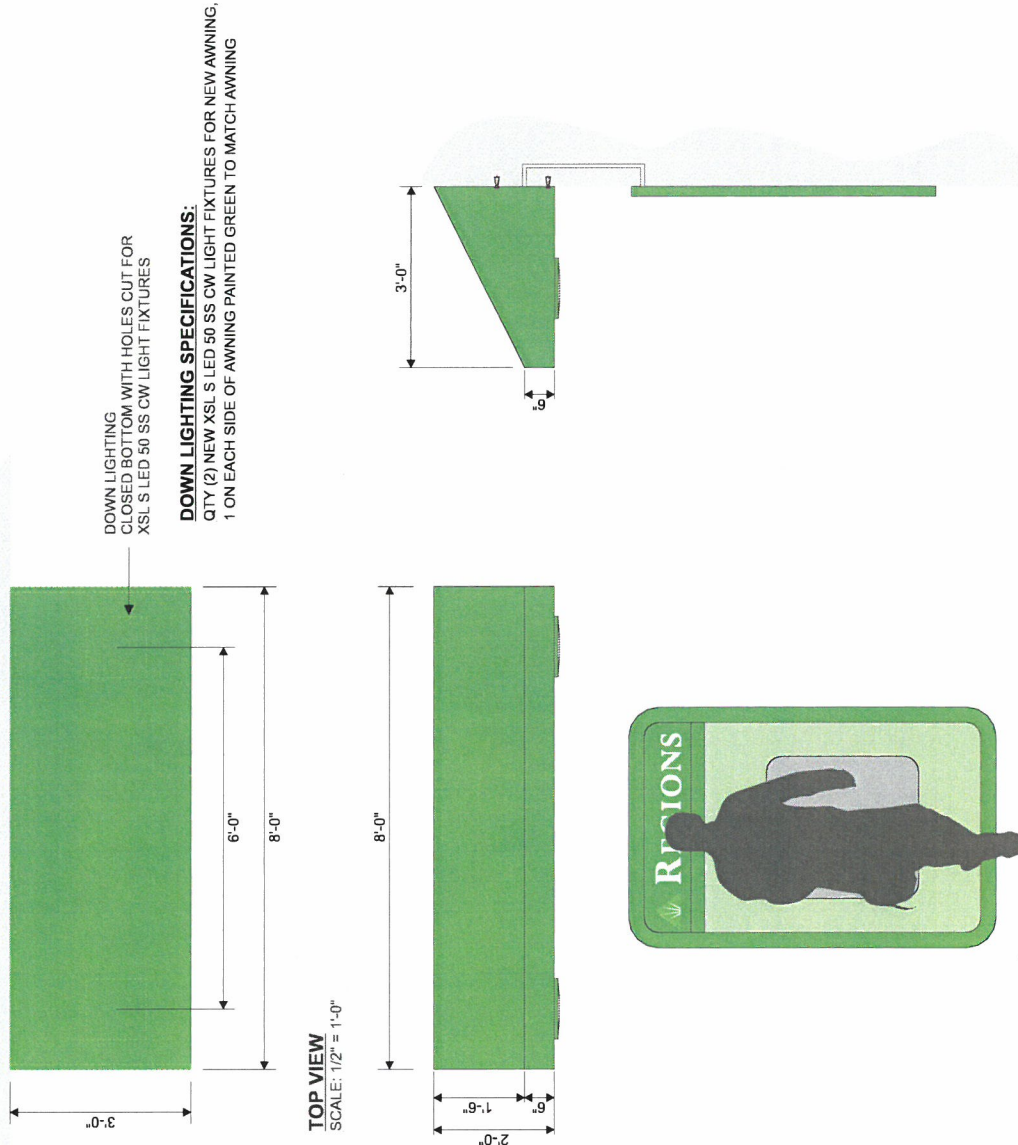
CANOPY SPECIFICATIONS

ALUMINUM AWNING W/ DOWN LIGHTING.
ALUMINUM FRAMING & SUPPORTS PAINTED
PMS 370C ALUMINUM FRAME, WITH .080"
ALUMINUM CLADDING, CLOSED ENDS, CLOSED BACKS,
PAINTED PMS 370C.

COLOR SPECIFICATIONS

PMS 370C GREEN

WHITE





REGIONS



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Client Review Status

Allen Industries, Inc. requires that an ☐ Approved* drawing be obtained from the client prior to any production release or production release revision.

☐ Approved
☐ Approved as Noted
☐ Revised & Resubmit

Declaration

This is an original, unpublished drawing, created by Allen Industries, Inc. This drawing is submitted to you in confidence for your use solely in connection with this project using the design shown on the drawing(s) (except for any registered trademarks that may belong to the client or Allen Industries, Inc.) and will be the property of Allen Industries, Inc.

Project Information

Client: **Regions Bank**
600 South Central Ave.
Hawville, GA 30354
 File: **OP0151475_Hawville, GA 301**
 Sales: **House** Design: **LB** JC

	Date / Description	Issue Date	
	6/4/19	6/5/19	Δ Change light spec
	-	-	-
	-	-	-
	-	-	-
	-	-	-

Name _____

Title _____

Date _____

Date _____



1 SITE PLAN
1" = 20'-0"

bdg
architects

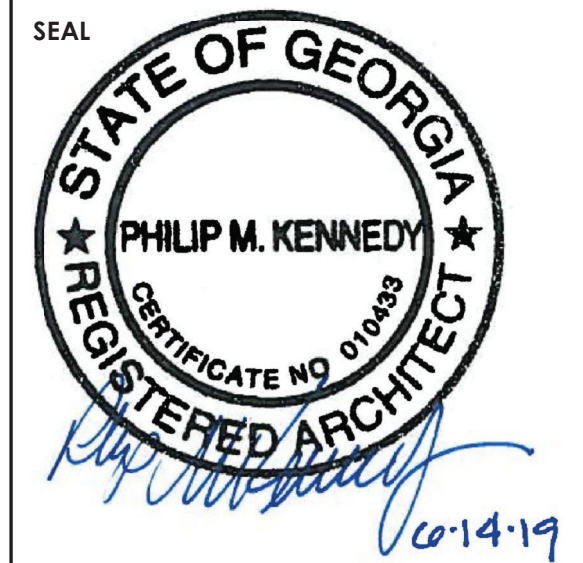
2100 1st Ave. North
Ste. 100
Birmingham, AL 35203

P: 205-252-8222
Lic. # AA-0003590
W: www.bdgllp.com

REGIONS®

REGIONS HAPEVILLE
ATM ADDITION
600 SOUTH CENTRAL AVENUE,
HAPEVILLE, GA 30354
REGIONS PROJECT #GASC193138ER

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ISSUE	BY	DATE	DESCRIPTION

PROJECT INFORMATION BLOCK	
JOB #	183305
DATE:	05-10-2019
DRAWN BY:	McR
CHECKED BY:	JQ

SHEET TITLE
OVERALL
ARCHITECTURAL
SITEPLAN

SHEET NUMBER

A-100



**DEPARTMENT OF PLANNING AND ZONING
PLANNER'S REPORT**

DATE: September 30, 2019
TO: Adrienne Senter
FROM: Michael Smith
RE: **Special Exception Request – 600 South Central Avenue**

BACKGROUND

The City of Hapeville has received a special exception application from Mr. Michael Foster to permit a drive-up ATM accessory to a Regions Bank located at 600 South Central Avenue. The ATM would be located on the east side of the building, adjacent to an existing drive-through teller window, and would use the existing drive-through lane.

The property is zoned RMU, Residential Mixed-Use, and is within the A-D, Arts District overlay.

At the request of the applicant and in conjunction with this proposal, Mayor & City Council voted on September 17, 2019, to adopt a text amendment permitting drive-throughs in the A-D overlay when used by banks.

REVIEW

The following code sections are applicable to this application:

ARTICLE 11.5. - RMU ZONE (RESIDENTIAL MIXED USE)

Sec. 93-11.5-1. - Intent.

The RMU district is established in order to:

- (1) Ensure development that is consistent with neo-traditional planning practices, which are often defined by pedestrian-oriented buildings, interconnected streets, a mix of uses and housing types, and a compact walkable scale.
- (2) Help create a compact, dense, and distinguishable core area;
- (3) Provide for an urban form allowing mid-rise structures;
- (4) Encourage multiple uses within the same structure; and
- (5) Include street oriented activity and pedestrian amenities at the street level of structures.

Sec. 93-11.5-3. - Permitted uses.

The following are permitted within the RMU zone:

- (1) Business and professional offices/agencies, including:
 - j. Banks and other financial institutions (not including pawnshops, check cashing businesses, title pawn, and payday loans).

ARTICLE 28. - A-D ZONE (ARTS DISTRICT OVERLAY)

Sec. 93-28-3. - Purpose.

The purpose of the arts district overlay is to facilitate creation of an arts destination, sustain established arts and cultural uses and promote new arts and cultural uses. The arts district overlay seeks integration of the arts into the fabric of the community and is conceived as the location of art galleries and art studios forming the core of an arts district. A complementary mix of shops, restaurants and entertainment venues will support these uses. These elements are expected to generate interest in downtown Hapeville and attract arts and cultural events.

The arts district overlay features an expanded range of permitted uses focused on the arts while retaining all property rights established by the underlying zoning. The arts district overlay encourages adaptive reuse of historic buildings and new construction technologies, affording owners expanded development options. These measures will enhance the market attractiveness of the arts district.

Arts venues, community festivals, expanded arts uses and pedestrian character are expected to promote an arts district. Planned investment in public art, lighting, sidewalks and off-street parking will leverage private investment and enhance public safety. This combination of public and private investment is expected to advance Hapeville's position in regional leadership in the arts and stimulate broad economic revitalization. Importantly, the arts district overlay features walkable distances from nearby neighborhoods to small-scale establishments and live entertainment venues accommodated by the arts district overlay and compatible with the neighborhood character.

Sec. 93-28-8. - Prohibited uses.

The following uses shall be prohibited in the Arts District Overlay:

- (1) All drive-through facilities other than those permitted by special exception for accessory use by banks or credit unions.

Sec. 93-24-10. - Special exceptions.

- (a) Special exceptions and special property use permits shall be decided by the mayor and council.
- (b) The planning commission shall review and make nonbinding recommendations to the mayor and council on special exceptions and special property use permits.
- (c) Special exceptions may be sought for:
 - (1) Reduction of the number and size of parking spaces and off-street loading space requirements;

- (2) Location of off-street parking space and off-street loading spaces; and
 - (3) Location and number of drive-throughs.
- (d) When acting upon an application for a special exception, in addition to the requirements listed under the above references, the planning commission and the mayor and council shall give consideration to the following factors where applicable:
 - (1) The proposed design and location of the particular development;
 - (2) The possible traffic generating characteristics of the proposed development;
 - (3) The effects the proposed development will have on the present or intended character of the area in which it proposes to locate;
 - (4) The availability of public utilities, facilities and services; and
 - (5) The character, and effect of the parking demands of the proposed development.
- (e) After considering the above-listed factors and after reviewing the planning commission recommendation, the mayor and council shall take any actions or establish any reasonable conditions of approval, such as planted buffers, as will accomplish the intent and purpose of this chapter.

RECOMMENDATION

The proposed design and location will partially obscure the ATM from the right-of-way by placing it behind an existing teller window and canopy. The Design Review Committee approved the design on August 21, 2019. No new drive-through lanes or infrastructure other than the ATM itself and the associated canopy will be required. As there is already a daytime teller window and a walk-up ATM adjacent to parking at the site, traffic generated by those seeking ATM access will likely reflect existing levels.

The intent of the Arts District is to generate interest in downtown Hapeville and attract arts and cultural events in part by promoting a pedestrian character. It was specifically designed to provide for walkable distances between nearby neighborhoods and small-scale establishments compatible with the neighborhood character. Allowing for a proliferation of typical drive-through establishments may compromise this goal of the district.

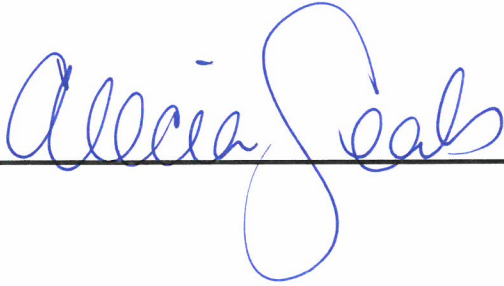
In the past, Hapeville has required new outdoor ATMs to be walk-up models, accessible via the sidewalk but not by car. Staff consulted with the Hapeville Chief of Police to determine if there are any safety concerns regarding vehicle or drive-up ATMs. Chief Glavosek suggested that walk-up ATMs may leave people more vulnerable to being targets of thieves, whereas drive-up ATMs could be a safer alternative. Regions Bank has indicated in conversations that the market and industry standards are changing to address convenience and thus teller windows are being replaced with more ATMs and similar automated machines.

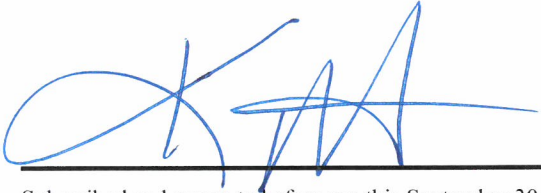
In considering the special exception, staff recommends the Planning Commission and City Council carefully consider the intent of the Arts-District, safety, and changing industry and market conditions. Staff recommends approval for the drive-up ATM.

PUBLISHER'S AFFIDAVIT

STATE OF GEORGIA
COUNTY OF FULTON

Before me, the undersigned, a Notary Public, this day personally came the undersigned who, being duly sworn, according to law, says she is an agent of ALM Media, LLC., publishers of the **Daily Report**, the official newspaper published in Atlanta, GA, in said county and state, and that the publication, of which the annexed is a true copy, was published in said newspaper as provided by law on the following dates: 09/30/2019.





Subscribed and sworn to before me this September 30, 2019



NOTICE
City of Hapeville

The Mayor and Council of the City of Hapeville will hold a Public Hearing **at 6:00 p.m. on Tuesday, October 15, 2019** at the City of Hapeville Municipal Court Annex located at 700 Doug Davis Drive, Hapeville, Georgia 30354, to consider the following application:

Michael Foster on behalf of Regions Bank is requesting approval of a special exception to authorize the installation of an Automated Teller Machine (ATM) at 60C South Central Avenue, Parcel Identification number 14 009800200513. The property is zoned RMU, Residential Mixed Use and is located in the Arts District Overlay (A-D).
#0000429153:09/30-1AS

**Planning Commission Meeting
700 Doug Davis Drive
Hapeville, Georgia 30354**

**October 8, 2019
SUMMARY MINUTES
6:00 PM**

1. Welcome and Introduction

Chairman Brian Wismer called the meeting to order at 6:00 p.m. in the City of Hapeville Municipal Annex located at 700 Doug Davis Drive, Hapeville, Georgia 30354. Members in attendance included Vice Chairman Jeanne Rast, Leah Davis, Lucy Dolan, Larry Martin, Charlotte Rentz and Cliff Thomas. City Planner Lynn Patterson and Secretary Adrienne Senter were also present.

2. Minutes of September 10, 2019

MOTION ITEM: Charlotte Rentz made a motion, Cliff Thomas seconded to approve the minutes of September 10, 2019 as amended. Motion Carried: 5-1; Jeanne Rast abstained.

3. New Business

3.I. 600 South Central Avenue

Special Exception Request

Michael Foster on behalf of Regions Bank requested approval of a special exception to authorize the installaiton of an Automated Teller Machine (ATM) at 600 South Central Avenue, Parcel Identification Number 14 009800200513. The property is zoned RMU, Residential Mixed use and is located in the Arts District Overlay (A-D).

Staff Comment:

The ATM would be located on the east side of the building adjacent to an existing drive-through teller window, and would use the exisitng drive-through lane.

At the request of the applicant and in conjunction with this proposal, Mayor and City Council voted on September 17, 2019, to adopt a text amendment permitting drive-throughs in the A-D overlay when used by banks.

Commissioner Rast inquired if the full service window would be open or closed during business hours.

Commissioner Rentz asked if Council's vote would be final.

Dr. Patterson stated Council voted to approve the text amendment to the Arts District Overlay so the vote would be final.

Applicant Comment:

The existing drive-through window will remain. The ATM window should not create any impact and will keep with the goal of the Arts District. The project will be for a drive-up ATM and not a walk-up ATM for safety concerns. The ATM will be located on the inside lane as the outside lane will not allow for the infrastructure.

Public Comment: None.

MOTION ITEM: Charlotte Rentz made a motion, Lucy Dolan seconded to recommend the Mayor and Council grant the special exception to allow the installation of a drive-up Automated Teller Machine (ATM) at 600 South Central Avenue.

Motion Carried: 6-0

3.II. 0 Porsche Avenue

Site Plan Review

Steven Ellis of PRO Building Systems, Inc. and authorized representative of Porsche Cars North America, Inc. is requesting site plan approval to develop a specialty auto service center and repair facility to be located at 0 Porsche Avenue, Parcel Identification 14 0096 LL0593. The property is zoned B-P, Business Park and is subject to the Commercial/Mixed-Use area, Subarea B, of the Architectural Design Standards.

Staff Comments:

The lot is currently partially paved but is otherwise undeveloped. The site area under construction is 2.5 acres. The facility is shown as a 20' high, 17,600/20,815 square foot building surrounded by parking as well as one accessory structure.

The project as proposed will require the following variances from the Board of Appeals.

- Parking in excess of the 110% requirement.
- Reduction in the number of compact parking spaces
- Increase the width of the curb cut along Porsche Avenue

Staff supports these variances.

In addition, the site plan should be revised to address the following concerns identified per the planner's review for zoning compliance:

- *The applicant should clarify the actual square footage.*
- *The applicant should provide the distance between accessory structure and the nearest property line.*
- *The applicant should clarify if the curb cut is new or existing. A new curb cut is not allowed. An existing curb cut may be relocated.*
- *The applicant should provide the width of the new curb cut.*
- *No sidewalk is shown at the street as required by the Architectural Design Standards. Sidewalk must adhere to the Commercial/Mixed Use standard (5' landscape zone, 10' sidewalk/clear area).*
- *The applicant should provide site coverage broken down by type, such as*

building area and parking.

- *The applicant should indicate one dedicated loading space on the plans.*
- *The applicant should indicate the need for additional parking, if shared parking is the intent.*
- *The applicant should provide an anticipated development schedule.*
- *At least 30% of provided parking spaces must be compact size. The plans state that 21 (14%) of the 148 provided spaces are compact size, which is not compliant. However, the locations and dimensions of those spaces are unclear.*
- *The majority of provided spaces are between the dimensional requirements for full-size spaces and compact-size spaces, being too narrow for the former and too long for the latter.*
- *10 of the provided parking spaces are at angles of less than 90 degrees to the curb and do not have lengths provided.*
- *The applicant must provide three ADA parking spaces.*
- *The applicant should provide one 15' high, 15' wide, and 60' long loading space.*

Per the B-P regulations, the building elevations, landscape architecture and parking lot landscaping will be reviewed by the Design Review Committee for compliance with the Architectural Design Standards.

Should the site plan address all the planner's comments and the City Engineer's comments then the site plan is recommended for approval by the Planning Commission subject to approval of the required variances by the Board of Appeals.

Commissioner Martin stated per the code 30 percent of the parking must be compact car parking spaces. The plan indicates 21 compact parking spaces will be required but they need 43-44 spaces. He confirmed that the remaining spaces will accommodate regular size cars.

Dr. Patterson stated the plan currently exceeds the parking requirement.

Commissioner Martin asked for clarification regarding the variances that will go before the Board of Appeals.

Dr. Patterson stated that the project will require the following variances:

- Parking in excess of the 110% requirement.
- Reduction in the number of compact parking spaces
- Increase the width of the curb cut along Porsche Avenue

Commissioner Rentz asked for clarification of Sec. 93-23-17, Continuing character of obligation that is mentioned as part of the planner's report.

Dr. Patterson stated that this property does not apply to section 93-23-17 as there is not an existing structure onsite but if the property had an existing structure and it was sold or transferred, then the owner must continue to maintain the parking lot.

Applicant Comment:

Laurel David on behalf of Galloway Law Group, LLC. stated that the square footage of the project is 20,815-sf and requires 70 parking spaces. The parking that will be provided will not be shared with any future development. The parking will service the staff, technicians and customers, loaner vehicles and overnight parking for next day car service. Porsche Cars will have a joint partnership with Jim Ellis Automotive and Hennessy Automotive and they are relying on their partners to anticipate the parking need. The driveway will include 3 lanes to accommodate a turning lane and for future development. Porsche Cars will install a pedestrian crossing treatment such as a stamped concrete to provide a continuation of the sidewalk over the driveway area. The compact parking will be located to the rear of the property and fenced off for loaner cars.

Chairman Wismer stated that they will be required to obtain a variance for a reduction to the number of compact spaces.

Commissioner Dolan inquired if company events would be held onsite and if additional parking would be required.

Ms. David stated that no events would be held onsite. The parking would be for overnight parking or loaners and it is not designed for any types of events.

Commission Dolan inquired regarding the days of operation.

Ms. David stated the facility will be closed on Sundays.

Commissioner Thomas inquired if the decision to install 2 exit lanes was based upon a traffic study.

Ms. David stated that it was based upon anticipation of future need. Also, from a traffic perspective, left turn movement usually presents more conflict and the additional lane would help for backup and limits the number of curb cuts.

Dr. Patterson stated that the goal is to minimize the number of curb cuts and encourage inner parcel circulation.

Commissioner Rentz inquired regarding the numbers on the Kimley Horn plan.

Ms. David stated those numbers covers the number of parking spaces for that area.

Chairman Wismer stated that 2 ADA spaces are indicated on the site and inquired if that would decrease their parking by one space.

Ms. David confirmed that one space will be lost and will increase the ADA spaces as required.

Commissioner Martin confirmed that the additional width of the driveway would accommodate for one entry lane and two exit lanes. Ms. David confirmed.

Chairman Wismer asked Dr. Patterson to give the Commission a description of staff's recommendation to keep the curb cut treatment and raise the driveway up to grade. Dr. Patterson stated the sidewalk would continue across the driveway and include some type of concrete treatment to slow the traffic down and encourage a pedestrian friendly crossing.

Ms. David stated that there are a few Porsche designs that are too low, and they would not be able to raise the driveway grade up to the sidewalk but will install a pedestrian friendly crosswalk that will include a texture change.

Public Comment: None.

MOTION ITEM: Larry Martin made a motion, Charlotte Rentz seconded to approve the site plan request for the property located at 0 Porsche Avenue subject to the deficiencies outlined in the planner's and engineer's reports with the following recommendations:

- **Recommend the Board of Appeals grant variances to increase the parking limitation, reduce the number of compact parking spaces, increase the width of the curb cut along Porsche Avenue and include a pedestrian-friendly crosswalk treatment. Motion Carried: 6-0.**

4. Next Meeting Date – November 12, 2019 at 6:00 PM

5. Adjourn

MOTION ITEM: Larry Martin made a motion, Charlotte Rentz seconded to adjourn the meeting at 6:37 p.m. Motion Carried; 6-0.

Respectfully submitted by,

Chairman, Brian Wismer

Secretary, Adrienne Senter

1 **STATE OF GEORGIA**
2 **CITY OF HAPEVILLE**

3
4 **ORDINANCE NO. _____**

5
6 **AN ORDINANCE TO REVISE CHAPTER 11 (“BUSINESS LICENSING AND**
7 **REGULATION”), ARTICLE 11 (“COMMERCIAL SOLICITATIONS AND TRANSIENT**
8 **MERCHANTS”), SECTION 11-11-3 (“REGULATION AND LICENSING MOBILE**
9 **FOOD VENDORS”) OF THE CODE OF ORDINANCES, CITY OF HAPEVILLE,**
10 **GEORGIA TO PROVIDE FOR THE REGULATION OF MOBILE FOOD VENDORS; TO**
11 **PROVIDE FOR SEVERABILITY; TO REPEAL CONFLICTING ORDINANCES; TO**
12 **PROVIDE AN EFFECTIVE DATE; AND TO PROVIDE FOR OTHER LAWFUL**
13 **PURPOSES.**

14
15 **WHEREAS**, the mayor and council shall have full power and authority to provide for the
16 execution of all powers, functions, rights, privileges, duties and immunities of the city, its officers,
17 agencies, or employees granted by the City of Hapeville’s Charter or by state law; and,

18
19 **WHEREAS**, the municipal government of the City of Hapeville (hereinafter “City”) and
20 all powers of the City shall be vested in the mayor and council. The mayor and council shall be
21 the legislative body of the City; and,

22
23 **WHEREAS**, existing ordinances, resolutions, rules and regulations of the City and its
24 agencies now lawfully in effect not inconsistent with the provisions of the City’s charter shall
25 remain effective until they have been repealed, modified or amended; and,

26
27 **WHEREAS**, amendments to any of the provisions of the City’s Code may be made by
28 amending such provisions by specific reference to the section number of the City’s Code; and,

29
30 **WHEREAS**, every official act of the mayor and council which is to become law shall be
31 by ordinance; and,

32
33 **WHEREAS**, the governing authority of the City finds it desirable to provide for the
34 licensing, operation and regulation of Mobile Food Vendors and to make updates regarding the
35 same.

36
37 **BE IT, AND IT IS HEREBY ORDAINED BY THE MAYOR AND COUNCIL OF**
38 **THE CITY OF HAPEVILLE, GEORGIA THAT:**

39
40 **Section One.** Chapter 11 (Business Licensing and Regulation), Article 11 (Commercial
41 Solicitations and Transient Merchants), Section 11-11-3 (Regulation and Licensing Mobile Food
42 Vendors) of the City Code of Ordinances is hereby amended by striking said section in its entirety
43 and replacing it with the following language:

44 **Section 11-11-3 - Regulation and Licensing of Mobile Food Vendors.**

(a) It shall be unlawful for any person to sell, or offer for sale, food of any type from a Mobile Food Vendor without a permit first having been granted under this section.

(b) An application for a permit hereunder shall be submitted to the City Clerk or his or her designee setting forth all information required hereunder and in compliance with this ordinance. The City Clerk or his or her designee shall develop a form application for the purpose of compliance with this article. The application shall be accompanied by an executed indemnity agreement indemnifying and releasing the City, its agents, employees and elected officials from any and all liability against any and all claims, actions and suits of any type whatsoever arising in connection with the activities of the Mobile Food Vendor pursuant to the permit issued hereunder. Mobile Food Vendor permits shall be active for:

a. ninety (90) days commencing on the day of issuance; or

b. three (3) consecutive days as expressly stated on the permit.

(c) The following information shall be provided with each application for a Mobile Food Vendor permit, along with an application fee of \$100.00 for a 90-day permit or \$50.00 for a three consecutive day permit, and an executed Release and Indemnification Agreement provided by the City:

(1) Name of the Mobile Food Vendor;

(2) Make, model and license plate number of vending unit;

(3) Owner's contact information;

(4) Operator's contact information;

(5) Copy of approved permit from the Fulton County Health Department;

(6) List of operating locations and times including map detailing the position of the vehicle, and current zoning in said locations;

(7) Signatures from property owners indicating consent for the use of their property; and

(8) Signature of applicant indicating agreement to the listed requirements.

(d) A waiver of the application fee may be requested at the time of application by the applicant if: (1) the event is a 501(c) non-profit event and proof is submitted thereof; or (2) the event is a city-sponsored event as determined by the City Manager. However, all mobile food vendors must fill out an application form, execute an Indemnification Agreement, and provided the City with all necessary documentation required by the City.

(e) Mobile Food Vendors may conduct business or operate in the public right-of-way, only if parking in the right-of-way is legally allowed and it does not impede the flow of traffic. A determination of traffic impediment shall be made by the City of Hapeville Police Department.

Mobile Food Vendors must be located in a lot that can safely be accessible by patrons. Mobile Food Vendors cannot be parked on sidewalks. Parking on public, city-owned grass areas is permissible with prior approval from the City Manager at the time of application.

(f) A Mobile Food Vendor shall not operate on any private property without the prior written consent of the owner. A Mobile Food Vendor shall not be allowed to park overnight on any private property without the prior written consent of the owner.

(g) A Mobile Food Vendor may operate on City owned property, if: (1) the Mobile Food Vendor has received permission to do so from the City Manager; and (2) has indicated the appropriate City owned location, date, and times of use on the application. At no time shall a Mobile Food Vendor be allowed to park overnight on any City owned property. Designated City lots, dates and times are attached hereto and incorporated herein as Exhibit "A".

(h) A Mobile Food Vendor shall maintain a one million-dollar (\$1,000,000.00) liability insurance policy. Proof of current liability insurance, issued by an insurance company licensed to do business in Georgia, protecting the Mobile Food Vendor, the public and the City from all claims for damage to property and bodily injury, including death, which may arise from operation under or in connection with the permit, shall be provided to the City as part of its permit application. If the Mobile Food Vendor does not have insurance, the Mobile Food Vendor may be under the umbrella of an existing business with the business' permission to do so. Such arrangement documentation shall be included with the application to the City.

(i) A Mobile Food Vendor shall not make sounds or announcements to call attention to the mobile food vehicle either while traveling on the public rights-of-way or when stationary. At all times said Mobile Food Vendor shall be in compliance with the City's noise ordinance.

(j) The permit under which a Mobile Food Vendor is operating must be firmly attached and visible on the Mobile Food Vendor at all times.

(k) Any driver of a Mobile Food Vendor motorized vehicle must possess a valid Georgia driver's license.

(l) Mobile Food Vendors shall not be located within fifteen (15) feet of any street intersection or pedestrian crosswalk or ten (10) feet of any driveway.

(m) A Mobile Food Vendor shall not sell or offer to sell any goods, foods, products, or services between the hours of 10:00 p.m. to 9:00 a.m., unless otherwise approved and extended by the City Manager.

(n) Vending structures shall not be left unattended or stored at any time on the open vending site when vending is not taking place or during restricted hours of operation.

(o) No sale or offer for sale of ice cream, frozen milk, frozen dairy or ice confection products shall be made from a Mobile Food Vendor unless each side of the vehicle is marked, in letters and numbers at least three (3) inches in height, with the name and address of the Mobile Food Vendor licensee.

(p) Mobile Food Vendors shall comply with all state, federal and local health and safety regulations and requirements and shall obtain and maintain any and all license and permits required by any other health organization or governmental organization having jurisdiction over this subject matter.

(q) The following safety regulations shall apply to any and all vehicles operating under this article or used for mobile retail food establishments:

(1) Every vehicle shall be equipped with a reverse gear signal alarm with a sound distinguishable from the surrounding noise level.

(2) Every vehicle shall be equipped with two (2) rear-vision mirrors, one (1) at each side, firmly attached to the outside of the motor vehicle, and so located as to reflect to the driver a view of the highway to the rear, along both sides of the vehicle.

(r) A Mobile Food Vendor may only sell food and non-alcoholic beverage items. A Mobile Food Vendor may sale alcoholic beverages if all proper licensing requirements are satisfied and if the Mobile Food Vendor has all necessary permits and/or licenses.

Section Two. Codification and Certify. This Ordinance adopted hereby shall be codified and certified in a manner consistent with the laws of the State of Georgia and the City.

Section Three. Severability.

(a) It is hereby declared to be the intention of the Mayor and Council that all sections, paragraphs, sentences, clauses and phrases of this Ordinance are or were, upon their enactment, believed by the Mayor and Council to be fully valid, enforceable and constitutional.

(b) It is hereby declared to be the intention of the Mayor and Council that, to the greatest extent allowed by law, each and every section, paragraph, sentence, clause or phrase of this Ordinance is severable from every other section, paragraph, sentence, clause or phrase of this Ordinance. It is hereby further declared to be the intention of the Mayor and Council that, to the greatest extent allowed by law, no section, paragraph, sentence, clause or phrase of this Ordinance is mutually dependent upon any other section, paragraph, sentence, clause or phrase of this Ordinance.

(c) In the event that any phrase, clause, sentence, paragraph or section of this Ordinance shall, for any reason whatsoever, be declared invalid, unconstitutional or otherwise unenforceable by the valid judgment or decree of any court of competent jurisdiction, it is the express intent of the Mayor and Council that such invalidity, unconstitutionality or unenforceability shall, to the greatest extent allowed by law, not render invalid, unconstitutional or otherwise unenforceable any of the remaining phrases, clauses, sentences, paragraphs or sections of the Ordinance and that, to the greatest extent allowed by law, all remaining phrases, clauses, sentences, paragraphs and sections of the Ordinance shall remain valid, constitutional, enforceable, and of full force and effect.

Section Four. Repeal of Conflicting Ordinances. All ordinances and parts of ordinances in conflict herewith are hereby expressly repealed.

Section Five. Effective Date. The effective date of this Ordinance shall be the date of adoption unless otherwise stated herein.

ORDAINED this _____ day of _____, 2019.

CITY OF HAPEVILLE, GEORGIA

Alan Hallman, Mayor

ATTEST:

City Clerk

APPROVED BY:

City Attorney

Date of Issuance: 10/2/19

Effective Date: 9/13/19

Owner: City of Hapeville, Georgia

Owner's Contract No.:

Contractor: The Corbett Group, LLC

Contractor's Project No.:

Engineer: Keck & Wood

Engineer's Project No.: 180130

Project: Annual contract for construction and maintenance of water lines, gravity sewers, and force mains

Contract Name:

The Contract is modified as follows upon execution of this Change Order:

Description:

Contract renewal for a year.

Attachments:

Letter of contract agreement.

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES
Original Contract Price: \$ _____	Original Contract Times: Substantial Completion: <u>365 Days</u> Ready for Final Payment: <u>365 Days</u> days or dates
[Increase] [Decrease] from previously approved Change Orders No. ____ to No. ____: \$ _____	
Contract Price prior to this Change Order: \$ _____	Contract Times prior to this Change Order: Substantial Completion: <u>365 Days</u> Ready for Final Payment: <u>365 Days</u> days or dates
[Increase] [Decrease] of this Change Order: \$ _____	Increase of this Change Order: Substantial Completion: <u>365 Days</u> Ready for Final Payment: <u>365 Days</u> days or dates
Contract Price incorporating this Change Order: \$ _____	Contract Times with all approved Change Orders: Substantial Completion: <u>730 Days</u> Ready for Final Payment: <u>730 Days</u> days or dates

RECOMMENDED:

By: [Signature]
Engineer (if required)Title: Assoc. VPDate: 10/2/19

ACCEPTED:

By: _____
Owner (Authorized Signature)

Title _____

Date _____

ACCEPTED:

By: [Signature]
Contractor (Authorized Signature)Title: OPERATIONS MANAGERDate: 10/2/19



September 27, 2019

Keck & Wood, Inc
Attn: Adam Shelton, PE
3090 Premiere Pkwy, Ste 200
Duluth, GA 30097

Ref: Annual Contract for Construction and Maintenance of Water Lines, Gravity Sewers, and Force
Mains
Contract Renewal

Mr. Shelton,

The Corbett Group, LLC will like to express our interest in renewing the above referenced project at our current contract prices. We look forward to continuing to work with you on future projects.

Sincerely,

Michael Corbett
President

CC: File

Date of Issuance: 10/2/19

Effective Date: 9/13/19

Owner: City of Hapeville, Georgia

Owner's Contract No.:

Contractor: The Corbett Group, LLC

Contractor's Project No.:

Engineer: Keck & Wood

Engineer's Project No.: 180177

Project: Annual Contract for Construction and Maintenance of Storm Sewers

Contract Name:

The Contract is modified as follows upon execution of this Change Order:

Description:

Contract renewal for a year.

Attachments:

Letter of contract agreement.

CHANGE IN CONTRACT PRICE

Original Contract Price:

\$ _____

[Increase] [Decrease] from previously approved Change Orders No. ____ to No. ____:

\$ _____

Contract Price prior to this Change Order:

\$ _____

[Increase] [Decrease] of this Change Order:

\$ _____

Contract Price incorporating this Change Order:

\$ _____

CHANGE IN CONTRACT TIMES

Original Contract Times:

Substantial Completion: 365 DaysReady for Final Payment: 365 Days

days or dates

Contract Times prior to this Change Order:

Substantial Completion: 365 DaysReady for Final Payment: 365 Days

days or dates

Increase of this Change Order:

Substantial Completion: 365 DaysReady for Final Payment: 365 Days

days or dates

Contract Times with all approved Change Orders:

Substantial Completion: 730 DaysReady for Final Payment: 730 Days

days or dates

RECOMMENDED:

By: *Sham Shukla*

Engineer (if required)

Title: Assoc. VPDate: 10/2/19

ACCEPTED:

By: _____

Owner (Authorized Signature)

Title _____

Date _____

ACCEPTED:

By: *Shera*

Contractor (Authorized Signature)

Title: OPERATIONS MANAGERDate: 10/2/19



September 27, 2019

Keck & Wood, Inc
Attn: Adam Shelton, PE
3090 Premiere Pkwy, Ste 200
Duluth, GA 30097

Ref: Annual Contract for Construction and Maintenance of Storm Sewers
Contract Renewal

Mr. Shelton,

The Corbett Group, LLC will like to express our interest in renewing the above referenced project at our current contract prices. We look forward to continuing to work with you on future projects.

Sincerely,

Michael Corbett
President

CC: File



Keck & Wood, Inc.

3090 Premiere Parkway
Suite 200
Duluth, Georgia 30097
Office: (678) 417-4000
Fax: (678) 417-4055
www.keckwood.com

August 2, 2018

Honorable Mayor and Council
City of Hapeville
3468 N Fulton Avenue
Hapeville, Georgia 30354

Re: Annual Contracts for Construction
and Maintenance of Water Lines,
Sanitary Sewers and Storm Sewers
Our Reference No. 180130.00

Dear Mayor and Council Members:

We have reviewed the bids received at City Hall, at 2:00 p.m., local time on July 31, 2018 for construction of the referenced project. Two (2) bids were received. The following is a summary of the two (2) bids.

<u>Bidder</u>	<u>Construction and Maintenance of Water Lines, Gravity Sewers, and Force Mains (Contract No.1)</u>	<u>Construction and Maintenance of Storm Sewers (Contract No.2)</u>
1. The Corbett Group, LLC 6535 Bankhead Highway Douglasville, GA 30134	\$243,262.50	\$117,384.00
2. RDJE, Inc. 679 Highway 29 South, Suite A Newnan, GA 30263	\$1,002,939.50	\$539,040.00

A certified tabulation of all bids received is attached. A copy of the tabulation has been mailed to each bidder for their information.

Each bidder submitted a 5% bid bond from a surety company listed on U. S. Treasury Circular 570 (07/01/18). The low bid of \$243,262.50 is within the funds allocated for Contract No. 1. The low bid of \$117,384.00 is within the funds allocated for Contract No. 2.

Keck & Wood, Inc. has worked with The Corbett Group, LLC on projects of similar scope and size and consider them capable of performing the required activities to successfully complete this project.

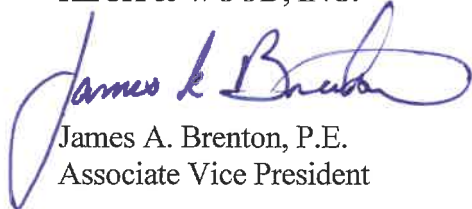
Keck & Wood, Inc., therefore, recommends contract award to The Corbett Group, LLC in the amount of \$243,262.50 for construction of Contract No.1 and \$117,384.00 for construction of Contract No.2 of the Annual Contracts for Construction and Maintenance of Water Lines, Sanitary Sewers and Storm Sewers.

Merchants National Bonding, Inc. is the surety company for the recommended bidder's bid bond and will likely be the surety company used for the payment and performance bonds on the project. In addition to being listed on the U.S. Treasury Department Circular 570, the surety is shown as being licensed in Georgia, having an Active/Compliance status, and with an underwriting limitation that is greater than the bond amount. Please note that in accordance with Georgia Law (OCGA 36-91-40 (a)(2)), the City must have an "officer of the government entity" to "approve as to form and as to the solvency of the surety" for the proposed surety company named above. We recommend that your legal counsel be contacted to handle or suggest the procedures necessary to comply with this Georgia law. We can provide additional information on this issue if needed.

If there are any questions, please contact our office.

Very truly yours,

KECK & WOOD, INC.



James A. Brenton, P.E.
Associate Vice President

Enclosure

BID TABULATION
ANNUAL CONTRACT FOR CONSTRUCTION AND MAINTENANCE OF WATER LINES, GRAVITY SEWERS, AND FORCE MAINS
CITY OF HAPEVILLE, GEORGIA

RECEIVED BY: CITY OF HAPEVILLE, GEORGIA
 AT HAPEVILLE CITY HALL
 2:00 P.M., LOCAL TIME, JULY 31, 2018

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	BIDDER NO. 1		BIDDER NO. 2	
				UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT
1	Contract Bonds and Insurance	1	LS	\$7,050.00	\$7,050.00	\$77,000.00	\$77,000.00
2	6" Water Main DIPW-1	5	LF	\$65.00	\$275.00	\$2,406.00	\$12,030.00
3	8" Water Main DIPW-1	5	LF	\$70.00	\$350.00	\$2,452.00	\$12,260.00
4	10" Water Main DIPW-1	5	LF	\$75.00	\$375.00	\$2,500.00	\$12,500.00
5	12" Water Main DIPW-1	5	LF	\$81.00	\$405.00	\$2,510.00	\$12,550.00
6	16" Water Main DIPW-1	5	LF	\$120.00	\$600.00	\$2,667.00	\$13,335.00
7	18" Water Main DIPW-1	5	LF	\$140.00	\$700.00	\$2,680.00	\$13,400.00
8	8" Water Main DIPW-2	5	LF	\$65.00	\$325.00	\$2,475.00	\$12,375.00
9	10" Water Main DIPW-2	5	LF	\$75.00	\$375.00	\$2,489.00	\$12,445.00
10	12" Water Main DIPW-2	5	LF	\$95.00	\$475.00	\$2,545.00	\$12,725.00
11	2" Water Main PVCPCW-1	5	LF	\$35.00	\$175.00	\$2,386.00	\$11,930.00
12	4" Water Main PVCPCW-1	5	LF	\$35.00	\$175.00	\$2,388.00	\$11,940.00
13	6" Water Main PVCPCW-2	5	LF	\$40.00	\$200.00	\$2,435.00	\$12,175.00
14	8" Water Main PVCPCW-2	5	LF	\$45.00	\$225.00	\$2,441.00	\$12,205.00
15	10" Water Main PVCPCW-2	5	LF	\$55.00	\$275.00	\$2,449.00	\$12,245.00
16	12" Water Main PVCPCW-2	5	LF	\$65.00	\$325.00	\$2,499.00	\$12,495.00
17	8" HDPE-1 Water Main by HDD	5	LF	\$200.00	\$1,000.00	\$2,903.00	\$14,515.00
18	10" HDPE-1 Water Main by HDD	5	LF	\$250.00	\$1,250.00	\$2,935.00	\$14,675.00
19	12" HDPE-1 Water Main by HDD	5	LF	\$400.00	\$2,000.00	\$2,959.00	\$14,795.00
20	16" HDPE-1 Water Main by HDD	5	LF	\$400.00	\$2,000.00	\$3,029.00	\$15,145.00
21	18" HDPE-1 Water Main by HDD	5	LF	\$300.00	\$1,500.00	\$3,071.00	\$15,355.00
22	Water Main Pipe Fittings	1	TN	\$8,000.00	\$8,000.00	\$15,831.00	\$15,831.00
23	Repair leak in 2" - < 6" Water Main	1	EA	\$2,500.00	\$2,500.00	\$4,578.00	\$4,578.00
24	Repair leak in 6" -10" Water Main	1	EA	\$3,500.00	\$3,500.00	\$4,731.00	\$4,731.00
25	Repair leak in 12" Water Main	1	EA	\$4,000.00	\$4,000.00	\$186.00	\$186.00
26	Repair leak in 16" Water Main	1	EA	\$6,000.00	\$6,000.00	\$5,932.00	\$5,932.00
27	Repair leak in 18" Water Main	1	EA	\$8,000.00	\$8,000.00	\$6,085.00	\$6,085.00
28	Curb Stop and Curb Box, 3/4" - 2"	1	EA	\$200.00	\$200.00	\$1,479.00	\$1,479.00
29	6" GWV-1 Gate Valve and Box	1	EA	\$900.00	\$900.00	\$2,002.00	\$2,002.00
30	8" GWV-1 Gate Valve and Box	1	EA	\$1,200.00	\$1,200.00	\$2,806.00	\$2,806.00
31	10" GWV-1 Gate Valve and Box	1	EA	\$1,600.00	\$1,600.00	\$3,468.00	\$3,468.00
32	12" GWV-1 Gate Valve and Box	1	EA	\$2,200.00	\$2,200.00	\$4,713.00	\$4,713.00
33	16" BFV-1 Butterfly Valve and Box	1	EA	\$7,500.00	\$7,500.00	\$11,175.00	\$11,175.00
34	18" BFV-1 Butterfly Valve and Box	1	EA	\$9,000.00	\$9,000.00	\$15,776.00	\$15,776.00
35	Removal of ex. Fire Hydrants	1	EA	\$250.00	\$250.00	\$1,512.00	\$1,512.00
36	Relocation and Reconnection of ex. Fire Hydrants	1	EA	\$5,500.00	\$5,500.00	\$4,430.00	\$4,430.00
37	Fire Hydrants	1	EA	\$4,600.00	\$4,600.00	\$5,125.00	\$5,125.00
38	Adjusting existing Fire Hydrants	1	VF	\$250.00	\$250.00	\$1,211.00	\$1,211.00

BID TABULATION
ANNUAL CONTRACT FOR CONSTRUCTION AND MAINTENANCE OF WATER LINES, GRAVITY SEWERS, AND FORCE MAINS
CITY OF HAPEVILLE, GEORGIA

RECEIVED BY: CITY OF HAPEVILLE, GEORGIA
 AT HAPEVILLE CITY HALL
 2:00 P.M., LOCAL TIME, JULY 31, 2018

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	BIDDER NO. 1		BIDDER NO. 2	
				UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT
39	Service tubing system, 3/4" - 1.25"	5	LF	\$20.00	\$100.00	\$54.00	\$270.00
40	Service tubing system, 1.50" - 2"	5	LF	\$20.00	\$100.00	\$75.00	\$375.00
41	Copper service tubing system, 3/4" - 1.25"	5	LF	\$35.00	\$175.00	\$138.00	\$690.00
42	Copper service tubing system, 1.50" - 2"	5	LF	\$35.00	\$175.00	\$189.00	\$945.00
43	Service tubing under roadway	5	LF	\$35.00	\$175.00	\$175.00	\$875.00
44	Repair leak in service line 3/4" - 2.0"	1	EA	\$1,500.00	\$1,500.00	\$4,578.00	\$4,578.00
45	Service connection in 6" thru 10" water mains	1	EA	\$1,000.00	\$1,000.00	\$1,125.00	\$1,125.00
46	Service connection in 12" thru 18" water mains	1	EA	\$2,500.00	\$2,500.00	\$1,394.00	\$1,394.00
47	Service saddle repair or replacement in 6" thru 10" water mains	1	EA	\$1,000.00	\$1,000.00	\$5,932.00	\$5,932.00
48	Service saddle repair or replacement in 12" thru 18" water mains	1	EA	\$1,200.00	\$1,200.00	\$6,466.00	\$6,466.00
49	Water meters installation - up to 1"	1	EA	\$500.00	\$500.00	\$1,444.00	\$1,444.00
50	Water meters installation - > 1" to 2"	1	EA	\$1,000.00	\$1,000.00	\$1,444.00	\$1,444.00
51	Water meter relocation 3/4" thru 2"	1	EA	\$3,500.00	\$3,500.00	\$1,444.00	\$1,444.00
52	Water service changeover 3/4" thru 2"	1	EA	\$1,500.00	\$1,500.00	\$1,444.00	\$1,444.00
53	Tapping sleeve and Valve connection (TSWW) 6" x 6"	1	EA	\$3,600.00	\$3,600.00	\$5,528.00	\$5,528.00
54	Tapping sleeve and Valve connection (TSWW) 8" x 6" to 8" (side outlet)	1	EA	\$2,700.00	\$2,700.00	\$8,077.00	\$8,077.00
55	Tapping sleeve and Valve connection (TSWW) 10" x 6" to 10" (side outlet)	1	EA	\$3,000.00	\$3,000.00	\$13,906.00	\$13,906.00
56	Tapping sleeve and Valve connection (TSWW) 12" x 6" to 12" (side outlet)	1	EA	\$7,500.00	\$7,500.00	\$20,318.00	\$20,318.00
57	Connection to existing water main less than 6" (Wet cut in)	1	EA	\$1,200.00	\$1,200.00	\$7,543.00	\$7,543.00
58	Connection to existing water main 6" - 8" (Wet cut in)	1	EA	\$4,000.00	\$4,000.00	\$7,696.00	\$7,696.00
59	Connection to existing water main 10" - 16" (Wet cut in)	1	EA	\$6,500.00	\$6,500.00	\$7,424.00	\$7,424.00
60	12" Steel Casing Pipe Tunnel Liner	5	LF	\$40.00	\$200.00	\$1,073.00	\$5,365.00
61	16" Steel Casing Pipe Tunnel Liner	5	LF	\$50.00	\$250.00	\$1,136.00	\$5,680.00
62	18" Steel Casing Pipe Tunnel Liner	5	LF	\$70.00	\$350.00	\$1,247.00	\$6,235.00
63	20" Steel Casing Pipe Tunnel Liner	5	LF	\$80.00	\$400.00	\$1,344.00	\$6,720.00
64	Line plugging device less than 6"	1	EA	\$12,000.00	\$12,000.00	\$5,763.00	\$5,763.00
65	Line plugging device 6" - 8"	1	EA	\$15,000.00	\$15,000.00	\$7,120.00	\$7,120.00
66	Line plugging device 10" - 12"	1	EA	\$18,000.00	\$18,000.00	\$14,917.00	\$14,917.00
67	4" - 8" Existing Water Mains to be Removed	5	LF	\$15.00	\$75.00	\$111.00	\$555.00
68	DIP to HDPE Transition 4"	1	EA	\$1,800.00	\$1,800.00	\$1,651.00	\$1,651.00
69	DIP to HDPE Transition 6" - 8"	1	EA	\$2,000.00	\$2,000.00	\$1,796.00	\$1,796.00
70	DIP to HDPE Transition 10" - 12"	1	EA	\$3,200.00	\$3,200.00	\$1,978.00	\$1,978.00
71	DIP to HDPE Transition 16"	1	EA	\$4,000.00	\$4,000.00	\$2,195.00	\$2,195.00
72	Concrete Blocking - Thrust Restraint on Existing Components	1	CY	\$200.00	\$200.00	\$421.00	\$421.00
73	8" DIPS Sewer, 0' to 10' Depth	5	LF	\$105.00	\$525.00	\$1,793.00	\$8,965.00
74	8" DIPS Sewer, >10' to 14' Depth	5	LF	\$115.00	\$575.00	\$2,038.00	\$10,190.00
75	8" DIPS Sewer, >14' to 18' Depth	5	LF	\$125.00	\$625.00	\$2,240.00	\$11,200.00
76	8" DIPS Sewer, >18' to 22' Depth	5	LF	\$135.00	\$675.00	\$2,644.00	\$13,220.00

The Corbett Group, LLC
 6535 Bankhead Highway
 Douglasville, GA 30134

RDJE, Inc.
 679 Highway 29 South, Suite A
 Newnan, GA 30263

BID TABULATION
ANNUAL CONTRACT FOR CONSTRUCTION AND MAINTENANCE OF WATER LINES, GRAVITY SEWERS, AND FORCE MAINS
CITY OF HAPEVILLE, GEORGIA

RECEIVED BY: CITY OF HAPEVILLE, GEORGIA
 AT HAPEVILLE CITY HALL
 2:00 P.M., LOCAL TIME, JULY 31, 2018

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	BIDDER NO. 1		BIDDER NO. 2	
				UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT
77	10" DIPS Sewer, 0' to 10' Depth	5	LF	\$110.00	\$550.00	\$1,978.00	\$9,890.00
78	10" DIPS Sewer, >10' to 14' Depth	5	LF	\$120.00	\$600.00	\$2,045.00	\$10,225.00
79	10" DIPS Sewer, >14' to 18' Depth	5	LF	\$130.00	\$650.00	\$2,247.00	\$11,235.00
80	10" DIPS Sewer, >18' to 22' Depth	5	LF	\$140.00	\$700.00	\$2,652.00	\$13,260.00
81	12" DIPS Sewer, 0' to 10' Depth	5	LF	\$120.00	\$600.00	\$1,987.00	\$9,935.00
82	12" DIPS Sewer, >10' to 14' Depth	5	LF	\$130.00	\$650.00	\$2,055.00	\$10,275.00
83	12" DIPS Sewer, >14' to 18' Depth	5	LF	\$140.00	\$700.00	\$2,257.00	\$11,285.00
84	12" DIPS Sewer, >18' to 22' Depth	5	LF	\$150.00	\$750.00	\$2,661.00	\$13,305.00
85	18" DIPS Sewer, 0' to 10' Depth	5	LF	\$155.00	\$775.00	\$2,028.00	\$10,140.00
86	18" DIPS Sewer, >10' to 14' Depth	5	LF	\$165.00	\$825.00	\$2,182.00	\$10,910.00
87	18" DIPS Sewer, >14' to 18' Depth	5	LF	\$175.00	\$875.00	\$2,317.00	\$11,585.00
88	18" DIPS Sewer, >18' to 22' Depth	5	LF	\$200.00	\$1,000.00	\$2,721.00	\$13,605.00
89	24" DIPS Sewer, 0' to 10' Depth	5	LF	\$200.00	\$1,000.00	\$2,096.00	\$10,480.00
90	24" DIPS Sewer, >10' to 14' Depth	5	LF	\$215.00	\$1,075.00	\$2,163.00	\$10,815.00
91	24" DIPS Sewer, >14' to 18' Depth	5	LF	\$230.00	\$1,150.00	\$2,365.00	\$11,825.00
92	24" DIPS Sewer, >18' to 22' Depth	5	LF	\$250.00	\$1,250.00	\$2,769.00	\$13,845.00
93	8" PVCFS Sewer, 0' to 10' Depth	5	LF	\$65.00	\$325.00	\$1,972.00	\$9,860.00
94	8" PVCFS Sewer, >10' to 14' Depth	5	LF	\$75.00	\$375.00	\$2,040.00	\$10,200.00
95	10" PVCFS Sewer, 0' to 10' Depth	5	LF	\$75.00	\$375.00	\$1,980.00	\$9,900.00
96	10" PVCFS Sewer, >10' to 14' Depth	5	LF	\$85.00	\$425.00	\$2,045.00	\$10,225.00
97	12" PVCFS Sewer, 0' to 10' Depth	5	LF	\$85.00	\$425.00	\$1,982.00	\$9,910.00
98	12" PVCFS Sewer, >10' to 14' Depth	5	LF	\$95.00	\$475.00	\$2,050.00	\$10,250.00
99	4" PVCFM Force Main	5	LF	\$35.00	\$175.00	\$684.00	\$3,420.00
100	6" PVCFM Force Main	5	LF	\$45.00	\$225.00	\$694.00	\$3,470.00
101	4" DIPFM Force Main	5	LF	\$45.00	\$225.00	\$696.00	\$3,480.00
102	6" DIPFM Force Main	5	LF	\$50.00	\$250.00	\$711.00	\$3,555.00
103	4" PEFM Force Main by HDD	5	LF	\$100.00	\$500.00	\$704.00	\$3,520.00
104	6" PEFM Force Main by HDD	5	LF	\$150.00	\$750.00	\$751.00	\$3,755.00
105	8" to 10" Transition Collar	1	EA	\$500.00	\$500.00	\$1,760.00	\$1,760.00
106	12" to 16" Transition Collar	1	EA	\$1,000.00	\$1,000.00	\$2,086.00	\$2,086.00
107	4" DIPS Sewer Service Line	5	LF	\$38.00	\$190.00	\$192.00	\$960.00
108	6" DIPS Sewer Service Line	5	LF	\$48.00	\$240.00	\$199.00	\$995.00
109	DIPS Sewer Service Cleanout	1	EA	\$450.00	\$450.00	\$1,950.00	\$1,950.00
110	8" to 10" Sewer Service Wye or Tee	1	EA	\$250.00	\$250.00	\$1,112.00	\$1,112.00
111	12" to 18" Sewer Service Wye or Tee	1	EA	\$350.00	\$350.00	\$1,112.00	\$1,112.00
112	CCTV Inspection and Video Record 4" to 12" Dia. Sewer	5	LF	\$2.00	\$10.00	\$4.00	\$20.00
113	CCTV Inspection and Video Record 14" to 24" Dia. Sewer	5	LF	\$2.45	\$12.25	\$5.00	\$25.00
114	Light Sewer Cleaning 4" to 12" Dia. Sewer	5	LF	\$2.45	\$12.25	\$3.00	\$15.00

BID TABULATION
ANNUAL CONTRACT FOR CONSTRUCTION AND MAINTENANCE OF WATER LINES, GRAVITY SEWERS, AND FORCE MAINS
CITY OF HAPEVILLE, GEORGIA

RECEIVED BY: CITY OF HAPEVILLE, GEORGIA
 AT HAPEVILLE CITY HALL
 2:00 P.M., LOCAL TIME, JULY 31, 2018

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	BIDDER NO. 1		BIDDER NO. 2	
				UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT
115	Light Sewer Cleaning 14" to 24" Dia. Sewer	5	LF	\$5.25	\$26.25	\$4.00	\$20.00
116	Heavy Sewer Cleaning 4" to 12" Dia. Sewer	5	LF	\$4.25	\$21.25	\$7.00	\$35.00
117	Heavy Sewer Cleaning 14" to 24" Dia. Sewer	5	LF	\$15.25	\$76.25	\$8.00	\$40.00
118	Root Cutting Sewer Cleaning 4" to 12" Dia. Sewer	5	LF	\$3.00	\$15.00	\$9.00	\$45.00
119	Root Cutting Sewer Cleaning 14" to 24" Dia. Sewer	5	LF	\$18.00	\$90.00	\$11.00	\$55.00
120	4 Ft Dia. Precast Manhole	1	EA	\$1,800.00	\$1,800.00	\$4,490.00	\$4,490.00
121	4 Ft Precast Manhole Riser	5	VF	\$100.00	\$500.00	\$280.00	\$1,400.00
122	5 Ft Dia. Precast Manhole	1	EA	\$1,800.00	\$1,800.00	\$4,735.00	\$4,735.00
123	5 Ft Precast Manhole Riser	5	VF	\$100.00	\$500.00	\$406.00	\$2,030.00
124	Standard Manhole Frame and Cover	1	EA	\$675.00	\$675.00	\$566.00	\$566.00
125	Watertight, Bolt Down Manhole Frame & Cover	1	EA	\$850.00	\$850.00	\$675.00	\$675.00
126	5' to 4' Precast Manhole Riser Transition	1	EA	\$800.00	\$800.00	\$672.00	\$672.00
127	Manhole Drop Connection	1	EA	\$1,200.00	\$1,200.00	\$1,420.00	\$1,420.00
128	Manhole Stub Out	1	EA	\$500.00	\$500.00	\$1,238.00	\$1,238.00
129	Manhole Over Existing Sewer - Extra	1	EA	\$800.00	\$800.00	\$12,504.00	\$12,504.00
130	Manhole Protective Coating	1	EA	\$800.00	\$800.00	\$1,451.00	\$1,451.00
131	Connect to Existing Manhole	1	EA	\$1,500.00	\$1,500.00	\$5,582.00	\$5,582.00
132	Deep Manhole Safety Platform	1	EA	\$800.00	\$800.00	\$561.00	\$561.00
133	Adjust Manhole Frame/Cover to Grade - 1 VF or Less, Non-Pavement	1	EA	\$800.00	\$800.00	\$610.00	\$610.00
134	Adjust Manhole Frame/Cover to Grade - 1 VF or Less, Pavement	1	EA	\$800.00	\$800.00	\$1,017.00	\$1,017.00
135	Adjust Manhole Frame/Cover to Grade - Over 1VF	1	EA	\$800.00	\$800.00	\$1,695.00	\$1,695.00
136	Remove or Abandon Existing Sewer Structure	1	EA	\$1,500.00	\$1,500.00	\$2,850.00	\$2,850.00
137	Plug Existing Sewer	1	EA	\$2,500.00	\$2,500.00	\$2,754.00	\$2,754.00
138	Plug Existing Force Main	1	EA	\$2,500.00	\$2,500.00	\$2,754.00	\$2,754.00
139	Sewage Bypass Pumping Mobilization/Demobilization	1	EA	\$3,500.00	\$3,500.00	\$7,520.00	\$7,520.00
140	Sewage Bypass Pumping - Additional Suction/Discharge Hose	5	LF	\$25.00	\$125.00	\$835.00	\$835.00
141	4 Inch Pump Bypass Operation	1	DAY	\$650.00	\$650.00	\$5,574.00	\$5,574.00
142	6 Inch Pump Bypass Operation	1	DAY	\$900.00	\$900.00	\$6,300.00	\$6,300.00
143	8 Inch Pump Bypass Operation	1	DAY	\$1,500.00	\$1,500.00	\$7,025.00	\$7,025.00
144	Concrete Support Piers	1	CY	\$350.00	\$350.00	\$2,032.00	\$2,032.00
145	Pipe Tracer wire	5	LF	\$2.00	\$10.00	\$0.50	\$2.50
146	Exploratory Excavation	1	HR	\$550.00	\$550.00	\$397.00	\$397.00
147	Temporary Traffic Control	5	LF	\$100.00	\$500.00	\$73.00	\$365.00
148	Temporary Traffic Control Detour	1	DAY	\$1,000.00	\$1,000.00	\$729.00	\$729.00
149	Stabilization Stone	5	CY	\$35.00	\$175.00	\$95.00	\$475.00
150	Rock excavation	5	CY	\$200.00	\$1,000.00	\$475.00	\$2,375.00
151	Pavement Patch Type 1	5	LF	\$50.00	\$250.00	\$284.00	\$1,420.00
152	Pavement Patch Type 2	5	LF	\$50.00	\$250.00	\$284.00	\$1,420.00

BID TABULATION
ANNUAL CONTRACT FOR CONSTRUCTION AND MAINTENANCE OF WATER LINES, GRAVITY SEWERS, AND FORCE MAINS
CITY OF HAPEVILLE, GEORGIA

RECEIVED BY: CITY OF HAPEVILLE, GEORGIA
 AT HAPEVILLE CITY HALL
 2:00 P.M., LOCAL TIME, JULY 31, 2018

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	BIDDER NO. 1		BIDDER NO. 2	
				UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT
153	Sidewalk removal and restoration	5	SY	\$35.00	\$175.00	\$197.00	\$985.00
154	Curb and Gutter removal and restoration	5	LF	\$26.00	\$130.00	\$101.00	\$505.00
155	Curb removal and restoration	5	LF	\$20.00	\$100.00	\$271.00	\$1,355.00
156	Temporary Construction Exit	1	EA	\$800.00	\$800.00	\$3,390.00	\$3,390.00
157	Temporary Stone Check Dam	1	EA	\$125.00	\$125.00	\$542.00	\$542.00
158	Temporary Hay Bale Check Dam	1	EA	\$85.00	\$85.00	\$542.00	\$542.00
159	Temporary Silt Fence – Sensitive	5	LF	\$3.00	\$15.00	\$4.00	\$20.00
160	Temporary Silt Fence – Non Sensitive	5	LF	\$2.00	\$10.00	\$3.00	\$15.00
161	Rip Rap Stabilization	5	SY	\$45.00	\$225.00	\$69.00	\$345.00
162	Erosion and Sedimentation Control	5	LF	\$2.85	\$14.25	\$271.00	\$1,355.00
163	Earth Fill	5	CY	\$35.00	\$175.00	\$169.00	\$845.00
164	Geotechnical Compaction Testing	1	EA	\$250.00	\$250.00	\$1,153.00	\$1,153.00
TOTAL OF ALL CONTRACT NO.1 UNIT PRICE BID ITEMS					\$243,262.50 *		\$1,002,939.50
BID BOND					5%		5%
NOTE REFERENCE					(1)		(1)
LICENSE NUMBER					UC302014		UC302155

NOTES:

* DENOTES CORRECTED VALUE

(1) SURETY COMPANY LISTED ON U. S. TREASURY CIRCULAR 570 (7/1/18).

THIS IS TO CERTIFY THAT THIS IS A TRUE AND CORRECT TABULATION OF BIDS RECEIVED AT THE TIME AND PLACE STATED ABOVE. BIDS WERE SEALED WHEN RECEIVED AND OPENED AND READ ALOUD IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE.

Michael J. Moffitt
 KECK & WOOD, INC.
 8-2-18
 DATE

BID TABULATION
ANNUAL CONTRACT FOR CONSTRUCTION AND MAINTENANCE OF STORM SEWERS
CITY OF HAPEVILLE, GEORGIA

RECEIVED BY: CITY OF HAPEVILLE, GEORGIA
 AT HAPEVILLE CITY HALL
 2:00 P.M., LOCAL TIME, JULY 31, 2018

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	BIDDER NO. 1		BIDDER NO. 2	
				UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT
1	Contract Bonds and Insurance	1	LS	\$3,429.00	\$3,429.00	\$75,000.00	\$75,000.00
2	12" DIPS Storm Sewer	20	LF	\$45.00	\$900.00	\$1,128.00	\$22,560.00
3	16" DIPS Storm Sewer	20	LF	\$50.00	\$1,000.00	\$1,203.00	\$24,060.00
4	Storm Drain Pipe, 15 inch CMP	20	LF	\$36.00	\$720.00	\$328.00	\$6,560.00
5	Storm Drain Pipe, 18 inch CMP	20	LF	\$45.00	\$900.00	\$353.00	\$7,060.00
6	Storm Drain Pipe, 21 inch CMP	20	LF	\$55.00	\$1,100.00	\$376.00	\$7,520.00
7	Storm Drain Pipe, 24 inch CMP	20	LF	\$65.00	\$1,300.00	\$429.00	\$8,580.00
8	Storm Drain Pipe, 30 inch CMP	20	LF	\$60.00	\$1,200.00	\$544.00	\$10,880.00
9	Storm Drain Pipe, 15 inch RCP	20	LF	\$40.00	\$800.00	\$285.00	\$5,700.00
10	Storm Drain Pipe, 18 inch RCP	20	LF	\$50.00	\$1,000.00	\$324.00	\$6,480.00
11	Storm Drain Pipe, 21 inch RCP	20	LF	\$55.00	\$1,100.00	\$432.00	\$8,640.00
12	Storm Drain Pipe, 24 inch RCP	20	LF	\$60.00	\$1,200.00	\$458.00	\$9,160.00
13	Storm Drain Pipe, 30 inch RCP	20	LF	\$80.00	\$1,600.00	\$544.00	\$10,880.00
14	18" HDPE Storm Sewer by Pipe Bursting	20	LF	\$450.00	\$9,000.00	\$2,400.00	\$48,000.00
15	20" HDPE Storm Sewer by Pipe Bursting	20	LF	\$500.00	\$10,000.00	\$2,450.00	\$49,000.00
16	24" HDPE Storm Sewer by Pipe Bursting	20	LF	\$600.00	\$12,000.00	\$2,500.00	\$50,000.00
17	CCTV Inspection and Video Record 4" to 12" Dia. Storm Sewer	20	LF	\$2.00	\$40.00	\$5.00	\$100.00
18	CCTV Inspection and Video Record 14" to 24" Dia. Storm Sewer	20	LF	\$2.00	\$40.00	\$7.00	\$140.00
19	4 Ft Dia. Precast Manhole	2	EA	\$1,500.00	\$3,000.00	\$357.00	\$714.00
20	4 Ft Precast Manhole Riser	10	VF	\$250.00	\$2,500.00	\$165.00	\$1,650.00
21	5 Ft Dia. Precast Manhole	2	EA	\$1,500.00	\$3,000.00	\$357.00	\$714.00
22	5 Ft Precast Manhole Riser	10	VF	\$250.00	\$2,500.00	\$380.00	\$3,800.00
23	Standard Manhole Frame and Cover	2	EA	\$800.00	\$1,600.00	\$635.00	\$1,270.00
24	Watertight, Bolt Down Manhole Frame & Cover	2	EA	\$1,200.00	\$2,400.00	\$738.00	\$1,476.00
25	5' to 4' Precast Manhole Riser Transition	2	EA	\$800.00	\$1,600.00	\$206.00	\$412.00
26	Manhole Drop Connection	2	EA	\$1,000.00	\$2,000.00	\$957.00	\$1,914.00
27	Manhole Stub Out	2	EA	\$850.00	\$1,700.00	\$957.00	\$1,914.00
28	Manhole Over Existing Sewer - Extra	2	EA	\$2,500.00	\$5,000.00	\$14,999.00	\$29,998.00
29	Manhole Protective Coating	2	EA	\$1,200.00	\$2,400.00	\$3,661.00	\$7,322.00
30	Connect to Existing Manhole	2	EA	\$500.00	\$1,000.00	\$6,788.00	\$13,576.00
31	Adjust Manhole Frame/Cover to Grade - 1 VF or Less, Non-Pavement	2	EA	\$450.00	\$900.00	\$616.00	\$1,232.00
32	Adjust Manhole Frame/Cover to Grade - 1 VF or Less, Pavement	2	EA	\$800.00	\$1,600.00	\$1,026.00	\$2,052.00
33	Adjust Manhole Frame/Cover to Grade - Over 1VF	2	EA	\$1,200.00	\$2,400.00	\$1,711.00	\$3,422.00
34	Remove or Abandon Existing Storm Sewer Structure	2	EA	\$800.00	\$1,600.00	\$1,997.00	\$3,994.00
35	Plug Existing Storm Sewer	2	EA	\$500.00	\$1,000.00	\$2,560.00	\$5,120.00
36	Drop Inlet	2	EA	\$1,500.00	\$3,000.00	\$10,063.00	\$20,126.00
37	Drop Inlet Additional Depth	10	VF	\$250.00	\$2,500.00	\$165.00	\$1,650.00
38	Catch Basin	2	EA	\$1,800.00	\$3,600.00	\$5,212.00	\$10,424.00
39	Catch Basin Additional Depth	10	VF	\$150.00	\$1,500.00	\$165.00	\$1,650.00

BID TABULATION
ANNUAL CONTRACT FOR CONSTRUCTION AND MAINTENANCE OF STORM SEWERS
CITY OF HAPEVILLE, GEORGIA

RECEIVED BY: CITY OF HAPEVILLE, GEORGIA
 AT HAPEVILLE CITY HALL
 2:00 P.M., LOCAL TIME, JULY 31, 2018

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	BIDDER NO. 1 The Corbett Group, LLC 6535 Bankhead Highway Douglasville, GA 30134		BIDDER NO. 2 RDJE, Inc. 679 Highway 29 South, Suite A Newnan, GA 30263	
				UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT
40	Junction Box	2	EA	\$1,500.00	\$3,000.00	\$5,293.00	\$10,586.00
41	Concrete Headwall	2	EA	\$1,800.00	\$3,600.00	\$7,374.00	\$14,748.00
42	Concrete Support Piers	5	CY	\$1,000.00	\$5,000.00	\$2,050.00	\$10,250.00
43	Pipe Tracer wire	20	LF	\$1.00	\$20.00	\$2.00	\$40.00
44	Exploratory Excavation	1	HR	\$450.00	\$450.00	\$401.00	\$401.00
45	Temporary Traffic Control	20	LF	\$75.00	\$1,500.00	\$293.00	\$5,860.00
46	Temporary Traffic Control Detour	1	DAY	\$750.00	\$750.00	\$736.00	\$736.00
47	Stabilization Stone	5	CY	\$50.00	\$250.00	\$22.00	\$110.00
48	Rock excavation	5	CY	\$250.00	\$1,250.00	\$156.00	\$780.00
49	Pavement Patch Type 1	20	LF	\$50.00	\$1,000.00	\$232.00	\$4,640.00
50	Pavement Patch Type 2	20	LF	\$50.00	\$1,000.00	\$232.00	\$4,640.00
51	Sidewalk removal and restoration	5	SY	\$60.00	\$300.00	\$198.00	\$990.00
52	Curb and Gutter removal and restoration	20	LF	\$60.00	\$1,200.00	\$103.00	\$2,060.00
53	Curb removal and restoration	20	LF	\$40.00	\$800.00	\$274.00	\$5,480.00
54	Temporary Construction Exit	1	EA	\$1,800.00	\$1,800.00	\$3,422.00	\$3,422.00
55	Temporary Stone Check Dam	1	EA	\$125.00	\$125.00	\$567.00	\$567.00
56	Temporary Hay Bale Check Dam	1	EA	\$35.00	\$35.00	\$547.00	\$547.00
57	Temporary Silt Fence - Sensitive	20	LF	\$3.00	\$60.00	\$6.00	\$120.00
58	Temporary Silt Fence - Non Sensitive	20	LF	\$2.00	\$40.00	\$4.00	\$80.00
59	Rip Rap Stabilization	5	SY	\$65.00	\$325.00	\$44.00	\$220.00
60	Erosion and Sedimentation Control	20	LF	\$10.00	\$200.00	\$274.00	\$5,480.00
61	Earth Fill	5	CY	\$60.00	\$300.00	\$274.00	\$1,370.00
62	Geotechnical Compaction Testing	1	EA	\$250.00	\$250.00	\$1,163.00	\$1,163.00
TOTAL OF ALL CONTRACT NO.2 UNIT PRICE BID ITEMS					\$117,384.00 *		\$539,040.00 *
BID BOND					5%		5%
NOTE REFERENCE					(1)		(1)
LICENSE NUMBER					UC302014		UC302155

NOTES:

* DENOTES CORRECTED VALUE

(1) SURETY COMPANY LISTED ON U. S. TREASURY CIRCULAR 570 (7/1/18).

THIS IS TO CERTIFY THAT THIS IS A TRUE AND CORRECT TABULATION OF BIDS RECEIVED AT THE TIME AND PLACE STATED ABOVE. BIDS WERE SEALED WHEN RECEIVED AND OPENED AND READ ALOUD IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE.

Michael J. Mapp 8-2-18
 KECK & WOOD, INC. DATE



**Virginia Avenue/Little Virginia
Avenue/Doug Davis Drive/Clay
Place Roundabout Feasibility
Study**

September 16, 2019

Prepared for:

City of Hapeville

Prepared by:

Stantec Consulting Services Inc.



**VIRGINIA AVENUE/LITTLE VIRGINIA AVENUE/DOUG DAVIS DRIVE/CLAY PLACE ROUNDABOUT
FEASIBILITY STUDY**

This document entitled Virginia Avenue/Little Virginia Avenue/Doug Davis Drive/Clay Place Roundabout Feasibility Study was prepared by Stantec Consulting Services Inc. ("Stantec") for the account of City of Hapeville (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by 
(signature)

Mitchell Greenway, PE

Reviewed by 
(signature)

Keith Strickland, PE

Approved by 
(signature)

Mike Holt, PE, PTOE



Table of Contents

1.0	INTRODUCTION.....	1.1
1.1	PURPOSE AND NEED STATEMENT	1.1
1.2	BACKGROUND	1.1
2.0	CONCEPTUAL DESIGN ALTERNATIVE	2.2
2.1	EXISTING ROADWAY	2.2
2.2	PROPOSED DESIGN CRITERIA	2.3
2.2.1	Design Vehicle.....	2.3
2.2.2	Bicycle and Pedestrian Accommodations	2.4
2.3	PROPOSED ALTERNATIVES	2.4
2.3.1	Alternative 1.....	2.4
2.3.2	Alternative 2.....	2.4
3.0	TRAFFIC AND SAFETY	3.6
3.1	TRAFFIC VOLUME FORECASTING	3.6
3.2	CAPACITY ANALYSIS.....	3.6
3.3	SAFETY ANALYSIS.....	3.7
4.0	PUBLIC OUTREACH AND STAKEHOLDER ENGAGEMENT.....	4.8
4.1	MEETING PROCESS	4.8
5.0	IMPACT EVALUATION	5.10
5.1	HUMAN ENVIRONMENT	5.10
5.1.1	Relocations.....	5.10
5.1.2	Historic Resources	5.11
5.2	NATURAL ENVIRONMENT	5.11
5.2.1	Streams and Wetlands	5.11
5.2.2	Threatened and Endangered Species.....	5.12
5.3	IMPACT SUMMARY	5.12
6.0	CONCLUSIONS AND RECOMMENDATIONS	6.13

LIST OF TABLES

Table 1. Design Vehicles and Typical Design Speeds	2.3
Table 2. Level of Service and Delay for Projected Traffic Volumes	3.7
Table 3. Crash Totals by Intersection	3.7
Table 4. Impact and Cost Summary	5.12

LIST OF FIGURES

Figure 1. Demonstration Project	4.9
Figure 2. Tax Map with Street Numbers	5.10
Figure 3. Hapeville Historic District Boundary Map.....	5.11

**VIRGINIA AVENUE/LITTLE VIRGINIA AVENUE/DOUG DAVIS DRIVE/CLAY PLACE ROUNDABOUT
FEASIBILITY STUDY**

LIST OF APPENDICES

APPENDIX A	A.1
A.1 Existing roadway & study area	A.1
A.2 Proposed Alternatives	A.3
A.3 Traffic Data Report	A.4
A.4 Public Involvement Plan & Public Comments	A.5



VIRGINIA AVENUE/LITTLE VIRGINIA AVENUE/DOUG DAVIS DRIVE/CLAY PLACE ROUNDABOUT FEASIBILITY STUDY

INTRODUCTION

1.0 INTRODUCTION

1.1 PURPOSE AND NEED STATEMENT

The City of Hapeville Comprehensive Plan/LCI Study Update (LCI Study Update) of 2017 identified Virginia Avenue as a gateway corridor into downtown. This study suggested growth and redevelopment would continue along the corridor. The intersection of Virginia Avenue, Little Virginia Avenue, Doug Davis Drive, and Clay Place is a major intersection and currently serves as a central hub for dining establishments. Pedestrian, bicycle, and vehicular traffic will increase as the area grows with denser residential and mixed-use commercial developments. The proposed project will enhance safety and improve operational efficiency at the intersection of Virginia Avenue, Little Virginia Avenue, Doug Davis Drive, and Clay Place.

1.2 BACKGROUND

The LCI Study Update identified several gateway corridors into downtown Hapeville. Virginia Avenue was one such corridor, providing access from I-85 into downtown Hapeville. The LCI Study Update recommended denser commercial and residential development along Virginia Avenue by eliminating surface parking adjacent to the street and building taller, multi-floor structures. It also suggested improving bicycle and pedestrian facilities to encourage a more walkable city. There are currently several hotels and businesses at the I-85 interchange, which is just 0.5 miles or a 10-15 minute walk from the study area. There are also parking issues associated with lunch and dinner traffic at several of the restaurants at the intersection. The LCI Study Update suggests that making the corridor more walkable (and redeveloping the corridor) could transform Virginia Avenue into a “vibrant, mixed use...gateway node that serve[s] the residents, visitors, business, and employees, while celebrating the city’s small-town charm and character.” To help create this welcoming gateway and improve functionality, the LCI Study Update proposed a roundabout at the Virginia Avenue, Little Virginia Avenue, Doug Davis Drive, Clay Place intersection. It also proposed streetscape improvements along the corridor. This feasibility study will consider various intersection improvement options to promote the desired outcome of the LCI Study Update.

It should be noted that Aerotropolis Atlanta Community Improvement Districts (CIDs) is currently working on a Virginia Avenue project that is anticipated to introduce a road diet to the corridor. At the time of this study, that project had not developed to a stage where information could be utilized for this study. Additionally, the City of Hapeville has a future road diet project along Doug Davis Drive. As such, this feasibility study proposed ideas that could easily function within the context of existing conditions or be easily modified to accommodate proposed improvements as part of the two road diet projects.



VIRGINIA AVENUE/LITTLE VIRGINIA AVENUE/DOUG DAVIS DRIVE/CLAY PLACE ROUNDABOUT FEASIBILITY STUDY

CONCEPTUAL DESIGN ALTERNATIVE

2.0 CONCEPTUAL DESIGN ALTERNATIVE

The study area for this project included detailed traffic analysis for the intersections of Virginia Avenue at Hamilton Avenue and Virginia Avenue/Little Virginia Avenue/Doug Davis Drive/Clay Place. Additionally, geometric improvements were analyzed in the east-west direction from Oakridge Avenue to South Whitney Avenue (Delta Airlines driveway) and in the south-north direction from 856 Virginia Avenue to Hamilton Park. See Appendix A for a map of the study area.

2.1 EXISTING ROADWAY

Virginia Avenue is listed as a major collector on the Georgia Department of Transportation's (GDOT) functional classification map. The posted speed limit is 35 miles per hour (mph). Doug Davis Drive and Clay Place are both local roads. Doug Davis Drive is posted at 35 mph. Clay Place does not have a posting, but it is a short segment with maximum speeds of about 25 mph. The existing intersection is signalized. All legs of the intersection have curb-and-gutter and sidewalks. The sidewalks were constructed as part of a streetscape project. Overall, the sidewalks are in good condition, but trees in the middle of the sidewalk restrict pedestrian movement by narrowing up the usable sidewalk width. Virginia Avenue makes up the western and northern legs of the intersection; Clay Place is the southern leg; and Doug Davis Drive is the eastern leg. The following is a list of characteristics of each leg of the intersection.

- The western leg of Virginia Avenue is an urban five-lane section with two thru-lanes in each direction and an eastbound left-turn lane.
- The northern leg of Virginia Avenue is a two-lane urban section. It has one wide (15-16 feet) thru lane in each direction. As it approaches the intersection the thru lanes are reduced to approximately 10 feet, and a short left-turn lane is added.
- Doug Davis Drive is an urban five-lane section with two eastbound thru lanes and one westbound thru lane. It also has a westbound left-turn lane and a westbound right-turn lane.
- Clay Place functions like a large commercial driveway. It is an urban section with a single thru-lane in each direction and a northbound left-turn lane. It also has a right-turn lane separated by a large landscaped island.
- The east-west corridor of Virginia Avenue/Little Virginia Avenue/Doug Davis Drive has a large deflection of about 30-degrees at the intersection.

Approximately 125 feet west of the Virginia Avenue, Little Virginia Avenue, Doug Davis Drive, and Clay Place intersection is the Virginia Avenue/Hamilton Avenue intersection. Hamilton Avenue is a low-volume neighborhood street that serves as an access point to the Virginia Park neighborhood. It is an urban section with one travel lane in each direction. It is currently stop controlled with Virginia Avenue being the primary road.



VIRGINIA AVENUE/LITTLE VIRGINIA AVENUE/DOUG DAVIS DRIVE/CLAY PLACE ROUNDABOUT FEASIBILITY STUDY

CONCEPTUAL DESIGN ALTERNATIVE

About 180 feet west of Hamilton Avenue is the intersection of Virginia Avenue and Harding Avenue. Harding Avenue also provides access to the Virginia Park neighborhood. It is also an urban two-lane section with one travel lane in each direction. It is currently stop controlled with Virginia Avenue being the primary road.

In addition to the public road intersections, there are several commercial driveways within the study area. Most of the driveways provide access to restaurants. Some provide access to local businesses or vacant commercial buildings.

2.2 PROPOSED DESIGN CRITERIA

For this study, the GDOT Design Policy Manual (DPM) was the guiding document. This document provides “design guidelines and standards adopted by the Georgia Department of Transportation (GDOT) for the design of roadways and related infrastructure” for Federal-Aid and State-Aid projects in Georgia. For the roundabout analysis, the DPM references the National Cooperative Highway Research Program (NCHRP) Report 672, Roundabouts: An Informational Guide, 2nd Edition, also known as NCHRP 672.

2.2.1 Design Vehicle

The design vehicle for an urban collector should be at least a BUS-40 or SU, which is an intercity bus or single-unit truck. Based on conversations with local officials and stakeholders, WB-40 trucks (a semi-trailer) frequently travel through the intersection to make deliveries at local businesses. For the purposes of this study, a WB-40 was the selected design vehicle. Also, because the City of Hapeville Fire Department operates a fire engine with a 95' ladder, turning templates were used to verify this vehicle could be accommodated.

Based on the GDOT DPM Table 6.5, the design speed for an urban collector should be 35 mph. For a roundabout, NCHRP 672 states the entry

Roadway Type	Design Vehicle	Typical Design Speed (mph) ⁽³⁾
Rural		
Interstate / Freeway	WB-67	70
Ramp		
Free-Flow	WB-67	35 ⁽¹⁾
Entrance / Exit	WB-67	35 ⁽¹⁾
Loop	WB-67	35 ⁽¹⁾
Principal Arterial	≥WB-40 ⁽²⁾	(See Table 6.6)
Minor Arterial	≥SU ⁽²⁾	(See Table 6.6)
Collector	≥SU ⁽²⁾	(See Table 6.5)
Local Road		
Paved	≥S-BUS ³⁶ ⁽²⁾	(See Table 6.4)
Gravel	≥S-BUS ³⁶ ⁽²⁾	35
Urban		
Interstate / Freeway	WB-67	65
Ramp		
Free-Flow	WB-67	35 ⁽¹⁾
Entrance / Exit	WB-67	35 ⁽¹⁾
Loop	≥WB-40 ⁽²⁾	35 ⁽¹⁾
Principal Arterial	≥WB-40 ⁽²⁾	(See Table 6.6)
Minor Arterial	≥WB-40 or ≥BUS-40 ⁽²⁾	(See Table 6.6)
Collector	≥BUS-40 or ≥SU ⁽²⁾	(See Table 6.5)
Residential/Local Road	≥SU or ≥P ⁽²⁾	(See Table 6.4)

⁽¹⁾ Refer to Section 3.3.3 Freeway Exit and Entrance Ramps.
⁽²⁾ Refer to Section 3.2.2 Local Input for Selecting a Design Vehicle.
⁽³⁾ Refer to Section 3.3 Design Speed and Table 6.4 To 6.7.

Design Vehicle Type Symbols: BUS=Intercity Bus/Motor Coach, P=Passenger Car, S-BUS=School Bus, SU=Single-Unit Truck, WB=Semi Trailer

Table 1. Design Vehicles and Typical Design Speeds
(Source: GDOT Design Policy Manual)



VIRGINIA AVENUE/LITTLE VIRGINIA AVENUE/DOUG DAVIS DRIVE/CLAY PLACE ROUNDABOUT FEASIBILITY STUDY

CONCEPTUAL DESIGN ALTERNATIVE

design speed is 20-25 mph. Typically, circulating speeds are slightly lower, and departure speeds are in a similar range. Curvature is introduced on the approaches to forcibly reduce speeds from 35 mph to the 20-25 mph range.

2.2.2 Bicycle and Pedestrian Accommodations

All proposed alternatives will include improved sidewalks for pedestrians with a minimum width of five feet and a desirable width of 10 feet. Bicycle facilities will be considered both on-street and off-street. The minimum width sidewalks are possible if on-street bike lanes are utilized. If dedicated bike lanes are not feasible, then wider 8-10 foot shared-use paths may be proposed. Within the footprint of roundabout options, sidewalk will be a minimum width of 10 feet. Any bicyclist uncomfortable with navigating through the roundabout with vehicular traffic can mix with pedestrians along the wide sidewalks to pass through the intersection.

2.3 PROPOSED ALTERNATIVES

Two alternatives were analyzed. One is an improved signalized intersection, and one is converting the intersection to a roundabout. Sketches of both alternatives are attached in the Appendices.

2.3.1 Alternative 1

Alternative 1 is very similar to existing conditions with a few modifications. A raised, landscaped median will replace the flush median in front of 3435 Hamilton Avenue (Schlotzky's Deli) and in front of 832/834 Virginia Avenue (Johnny's New York Style Pizza, Touch Nails, and Jimmy John's). The left-turn lanes on Virginia Avenue and Doug Davis Drive will be shortened. Turn lanes on Clay Place will be removed. The traffic signal timing will be optimized. Other improvements will include unobstructed sidewalks and new landscaping.

2.3.2 Alternative 2

Alternative 2 converts the existing signalized intersection to a single lane modern roundabout. The roundabout will have a 110' inscribed diameter (outside diameter of circulating roadway). The circulating roadway will be 18' wide with a 10' truck apron to accommodate larger vehicles. The central island will have a 54' diameter, and it will be landscaped. It could potentially have a sculpture or some form of wayfinding and signage as part of a gateway improvement. Five parallel parking spots are proposed along Doug Davis Drive to offset two lost spaces at Johnny's New York Style Pizza (Johnny's). Eight parallel parking spaces are proposed along Hamilton Avenue to offset lost spaces at 855 Virginia Avenue (Grecian Gyro). A cul-de-sac is proposed along Hamilton Avenue to allow traffic to u-turn to access the parallel parking. The driveway off Virginia Avenue for the Grecian Gyro restaurant will be closed, and an interparcel driveway connection is recommended between the Grecian Gyro and 839 Virginia Avenue (Waffle House). Hamilton Avenue will be converted to a right-in/right-out intersection with no left-turns allowed. Johnny's driveway on Doug Davis Drive will be converted to a right-in/right-out driveway for passenger cars. A median cut will be provided with a reduced median height (similar to the truck apron)



VIRGINIA AVENUE/LITTLE VIRGINIA AVENUE/DOUG DAVIS DRIVE/CLAY PLACE ROUNDABOUT FEASIBILITY STUDY

CONCEPTUAL DESIGN ALTERNATIVE

or other treatment to allow passage of delivery trucks but deter usage by passenger cars. All approaches to the roundabout will be tapered down to a single lane. Other improvements will include new unobstructed sidewalks and new landscaping.



3.0 TRAFFIC AND SAFETY

A traffic study was performed for two intersections:

1. Virginia Avenue at Hamilton Avenue
2. Virginia Avenue/Doug Davis Drive at Little Virginia Avenue/Clay Place.

The full traffic data report can be found in the Appendices.

3.1 TRAFFIC VOLUME FORECASTING

Existing peak hour volumes and future peak hour volumes – based on a 0.9% annual growth rate – were calculated from traffic counts. For this study, the project opening year was estimated to be 2023 with a design year of 2043, or a 20-year design horizon. It was determined that the midday peak hour volumes were slightly higher than morning or afternoon peak hour volumes. The two-way Average Annual Daily Traffic volume is forecasted to be 13,625 vehicles/day in 2043.

3.2 CAPACITY ANALYSIS

Two alternatives were analyzed for capacity. The first alternative was an improved intersection that optimizes signal timing while maintaining existing lane configurations. This alternative does add a section of extended median along Virginia Avenue and Doug Davis Drive, but the median does not adversely impact the two study intersections. The second alternative is a single lane roundabout.

Levels of service (LOS) for the both alternatives are within acceptable ranges for the type of facility. Alternative 1 will experience LOS ranging from A to D, depending on time of day and intersecting street. Alternative 2 will experience LOS ranging from A to B, again depending on time of day and intersecting street. Alternative 2 is a slight improvement over Alternative 1, which has very similar results to the No Build scenario. This is to be expected because the intersection configuration is very similar between existing conditions and Alternative 1. The noon peak hour was selected for analysis instead of the morning peak hour since the noon peak hour volumes were significantly greater than the typical morning peak hour volumes.



VIRGINIA AVENUE/LITTLE VIRGINIA AVENUE/DOUG DAVIS DRIVE/CLAY PLACE ROUNDABOUT FEASIBILITY STUDY

TRAFFIC AND SAFETY

Approach	2043: No Build		2043: Alternative 1		2043: Alternative 2	
	Noon Peak LOS (Delay)	PM Peak LOS (Delay)	Noon Peak LOS (Delay)	PM Peak LOS (Delay)	Noon Peak LOS (Delay)	PM Peak LOS (Delay)
Clay Place	D (40.7 s)	D (38.6 s)	D (39.6 s)	D (39.5 s)	A (8 s)	A (6 s)
Clay Place (Right Turn Lane)	A (9.3 s)	A (9.2 s)	N/A	N/A	N/A	N/A
Little Virginia Ave (North Leg)	C (34.3 s)	C (33.7 s)	C (34.3 s)	C (33.9 s)	A (10 s)	A (8 s)
Virginia Ave (West Leg)	B (12.5)	A (9.6 s)	B (13.9 s)	B (10.9 s)	B (10 s)	A (7 s)
Doug Davis Dr	B (16.2 s)	B (17.3 s)	C (23.7 s)	C (20.5 s)	A (8 s)	A (9 s)

Table 2. Level of Service and Delay for Projected Traffic Volumes

3.3 SAFETY ANALYSIS

There were two total crashes at Virginia Avenue at Hamilton Avenue intersection from 2016 to 2018. One crash was an angle collision, and one crash was a sideswipe. There were no injuries or fatalities reported.

There were 13 total crashes at the Virginia Avenue/Little Virginia Avenue/Doug Davis Drive/Clay Place intersection from 2016 to 2018. 42% of the crashes were rear end collisions; 23% were angle crashes; and 42% were sideswipe collisions. There was one reported injury and no fatalities.

Crashes for Alternative 1 can be expected to increase as traffic volumes increase. Alternative 2 will reduce crashes by as much as 39%, and it will reduce serious (injury and fatality) crashes by as much as 78%. Alternative 2 will also reduce pedestrian exposure to vehicular traffic by providing refuge islands between opposing directions of travel. Pedestrians will cross single lane of one direction of traffic at a time.

Year	Virginia Avenue/Doug Davis Drive @ Little Virginia Avenue/Clay Place				Virginia Avenue @ Hamilton Avenue			
	Total	Property Damage	Injury	Fatal	Total	Property Damage	Injury	Fatal
2016	4	4	0	0	1	1	0	0
2017	4	4	0	0	0	0	0	0
2018	5	4	1	0	1	1	0	0

Table 3. Crash Totals by Intersection



4.0 PUBLIC OUTREACH AND STAKEHOLDER ENGAGEMENT

Understanding the concerns, needs, and desires of the users from the communities that travel through the Virginia Avenue at Hamilton Avenue and Virginia Avenue/Doug Davis Drive at Little Virginia Avenue/Clay Place intersections, as well as those who live and/or work within the project study area, are important components of this project's development. Our team worked with three levels of stakeholders throughout this process:

1. Project Management Team (PMT)
2. Advisory Group
3. General Public.

The PMT met bi-weekly to discuss project development and plan larger outreach efforts. The PMT members included staff from the City of Hapeville, Stantec, and Sizemore Group.

The Advisory Group consisted of business and property owners, community leaders, ARC, GDOT, MARTA, and Aerotropolis Atlanta CIDs. The members were selected through a collaborative effort of the Mayor, City Council, and City Management. The Advisory Group met on three occasions to brainstorm ideas and provide the planning team more local knowledge of the area.

Finally, the General Public was engaged at key junctures of the process. A Demonstration Project was held on site and a Community Meeting with a questions and answers session was held. The results of the process were shared with the City Council and Planning Commission prior to the Community Meeting.

4.1 MEETING PROCESS

At the first Advisory Group meeting, the planning team discussed the project background and traffic analysis performed at that time. The discussion focused on the process moving forward and included the following design themes and guiding principles for the project:

- Safety for ALL users
- Connectivity
- Gateway
- Focus on intersection treatment/service
- Mitigate right-of-way takings where possible
- Consistent and unique signage/messaging

Examples of similar projects were presented to promote positive brainstorming activities. Following a brief presentation, the group discussed "problem areas" and identified issues related to turning movements, traffic queuing, walking, bicycling, parking, etc. The team then discussed possible solutions to consider during the planning process to resolve or mitigate some of these design challenges.



VIRGINIA AVENUE/LITTLE VIRGINIA AVENUE/DOUG DAVIS DRIVE/CLAY PLACE ROUNDABOUT FEASIBILITY STUDY

PUBLIC OUTREACH AND STAKEHOLDER ENGAGEMENT

During the second Advisory Group meeting, the design presented further developed conceptual layouts for a design charrette. The group separated into two smaller teams for a discussion of three alternatives. Based on the feedback from this meeting, the layouts were refined for the upcoming Demonstration Project and Community Meeting.

For the Demonstration Project, the design team set up a mock roundabout within the existing intersection. It was installed at a smaller scale than the proposed roundabout, and it functioned effectively for passenger cars. During the Advisory Group meetings, several people thought a roundabout may be confusing to some motorists, and the Demonstration Project showed how quickly people could adapt to a reconfigured intersection. However, several business owners expressed concern over the disruption to business both during construction and after implementation of a proposed roundabout. They're biggest concern was loss of parking and flow of delivery traffic. Their comments were noted, and the conceptual layouts were further refined to address some of those concerns.



Figure 1. Demonstration Project

After the Demonstration Project, the Advisory Group reconvened to review the new layouts and to discuss the outcome of the Demonstration Project. Then presentations were made to the City Council and the Planning Commission to show the proposed conceptual layouts and address questions and concerns they may have. Finally, a Community Meeting was held where the final conceptual layouts were presented, and the public could ask questions and provide comments to the design team. The design team received four comment cards from this meeting. These comments are provided in Appendix A4.



VIRGINIA AVENUE/LITTLE VIRGINIA AVENUE/DOUG DAVIS DRIVE/CLAY PLACE ROUNDABOUT FEASIBILITY STUDY

IMPACT EVALUATION

5.0 IMPACT EVALUATION

5.1 HUMAN ENVIRONMENT

5.1.1 Relocations

Neither alternative is expected to require a business relocation. However, for Alternative 2, if interparcel connectivity between 839 Virginia Avenue and 855 Virginia Avenue is not provided, then 855 Virginia Avenue may be severely impacted and require relocating. Parallel parking is proposed along Hamilton Avenue to offset the lost parking on 855 Virginia Avenue.



Figure 2. Tax Map with Street Numbers
(Source: Fulton County Tax Assessor)

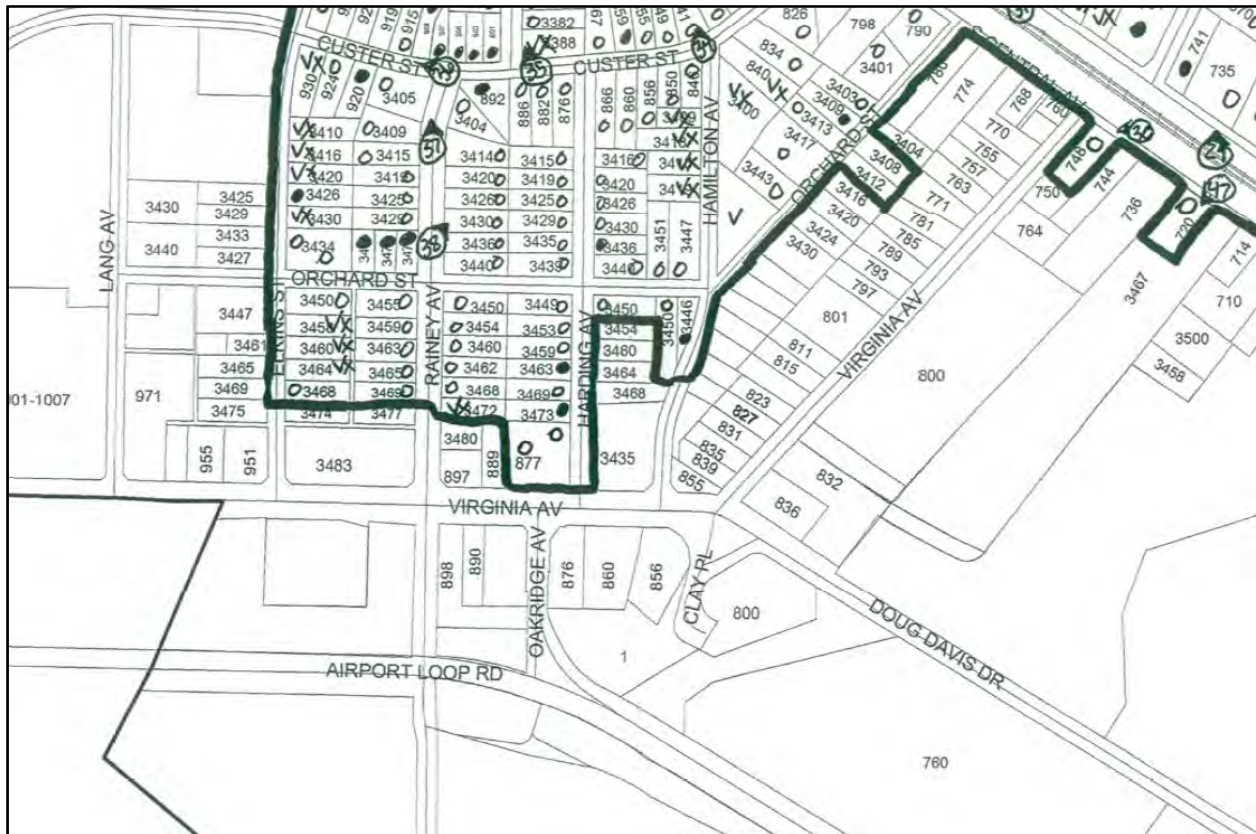


VIRGINIA AVENUE/LITTLE VIRGINIA AVENUE/DOUG DAVIS DRIVE/CLAY PLACE ROUNDABOUT FEASIBILITY STUDY

IMPACT EVALUATION

5.1.2 Historic Resources

For the project area, there are no known historic resources except for the Hapeville Historic District (HHD), and the alternatives presented do not propose improvements that would impact the HHD. Figure 3 shows the HHD boundary relative to the project. The National Register of Historic Places Registration Form is attached in Appendix A.5. It extends to Virginia Avenue at Harding Avenue, across from



VIRGINIA AVENUE/LITTLE VIRGINIA AVENUE/DOUG DAVIS DRIVE/CLAY PLACE ROUNDABOUT FEASIBILITY STUDY

IMPACT EVALUATION

5.2.2 Threatened and Endangered Species

The project area is mostly urban in nature with a large amount of maintained/disturbed land. Protected species are not anticipated to be found within the study area; however, future studies should include natural resource surveys to preclude the presence of protected species or their habitat.

5.3 IMPACT SUMMARY

IMPACT CATEGORY	ALTERNATIVE 1	ALTERNATIVE 2
Residential Relocations	0	00
Business Relocations	0	\$100,000
National Register Properties	0	0
Cemeteries	0	0
Stream Impacts (ft)	0	0
Wetland Impacts (acres)	0	0
Permanent Right-of-Way Acquisition (acres)	0	0.47
Temporary Construction Easement (acres)	0.10	0.23
Construction Costs	\$250,000	\$1,500,000
Utility Costs	\$25,000	\$150,000
Right-of-Way Costs	\$70,000	\$1,165,000
Total Costs	\$345,000	\$2,915,000

Table 4. Impact and Cost Summary



CONCLUSIONS AND RECOMMENDATIONS

6.0 CONCLUSIONS AND RECOMMENDATIONS

The existing signalized intersection will continue to function at an acceptable level of service in 2043 without intersection improvements. However, if redevelopment occurs per the Comprehensive Plan/LCI Study Update suggests, improvements are recommended. Particularly, improvements for pedestrian and bicycle facilities should be considered. This could mean wider, unobstructed sidewalks; dedicated bicycle lanes; and pedestrian refuge islands. Both proposed alternatives provide functional improvements with Alternative 2 providing slight operational improvements.

Alternative 1 proposes wider, unobstructed sidewalks and more visible pavement markings, but it does little to slow traffic and provide pedestrian refuge locations. Alternative 2 includes wider sidewalks and refuge islands, as well as reducing traffic velocities. It provides more opportunities for gateway features per the LCI Study Update and greater access control for improved safety. The sidewalks for Alternative 2 also accommodate bicycles.

Neither Alternative 1 nor Alternative 2 includes dedicated bicycle lanes. As the Aerotropolis Atlanta CIDs' and City of Hapeville's road diet projects along the Virginia Avenue/Doug Davis Drive corridor progress, dedicated bicycle lanes should be considered. If bicycle lanes are incorporated along the corridor, Alternatives 1 and 2 should be revisited to accommodate the bicycle lanes.

Alternative 2 does have the potential to create a business relocation (Grecian Gyro) and disrupt deliveries at other businesses. Further investigation is required based on topographic surveys and property research to determine the exact limits of impacts to these properties. If a practical alternative is not available for the Grecian Gyro property, acquisition may be required.

Alternative 2 also causes relocation of existing parking spaces for Johnny's Pizza and Grecian Gyro. The plan has options to mitigate the parking, but further analysis should be performed to determine the feasibility of the proposed parking solution.

In conclusion, Alternative 1 does little to improve the intersection and satisfy the need and purpose of the project. Alternative 2 addresses the project need, but there are some unresolved issues that require further investigation based on more detailed information to determine the extent of the impacts.



**VIRGINIA AVENUE/LITTLE VIRGINIA AVENUE/DOUG DAVIS DRIVE/CLAY PLACE ROUNDABOUT
FEASIBILITY STUDY**

Appendix A

Appendix A

A.1 EXISTING ROADWAY & STUDY AREA



VIRGINIA AVENUE/LITTLE VIRGINIA AVENUE/DOUG DAVIS DRIVE/CLAY PLACE ROUNDABOUT FEASIBILITY STUDY

Appendix A

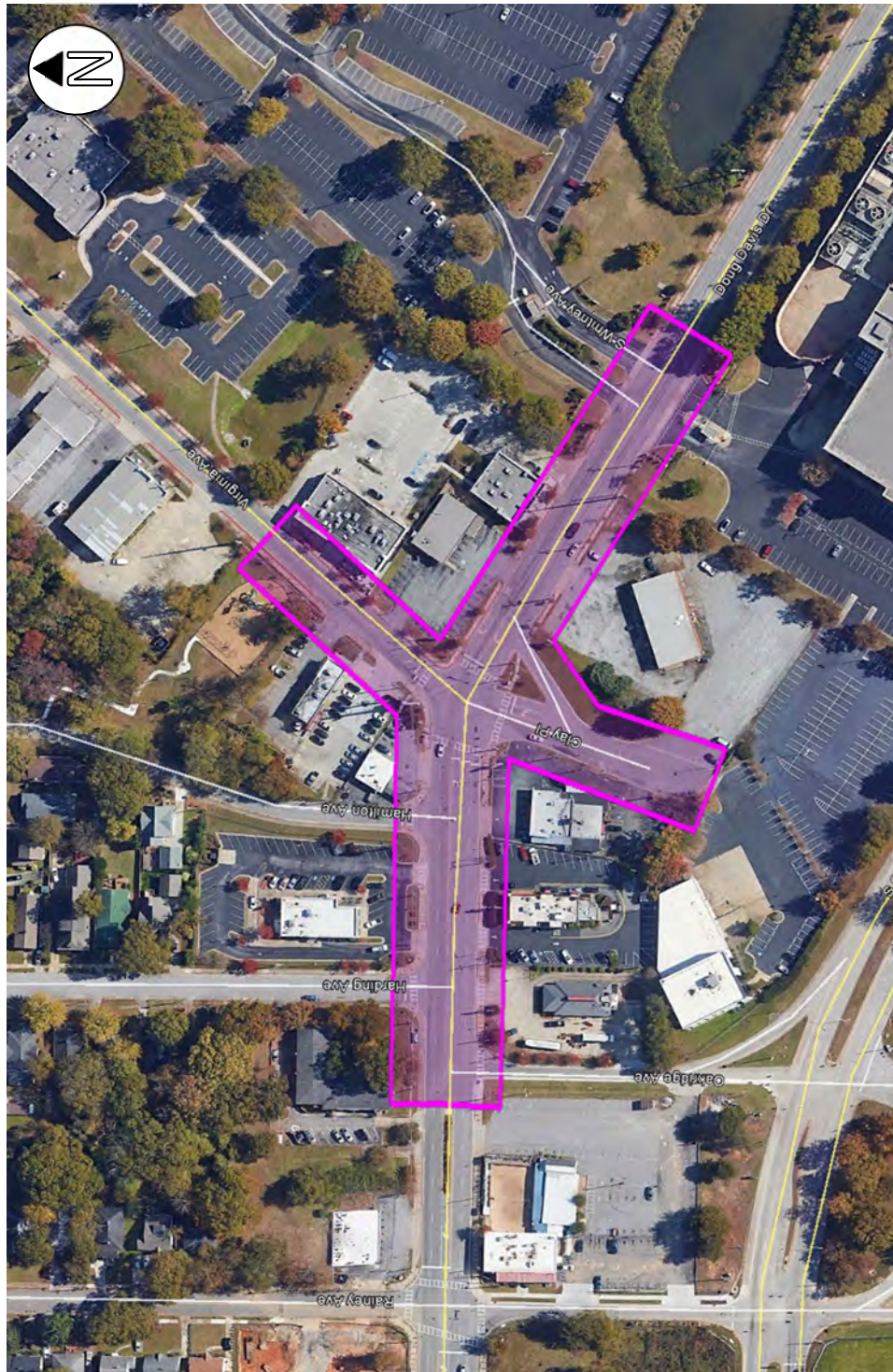


Figure A-1. Existing Roadway and Study Area
(Source: Google Earth Pro)



**VIRGINIA AVENUE/LITTLE VIRGINIA AVENUE/DOUG DAVIS DRIVE/CLAY PLACE ROUNDABOUT
FEASIBILITY STUDY**

Appendix A

A.2 PROPOSED ALTERNATIVES



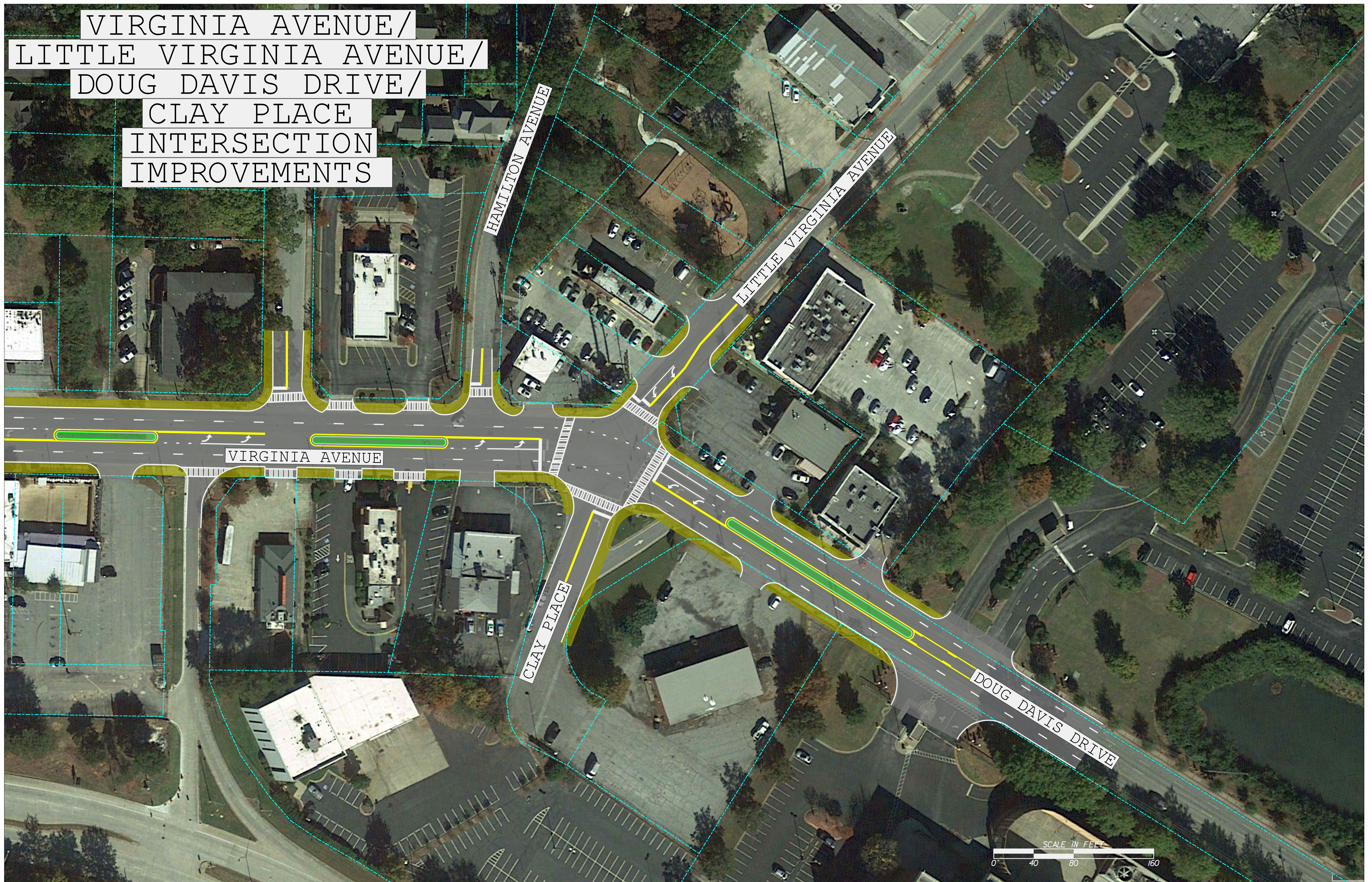


Figure B-1. Virginia Avenue/Little Virginia Avenue/Doug Davis Drive/Clay Place Intersection Improvements

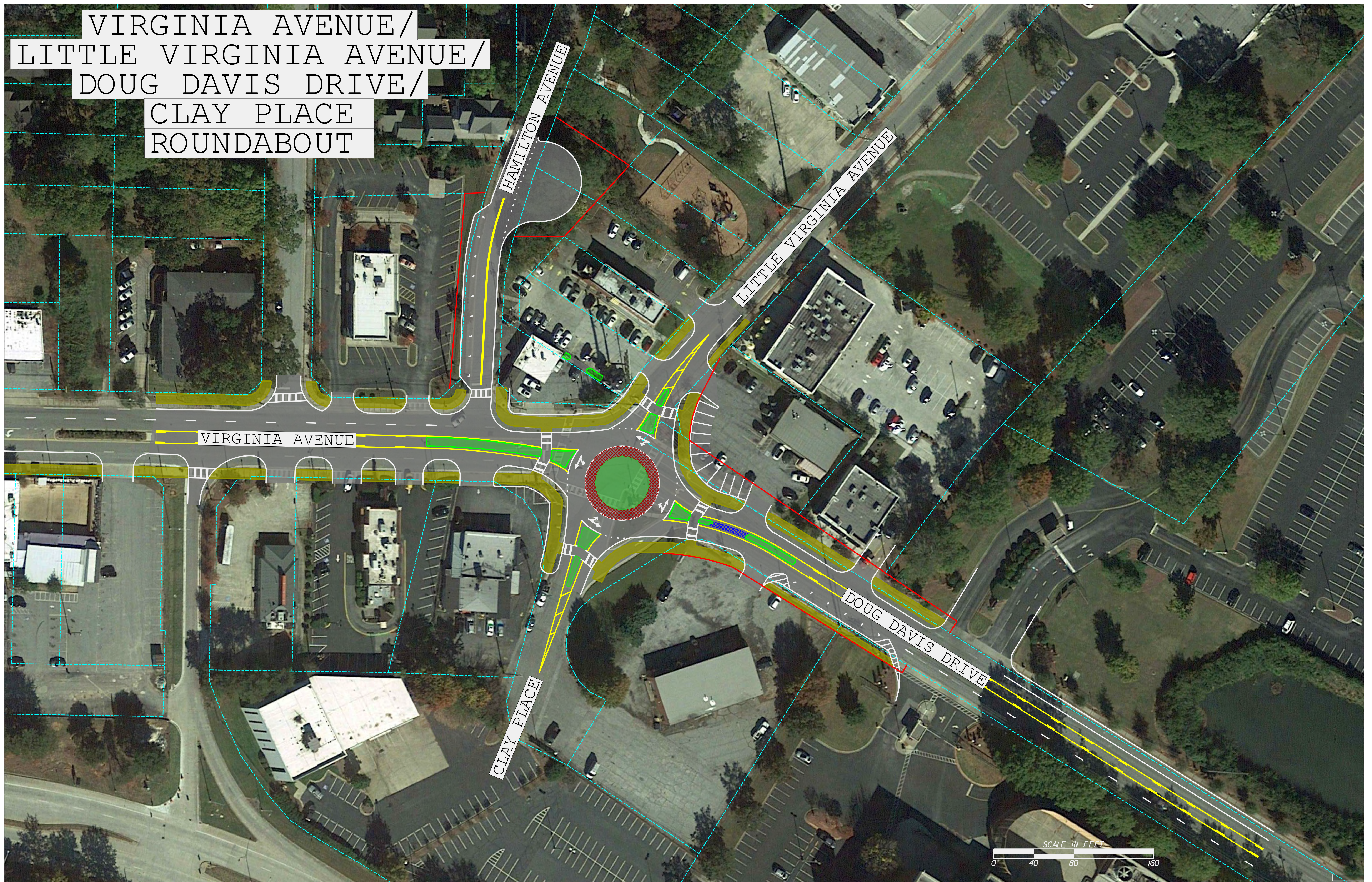


Figure B-2. Virginia Avenue/Little Virginia Avenue/Doug Davis Drive/Clay Place Roundabout

**VIRGINIA AVENUE/LITTLE VIRGINIA AVENUE/DOUG DAVIS DRIVE/CLAY PLACE ROUNDABOUT
FEASIBILITY STUDY**

Appendix A

A.3 TRAFFIC DATA REPORT



**Virginia Avenue/Doug Davis Drive at Clay
Place/Virginia Avenue Traffic Data Report**

Project Number: 171007021 – Virginia Avenue/Doug
Davis Drive at Clay Place/Virginia Avenue Roundabout
Feasibility Study
City of Hapeville, Fulton County, GA



Prepared for:
City of Hapeville

Prepared by:
Stantec Consulting Services Inc.

September 13, 2019

Sign-off Sheet

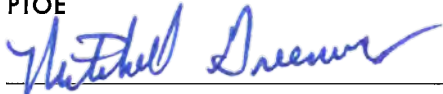
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Prepared by 
(signature)

Joshua Ekstedt, EIT

Reviewed by 
(signature)

Mike Holt, PE, PTOE

Approved by 
(signature)

Mitchell Greenway, PE

VIRGINIA AVENUE/DOUG DAVIS DRIVE AT CLAY PLACE/VIRGINIA AVENUE ROUNDABOUT FEASIBILITY STUDY

Table of Contents

1.0	INTRODUCTION	1
2.0	EXISTING CONDITIONS	3
2.1	CORRIDOR DESCRIPTION	3
2.2	DATA COLLECTION.....	3
2.3	PEAK HOUR DETERMINATION	4
2.4	PEAK HOUR DATA COMPUTATION	5
3.0	EXISTING BASELINE VOLUMES	6
3.1	APPLIED FACTORS.....	6
3.2	TRUCK PERCENTAGES	8
3.3	EXISTING 2019 VOLUMES.....	8
4.0	FUTURE BUILD CONDITIONS	8
4.1	DESCRIPTION OF PROPOSED ROUNDABOUT	8
4.2	GROWTH RATE AND FUTURE VOLUMES.....	9
5.0	CAPACITY ANALYSIS	10
5.1	SIGNALIZED INTERSECTION ANALYSIS.....	10
5.2	ROUNDABOUT ANALYSIS	12
6.0	CONCLUSION	13

LIST OF TABLES

Table 1. Diurnal Distribution Comparison	4
Table 2. Noon Baseline Volume Calculations	5
Table 3. K & D Factor Calculations	7
Table 4. Truck Percentages.....	8
Table 5. Historical Annual Growth Rates – GDOT Counts.....	9
Table 6. Intersection 1 Level of Service for Existing and Projected Traffic Volumes.....	11
Table 7. Intersection 2 Level of Service for Existing and Projected Traffic Volumes.....	12
Table 8. Roundabout Level of Service for Existing and Projected Traffic Volumes.....	13

LIST OF FIGURES

Figure 1: Site Location Map	2
Figure 2: Synchro Model with Existing Layout.....	10
Figure 3: Synchro Model with Road Diet.....	11

LIST OF APPENDICES

A – Traffic Counts
B – Peak Hour Determination & Computation
C – K Factor and D Factor Calculations
D – Truck Percentage Calculations
E – Volume Diagrams
F – Growth Rates
G – Synchro Analysis Results
H – GDOT Roundabout Analysis Tool Results

VIRGINIA AVENUE/DOUG DAVIS DRIVE AT CLAY PLACE/VIRGINIA AVENUE ROUNDABOUT FEASIBILITY STUDY

Introduction
September 11, 2019

1.0 INTRODUCTION

The purpose of this report is to document the traffic data and analysis for the Virginia Avenue/Doug Davis Drive at Clay Place/Virginia Avenue Roundabout Feasibility Study. The analysis considers existing conditions and traffic volumes and projections of future traffic volumes and proposed improvements to the intersections in this study. These improvements were identified in the Comprehensive Plan/LCI Study Update of 2017.

For the purpose of this report, Virginia Avenue is referred to as an east-west route throughout the entire study area. As illustrated in **Figure 1** on the following page, the two study intersections are:

1. Virginia Avenue at Hamilton Avenue;
2. Virginia Avenue/Doug Davis Drive at Clay Place/Virginia Avenue;

This project is analyzing the feasibility of a roundabout that could include roadway streetscape and pedestrian/bicycle facility improvements at the Virginia Avenue/Doug Davis Drive and Clay Place/Virginia Avenue intersection. A roundabout may reduce vehicular crash severity and improve overall operations at the intersection. Vehicular conflict points are reduced from 32 to eight, and total crashes may be expected to decrease by approximately 26% per the Crash Modification Factors Clearinghouse for conversion of a signalized intersection into a single-lane roundabout. Pedestrian and bicyclist safety would also increase at the intersection by providing wider sidewalks and shorter crossing distances. By providing this increased safety, the addition of a roundabout could encourage increased pedestrian and bicycle traffic in the area, which could facilitate future growth.

VIRGINIA AVENUE/DOUG DAVIS DRIVE AT CLAY PLACE/VIRGINIA AVENUE ROUNDABOUT FEASIBILITY STUDY

Introduction

September 11, 2019

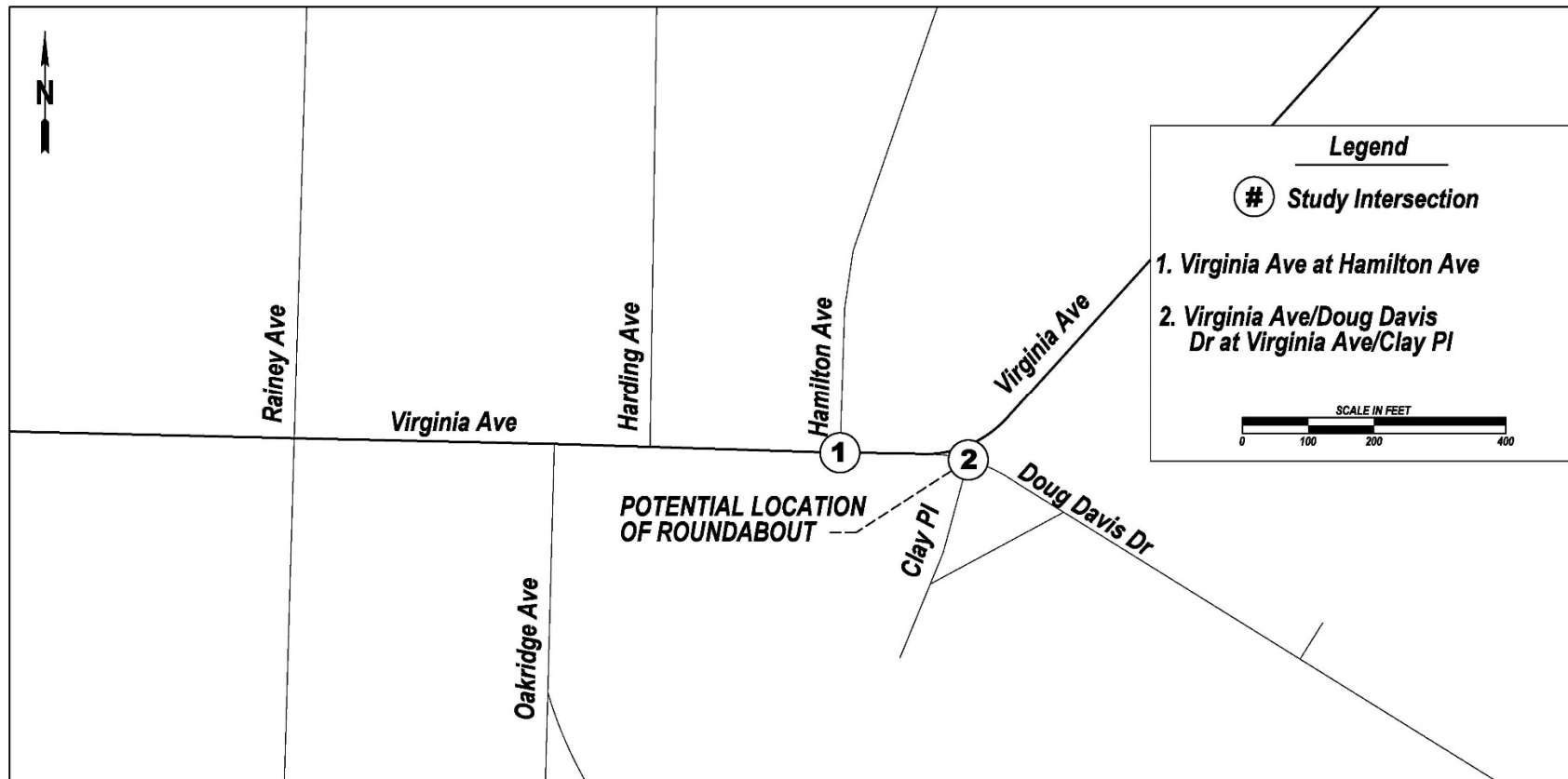


Figure 1: Site Location Map

VIRGINIA AVENUE/DOUG DAVIS DRIVE AT CLAY PLACE/VIRGINIA AVENUE ROUNDABOUT FEASIBILITY STUDY

Existing Conditions
September 11, 2019

2.0 EXISTING CONDITIONS

2.1 CORRIDOR DESCRIPTION

The study area includes Virginia Avenue from Hamilton Avenue to the intersection of Virginia Avenue/Doug Davis Drive and Clay Pl/Virginia Avenue. Virginia Avenue is an urban major collector for its entire extent; bounded from the west by E Main Street in College Park and from the east by S Central Avenue. To the west of Clay Place, Virginia Avenue is a 5-lane east/west collector with auxiliary left turn lanes at signalized intersections and a two-way left turn lane running throughout for access to businesses and minor roads. Once Virginia Avenue intersects with Clay Place, it becomes a 2-lane street and bears north/south; this is illustrated above in **Figure 1**. As noted in **Figure 1** above, Hamilton Avenue has stop-controlled access to Virginia Avenue at intersection 1. The south leg of intersection 1 is a marked entry-only driveway for the Virginia Curve Package store. Intersection 2 in **Figure 1** is a signalized intersection and the location of the potential roundabout that is the subject of this study. The posted speed limit is 35 miles per hour on Virginia Ave.

Sidewalks line the street along both sides of the corridor and range from 4.5 feet to 9 feet in width. However, in several locations along the corridor there are trees and utility poles located on the sidewalk that reduce the available width. These obstacles severely limit wheelchair access along the sidewalk. There is street lighting and pedestrian lighting along the Virginia Avenue study area. On the south end of Intersection 2, there is a triangular pedestrian refuge island that shortens the crossing distance needed to navigate north or south along the 5-lane road. Intersection 2 has pedestrian signals on all corners, except between the pedestrian refuge island and the south sidewalk of Doug Davis Drive.

2.2 DATA COLLECTION

Weekday 48-hour directional volume and vehicle classification counts were collected in two different periods. Counts were collected on Tuesday-Wednesday 5/14-5/15/2019. Additionally, peak-period turning movement counts (TMCs) were conducted at the study intersections on Tuesday, 5/14/2019. The counts were conducted during a typical commuter AM peak period (7:00 AM – 10:00 AM) and a typical commuter PM peak period (3:30 PM – 6:30 PM). Based on the peak hour of the daily counts, the identified peak hours stray from typical times dictated predominantly by commuter traffic. As a result, there is no AM peak hour, instead there is a noon peak of 12:00 PM – 1:00 PM and a PM Peak hour of 4:45 PM – 5:45 PM. The approved map indicating the count location numbers and corresponding vendor labels, Noon and PM peak hour turning movement counts, and bi-directional 48-hour classification counts, are included in **Appendix A**.

VIRGINIA AVENUE/DOUG DAVIS DRIVE AT CLAY PLACE/VIRGINIA AVENUE ROUNDABOUT FEASIBILITY STUDY

Existing Conditions
September 11, 2019

2.3 PEAK HOUR DETERMINATION

As previously discussed, the early peak hour of the study area was 12:00 PM to 1:00 PM and the late peak hour is 4:45 PM to 5:45 PM. In order to further support the use of a noon peak hour instead of a traditional AM peak, a table of diurnal distribution data for the intersection was computed and compared to a control from Report 765 by the National Cooperative Highway Research Program (NCHRP). NCHRP Report 765 contains a table showing diurnal distribution factors by functional class for an urban area with population over 1,000,000, which is similar to the Atlanta metro area. By comparing the NCHRP table of diurnal distributions to the one computed for the project site, it becomes clear how much smaller the AM distributions are at the project site and how much larger the noon peak distribution is as compared to a typical noon peak. PM distribution amongst the two were approximately the same. Both the NCHRP table and the Project site table are shown in Appendix B. An excerpt of both are shown below in **Table 1** for the hours of 7 AM to 4 PM, for both Virginia Avenue west of Hamilton Street and a typical large-urban collector on a weekday.

Table 1: Diurnal Distribution Comparison

Hour Begins	Virginia Ave, W of Hamilton Ave (Day 1/Day 2 Average)	Typical Large-Urban Collector (Weekday)
7:00 AM	4.20%	5.92%
8:00 AM	5.02%	6.05%
9:00 AM	3.97%	5.82%
10:00 AM	4.14%	5.78%
11:00 AM	6.66%	6.55%
12:00 PM	8.88%	7.08%
1:00 PM	7.69%	6.95%
2:00 PM	6.60%	7.20%
3:00 PM	6.69%	7.97%

In addition to the traffic volume data supporting the choice of using a noon peak hour, it is also supported by the kinds of businesses that line the study area. From the center of Intersection 2, there are 9 restaurants within a 300 ft radius. The many employees at nearby Delta, Wells Fargo, and Porsche facilities likely contribute to the meal-time traffic in the study area, particularly during lunch, which is when the busiest hour of the day (12:00 PM – 1:00 PM) occurs.

VIRGINIA AVENUE/DOUG DAVIS DRIVE AT CLAY PLACE/VIRGINIA AVENUE ROUNDABOUT FEASIBILITY STUDY

Existing Conditions
September 11, 2019

2.4 PEAK HOUR DATA COMPUTATION

As mentioned, TMC data was collected during the hours of 7:00 AM – 10:00 AM and 3:30 PM – 6:30 PM, based on typical commuter traffic patterns. Therefore, no TMC data was collected during the noon peak hour. Since the pattern of traffic favors lunch and dinner rush times, emphasis on traffic behavior must be placed on these times in the determination of design hour volumes to be tested for roundabout feasibility. In order to do so, traffic projections for turning movement ADTs for both early and late peak hours were made based on the turning movement percentages during the 3 PM hours of the TMC field data (3:30-6:30 PM). This decision was made under the assumption that relative turning movement volumes during the noon peak hour is likely similar to turning movement volumes during the PM peak.

In order to visualize existing noon turning movement volumes, steps were taken to generate this data. However, the data was not directly utilized for any traffic projections, instead they act as a baseline for comparison. Using the reasoning described in the previous paragraph, the turning movement percentages of the PM peak (4:45-5:45 PM) were mirrored in the AM peak (12:00-1:00 PM). Then, using ADT data collected from the 12:00-1:00 PM ADT field counts, the volume entering the intersection from a particular leg was multiplied by each turning movement percentage to find a volume for each turning movement in the hour of 12:00-1:00 PM. An example calculation is shown below for the north bound approach of Intersection 2.

Table 2: Noon Baseline Volume Calculations

	NB Left	NB Through	NB Right	NB U-Turn
Turning Movement Distribution ¹	36.7%	15.2%	48.1%	0.0%
Vehicle Volume per movement	$62 * .0367 = 23$ vehicles	$62 * .0152 = 9$ vehicles	$62 * .0481 = 30$ vehicles	$62 * 0 = 0$ vehicles

1. Pulled from corresponding PM peak turning movement percentages

2. There are 62 NB Vehicles during Noon Peak Hour (From 48 Hour ADT Data).

As previously mentioned, the volumes produced using this method are not used for making any peak hour turning movement projections but are only used for a baseline of comparison. However, the turning movement percentages (those which were mirrored from the PM peak turning movement percentages) are used when projecting the peak hour turning movement volumes for the noon peak hour. Volumes computation tables are included in **Appendix B**.

VIRGINIA AVENUE/DOUG DAVIS DRIVE AT CLAY PLACE/VIRGINIA AVENUE ROUNDABOUT FEASIBILITY STUDY

Existing Baseline Volumes
September 11, 2019

3.0 EXISTING BASELINE VOLUMES

3.1 APPLIED FACTORS

Seasonal, daily, and axle factors provided by the Georgia Department of Transportation (GDOT) were applied to the 48-hour daily counts to develop baseline Annual Average Daily Traffic (AADT). Additionally, the K and D factors were calculated. The K factor is the proportion of traffic occurring during the 30th highest hourly volume of the year. The D factor is the directional distribution of traffic moving the peak travel direction. **Table 3** on the following page shows the K and D factors used in this project. A summary of the K and D factor calculations is shown in **Appendix C**.

VIRGINIA AVENUE/DOUG DAVIS DRIVE AT CLAY PLACE/VIRGINIA AVENUE ROUNDABOUT FEASIBILITY STUDY

Existing Baseline Volumes
September 11, 2019

Table 3. K & D Factor Calculations

Location	Functional Class (Factor Group)	Count # (Class in yellow)	Enter	Traffic Volumes															Balanced & Rounded Volumes									
				Raw Data										GDOT Traffic Factors					Calc. AADT	Balanced & Rounded Volumes								
				Day 1			Day 2			Average of Day 1 & 2			K & D Factors															
				NE - VOL	SW - VOL	Total	NE - VOL	SW - VOL	Total	NE - VOL	SW - VOL	Total	K	D	SF (Monthly)	DF1 (Daily1)	DF2 (Daily2)	AXF (Axle)		AADT	NE - VOL	SW - VOL	Hourly Total	T NE - VOL	T SW - VOL	K	D	Margin of Error
Virginia Ave W of Hamilton Ave	Urban Major Collector (4)	1	12:00 PM	519	467	986	518	506	1,024	519	487	1,005	8.9%	0.52	0.96	0.93	0.92	0.96	9,630	9,850	15	10	25	4,925	4,925	0.3%	0.60	2%
			4:45 PM	350	546	896	401	536	937	376	541	917	8.1%	0.59							10	10	20	0.2%	0.50			
			Daily	5,550	5,604	11,154	5,646	5,794	11,440	5,598	5,699	11,297																
Hamilton Ave N of Virginia Ave	Urban Local Road (4)	2	12:00 PM	15	15	30	9	10	19	12	13	25	10.1%	0.51	0.96	0.93	0.92	0.96	207	200	15	40	55	100	100	27.5%	0.73	3%
			4:45 PM	10	9	19	7	10	17	9	10	18	7.4%	0.53							15	40	55	27.5%	0.73			
			Daily	109	142	251	97	137	234	103	140	243																
Virginia Ave N of Doug Davis Dr	Urban Major Collector (4)	3	12:00 PM	237	313	550	275	289	564	256	301	557	10.0%	0.54	0.96	0.93	0.92	0.96	4,740	4,800	500	450	950	2,400	2,400	19.8%	0.53	1%
			4:45 PM	212	178	390	246	198	444	229	188	417	7.5%	0.55							360	435	795	16.6%	0.55			
			Daily	2,694	2,816	5,510	2,743	2,869	5,612	2,719	2,843	5,561																
Doug Davis Dr E of Virginia Ave/Clay Pl	Urban Local Road (4)	4	12:00 PM	380	333	713	396	354	750	388	344	732	8.7%	0.53	0.96	0.93	0.92	0.96	7,189	6,800	60	40	100	3,400	3,400	1.5%	0.60	5%
			4:45 PM	249	462	711	277	447	724	263	455	718	8.5%	0.63							60	40	100	1.5%	0.60			
			Daily	4,202	4,209	8,411	4,263	4,193	8,456	4,233	4,201	8,434																
Clay Pl S of Doug Davis Dr	Urban Local Road (4)	5	12:00 PM	53	34	87	70	42	112	62	38	100	10.6%	0.62	0.96	0.93	0.92	0.96	797	900	60	35	95	450	450	10.6%	0.63	13%
			4:45 PM	65	37	102	60	40	100	63	39	101	10.8%	0.62							60	35	95	10.6%	0.63			
			Daily	500	372	872	539	459	998	520	416	935																

VIRGINIA AVENUE/DOUG DAVIS DRIVE AT CLAY PLACE/VIRGINIA AVENUE ROUNDABOUT FEASIBILITY STUDY

Future Build Conditions
September 11, 2019

3.2 TRUCK PERCENTAGES

The 2019 vehicle classification counts were used to determine the Truck Percentages in the study area. **Table 4** shows the Truck Percentages used in this project. A summary of the truck percentage calculations is shown in **Appendix D**.

Table 4. Truck Percentages

Count Number	Count Location	24 Hour T%			Peak Hour T%			
		S.U.	Comb.	Total	Period	S.U.	Comb.	Total
1	Virginia Ave W of Hamilton Ave	4.0%	0.0%	4.0%	AM	3.5%	0.0%	3.5%
					PM	3.0%	0.0%	3.0%
2	Hamilton Ave N of Virginia Ave	4.5%	0.0%	4.5%	AM	10.0%	0.0%	10.0%
					PM	3.0%	0.0%	3.0%
3	Virginia Ave N of Doug Davis Dr	2.5%	0.0%	2.5%	AM	4.0%	0.5%	4.5%
					PM	1.5%	0.0%	1.5%
4	Doug Davis Dr E of Virginia Ave/Clay Pl	3.0%	0.0%	3.0%	AM	3.0%	0.0%	3.0%
					PM	2.5%	0.0%	2.5%
5	Clay Pl S of Doug Davis Dr	4.0%	0.0%	4.0%	AM	3.5%	0.0%	3.5%
					PM	2.5%	0.0%	2.5%

3.3 EXISTING 2019 VOLUMES

Traffic diagrams are provided in **Appendix E**. Diagrams were created for the 2019 existing Annual Average Daily Traffic (AADT) volumes, the Design Hourly Volumes (DHV). To allow for easy comparison, the projections of the AADT and DHV for 2023, 2025, 2043, and 2045 are also provided in traffic diagrams in **Appendix E**. Section 4.2 will cover how these traffic volume projections were calculated in greater detail.

4.0 FUTURE BUILD CONDITIONS

4.1 DESCRIPTION OF PROPOSED ROUNDABOUT

While the selection of a final design is beyond the scope of this analysis, there are common aspects of roundabouts that would be present if it is ultimately constructed. As will be discussed later in the report, the traffic volumes are low enough at this location that they can be handled by a single lane roundabout. A roundabout this size could fit at this location, although not without impacts to the adjacent properties. The roundabout would have splitter islands on each approach that would act as pedestrian refuges. This would dramatically reduce the crossing distance for pedestrians, which would also reduce their exposure to automobiles. Additionally, the layout of a roundabout allows a pedestrian to cross while checking for traffic in one direction at a time. The perimeter of the roundabout would include wider sidewalks to allow both cyclists and pedestrians to safely travel around the roundabout. Lower circulating speeds in the roundabout would also improve the safety of cyclists who choose to travel in the roundabout roadway instead of on the wider sidewalks.

VIRGINIA AVENUE/DOUG DAVIS DRIVE AT CLAY PLACE/VIRGINIA AVENUE ROUNDABOUT FEASIBILITY STUDY

Future Build Conditions
September 11, 2019

4.2 GROWTH RATE AND FUTURE VOLUMES

Several measures were taken in order to determine a growth rate that best fits the study area in question between existing conditions and the design year (2043). One factor considered for arriving at a growth rate for the project was using historical AADT data provided by GDOT at counting stations in the vicinity of the site. From this, annual growth trends were calculated for the project. The Historical GDOT Traffic Count data and growth rate calculations are shown in **Appendix F.1**. The GDOT count stations identified as being of good use for this project are as follows:

1. #121-5586 Virginia Avenue North of Doug Davis Drive
2. #121-5598 Virginia Avenue West of Hamilton Avenue

Calculated growth rates are summarized below in **Table 5**.

Table 5: Historical Annual Growth Rates – GDOT Counts

	5-Year Growth Rate	10-Year Growth Rate
Station #121-5586	7.0%	3.8%
Station #121-5598	-2.9%	0.2%

The growth rates found using this method, however, were determined as being less accurate than desired, as the count stations found near the study area only have one year of actual AADT counts between both stations. All other years of AADT data reported were either estimates or the collection methods were not indicated. As a result, this method did not make its way into being factored into the final growth rate used.

The 2010-2018 US Census population estimates were another factor considered to calculate a growth rate for the study area. Population estimates were pulled for Census tracts 108 and 403.08. Tract 108 in Fulton County is the location of the project site, and tract 403.08 in Clayton County is adjacent to the project site. Tract 403.08 had a negative historical growth, which is not feasible to use, so only tract 108's growth was considered, which was 0.9%. The Historical US census population data and growth rate calculations are shown in **Appendix F.2**.

The last method for finding growth in the area used was to analyze the growth trends from the Atlanta Regional Commission's (ARC) Regional Transportation Plan (RTP), last updated May 2019. The RTP projects an average annual growth rate of 1.5% for the Atlanta Region from 2015 to 2040.

VIRGINIA AVENUE/DOUG DAVIS DRIVE AT CLAY PLACE/VIRGINIA AVENUE ROUNDABOUT FEASIBILITY STUDY

Capacity analysis
September 11, 2019

After using several methods to create a clear picture of the study area's growth, the census growth rate of 0.9% was chosen for the study area. The 0.9% annual growth rate will be applied to the existing turning movement and AADT volumes to forecast volumes for the 2023, 2025, 2043, and 2045 future years under the No Build and Build conditions. Due to the nature of this project, all No Build volumes are the same as the Build out volumes for each respective year, so no distinction between the two is made in the traffic diagrams. The 2019, 2023, 2025, 2043, and 2045 traffic diagrams are presented in **Appendix E**.

5.0 CAPACITY ANALYSIS

5.1 SIGNALIZED INTERSECTION ANALYSIS

Synchro was used to model the existing and 2043 projected capacity of both intersections under the assumption that no roundabout is constructed, and the existing layout is maintained. In addition to these two scenarios, a third scenario that included a road diet on Virginia Avenue, Doug Davis Drive, and Clay Place was also analyzed (See **Figures 2** and **3** for a comparison). It should also be noted that for both future scenarios a new signal timing was used in the Synchro model. This was done to reflect the possibility that even if the layout of the intersection remains unchanged, the signal timings could be updated to better handle projected traffic volumes.

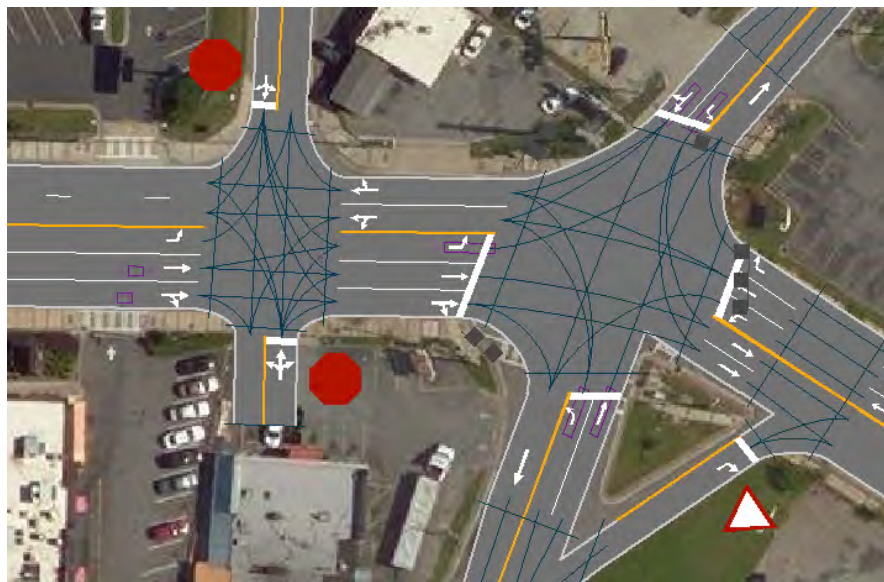


Figure 2: Synchro Model with Existing Layout

VIRGINIA AVENUE/DOUG DAVIS DRIVE AT CLAY PLACE/VIRGINIA AVENUE ROUNDABOUT FEASIBILITY STUDY

Capacity analysis
September 11, 2019

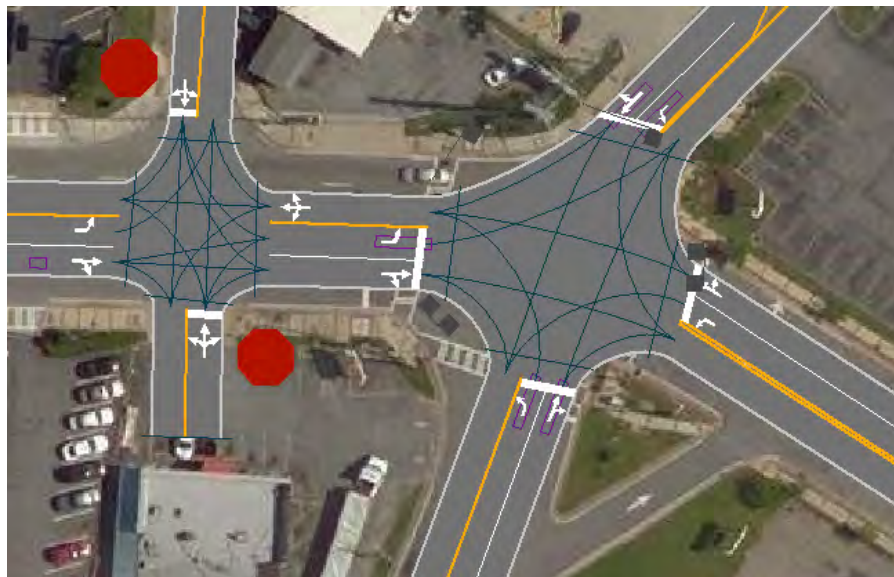


Figure 3: Synchro Model with Road Diet

Table 6 contains the results of the Synchro capacity analysis for intersection 1. Intersection 1 is currently operating well under existing conditions with the level of service (LOS) on each approach being at a C or above. As expected, the increased 2043 volumes decrease the LOS for the Hamilton Avenue and Driveway approaches while having little effect on Virginia Avenue since it is free flowing. The outputs from the Synchro analyses are provided in **Appendix G**.

Table 6. Intersection 1 Level of Service for Existing and Projected Traffic Volumes

Approach	2019 Existing Volumes		2043 Volumes: No Build		2043 Volumes: Road Diet	
	Noon Peak LOS (Delay)	PM Peak LOS (Delay)	Noon Peak LOS (Delay)	PM Peak LOS (Delay)	Noon Peak LOS (Delay)	PM Peak LOS (Delay)
Driveway	C (18.3 s)	B (14.9 s)	C (24.4 s)	C (18.4 s)	E (36.3 s)	D (26.3 s)
Hamilton Ave	C (15.8 s)	B (14.3 s)	C (19.7 s)	C (17.5 s)	D (28.2 s)	C (22.4 s)
Virginia Ave (West Leg)	A (0.1 s)	A (0 s)	A (0.1 s)	A (0 s)	A (0.1 s)	A (0 s)
Virginia Ave (East Leg)	A (0.1 s)	A (0.1 s)	A (0.2 s)	A (0.1 s)	A (0.1 s)	A (0.1 s)

VIRGINIA AVENUE/DOUG DAVIS DRIVE AT CLAY PLACE/VIRGINIA AVENUE ROUNDABOUT FEASIBILITY STUDY

Capacity analysis
September 11, 2019

Table 7 contains the results of the Synchro capacity analysis for intersection 2. The eastbound and westbound legs of this intersection are currently operating well at a LOS of A or B. The northbound and southbound legs are both operating at a LOS of D. The intersection operates at a similar level of perform in the 2043 scenarios due to signal timings being optimized for the increased volumes. Delay for the northbound and south bound approaches is lower in both 2043 scenarios than in the existing 2019 scenario. In the road diet scenario, the delay on Virginia Avenue and Doug Davis Drive does increase to the point that both of these approaches drop to a lower LOS. The outputs from the Synchro analyses are provided in **Appendix G**.

Table 7. Intersection 2 Level of Service for Existing and Projected Traffic Volumes

Approach	2019 Existing Volumes		2043 Volumes: No Build		2043 Volumes: Road Diet	
	Noon Peak LOS (Delay)	PM Peak LOS (Delay)	Noon Peak LOS (Delay)	PM Peak LOS (Delay)	Noon Peak LOS (Delay)	PM Peak LOS (Delay)
Clay Place	D (50.7 s)	D (53.9 s)	D (40.7 s)	D (38.6 s)	D (39.6 s)	D (39.5 s)
Clay Place (Right Turn Lane)	A (9.3 s)	A (9.1 s)	A (9.3 s)	A (9.2 s)	N/A	N/A
Virginia Ave (North Leg)	D (44.9 s)	D (48.8 s)	C (34.3 s)	C (33.7 s)	C (34.3 s)	C (33.9 s)
Virginia Ave (West Leg)	A (9.0 s)	A (7.1 s)	B (12.5)	A (9.6 s)	B (13.9 s)	B (10.9 s)
Doug Davis Dr	B (15.2 s)	B (12.3 s)	B (16.2 s)	B (17.3 s)	C (23.7 s)	C (20.5 s)

5.2 ROUNDABOUT ANALYSIS

The existing and projected traffic volumes were also modeled in the GDOT Roundabout Analysis Tool version 4.1. This tool aids in preliminary analysis of the capacity, delay, and other operational factors of a proposed roundabout. The roundabout was modeled as a single lane roundabout with 4 approaches. Models were created for the Noon and PM Peaks for the 2019, 2023, 2025, 2043, and 2045 traffic volumes. In each of these scenarios, the LOS was at an A for all approaches except for the occasional LOS of B on the westbound approach. Results for the 2019 existing volumes and 2043 projected volumes are provided in **Table 8** below. According to this analysis this intersection could function better as a roundabout than as a signalized intersection. The output from each of the roundabout models and roundabout traffic diagrams are provided in **Appendix H**.

VIRGINIA AVENUE/DOUG DAVIS DRIVE AT CLAY PLACE/VIRGINIA AVENUE ROUNDABOUT FEASIBILITY STUDY

Conclusion
September 11, 2019

Table 8. Roundabout Level of Service for Existing and Projected Traffic Volumes

	2019 Existing Volumes		2043 Volumes: Build	
Approach	Noon Peak LOS (Delay)	PM Peak LOS (Delay)	Noon Peak LOS (Delay)	PM Peak LOS (Delay)
Clay Place	A (7 s)	A (5 s)	A (8 s)	A (6 s)
Virginia Ave (North Leg)	A (7 s)	A (6 s)	A (10 s)	A (8 s)
Virginia Ave (West Leg)	A (8 s)	A (6 s)	B (10 s)	A (7 s)
Doug Davis Dr	A (7 s)	A (7 s)	A (8 s)	A (9 s)

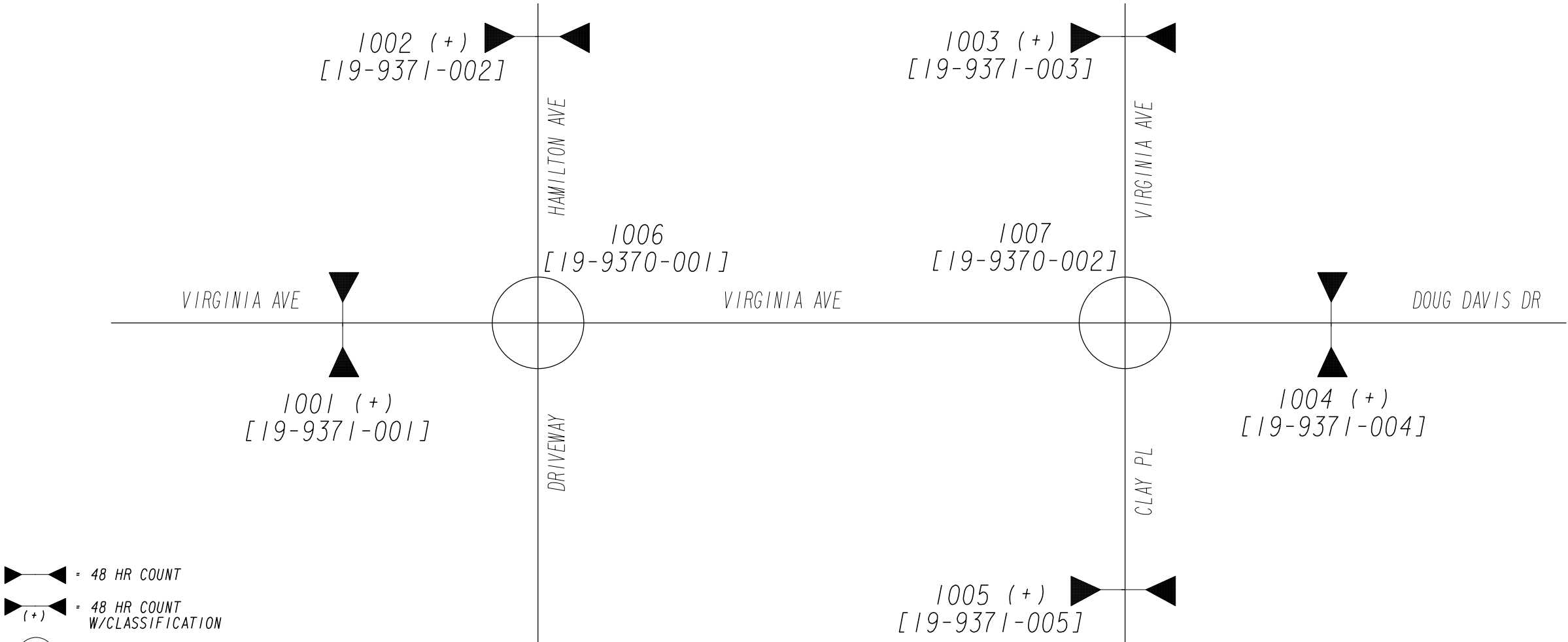
6.0 CONCLUSION

The key conclusions to be drawn from this report are as follows:

1. The Virginia Avenue and Clay Place intersection is currently operating at an acceptable level of service. Looking to the future, if the existing layout of the intersection is maintained it may still operate at an acceptable level if it is possible to update the signal timings.
2. This analysis found that this intersection could operate more efficiently as a single lane roundabout than as a signalized intersection. In analyzed years and in both the Noon and PM Peaks, the roundabout would operate at a LOS of A overall, with only one approach dropping to a B in select scenarios. It is therefore the conclusion of this report that a roundabout is feasible in terms of traffic operations.

APPENDIX A – TRAFFIC COUNTS

FULTON COUNTY



- = 48 HR COUNT
- = 48 HR COUNT W/CLASSIFICATION
- = PEAK TURNING MOVEMENT
7:00AM - 10:00AM
15:30 - 18:30 PM
- [XXX] = COUNT NUMBER PROVIDED BY VENDOR

PI 171007021
FULTON COUNTY

VIRGINIA AVE FROM
HAMILTON AVE
TO DOUG DAVIS DRIVE/CLAY PL

LOCATION MAP

2019 EXISTING DHV
(PM) AM

PROJECT NUMBER: 171007021
FULTON COUNTY

VIRGINIA AVENUE
ROUNDAABOUT FEASABILITY
STUDY



REVISION DATES

TRAFFIC DIAGRAM

DRAWING No.
01-0001

ADT

Count #	Vendor Count #	Class*	Description**
1001	19-9371-001	+	Virginia Ave, West of Hamilton Ave
1002	19-9371-002	+	Hamilton Ave, North of Virginia Ave
1003	19-9371-003	+	Virginia Ave, North of Doug Davis Dr
1004	19-9371-004	+	Doug Davis Dr, East of Virginia Ave/Clay Pl
1005	19-9371-005	+	Clay Pl, South of Doug Davis Dr

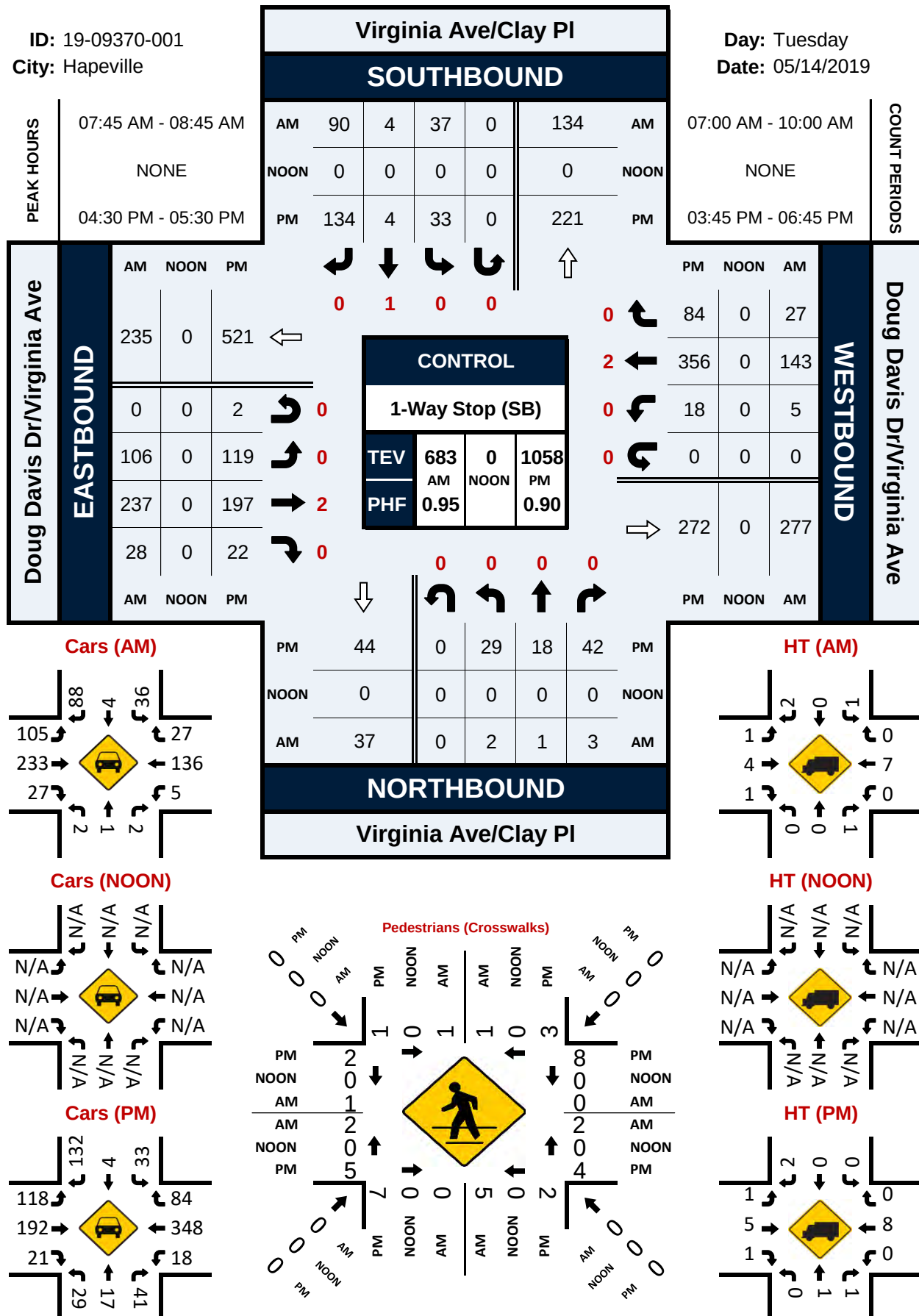
TMCs

Count #	Vendor Count #	Class*	Description**
1006	19-9370-001	+	Virginia Ave/Clay Pl & Doug Davis Dr/Virginia Ave
1007	19-9370-002	+	Hamilton Ave & Virginia Ave

* “+” indicates ADT classification counts or TMCs with bicycle and pedestrian counts.

** All two way or bi-directional unless otherwise stated.

Day: Tuesday
Date: 05/14/2019



National Data & Surveying Services

Intersection Turning Movement Count

Location: Virginia Ave/Clay Pl & Doug Davis Dr/Virginia Ave
City: Hapeville
Control: 1-Way Stop (SB)

Project ID: 19-09370-001
Date: 5/14/2019

Total

NS/EW Streets:	Virginia Ave/Clay Pl				Virginia Ave/Clay Pl				Doug Davis Dr/Virginia Ave				Doug Davis Dr/Virginia Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	0 NT	0 NR	0 NU	0 SL	1 ST	0 SR	0 SU	0 EL	2 ET	0 ER	0 EU	0 WL	2 WT	0 WR	0 WU	
7:00 AM	1	0	0	0	7	1	13	0	14	54	0	0	1	29	10	0	130
7:15 AM	0	0	0	0	12	0	20	0	12	60	1	0	0	29	3	0	137
7:30 AM	0	0	0	0	8	0	26	0	13	60	1	0	1	29	5	0	143
7:45 AM	0	0	0	0	19	2	20	0	20	56	2	0	1	44	7	0	171
8:00 AM	1	0	1	0	2	2	24	0	33	54	4	0	1	30	4	0	156
8:15 AM	0	0	2	0	6	0	17	0	38	58	12	0	1	32	11	0	177
8:30 AM	1	1	0	0	10	0	29	0	15	69	10	0	2	37	5	0	179
8:45 AM	0	1	1	0	22	2	28	1	16	58	4	0	4	26	8	0	171
9:00 AM	0	1	2	0	16	3	22	0	19	43	2	0	1	24	5	0	138
9:15 AM	0	0	2	0	10	0	17	0	21	35	1	0	2	30	9	0	127
9:30 AM	3	1	2	0	18	0	20	0	14	44	3	0	0	26	2	0	133
9:45 AM	0	0	0	0	10	2	18	0	23	45	1	0	0	30	4	0	133
TOTAL VOLUMES :	NL 6	NT 4	NR 10	NU 0	SL 140	ST 12	SR 254	SU 1	EL 238	ET 636	ER 41	EU 0	WL 14	WT 366	WR 73	WU 0	TOTAL 1795
APPROACH %'s :	30.00%	20.00%	50.00%	0.00%	34.40%	2.95%	62.41%	0.25%	26.01%	69.51%	4.48%	0.00%	3.09%	80.79%	16.11%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM				37	4	90	0	106	237	28	0	5	143	27	0	TOTAL 683
PEAK HR VOL :	2	1	3	0	0.487	0.500	0.776	0.000	0.697	0.859	0.583	0.000	0.625	0.813	0.614	0.000	0.954
PEAK HR FACTOR :	0.500	0.250	0.375	0.000		0.750				0.859				0.841			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	0 NT	0 NR	0 NU	0 SL	1 ST	0 SR	0 SU	0 EL	2 ET	0 ER	0 EU	0 WL	2 WT	0 WR	0 WU	
3:45 PM	3	0	3	0	5	2	39	0	29	42	0	0	4	65	15	0	207
4:00 PM	6	3	4	0	5	2	30	0	21	51	8	0	4	63	19	0	216
4:15 PM	2	2	5	0	8	3	32	0	30	44	4	0	1	77	18	0	226
4:30 PM	6	8	8	0	5	1	27	0	33	64	8	0	4	79	18	0	261
4:45 PM	3	3	6	0	4	0	31	0	27	37	4	1	0	87	13	0	216
5:00 PM	8	2	12	0	17	1	39	0	26	45	4	0	6	98	29	0	287
5:15 PM	12	5	16	0	7	2	37	0	33	51	6	1	8	92	24	0	294
5:30 PM	6	2	4	0	3	1	48	0	35	50	2	0	4	85	20	0	260
5:45 PM	6	2	2	0	6	3	32	0	35	49	7	0	2	51	15	0	210
6:00 PM	2	4	4	0	6	1	32	0	30	42	5	0	2	57	10	0	195
6:15 PM	7	2	3	0	6	4	33	0	30	43	4	0	3	65	12	0	212
6:30 PM	4	4	9	0	2	3	39	0	26	44	4	0	2	48	12	0	197
TOTAL VOLUMES :	NL 65	NT 37	NR 76	NU 0	SL 74	ST 23	SR 419	SU 0	EL 355	ET 562	ER 56	EU 2	WL 40	WT 867	WR 205	WU 0	TOTAL 2781
APPROACH %'s :	36.52%	20.79%	42.70%	0.00%	14.34%	4.46%	81.20%	0.00%	36.41%	57.64%	5.74%	0.21%	3.60%	77.97%	18.44%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM				33	4	134	0	119	197	22	2	18	356	84	0	TOTAL 1058
PEAK HR VOL :	29	18	42	0	0.485	0.500	0.859	0.000	0.902	0.770	0.688	0.500	0.563	0.908	0.724	0.000	0.900
PEAK HR FACTOR :	0.604	0.563	0.656	0.000		0.750				0.810				0.861			

National Data & Surveying Services

City: Hapeville
Control: 1-Way Stop (SB)

Project ID: 19-09370-001
Date: 5/14/2019

Cars

NS/EW Streets:	Virginia Ave/Clay Pl				Virginia Ave/Clay Pl				Doug Davis Dr/Virginia Ave				Doug Davis Dr/Virginia Ave					
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL	
	0	0	0	0	0	1	0	0	0	2	0	0	0	0	2	0		0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU		
	7:00 AM	1	0	0	0	7	1	12	0	14	54	0	0	1	28	10		0
	7:15 AM	0	0	0	0	12	0	20	0	12	57	1	0	0	28	3		0
	7:30 AM	0	0	0	0	8	0	26	0	13	56	1	0	1	27	5		0
	7:45 AM	0	0	0	0	18	2	20	0	19	56	2	0	1	43	7		0
	8:00 AM	1	0	0	0	2	2	23	0	33	54	4	0	1	29	4		0
	8:15 AM	0	0	2	0	6	0	16	0	38	56	12	0	1	28	11		0
	8:30 AM	1	1	0	0	10	0	29	0	15	67	9	0	2	36	5		0
8:45 AM	0	1	1	0	22	2	26	1	16	58	4	0	4	24	6	0		
9:00 AM	0	1	2	0	16	3	22	0	17	42	2	0	1	20	4	0		
9:15 AM	0	0	2	0	10	0	17	0	20	35	1	0	2	28	9	0		
9:30 AM	2	1	2	0	18	0	19	0	13	43	3	0	0	25	2	0		
9:45 AM	0	0	0	0	10	1	17	0	22	41	1	0	0	27	3	0		
TOTAL VOLUMES:	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
APPROACH %'s:	27.78%	22.22%	50.00%	0.00%	34.92%	2.76%	62.06%	0.25%	26.04%	69.47%	4.49%	0.00%	3.29%	80.52%	16.20%	0.00%	1733	
PEAK HR:	07:45 AM - 08:45 AM																TOTAL	
PEAK HR VOL:	2	1	2	0	36	4	88	0	105	233	27	0	5	136	27	0	666	
PEAK HR FACTOR:	0.50	0.250	0.250	0.000	0.500	0.500	0.759	0.000	0.691	0.869	0.563	0.000	0.625	0.791	0.614	0.000	0.951	
			0.625				0.800				0.861				0.824			
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL	
	0	0	0	0	0	1	0	0	0	2	0	0	0	2	0	0		
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU		
	3:45 PM	3	0	3	0	5	2	39	0	27	37	0	0	4	63	15		0
	4:00 PM	6	3	4	0	5	2	30	0	21	48	7	0	4	62	19		0
	4:15 PM	2	2	5	0	8	3	32	0	30	42	4	0	1	75	18		0
	4:30 PM	6	7	7	0	5	1	25	0	33	63	7	0	4	79	18		0
	4:45 PM	3	3	6	0	4	0	31	0	27	37	4	1	0	85	13		0
	5:00 PM	8	2	12	0	17	1	39	0	26	42	4	0	6	96	29		0
	5:15 PM	12	5	16	0	7	2	37	0	32	50	6	1	8	88	24		0
5:30 PM	6	2	4	0	3	1	48	0	35	48	2	0	4	81	20	0		
5:45 PM	6	2	2	0	6	3	32	0	33	48	6	0	2	50	15	0		
6:00 PM	2	4	4	0	6	1	32	0	29	39	5	0	2	55	10	0		
6:15 PM	6	2	3	0	6	4	31	0	30	41	4	0	3	63	12	0		
6:30 PM	4	4	9	0	2	3	38	0	26	42	4	0	2	47	12	0		
TOTAL VOLUMES:	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
APPROACH %'s:	36.57%	20.57%	42.86%	0.00%	14.48%	4.50%	81.02%	0.00%	37.09%	57.07%	5.63%	0.21%	3.67%	77.50%	18.82%	0.00%	2716	
PEAK HR:	04:30 PM - 05:30 PM																TOTAL	
PEAK HR VOL:	29	17	41	0	33	4	132	0	118	192	21	2	18	348	84	0	1039	
PEAK HR FACTOR:	0.60	0.607	0.641	0.000	0.485	0.500	0.846	0.000	0.894	0.762	0.750	0.500	0.563	0.906	0.724	0.000	0.902	
			0.659				0.741				0.808				0.859			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	0 NT	0 NR	0 NU	0 SL	1 ST	0 SR	0 SU	0 EL	2 ET	0 ER	0 EU	0 WL	2 WT	0 WR	0 WU	
3:45 PM	3	0	3	0	5	2	39	0	27	37	0	0	4	63	15	0	198
4:00 PM	6	3	4	0	5	2	30	0	21	48	7	0	4	62	19	0	211
4:15 PM	2	2	5	0	8	3	32	0	30	42	4	0	1	75	18	0	222
4:30 PM	6	7	7	0	5	1	25	0	33	63	7	0	4	79	18	0	255
4:45 PM	3	3	6	0	4	0	31	0	27	37	4	1	0	85	13	0	214
5:00 PM	8	2	12	0	17	1	39	0	26	42	4	0	6	96	29	0	282
5:15 PM	12	5	16	0	7	2	37	0	32	50	6	1	8	88	24	0	288
5:30 PM	6	2	4	0	3	1	48	0	35	48	2	0	4	81	20	0	254
5:45 PM	6	2	2	0	6	3	32	0	33	48	6	0	2	50	15	0	205
6:00 PM	2	4	4	0	6	1	32	0	29	39	5	0	2	55	10	0	189
6:15 PM	6	2	3	0	6	4	31	0	30	41	4	0	3	63	12	0	205
6:30 PM	4	4	9	0	2	3	38	0	26	42	4	0	2	47	12	0	193
TOTAL VOLUMES : APPROACH 's':	NL 36.57%	NT 20.57%	NR 42.86%	NU 0.00%	SL 14.48%	ST 23 4.50%	SR 414 81.02%	SU 0 0.00%	EL 349 37.09%	ET 537 57.07%	ER 53 5.63%	EU 2 0.21%	WL 40 3.67%	WT 844 77.50%	WR 205 18.82%	WU 0 0.00%	TOTAL 2716
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	29	17	41	0	33	4	132	0	118	192	21	2	18	348	84	0	1039
PEAK HR FACTOR :	0.60	0.607	0.641	0.000	0.485	0.500	0.846	0.000	0.894	0.762	0.750	0.500	0.563	0.906	0.724	0.000	0.902
	0.659				0.741				0.808				0.859				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Virginia Ave/Clay Pl & Doug Davis Dr/Virginia Ave
City: Hapeville
Control: 1-Way Stop (SB)

Project ID: 19-09370-001
Date: 5/14/2019

HT

NS/EW Streets:	Virginia Ave/Clay Pl				Virginia Ave/Clay Pl				Doug Davis Dr/Virginia Ave				Doug Davis Dr/Virginia Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	0 NT	0 NR	0 NU	0 SL	1 ST	0 SR	0 SU	0 EL	2 ET	0 ER	0 EU	0 WL	2 WT	0 WR	0 WU	
7:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	0	4
7:30 AM	0	0	0	0	0	0	0	0	0	4	0	0	0	2	0	0	6
7:45 AM	0	0	0	0	1	0	0	0	1	0	0	0	0	1	0	0	3
8:00 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	3
8:15 AM	0	0	0	0	0	0	1	0	0	2	0	0	0	4	0	0	7
8:30 AM	0	0	0	0	0	0	0	0	0	2	1	0	0	1	0	0	4
8:45 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	2	2	0	6
9:00 AM	0	0	0	0	0	0	0	0	2	1	0	0	0	4	1	0	8
9:15 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	3
9:30 AM	1	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	5
9:45 AM	0	0	0	0	0	1	1	0	1	4	0	0	0	3	1	0	11
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	50.00%	0.00%	50.00%	0.00%	11.11%	11.11%	77.78%	0.00%	25.00%	70.83%	4.17%	0.00%	0.00%	85.19%	14.81%	0.00%	62
PEAK HR :	07:45 AM - 08:45 AM				1	0	2	0	1	4	1	0	0	7	0	0	17
PEAK HR VOL :	0	0	1	0	0.250	0.000	0.500	0.000	0.250	0.500	0.250	0.000	0.000	0.438	0.000	0.000	17
PEAK HR FACTOR :	0.000	0.000	0.250	0.000	0.250	0.000	0.500	0.000	0.250	0.500	0.250	0.000	0.000	0.438	0.000	0.000	0.607
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	0 NT	0 NR	0 NU	0 SL	1 ST	0 SR	0 SU	0 EL	2 ET	0 ER	0 EU	0 WL	2 WT	0 WR	0 WU	
3:45 PM	0	0	0	0	0	0	0	0	2	5	0	0	0	2	0	0	9
4:00 PM	0	0	0	0	0	0	0	0	0	3	1	0	0	1	0	0	5
4:15 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	4
4:30 PM	0	1	1	0	0	0	2	0	0	1	1	0	0	0	0	0	6
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	0	5
5:15 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	4	0	0	6
5:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0	6
5:45 PM	0	0	0	0	0	0	0	0	2	1	1	0	0	1	0	0	5
6:00 PM	0	0	0	0	0	0	0	0	1	3	0	0	0	2	0	0	6
6:15 PM	1	0	0	0	0	0	2	0	0	2	0	0	0	2	0	0	7
6:30 PM	0	0	0	0	0	0	1	0	0	2	0	0	0	1	0	0	4
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	33.33%	33.33%	33.33%	0.00%	0.00%	0.00%	100.00%	0.00%	17.65%	73.53%	8.82%	0.00%	0.00%	100.00%	0.00%	0.00%	65
PEAK HR :	04:30 PM - 05:30 PM				0	0	2	0	1	5	1	0	0	8	0	0	19
PEAK HR VOL :	0	1	1	0	0.000	0.000	0.250	0.000	0.250	0.417	0.250	0.000	0.000	0.500	0.000	0.000	19
PEAK HR FACTOR :	0.00	0.250	0.250	0.000	0.000	0.000	0.250	0.000	0.250	0.417	0.250	0.000	0.000	0.500	0.000	0.000	0.792

National Data & Surveying Services

City: Hapeville

Project ID: 19-09370-001

Date: 5/14/2019

Bikes

NS/EW Streets:	Virginia Ave/Clay Pl				Virginia Ave/Clay Pl				Doug Davis Dr/Virginia Ave				Doug Davis Dr/Virginia Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	0 NT	0 NR	0 NU	0 SL	1 ST	0 SR	0 SU	0 EL	2 ET	0 ER	0 EU	0 WL	2 WT	0 WR	0 WU	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
9:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2
TOTAL VOLUMES : APPROACH %'s :	NL 0	NT 0	NR 0	NU 0	SL 0	ST 0	SR 2	SU 0	EL 0	ET 1	ER 0	EU 0	WL 0	WT 1	WR 0	WU 0	TOTAL 5
PEAK HR :	07:45 AM - 08:45 AM																TOTAL 1
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.250
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	

[illegible]

National Data & Surveying Services

Intersection Turning Movement Count

Location: Virginia Ave/Clay Pl & Doug Davis Dr/Virginia Ave
City: Hapeville

Project ID: 19-09370-001
Date: 5/14/2019

Pedestrians (Crosswalks)

NS/EW Streets:	Virginia Ave/Clay Pl		Virginia Ave/Clay Pl		Doug Davis Dr/Virginia Ave		Doug Davis Dr/Virginia Ave			
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		SOUTH LEG 2 CUT OUT	
	EB	WB	EB	WB	NB	SB	NB	SB	EB	WB
7:00 AM	1	1	2	0	0	0	0	1	2	0
7:15 AM	0	0	1	1	0	1	0	0	0	0
7:30 AM	0	0	1	1	1	0	0	0	1	1
7:45 AM	0	1	0	0	0	0	1	0	0	0
8:00 AM	1	0	0	3	1	0	1	1	0	4
8:15 AM	0	0	0	1	0	0	0	0	0	1
8:30 AM	0	0	0	1	1	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	1	0	1	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	1	1	1	1	2	2	0	1
TOTAL VOLUMES :	EB 2	WB 2	EB 6	WB 8	NB 5	SB 2	NB 4	SB 4	EB 3	WB 8
APPROACH %'s :	50.00%	50.00%	42.86%	57.14%	71.43%	28.57%	50.00%	50.00%	27.27%	72.73%
PEAK HR :	07:45 AM - 08:45 AM									
PEAK HR VOL :	1	1	0	5	2	0	2	1	0	6
PEAK HR FACTOR :	0.250	0.250		0.417	0.500		0.500	0.250		0.375
	0.500		0.417		0.500		0.375		0.375	
TOTAL										
18										
0.409										
PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		SOUTH LEG 2 CUT OUT	
	EB	WB	EB	WB	NB	SB	NB	SB	EB	WB
3:45 PM	0	0	4	3	1	0	3	2	3	3
4:00 PM	0	1	0	2	0	2	0	1	0	1
4:15 PM	0	2	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	1	1	6	0	0	6	1
4:45 PM	0	0	4	0	0	1	0	2	4	0
5:00 PM	0	1	2	1	2	0	4	0	1	3
5:15 PM	1	1	1	0	1	1	1	0	1	0
5:30 PM	1	1	5	2	2	0	4	6	2	2
5:45 PM	3	8	0	3	1	2	6	2	1	2
6:00 PM	1	4	6	3	2	0	0	2	4	4
6:15 PM	1	7	1	0	0	0	0	0	1	0
6:30 PM	0	3	3	0	2	0	0	1	1	0
TOTAL VOLUMES :	EB 7	WB 29	EB 26	WB 15	NB 12	SB 12	NB 18	SB 16	EB 24	WB 16
APPROACH %'s :	19.44%	80.56%	63.41%	36.59%	50.00%	50.00%	52.94%	47.06%	60.00%	40.00%
PEAK HR :	04:30 PM - 05:30 PM									
PEAK HR VOL :	1	3	7	2	4	8	5	2	12	4
PEAK HR FACTOR :	0.250	0.750	0.438	0.500	0.500	0.333	0.313	0.250	0.500	0.333
	0.500		0.563		0.429		0.438		0.571	
TOTAL										
48										
0.750										

Hamilton Ave & Virginia Ave

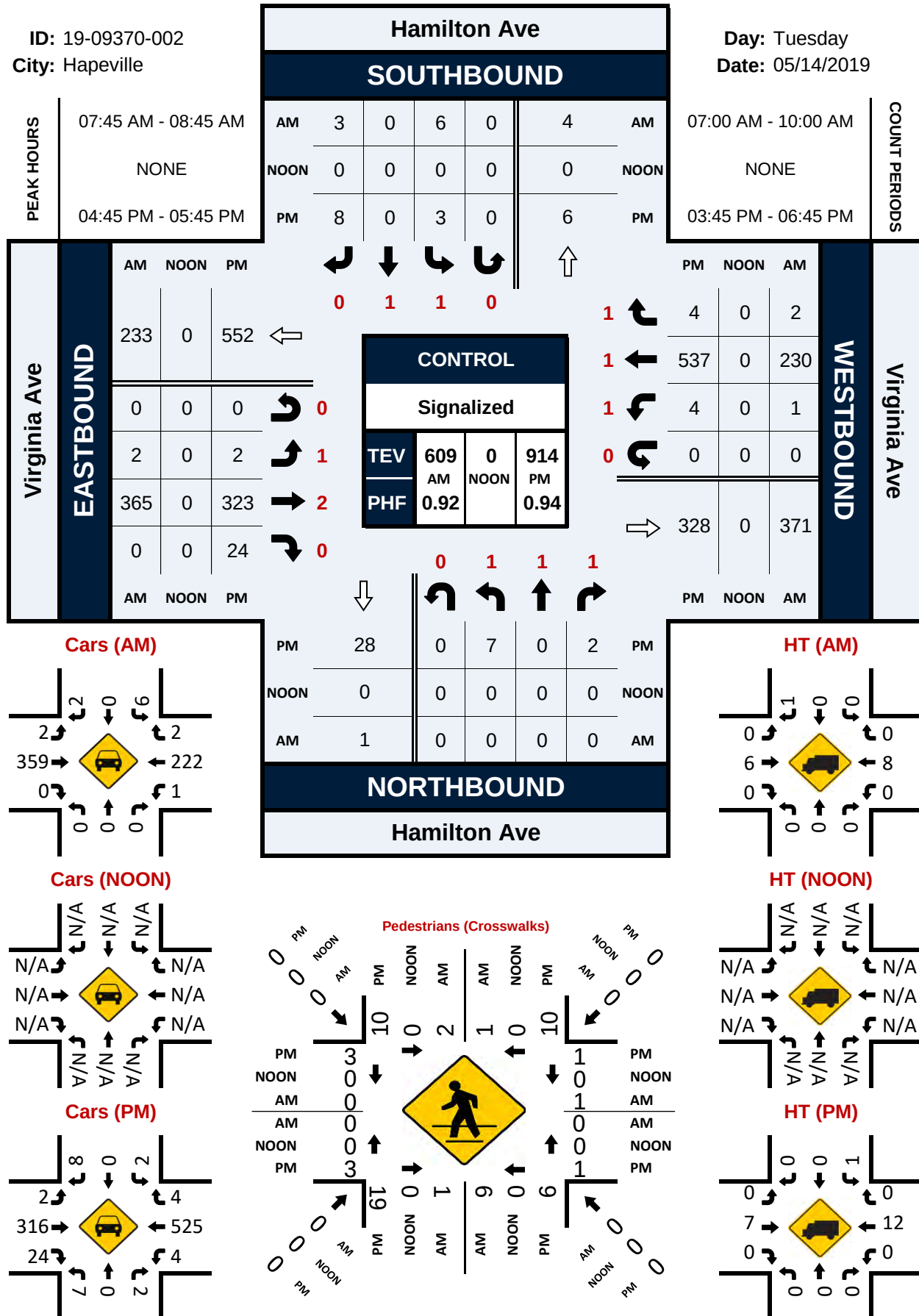
Peak Hour Turning Movement Count

ID: 19-09370-002

City: Hapeville

Day: Tuesday

Date: 05/14/2019



National Data & Surveying Services

Intersection Turning Movement Count

Location: Hamilton Ave & Virginia Ave
City: Hapeville
Control: Signalized

Project ID: 19-09370-002
Date: 5/14/2019

Total

NS/EW Streets:	Hamilton Ave				Hamilton Ave				Virginia Ave				Virginia Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	1 NR	0 NU	1 SL	1 ST	0 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	1 WT	1 WR	0 WU	
7:00 AM	0	0	0	0	1	0	0	0	1	67	0	0	0	46	0	0	115
7:15 AM	0	0	0	0	3	0	0	0	0	70	0	0	1	45	0	0	119
7:30 AM	0	0	0	0	0	0	1	0	0	74	0	0	0	57	0	0	132
7:45 AM	0	0	0	0	1	0	0	0	1	81	0	0	0	60	2	0	145
8:00 AM	0	0	0	0	2	0	0	0	0	85	0	0	0	51	0	0	138
8:15 AM	0	0	0	0	2	0	2	0	1	103	0	0	1	52	0	0	161
8:30 AM	0	0	0	0	1	0	1	0	0	96	0	0	0	67	0	0	165
8:45 AM	0	0	0	0	1	0	0	0	1	77	0	0	0	52	1	0	132
9:00 AM	0	0	0	0	0	1	0	0	0	59	0	0	1	46	0	0	107
9:15 AM	1	0	0	0	0	0	0	0	0	62	2	0	0	46	1	0	112
9:30 AM	1	0	0	0	2	0	2	0	1	61	0	1	0	49	1	0	118
9:45 AM	0	0	0	0	0	0	0	0	1	65	1	0	1	46	0	0	114
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	2	0	0	0	13	1	6	0	6	900	3	1	4	617	5	0	1558
	100.00%	0.00%	0.00%	0.00%	65.00%	5.00%	30.00%	0.00%	0.66%	98.90%	0.33%	0.11%	0.64%	98.56%	0.80%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM				6	0	3	0	2	365	0	0	1	230	2	0	TOTAL
PEAK HR VOL :	0	0	0	0	0.750	0.000	0.375	0.000	0.500	0.886	0.000	0.000	0.250	0.858	0.250	0.000	609
PEAK HR FACTOR :	0.000	0.000	0.000	0.000		0.563				0.882				0.869			0.923

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	1 NR	0 NU	1 SL	1 ST	0 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	1 WT	1 WR	0 WU	
3:45 PM	1	0	0	0	1	0	2	0	0	71	3	0	1	108	1	0	188
4:00 PM	4	0	0	0	0	0	0	0	1	78	7	0	1	95	0	0	186
4:15 PM	5	0	2	0	1	0	1	0	1	83	3	0	1	108	2	0	207
4:30 PM	3	0	1	0	0	0	0	0	2	91	6	0	2	110	0	0	215
4:45 PM	0	0	0	0	0	0	5	0	0	74	4	0	1	120	1	0	205
5:00 PM	2	0	0	0	1	0	3	0	0	70	8	0	0	145	1	0	230
5:15 PM	2	0	0	0	1	0	0	0	1	95	4	0	0	139	2	0	244
5:30 PM	3	0	2	0	1	0	0	0	1	84	8	0	3	133	0	0	235
5:45 PM	4	0	0	0	1	0	1	0	0	89	3	0	1	90	1	0	190
6:00 PM	1	0	1	0	2	0	0	0	1	76	4	0	1	90	4	0	180
6:15 PM	4	1	1	0	0	0	3	0	1	77	5	0	0	100	1	0	193
6:30 PM	0	0	1	0	2	0	2	0	4	67	7	0	1	85	3	0	172
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	29	1	8	0	10	0	17	0	12	955	62	0	12	1323	16	0	2445
	76.32%	2.63%	21.05%	0.00%	37.04%	0.00%	62.96%	0.00%	1.17%	92.81%	6.03%	0.00%	0.89%	97.93%	1.18%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM				3	0	8	0	2	323	24	0	4	537	4	0	TOTAL
PEAK HR VOL :	7	0	2	0	0.750	0.000	0.400	0.000	0.500	0.850	0.750	0.000	0.333	0.926	0.500	0.000	914
PEAK HR FACTOR :	0.583	0.000	0.250	0.000		0.550				0.873				0.933			0.936

National Data & Surveying Services

Location: Hamilton Ave & Virginia Ave

City: Hapeville

Project ID: 19-09370-002

Cars

NS/EW Streets:		Hamilton Ave				Hamilton Ave				Virginia Ave				Virginia Ave				
AM		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
		1 NL	1 NT	1 NR	0 NU	1 SL	1 ST	0 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	1 WT	1 WR	0 WU	TOTAL
	7:00 AM	0	0	0	0	1	0	0	0	1	67	0	0	0	43	0	0	112
	7:15 AM	0	0	0	0	2	0	0	0	0	68	0	0	1	45	0	0	116
	7:30 AM	0	0	0	0	1	0	1	0	0	70	0	0	0	54	0	0	125
	7:45 AM	0	0	0	0	1	0	0	0	1	80	0	0	0	60	2	0	144
	8:00 AM	0	0	0	0	2	0	0	0	0	85	0	0	1	49	0	0	136
	8:15 AM	0	0	0	0	2	0	1	0	1	101	0	0	1	47	0	0	153
	8:30 AM	0	0	0	0	1	0	1	0	0	93	0	0	0	66	0	0	161
	8:45 AM	0	0	0	0	1	0	0	0	1	77	0	0	0	48	1	0	128
9:00 AM	0	0	0	0	0	1	0	0	0	56	0	0	1	42	0	0	100	
9:15 AM	1	0	0	0	0	0	0	0	0	61	2	0	0	44	1	0	109	
9:30 AM	1	0	0	0	2	0	2	0	1	59	0	1	0	46	1	0	113	
9:45 AM	0	0	0	0	0	0	0	0	1	60	1	0	0	42	0	0	105	
TOTAL VOLUMES:		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s:		100.00%	0.00%	0.00%	0.00%	66.67%	5.56%	27.78%	0.00%	6.68%	98.87%	0.34%	0.11%	0.67%	98.49%	0.84%	0.00%	1502
PEAK HR:		07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL:		0	0	0	0	6	0	2	0	2	359	0	0	1	222	2	0	594
PEAK HR FACTOR:		0.00	0.000	0.000	0.000	0.750	0.000	0.500	0.000	0.500	0.889	0.000	0.000	0.250	0.841	0.250	0.000	0.922

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	1 NR	0 NU	1 SL	1 ST	0 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	1 WT	1 WR	0 WU	
3:45 PM	1	0	0	0	0	0	2	0	0	64	3	0	1	106	1	0	178
4:00 PM	4	0	0	0	0	0	0	0	1	76	7	0	1	94	0	0	183
4:15 PM	5	0	2	0	1	0	1	0	1	80	3	0	1	106	2	0	202
4:30 PM	3	0	1	0	0	0	0	0	2	90	6	0	2	108	0	0	212
4:45 PM	0	0	0	0	0	0	5	0	0	74	4	0	1	118	1	0	203
5:00 PM	2	0	0	0	0	0	3	0	0	68	8	0	0	143	1	0	225
5:15 PM	2	0	0	0	1	0	0	0	1	92	4	0	0	135	2	0	237
5:30 PM	3	0	2	0	1	0	0	0	1	82	8	0	3	129	0	0	229
5:45 PM	4	0	0	0	1	0	1	0	0	83	3	0	1	89	1	0	183
6:00 PM	1	0	1	0	2	0	0	0	1	73	4	0	1	88	4	0	175
6:15 PM	4	1	1	0	0	0	3	0	1	76	5	0	0	95	1	0	187
6:30 PM	0	0	1	0	2	0	2	0	4	65	7	0	1	83	3	0	168
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	79.32%	2.63%	21.05%	0.00%	32.00%	0.00%	68.00%	0.00%	1.20%	92.58%	6.22%	0.00%	0.91%	97.88%	1.21%	0.00%	2382
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	7	0	2	0	2	0	8	0	2	316	24	0	4	525	4	0	894
PEAK HR FACTOR :	0.58	0.000	0.250	0.000	0.500	0.000	0.400	0.000	0.500	0.859	0.750	0.000	0.333	0.918	0.500	0.000	0.943

National Data & Surveying Services

Intersection Turning Movement Count

Location: Hamilton Ave & Virginia Ave
City: Hapeville
Control: Signalized

Project ID: 19-09370-002
Date: 5/14/2019

HT

NS/EW Streets:	Hamilton Ave				Hamilton Ave				Virginia Ave				Virginia Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	1 NR	0 NU	1 SL	1 ST	0 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	1 WT	1 WR	0 WU	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
7:15 AM	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	3
7:30 AM	0	0	0	0	0	0	0	0	0	4	0	0	0	3	0	0	7
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
8:15 AM	0	0	0	0	0	0	1	0	0	2	0	0	0	5	0	0	8
8:30 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	0	4
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4
9:00 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0	0	7
9:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3
9:30 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	5
9:45 AM	0	0	0	0	0	0	0	0	0	5	0	0	0	4	0	0	9
TOTAL VOLUMES :	NL 0	NT 0	NR 0	NU 0	SL 1	ST 0	SR 1	SU 0	EL 0	ET 23	ER 0	EU 0	WL 0	WT 31	WR 0	WU 0	TOTAL 56
APPROACH %'s :	50.00%				0.00%				100.00%				0.00%				
PEAK HR :	07:45 AM - 08:45 AM																TOTAL 15
PEAK HR VOL :	0	0	0	0	0	0	1	0	0	6	0	0	0	8	0	0	
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.500	0.000	0.000	0.000	0.400	0.000	0.000	0.469
	0.250				0.500				0.400								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	1 NR	0 NU	1 SL	1 ST	0 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	1 WT	1 WR	0 WU	
3:45 PM	0	0	0	0	1	0	0	0	0	7	0	0	0	2	0	0	10
4:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3
4:15 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	0	5
4:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
5:00 PM	0	0	0	0	1	0	0	0	0	2	0	0	0	2	0	0	5
5:15 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0	0	7
5:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0	6
5:45 PM	0	0	0	0	0	0	0	0	0	6	0	0	0	1	0	0	7
6:00 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	0	5
6:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	5	0	0	6
6:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	4
TOTAL VOLUMES :	NL 0	NT 0	NR 0	NU 0	SL 2	ST 0	SR 0	SU 0	EL 0	ET 32	ER 0	EU 0	WL 0	WT 29	WR 0	WU 0	TOTAL 63
APPROACH %'s :	100.00%				0.00%				100.00%				0.00%				
PEAK HR :	04:45 PM - 05:45 PM																TOTAL 20
PEAK HR VOL :	0	0	0	0	1	0	0	0	0	7	0	0	0	12	0	0	
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.583	0.000	0.000	0.000	0.750	0.000	0.000	0.714
	0.250				0.583				0.750								

National Data & Surveying Services

Intersection Turning Movement Count

Location: Hamilton Ave & Virginia Ave
City: Hapeville

Project ID: 19-09370-002
Date: 5/14/2019

Pedestrians (Crosswalks)

NS/EW Streets:	Hamilton Ave		Hamilton Ave		Virginia Ave		Virginia Ave		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
7:00 AM	2	0	1	1	0	0	1	0	5
7:15 AM	0	0	1	2	0	1	0	0	4
7:30 AM	1	0	1	1	0	0	0	0	3
7:45 AM	0	1	1	1	0	0	0	0	3
8:00 AM	1	0	0	3	0	1	0	0	5
8:15 AM	1	0	0	1	0	0	0	0	2
8:30 AM	0	0	0	1	0	0	0	0	1
8:45 AM	0	3	0	0	0	0	0	0	3
9:00 AM	0	1	0	0	0	0	0	0	1
9:15 AM	0	0	1	0	0	0	0	0	1
9:30 AM	3	0	1	2	0	1	0	0	7
9:45 AM	0	0	0	0	0	0	1	0	1
TOTAL VOLUMES :	EB 8	WB 5	EB 6	WB 12	NB 0	SB 3	NB 2	SB 0	TOTAL 36
APPROACH %'s :	61.54%	38.46%	33.33%	66.67%	0.00%	100.00%	100.00%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM								TOTAL
PEAK HR VOL :	2	1	1	6	0	1	0	0	11
PEAK HR FACTOR :	0.500	0.250	0.250	0.500		0.250			0.550
	0.750		0.583		0.250				

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
3:45 PM	2	4	3	1	0	0	0	1	11
4:00 PM	8	4	0	4	5	3	0	0	24
4:15 PM	1	2	0	3	1	0	0	0	7
4:30 PM	0	2	0	2	0	1	1	0	6
4:45 PM	0	0	5	1	0	0	0	3	9
5:00 PM	6	3	4	1	0	1	3	0	18
5:15 PM	2	4	3	6	1	0	0	0	16
5:30 PM	2	3	7	1	0	0	0	0	13
5:45 PM	5	9	7	5	0	0	1	0	27
6:00 PM	4	7	5	3	1	0	0	0	20
6:15 PM	1	10	2	1	0	0	0	0	14
6:30 PM	2	4	2	1	2	2	0	0	13
TOTAL VOLUMES :	EB 33	WB 52	EB 38	WB 29	NB 10	SB 7	NB 5	SB 4	TOTAL 178
APPROACH %'s :	38.82%	61.18%	56.72%	43.28%	58.82%	41.18%	55.56%	44.44%	
PEAK HR :	04:45 PM - 05:45 PM								TOTAL
PEAK HR VOL :	10	10	19	9	1	1	3	3	56
PEAK HR FACTOR :	0.417	0.625	0.679	0.375	0.250	0.250	0.250	0.250	0.778
	0.556		0.778		0.500		0.500		

CLASSIFICATION

Virginia Ave W/O Hamilton Ave

Day: Tuesday
Date: 5/14/2019

City: Hapeville
Project #: GA19_9371_001

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	114	11	1	6	0	0	0	0	0	0	0	0	132
01:00	0	76	8	0	0	0	0	0	0	0	0	0	0	84
02:00	0	58	7	0	0	0	0	0	0	0	0	0	0	65
03:00	0	36	6	0	3	0	0	0	1	0	0	0	0	46
04:00	1	95	16	2	3	0	0	0	1	0	0	0	0	118
05:00	0	216	35	1	7	0	0	0	1	0	0	0	0	260
06:00	0	273	47	2	11	0	0	0	1	0	0	0	0	334
07:00	0	417	50	2	11	0	0	0	0	0	0	0	0	480
08:00	1	486	59	3	13	1	0	1	0	0	0	0	0	564
09:00	1	354	51	3	19	1	0	1	0	0	0	0	0	430
10:00	0	330	57	3	22	0	0	0	0	0	0	0	0	412
11:00	1	629	98	6	29	4	0	1	1	0	0	0	0	769
12:00 PM	3	816	128	2	36	0	0	1	0	0	0	0	0	986
13:00	0	697	120	6	31	0	0	1	0	0	0	0	0	855
14:00	1	604	94	8	20	1	0	0	0	0	0	0	0	728
15:00	0	625	91	5	23	1	0	0	0	0	0	0	0	745
16:00	0	667	105	2	11	1	0	0	0	0	0	0	0	786
17:00	1	751	105	5	18	0	0	1	0	0	0	0	0	881
18:00	0	543	83	5	15	0	0	0	0	0	0	0	0	646
19:00	0	473	63	2	15	0	0	0	1	0	0	0	0	554
20:00	0	362	50	1	12	0	0	0	0	0	0	0	0	425
21:00	0	290	39	1	8	1	0	0	0	0	0	0	0	339
22:00	0	235	28	0	4	0	0	0	0	0	0	0	0	267
23:00	0	208	29	0	10	1	0	0	0	0	0	0	0	248
Totals	9	9355	1380	60	327	11		6	6					11154
% of Totals	0%	84%	12%	1%	3%	0%		0%	0%					100%

AM Volumes	4	3084	445	23	124	6	0	3	5	0	0	0	0	3694
% AM	0%	28%	4%	0%	1%	0%		0%	0%					33%
AM Peak Hour	04:00	11:00	11:00	11:00	11:00	11:00		08:00	03:00					11:00
Volume	1	629	98	6	29	4		1	1					769
PM Volumes	5	6271	935	37	203	5	0	3	1	0	0	0	0	7460
% PM	0%	56%	8%	0%	2%	0%		0%	0%					67%
PM Peak Hour	12:00	12:00	12:00	14:00	12:00	14:00		12:00	19:00					12:00
Volume	3	816	128	8	36	1		1	1					986

Directional Peak Periods All Classes	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
	Volume	%	Volume	%	Volume	%	Volume	%
	1044	↔ 9%	1841	↔ 17%	1667	↔ 15%	6602	↔ 59%

Classification Definitions

1 Motorcycles	4 Buses	7 >=4-Axle Single Units	10 >=6-Axle Single Trailers	13 >=7-Axle Multi-Trailers
2 Passenger Cars	5 2-Axle, 6-Tire Single Units	8 <=4-Axle Single Trailers	11 <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	6 3-Axle Single Units	9 5-Axle Single Trailers	12 6-Axle Multi-Trailers	

DAILY TOTALS			NB	SB	EB			WB			Total				
			0	0							5,550	5,604	11,154		
AM Peak Hour			11:45	11:45	11:45	PM Peak Hour			12:00	16:45	12:15				
AM Pk Volume			503	435	938	PM Pk Volume			519	546	993				
Pk Hr Factor			0.925	0.856	0.892	Pk Hr Factor			0.907	0.892	0.887				
7 - 9 Volume			0	0	629	415	1044	4 - 6 Volume			0	0	722	945	1667
7 - 9 Peak Hour					07:45	07:45	07:45	4 - 6 Peak Hour					16:30	16:45	16:45
7 - 9 Pk Volume			0	0	352	224	576	4 - 6 Pk Volume			0	0	368	546	896
Pk Hr Factor			0.000	0.000	0.846	0.875	0.911	Pk Hr Factor			0.000	0.000	0.868	0.892	0.937

CLASSIFICATION
Virginia Ave W/O Hamilton Ave

City: Hapeville
Project #: GA19_9371_001

[illegible]

CLASSIFICATION
Virginia Ave W/O Hamilton Ave

City: Hapeville
Project #: GA19_9371_001

[illegible]

Totals	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
	9	9355	1380	60	327	11		6	6					11154
% of Totals	0%	84%	12%	1%	3%	0%		0%	0%					100%
AM Volumes	4	3084	445	23	124	6	0	3	3	0	0	0	0	3694
% AM	0%	28%	4%	0%	1%	0%		0%	0%					33%
AM Peak Hour	11:45	11:45	11:45	11:30	10:45	11:00		11:45	02:15					11:45
Volume	3	773	123	7	31	4		2	1					938
PM Volumes	5	6271	935	37	203	5	0	3	1	0	0	0	0	7460
% PM	0%	56%	8%	0%	2%	0%		0%	0%					67%
PM Peak Hour	12:00	12:00	12:15	13:30	12:15	14:15		12:00	18:30					12:15
Volume	3	816	141	8	39	2		1	1					993

Directional Peak Periods	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
All Classes	Volume	%	Volume	%	Volume	%	Volume	%
	1044	9%	1841	17%	1667	15%	6602	59%

Classification Definitions				
1 Motorcycles	4 Buses	7 >=4-Axle Single Units	10 >=6-Axle Single Trailers	13 >=7-Axle Multi-Trailers
2 Passenger Cars	5 2-Axle, 6-Tire Single Units	8 <=4-Axle Single Trailers	11 <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	6 3-Axle Single Units	9 5-Axle Single Trailers	12 6-Axle Multi-Trailers	

CLASSIFICATION

Virginia Ave W/O Hamilton Ave

Day: Wednesday
Date: 5/15/2019

City: Hapeville
Project #: GA19_9371_001

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	107	14	0	7	0	0	0	0	0	0	0	0	128
01:00	0	53	8	0	1	0	0	0	0	0	0	0	0	62
02:00	0	39	5	0	1	0	0	0	1	0	0	0	0	46
03:00	0	39	6	0	0	1	0	0	0	0	0	0	0	46
04:00	0	78	9	3	3	0	0	0	0	0	0	0	0	93
05:00	1	205	32	1	13	0	0	0	0	0	0	0	0	252
06:00	0	263	46	6	13	2	0	0	0	0	0	0	0	330
07:00	0	384	68	4	13	1	0	0	1	0	0	0	0	471
08:00	0	464	79	3	20	3	0	0	0	0	0	0	0	569
09:00	1	362	79	6	16	0	0	0	2	0	0	0	0	466
10:00	0	419	80	2	22	1	0	1	0	0	0	0	0	525
11:00	2	588	114	2	31	0	0	1	0	0	0	0	0	738
12:00 PM	2	830	156	5	29	0	0	1	1	0	0	0	0	1024
13:00	1	713	127	7	34	1	0	2	0	0	0	0	0	885
14:00	0	607	120	7	29	2	0	0	0	0	0	0	0	765
15:00	0	617	118	3	27	2	0	1	0	0	0	0	0	768
16:00	0	658	123	6	28	0	0	0	0	0	0	0	0	815
17:00	1	750	129	3	30	0	0	0	0	0	0	0	0	913
18:00	2	576	86	8	19	0	0	0	0	0	0	0	0	691
19:00	0	434	69	1	11	0	0	0	0	0	0	0	0	515
20:00	0	391	72	0	8	0	0	0	0	0	0	0	0	471
21:00	1	274	47	2	13	0	0	0	0	0	0	0	0	337
22:00	0	234	42	1	11	0	0	0	0	0	0	0	0	288
23:00	0	198	33	0	11	0	0	0	0	0	0	0	0	242
Totals	11	9283	1662	70	390	13		6	5					11440
% of Totals	0%	81%	15%	1%	3%	0%		0%	0%					100%

AM Volumes	4	3001	540	27	140	8	0	2	4	0	0	0	0	3726
% AM	0%	26%	5%	0%	1%	0%		0%	0%					33%
AM Peak Hour	11:00	11:00	11:00	06:00	11:00	08:00		10:00	09:00					11:00
Volume	2	588	114	6	31	3		1	2					738
PM Volumes	7	6282	1122	43	250	5	0	4	1	0	0	0	0	7714
% PM	0%	55%	10%	0%	2%	0%		0%	0%					67%
PM Peak Hour	12:00	12:00	12:00	18:00	13:00	14:00		13:00	12:00					12:00
Volume	2	830	156	8	34	2		2	1					1024

Directional Peak Periods All Classes	AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
	Volume		%	Volume		%	Volume		%	Volume		%
	1040	↔	9%	1909	↔	17%	1728	↔	15%	6763	↔	59%

Classification Definitions

1 Motorcycles	4 Buses	7 >=4-Axle Single Units	10 >=6-Axle Single Trailers	13 >=7-Axle Multi-Trailers
2 Passenger Cars	5 2-Axle, 6-Tire Single Units	8 <=4-Axle Single Trailers	11 <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	6 3-Axle Single Units	9 5-Axle Single Trailers	12 6-Axle Multi-Trailers	

VOLUME

Virginia Ave W/O Hamilton Ave

Day: Wednesday
Date: 5/15/2019

City: Hapeville
Project #: GA19_9371_001

DAILY TOTALS					NB	SB	EB					WB	Total
					0	0						5,646	5,794
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00	0	0	17	21	38		12:00	0	0	105	124	229	
00:15	0	0	9	26	35		12:15	0	0	142	138	280	
00:30	0	0	13	18	31		12:30	0	0	143	120	263	
00:45	0	0	12	51	12	77	12:45	0	0	128	518	124	506
					24	128						252	1024
01:00	0	0	9	9	18		13:00	0	0	115	100	215	
01:15	0	0	6	11	17		13:15	0	0	116	115	231	
01:30	0	0	1	6	7		13:30	0	0	123	95	218	
01:45	0	0	6	22	14	40	13:45	0	0	117	471	104	414
					20	62						221	885
02:00	0	0	7	5	12		14:00	0	0	96	117	213	
02:15	0	0	3	6	9		14:15	0	0	84	99	183	
02:30	0	0	3	7	10		14:30	0	0	105	86	191	
02:45	0	0	10	23	5	23	14:45	0	0	74	359	104	406
					15	46						178	765
03:00	0	0	2	3	5		15:00	0	0	86	112	198	
03:15	0	0	1	9	10		15:15	0	0	91	85	176	
03:30	0	0	7	8	15		15:30	0	0	85	96	181	
03:45	0	0	6	16	10	30	15:45	0	0	105	367	108	401
					16	46						213	768
04:00	0	0	6	5	11		16:00	0	0	88	101	189	
04:15	0	0	7	11	18		16:15	0	0	86	110	196	
04:30	0	0	18	10	28		16:30	0	0	88	118	206	
04:45	0	0	21	52	15	41	16:45	0	0	103	365	121	450
					36	93						224	815
05:00	0	0	27	23	50		17:00	0	0	87	145	232	
05:15	0	0	35	30	65		17:15	0	0	120	134	254	
05:30	0	0	26	35	61		17:30	0	0	91	136	227	
05:45	0	0	35	123	41	129	17:45	0	0	96	394	104	519
					76	252						200	913
06:00	0	0	27	41	68		18:00	0	0	74	111	185	
06:15	0	0	30	36	66		18:15	0	0	79	97	176	
06:30	0	0	60	32	92		18:30	0	0	73	101	174	
06:45	0	0	59	176	45	154	18:45	0	0	77	303	79	388
					104	330						156	691
07:00	0	0	53	41	94		19:00	0	0	66	69	135	
07:15	0	0	74	41	115		19:15	0	0	58	94	152	
07:30	0	0	72	50	122		19:30	0	0	50	60	110	
07:45	0	0	86	285	54	186	19:45	0	0	56	230	62	285
					140	471						118	515
08:00	0	0	70	54	124		20:00	0	0	59	72	131	
08:15	0	0	88	60	148		20:15	0	0	51	55	106	
08:30	0	0	97	54	151		20:30	0	0	65	68	133	
08:45	0	0	85	340	61	229	20:45	0	0	45	220	56	251
					146	569						101	471
09:00	0	0	72	48	120		21:00	0	0	49	57	106	
09:15	0	0	64	51	115		21:15	0	0	35	49	84	
09:30	0	0	66	50	116		21:30	0	0	33	48	81	
09:45	0	0	68	270	47	196	21:45	0	0	27	144	39	193
					115	466						66	337
10:00	0	0	70	55	125		22:00	0	0	39	39	78	
10:15	0	0	74	56	130		22:15	0	0	28	29	57	
10:30	0	0	62	65	127		22:30	0	0	37	51	88	
10:45	0	0	79	285	64	240	22:45	0	0	36	140	29	148
					143	525						65	288
11:00	0	0	76	78	154		23:00	0	0	41	36	77	
11:15	0	0	85	96	181		23:15	0	0	25	32	57	
11:30	0	0	94	111	205		23:30	0	0	28	26	54	
11:45	0	0	121	376	77	362	23:45	0	0	22	116	32	126
					198	738						54	242
TOTALS	2019				1707	3726	TOTALS	3627				4087	7714
SPLIT %	54.2%				45.8%	32.6%	SPLIT %	47.0%				53.0%	67.4%

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						5,646	5,794						11,440
AM Peak Hour	11:45				11:45	11:45	PM Peak Hour	12:15				12:15	16:45	12:00					
AM Pk Volume	511				459	970	PM Pk Volume	528				536	1024						
Pk Hr Factor	0.893				0.832	0.866	Pk Hr Factor	0.923				0.924	0.914						
7 - 9 Volume	0	0	625	415	1040		4 - 6 Volume	0	0	759	969	1728							
7 - 9 Peak Hour	07:45				08:00	08:00	4 - 6 Peak Hour	16:45				16:45	16:45	16:45					
7 - 9 Pk Volume	0	0	341	229	569		4 - 6 Pk Volume	0	0	401	536	937							
Pk Hr Factor	0.000	0.000	0.879	0.939	0.942		Pk Hr Factor	0.000	0.000	0.835	0.924	0.922							

Prepared by National Data & Surveying Services

CLASSIFICATION

Virginia Ave W/O Hamilton Ave

Day: Wednesday

Date: 5/15/2019

City: Hapeville

Project #: GA19_9371_001

Summary

[illegible]

CLASSIFICATION
Virginia Ave W/O Hamilton Ave

City: Hapeville
Project #: GA19_9371_001

[illegible]

Totals	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
	11	9283	1662	70	390	13		6	5					11440
% of Totals	0%	81%	15%	1%	3%	0%		0%	0%					100%
AM Volumes	4	3001	540	27	140	8	0	2	4	0	0	0	0	3726
% AM	0%	26%	5%	0%	1%	0%		0%	0%					33%
AM Peak Hour	10:15	11:45	11:45	06:45	10:30	07:45		11:30	09:00					11:45
Volume	2	780	152	7	33	4		2	2					970
PM Volumes	7	6282	1122	43	250	5	0	4	1	0	0	0	0	7714
% PM	0%	55%	10%	0%	2%	0%		0%	0%					67%
PM Peak Hour	17:30	12:00	12:00	17:45	13:15	13:45		12:45	12:00					12:00
Volume	3	830	156	9	36	3		2	1					1024

Directional Peak Periods All Classes	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
	Volume	%	Volume	%	Volume	%	Volume	%
	1040	9%	1909	17%	1728	15%	6763	59%

Classification Definitions				
1 Motorcycles	4 Buses	7 >=4-Axle Single Units	10 >=6-Axle Single Trailers	13 >=7-Axle Multi-Trailers
2 Passenger Cars	5 2-Axle, 6-Tire Single Units	8 <=4-Axle Single Trailers	11 <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	6 3-Axle Single Units	9 5-Axle Single Trailers	12 6-Axle Multi-Trailers	

CLASSIFICATION

Hamilton Ave N/O Virginia Ave

Day: Tuesday

City: Hapeville

Date: 5/14/2019

Project #: GA19_9371_002

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	2
01:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
07:00	0	9	0	1	0	0	0	0	0	0	0	0	0	10
08:00	0	10	0	0	1	0	0	0	0	0	0	0	0	11
09:00	0	10	0	0	0	0	0	0	0	0	0	0	0	10
10:00	0	12	1	0	0	0	0	0	0	0	0	0	0	13
11:00	0	5	3	0	0	0	0	0	0	0	0	0	0	8
12:00 PM	0	22	6	1	1	0	0	0	0	0	0	0	0	30
13:00	0	21	4	0	0	0	0	0	0	0	0	0	0	25
14:00	0	17	1	0	2	0	0	0	0	0	0	0	0	20
15:00	0	16	2	0	1	0	0	0	0	0	0	0	0	19
16:00	0	14	1	0	0	0	0	0	0	0	0	0	0	15
17:00	0	17	3	0	1	0	0	0	0	0	0	0	0	21
18:00	0	23	2	0	0	0	0	0	0	0	0	0	0	25
19:00	0	7	3	0	0	0	0	0	0	0	0	0	0	10
20:00	0	9	3	0	0	0	0	0	0	0	0	0	0	12
21:00	0	7	1	0	0	0	0	0	0	0	0	0	0	8
22:00	0	4	1	0	0	0	0	0	0	0	0	0	0	5
23:00	0	4	0	0	0	0	0	0	0	0	0	0	0	4
Totals		212	31	2	6									251
% of Totals		84%	12%	1%	2%									100%

AM Volumes	0	51	4	1	1	0	0	0	0	0	0	0	0	57
% AM		20%	2%	0%	0%									23%
AM Peak Hour		10:00	11:00	07:00	08:00									10:00
Volume		12	3	1	1									13
PM Volumes	0	161	27	1	5	0	0	0	0	0	0	0	0	194
% PM		64%	11%	0%	2%									77%
PM Peak Hour		18:00	12:00	12:00	14:00									12:00
Volume		23	6	1	2									30

Directional Peak Periods		AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
All Classes		Volume	%	Volume	%	Volume	%	Volume	%
		21	8%	55	22%	36	14%	139	55%

Classification Definitions

1 Motorcycles

4 Buses

7 >=4-Axle Single Units

10 >=6-Axle Single Trailers

13 >=7-Axle Multi-Trailers

2 Passenger Cars

5 2-Axle, 6-Tire Single Units

8 <=4-Axle Single Trailers

11 <=5-Axle Multi-Trailers

3 2-Axle, 4-Tire Single Units

6 3-Axle Single Units

9 5-Axle Single Trailers

12 6-Axle Multi-Trailers

VOLUME

Hamilton Ave N/O Virginia Ave

Day: Tuesday
Date: 5/14/2019

City: Hapeville
Project #: GA19_9371_002

DAILY TOTALS					NB	SB						EB	WB						Total
					109	142						0	0						251
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL							
00:00	0	0	0	0			12:00	4	3	0	0	7							
00:15	0	1	0	0	1		12:15	6	7	0	0	13							
00:30	0	1	0	0	1		12:30	3	4	0	0	7							
00:45	0	0	2	0	2		12:45	2	15	1	15	30							
01:00	1	0	0	0	1		13:00	5	4	0	0	9							
01:15	0	0	0	0			13:15	2	1	0	0	3							
01:30	0	0	0	0			13:30	3	1	0	0	4							
01:45	0	1	0	0	1		13:45	5	15	4	10	25							
02:00	0	0	0	0			14:00	2	4	0	0	6							
02:15	0	0	0	0			14:15	3	4	0	0	7							
02:30	0	0	0	0			14:30	1	2	0	0	3							
02:45	0	0	0	0			14:45	2	8	2	12	20							
03:00	0	0	0	0			15:00	1	4	0	0	5							
03:15	0	0	0	0			15:15	1	2	0	0	3							
03:30	0	0	0	0			15:30	3	5	0	0	8							
03:45	0	0	0	0			15:45	0	5	3	14	19							
04:00	0	0	0	0			16:00	1	4	0	0	5							
04:15	0	0	0	0			16:15	1	1	0	0	2							
04:30	0	0	0	0			16:30	3	2	0	0	5							
04:45	0	0	0	0			16:45	2	7	1	8	15							
05:00	0	0	0	0			17:00	4	5	0	0	9							
05:15	0	0	0	0			17:15	3	1	0	0	4							
05:30	0	0	0	0			17:30	1	2	0	0	3							
05:45	0	0	0	0			17:45	1	9	4	12	21							
06:00	1	1	0	0	2		18:00	7	3	0	0	10							
06:15	0	0	0	0			18:15	2	1	0	0	3							
06:30	0	0	0	0			18:30	7	1	0	0	8							
06:45	0	1	0	1	2		18:45	1	17	3	8	25							
07:00	1	0	0	0	1		19:00	0	1	0	0	1							
07:15	0	2	0	0	2		19:15	0	4	0	0	4							
07:30	1	2	0	0	3		19:30	0	2	0	0	2							
07:45	2	4	2	6	10		19:45	2	2	1	8	10							
08:00	0	1	0	0	1		20:00	1	2	0	0	3							
08:15	0	5	0	0	5		20:15	2	1	0	0	3							
08:30	1	3	0	0	4		20:30	1	2	0	0	3							
08:45	1	2	0	9	11		20:45	1	5	2	7	12							
09:00	1	1	0	0	2		21:00	1	3	0	0	4							
09:15	1	2	0	0	3		21:15	1	1	0	0	2							
09:30	2	0	0	0	2		21:30	0	2	0	0	2							
09:45	1	5	2	5	10		21:45	0	2	0	6	8							
10:00	0	3	0	0	3		22:00	1	0	0	0	1							
10:15	2	3	0	0	5		22:15	1	1	0	0	2							
10:30	0	1	0	0	1		22:30	1	0	0	0	1							
10:45	2	4	2	9	13		22:45	1	4	0	1	5							
11:00	2	3	0	0	5		23:00	1	2	0	0	3							
11:15	0	2	0	0	2		23:15	0	0	0	0								
11:30	0	0	0	0			23:30	0	1	0	0	1							
11:45	0	2	1	6	8		23:45	0	1	0	3	4							
TOTALS	19	38			57		TOTALS	90	104			194							
SPLIT %	33.3%	66.7%			22.7%		SPLIT %	46.4%	53.6%			77.3%							

DAILY TOTALS					NB	SB						EB	WB						Total
					109	142						0	0						251
AM Peak Hour	11:45	11:45			11:45		PM Peak Hour	17:45	12:15			12:15							
AM Pk Volume	13	15			28		PM Pk Volume	17	16			32							
Pk Hr Factor	0.542	0.536			0.538		Pk Hr Factor	0.607	0.571			0.615							
7 - 9 Volume	6	15	0	0	21		4 - 6 Volume	16	20	0	0	36							
7 - 9 Peak Hour	07:00	07:45			07:45		4 - 6 Peak Hour	16:30	17:00			16:30							
7 - 9 Pk Volume	4	11	0	0	14		4 - 6 Pk Volume	12	12	0	0	21							
Pk Hr Factor	0.500	0.550	0.000	0.000	0.700		Pk Hr Factor	0.750	0.600	0.000	0.000	0.583							

Prepared by National Data & Surveying Services

CLASSIFICATION

Hamilton Ave N/O Virginia Ave

Day: Tuesday

Date: 5/14/2019

City: Hapeville

Project #: GA19_9371_002

Summary

[illegible]

CLASSIFICATION
Hamilton Ave N/O Virginia Ave

City: Hapeville
Project #: GA19_9371_002

[illegible]

CLASSIFICATION

Hamilton Ave N/O Virginia Ave

Day: Tuesday
Date: 5/14/2019

City: Hapeville
Project #: GA19_9371_002

Summary

Totals	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
		212	31	2	6									251
% of Totals		84%	12%	1%	2%									100%

AM Volumes	0	51	4	1	1	0	0	0	0	0	0	0	0	57
% AM		20%	2%	0%	0%									23%
AM Peak Hour		11:45	11:45	06:30	07:45									11:45
Volume		20	6	1	1									28
PM Volumes	0	161	27	1	5	0	0	0	0	0	0	0	0	194
% PM		64%	11%	0%	2%									77%
PM Peak Hour		12:15	12:00	12:00	13:15									12:15
Volume		25	6	1	2									32
Directional Peak Periods		AM 7-9				NOON 12-2				PM 4-6				Off Peak Volumes
All Classes		Volume				Volume				Volume				Volume
		21 ↔ 8%				55 ↔ 22%				36 ↔ 14%				139 ↔ 55%

Classification Definitions

1 Motorcycles	4 Buses	7 >=4-Axle Single Units	10 >=6-Axle Single Trailers	13 >=7-Axle Multi-Trailers
2 Passenger Cars	5 2-Axle, 6-Tire Single Units	8 <=4-Axle Single Trailers	11 <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	6 3-Axle Single Units	9 5-Axle Single Trailers	12 6-Axle Multi-Trailers	

CLASSIFICATION

Hamilton Ave N/O Virginia Ave

Day: Wednesday

Date: 5/15/2019

City: Hapeville

Project #: GA19_9371_002

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	1
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
05:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
06:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
07:00	0	13	1	1	0	0	0	0	0	0	0	0	0	15
08:00	0	19	0	0	0	0	0	0	0	0	0	0	0	19
09:00	0	8	1	0	2	0	0	0	0	0	0	0	0	11
10:00	0	10	2	1	1	0	0	0	0	0	0	0	0	14
11:00	1	24	2	0	3	0	0	0	0	0	0	0	0	30
12:00 PM	0	15	1	2	0	0	1	0	0	0	0	0	0	19
13:00	0	12	1	1	0	0	0	0	0	0	0	0	0	14
14:00	0	6	4	0	1	0	0	0	0	0	0	0	0	11
15:00	0	14	1	0	0	0	0	0	0	0	0	0	0	15
16:00	0	13	3	0	0	0	0	0	0	0	0	0	0	16
17:00	1	12	2	0	0	0	0	0	0	0	0	0	0	15
18:00	0	9	5	0	0	0	0	0	0	0	0	0	0	14
19:00	0	10	0	0	1	0	0	0	0	0	0	0	0	11
20:00	0	11	0	0	0	0	0	0	0	0	0	0	0	11
21:00	0	5	1	0	0	0	0	0	0	0	0	0	0	6
22:00	0	1	3	0	0	0	0	0	0	0	0	0	0	4
23:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Totals	2	190	28	5	8		1							234
% of Totals	1%	81%	12%	2%	3%		0%							100%

AM Volumes	1	81	7	2	6	0	0	0	0	0	0	0	0	97
% AM	0%	35%	3%	1%	3%									41%
AM Peak Hour	11:00	11:00	10:00	07:00	11:00									11:00
Volume	1	24	2	1	3									30
PM Volumes	1	109	21	3	2	0	1	0	0	0	0	0	0	137
% PM	0%	47%	9%	1%	1%		0%							59%
PM Peak Hour	17:00	12:00	18:00	12:00	14:00		12:00							12:00
Volume	1	15	5	2	1		1							19

Directional Peak Periods All Classes	AM 7-9				NOON 12-2				PM 4-6				Off Peak Volumes	
	Volume		%		Volume		%		Volume		%		Volume	%
	34	↔	15%		33	↔	14%		31	↔	13%		136	↔ 58%

Classification Definitions

1 Motorcycles	4 Buses	7 >=4-Axle Single Units	10 >=6-Axle Single Trailers	13 >=7-Axle Multi-Trailers
2 Passenger Cars	5 2-Axle, 6-Tire Single Units	8 <=4-Axle Single Trailers	11 <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	6 3-Axle Single Units	9 5-Axle Single Trailers	12 6-Axle Multi-Trailers	

DAILY TOTALS			NB	SB	EB			WB	Total		
			97	137				0			
AM Peak Hour	11:00	10:15			11:00	PM Peak Hour	12:15	15:45			12:15
AM Pk Volume	17	16			30	PM Pk Volume	13	13			22
Pk Hr Factor	0.607	0.571			0.833	Pk Hr Factor	0.813	0.813			0.688
7 - 9 Volume	8	26	0	0	34	4 - 6 Volume	11	20	0	0	31
7 - 9 Peak Hour	07:00	07:30			08:00	4 - 6 Peak Hour	16:30	16:30			16:30
7 - 9 Pk Volume	4	15	0	0	19	4 - 6 Pk Volume	7	13	0	0	20
Pk Hr Factor	0.333	0.750	0.000	0.000	0.792	Pk Hr Factor	0.583	0.813	0.000	0.000	0.833

Prepared by National Data & Surveying Services

CLASSIFICATION

Hamilton Ave N/O Virginia Ave

Day: Wednesday

Date: 5/15/2019

City: Hapeville

Project #: GA19_9371_002

Summary

[illegible]

CLASSIFICATION
Hamilton Ave N/O Virginia Ave

City: Hapeville
Project #: GA19_9371_002

[illegible]

CLASSIFICATION
Hamilton Ave N/O Virginia Ave

City: Hapeville
Project #: GA19_9371_002

[illegible]

Totals	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
	2	190	28	5	8		1							234
% of Totals	1%	81%	12%	2%	3%		0%							100%

AM Volumes	1	81	7	2	6	0	0	0	0	0	0	0	0	97
% AM	0%	35%	3%	1%	3%									41%
AM Peak Hour	10:30	11:00	10:15	06:45	10:45									11:00
Volume	1	24	3	1	3									30
PM Volumes	1	109	21	3	2	0	1	0	0	0	0	0	0	137
% PM	0%	47%	9%	1%	1%		0%							59%
PM Peak Hour	16:15	12:15	18:00	12:00	13:15		12:00							12:15
Volume	1	18	5	2	1		1							22

Directional Peak Periods All Classes	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
	Volume	%	Volume	%	Volume	%	Volume	%
	34	15%	33	14%	31	13%	136	58%

Classification Definitions				
1 Motorcycles	4 Buses	7 >=4-Axle Single Units	10 >=6-Axle Single Trailers	13 >=7-Axle Multi-Trailers
2 Passenger Cars	5 2-Axle, 6-Tire Single Units	8 <=4-Axle Single Trailers	11 <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	6 3-Axle Single Units	9 5-Axle Single Trailers	12 6-Axle Multi-Trailers	

CLASSIFICATION

Virginia Ave N/O Doug Davis Dr

Day: Tuesday

City: Hapeville

Date: 5/14/2019

Project #: GA19_9371_003

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	48	6	0	1	0	0	0	0	0	0	0	0	55
01:00	1	38	4	0	1	0	0	1	0	0	0	0	0	45
02:00	0	37	4	0	0	0	0	0	0	0	0	0	0	41
03:00	0	18	2	0	0	0	0	0	0	0	0	0	0	20
04:00	0	34	4	0	1	1	0	0	0	0	0	0	0	40
05:00	0	71	6	1	1	0	0	0	1	0	0	0	0	80
06:00	0	118	19	1	2	0	0	0	0	0	0	0	0	140
07:00	0	174	26	0	3	0	0	0	0	0	0	0	0	203
08:00	0	253	33	4	2	0	0	0	0	0	0	0	0	292
09:00	0	191	26	5	5	0	0	0	0	0	0	0	0	227
10:00	0	181	41	0	10	0	1	0	0	0	0	0	0	233
11:00	0	317	55	2	10	1	0	3	0	0	0	0	0	388
12:00 PM	2	443	78	2	19	4	1	1	0	0	0	0	0	550
13:00	1	380	58	1	14	1	1	1	0	0	0	0	0	457
14:00	0	294	50	0	1	0	0	0	1	0	0	0	0	346
15:00	2	333	43	4	8	1	0	0	0	0	0	0	0	391
16:00	1	305	44	1	2	0	0	0	0	0	0	0	0	353
17:00	3	342	52	0	3	0	0	0	0	0	0	0	0	400
18:00	1	280	36	2	4	0	0	0	0	0	0	0	0	323
19:00	0	262	25	0	5	0	0	0	0	0	0	0	0	292
20:00	0	197	19	0	2	0	0	0	0	0	0	0	0	218
21:00	0	156	20	1	2	0	0	0	0	0	0	0	0	179
22:00	0	126	9	0	0	0	0	0	1	0	0	0	0	136
23:00	0	87	10	0	4	0	0	0	0	0	0	0	0	101
Totals	11	4685	670	24	100	8	3	6	3					5510
% of Totals	0%	85%	12%	0%	2%	0%	0%	0%	0%					100%

AM Volumes	1	1480	226	13	36	2	1	4	1	0	0	0	0	1764
% AM	0%	27%	4%	0%	1%	0%	0%	0%	0%					32%
AM Peak Hour	01:00	11:00	11:00	09:00	10:00	04:00	10:00	11:00	05:00					11:00
Volume	1	317	55	5	10	1	1	3	1					388
PM Volumes	10	3205	444	11	64	6	2	2	2	0	0	0	0	3746
% PM	0%	58%	8%	0%	1%	0%	0%	0%	0%					68%
PM Peak Hour	17:00	12:00	12:00	15:00	12:00	12:00	12:00	12:00	14:00					12:00
Volume	3	443	78	4	19	4	1	1	1					550

Directional Peak Periods All Classes	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
	Volume	%	Volume	%	Volume	%	Volume	%
	495	9%	1007	18%	753	14%	3255	59%

Classification Definitions

1 Motorcycles	4 Buses	7 >=4-Axle Single Units	10 >=6-Axle Single Trailers	13 >=7-Axle Multi-Trailers
2 Passenger Cars	5 2-Axle, 6-Tire Single Units	8 <=4-Axle Single Trailers	11 <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	6 3-Axle Single Units	9 5-Axle Single Trailers	12 6-Axle Multi-Trailers	

VOLUME

Virginia Ave N/O Doug Davis Dr

Day: Tuesday
Date: 5/14/2019

City: Hapeville
Project #: GA19_9371_003

DAILY TOTALS						NB	SB							EB	WB	Total	
						2,694	2,816							0	0	5,510	
AM Period	NB		SB		EB	WB	TOTAL	PM Period	NB		SB		EB	WB	TOTAL		
00:00	6		4		0	0	10	12:00	67		66		0	0	133		
00:15	6		16		0	0	22	12:15	50		96		0	0	146		
00:30	9		4		0	0	13	12:30	54		57		0	0	111		
00:45	4	25	6	30	0	0	10 55	12:45	66	237	94	313	0	0	160 550		
01:00	3		3		0	0	6	13:00	69		67		0	0	136		
01:15	7		8		0	0	15	13:15	56		65		0	0	121		
01:30	5		11		0	0	16	13:30	59		47		0	0	106		
01:45	4	19	4	26	0	0	8 45	13:45	42	226	52	231	0	0	94 457		
02:00	5		2		0	0	7	14:00	47		34		0	0	81		
02:15	7		9		0	0	16	14:15	46		51		0	0	97		
02:30	6		5		0	0	11	14:30	47		43		0	0	90		
02:45	5	23	2	18	0	0	7 41	14:45	36	176	42	170	0	0	78 346		
03:00	3		3		0	0	6	15:00	51		54		0	0	105		
03:15	2		3		0	0	5	15:15	50		43		0	0	93		
03:30	2		2		0	0	4	15:30	58		43		0	0	101		
03:45	5	12	0	8	0	0	5 20	15:45	43	202	49	189	0	0	92 391		
04:00	3		5		0	0	8	16:00	45		38		0	0	83		
04:15	2		3		0	0	5	16:15	52		43		0	0	95		
04:30	5		8		0	0	13	16:30	59		36		0	0	95		
04:45	4	14	10	26	0	0	14 40	16:45	43	199	37	154	0	0	80 353		
05:00	6		7		0	0	13	17:00	55		50		0	0	105		
05:15	4		11		0	0	15	17:15	61		49		0	0	110		
05:30	9		13		0	0	22	17:30	53		42		0	0	95		
05:45	12	31	18	49	0	0	30 80	17:45	48	217	42	183	0	0	90 400		
06:00	10		17		0	0	27	18:00	42		38		0	0	80		
06:15	12		5		0	0	17	18:15	39		45		0	0	84		
06:30	24		29		0	0	53	18:30	44		38		0	0	82		
06:45	18	64	25	76	0	0	43 140	18:45	33	158	44	165	0	0	77 323		
07:00	22		25		0	0	47	19:00	49		47		0	0	96		
07:15	11		26		0	0	37	19:15	55		27		0	0	82		
07:30	17		34		0	0	51	19:30	31		35		0	0	66		
07:45	25	75	43	128	0	0	68 203	19:45	21	156	27	136	0	0	48 292		
08:00	37		33		0	0	70	20:00	42		35		0	0	77		
08:15	44		24		0	0	68	20:15	23		17		0	0	40		
08:30	22		46		0	0	68	20:30	27		26		0	0	53		
08:45	26	129	60	163	0	0	86 292	20:45	16	108	32	110	0	0	48 218		
09:00	24		38		0	0	62	21:00	25		20		0	0	45		
09:15	29		25		0	0	54	21:15	26		24		0	0	50		
09:30	20		37		0	0	57	21:30	28		22		0	0	50		
09:45	22	95	32	132	0	0	54 227	21:45	22	101	12	78	0	0	34 179		
10:00	21		31		0	0	52	22:00	18		21		0	0	39		
10:15	28		20		0	0	48	22:15	14		18		0	0	32		
10:30	21		44		0	0	65	22:30	17		7		0	0	24		
10:45	29	99	39	134	0	0	68 233	22:45	20	69	21	67	0	0	41 136		
11:00	40		38		0	0	78	23:00	14		15		0	0	29		
11:15	36		52		0	0	88	23:15	15		13		0	0	28		
11:30	63		54		0	0	117	23:30	16		8		0	0	24		
11:45	61	200	44	188	0	0	105 388	23:45	14	59	6	42	0	0	20 101		
TOTALS	786		978				1764	TOTALS	1908		1838				3746		
SPLIT %	44.6%		55.4%				32.0%	SPLIT %	50.9%		49.1%				68.0%		

DAILY TOTALS			NB	SB	EB			WB	Total		
			2,694	2,816				0			
AM Peak Hour	11:30	11:45	11:30			PM Peak Hour	12:45	12:15	12:15		
AM Pk Volume	241	263	501			PM Pk Volume	250	314	553		
Pk Hr Factor	0.899	0.685	0.858			Pk Hr Factor	0.906	0.818	0.864		
7 - 9 Volume	204	291	0	0	495	4 - 6 Volume	416	337	0	0	753
7 - 9 Peak Hour	08:00	08:00	08:00			4 - 6 Peak Hour	16:30	17:00	17:00		
7 - 9 Pk Volume	129	163	0	0	292	4 - 6 Pk Volume	218	183	0	0	400
Pk Hr Factor	0.733	0.679	0.000	0.000	0.849	Pk Hr Factor	0.893	0.915	0.000	0.000	0.909

CLASSIFICATION
Virginia Ave N/O Doug Davis Dr

City: Hapeville
Project #: GA19_9371_003

[illegible]

Totals	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
	11	4685	670	24	100	8	3	6	3					5510
% of Totals	0%	85%	12%	0%	2%	0%	0%	0%	0%					100%

AM Volumes	1	1480	226	13	36	2	1	4	1	0	0	0	0	1764
% AM	0%	27%	4%	0%	1%	0%	0%	0%	0%					32%
AM Peak Hour	00:30	11:30	11:45	08:45	11:30	11:45	09:45	10:30	04:45					11:30
Volume	1	418	69	7	14	2	1	3	1					501
PM Volumes	10	3205	444	11	64	6	2	2	2	0	0	0	0	3746
% PM	0%	58%	8%	0%	1%	0%	0%	0%	0%					68%
PM Peak Hour	16:45	12:15	12:15	15:00	12:00	12:00	12:30	12:30	13:45					12:15
Volume	4	447	82	4	19	4	2	2	1					553

Directional Peak Periods		AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
All Classes		Volume	%	Volume	%	Volume	%	Volume	%
		495	9%	1007	18%	753	14%	3255	59%

Classification Definitions				
1 Motorcycles	4 Buses	7 >=4-Axle Single Units	10 >=6-Axle Single Trailers	13 >=7-Axle Multi-Trailers
2 Passenger Cars	5 2-Axle, 6-Tire Single Units	8 <=4-Axle Single Trailers	11 <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	6 3-Axle Single Units	9 5-Axle Single Trailers	12 6-Axle Multi-Trailers	

CLASSIFICATION

Virginia Ave N/O Doug Davis Dr

Day: Wednesday

City: Hapeville

Date: 5/15/2019

Project #: GA19_9371_003

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	48	4	1	2	0	0	0	0	0	0	0	0	55
01:00	0	35	6	0	1	0	0	0	0	0	0	0	0	42
02:00	0	25	4	0	3	0	0	0	0	0	0	0	0	32
03:00	0	25	4	0	0	1	0	1	0	0	0	0	0	31
04:00	0	27	4	0	3	1	0	0	0	0	0	0	0	35
05:00	0	73	14	0	4	0	0	1	0	0	0	0	0	92
06:00	1	135	15	0	4	0	0	1	0	0	0	0	0	156
07:00	0	172	27	3	4	0	0	0	0	0	0	0	0	206
08:00	0	243	38	2	5	0	0	1	0	0	0	0	0	289
09:00	1	195	30	1	3	1	0	0	2	0	0	0	0	233
10:00	0	217	36	0	9	0	0	0	1	0	0	0	0	263
11:00	1	297	73	1	15	1	0	1	0	0	0	0	0	389
12:00 PM	1	443	102	1	12	3	0	2	0	0	0	0	0	564
13:00	0	350	60	0	9	1	0	0	0	0	0	0	0	420
14:00	0	319	46	1	12	1	0	0	1	0	0	0	0	380
15:00	4	277	49	1	3	0	0	0	0	0	0	0	0	334
16:00	1	309	53	5	6	0	0	0	0	0	0	0	0	374
17:00	1	362	57	0	8	0	0	0	0	0	0	0	0	428
18:00	5	301	43	0	4	0	0	0	0	0	0	0	0	353
19:00	0	214	27	0	7	0	0	0	0	0	0	0	0	248
20:00	0	223	33	0	4	0	0	0	0	0	0	0	0	260
21:00	1	137	12	0	3	0	0	0	0	0	0	0	0	153
22:00	0	134	14	0	1	0	0	0	0	0	0	0	0	149
23:00	0	115	8	0	2	0	0	0	1	0	0	0	0	126
Totals	16	4676	759	16	124	9		7	5					5612
% of Totals	0%	83%	14%	0%	2%	0%		0%	0%					100%

AM Volumes	3	1492	255	8	53	4	0	5	3	0	0	0	0	1823
% AM	0%	27%	5%	0%	1%	0%		0%	0%					32%
AM Peak Hour	06:00	11:00	11:00	07:00	11:00	03:00		03:00	09:00					11:00
Volume	1	297	73	3	15	1		1	2					389
PM Volumes	13	3184	504	8	71	5	0	2	2	0	0	0	0	3789
% PM	0%	57%	9%	0%	1%	0%		0%	0%					68%
PM Peak Hour	18:00	12:00	12:00	16:00	12:00	12:00		12:00	14:00					12:00
Volume	5	443	102	5	12	3		2	1					564

Directional Peak Periods All Classes	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
	Volume	%	Volume	%	Volume	%	Volume	%
	495	9%	984	18%	802	14%	3331	59%

Classification Definitions

1 Motorcycles
2 Passenger Cars
3 2-Axle, 4-Tire Single Units

4 Buses
5 2-Axle, 6-Tire Single Units
6 3-Axle Single Units

7 >=4-Axle Single Units
8 <=4-Axle Single Trailers
9 5-Axle Single Trailers

10 >=6-Axle Single Trailers
11 <=5-Axle Multi-Trailers
12 6-Axle Multi-Trailers

13 >=7-Axle Multi-Trailers

VOLUME

Virginia Ave N/O Doug Davis Dr

Day: Wednesday
Date: 5/15/2019

City: Hapeville
Project #: GA19_9371_003

DAILY TOTALS						NB	SB	EB						WB	Total		
						2,743	2,869							0	0	5,612	
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL						
00:00	9	3	0	0	12	12:00	76	68	0	0	144						
00:15	12	11	0	0	23	12:15	73	71	0	0	144						
00:30	4	7	0	0	11	12:30	61	80	0	0	141						
00:45	4	29	5	26	0	0	9	55	12:45	65	275	70	289	0	0	135	564
01:00	8	6	0	0	14	13:00	57	57	0	0	114						
01:15	4	5	0	0	9	13:15	56	54	0	0	110						
01:30	3	4	0	0	7	13:30	48	54	0	0	102						
01:45	1	16	11	26	0	0	12	42	13:45	40	201	54	219	0	0	94	420
02:00	4	5	0	0	9	14:00	53	50	0	0	103						
02:15	4	1	0	0	5	14:15	49	48	0	0	97						
02:30	5	3	0	0	8	14:30	41	46	0	0	87						
02:45	9	22	1	10	0	0	10	32	14:45	49	192	44	188	0	0	93	380
03:00	3	5	0	0	8	15:00	35	38	0	0	73						
03:15	3	6	0	0	9	15:15	52	42	0	0	94						
03:30	4	4	0	0	8	15:30	39	40	0	0	79						
03:45	1	11	5	20	0	0	6	31	15:45	45	171	43	163	0	0	88	334
04:00	2	4	0	0	6	16:00	42	35	0	0	77						
04:15	3	2	0	0	5	16:15	57	42	0	0	99						
04:30	3	7	0	0	10	16:30	63	37	0	0	100						
04:45	4	12	10	23	0	0	14	35	16:45	48	210	50	164	0	0	98	374
05:00	7	5	0	0	12	17:00	77	45	0	0	122						
05:15	9	11	0	0	20	17:15	63	48	0	0	111						
05:30	8	23	0	0	31	17:30	58	55	0	0	113						
05:45	7	31	22	61	0	0	29	92	17:45	48	246	34	182	0	0	82	428
06:00	18	11	0	0	29	18:00	60	54	0	0	114						
06:15	15	18	0	0	33	18:15	40	44	0	0	84						
06:30	21	24	0	0	45	18:30	42	43	0	0	85						
06:45	28	82	21	74	0	0	49	156	18:45	43	185	27	168	0	0	70	353
07:00	17	20	0	0	37	19:00	32	38	0	0	70						
07:15	20	29	0	0	49	19:15	28	32	0	0	60						
07:30	13	40	0	0	53	19:30	35	32	0	0	67						
07:45	28	78	39	128	0	0	67	206	19:45	22	117	29	131	0	0	51	248
08:00	27	47	0	0	74	20:00	33	42	0	0	75						
08:15	36	29	0	0	65	20:15	40	27	0	0	67						
08:30	22	46	0	0	68	20:30	33	27	0	0	60						
08:45	25	110	57	179	0	0	82	289	20:45	26	132	32	128	0	0	58	260
09:00	21	36	0	0	57	21:00	24	22	0	0	46						
09:15	24	27	0	0	51	21:15	16	17	0	0	33						
09:30	21	38	0	0	59	21:30	18	18	0	0	36						
09:45	21	87	45	146	0	0	66	233	21:45	16	74	22	79	0	0	38	153
10:00	32	29	0	0	61	22:00	22	14	0	0	36						
10:15	26	32	0	0	58	22:15	22	17	0	0	39						
10:30	34	41	0	0	75	22:30	16	22	0	0	38						
10:45	27	119	42	144	0	0	69	263	22:45	21	81	15	68	0	0	36	149
11:00	38	47	0	0	85	23:00	29	10	0	0	39						
11:15	32	45	0	0	77	23:15	18	11	0	0	29						
11:30	52	65	0	0	117	23:30	19	12	0	0	31						
11:45	59	181	51	208	0	0	110	389	23:45	15	81	12	45	0	0	27	126
TOTALS	778	1045				1823	TOTALS	1965	1824				3789				
SPLIT %	42.7%	57.3%				32.5%	SPLIT %	51.9%	48.1%				67.5%				

DAILY TOTALS				NB	SB	EB				WB	Total			
				2,743	2,869					0				
AM Peak Hour	11:45	11:45			11:45	PM Peak Hour	12:00	12:00			12:00			
AM Pk Volume	269	270			539	PM Pk Volume	275	289			564			
Pk Hr Factor	0.885	0.844			0.936	Pk Hr Factor	0.905	0.903			0.979			
7 - 9 Volume	188	307	0	0	495	4 - 6 Volume	456	346	0	0	802			
7 - 9 Peak Hour	07:45	08:00			08:00	4 - 6 Peak Hour	16:30	16:45			16:45			
7 - 9 Pk Volume	113	179	0	0	289	4 - 6 Pk Volume	251	198	0	0	444			
Pk Hr Factor	0.785	0.785	0.000	0.000	0.881	Pk Hr Factor	0.815	0.900	0.000	0.000	0.910			

Prepared by National Data & Surveying Services

CLASSIFICATION

Virginia Ave N/O Doug Davis Dr

Day: Wednesday

Date: 5/15/2019

City: Hapeville

Project #: GA19_9371_003

Summary

[illegible]

CLASSIFICATION

Virginia Ave N/O Doug Davis Dr

Day: Wednesday

Date: 5/15/2019

City: Hapeville

Project #: GA19_9371_003

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
16:30	0	82	15	3	0	0	0	0	0	0	0	0	0	100
16:45	1	82	12	1	2	0	0	0	0	0	0	0	0	98
17:00	0	103	16	0	3	0	0	0	0	0	0	0	0	122
17:15	0	92	16	0	3	0	0	0	0	0	0	0	0	111
17:30	1	97	14	0	1	0	0	0	0	0	0	0	0	113
17:45	0	70	11	0	1	0	0	0	0	0	0	0	0	82
18:00	2	91	19	0	2	0	0	0	0	0	0	0	0	114
18:15	1	73	10	0	0	0	0	0	0	0	0	0	0	84
18:30	0	76	8	0	1	0	0	0	0	0	0	0	0	85
18:45	2	61	6	0	1	0	0	0	0	0	0	0	0	70
19:00	0	55	11	0	4	0	0	0	0	0	0	0	0	70
19:15	0	55	4	0	1	0	0	0	0	0	0	0	0	60
19:30	0	60	7	0	0	0	0	0	0	0	0	0	0	67
19:45	0	44	5	0	2	0	0	0	0	0	0	0	0	51
20:00	0	63	12	0	0	0	0	0	0	0	0	0	0	75
20:15	0	59	8	0	0	0	0	0	0	0	0	0	0	67
20:30	0	51	8	0	1	0	0	0	0	0	0	0	0	60
20:45	0	50	5	0	3	0	0	0	0	0	0	0	0	58
21:00	0	40	4	0	2	0	0	0	0	0	0	0	0	46
21:15	0	32	1	0	0	0	0	0	0	0	0	0	0	33
21:30	1	30	5	0	0	0	0	0	0	0	0	0	0	36
21:45	0	35	2	0	1	0	0	0	0	0	0	0	0	38
22:00	0	32	4	0	0	0	0	0	0	0	0	0	0	36
22:15	0	36	3	0	0	0	0	0	0	0	0	0	0	39
22:30	0	34	3	0	1	0	0	0	0	0	0	0	0	38
23:00	0	33	5	0	1	0	0	0	0	0	0	0	0	39
23:15	0	29	0	0	0	0	0	0	0	0	0	0	0	29
23:30	0	28	2	0	1	0	0	0	0	0	0	0	0	31
23:45	0	25	1	0	0	0	0	0	1	0	0	0	0	27

Totals	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
	16	4676	759	16	124	9		7	5					5612
% of Totals	0%	83%	14%	0%	2%	0%		0%	0%					100%

AM Volumes	3	1492	255	8	53	4	0	5	3	0	0	0	0	1823
% AM	0%	27%	5%	0%	1%	0%		0%	0%					32%
AM Peak Hour	11:30	11:45	11:45	07:45	11:30	11:30		11:30	09:15					11:45
Volume	2	413	106	5	18	2		3	3					539
PM Volumes	13	3184	504	8	71	5	0	2	2	0	0	0	0	3789
% PM	0%	57%	9%	0%	1%	0%		0%	0%					68%
PM Peak Hour	18:00	12:00	12:00	15:45	12:00	12:00		12:00	13:45					12:00
Volume	5	443	102	5	12	3		2	1					564

Directional Peak Periods	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
All Classes	Volume	%	Volume	%	Volume	%	Volume	%
	495	9%	984	18%	802	14%	3331	59%

Classification Definitions				
1 Motorcycles	4 Buses	7 >=4-Axle Single Units	10 >=6-Axle Single Trailers	13 >=7-Axle Multi-Trailers
2 Passenger Cars	5 2-Axle, 6-Tire Single Units	8 <=4-Axle Single Trailers	11 <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	6 3-Axle Single Units	9 5-Axle Single Trailers	12 6-Axle Multi-Trailers	

CLASSIFICATION

Doug Davis Dr E/O Virginia Ave /Clay Pl

Day: Tuesday

City: Hapeville

Date: 5/14/2019

Project #: GA19_9371_004

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	85	12	1	1	0	0	0	0	0	0	0	0	99
01:00	0	47	8	0	0	0	0	0	0	0	0	0	0	55
02:00	0	35	3	1	0	0	0	0	0	0	0	0	0	39
03:00	0	31	3	0	0	0	0	0	0	0	0	0	0	34
04:00	0	77	13	1	0	0	0	0	0	0	0	0	0	91
05:00	0	194	30	0	5	0	0	0	0	0	0	0	0	229
06:00	1	255	38	3	10	0	0	0	0	0	0	0	0	307
07:00	1	370	50	4	9	0	0	0	0	0	0	0	0	434
08:00	0	354	62	1	13	0	1	0	0	0	0	0	0	431
09:00	0	303	50	1	17	0	0	0	0	0	0	0	0	371
10:00	0	274	38	3	11	0	0	0	0	0	0	0	0	326
11:00	1	471	81	4	18	1	0	1	0	0	0	0	0	577
12:00 PM	0	606	87	5	15	0	0	0	0	0	0	0	0	713
13:00	0	528	83	4	17	2	0	0	0	0	0	0	0	634
14:00	0	450	57	7	13	2	0	0	0	0	0	0	0	529
15:00	0	446	66	8	12	0	0	0	0	0	0	0	0	532
16:00	0	535	68	4	8	1	0	0	0	0	0	0	0	616
17:00	0	610	64	4	14	0	0	0	0	0	0	0	0	692
18:00	0	381	51	5	14	0	0	0	0	0	0	0	0	451
19:00	0	312	37	4	6	0	0	0	0	0	0	0	0	359
20:00	1	241	29	0	5	0	0	0	0	0	0	0	0	276
21:00	0	194	27	2	3	0	0	0	0	0	0	0	0	226
22:00	0	171	22	2	1	0	0	0	0	0	0	0	0	196
23:00	0	171	20	1	2	0	0	0	0	0	0	0	0	194
Totals	4	7141	999	65	194	6	1	1						8411
% of Totals	0%	85%	12%	1%	2%	0%	0%	0%						100%

AM Volumes	3	2496	388	19	84	1	1	1	0	0	0	0	0	2993
% AM	0%	30%	5%	0%	1%	0%	0%	0%						36%
AM Peak Hour	06:00	11:00	11:00	07:00	11:00	11:00	08:00	11:00						11:00
Volume	1	471	81	4	18	1	1	1						577
PM Volumes	1	4645	611	46	110	5	0	0	0	0	0	0	0	5418
% PM	0%	55%	7%	1%	1%	0%								64%
PM Peak Hour	20:00	17:00	12:00	15:00	13:00	13:00								12:00
Volume	1	610	87	8	17	2								713

Directional Peak Periods		AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Classes		Volume		%	Volume		%	Volume		%	Volume		%
		865	↔	10%	1347	↔	16%	1308	↔	16%	4891	↔	58%

Classification Definitions

1 Motorcycles	4 Buses	7 >=4-Axle Single Units	10 >=6-Axle Single Trailers	13 >=7-Axle Multi-Trailers
2 Passenger Cars	5 2-Axle, 6-Tire Single Units	8 <=4-Axle Single Trailers	11 <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	6 3-Axle Single Units	9 5-Axle Single Trailers	12 6-Axle Multi-Trailers	

VOLUME

Doug Davis Dr E/O Virginia Ave /Clay Pl

Day: Tuesday
Date: 5/14/2019

City: Hapeville
Project #: GA19_9371_004

DAILY TOTALS					NB	SB	EB					WB	Total	
					0	0	4,202					4,209	8,411	
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL		
00:00	0	0	6	22	28		12:00	0	0	81	92	173		
00:15	0	0	14	14	28		12:15	0	0	101	72	173		
00:30	0	0	11	16	27		12:30	0	0	78	87	165		
00:45	0	0	9	40	7	59	12:45	0	0	120	380	82	333	
01:00	0	0	5	9	14		13:00	0	0	108	83	191		
01:15	0	0	4	2	6		13:15	0	0	97	83	180		
01:30	0	0	9	8	17		13:30	0	0	82	56	138		
01:45	0	0	8	26	10	29	13:45	0	0	71	358	54	276	
02:00	0	0	7	8	15		14:00	0	0	64	68	132		
02:15	0	0	10	6	16		14:15	0	0	66	61	127		
02:30	0	0	2	3	5		14:30	0	0	69	66	135		
02:45	0	0	2	21	1	18	14:45	0	0	62	261	73	268	
03:00	0	0	3	6	9		15:00	0	0	57	73	130		
03:15	0	0	0	8	8		15:15	0	0	70	62	132		
03:30	0	0	3	3	6		15:30	0	0	50	91	141		
03:45	0	0	4	10	7	24	15:45	0	0	53	230	76	302	
04:00	0	0	7	2	9		16:00	0	0	64	88	152		
04:15	0	0	13	12	25		16:15	0	0	53	99	152		
04:30	0	0	13	8	21		16:30	0	0	75	92	167		
04:45	0	0	19	52	17	39	16:45	0	0	50	242	95	374	
05:00	0	0	24	12	36		17:00	0	0	74	132	206		
05:15	0	0	36	27	63		17:15	0	0	68	124	192		
05:30	0	0	42	24	66		17:30	0	0	57	111	168		
05:45	0	0	36	138	28	91	17:45	0	0	55	254	71	438	
06:00	0	0	32	35	67		18:00	0	0	50	61	111		
06:15	0	0	32	44	76		18:15	0	0	53	77	130		
06:30	0	0	46	32	78		18:30	0	0	50	57	107		
06:45	0	0	49	159	37	148	18:45	0	0	38	191	65	260	
07:00	0	0	59	41	100		19:00	0	0	47	71	118		
07:15	0	0	71	26	97		19:15	0	0	42	61	103		
07:30	0	0	71	38	109		19:30	0	0	30	48	78		
07:45	0	0	75	276	53	158	19:45	0	0	23	142	37	217	
08:00	0	0	58	29	87		20:00	0	0	44	44	88		
08:15	0	0	65	43	108		20:15	0	0	20	26	46		
08:30	0	0	81	42	123		20:30	0	0	38	39	77		
08:45	0	0	78	282	35	149	20:45	0	0	39	141	26	135	
09:00	0	0	64	36	100		21:00	0	0	35	25	60		
09:15	0	0	46	43	89		21:15	0	0	22	35	57		
09:30	0	0	64	28	92		21:30	0	0	23	35	58		
09:45	0	0	54	228	36	143	21:45	0	0	33	113	18	113	
10:00	0	0	48	32	80		22:00	0	0	25	25	50		
10:15	0	0	46	32	78		22:15	0	0	17	24	41		
10:30	0	0	44	22	66		22:30	0	0	17	29	46		
10:45	0	0	66	204	36	122	22:45	0	0	31	90	28	106	
11:00	0	0	46	74	120		23:00	0	0	20	38	58		
11:15	0	0	77	59	136		23:15	0	0	28	35	63		
11:30	0	0	75	72	147		23:30	0	0	17	25	42		
11:45	0	0	86	284	88	293	23:45	0	0	15	80	16	114	
TOTALS					1720	1273	TOTALS					2482	2936	5418
SPLIT %					57.5%	42.5%	SPLIT %					45.8%	54.2%	64.4%

DAILY TOTALS				NB	SB	EB				WB				Total	
				0	0									4,202	4,209
AM Peak Hour				11:45	11:45	11:45	PM Peak Hour				12:15	16:45	12:30		
AM Pk Volume				346	339	685	PM Pk Volume				407	462	738		
Pk Hr Factor				0.856	0.921	0.984	Pk Hr Factor				0.848	0.875	0.913		
7 - 9 Volume				0	0	558	307	865	4 - 6 Volume		0	0	496	812	1308
7 - 9 Peak Hour				08:00		07:45		07:45		4 - 6 Peak Hour		16:30		16:45	16:45
7 - 9 Pk Volume				0	0	282	167	446	4 - 6 Pk Volume		0	0	267	462	711
Pk Hr Factor				0.000	0.000	0.870	0.788	0.871	Pk Hr Factor		0.000	0.000	0.890	0.875	0.863

CLASSIFICATION

Doug Davis Dr E/O Virginia Ave /Clay Pl

Day: Tuesday

Date: 5/14/2019

City: Hapeville

Project #: GA19_9371_004

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	22	5	0	1	0	0	0	0	0	0	0	0	28
00:15	0	23	4	1	0	0	0	0	0	0	0	0	0	28
00:30	0	25	2	0	0	0	0	0	0	0	0	0	0	27
00:45	0	15	1	0	0	0	0	0	0	0	0	0	0	16
01:00	0	12	2	0	0	0	0	0	0	0	0	0	0	14
01:15	0	6	0	0	0	0	0	0	0	0	0	0	0	6
01:30	0	14	3	0	0	0	0	0	0	0	0	0	0	17
01:45	0	15	3	0	0	0	0	0	0	0	0	0	0	18
02:00	0	13	2	0	0	0	0	0	0	0	0	0	0	15
02:15	0	14	1	1	0	0	0	0	0	0	0	0	0	16
02:30	0	5	0	0	0	0	0	0	0	0	0	0	0	5
02:45	0	3	0	0	0	0	0	0	0	0	0	0	0	3
03:00	0	8	1	0	0	0	0	0	0	0	0	0	0	9
03:15	0	7	1	0	0	0	0	0	0	0	0	0	0	8
03:30	0	6	0	0	0	0	0	0	0	0	0	0	0	6
03:45	0	10	1	0	0	0	0	0	0	0	0	0	0	11
04:00	0	6	2	1	0	0	0	0	0	0	0	0	0	9
04:15	0	22	3	0	0	0	0	0	0	0	0	0	0	25
04:30	0	18	3	0	0	0	0	0	0	0	0	0	0	21
04:45	0	31	5	0	0	0	0	0	0	0	0	0	0	36
05:00	0	32	4	0	0	0	0	0	0	0	0	0	0	36
05:15	0	53	7	0	3	0	0	0	0	0	0	0	0	63
05:30	0	53	12	0	1	0	0	0	0	0	0	0	0	66
05:45	0	56	7	0	1	0	0	0	0	0	0	0	0	64
06:00	0	55	10	1	1	0	0	0	0	0	0	0	0	67
06:15	1	66	8	0	1	0	0	0	0	0	0	0	0	76
06:30	0	64	9	1	4	0	0	0	0	0	0	0	0	78
06:45	0	70	11	1	4	0	0	0	0	0	0	0	0	86
07:00	0	88	11	0	1	0	0	0	0	0	0	0	0	100
07:15	1	82	10	2	2	0	0	0	0	0	0	0	0	97
07:30	0	89	14	2	4	0	0	0	0	0	0	0	0	109
07:45	0	111	15	0	2	0	0	0	0	0	0	0	0	128
08:00	0	73	12	0	1	0	1	0	0	0	0	0	0	87

CLASSIFICATION
Doug Davis Dr E/O Virginia Ave /Clay Pl

City: Hapeville
Project #: GA19_9371_004

[illegible]

CLASSIFICATION
Doug Davis Dr E/O Virginia Ave /Clay Pl

City: Hapeville
Project #: GA19_9371_004

[illegible]

Totals	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
	4	7141	999	65	194	6	1	1						8411
% of Totals	0%	85%	12%	1%	2%	0%	0%	0%						100%

AM Volumes	3	2496	388	19	84	1	1	1	0	0	0	0	0	2993
% AM	0%	30%	5%	0%	1%	0%	0%	0%						36%
AM Peak Hour	05:30	11:45	11:30	11:30	10:45	10:30	07:15	10:15						11:45
Volume	1	586	86	6	19	1	1	1						685
PM Volumes	1	4645	611	46	110	5	0	0	0	0	0	0	0	5418
% PM	0%	55%	7%	1%	1%	0%								64%
PM Peak Hour	20:00	16:45	12:45	14:30	12:45	12:45								12:30
Volume	1	627	94	11	20	2								738

Directional Peak Periods	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
All Classes	Volume	%	Volume	%	Volume	%	Volume	%
	865	10%	1347	16%	1308	16%	4891	58%

Classification Definitions				
1 Motorcycles	4 Buses	7 >=4-Axle Single Units	10 >=6-Axle Single Trailers	13 >=7-Axle Multi-Trailers
2 Passenger Cars	5 2-Axle, 6-Tire Single Units	8 <=4-Axle Single Trailers	11 <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	6 3-Axle Single Units	9 5-Axle Single Trailers	12 6-Axle Multi-Trailers	

CLASSIFICATION

Doug Davis Dr E/O Virginia Ave /Clay Pl

Day: Wednesday

City: Hapeville

Date: 5/15/2019

Project #: GA19_9371_004

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	1	87	16	2	2	0	0	0	0	0	0	0	0	108
01:00	0	43	3	0	0	0	0	0	0	0	0	0	0	46
02:00	0	29	2	0	0	0	0	0	0	0	0	0	0	31
03:00	0	21	2	1	1	0	0	0	0	0	0	0	0	25
04:00	0	68	11	0	1	0	0	0	0	0	0	0	0	80
05:00	0	189	31	2	7	0	0	0	0	0	0	0	0	229
06:00	2	270	36	4	8	1	0	0	0	0	0	0	0	321
07:00	1	355	48	8	12	0	0	0	0	0	0	0	0	424
08:00	0	392	65	3	13	0	0	0	0	0	0	0	0	473
09:00	0	320	49	4	9	0	0	0	0	0	0	0	0	382
10:00	0	312	49	4	12	0	0	0	0	0	0	0	0	377
11:00	1	481	85	0	14	1	0	0	0	0	0	0	0	582
12:00 PM	0	609	116	8	16	1	0	0	0	0	0	0	0	750
13:00	0	548	80	4	13	0	0	0	0	0	0	0	0	645
14:00	0	470	63	4	15	1	0	0	0	0	0	0	0	553
15:00	1	460	66	7	15	0	0	0	0	0	0	0	0	549
16:00	1	468	61	3	13	0	0	0	0	0	0	0	0	546
17:00	0	606	82	3	16	0	0	0	0	0	0	0	0	707
18:00	1	414	57	4	10	0	0	0	0	0	0	0	0	486
19:00	0	293	44	1	9	0	0	0	0	0	0	0	0	347
20:00	0	227	33	0	9	0	0	0	0	0	0	0	0	269
21:00	0	168	21	0	6	0	0	0	0	0	0	0	0	195
22:00	0	160	21	0	3	0	0	0	0	0	0	0	0	184
23:00	0	131	14	0	2	0	0	0	0	0	0	0	0	147
Totals	8	7121	1055	62	206	4								8456
% of Totals	0%	84%	12%	1%	2%	0%								100%

AM Volumes	5	2567	397	28	79	2	0	0	0	0	0	0	0	3078
% AM	0%	30%	5%	0%	1%	0%								36%
AM Peak Hour	06:00	11:00	11:00	07:00	11:00	06:00								11:00
Volume	2	481	85	8	14	1								582
PM Volumes	3	4554	658	34	127	2	0	0	0	0	0	0	0	5378
% PM	0%	54%	8%	0%	2%	0%								64%
PM Peak Hour	15:00	12:00	12:00	12:00	12:00	12:00								12:00
Volume	1	609	116	8	16	1								750

Directional Peak Periods All Classes	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
	Volume	%	Volume	%	Volume	%	Volume	%
	897	11%	1395	16%	1253	15%	4911	58%

Classification Definitions

1 Motorcycles
2 Passenger Cars
3 2-Axle, 4-Tire Single Units

4 Buses
5 2-Axle, 6-Tire Single Units
6 3-Axle Single Units

7 >=4-Axle Single Units
8 <=4-Axle Single Trailers
9 5-Axle Single Trailers

10 >=6-Axle Single Trailers
11 <=5-Axle Multi-Trailers
12 6-Axle Multi-Trailers

13 >=7-Axle Multi-Trailers

VOLUME

Doug Davis Dr E/O Virginia Ave /Clay Pl

Day: Wednesday
Date: 5/15/2019

City: Hapeville
Project #: GA19_9371_004

DAILY TOTALS						NB	SB							Total
						0	0							8,456
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00	0	0	12	20	32	12:00	0	0	83	113	196			
00:15	0	0	10	23	33	12:15	0	0	103	97	200			
00:30	0	0	12	9	21	12:30	0	0	115	60	175			
00:45	0	0	13	47	9 61	12:45	0	0	95	396	84 354	179	750	
01:00	0	0	6	6	12	13:00	0	0	84	71	155			
01:15	0	0	4	5	9	13:15	0	0	89	71	160			
01:30	0	0	3	6	9	13:30	0	0	89	85	174			
01:45	0	0	7	20	9 26	13:45	0	0	90	352	66 293	156	645	
02:00	0	0	3	5	8	14:00	0	0	73	81	154			
02:15	0	0	2	3	5	14:15	0	0	57	75	132			
02:30	0	0	5	5	10	14:30	0	0	71	66	137			
02:45	0	0	2	12	6 19	14:45	0	0	56	257	74 296	130	553	
03:00	0	0	2	4	6	15:00	0	0	60	77	137			
03:15	0	0	1	3	4	15:15	0	0	61	77	138			
03:30	0	0	3	3	6	15:30	0	0	60	74	134			
03:45	0	0	5	11	4 14	15:45	0	0	71	252	69 297	140	549	
04:00	0	0	7	2	9	16:00	0	0	52	72	124			
04:15	0	0	6	9	15	16:15	0	0	41	91	132			
04:30	0	0	16	8	24	16:30	0	0	51	98	149			
04:45	0	0	23	52	9 28	16:45	0	0	63	207	78 339	141	546	
05:00	0	0	23	13	36	17:00	0	0	78	134	212			
05:15	0	0	37	33	70	17:15	0	0	78	108	186			
05:30	0	0	30	21	51	17:30	0	0	58	127	185			
05:45	0	0	42	132	30 97	17:45	0	0	54	268	70 439	124	707	
06:00	0	0	22	43	65	18:00	0	0	53	78	131			
06:15	0	0	30	33	63	18:15	0	0	56	72	128			
06:30	0	0	60	33	93	18:30	0	0	47	69	116			
06:45	0	0	62	174	38 147	18:45	0	0	44	200	67 286	111	486	
07:00	0	0	52	40	92	19:00	0	0	36	58	94			
07:15	0	0	75	26	101	19:15	0	0	45	57	102			
07:30	0	0	79	27	106	19:30	0	0	33	41	74			
07:45	0	0	86	292	39 132	19:45	0	0	41	155	36 192	77	347	
08:00	0	0	62	37	99	20:00	0	0	32	32	64			
08:15	0	0	70	38	108	20:15	0	0	33	42	75			
08:30	0	0	89	46	135	20:30	0	0	42	30	72			
08:45	0	0	97	318	34 155	20:45	0	0	28	135	30 134	58	269	
09:00	0	0	70	36	106	21:00	0	0	26	30	56			
09:15	0	0	55	34	89	21:15	0	0	23	26	49			
09:30	0	0	62	33	95	21:30	0	0	17	32	49			
09:45	0	0	63	250	29 132	21:45	0	0	17	83	24 112	41	195	
10:00	0	0	64	37	101	22:00	0	0	19	14	33			
10:15	0	0	44	40	84	22:15	0	0	20	15	35			
10:30	0	0	37	43	80	22:30	0	0	23	40	63			
10:45	0	0	61	206	51 171	22:45	0	0	26	88	27 96	53	184	
11:00	0	0	65	67	132	23:00	0	0	14	27	41			
11:15	0	0	69	78	147	23:15	0	0	17	26	43			
11:30	0	0	74	76	150	23:30	0	0	9	17	26			
11:45	0	0	96	304	57 278	23:45	0	0	12	52	25 95	37	147	
TOTALS					1818 1260	3078	TOTALS					2445 2933	5378	
SPLIT %					59.1% 40.9%	36.4%	SPLIT %					45.5% 54.5%	63.6%	

DAILY TOTALS						NB	SB							Total
						0	0							8,456
AM Peak Hour					11:45 11:30 11:45	PM Peak Hour					12:15 16:45 12:00			
AM Pk Volume					397 343 724	PM Pk Volume					397 447 750			
Pk Hr Factor					0.863 0.759 0.905	Pk Hr Factor					0.863 0.834 0.938			
7 - 9 Volume	0	0	610	287	897	4 - 6 Volume	0	0	475	778	1253			
7 - 9 Peak Hour					08:00 07:45 08:00	4 - 6 Peak Hour					16:45 16:45 16:45			
7 - 9 Pk Volume	0	0	318	160	473	4 - 6 Pk Volume	0	0	277	447	724			
Pk Hr Factor	0.000	0.000	0.820	0.870	0.876	Pk Hr Factor	0.000	0.000	0.888	0.834	0.854			

CLASSIFICATION
Doug Davis Dr E/O Virginia Ave /Clay Pl

City: Hapeville
Project #: GA19_9371_004

[illegible]

CLASSIFICATION
Doug Davis Dr E/O Virginia Ave /Clay Pl

City: Hapeville
Project #: GA19_9371_004

[illegible]

Totals	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
	8	7121	1055	62	206	4								8456
% of Totals	0%	84%	12%	1%	2%	0%								100%

AM Volumes	5	2567	397	28	79	2	0	0	0	0	0	0	0	3078
% AM	0%	30%	5%	0%	1%	0%								36%
AM Peak Hour	06:15	11:45	11:45	06:45	11:45	11:15								11:45
Volume	3	592	107	11	17	2								724
PM Volumes	3	4554	658	34	127	2	0	0	0	0	0	0	0	5378
% PM	0%	54%	8%	0%	2%	0%								64%
PM Peak Hour	14:30	16:45	12:00	12:00	13:45	12:00								12:00
Volume	1	625	116	8	17	1								750

Directional Peak Periods	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
All Classes	Volume	%	Volume	%	Volume	%	Volume	%
	897	11%	1395	16%	1253	15%	4911	58%

Classification Definitions				
1 Motorcycles	4 Buses	7 >=4-Axle Single Units	10 >=6-Axle Single Trailers	13 >=7-Axle Multi-Trailers
2 Passenger Cars	5 2-Axle, 6-Tire Single Units	8 <=4-Axle Single Trailers	11 <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	6 3-Axle Single Units	9 5-Axle Single Trailers	12 6-Axle Multi-Trailers	

CLASSIFICATION

Clay PI S/O Doug Davis Dr

Day: Tuesday
Date: 5/14/2019

City: Hapeville
Project #: GA19_9371_005

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
03:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
05:00	0	0	0	0	0	0	0	0	2	0	0	0	0	2
06:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
07:00	0	9	3	0	0	0	0	0	0	0	0	0	0	12
08:00	0	29	9	0	2	0	0	0	0	0	0	0	0	40
09:00	1	18	2	0	1	1	0	0	0	0	0	0	0	23
10:00	1	16	5	0	0	0	0	0	0	0	0	0	0	22
11:00	0	50	15	0	1	2	0	0	0	0	0	0	0	68
12:00 PM	1	70	11	0	5	0	0	0	0	0	0	0	0	87
13:00	3	74	27	0	5	0	0	0	0	0	0	0	0	109
14:00	0	22	4	1	0	0	0	0	0	0	0	0	0	27
15:00	0	21	5	1	2	0	0	0	0	0	0	0	0	29
16:00	0	87	11	0	4	0	0	0	0	0	0	0	0	102
17:00	0	97	10	0	0	1	0	0	0	0	0	0	0	108
18:00	0	63	7	0	1	0	0	0	0	0	0	0	0	71
19:00	0	53	6	0	1	0	0	0	1	0	0	0	0	61
20:00	0	39	7	0	3	0	0	0	1	0	0	0	0	50
21:00	0	29	8	0	1	0	0	0	0	0	0	0	0	38
22:00	0	9	1	1	0	0	0	0	0	0	0	0	0	11
23:00	0	3	2	0	0	1	0	0	0	0	0	0	0	6
Totals	6	693	135	3	26	5			4					872
% of Totals	1%	79%	15%	0%	3%	1%			0%					100%

AM Volumes	2	126	36	0	4	3	0	0	2	0	0	0	0	173
% AM	0%	14%	4%		0%	0%			0%					20%
AM Peak Hour	09:00	11:00	11:00		08:00	11:00			05:00					11:00
Volume	1	50	15		2	2			2					68
PM Volumes	4	567	99	3	22	2	0	0	2	0	0	0	0	699
% PM	0%	65%	11%	0%	3%	0%			0%					80%
PM Peak Hour	13:00	17:00	13:00	14:00	12:00	17:00			19:00					13:00
Volume	3	97	27	1	5	1			1					109

Directional Peak Periods All Classes	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
	Volume	%	Volume	%	Volume	%	Volume	%
	52	6%	196	22%	210	24%	414	47%

Classification Definitions

1 Motorcycles
2 Passenger Cars
3 2-Axle, 4-Tire Single Units

4 Buses
5 2-Axle, 6-Tire Single Units
6 3-Axle Single Units

7 >=4-Axle Single Units
8 <=4-Axle Single Trailers
9 5-Axle Single Trailers

10 >=6-Axle Single Trailers
11 <=5-Axle Multi-Trailers
12 6-Axle Multi-Trailers

13 >=7-Axle Multi-Trailers

DAILY TOTALS			NB	SB				EB	WB	Total		
			500	372				0	0			
AM Peak Hour	11:45	11:30			11:45	PM Peak Hour	16:30	13:00				16:30
AM Pk Volume	48	39			86	PM Pk Volume	74	51				121
Pk Hr Factor	0.600	0.813			0.741	Pk Hr Factor	0.841	0.797				0.776
7 - 9 Volume	9	43	0	0	52	4 - 6 Volume	131	79	0	0		210
7 - 9 Peak Hour	08:00	08:00			08:00	4 - 6 Peak Hour	16:30	16:30				16:30
7 - 9 Pk Volume	8	32	0	0	40	4 - 6 Pk Volume	74	47	0	0		121
Pk Hr Factor	1.000	0.800	0.000	0.000	0.833	Pk Hr Factor	0.841	0.691	0.000	0.000		0.776

CLASSIFICATION
Clay Pl S/O Doug Davis Dr

City: Hapeville
Project #: GA19_9371_005

[illegible]

CLASSIFICATION
Clay Pl S/O Doug Davis Dr

Day: Tuesday
Date: 5/14/2019

City: Hapeville
Project #: GA19_9371_005

Summary

[illegible]

Totals	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
	6	693	135	3	26	5			4					872
% of Totals	1%	79%	15%	0%	3%	1%			0%					100%

AM Volumes	2	126	36	0	4	3	0	0	2	0	0	0	0	173
% AM	0%	14%	4%		0%	0%			0%					20%
AM Peak Hour	08:45	11:45	11:15		11:45	10:45			04:45					11:45
Volume	1	70	16		3	2			2					86
PM Volumes	4	567	99	3	22	2	0	0	2	0	0	0	0	699
% PM	0%	65%	11%	0%	3%	0%			0%					80%
PM Peak Hour	12:30	16:30	13:00	13:30	12:15	17:00			19:15					16:30
Volume	3	104	27	1	8	1			2					121

Directional Peak Periods	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
All Classes	Volume	%	Volume	%	Volume	%	Volume	%
	52	6%	196	22%	210	24%	414	47%

Classification Definitions				
1 Motorcycles	4 Buses	7 >=4-Axle Single Units	10 >=6-Axle Single Trailers	13 >=7-Axle Multi-Trailers
2 Passenger Cars	5 2-Axle, 6-Tire Single Units	8 <=4-Axle Single Trailers	11 <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	6 3-Axle Single Units	9 5-Axle Single Trailers	12 6-Axle Multi-Trailers	

CLASSIFICATION

Clay Pl S/O Doug Davis Dr

Day: Wednesday

Date: 5/15/2019

City: Hapeville

Project #: GA19_9371_005

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	0	1	0	0	2	0	0	0	0	0	0	0	0	3
07:00	0	5	1	0	1	0	0	0	0	0	0	0	0	7
08:00	0	32	9	1	1	0	0	0	0	0	0	0	0	43
09:00	0	8	3	2	1	0	0	0	0	0	0	0	0	14
10:00	0	39	9	0	1	0	0	0	0	0	0	0	0	49
11:00	0	66	26	0	5	0	0	0	0	0	0	0	0	97
12:00 PM	3	79	28	1	0	1	0	0	0	0	0	0	0	112
13:00	0	78	17	1	3	0	0	0	0	0	0	0	0	99
14:00	1	60	9	0	3	1	0	0	0	0	0	0	0	74
15:00	0	41	5	0	0	4	0	0	0	0	0	0	0	50
16:00	0	90	7	0	3	0	0	0	0	0	0	0	0	100
17:00	0	78	12	0	3	0	0	0	0	0	0	0	0	93
18:00	1	62	17	0	2	0	0	0	0	0	0	0	0	82
19:00	0	39	7	0	2	0	0	0	0	0	0	0	0	48
20:00	0	48	12	0	2	0	0	0	0	0	0	0	0	62
21:00	0	30	9	0	1	0	0	0	0	0	0	0	0	40
22:00	0	13	5	0	0	1	0	0	0	0	0	0	0	19
23:00	0	2	2	0	1	0	0	0	0	0	0	0	0	5
Totals	5	771	179	5	31	7								998
% of Totals	1%	77%	18%	1%	3%	1%								100%

AM Volumes	0	151	49	3	11	0	0	0	0	0	0	0	0	214
% AM		15%	5%	0%	1%									21%
AM Peak Hour		11:00	11:00	09:00	11:00									11:00
Volume		66	26	2	5									97
PM Volumes	5	620	130	2	20	7	0	0	0	0	0	0	0	784
% PM	1%	62%	13%	0%	2%	1%								79%
PM Peak Hour	12:00	16:00	12:00	12:00	13:00	15:00								12:00
Volume	3	90	28	1	3	4								112

Directional Peak Periods All Classes	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
	Volume	%	Volume	%	Volume	%	Volume	%
	50	5%	211	21%	193	19%	544	55%

Classification Definitions

1 Motorcycles
2 Passenger Cars
3 2-Axle, 4-Tire Single Units

4 Buses
5 2-Axle, 6-Tire Single Units
6 3-Axle Single Units

7 >=4-Axle Single Units
8 <=4-Axle Single Trailers
9 5-Axle Single Trailers

10 >=6-Axle Single Trailers
11 <=5-Axle Multi-Trailers
12 6-Axle Multi-Trailers

13 >=7-Axle Multi-Trailers

CLASSIFICATION
Clay Pl S/O Doug Davis Dr

City: Hapeville
Project #: GA19_9371_005

[illegible]

CLASSIFICATION
Clay Pl S/O Doug Davis Dr

City: Hapeville
Project #: GA19_9371_005

[illegible]

Totals	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
	5	771	179	5	31	7								998
% of Totals	1%	77%	18%	1%	3%	1%								100%

AM Volumes	0	151	49	3	11	0	0	0	0	0	0	0	0	214
% AM		15%	5%	0%	1%									21%
AM Peak Hour	11:15	11:30	11:30	08:30	11:00									11:30
Volume	2	77	36	3	5									118
PM Volumes	5	620	130	2	20	7	0	0	0	0	0	0	0	784
% PM	1%	62%	13%	0%	2%	1%								79%
PM Peak Hour	12:00	16:00	12:00	12:30	16:45	15:00								12:00
Volume	3	90	28	2	5	4								112

Directional Peak Periods	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
All Classes	Volume	%	Volume	%	Volume	%	Volume	%
	50	5%	211	21%	193	19%	544	55%

Classification Definitions				
1 Motorcycles	4 Buses	7 >=4-Axle Single Units	10 >=6-Axle Single Trailers	13 >=7-Axle Multi-Trailers
2 Passenger Cars	5 2-Axle, 6-Tire Single Units	8 <=4-Axle Single Trailers	11 <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	6 3-Axle Single Units	9 5-Axle Single Trailers	12 6-Axle Multi-Trailers	

APPENDIX B – PEAK HOUR DETERMINATION & COMPUTATION

Table 8-10. Total traffic diurnal distribution factors by functional class: urban area, large: >1,000,000 population.

Hour Begins	Hour Ends	Weekday				Saturday				Sunday				Average Day			
		Interstate	Arterial CBD	Other	Collector	Interstate	Arterial CBD	Other	Collector	Interstate	Arterial CBD	Other	Collector	Interstate	Arterial CBD	Other	Collector
12:00 AM	12:59 AM	0.96	1.22	0.78	0.59	1.95	2.55	1.70	1.54	2.32	3.27	2.24	1.95	1.22	1.61	1.07	0.84
1:00 AM	1:59 AM	0.61	0.75	0.48	0.38	1.26	1.75	1.10	0.96	1.50	2.32	1.48	1.28	0.78	1.05	0.67	0.53
2:00 AM	2:59 AM	0.51	0.58	0.37	0.30	1.00	1.38	0.83	0.71	1.20	1.81	1.11	0.95	0.64	0.81	0.52	0.41
3:00 AM	3:59 AM	0.53	0.57	0.37	0.33	0.79	1.23	0.62	0.46	0.85	1.61	0.79	0.57	0.59	0.76	0.45	0.37
4:00 AM	4:59 AM	0.85	0.79	0.61	0.59	0.83	1.10	0.59	0.50	0.73	1.29	0.64	0.47	0.83	0.89	0.61	0.56
5:00 AM	5:59 AM	2.13	1.74	1.70	1.16	1.29	1.36	0.92	0.84	0.97	1.35	0.76	0.73	1.90	1.67	1.49	1.07
6:00 AM	6:59 AM	5.11	4.23	4.17	2.72	2.30	2.16	1.72	1.65	1.63	1.92	1.25	1.34	4.40	3.75	3.53	2.44
7:00 AM	7:59 AM	7.27	6.31	6.58	5.92	3.32	3.02	2.74	3.02	2.14	2.40	1.91	2.13	6.25	5.52	5.57	5.16
8:00 AM	8:59 AM	6.61	6.24	6.08	6.05	4.33	3.90	3.95	4.39	2.93	2.94	2.99	3.23	5.95	5.61	5.46	5.58
9:00 AM	9:59 AM	5.27	5.43	5.04	5.82	5.07	4.79	5.05	5.81	4.18	4.09	4.35	4.94	5.14	5.20	4.97	5.74
10:00 AM	10:59 AM	4.86	5.18	4.96	5.78	5.76	5.42	6.03	6.62	5.44	5.28	5.67	6.15	5.03	5.20	5.18	5.93
11:00 AM	11:59 AM	5.01	5.40	5.39	6.55	6.39	5.98	6.80	7.23	6.35	5.64	6.46	6.95	5.32	5.49	5.89	6.68
12:00 PM	12:59 PM	5.20	5.72	5.81	7.08	6.73	6.35	7.20	7.40	7.16	6.33	7.87	8.39	5.59	5.85	6.22	7.26
1:00 PM	1:59 PM	5.39	5.77	5.93	6.95	6.69	6.42	7.18	7.27	7.39	6.81	8.00	8.02	5.76	5.95	6.32	7.11
2:00 PM	2:59 PM	6.02	6.07	6.31	7.20	6.75	6.43	7.11	7.07	7.47	6.91	7.87	7.80	6.26	6.19	6.58	7.25
3:00 PM	3:59 PM	7.05	6.66	7.05	7.97	6.80	6.40	7.05	7.19	7.50	6.64	7.67	7.78	7.07	6.63	7.12	7.86
4:00 PM	4:59 PM	7.78	7.07	7.85	7.94	6.70	6.22	6.89	6.92	7.52	6.42	7.56	7.61	7.63	6.91	7.69	7.79
5:00 PM	5:59 PM	7.98	7.45	8.33	7.60	6.52	6.12	6.68	6.54	7.17	6.34	7.18	7.28	7.72	7.18	7.99	7.44
6:00 PM	6:59 PM	6.11	6.12	6.52	5.66	6.04	5.92	6.16	5.96	6.52	6.28	6.40	6.25	6.14	6.10	6.46	5.77
7:00 PM	7:59 PM	4.27	4.72	4.80	4.20	4.97	5.31	5.24	4.89	5.54	5.56	5.49	5.16	4.49	4.87	4.93	4.38
8:00 PM	8:59 PM	3.37	3.77	3.88	3.29	4.14	4.55	4.45	3.97	4.69	4.76	4.56	4.12	3.60	3.96	4.02	3.45
9:00 PM	9:59 PM	2.97	3.30	3.17	2.66	3.88	4.17	3.99	3.48	3.77	3.98	3.54	3.18	3.16	3.47	3.32	2.81
10:00 PM	10:59 PM	2.41	2.77	2.28	1.97	3.61	3.94	3.37	3.12	2.96	3.44	2.54	2.30	2.61	2.97	2.45	2.14
11:00 PM	11:59 PM	1.73	2.14	1.53	1.28	2.88	3.51	2.61	2.43	2.07	2.60	1.67	1.44	1.91	2.35	1.69	1.43

Hour Begins	Virginia Ave, W of Hamilton Ave			Hamilton Ave, N of Virginia Ave			Virginia Ave, N of Doug Davis Dr			Doug Davis Dr, E of Virginia Ave/Clay Pl			Clay Pl, South of Doug Davis Dr		
	Day 1 Dist	Day 2 Dist	Average Dist	Day 1 Dist	Day 2 Dist	Average Dist	Day 1 Dist	Day 2 Dist	Average Dist	Day 1 Dist	Day 2 Dist	Average Dist	Day 1 Dist	Day 2 Dist	Average Dist
0:00:00	1.18%	1.12%	1.16%	0.80%	0.43%	1.13%	1.00%	0.98%	1.00%	1.18%	1.28%	1.23%	0.00%	0.00%	0.00%
1:00:00	0.75%	0.54%	0.65%	0.40%	0.00%	0.38%	0.82%	0.75%	0.79%	0.65%	0.54%	0.60%	0.00%	0.00%	0.00%
2:00:00	0.58%	0.40%	0.50%	0.00%	0.00%	0.00%	0.74%	0.57%	0.68%	0.46%	0.37%	0.44%	0.23%	0.00%	0.10%
3:00:00	0.41%	0.40%	0.42%	0.00%	0.00%	0.00%	0.36%	0.55%	0.47%	0.40%	0.30%	0.35%	0.11%	0.00%	0.10%
4:00:00	1.06%	0.81%	0.94%	0.00%	0.85%	0.75%	0.73%	0.62%	0.68%	1.08%	0.95%	1.02%	0.11%	0.10%	0.10%
5:00:00	2.33%	2.20%	2.27%	0.00%	0.43%	0.38%	1.45%	1.64%	1.58%	2.72%	2.71%	2.72%	0.23%	0.00%	0.21%
6:00:00	2.99%	2.88%	2.94%	0.80%	1.71%	1.13%	2.54%	2.78%	2.65%	3.65%	3.80%	3.73%	0.23%	0.30%	0.42%
7:00:00	4.30%	4.12%	4.20%	3.98%	6.41%	5.28%	3.68%	3.67%	3.67%	5.16%	5.01%	5.09%	1.38%	0.70%	1.05%
8:00:00	5.06%	4.97%	5.02%	4.38%	8.12%	6.04%	5.30%	5.15%	5.21%	5.12%	5.59%	5.35%	4.59%	4.31%	4.50%
9:00:00	3.86%	4.07%	3.97%	3.98%	4.70%	4.15%	4.12%	4.15%	4.14%	4.41%	4.52%	4.46%	2.64%	1.40%	2.09%
10:00:00	3.69%	4.59%	4.14%	5.18%	5.98%	5.66%	4.23%	4.69%	4.46%	3.88%	4.46%	4.16%	2.52%	4.91%	3.77%
11:00:00	6.89%	6.45%	6.66%	3.19%	12.82%	7.55%	7.04%	6.93%	6.99%	6.86%	6.88%	6.87%	7.80%	9.72%	8.80%
12:00:00	8.84%	8.95%	8.88%	11.95%	8.12%	9.81%	9.98%	10.05%	9.99%	8.48%	8.87%	8.67%	9.98%	11.22%	10.58%
13:00:00	7.67%	7.74%	7.69%	9.96%	5.98%	7.55%	8.29%	7.48%	7.86%	7.54%	7.63%	7.57%	12.50%	9.92%	10.99%
14:00:00	6.53%	6.69%	6.60%	7.97%	4.70%	6.42%	6.28%	6.77%	6.52%	6.29%	6.54%	6.41%	3.10%	7.41%	5.34%
15:00:00	6.68%	6.71%	6.69%	7.57%	6.41%	6.79%	7.10%	5.95%	6.50%	6.33%	6.49%	6.41%	3.33%	5.01%	4.29%
16:00:00	7.05%	7.12%	7.08%	5.98%	6.84%	6.42%	6.41%	6.66%	6.52%	7.32%	6.46%	6.87%	11.70%	10.02%	10.58%
17:00:00	7.90%	7.98%	7.93%	8.37%	6.41%	7.55%	7.26%	7.63%	7.43%	8.23%	8.36%	8.28%	12.39%	9.32%	10.68%
18:00:00	5.79%	6.04%	5.92%	9.96%	5.98%	7.55%	5.86%	6.29%	6.07%	5.36%	5.75%	5.55%	8.14%	8.22%	8.17%
19:00:00	4.97%	4.50%	4.73%	3.98%	4.70%	4.15%	5.30%	4.42%	4.85%	4.27%	4.10%	4.19%	7.00%	4.81%	5.76%
20:00:00	3.81%	4.12%	3.97%	4.78%	4.70%	4.53%	3.96%	4.63%	4.30%	3.28%	3.18%	3.24%	5.73%	6.21%	5.97%
21:00:00	3.04%	2.95%	2.99%	3.19%	2.56%	3.40%	3.25%	2.73%	2.99%	2.69%	2.31%	2.50%	4.36%	4.01%	4.19%
22:00:00	2.39%	2.52%	2.46%	1.99%	1.71%	2.26%	2.47%	2.66%	2.58%	2.33%	2.18%	2.26%	1.26%	1.90%	1.68%
23:00:00	2.22%	2.12%	2.18%	1.59%	0.43%	1.13%	1.83%	2.25%	2.06%	2.31%	1.74%	2.02%	0.69%	0.50%	0.63%

Intersection 1: Virginia Ave & Hamilton Ave																
					2019	Existing Peak Hr TMC (RAW DATA)										
	Driveway				Hamilton Ave				Virginia Ave				Virginia Ave			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
12:00 PM					3	0	9	0	3	480	36	0	4	479	4	0
Percentage	77.8%	0.0%	22.2%	0.0%	27.3%	0.0%	72.7%	0.0%	0.6%	92.6%	6.9%	0.0%	0.7%	98.5%	0.7%	0.0%
4:45 PM	7	0	2	0	3	0	8	0	2	323	24	0	4	537	4	0
Percentage	77.8%	0.0%	22.2%	0.0%	27.3%	0.0%	72.7%	0.0%	0.6%	92.6%	6.9%	0.0%	0.7%	98.5%	0.7%	0.0%
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	0			39	13			7	519			488	487			483
PM:	9			28	11			6	349			552	545			328
3-HOUR TOTAL	29	1	8	0	10	0	17	0	12	955	62	0	12	1323	16	0
Percentage	76.3%	2.6%	21.1%	0.0%	37.0%	0.0%	63.0%	0.0%	1.2%	92.8%	6.0%	0.0%	0.9%	97.9%	1.2%	0.0%

*Note: Driveway noon peak hour volumes could not be computed because no ADT data was collected from this location

Intersection 2: Virginia Ave/Clay Pl & Doug Davis Dr/Virginia Ave																
					2019 Existing Peak Hr TMC (RAW DATA)											
	Clay Pl				Virginia Ave				Virginia Ave				Doug Davis Dr			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
12:00 PM	23	9	30	0	49	6	246	0	195	295	26	3	13	267	63	0
Percentage	36.7%	15.2%	48.1%	0.0%	16.3%	2.1%	81.6%	0.0%	37.6%	56.8%	5.0%	0.6%	3.9%	77.7%	18.5%	0.0%
4:45 PM	29	12	38	0	31	4	155	0	121	183	16	2	18	362	86	0
Percentage	36.7%	15.2%	48.1%	0.0%	16.3%	2.1%	81.6%	0.0%	37.6%	56.8%	5.0%	0.6%	3.9%	77.7%	18.5%	0.0%
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	61.5			45	301			268	519			538	344			373
PM:	79			38	190			219	322			548	466			252
3-HOUR TOTAL	65	37	76	0	74	23	419	0	355	562	56	2	40	867	205	0
Percentage	36.5%	20.8%	42.7%	0.0%	14.3%	4.5%	81.2%	0.0%	36.4%	57.6%	5.7%	0.2%	3.6%	78.0%	18.4%	0.0%

APPENDIX C – K FACTOR AND D FACTOR CALCULATIONS

K AND D FACTOR CALCULATIONS

(PI# 171007021 - Fulton County)

Location	Functional Class (Factor Group)	Count # (Class in yellow)	Enter	Traffic Volumes														Balanced & Rounded Volumes										Margin of Error					Truck Percentages								
				Raw Data										GDOT Traffic Factors				Calc. AADT									24 Hour T%						Peak Hour								
				Day 1			Day 2			Average of Day 1 & 2			K & D Factors																												
				NE - VOL	SW - VOL	Total	NE - VOL	SW - VOL	Total	NE - VOL	SW - VOL	Total	K	D	SF (Monthly)	DF1 (Daily1)	DF2 (Daily2)		AXF (Axle)	AADT	NE - VOL	SW - VOL	Hourly Total	T NE - VOL	T SW - VOL	K	D						S.U.	COMB	TOTAL	PEAK HOUR	S.U.	COMB	TOTAL		
Virginia Ave W of Hamilton Ave	Urban Major Collector (4)	1	12:00 PM	519	467	986	518	506	1,024	519	487	1,005	8.9%	0.52	0.96	0.93	0.92	0.96	9,630	9,850	15	10	25	4,925	4,925	0.3%	0.60	2%		8.6%	-8.0%		4.0%	0.0%	4.0%	AM	3.5%	0.0%	3.5%		
			4:45 PM	350	546	896	401	536	937	376	541	917	8.1%	0.59							10	10	20						0.2%	0.50		7.9%				9.0%		PM	3.0%	0.0%	3.0%
			Daily	5,550	5,604	11,154	5,646	5,794	11,440	5,598	5,699	11,297																													
Hamilton Ave N of Virginia Ave	Urban Local Road (4)	2	12:00 PM	15	15	30	9	10	19	12	13	25	10.1%	0.51	0.96	0.93	0.92	0.96	207	200	15	40	55	100	100	27.5%	0.73	3%		-17.4%	-22.0%		4.5%	0.0%	4.5%	AM	10.0%	0.0%	10.0%		
			4:45 PM	10	9	19	7	10	17	9	10	18	7.4%	0.53							15	40	55						27.5%	0.73		-20.1%				-20.0%		PM	3.0%	0.0%	3.0%
			Daily	109	142	251	97	137	234	103	140	243																													
Virginia Ave N of Doug Davis Dr	Urban Major Collector (4)	3	12:00 PM	237	313	550	275	289	564	256	301	557	10.0%	0.54	0.96	0.93	0.92	0.96	4,740	4,800	500	450	950	2,400	2,400	19.8%	0.53	1%		-9.8%	1.0%		2.5%	0.0%	2.5%	AM	4.0%	0.5%	4.5%		
			4:45 PM	212	178	390	246	198	444	229	188	417	7.5%	0.55							360	435	795						16.6%	0.55		-9.1%				0.0%		PM	1.5%	0.0%	1.5%
			Daily	2,694	2,816	5,510	2,743	2,869	5,612	2,719	2,843	5,561																													
Doug Davis Dr E of Virginia Ave/Clay Pl	Urban Local Road (4)	4	12:00 PM	380	333	713	396	354	750	388	344	732	8.7%	0.53	0.96	0.93	0.92	0.96	7,189	6,800	60	40	100	3,400	3,400	1.5%	0.60	5%		7.2%	-7.0%		3.0%	0.0%	3.0%	AM	3.0%	0.0%	3.0%		
			4:45 PM	249	462	711	277	447	724	263	455	718	8.5%	0.63							60	40	100						1.5%	0.60		7.0%				3.0%		PM	2.5%	0.0%	2.5%
			Daily	4,202	4,209	8,411	4,263	4,193	8,456	4,233	4,201	8,434																													
Clay Pl S of Doug Davis Dr	Urban Local Road (4)	5	12:00 PM	53	34	87	70	42	112	62	38	100	10.6%	0.62	0.96	0.93	0.92	0.96	797	900	60	35	95	450	450	10.6%	0.63	13%		0.1%	-1.0%		0.0%	0.0%	0.0%	AM	2.5%	0.0%	2.5%		
			4:45 PM	65	37	102	60	40	100	63	39	101	10.8%	0.62							60	35	95						10.6%	0.63		0.2%				-1.0%		PM	0.0%	0.0%	0.0%
			Daily	500	372	872	539	459	998	520	416	935																													

APPENDIX D – TRUCK PERCENTAGE CALCULATIONS

Truck Percentages

**PI #0015005 - Fulton County, GA
Virginia Avenue Roundabout Feasibility Study
from Virginia Avenue to Doug Davis Dr**

Count Number	Count Location	24 Hour T%			Peak Hour T%			
		S.U.	Comb.	Total	Period	S.U.	Comb.	Total
1	Virginia Ave W of Hamilton Ave	4.0%	0.0%	4.0%	AM	3.5%	0.0%	3.5%
					PM	3.0%	0.0%	3.0%
2	Hamilton Ave N of Virginia Ave	4.5%	0.0%	4.5%	AM	10.0%	0.0%	10.0%
					PM	3.0%	0.0%	3.0%
3	Virginia Ave N of Doug Davis Dr	2.5%	0.0%	2.5%	AM	4.0%	0.5%	4.5%
					PM	1.5%	0.0%	1.5%
4	Doug Davis Dr E of Virginia Ave/Clay Pl	3.0%	0.0%	3.0%	AM	3.0%	0.0%	3.0%
					PM	2.5%	0.0%	2.5%
5	Clay Pl S of Doug Davis Dr	4.0%	0.0%	4.0%	AM	3.5%	0.0%	3.5%
					PM	2.5%	0.0%	2.5%

Truck Percentage Calculations

PI # 171007021 - Fulton County, GA

Virginia Ave/Doug Davis Ave @ Clay Pl/Virginia Ave Roundabout Feasibility Study

#1 Virginia Ave W of Hamilton Ave

	Direction	Total	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	S.U. T%	Comb. T%
12:00 PM	Day 1	EB	519	2	427	70	1	18	0	0	1	0	0	0	0	3.9%	0.1%
		WB	467	1	389	58	1	18	0	0	0	0	0	0	0		
Day 2	EB	518	1	425	73	3	15	0	0	0	1	0	0	0	0	3.4%	0.2%
	WB	42	1	29	11	0	0	1	0	0	0	0	0	0	0		
																AM DHV T%	
																3.7%	0.1%
																3.5%	0.0%

	Direction	Total	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	S.U. T%	Comb. T%
4:45 PM	Day 1	EB	350	0	296	47	1	6	0	0	0	0	0	0	0	2.1%	0.0%
		WB	546	0	472	62	5	7	0	0	0	0	0	0	0		
Day 2	EB	401	0	331	55	2	13	0	0	0	0	0	0	0	0	3.7%	0.0%
	WB	536	0	435	81	1	19	0	0	0	0	0	0	0	0		
																PM DHV T%	
																2.9%	0.0%
																3.0%	0.0%

	Direction	Total	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	S.U. T%	Comb. T%
24-hr T	Day 1	EB	5,550	7	4,614	723	35	158	6	0	4	3	0	0	0	3.6%	0.1%
		WB	5,604	2	4,741	657	25	169	5	0	2	3	0	0	0		
Day 2	EB	5,646	6	4,612	782	33	198	8	0	4	3	0	0	0	0	4.1%	0.1%
	WB	5,794	5	4,671	880	37	192	5	0	2	2	0	0	0	0		
																Daily T%	
																3.9%	0.1%
																4.0%	0.0%

#2 Hamilton Ave N of Virginia Ave

	Direction	Total	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	S.U. T%	Comb. T%
12:00 PM	Day 1	NB	15	0	10	5	0	0	0	0	0	0	0	0	0	6.7%	0.0%
		SB	15	0	12	1	1	1	0	0	0	0	0	0	0		
Day 2	NB	9	0	7	1	0	0	0	1	0	0	0	0	0	0	15.8%	0.0%
	SB	10	0	8	0	2	0	0	0	0	0	0	0	0	0		
																AM DHV T%	
																10.2%	0.0%
																10.0%	0.0%

	Direction	Total	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	S.U. T%	Comb. T%
4:45 PM	Day 1	NB	10	0	9	1	0	0	0	0	0	0	0	0	0	5.3%	0.0%
		SB	9	0	8	0	0	1	0	0	0	0	0	0	0		
Day 2	NB	7	1	5	1	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
	SB	10	0	8	2	0	0	0	0	0	0	0	0	0	0		
																PM DHV T%	
																2.8%	0.0%
																3.0%	0.0%

	Direction	Total	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	S.U. T%	Comb. T%
24-hr T	Day 1	NB	109	0	93	15	0	1	0	0	0	0	0	0	0	3.2%	0.0%
		SB	142	0	119	16	2	5	0	0	0	0	0	0	0		
Day 2	NB	97	2	76	14	0	4	0	1	0	0	0	0	0	0	6.0%	0.0%
	SB	137	0	114	14	5	4	0	0	0	0	0	0	0	0		
																Daily T%	
																4.5%	0.0%
																4.5%	0.0%

Truck Percentage Calculations
PI # 171007021 - Fulton County, GA
Virginia Ave/Doug Davis Ave @ Clay PI/Virginia Ave Roundabout Feasibility Study

#3 Virginia Ave N of Doug Davis Dr

	Direction	Total	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	S.U. T%	Comb. T%
12:00 PM	Day 1	NB	237	0	193	34	1	8	1	0	0	0	0	0	0	4.7%	0.2%
		SB	313	2	250	44	1	11	3	1	1	0	0	0	0		
Day 2	Day 2	NB	275	1	211	52	1	8	1	0	1	0	0	0	0	2.8%	0.4%
		SB	289	0	232	50	0	4	2	0	1	0	0	0	0		
																AM DHV T%	
																3.8%	0.3%
																4.0%	0.5%

	Direction	Total	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	S.U. T%	Comb. T%
4:45 PM	Day 1	NB	212	1	189	21	0	1	0	0	0	0	0	0	0	0.3%	0.0%
		SB	178	3	146	29	0	0	0	0	0	0	0	0	0		
Day 2	Day 2	NB	246	0	210	29	0	7	0	0	0	0	0	0	0	2.3%	0.0%
		SB	198	2	164	29	1	2	0	0	0	0	0	0	0		
																PM DHV T%	
																1.3%	0.0%
																1.5%	0.0%

	Direction	Total	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	S.U. T%	Comb. T%
24-hr T	Day 1	NB	2,694	3	2,301	317	12	51	3	1	3	3	0	0	0	2.5%	0.2%
		SB	2,816	8	2,384	353	12	49	5	2	3	0	0	0	0		
Day 2	Day 2	NB	2,743	7	2,300	363	7	59	3	0	4	0	0	0	0	2.7%	0.2%
		SB	2,869	9	2,376	396	9	65	6	0	3	5	0	0	0		
																Daily T%	
																2.6%	0.2%
																2.5%	0.0%

#4 Doug Davis Dr E of Virginia Ave/Clay PI

	Direction	Total	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	S.U. T%	Comb. T%
12:00 PM	Day 1	EB	380	0	318	53	2	7	0	0	0	0	0	0	0	2.8%	0.0%
		WB	333	0	288	34	3	8	0	0	0	0	0	0	0		
Day 2	Day 2	EB	396	0	314	70	5	7	0	0	0	0	0	0	0	3.3%	0.0%
		WB	354	0	295	46	3	9	1	0	0	0	0	0	0		
																AM DHV T%	
																3.1%	0.0%
																3.0%	0.0%

	Direction	Total	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	S.U. T%	Comb. T%
4:45 PM	Day 1	EB	249	0	213	30	2	4	0	0	0	0	0	0	0	2.5%	0.0%
		WB	462	0	414	36	3	9	0	0	0	0	0	0	0		
Day 2	Day 2	EB	277	0	235	35	1	6	0	0	0	0	0	0	0	2.5%	0.0%
		WB	447	0	390	46	1	10	0	0	0	0	0	0	0		
																PM DHV T%	
																2.5%	0.0%
																2.5%	0.0%

	Direction	Total	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	S.U. T%	Comb. T%
24-hr T	Day 1	EB	4,202	4	3,446	616	36	94	6	0	0	0	0	0	0	3.2%	0.0%
		WB	4,209	0	3,695	383	29	100	0	1	1	0	0	0	0		
Day 2	Day 2	EB	4,263	6	3,522	593	36	103	3	0	0	0	0	0	0	3.2%	0.0%
		WB	4,193	2	3,599	462	26	103	1	0	0	0	0	0	0		
																Daily T%	
																3.2%	0.0%
																3.0%	0.0%

#5 Clay PI S of Doug Davis Dr

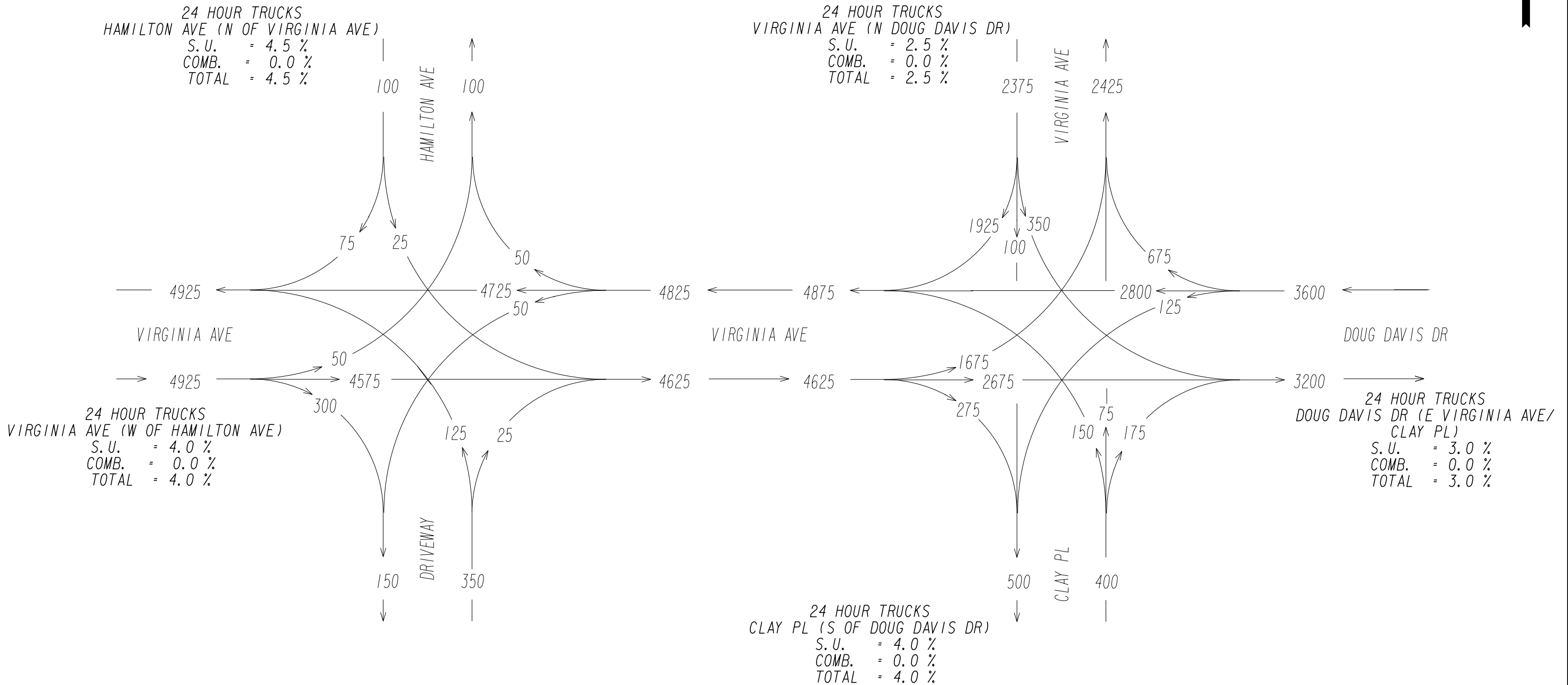
	Direction	Total	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	S.U. T%	Comb. T%
12:00 PM	Day 1	NB	53	0	44	7	0	2	0	0	0	0	0	0	0	5.7%	0.0%
		SB	34	1	26	4	0	3	0	0	0	0	0	0	0		
Day 2	Day 2	NB	70	2	50	17	1	0	0	0	0	0	0	0	0	1.8%	0.0%
		SB	42	1	29	11	0	0	1	0	0	0	0	0	0		
																AM DHV T%	
																3.5%	0.0%
																3.5%	0.0%

	Direction	Total	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	S.U. T%	Comb. T%
4:45 PM	Day 1	NB	65	0	58	7	0	0	0	0	0	0	0	0	0	0.0%	0.0%
		SB	37	0	33	4	0	0	0	0	0	0	0	0	0		
Day 2	Day 2	NB	60	0	54	4	0	2	0	0	0	0	0	0	0	5.0%	0.0%
		SB	40	0	32	5	0	3	0	0	0	0	0	0	0		
																PM DHV T%	
																2.5%	0.0%
																2.5%	0.0%

	Direction	Total	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	S.U. T%	Comb. T%
24-hr T	Day 1	NB	500	4	407	70	2	12	3	0	0	2	0	0	0	3.9%	0.5%
		SB	372	2	286	65	1	14	2	0	0	2	0	0	0		
Day 2	Day 2	NB	539	4	430	89	4	8	4	0	0	0	0	0	0	4.3%	0.0%
		SB	459	1	341	90	1	23	3	0	0	0	0	0	0		
																Daily T%	
																4.1%	0.2%
																4.0%	0.0%

APPENDIX E – TRAFFIC MOVEMENT FIGURES

FULTON COUNTY



2019 EXISTING AADT

PROJECT NUMBER: 171007021
FULTON COUNTY

VIRGINIA AVENUE
ROUNDBOUT FEASIBILITY
STUDY



REVISION DATES

TRAFFIC DIAGRAM

DRAWING No.
01-0002

FULTON COUNTY



PEAK HOUR TRUCKS
HAMILTON AVE (N OF VIRGINIA AVE)

(PM) AM
S.U. = (3.0 %) 10.0 %
COMB. = (0.0 %) 0.0 %
TOTAL = (3.0 %) 10.0 %

PEAK HOUR TRUCKS
VIRGINIA AVE (N DOUG DAVIS DR)

(PM) AM
S.U. = (1.5 %) 4.0 %
COMB. = (0.0 %) 0.0 %
TOTAL = (1.5 %) 4.0 %

PEAK HOUR TRUCKS
DOUG DAVIS DR (E VIRGINIA AVE/
CLAY PL)

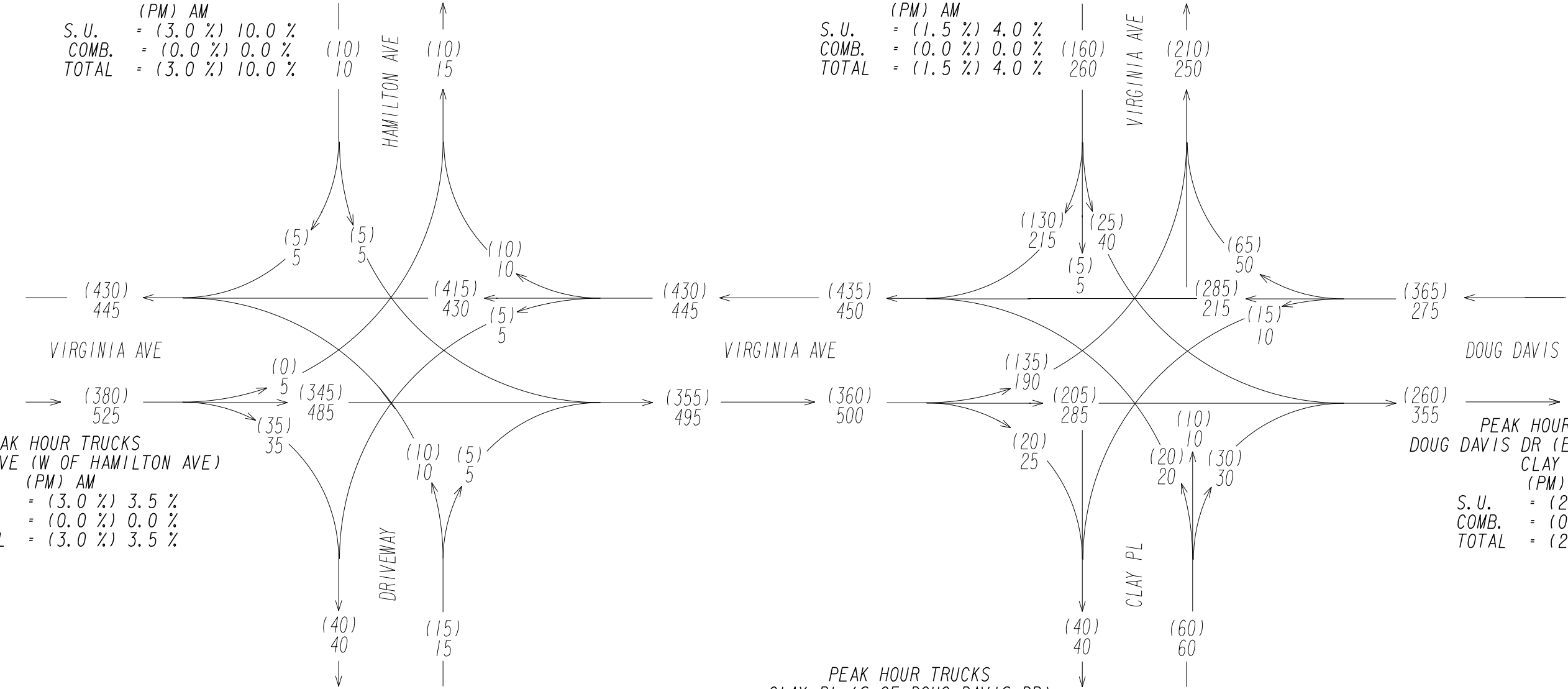
(PM) AM
S.U. = (2.5 %) 3.0 %
COMB. = (0.0 %) 0.0 %
TOTAL = (2.5 %) 3.0 %

PEAK HOUR TRUCKS
VIRGINIA AVE (W OF HAMILTON AVE)

(PM) AM
S.U. = (3.0 %) 3.5 %
COMB. = (0.0 %) 0.0 %
TOTAL = (3.0 %) 3.5 %

PEAK HOUR TRUCKS
CLAY PL (S OF DOUG DAVIS DR)

(PM) AM
S.U. = (2.5 %) 3.5 %
COMB. = (0.0 %) 0.0 %
TOTAL = (2.5 %) 3.5 %



2019 EXISTING DHV
(PM) NOON

PROJECT NUMBER: 171007021
FULTON COUNTY

VIRGINIA AVENUE
ROUNDAABOUT FEASIBILITY
STUDY

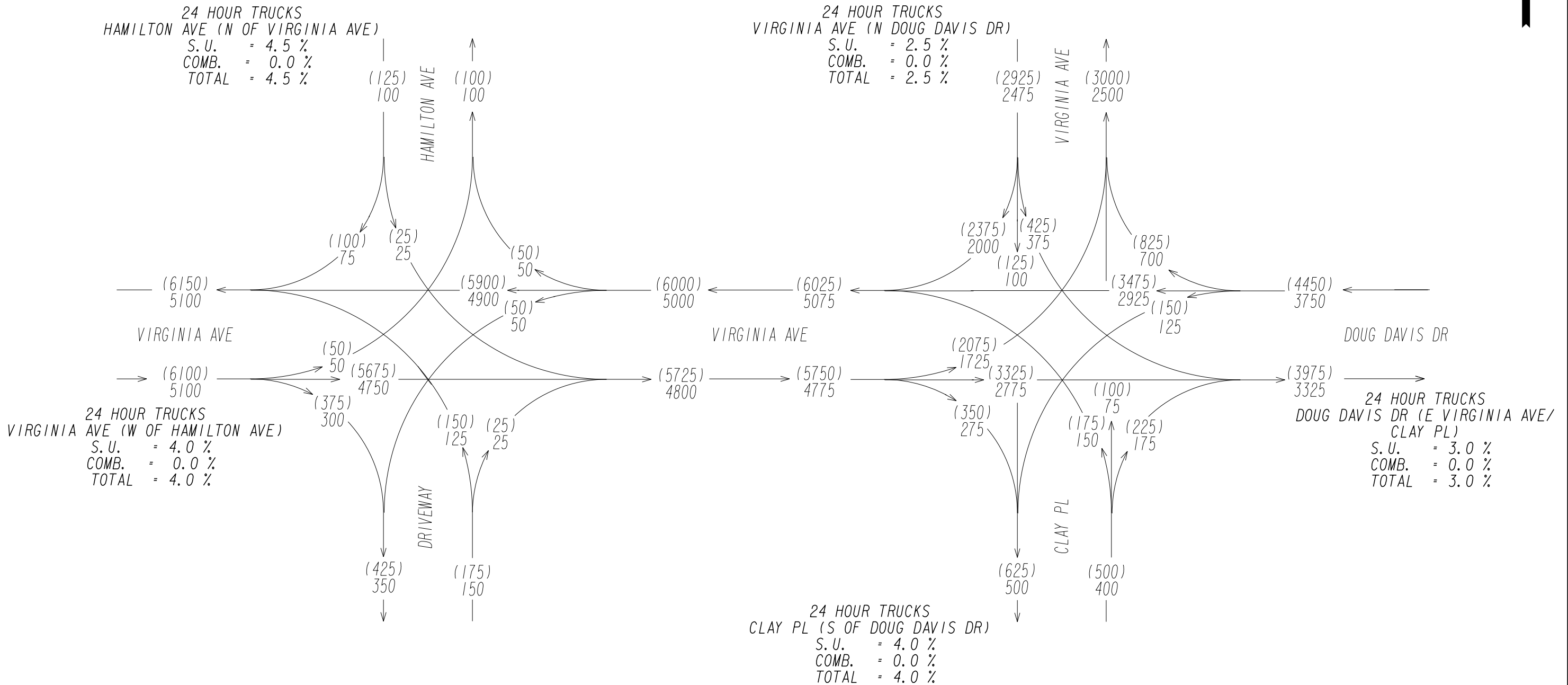


REVISION DATES

TRAFFIC DIAGRAM

DRAWING No.
01-0003

FULTON COUNTY



(2043) 2023 AADT

PROJECT NUMBER: 171007021
FULTON COUNTY

VIRGINIA AVENUE
ROUNDAABOUT FEASIBILITY
STUDY

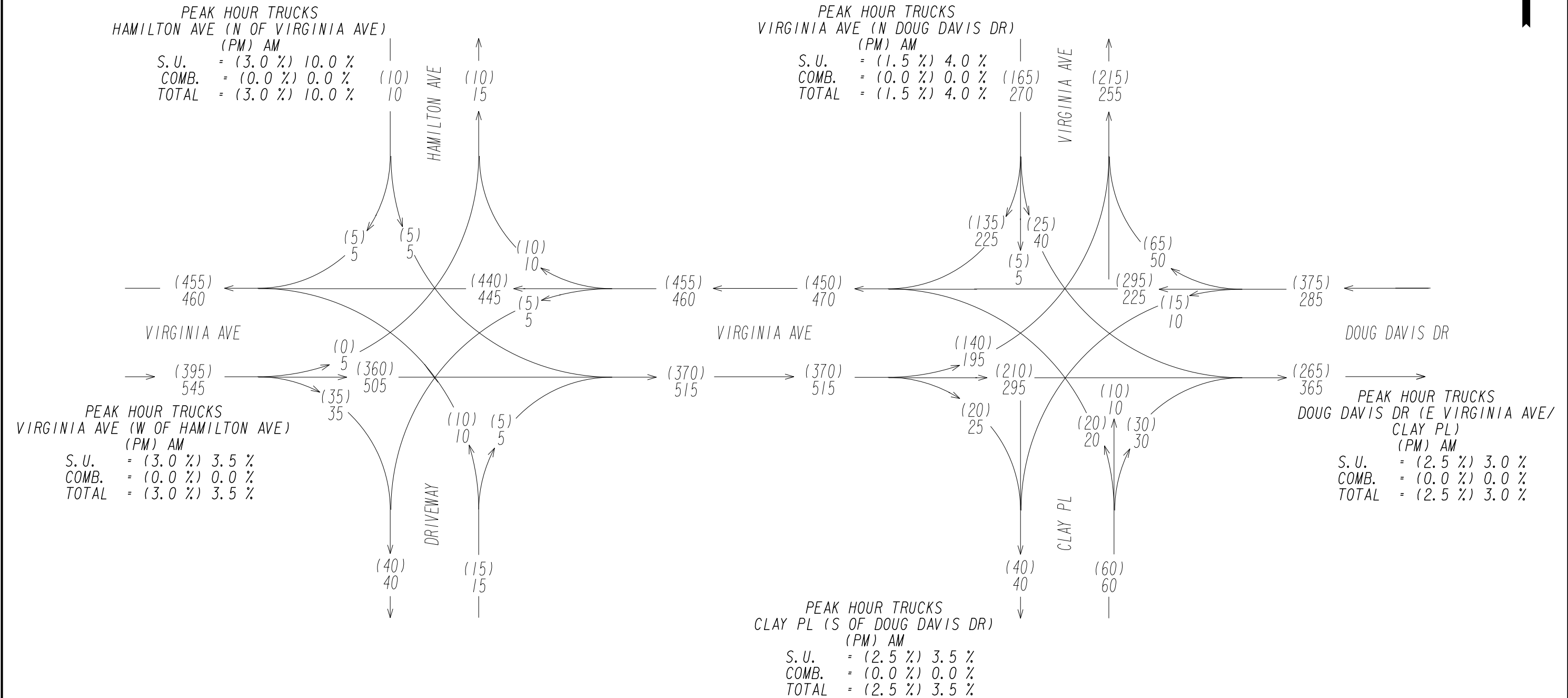


REVISION DATES

TRAFFIC DIAGRAM

DRAWING No.
01-0004

FULTON COUNTY



FULTON COUNTY



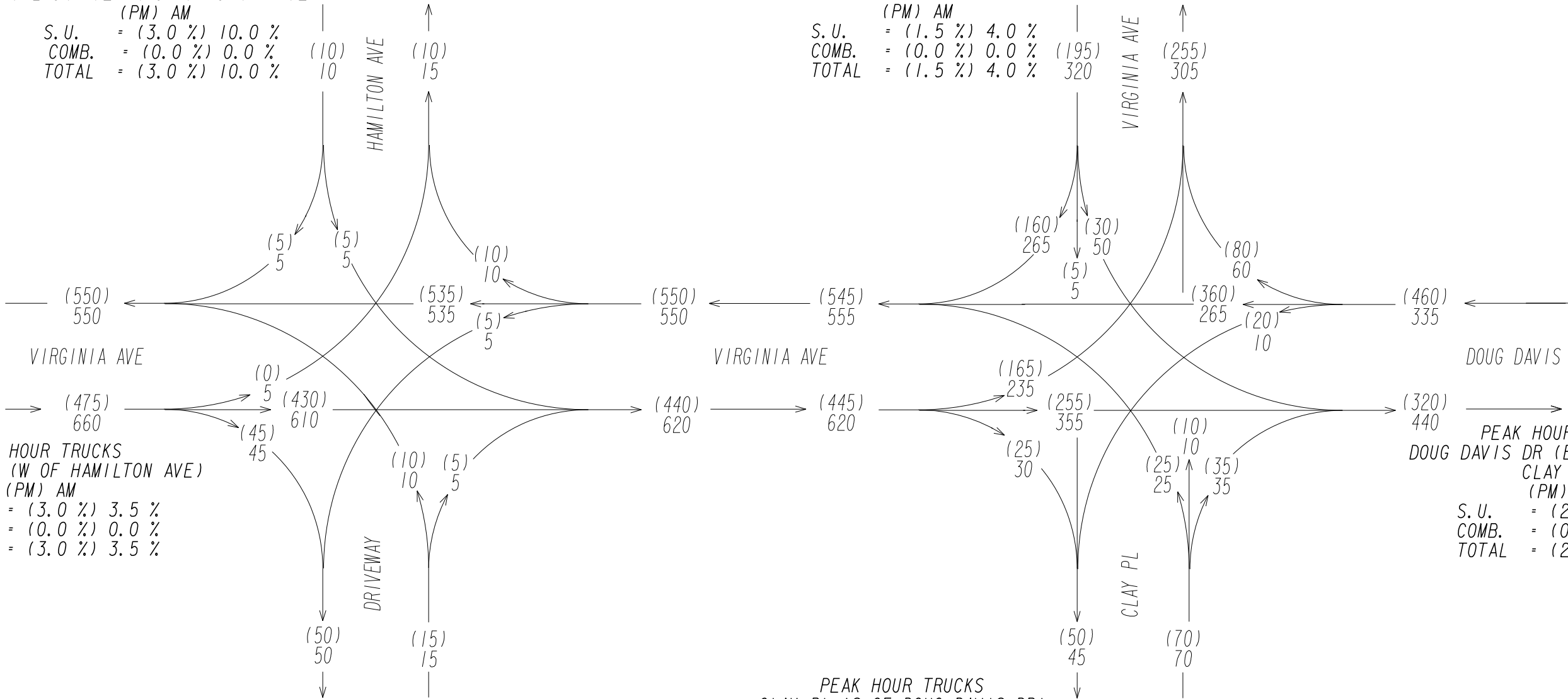
PEAK HOUR TRUCKS
HAMILTON AVE (N OF VIRGINIA AVE)
(PM) AM
S.U. = (3.0 %) 10.0 %
COMB. = (0.0 %) 0.0 %
TOTAL = (3.0 %) 10.0 %

PEAK HOUR TRUCKS
VIRGINIA AVE (N DOUG DAVIS DR)
(PM) AM
S.U. = (1.5 %) 4.0 %
COMB. = (0.0 %) 0.0 %
TOTAL = (1.5 %) 4.0 %

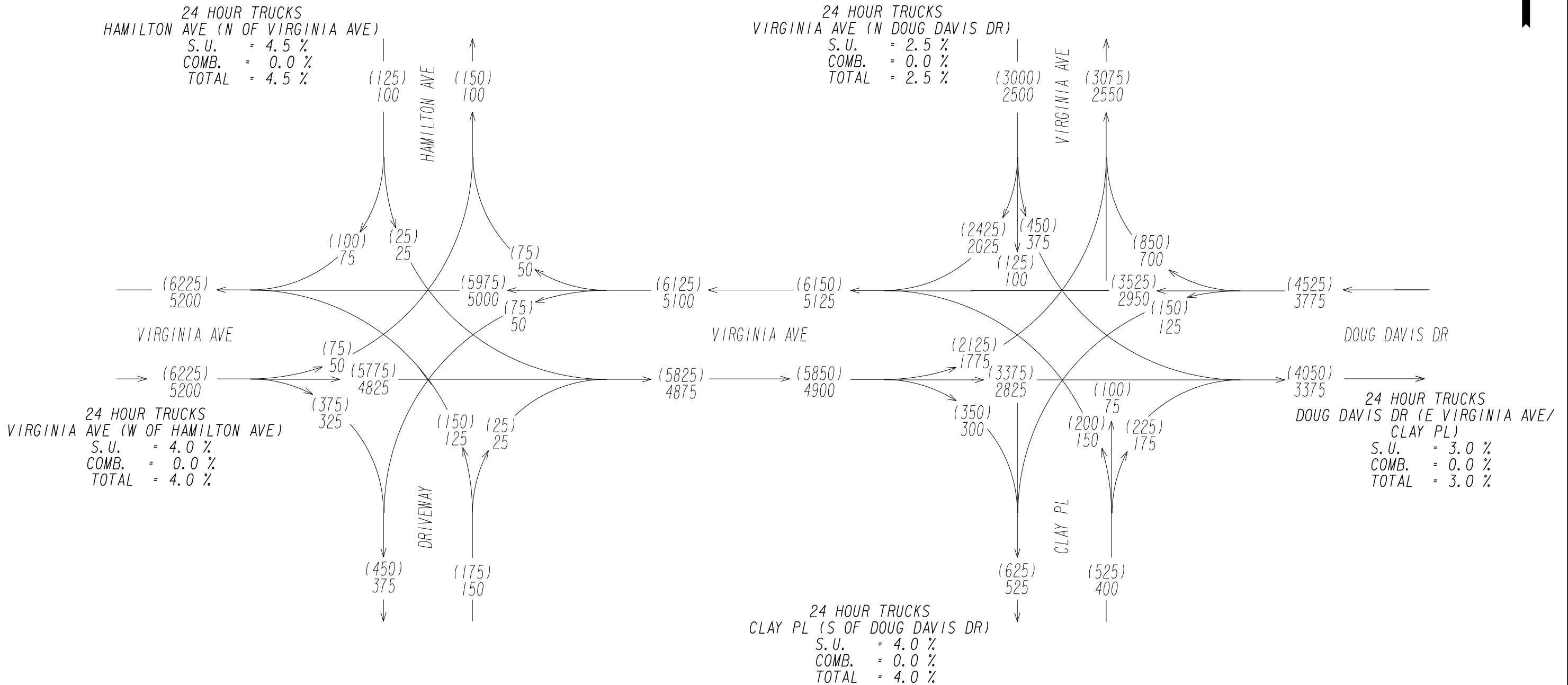
PEAK HOUR TRUCKS
VIRGINIA AVE (W OF HAMILTON AVE)
(PM) AM
S.U. = (3.0 %) 3.5 %
COMB. = (0.0 %) 0.0 %
TOTAL = (3.0 %) 3.5 %

PEAK HOUR TRUCKS
DOUG DAVIS DR (E VIRGINIA AVE/
CLAY PL)
(PM) AM
S.U. = (2.5 %) 3.0 %
COMB. = (0.0 %) 0.0 %
TOTAL = (2.5 %) 3.0 %

PEAK HOUR TRUCKS
CLAY PL (S OF DOUG DAVIS DR)
(PM) AM
S.U. = (2.5 %) 3.5 %
COMB. = (0.0 %) 0.0 %
TOTAL = (2.5 %) 3.5 %



FULTON COUNTY



(2045) 2025 AADT

PROJECT NUMBER: 171007021
FULTON COUNTY

VIRGINIA AVENUE
ROUNDAABOUT FEASIBILITY
STUDY



REVISION DATES

TRAFFIC DIAGRAM

DRAWING No.
01-0007

FULTON COUNTY



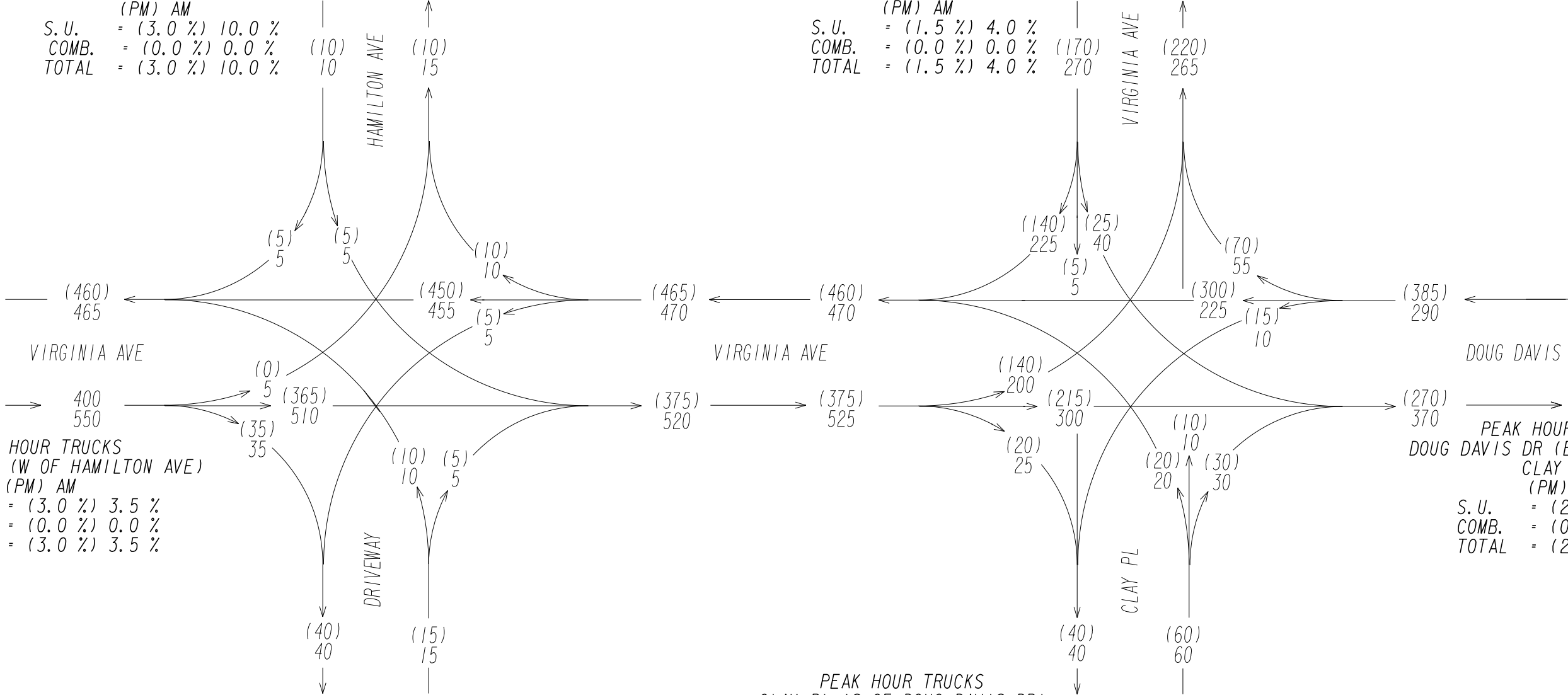
PEAK HOUR TRUCKS
HAMILTON AVE (N OF VIRGINIA AVE)
(PM) AM
S.U. = (3.0 %) 10.0 %
COMB. = (0.0 %) 0.0 %
TOTAL = (3.0 %) 10.0 %

PEAK HOUR TRUCKS
VIRGINIA AVE (N DOUG DAVIS DR)
(PM) AM
S.U. = (1.5 %) 4.0 %
COMB. = (0.0 %) 0.0 %
TOTAL = (1.5 %) 4.0 %

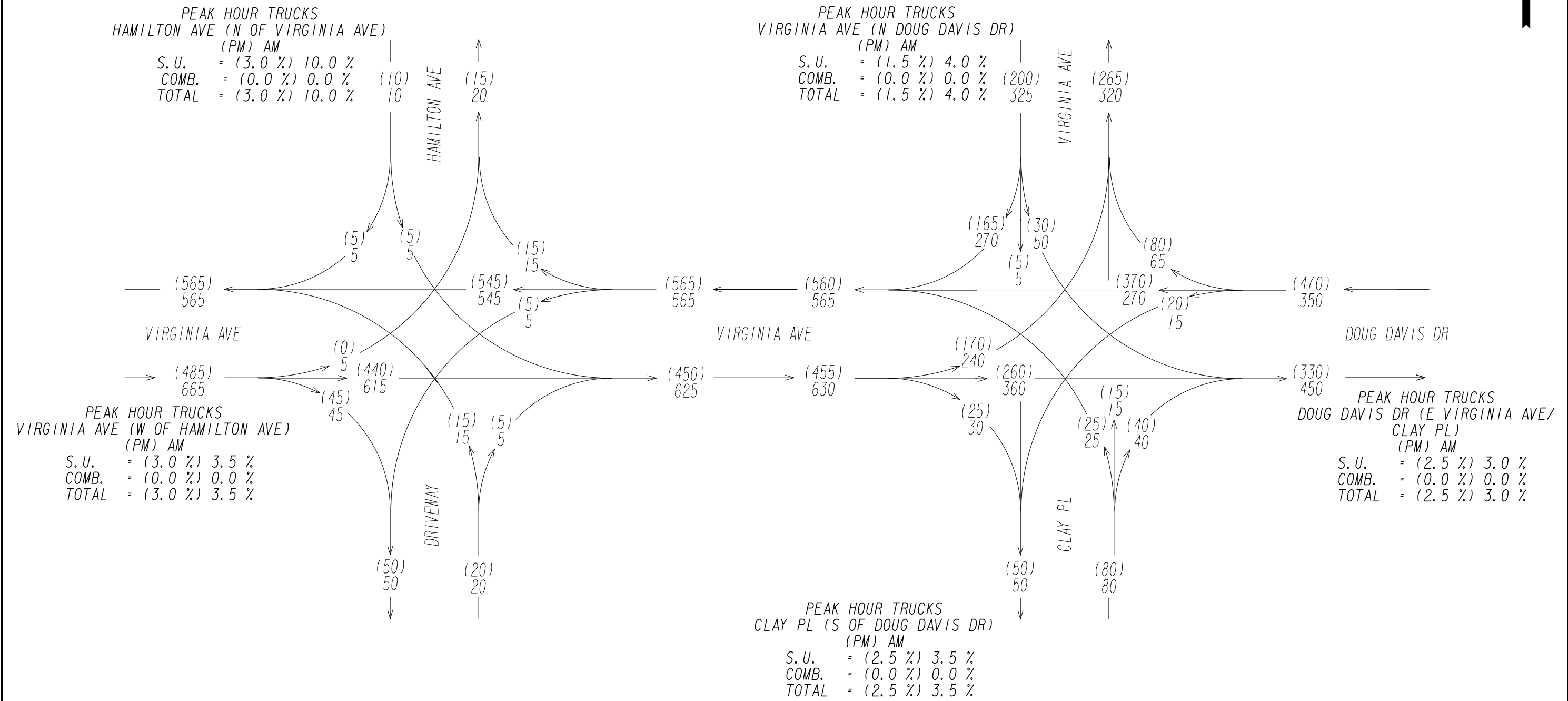
PEAK HOUR TRUCKS
VIRGINIA AVE (W OF HAMILTON AVE)
(PM) AM
S.U. = (3.0 %) 3.5 %
COMB. = (0.0 %) 0.0 %
TOTAL = (3.0 %) 3.5 %

PEAK HOUR TRUCKS
DOUG DAVIS DR (E VIRGINIA AVE/
CLAY PL)
(PM) AM
S.U. = (2.5 %) 3.0 %
COMB. = (0.0 %) 0.0 %
TOTAL = (2.5 %) 3.0 %

PEAK HOUR TRUCKS
CLAY PL (S OF DOUG DAVIS DR)
(PM) AM
S.U. = (2.5 %) 3.5 %
COMB. = (0.0 %) 0.0 %
TOTAL = (2.5 %) 3.5 %



FULTON COUNTY



**APPENDIX F.1 – GROWTH RATE
CALCULATIONS
(GDOT HISTORICAL DATA)**

Historical Growth Calculations for Lenox Rd **(PI# 0015005 - Fulton County)**

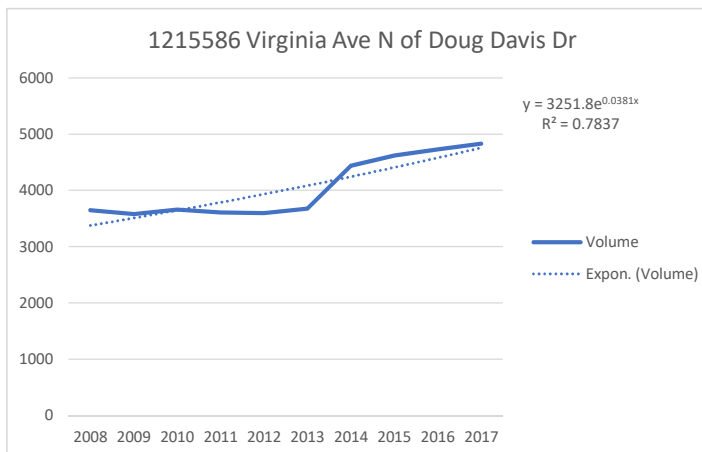
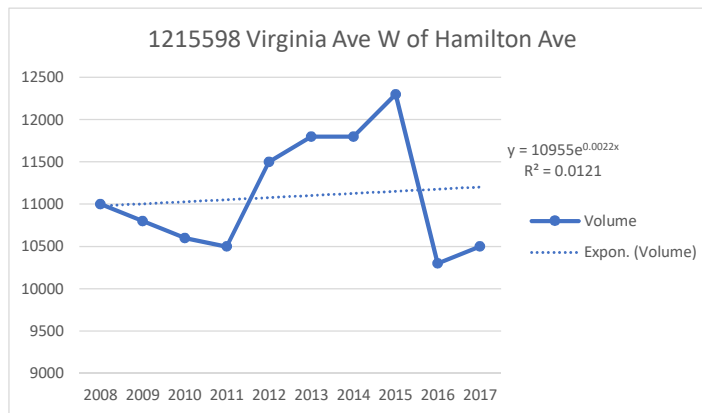
- Based on local GDOT Count Stations

Study Corridor

Growth Rate based on data from 2008-2017

1215598 Virginia Ave W of Hamilton Ave		
Year	Volume	Actuals?
2017	10,500	Estimated
2016	10,300	Actual
2015	12,300	Estimated
2014	11,800	-
2013	11,800	-
Growth		-2.9%
2012	11500	-
2011	10500	-
2010	10600	-
2009	10800	-
2008	11000	-
Trend Growth Rate		0.2%

1215586 Virginia Avenue N of Doug Davis Drive		
Year	Volume	Actuals?
2017	4,830	Estimtaed
2016	4,730	Estimtaed
2015	4,620	Estimtaed
2014	4,440	-
2013	3,680	-
Growth Rate		7.0%
2012	3600	-
2011	3610	-
2010	3660	-
2009	3580	-
2008	3650	-
Trend Growth Rate		3.8%



Single Station Annualized Statistics - 121-5586

Data Item	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Data Item
Statistics type	-	-	-	-	-	-	-	Estimated	Estimated	Estimated	Statistics type
AADT	3650	3580	3660	3610	3600	3680	4440	4620	4730	4830	AADT
Single-Unit Truck AADT	-	-	-	-	-	-	-	-	-	-	Single-Unit Truck AADT
Combo-Unit Truck AADT	-	-	-	-	-	-	-	-	-	-	Combo-Unit Truck AADT
% Peak SU Trucks	-	-	-	-	-	-	-	-	-	-	% Peak SU Trucks
% Peak CU Trucks	-	-	-	-	-	-	-	-	-	-	% Peak CU Trucks
K-Factor	-	-	-	-	-	-	0.123	0.123	0.123	-	K-Factor
D-Factor	-	-	-	-	-	-	0.500	0.500	0.500	-	D-Factor
Future AADT	-	-	-	-	-	-	-	-	6250	7840	Future AADT

Single Station Annualized Statistics - 121-5593

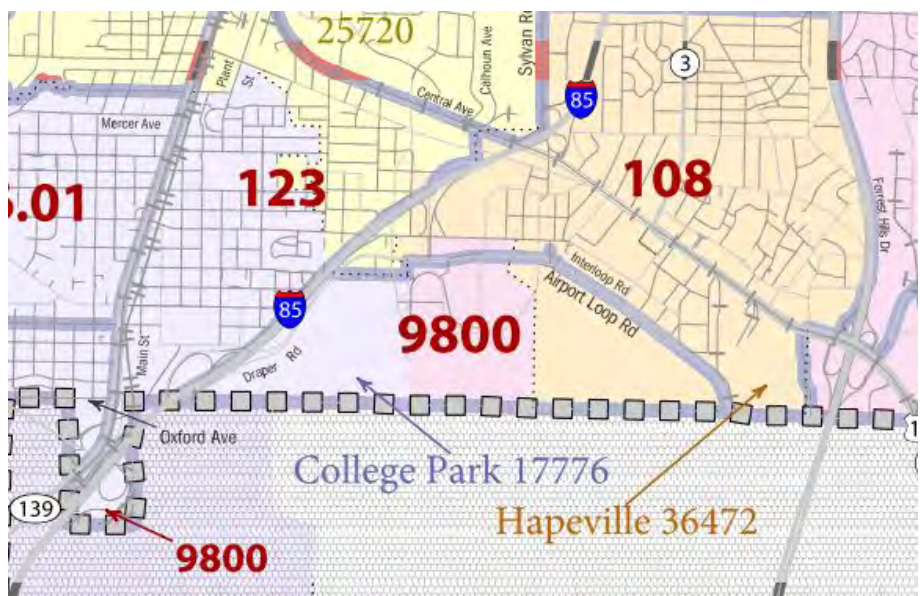
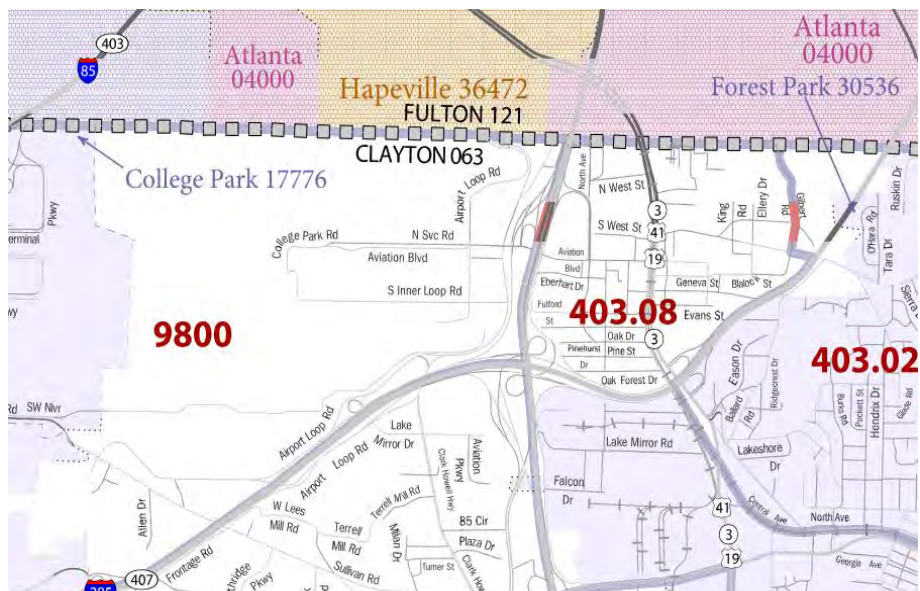
Data Item	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Data Item
Statistics type	-	-	-	-	-	-	-	Estimated	Actual	Estimated	Statistics type
AADT	11000	10800	10600	10500	11500	11800	11800	12300	10300	10500	AADT
Single-Unit Truck AADT	-	-	-	-	-	-	-	-	392	-	Single-Unit Truck AADT
Combo-Unit Truck AADT	-	-	-	-	-	-	-	-	22	-	Combo-Unit Truck AADT
% Peak SU Trucks	-	-	-	-	-	-	-	-	0.252	-	% Peak SU Trucks
% Peak CU Trucks	-	-	-	-	-	-	-	-	0.039	-	% Peak CU Trucks
K-Factor	-	-	-	-	-	-	-	-	0.114	-	K-Factor
D-Factor	-	-	-	-	-	-	-	-	0.600	-	D-Factor
Future AADT	-	-	-	-	-	-	-	-	13200	11800	Future AADT

**APPENDIX F.2 – GROWTH RATE
CALCULATIONS
(US CENSUS DATA)**

Historical Growth Calculations for P.I. #0015005 (Fulton) - Lenox Road

- Based on local US Census Data

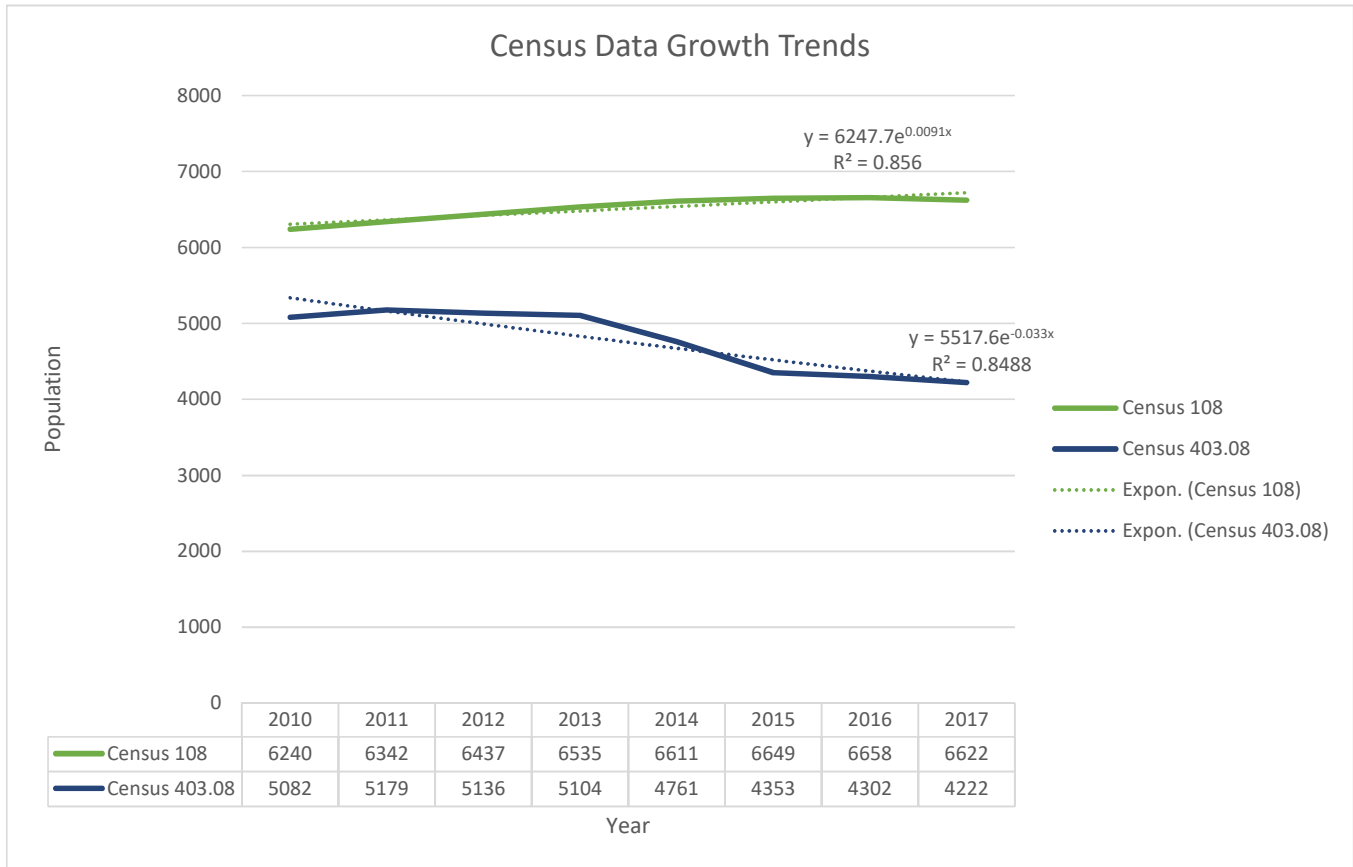
Census Tract 108 (Project Location)		Census Tract 403.08 (Directly Adjacent to Project Location)	
Year	Volume	Year	Volume
2018	-	2018	-
2017	6,622	2017	4,222
2016	6,658	2016	4,302
2015	6,649	2015	4,353
2014	6,611	2014	4,761
2013	6,535	2013	5,104
2012	6,437	2012	5,136
2011	6,342	2011	5,179
2010	6,240	2010	5,082
Growth Rate	0.9%	Growth Rate	-2.6%
Avg Volumes	6,510	Avg Volumes	4,770
Trendline Growth	0.9%	Trendline Growth	-0.3%



* Tract 9800 does not have any recorded data on American Fact Finder

Historical Growth Calculations for P.I. #0015005 (Fulton) - Lenox Road

- Based on local US Census Data



B01003

TOTAL POPULATION

Universe: Total population

2006-2010 American Community Survey 5-Year Estimates

Supporting documentation on code lists, subject definitions, data accuracy, and statistical testing can be found on the American Community Survey website in the Data and Documentation section.

Sample size and data quality measures (including coverage rates, allocation rates, and response rates) can be found on the American Community Survey website in the Methodology section.

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, for 2010, the 2010 Census provides the official counts of the population and housing units for the nation, states, counties, cities and towns. For 2006 to 2009, the Population Estimates Program provides intercensal estimates of the population for the nation, states, and counties.

	Census Tract 108, Fulton County, Georgia	
	Estimate	Margin of Error
Total	6,240	+/-21

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see Accuracy of the Data). The effect of nonsampling error is not represented in these tables.

While the 2006-2010 American Community Survey (ACS) data generally reflect the December 2009 Office of Management and Budget (OMB) definitions of metropolitan and micropolitan statistical areas; in certain instances the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB definitions due to differences in the effective dates of the geographic entities.

Estimates of urban and rural population, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2000 data. Boundaries for urban areas have not been updated since Census 2000. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

Source: U.S. Census Bureau, 2006-2010 American Community Survey

Explanation of Symbols:

1. An '*' entry in the margin of error column indicates that either no sample observations or too few sample observations were available to compute a standard error and thus the margin of error. A statistical test is not appropriate.
2. An '-' entry in the estimate column indicates that either no sample observations or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest interval or upper interval of an open-ended distribution.
3. An '-' following a median estimate means the median falls in the lowest interval of an open-ended distribution.
4. An '+' following a median estimate means the median falls in the upper interval of an open-ended distribution.
5. An '*' entry in the margin of error column indicates that the median falls in the lowest interval or upper interval of an open-ended distribution. A statistical test is not appropriate.
6. An '*****' entry in the margin of error column indicates that the estimate is controlled. A statistical test for sampling variability is not appropriate.
7. An 'N' entry in the estimate and margin of error columns indicates that data for this geographic area cannot be displayed because the number of sample cases is too small.
8. An '(X)' means that the estimate is not applicable or not available.

B01003

TOTAL POPULATION

Universe: Total population

2007-2011 American Community Survey 5-Year Estimates

Supporting documentation on code lists, subject definitions, data accuracy, and statistical testing can be found on the American Community Survey website in the Data and Documentation section.

Sample size and data quality measures (including coverage rates, allocation rates, and response rates) can be found on the American Community Survey website in the Methodology section.

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

	Census Tract 108, Fulton County, Georgia	
	Estimate	Margin of Error
Total	6,342	+/-18

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see Accuracy of the Data). The effect of nonsampling error is not represented in these tables.

While the 2007-2011 American Community Survey (ACS) data generally reflect the December 2009 Office of Management and Budget (OMB) definitions of metropolitan and micropolitan statistical areas; in certain instances the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB definitions due to differences in the effective dates of the geographic entities.

Estimates of urban and rural population, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2000 data. Boundaries for urban areas have not been updated since Census 2000. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

Source: U.S. Census Bureau, 2007-2011 American Community Survey

Explanation of Symbols:

1. An '*' entry in the margin of error column indicates that either no sample observations or too few sample observations were available to compute a standard error and thus the margin of error. A statistical test is not appropriate.
2. An '-' entry in the estimate column indicates that either no sample observations or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest interval or upper interval of an open-ended distribution.
3. An '-' following a median estimate means the median falls in the lowest interval of an open-ended distribution.
4. An '+' following a median estimate means the median falls in the upper interval of an open-ended distribution.
5. An '*' entry in the margin of error column indicates that the median falls in the lowest interval or upper interval of an open-ended distribution. A statistical test is not appropriate.
6. An '*****' entry in the margin of error column indicates that the estimate is controlled. A statistical test for sampling variability is not appropriate.
7. An 'N' entry in the estimate and margin of error columns indicates that data for this geographic area cannot be displayed because the number of sample cases is too small.
8. An '(X)' means that the estimate is not applicable or not available.

B01003

TOTAL POPULATION

Universe: Total population

2008-2012 American Community Survey 5-Year Estimates

Supporting documentation on code lists, subject definitions, data accuracy, and statistical testing can be found on the American Community Survey website in the Data and Documentation section.

Sample size and data quality measures (including coverage rates, allocation rates, and response rates) can be found on the American Community Survey website in the Methodology section.

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

	Census Tract 108, Fulton County, Georgia	
	Estimate	Margin of Error
Total	6,437	+/-20

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see Accuracy of the Data). The effect of nonsampling error is not represented in these tables.

While the 2008-2012 American Community Survey (ACS) data generally reflect the December 2009 Office of Management and Budget (OMB) definitions of metropolitan and micropolitan statistical areas; in certain instances the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB definitions due to differences in the effective dates of the geographic entities.

Estimates of urban and rural population, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2000 data. Boundaries for urban areas have not been updated since Census 2000. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

Source: U.S. Census Bureau, 2008-2012 American Community Survey

Explanation of Symbols:

1. An '*' entry in the margin of error column indicates that either no sample observations or too few sample observations were available to compute a standard error and thus the margin of error. A statistical test is not appropriate.
2. An '-' entry in the estimate column indicates that either no sample observations or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest interval or upper interval of an open-ended distribution.
3. An '-' following a median estimate means the median falls in the lowest interval of an open-ended distribution.
4. An '+' following a median estimate means the median falls in the upper interval of an open-ended distribution.
5. An '*' entry in the margin of error column indicates that the median falls in the lowest interval or upper interval of an open-ended distribution. A statistical test is not appropriate.
6. An '*****' entry in the margin of error column indicates that the estimate is controlled. A statistical test for sampling variability is not appropriate.
7. An 'N' entry in the estimate and margin of error columns indicates that data for this geographic area cannot be displayed because the number of sample cases is too small.
8. An '(X)' means that the estimate is not applicable or not available.



B01003

TOTAL POPULATION

Universe: Total population

2009-2013 American Community Survey 5-Year Estimates

Supporting documentation on code lists, subject definitions, data accuracy, and statistical testing can be found on the American Community Survey website in the Data and Documentation section.

Sample size and data quality measures (including coverage rates, allocation rates, and response rates) can be found on the American Community Survey website in the Methodology section.

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

	Census Tract 108, Fulton County, Georgia	
	Estimate	Margin of Error
Total	6,535	+/-30

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see Accuracy of the Data). The effect of nonsampling error is not represented in these tables.

While the 2009-2013 American Community Survey (ACS) data generally reflect the February 2013 Office of Management and Budget (OMB) definitions of metropolitan and micropolitan statistical areas; in certain instances the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB definitions due to differences in the effective dates of the geographic entities.

Estimates of urban and rural population, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2010 data. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

Source: U.S. Census Bureau, 2009-2013 5-Year American Community Survey

Explanation of Symbols:

1. An '***' entry in the margin of error column indicates that either no sample observations or too few sample observations were available to compute a standard error and thus the margin of error. A statistical test is not appropriate.
2. An '-' entry in the estimate column indicates that either no sample observations or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest interval or upper interval of an open-ended distribution.
3. An '-' following a median estimate means the median falls in the lowest interval of an open-ended distribution.
4. An '+' following a median estimate means the median falls in the upper interval of an open-ended distribution.
5. An '***' entry in the margin of error column indicates that the median falls in the lowest interval or upper interval of an open-ended distribution. A statistical test is not appropriate.
6. An '*****' entry in the margin of error column indicates that the estimate is controlled. A statistical test for sampling variability is not appropriate.
7. An 'N' entry in the estimate and margin of error columns indicates that data for this geographic area cannot be displayed because the number of sample cases is too small.
8. An '(X)' means that the estimate is not applicable or not available.



B01003

TOTAL POPULATION

Universe: Total population

2010-2014 American Community Survey 5-Year Estimates

Supporting documentation on code lists, subject definitions, data accuracy, and statistical testing can be found on the American Community Survey website in the Data and Documentation section.

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	Census Tract 108, Fulton County, Georgia	
	Estimate	Margin of Error
Total	6,611	+/-24

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see Accuracy of the Data). The effect of nonsampling error is not represented in these tables.

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Estimates of urban and rural population, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2010 data. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

Source: U.S. Census Bureau, 2010-2014 American Community Survey 5-Year Estimates

Explanation of Symbols:

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8. An '(X)' means that the estimate is not applicable or not available.

B01003

TOTAL POPULATION

Universe: Total population

2011-2015 American Community Survey 5-Year Estimates

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	Census Tract 108, Fulton County, Georgia	
	Estimate	Margin of Error
Total	6,649	+/-28

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see Accuracy of the Data). The effect of nonsampling error is not represented in these tables.

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Source: U.S. Census Bureau, 2011-2015 American Community Survey 5-Year Estimates

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B01003

TOTAL POPULATION

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2012-2016 American Community Survey 5-Year Estimates

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	Census Tract 108, Fulton County, Georgia	
	Estimate	Margin of Error
Total	6,658	+/-18

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Estimates of urban and rural population, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2010 data. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates

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B01003

TOTAL POPULATION

Universe: Total population

2013-2017 American Community Survey 5-Year Estimates

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	Census Tract 108, Fulton County, Georgia	
	Estimate	Margin of Error
Total	6,622	+/-19

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While the 2013-2017 American Community Survey (ACS) data generally reflect the February 2013 Office of Management and Budget (OMB) definitions of metropolitan and micropolitan statistical areas; in certain instances the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB definitions due to differences in the effective dates of the geographic entities.

Estimates of urban and rural populations, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2010 data. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

Source: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates

Explanation of Symbols:

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B01003

TOTAL POPULATION

Universe: Total population

2006-2010 American Community Survey 5-Year Estimates

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Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, for 2010, the 2010 Census provides the official counts of the population and housing units for the nation, states, counties, cities and towns. For 2006 to 2009, the Population Estimates Program provides intercensal estimates of the population for the nation, states, and counties.

	Census Tract 403.08, Clayton County, Georgia	
	Estimate	Margin of Error
Total	5,082	+/-619

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see Accuracy of the Data). The effect of nonsampling error is not represented in these tables.

While the 2006-2010 American Community Survey (ACS) data generally reflect the December 2009 Office of Management and Budget (OMB) definitions of metropolitan and micropolitan statistical areas; in certain instances the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB definitions due to differences in the effective dates of the geographic entities.

Estimates of urban and rural population, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2000 data. Boundaries for urban areas have not been updated since Census 2000. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

Source: U.S. Census Bureau, 2006-2010 American Community Survey

Explanation of Symbols:

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B01003

TOTAL POPULATION

Universe: Total population

2007-2011 American Community Survey 5-Year Estimates

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	Census Tract 403.08, Clayton County, Georgia	
	Estimate	Margin of Error
Total	5,179	+/-663

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Estimates of urban and rural population, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2000 data. Boundaries for urban areas have not been updated since Census 2000. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

Source: U.S. Census Bureau, 2007-2011 American Community Survey

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B01003

TOTAL POPULATION

Universe: Total population

2008-2012 American Community Survey 5-Year Estimates

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	Census Tract 403.08, Clayton County, Georgia	
	Estimate	Margin of Error
Total	5,136	+/-630

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	Census Tract 403.08, Clayton County, Georgia	
	Estimate	Margin of Error
Total	5,104	+/-630

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	Census Tract 403.08, Clayton County, Georgia	
	Estimate	Margin of Error
Total	4,761	+/-527

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TOTAL POPULATION

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2011-2015 American Community Survey 5-Year Estimates

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	Census Tract 403.08, Clayton County, Georgia	
	Estimate	Margin of Error
Total	4,353	+/-487

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B01003

TOTAL POPULATION

Universe: Total population

2012-2016 American Community Survey 5-Year Estimates

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	Census Tract 403.08, Clayton County, Georgia	
	Estimate	Margin of Error
Total	4,302	+/-454

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see Accuracy of the Data). The effect of nonsampling error is not represented in these tables.

While the 2012-2016 American Community Survey (ACS) data generally reflect the February 2013 Office of Management and Budget (OMB) definitions of metropolitan and micropolitan statistical areas; in certain instances the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB definitions due to differences in the effective dates of the geographic entities.

Estimates of urban and rural population, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2010 data. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates

Explanation of Symbols:

1. An '***' entry in the margin of error column indicates that either no sample observations or too few sample observations were available to compute a standard error and thus the margin of error. A statistical test is not appropriate.
2. An '-' entry in the estimate column indicates that either no sample observations or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest interval or upper interval of an open-ended distribution.
3. An '-' following a median estimate means the median falls in the lowest interval of an open-ended distribution.
4. An '+' following a median estimate means the median falls in the upper interval of an open-ended distribution.
5. An '****' entry in the margin of error column indicates that the median falls in the lowest interval or upper interval of an open-ended distribution. A statistical test is not appropriate.
6. An '*****' entry in the margin of error column indicates that the estimate is controlled. A statistical test for sampling variability is not appropriate.
7. An 'N' entry in the estimate and margin of error columns indicates that data for this geographic area cannot be displayed because the number of sample cases is too small.
8. An '(X)' means that the estimate is not applicable or not available.



B01003

TOTAL POPULATION

Universe: Total population

2013-2017 American Community Survey 5-Year Estimates

Supporting documentation on code lists, subject definitions, data accuracy, and statistical testing can be found on the American Community Survey website in the Technical Documentation section.

Sample size and data quality measures (including coverage rates, allocation rates, and response rates) can be found on the American Community Survey website in the Methodology section.

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities, and towns and estimates of housing units for states and counties.

	Census Tract 403.08, Clayton County, Georgia	
	Estimate	Margin of Error
Total	4,222	+/-463

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see Accuracy of the Data). The effect of nonsampling error is not represented in these tables.

While the 2013-2017 American Community Survey (ACS) data generally reflect the February 2013 Office of Management and Budget (OMB) definitions of metropolitan and micropolitan statistical areas; in certain instances the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB definitions due to differences in the effective dates of the geographic entities.

Estimates of urban and rural populations, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2010 data. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

Source: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates

Explanation of Symbols:

1. An '***' entry in the margin of error column indicates that either no sample observations or too few sample observations were available to compute a standard error and thus the margin of error. A statistical test is not appropriate.
2. An '-' entry in the estimate column indicates that either no sample observations or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest interval or upper interval of an open-ended distribution.
3. An '-' following a median estimate means the median falls in the lowest interval of an open-ended distribution.
4. An '+' following a median estimate means the median falls in the upper interval of an open-ended distribution.
5. An '***' entry in the margin of error column indicates that the median falls in the lowest interval or upper interval of an open-ended distribution. A statistical test is not appropriate.
6. An '*****' entry in the margin of error column indicates that the estimate is controlled. A statistical test for sampling variability is not appropriate.
7. An 'N' entry in the estimate and margin of error columns indicates that data for this geographic area cannot be displayed because the number of sample cases is too small.
8. An '(X)' means that the estimate is not applicable or not available.

APPENDIX G – SYNCHRO ANALYSIS RESULTS

2019 Noon Peak Intersection 1: Virginia Ave and Hamilton Ave

09/11/2019

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	485	35	5	430	10	10	0	5	5	0	5
Future Vol, veh/h	5	485	35	5	430	10	10	0	5	5	0	5
Conflicting Peds, #/hr	20	0	28	28	0	20	6	0	2	2	0	6
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	84	84	84	51	51	51	52	52	52
Heavy Vehicles, %	4	4	4	3	3	3	0	0	0	10	10	10
Mvmt Flow	5	533	38	6	512	12	20	0	10	10	0	10
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	544	0	0	599	0	0	864	1146	316	829	1159	288
Stage 1	-	-	-	-	-	-	590	590	-	550	550	-
Stage 2	-	-	-	-	-	-	274	556	-	279	609	-
Critical Hdwy	4.18	-	-	4.16	-	-	7.5	6.5	6.9	7.7	6.7	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.7	5.7	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.7	5.7	-
Follow-up Hdwy	2.24	-	-	2.23	-	-	3.5	4	3.3	3.6	4.1	3.4
Pot Cap-1 Maneuver	1007	-	-	967	-	-	251	201	686	250	183	685
Stage 1	-	-	-	-	-	-	466	498	-	467	495	-
Stage 2	-	-	-	-	-	-	714	516	-	682	464	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	991	-	-	939	-	-	236	189	665	240	172	671
Mov Cap-2 Maneuver	-	-	-	-	-	-	236	189	-	240	172	-
Stage 1	-	-	-	-	-	-	450	481	-	457	483	-
Stage 2	-	-	-	-	-	-	694	503	-	667	448	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.1			18.3			15.8		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	301	991	-	-	939	-	-	354				
HCM Lane V/C Ratio	0.098	0.006	-	-	0.006	-	-	0.054				
HCM Control Delay (s)	18.3	8.7	-	-	8.9	0	-	15.8				
HCM Lane LOS	C	A	-	-	A	A	-	C				
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.2				

2019 Noon Peak Intersection 2: Virginia Ave and Clay Place

09/11/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	285	25	10	215	50	20	10	0	40	5	215
Future Volume (veh/h)	190	285	25	10	215	50	20	10	0	40	5	215
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.98	0.98		1.00	0.97		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1856	1856	1856	1841	1841	0	1767	1841	1841
Adj Flow Rate, veh/h	209	313	27	12	256	60	29	15	0	47	6	250
Peak Hour Factor	0.91	0.91	0.91	0.84	0.84	0.84	0.68	0.68	0.68	0.86	0.86	0.86
Percent Heavy Veh, %	4	4	4	3	3	3	4	4	0	4	4	4
Cap, veh/h	661	2150	184	607	994	829	141	246	0	288	8	344
Arrive On Green	0.07	0.66	0.66	0.54	0.54	0.54	0.13	0.13	0.00	0.04	0.23	0.23
Sat Flow, veh/h	1753	3256	279	1022	1856	1548	1083	1841	0	1683	36	1496
Grp Volume(v), veh/h	209	167	173	12	256	60	29	15	0	47	0	256
Grp Sat Flow(s),veh/h/ln	1753	1749	1786	1022	1856	1548	1083	1841	0	1683	0	1531
Q Serve(g_s), s	6.2	4.3	4.4	0.7	8.9	2.2	3.1	0.9	0.0	2.8	0.0	18.6
Cycle Q Clear(g_c), s	6.2	4.3	4.4	0.7	8.9	2.2	10.1	0.9	0.0	2.8	0.0	18.6
Prop In Lane	1.00		0.16	1.00		1.00	1.00		0.00	1.00		0.98
Lane Grp Cap(c), veh/h	661	1155	1179	607	994	829	141	246	0	288	0	352
V/C Ratio(X)	0.32	0.14	0.15	0.02	0.26	0.07	0.21	0.06	0.00	0.16	0.00	0.73
Avail Cap(c_a), veh/h	661	1155	1179	607	994	829	251	433	0	337	0	551
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.4	7.7	7.7	13.1	15.0	13.5	52.7	45.4	0.0	40.6	0.0	42.7
Incr Delay (d2), s/veh	0.3	0.3	0.3	0.1	0.6	0.2	0.7	0.1	0.0	0.3	0.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	1.6	1.7	0.2	3.8	0.8	0.9	0.4	0.0	1.2	0.0	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.7	7.9	7.9	13.2	15.6	13.6	53.4	45.5	0.0	40.8	0.0	45.6
LnGrp LOS	B	A	A	B	B	B	D	D	A	D	A	D
Approach Vol, veh/h	549			328			44			303		
Approach Delay, s/veh	9.0			15.2			50.7			44.9		
Approach LOS	A			B			D			D		
Timer - Assigned Phs	1	2	3	4	6			8				
Phs Duration (G+Y+Rc), s	15.0	70.7	11.5	22.8	85.6			34.4				
Change Period (Y+Rc), s	* 6.8	6.4	* 6.8	* 6.8	6.4			* 6.8				
Max Green Setting (Gmax), s	* 8.2	48.6	* 8.2	* 28	63.6			* 43				
Max Q Clear Time (g_c+I1), s	8.2	10.9	4.8	12.1	6.4			20.6				
Green Ext Time (p_c), s	0.0	5.0	0.0	0.1	5.4			0.8				
Intersection Summary												
HCM 6th Ctrl Delay			21.0									
HCM 6th LOS			C									
Notes												

2019 Noon Peak Intersection 2: Right Turn Lane

09/11/2019

						
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑↑			↑↑↑		↑
Traffic Volume (veh/h)	355	0	0	275	0	30
Future Volume (Veh/h)	355	0	0	275	0	30
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.84	0.84	0.68	0.68
Hourly flow rate (vph)	390	0	0	327	0	44
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)	104					
pX, platoon unblocked			0.97		0.97	0.97
vC, conflicting volume			390		499	195
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			314		426	113
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	95
cM capacity (veh/h)			1201		536	886
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NE 1
Volume Total	195	195	109	109	109	44
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	44
cSH	1700	1700	1700	1700	1700	886
Volume to Capacity	0.11	0.11	0.06	0.06	0.06	0.05
Queue Length 95th (ft)	0	0	0	0	0	4
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.3
Lane LOS						A
Approach Delay (s)	0.0		0.0			9.3
Approach LOS						A
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			19.8%		ICU Level of Service	A
Analysis Period (min)			15			

2019 PM Peak Intersection 1: Virginia Ave and Hamilton Ave

09/11/2019

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	345	35	5	415	10	10	0	5	5	0	5
Future Vol, veh/h	0	345	35	5	415	10	10	0	5	5	0	5
Conflicting Peds, #/hr	20	0	28	28	0	20	6	0	2	2	0	6
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	84	84	84	51	51	51	52	52	52
Heavy Vehicles, %	4	4	4	3	3	3	0	0	0	10	10	10
Mvmt Flow	0	379	38	6	494	12	20	0	10	10	0	10
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	526	0	0	445	0	0	691	964	239	724	977	279
Stage 1	-	-	-	-	-	-	426	426	-	532	532	-
Stage 2	-	-	-	-	-	-	265	538	-	192	445	-
Critical Hdwy	4.18	-	-	4.16	-	-	7.5	6.5	6.9	7.7	6.7	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.7	5.7	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.7	5.7	-
Follow-up Hdwy	2.24	-	-	2.23	-	-	3.5	4	3.3	3.6	4.1	3.4
Pot Cap-1 Maneuver	1023	-	-	1104	-	-	335	257	768	299	236	695
Stage 1	-	-	-	-	-	-	582	589	-	479	504	-
Stage 2	-	-	-	-	-	-	723	526	-	769	553	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1007	-	-	1072	-	-	317	244	745	288	224	680
Mov Cap-2 Maneuver	-	-	-	-	-	-	317	244	-	288	224	-
Stage 1	-	-	-	-	-	-	565	572	-	471	492	-
Stage 2	-	-	-	-	-	-	703	513	-	758	537	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			14.9			14.3		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	392	1007	-	-	1072	-	-	405				
HCM Lane V/C Ratio	0.075	-	-	-	0.006	-	-	0.047				
HCM Control Delay (s)	14.9	0	-	-	8.4	0	-	14.3				
HCM Lane LOS	B	A	-	-	A	A	-	B				
HCM 95th %tile O(veh)	0.2	0	-	-	0	-	-	0.1				

2019 PM Peak Intersection 2: Virginia Ave and Clay Place

09/11/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	205	20	15	285	65	20	10	0	25	5	130
Future Volume (veh/h)	135	205	20	15	285	65	20	10	0	25	5	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	0.96		1.00	0.96		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1856	1856	1856	1841	1841	0	1767	1841	1841
Adj Flow Rate, veh/h	148	225	22	18	339	77	29	15	0	29	6	151
Peak Hour Factor	0.91	0.91	0.91	0.84	0.84	0.84	0.68	0.68	0.68	0.86	0.86	0.86
Percent Heavy Veh, %	4	4	4	3	3	3	4	4	0	4	4	4
Cap, veh/h	635	2278	221	733	1130	944	169	199	0	234	11	280
Arrive On Green	0.05	0.71	0.71	0.61	0.61	0.61	0.11	0.11	0.00	0.03	0.19	0.19
Sat Flow, veh/h	1753	3217	311	1113	1856	1551	1166	1841	0	1683	58	1470
Grp Volume(v), veh/h	148	121	126	18	339	77	29	15	0	29	0	157
Grp Sat Flow(s),veh/h/ln	1753	1749	1780	1113	1856	1551	1166	1841	0	1683	0	1528
Q Serve(g_s), s	3.9	2.8	2.9	0.8	11.4	2.7	3.0	1.0	0.0	1.9	0.0	12.1
Cycle Q Clear(g_c), s	3.9	2.8	2.9	0.8	11.4	2.7	4.3	1.0	0.0	1.9	0.0	12.1
Prop In Lane	1.00		0.17	1.00		1.00	1.00		0.00	1.00		0.96
Lane Grp Cap(c), veh/h	635	1238	1261	733	1130	944	169	199	0	234	0	291
V/C Ratio(X)	0.23	0.10	0.10	0.02	0.30	0.08	0.17	0.08	0.00	0.12	0.00	0.54
Avail Cap(c_a), veh/h	731	1238	1261	733	1130	944	341	470	0	290	0	567
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.5	5.9	6.0	10.1	12.2	10.5	54.3	52.1	0.0	47.4	0.0	47.5
Incr Delay (d2), s/veh	0.2	0.2	0.2	0.1	0.7	0.2	0.5	0.2	0.0	0.2	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	1.0	1.1	0.2	4.8	0.9	0.9	0.4	0.0	0.8	0.0	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.7	6.1	6.1	10.2	12.8	10.6	54.8	52.3	0.0	47.7	0.0	49.0
LnGrp LOS	A	A	A	B	B	B	D	D	A	D	A	D
Approach Vol, veh/h	395			434			44			186		
Approach Delay, s/veh	7.1			12.3			53.9			48.8		
Approach LOS	A			B			D			D		
Timer - Assigned Phs	1	2	3	4	6			8				
Phs Duration (G+Y+Rc), s	12.9	85.6	10.7	20.8	98.5			31.5				
Change Period (Y+Rc), s	* 6.8	6.4	* 6.8	* 6.8	6.4			* 6.8				
Max Green Setting (Gmax), s	* 13	48.6	* 8.2	* 33	68.6			* 48				
Max Q Clear Time (g_c+I1), s	5.9	13.4	3.9	6.3	4.9			14.1				
Green Ext Time (p_c), s	0.2	6.8	0.0	0.1	3.8			0.5				
Intersection Summary												
HCM 6th Ctrl Delay			18.5									
HCM 6th LOS			B									
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

2019 PM Peak Intersection 2: Right Turn Lane

09/11/2019

						
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑↑			↑↑↑		↑
Traffic Volume (veh/h)	260	0	0	365	0	30
Future Volume (Veh/h)	260	0	0	365	0	30
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.84	0.84	0.68	0.68
Hourly flow rate (vph)	286	0	0	435	0	44
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)	104					
pX, platoon unblocked			0.98		0.98	0.98
vC, conflicting volume			286		431	143
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			241		388	95
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	95
cM capacity (veh/h)			1294		573	921
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NE 1
Volume Total	143	143	145	145	145	44
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	44
cSH	1700	1700	1700	1700	1700	921
Volume to Capacity	0.08	0.08	0.09	0.09	0.09	0.05
Queue Length 95th (ft)	0	0	0	0	0	4
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.1
Lane LOS						A
Approach Delay (s)	0.0		0.0			9.1
Approach LOS						A
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			17.2%		ICU Level of Service	A
Analysis Period (min)			15			

2043 Noon Peak Intersection 1: Virginia Ave and Hamilton Ave

09/11/2019

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	610	45	5	535	10	10	0	5	5	0	5
Future Vol, veh/h	5	610	45	5	535	10	10	0	5	5	0	5
Conflicting Peds, #/hr	24	0	35	35	0	24	8	0	2	2	0	8
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	84	84	84	51	51	51	52	52	52
Heavy Vehicles, %	4	4	4	3	3	3	0	0	0	10	10	10
Mvmt Flow	5	670	49	6	637	12	20	0	10	10	0	10
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	673	0	0	754	0	0	1079	1425	397	1026	1443	357
Stage 1	-	-	-	-	-	-	740	740	-	679	679	-
Stage 2	-	-	-	-	-	-	339	685	-	347	764	-
Critical Hdwy	4.18	-	-	4.16	-	-	7.5	6.5	6.9	7.7	6.7	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.7	5.7	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.7	5.7	-
Follow-up Hdwy	2.24	-	-	2.23	-	-	3.5	4	3.3	3.6	4.1	3.4
Pot Cap-1 Maneuver	900	-	-	845	-	-	175	137	608	178	122	617
Stage 1	-	-	-	-	-	-	379	426	-	389	430	-
Stage 2	-	-	-	-	-	-	655	451	-	620	392	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	883	-	-	814	-	-	163	127	585	169	113	601
Mov Cap-2 Maneuver	-	-	-	-	-	-	163	127	-	169	113	-
Stage 1	-	-	-	-	-	-	363	408	-	379	417	-
Stage 2	-	-	-	-	-	-	632	437	-	605	376	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.2			24.4			19.7		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	215	883	-	-	814	-	-	264				
HCM Lane V/C Ratio	0.137	0.006	-	-	0.007	-	-	0.073				
HCM Control Delay (s)	24.4	9.1	-	-	9.5	0.1	-	19.7				
HCM Lane LOS	C	A	-	-	A	A	-	C				
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-	-	0.2				

2043 Noon Peak Intersection 2: Virginia Ave and Clay Place

09/11/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	235	355	30	10	265	60	25	10	0	50	5	265
Future Volume (veh/h)	235	355	30	10	265	60	25	10	0	50	5	265
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	0.99		0.98	0.98		1.00	0.97		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1856	1856	1856	1841	1841	0	1767	1841	1841
Adj Flow Rate, veh/h	258	390	33	12	315	71	37	15	0	58	6	308
Peak Hour Factor	0.91	0.91	0.91	0.84	0.84	0.84	0.68	0.68	0.68	0.86	0.86	0.86
Percent Heavy Veh, %	4	4	4	3	3	3	4	4	0	4	4	4
Cap, veh/h	535	1900	160	533	905	751	175	282	0	367	8	428
Arrive On Green	0.05	0.58	0.58	0.49	0.49	0.49	0.15	0.15	0.00	0.06	0.29	0.29
Sat Flow, veh/h	1753	3260	274	945	1856	1539	1026	1841	0	1683	29	1501
Grp Volume(v), veh/h	258	208	215	12	315	71	37	15	0	58	0	314
Grp Sat Flow(s),veh/h/ln	1753	1749	1785	945	1856	1539	1026	1841	0	1683	0	1530
Q Serve(g_s), s	5.0	5.6	5.7	0.7	10.5	2.5	3.4	0.7	0.0	2.7	0.0	18.5
Cycle Q Clear(g_c), s	5.0	5.6	5.7	0.7	10.5	2.5	8.6	0.7	0.0	2.7	0.0	18.5
Prop In Lane	1.00		0.15	1.00		1.00	1.00		0.00	1.00		0.98
Lane Grp Cap(c), veh/h	535	1019	1041	533	905	751	175	282	0	367	0	436
V/C Ratio(X)	0.48	0.20	0.21	0.02	0.35	0.09	0.21	0.05	0.00	0.16	0.00	0.72
Avail Cap(c_a), veh/h	535	1019	1041	533	905	751	246	409	0	414	0	585
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.3	9.9	9.9	13.3	15.8	13.8	42.0	36.2	0.0	30.2	0.0	32.1
Incr Delay (d2), s/veh	0.7	0.5	0.4	0.1	1.1	0.3	0.6	0.1	0.0	0.2	0.0	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	2.1	2.2	0.1	4.5	0.9	0.9	0.3	0.0	1.1	0.0	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.0	10.3	10.3	13.4	16.9	14.0	42.5	36.2	0.0	30.4	0.0	35.0
LnGrp LOS	B	B	B	B	B	B	D	D	A	C	A	C
Approach Vol, veh/h	681			398			52			372		
Approach Delay, s/veh	12.5			16.2			40.7			34.3		
Approach LOS	B			B			D			C		
Timer - Assigned Phs	1	2	3	4	6			8				
Phs Duration (G+Y+Rc), s	9.5	55.2	13.2	22.1	64.7			35.3				
Change Period (Y+Rc), s	4.5	6.4	* 6.8	* 6.8	6.4			* 6.8				
Max Green Setting (Gmax), s	5.0	32.6	* 9.2	* 22	48.6			* 38				
Max Q Clear Time (g_c+I1), s	7.0	12.5	4.7	10.6	7.7			20.5				
Green Ext Time (p_c), s	0.0	4.9	0.0	0.1	6.6			1.0				
Intersection Summary												
HCM 6th Ctrl Delay			19.8									
HCM 6th LOS			B									
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

2043 Noon Peak Intersection 2: Right Turn Lane

09/11/2019

						
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑↑			↑↑↑		↑
Traffic Volume (veh/h)	440	0	0	335	0	35
Future Volume (Veh/h)	440	0	0	335	0	35
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.84	0.84	0.68	0.68
Hourly flow rate (vph)	484	0	0	399	0	51
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)	104					
pX, platoon unblocked			0.95		0.95	0.95
vC, conflicting volume			484		617	242
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			357		496	102
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	94
cM capacity (veh/h)			1134		474	882
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NE 1
Volume Total	242	242	133	133	133	51
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	51
cSH	1700	1700	1700	1700	1700	882
Volume to Capacity	0.14	0.14	0.08	0.08	0.08	0.06
Queue Length 95th (ft)	0	0	0	0	0	5
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.3
Lane LOS						A
Approach Delay (s)	0.0		0.0			9.3
Approach LOS						A
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			22.2%		ICU Level of Service	A
Analysis Period (min)			15			

2043 PM Peak Intersection 1: Virginia Ave and Hamilton Ave

09/11/2019

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	430	45	5	535	10	10	0	5	5	0	5
Future Vol, veh/h	0	430	45	5	535	10	10	0	5	5	0	5
Conflicting Peds, #/hr	24	0	35	35	0	24	8	0	2	2	0	8
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	84	84	84	51	51	51	52	52	52
Heavy Vehicles, %	4	4	4	3	3	3	0	0	0	10	10	10
Mvmt Flow	0	473	49	6	637	12	20	0	10	10	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	673	0	0	557	0	0	872	1218	298	918	1236	357
Stage 1	-	-	-	-	-	-	533	533	-	679	679	-
Stage 2	-	-	-	-	-	-	339	685	-	239	557	-
Critical Hdwy	4.18	-	-	4.16	-	-	7.5	6.5	6.9	7.7	6.7	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.7	5.7	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.7	5.7	-
Follow-up Hdwy	2.24	-	-	2.23	-	-	3.5	4	3.3	3.6	4.1	3.4
Pot Cap-1 Maneuver	900	-	-	1003	-	-	248	182	704	215	164	617
Stage 1	-	-	-	-	-	-	503	528	-	389	430	-
Stage 2	-	-	-	-	-	-	655	451	-	721	491	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	883	-	-	967	-	-	232	170	677	206	154	601
Mov Cap-2 Maneuver	-	-	-	-	-	-	232	170	-	206	154	-
Stage 1	-	-	-	-	-	-	485	509	-	382	418	-
Stage 2	-	-	-	-	-	-	634	438	-	709	473	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			18.4			17.5		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	297	883	-	-	967	-	-	307
HCM Lane V/C Ratio	0.099	-	-	-	0.006	-	-	0.063
HCM Control Delay (s)	18.4	0	-	-	8.7	0	-	17.5
HCM Lane LOS	C	A	-	-	A	A	-	C
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.2

2043 PM Peak Intersection 2: Virginia Ave and Clay Place

09/11/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	255	25	20	360	80	25	10	0	30	5	160
Future Volume (veh/h)	165	255	25	20	360	80	25	10	0	30	5	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	0.99		0.98	0.97		1.00	0.96		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1856	1856	1856	1841	1841	0	1767	1841	1841
Adj Flow Rate, veh/h	181	280	27	24	429	95	37	15	0	35	6	186
Peak Hour Factor	0.91	0.91	0.91	0.84	0.84	0.84	0.68	0.68	0.68	0.86	0.86	0.86
Percent Heavy Veh, %	4	4	4	3	3	3	4	4	0	4	4	4
Cap, veh/h	477	2011	192	591	917	761	225	254	0	302	12	360
Arrive On Green	0.06	0.62	0.62	0.49	0.49	0.49	0.14	0.14	0.00	0.04	0.24	0.24
Sat Flow, veh/h	1753	3220	308	1049	1856	1539	1132	1841	0	1683	48	1480
Grp Volume(v), veh/h	181	151	156	24	429	95	37	15	0	35	0	192
Grp Sat Flow(s),veh/h/ln	1753	1749	1779	1049	1856	1539	1132	1841	0	1683	0	1528
Q Serve(g_s), s	4.9	3.5	3.6	1.2	15.2	3.3	2.9	0.7	0.0	1.7	0.0	10.9
Cycle Q Clear(g_c), s	4.9	3.5	3.6	1.2	15.2	3.3	3.3	0.7	0.0	1.7	0.0	10.9
Prop In Lane	1.00		0.17	1.00		1.00	1.00		0.00	1.00		0.97
Lane Grp Cap(c), veh/h	477	1092	1111	591	917	761	225	254	0	302	0	372
V/C Ratio(X)	0.38	0.14	0.14	0.04	0.47	0.12	0.16	0.06	0.00	0.12	0.00	0.52
Avail Cap(c_a), veh/h	477	1092	1111	591	917	761	308	390	0	377	0	553
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.9	7.7	7.7	13.1	16.6	13.6	38.7	37.4	0.0	33.1	0.0	32.7
Incr Delay (d2), s/veh	0.5	0.3	0.3	0.1	1.7	0.3	0.3	0.1	0.0	0.2	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	1.3	1.3	0.3	6.5	1.2	0.8	0.3	0.0	0.7	0.0	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.4	8.0	8.0	13.2	18.3	14.0	39.0	37.5	0.0	33.3	0.0	33.8
LnGrp LOS	B	A	A	B	B	B	D	D	A	C	A	C
Approach Vol, veh/h	488			548			52			227		
Approach Delay, s/veh	9.6			17.3			38.6			33.7		
Approach LOS	A			B			D			C		
Timer - Assigned Phs	1	2	3	4	6			8				
Phs Duration (G+Y+Rc), s	13.0	55.8	10.5	20.6	68.8			31.2				
Change Period (Y+Rc), s	* 6.8	6.4	* 6.8	* 6.8	6.4			* 6.8				
Max Green Setting (Gmax), s	* 6.2	37.6	* 8.2	* 21	50.6			* 36				
Max Q Clear Time (g_c+I1), s	6.9	17.2	3.7	5.3	5.6			12.9				
Green Ext Time (p_c), s	0.0	7.1	0.0	0.1	4.7			0.6				
Intersection Summary												
HCM 6th Ctrl Delay			18.1									
HCM 6th LOS			B									
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

2043 PM Peak Intersection 2: Right Turn Lane

09/11/2019

						
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑↑			↑↑↑		↑
Traffic Volume (veh/h)	320	0	0	460	0	35
Future Volume (Veh/h)	320	0	0	460	0	35
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.84	0.84	0.68	0.68
Hourly flow rate (vph)	352	0	0	548	0	51
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)	104					
pX, platoon unblocked			0.97		0.97	0.97
vC, conflicting volume			352		535	176
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			272		460	91
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	94
cM capacity (veh/h)			1243		509	915
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NE 1
Volume Total	176	176	183	183	183	51
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	51
cSH	1700	1700	1700	1700	1700	915
Volume to Capacity	0.10	0.10	0.11	0.11	0.11	0.06
Queue Length 95th (ft)	0	0	0	0	0	4
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.2
Lane LOS						A
Approach Delay (s)	0.0		0.0			9.2
Approach LOS						A
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			18.8%		ICU Level of Service	A
Analysis Period (min)			15			

2043 Road Diet Noon Peak Intersection 1: Virginia Ave and Hamilton Ave

09/11/2019

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	610	45	5	535	10	10	0	5	5	0	5
Future Vol, veh/h	5	610	45	5	535	10	10	0	5	5	0	5
Conflicting Peds, #/hr	24	0	35	35	0	24	8	0	2	2	0	8
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	84	84	84	51	51	51	52	52	52
Heavy Vehicles, %	4	4	4	3	3	3	0	0	0	10	10	10
Mvmt Flow	5	670	49	6	637	12	20	0	10	10	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	673	0	0	754	0	0	1408	1425	732	1391	1443	675
Stage 1	-	-	-	-	-	-	740	740	-	679	679	-
Stage 2	-	-	-	-	-	-	668	685	-	712	764	-
Critical Hdwy	4.14	-	-	4.13	-	-	7.1	6.5	6.2	7.2	6.6	6.3
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.2	5.6	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.2	5.6	-
Follow-up Hdwy	2.236	-	-	2.227	-	-	3.5	4	3.3	3.59	4.09	3.39
Pot Cap-1 Maneuver	908	-	-	852	-	-	118	137	424	115	127	440
Stage 1	-	-	-	-	-	-	412	426	-	429	439	-
Stage 2	-	-	-	-	-	-	451	451	-	411	401	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	891	-	-	821	-	-	109	127	408	109	118	429
Mov Cap-2 Maneuver	-	-	-	-	-	-	109	127	-	109	118	-
Stage 1	-	-	-	-	-	-	395	408	-	418	426	-
Stage 2	-	-	-	-	-	-	433	437	-	398	384	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.1			36.3			28.2		
HCM LOS							E			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	144	891	-	-	821	-	-	174
HCM Lane V/C Ratio	0.204	0.006	-	-	0.007	-	-	0.111
HCM Control Delay (s)	36.3	9.1	-	-	9.4	0	-	28.2
HCM Lane LOS	E	A	-	-	A	A	-	D
HCM 95th %tile Q(veh)	0.7	0	-	-	0	-	-	0.4

2043 Road Diet Noon Peak Intersection 2: Virginia Ave and Clay Place

09/11/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	235	355	30	10	265	60	25	10	35	50	5	265
Future Volume (veh/h)	235	355	30	10	265	60	25	10	35	50	5	265
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	0.99		0.98	0.96		0.93	0.95		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1856	1856	1856	1841	1841	1841	1767	1841	1841
Adj Flow Rate, veh/h	258	390	33	12	315	71	37	15	51	58	6	308
Peak Hour Factor	0.91	0.91	0.91	0.84	0.84	0.84	0.68	0.68	0.68	0.86	0.86	0.86
Percent Heavy Veh, %	4	4	4	3	3	3	4	4	4	4	4	4
Cap, veh/h	489	970	82	468	613	138	174	54	184	321	8	426
Arrive On Green	0.09	0.58	0.58	0.42	0.42	0.42	0.16	0.16	0.16	0.06	0.29	0.29
Sat Flow, veh/h	1753	1671	141	943	1458	329	1011	347	1180	1683	29	1479
Grp Volume(v), veh/h	258	0	423	12	0	386	37	0	66	58	0	314
Grp Sat Flow(s),veh/h/ln	1753	0	1812	943	0	1786	1011	0	1528	1683	0	1508
Q Serve(g_s), s	8.1	0.0	12.8	0.7	0.0	16.0	3.4	0.0	3.8	2.7	0.0	18.7
Cycle Q Clear(g_c), s	8.1	0.0	12.8	0.7	0.0	16.0	8.9	0.0	3.8	2.7	0.0	18.7
Prop In Lane	1.00		0.08	1.00		0.18	1.00		0.77	1.00		0.98
Lane Grp Cap(c), veh/h	489	0	1052	468	0	751	174	0	238	321	0	434
V/C Ratio(X)	0.53	0.00	0.40	0.03	0.00	0.51	0.21	0.00	0.28	0.18	0.00	0.72
Avail Cap(c_a), veh/h	489	0	1052	468	0	751	241	0	339	368	0	576
HCM 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
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.0	0.0	11.5	17.0	0.0	21.4	42.0	0.0	37.3	30.1	0.0	32.0
Incr Delay (d2), s/veh	1.1	0.0	1.1	0.1	0.0	2.5	0.6	0.0	0.6	0.3	0.0	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	0.0	5.0	0.2	0.0	6.9	0.9	0.0	1.4	1.1	0.0	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.1	0.0	12.6	17.1	0.0	23.9	42.6	0.0	37.9	30.4	0.0	35.1
LnGrp LOS	B	A	B	B	A	C	D	A	D	C	A	D
Approach Vol, veh/h	681			398			103			372		
Approach Delay, s/veh	13.9			23.7			39.6			34.3		
Approach LOS	B			C			D			C		
Timer - Assigned Phs	1	2	3	4	6		8					
Phs Duration (G+Y+Rc), s	16.0	48.4	13.2	22.4	64.4		35.6					
Change Period (Y+Rc), s	* 6.8	6.4	* 6.8	* 6.8	6.4		* 6.8					
Max Green Setting (Gmax), s	* 9.2	32.6	* 9.2	* 22	48.6		* 38					
Max Q Clear Time (g_c+I1), s	10.1	18.0	4.7	10.9	14.8		20.7					
Green Ext Time (p_c), s	0.0	4.3	0.0	0.2	6.8		1.0					
Intersection Summary												
HCM 6th Ctrl Delay			23.0									
HCM 6th LOS			C									
Notes												

2043 Road Diet PM Peak Intersection 1: Virginia Ave and Hamilton Ave

09/11/2019

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	430	45	5	535	10	10	0	5	5	0	5
Future Vol, veh/h	0	430	45	5	535	10	10	0	5	5	0	5
Conflicting Peds, #/hr	24	0	35	35	0	24	8	0	2	2	0	8
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	84	84	84	51	51	51	52	52	52
Heavy Vehicles, %	4	4	4	3	3	3	0	0	0	10	10	10
Mvmt Flow	0	473	49	6	637	12	20	0	10	10	0	10
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	673	0	0	557	0	0	1201	1218	535	1184	1236	675
Stage 1	-	-	-	-	-	-	533	533	-	679	679	-
Stage 2	-	-	-	-	-	-	668	685	-	505	557	-
Critical Hdwy	4.14	-	-	4.13	-	-	7.1	6.5	6.2	7.2	6.6	6.3
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.2	5.6	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.2	5.6	-
Follow-up Hdwy	2.236	-	-	2.227	-	-	3.5	4	3.3	3.59	4.09	3.39
Pot Cap-1 Maneuver	908	-	-	1009	-	-	163	182	549	160	170	440
Stage 1	-	-	-	-	-	-	534	528	-	429	439	-
Stage 2	-	-	-	-	-	-	451	451	-	535	499	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	891	-	-	973	-	-	151	170	528	153	159	429
Mov Cap-2 Maneuver	-	-	-	-	-	-	151	170	-	153	159	-
Stage 1	-	-	-	-	-	-	515	509	-	421	426	-
Stage 2	-	-	-	-	-	-	433	438	-	524	481	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			26.3			22.4		
HCM LOS							D			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	198	891	-	-	973	-	-	226				
HCM Lane V/C Ratio	0.149	-	-	-	0.006	-	-	0.085				
HCM Control Delay (s)	26.3	0	-	-	8.7	0	-	22.4				
HCM Lane LOS	D	A	-	-	A	A	-	C				
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-	-	0.3				

2043 Road Diet PM Peak Intersection 2: Virginia Ave and Clay Place

09/11/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	255	25	20	360	80	25	10	35	30	5	160
Future Volume (veh/h)	165	255	25	20	360	80	25	10	35	30	5	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	0.99		0.98	0.94		0.92	0.95		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1856	1856	1856	1841	1841	1841	1767	1841	1841
Adj Flow Rate, veh/h	181	280	27	24	429	95	37	15	51	35	6	186
Peak Hour Factor	0.91	0.91	0.91	0.84	0.84	0.84	0.68	0.68	0.68	0.86	0.86	0.86
Percent Heavy Veh, %	4	4	4	3	3	3	4	4	4	4	4	4
Cap, veh/h	426	1030	99	593	727	161	219	48	162	254	11	354
Arrive On Green	0.06	0.62	0.62	0.50	0.50	0.50	0.14	0.14	0.14	0.04	0.24	0.24
Sat Flow, veh/h	1753	1650	159	1049	1465	324	1105	345	1172	1683	47	1455
Grp Volume(v), veh/h	181	0	307	24	0	524	37	0	66	35	0	192
Grp Sat Flow(s),veh/h/ln	1753	0	1809	1049	0	1789	1105	0	1516	1683	0	1502
Q Serve(g_s), s	4.9	0.0	7.7	1.2	0.0	20.9	3.0	0.0	3.9	1.7	0.0	11.1
Cycle Q Clear(g_c), s	4.9	0.0	7.7	1.2	0.0	20.9	3.6	0.0	3.9	1.7	0.0	11.1
Prop In Lane	1.00		0.09	1.00		0.18	1.00		0.77	1.00		0.97
Lane Grp Cap(c), veh/h	426	0	1129	593	0	888	219	0	210	254	0	366
V/C Ratio(X)	0.42	0.00	0.27	0.04	0.00	0.59	0.17	0.00	0.31	0.14	0.00	0.52
Avail Cap(c_a), veh/h	426	0	1129	593	0	888	300	0	321	329	0	544
HCM 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
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.3	0.0	8.5	13.0	0.0	17.9	38.9	0.0	38.8	33.2	0.0	32.8
Incr Delay (d2), s/veh	0.7	0.0	0.6	0.1	0.0	2.9	0.4	0.0	0.8	0.2	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	2.9	0.3	0.0	8.8	0.8	0.0	1.5	0.7	0.0	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.0	0.0	9.1	13.1	0.0	20.8	39.3	0.0	39.7	33.5	0.0	34.0
LnGrp LOS	B	A	A	B	A	C	D	A	D	C	A	C
Approach Vol, veh/h	488			548			103			227		
Approach Delay, s/veh	10.9			20.5			39.5			33.9		
Approach LOS	B			C			D			C		
Timer - Assigned Phs	1	2	3	4	6		8					
Phs Duration (G+Y+Rc), s	12.8	56.0	10.5	20.6	68.8		31.2					
Change Period (Y+Rc), s	* 6.8	6.4	* 6.8	* 6.8	6.4		* 6.8					
Max Green Setting (Gmax), s	* 6	37.8	* 8.2	* 21	50.6		* 36					
Max Q Clear Time (g_c+I1), s	6.9	22.9	3.7	5.9	9.7		13.1					
Green Ext Time (p_c), s	0.0	6.2	0.0	0.2	4.8		0.6					
Intersection Summary												
HCM 6th Ctrl Delay			20.7									
HCM 6th LOS			C									
Notes												

APPENDIX H – ROUNDABOUT ANALYSIS RESULTS

Welcome to GDOT's Roundabout Analysis Tool. This tool is designed for the user to determine the functionality of a proposed roundabout. The analysis is based on the Highway Capacity Manual 2010 Edition and 6th Edition Methodologies, NCHRP Report 672, and FHWA's Roundabout Informational Guide. Please read the notes in the [Instructions](#) tab before using the spreadsheet.

Analyst:	Joshua Ekstedt
Agency/Company:	Stantec
Date:	5/30/2019
Project Name or PI#:	Virginia Ave Roundabout Feasibility Study
Year, Peak Period:	2019, 12:00 PM
County/District:	Fulton County
Intersection:	Virginia Ave/Doug Davis Dr @ Clay Pl/Virginia Ave

Insert Project Information Here in the BLUE SPACE. This information is linked to the Mini, Single Lane and Multi Lane Worksheets.

Roundabout Considerations Worksheet

Roundabouts may not operate well if there is too much traffic entering the intersection or if the percentage of traffic on the major road is too high. Candidate intersections shall be analyzed to determine whether a roundabout will perform acceptably. Shown below are planning level thresholds. A capacity analysis should be performed to determine lane configuration based on traffic volumes.

# of circulatory lanes	ADTs (current/ build year)	Condition met?	% traffic on Major Road	Condition met?
Mini	less than 15,000	Yes	less than 90%	Yes
Single Lane	less than 25,000	Yes	less than 90%	Yes
Multi-Lane	less than 45,000	Yes	less than 90%	Yes

Other things to consider when evaluating roundabouts as an alternative are Right of Way, sight distance, environmental impacts, and access to adjacent properties.

Volume Information (for Analysis Time Period)

1 Enter the Major/Minor Street ADT Volumes in the Chart below:

	Volumes	Split
Major Street	8,225	75%
Minor Street	2,775	25%
Total volumes	11,000	

Proximity to Other Intersections

2 How close is the nearest signal (miles or feet)?

3 Is the proposed intersection located within a coordinated signal network?

[Go up to next section...](#)

➔ Proposed Design Configuration Chart

Directions for this Section only: (see *Instructions Tab* for other sections)

1. **Select** the type of roundabout you are analyzing.
2. **Key in** the number of approaches and the street names at the proposed intersections.
3. Complete the Approach Characteristics Chart:
 - a. **Select** the Street Name from the pulldown menu for each approach leg
 - b. **Select** the Lane Type for each entry approach lane
**The first box is the inner lane, the second box is the outer lane*
 - c. **Select** Yes or No if a right turn bypass will be added to each approach leg

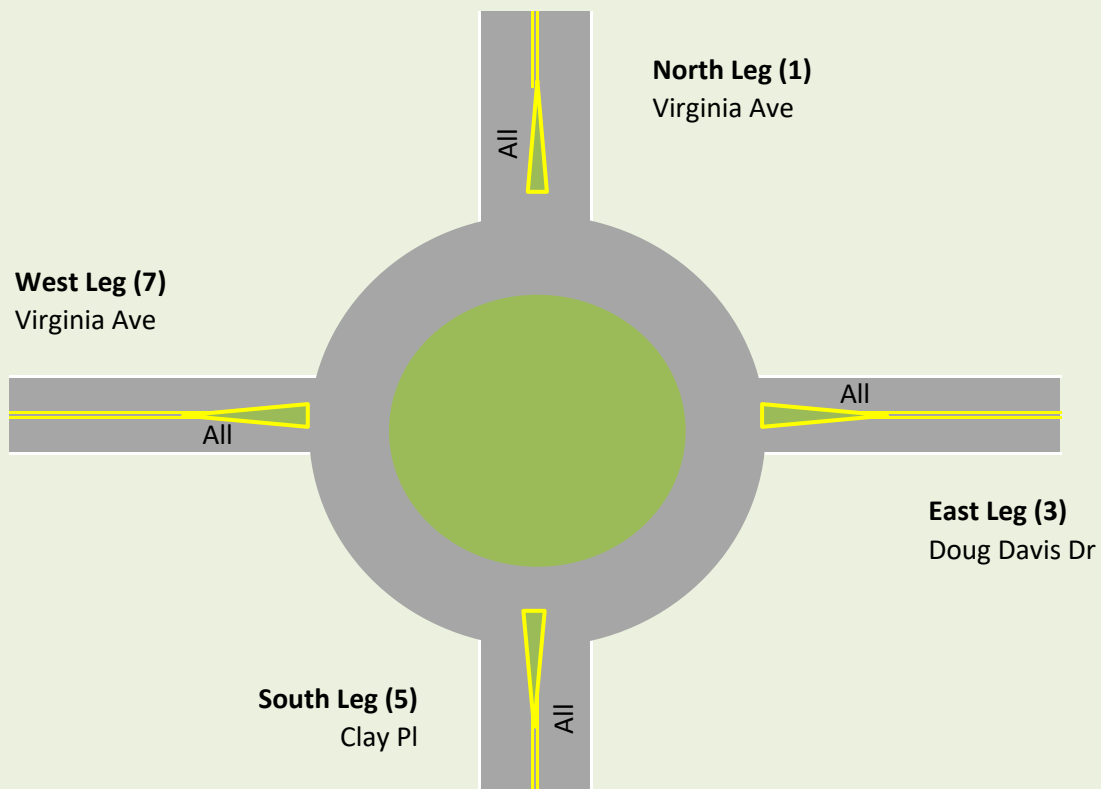
Roundabout Characteristics

Roundabout Type:	Single Lane	Mini/Single Lane	Chart Key:	
# of Approaches:	4		Street Name	
Name of Streets:	Virginia Ave	Multi-lane	All	
	Clay Pl		Bypass?	
	Doug Davis Dr		Street Name	
			Inner Ln	Outer Ln
			Bypass?	

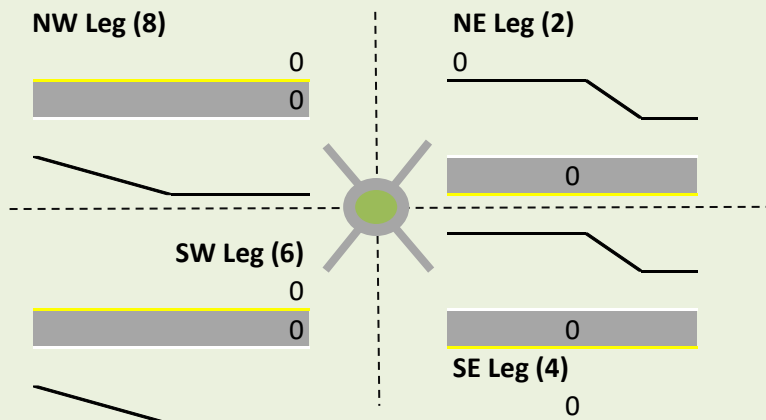
Approach Leg Characteristics:

	North Leg (1)	NE Leg (2)	East Leg (3)	SE Leg (4)
Street Name:	Virginia Ave		Doug Davis Dr	
Entry Lane Config	All		All	
Bypass to Adj Leg?	No		No	
	South Leg (5)	SW Leg (6)	West Leg (7)	NW Leg (8)
Street Name:	Clay Pl		Virginia Ave	
Entry Lane Config	All		All	
Bypass to Adj Leg?	No		No	

Preliminary Roundabout Rendering**



Additional Legs

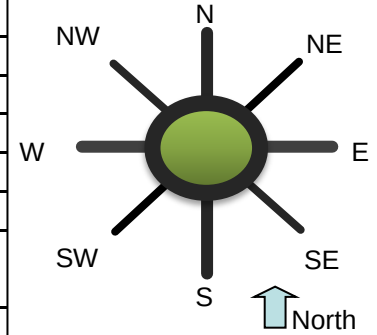


****Note**

This roundabout sketch does not include the secondary cardinal direction legs due to restrictions in the Excel software. For complex roundabouts, a separate sketch is recommended by the designer.

General & Site Information v 4.1

Analyst: Joshua Ekstedt
Agency/Co: Stantec
Date: 5/30/2019
Project or PI#: Virginia Ave Roundabout Feasibility Study
Year, Peak Hour: 2019, 12:00 PM
County/District: Fulton County
Intersection Name: Virginia Ave/Doug Davis Dr @ Clay Pl/Virginia Ave



Volumes		Entry Legs (FROM)							
		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
Exit Legs (TO)	N (1), vph	0	0	50	0	10	0	185	0
	NE (2), vph	0	0	0	0	0	0	0	0
	E (3), vph	40	0	0	0	30	0	285	0
	SE (4), vph	0	0	0	0	0	0	0	0
	S (5), vph	5	0	15	0	0	0	25	0
	SW (6), vph	0	0	0	0	0	0	0	0
	W (7), vph	210	0	205	0	20	0	0	0
	NW (8), vph	0	0	0	0	0	0	0	0
Output	Total Vehicles	255	0	270	0	60	0	495	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	98.5%	100.0%	97.5%	100.0%	97.5%	100.0%	97.0%	100.0%
% Heavy Vehicles	1.5%	0.0%	2.5%	0.0%	2.5%	0.0%	3.0%	0.0%
% Bicycle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians (ped/hr)	5	0	7	0	17	0	17	0
PHF	0.71	0.95	0.88	0.95	0.60	0.95	0.87	0.95
F _{HV}	0.985	1.000	0.976	1.000	0.976	1.000	0.971	1.000
F _{ped}	0.999	1.000	0.999	1.000	0.998	1.000	0.998	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	58	0	17	0	219	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	57	0	0	0	51	0	337	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	7	0	17	0	0	0	30	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	300	0	239	0	34	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	365	0	314	0	103	0	586	0
Conflicting flow, pcu/h	290	0	270	0	614	0	82	0

Results: Approach Measures of Effectiveness								
HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	1010	1380	1021	1380	718	1380	1230	1380
Entry Flow Rates, vph	359	0	307	0	100	0	569	0
V/C ratio	0.36	0.00	0.30	0.00	0.14	0.00	0.46	0.00
Control Delay, sec/pcu	7	3	7	3	7	3	8	3
LOS	A	A	A	A	A	A	A	A
95th % Queue (ft)	41	0	33	0	12	0	65	0

Notes: v 4.0

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)						
Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)						
Select Exit Leg for Bypass (TO)						
Does the bypass have a dedicated receiving lane?						
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F _{HV}						
F _{ped}						
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow, pcu/hr						
Conflicting Flow, pcu/hr						
Bypass Lane Results (HCM 6th Edition)						
Entry Capacity of Bypass, vph						
Flow Rates of Exiting Traffic, vph						
V/C ratio						
Control Delay, s/veh						
LOS						
95th % Queue (ft)						
Approach w/Bypass Delay, s/veh						
Approach w/Bypass LOS						

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Analyst:	Joshua Ekstedt
Agency/Company:	Stantec
Date:	5/30/2019
Project Name or PI#:	Virginia Ave Roundabout Feasibility Study
Year, Peak Period:	2023, 12:00 PM
County/District:	Fulton County
Intersection:	Virginia Ave/Doug Davis Dr @ Clay Pl/Virginia Ave

Insert Project Information Here in the BLUE SPACE. This information is linked to the Mini, Single Lane and Multi Lane Worksheets.

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# of circulatory lanes	ADTs (current/ build year)	Condition met?	% traffic on Major Road	Condition met?
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Multi-Lane	less than 45,000	Yes	less than 90%	Yes

Other things to consider when evaluating roundabouts as an alternative are Right of Way, sight distance, environmental impacts, and access to adjacent properties.

Volume Information (for Analysis Time Period)

1 Enter the Major/Minor Street ADT Volumes in the Chart below:

	Volumes	Split
Major Street	8,525	75%
Minor Street	2,875	25%
Total volumes	11,400	

Proximity to Other Intersections

2 How close is the nearest signal (miles or feet)?

3 Is the proposed intersection located within a coordinated signal network?

[Go up to next section...](#)

➔ Proposed Design Configuration Chart

Directions for this Section only: (see *Instructions Tab* for other sections)

1. **Select** the type of roundabout you are analyzing.
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 - b. **Select** the Lane Type for each entry approach lane
**The first box is the inner lane, the second box is the outer lane*
 - c. **Select** Yes or No if a right turn bypass will be added to each approach leg

Roundabout Characteristics

Roundabout Type:

of Approaches:

Name of Streets:

Chart Key:

Street Name	
All	
Bypass?	

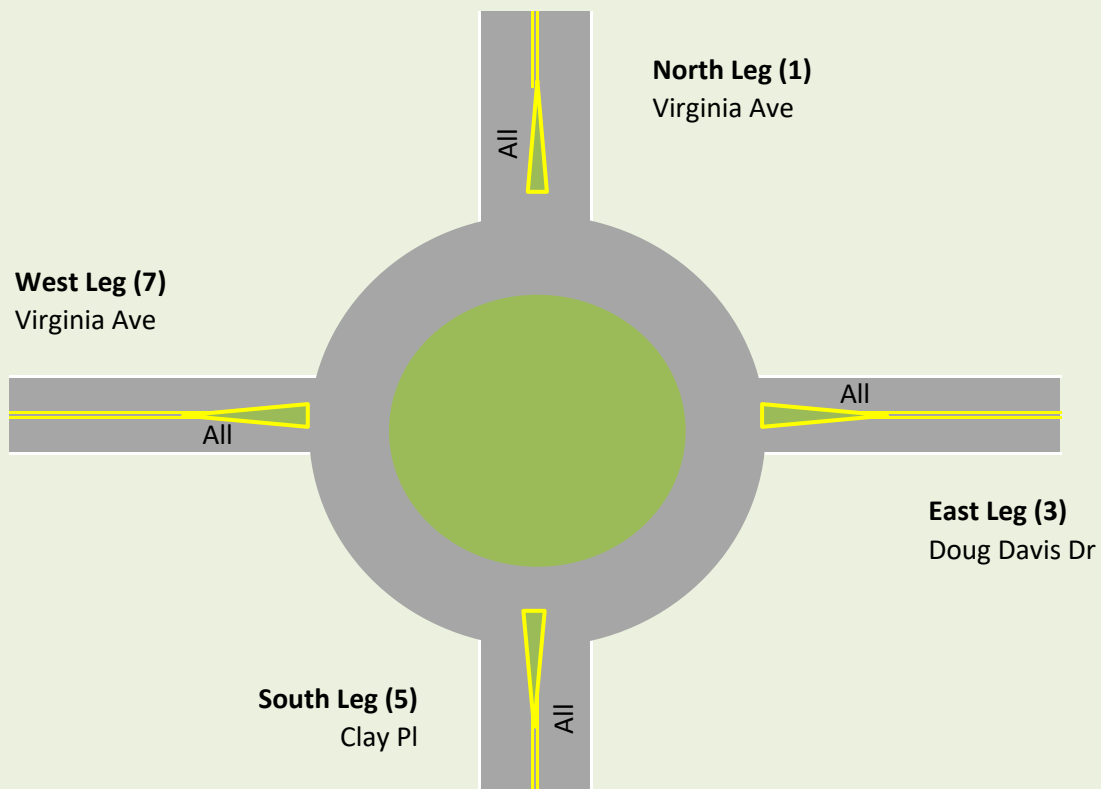
Multi-lane

Street Name	
Inner Ln	Outer Ln
Bypass?	

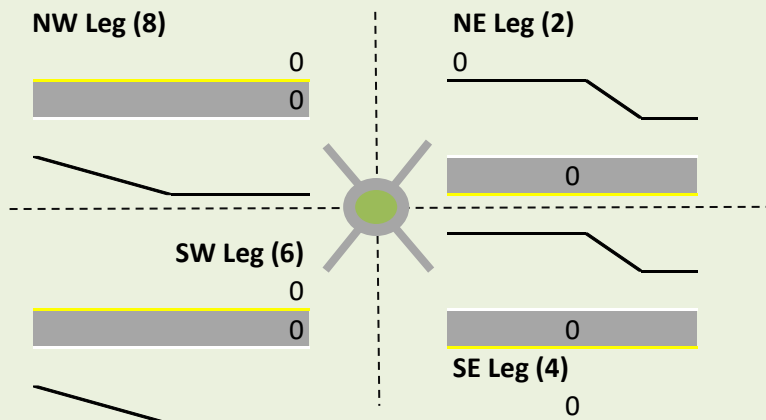
Approach Leg Characteristics:

	North Leg (1)	NE Leg (2)	East Leg (3)	SE Leg (4)
Street Name:	Virginia Ave		Doug Davis Dr	
Entry Lane Config	All		All	
Bypass to Adj Leg?	No	No	No	
	South Leg (5)	SW Leg (6)	West Leg (7)	NW Leg (8)
Street Name:	Clay Pl		Virginia Ave	
Entry Lane Config	All		All	
Bypass to Adj Leg?	No		No	

Preliminary Roundabout Rendering**



Additional Legs

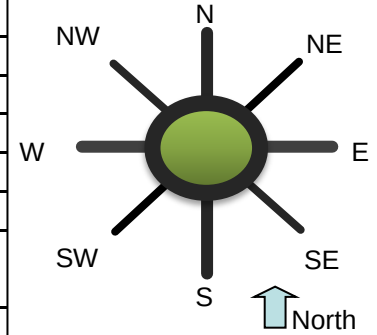


****Note**

This roundabout sketch does not include the secondary cardinal direction legs due to restrictions in the Excel software. For complex roundabouts, a separate sketch is recommended by the designer.

General & Site Information v 4.1

Analyst: Joshua Ekstedt
Agency/Co: Stantec
Date: 5/30/2019
Project or PI#: Virginia Ave Roundabout Feasibility Study
Year, Peak Hour: 2023, 12:00 PM
County/District: Fulton County
Intersection Name: Virginia Ave/Doug Davis Dr @ Clay Pl/Virginia Ave



Volumes		Entry Legs (FROM)							
		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
Exit Legs (TO)	N (1), vph	0	0	50	0	10	0	190	0
	NE (2), vph	0	0	0	0	0	0	0	0
	E (3), vph	40	0	0	0	30	0	295	0
	SE (4), vph	0	0	0	0	0	0	0	0
	S (5), vph	5	0	20	0	0	0	25	0
	SW (6), vph	0	0	0	0	0	0	0	0
	W (7), vph	220	0	210	0	20	0	0	0
	NW (8), vph	0	0	0	0	0	0	0	0
Output	Total Vehicles	265	0	280	0	60	0	510	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	98.5%	100.0%	97.5%	100.0%	97.5%	100.0%	97.0%	100.0%
% Heavy Vehicles	1.5%	0.0%	2.5%	0.0%	2.5%	0.0%	3.0%	0.0%
% Bicycle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians (ped/hr)	5	0	7	0	17	0	17	0
PHF	0.71	0.95	0.88	0.95	0.60	0.95	0.87	0.95
F _{HV}	0.985	1.000	0.976	1.000	0.976	1.000	0.971	1.000
F _{ped}	0.999	1.000	0.999	1.000	0.998	1.000	0.998	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	58	0	17	0	225	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	57	0	0	0	51	0	349	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	7	0	23	0	0	0	30	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	315	0	245	0	34	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	379	0	326	0	103	0	604	0
Conflicting flow, pcu/h	302	0	276	0	631	0	88	0

Results: Approach Measures of Effectiveness								
HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	998	1380	1015	1380	705	1380	1222	1380
Entry Flow Rates, vph	373	0	318	0	100	0	586	0
V/C ratio	0.37	0.00	0.31	0.00	0.14	0.00	0.48	0.00
Control Delay, sec/pcu	8	3	7	3	7	3	8	3
LOS	A	A	A	A	A	A	A	A
95th % Queue (ft)	44	0	35	0	13	0	69	0

Notes: v 4.0

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)						
Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)						
Select Exit Leg for Bypass (TO)						
Does the bypass have a dedicated receiving lane?						
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F _{HV}						
F _{ped}						
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow, pcu/hr						
Conflicting Flow, pcu/hr						
Bypass Lane Results (HCM 6th Edition)						
Entry Capacity of Bypass, vph						
Flow Rates of Exiting Traffic, vph						
V/C ratio						
Control Delay, s/veh						
LOS						
95th % Queue (ft)						
Approach w/Bypass Delay, s/veh						
Approach w/Bypass LOS						

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Analyst:	Joshua Ekstedt
Agency/Company:	Stantec
Date:	5/30/2019
Project Name or PI#:	Virginia Ave Roundabout Feasibility Study
Year, Peak Period:	2025, 12:00 PM
County/District:	Fulton County
Intersection:	Virginia Ave/Doug Davis Dr @ Clay Pl/Virginia Ave

Insert Project Information Here in the BLUE SPACE. This information is linked to the Mini, Single Lane and Multi Lane Worksheets.

Roundabout Considerations Worksheet

Roundabouts may not operate well if there is too much traffic entering the intersection or if the percentage of traffic on the major road is too high. Candidate intersections shall be analyzed to determine whether a roundabout will perform acceptably. Shown below are planning level thresholds. A capacity analysis should be performed to determine lane configuration based on traffic volumes.

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Single Lane	less than 25,000	Yes	less than 90%	Yes
Multi-Lane	less than 45,000	Yes	less than 90%	Yes

Other things to consider when evaluating roundabouts as an alternative are Right of Way, sight distance, environmental impacts, and access to adjacent properties.

Volume Information (for Analysis Time Period)

1 Enter the Major/Minor Street ADT Volumes in the Chart below:

	Volumes	Split
Major Street	8,675	75%
Minor Street	2,900	25%
Total volumes	11,575	

Proximity to Other Intersections

2 How close is the nearest signal (miles or feet)?

3 Is the proposed intersection located within a coordinated signal network?

[Go up to next section...](#)

➔ Proposed Design Configuration Chart

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 - a. **Select** the Street Name from the pulldown menu for each approach leg
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**The first box is the inner lane, the second box is the outer lane*
 - c. **Select** Yes or No if a right turn bypass will be added to each approach leg

Roundabout Characteristics

Roundabout Type:

of Approaches:

Name of Streets:

Chart Key:

Street Name	
All	
Bypass?	

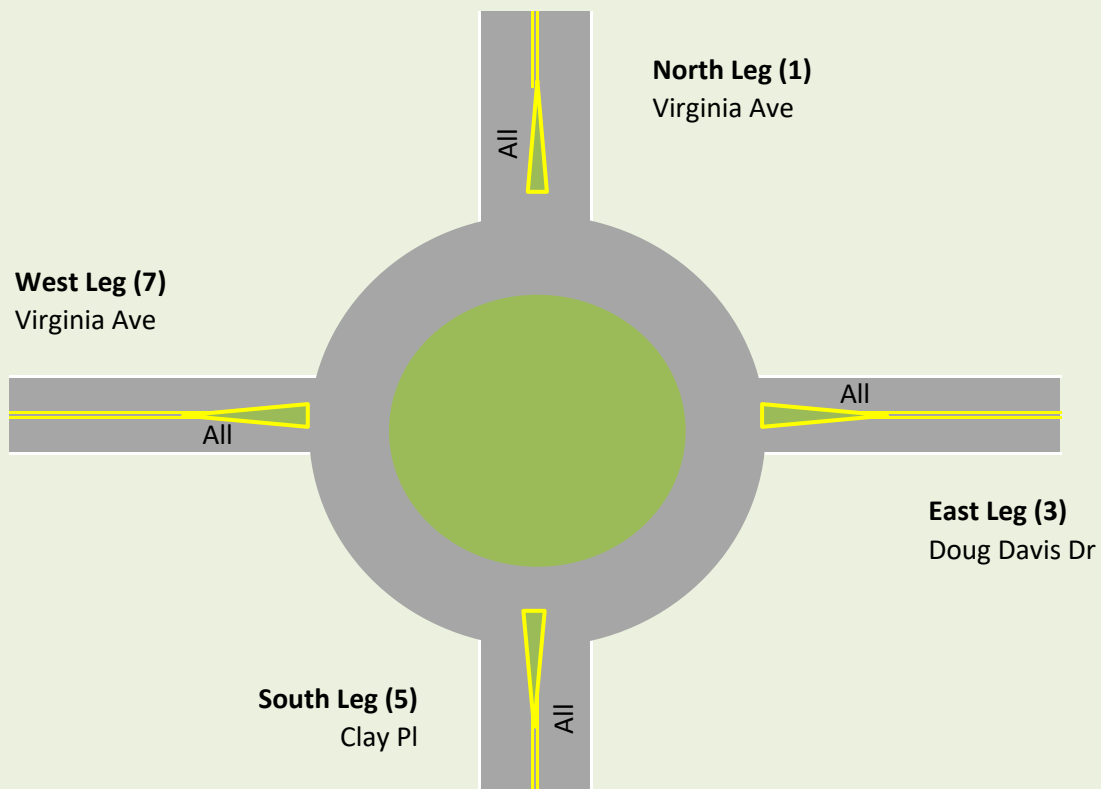
Multi-lane

Street Name	
Inner Ln	Outer Ln
Bypass?	

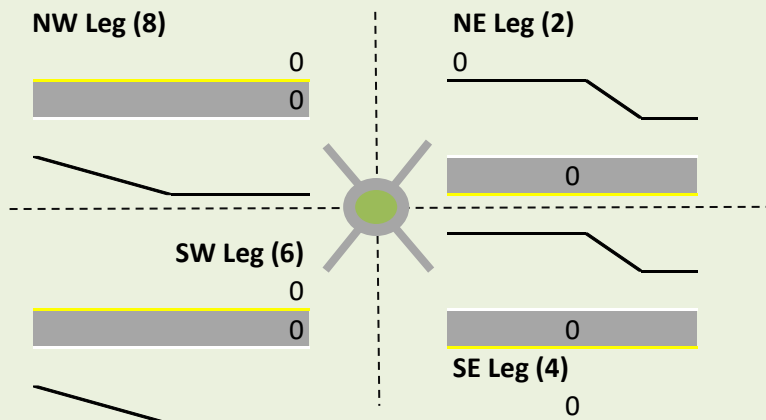
Approach Leg Characteristics:

	North Leg (1)	NE Leg (2)	East Leg (3)	SE Leg (4)
Street Name:	Virginia Ave		Doug Davis Dr	
Entry Lane Config	All		All	
Bypass to Adj Leg?	No		No	
	South Leg (5)	SW Leg (6)	West Leg (7)	NW Leg (8)
Street Name:	Clay Pl		Virginia Ave	
Entry Lane Config	All		All	
Bypass to Adj Leg?	No		No	

Preliminary Roundabout Rendering**



Additional Legs

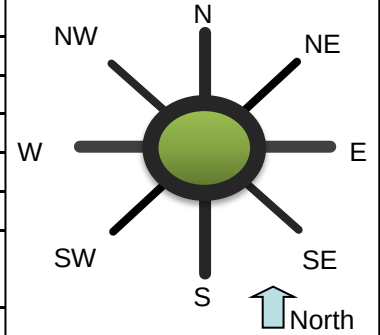


****Note**

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General & Site Information v 4.1

Analyst: Joshua Ekstedt
Agency/Co: Stantec
Date: 5/30/2019
Project or PI#: Virginia Ave Roundabout Feasibility Study
Year, Peak Hour: 2025, 12:00 PM
County/District: Fulton County
Intersection Name: Virginia Ave/Doug Davis Dr @ Clay Pl/Virginia Ave



Volumes		Entry Legs (FROM)							
		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
Exit Legs (TO)	N (1), vph	0	0	55	0	10	0	195	0
	NE (2), vph	0	0	0	0	0	0	0	0
	E (3), vph	40	0	0	0	30	0	300	0
	SE (4), vph	0	0	0	0	0	0	0	0
	S (5), vph	5	0	20	0	0	0	25	0
	SW (6), vph	0	0	0	0	0	0	0	0
	W (7), vph	220	0	210	0	20	0	0	0
	NW (8), vph	0	0	0	0	0	0	0	0
Output	Total Vehicles	265	0	285	0	60	0	520	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	98.5%	100.0%	97.5%	100.0%	97.5%	100.0%	97.0%	100.0%
% Heavy Vehicles	1.5%	0.0%	2.5%	0.0%	2.5%	0.0%	3.0%	0.0%
% Bicycle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians (ped/hr)	5	0	18	0	7	0	17	0
PHF	0.71	0.95	0.88	0.95	0.60	0.95	0.87	0.95
F _{HV}	0.985	1.000	0.976	1.000	0.976	1.000	0.971	1.000
F _{ped}	0.999	1.000	0.998	1.000	0.999	1.000	0.998	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	64	0	17	0	231	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	57	0	0	0	51	0	355	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	7	0	23	0	0	0	30	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	315	0	245	0	34	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	379	0	332	0	103	0	616	0
Conflicting flow, pcu/h	302	0	282	0	643	0	88	0

Results: Approach Measures of Effectiveness								
HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	998	1380	1007	1380	698	1380	1222	1380
Entry Flow Rates, vph	373	0	324	0	100	0	598	0
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LOS	A	A	A	A	A	A	A	A
95th % Queue (ft)	44	0	36	0	13	0	71	0

Notes: v 4.0

Unit Legend:
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95th % Queue (ft)						
Approach w/Bypass Delay, s/veh						
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Agency/Company:	Stantec
Date:	5/30/2019
Project Name or PI#:	Virginia Ave Roundabout Feasibility Study
Year, Peak Period:	2043, 12:00 PM
County/District:	Fulton County
Intersection:	Virginia Ave/Doug Davis Dr @ Clay Pl/Virginia Ave

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Volume Information (for Analysis Time Period)

1 Enter the Major/Minor Street ADT Volumes in the Chart below:

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Minor Street	3,425	25%
Total volumes	13,625	

Proximity to Other Intersections

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Go up to next section...

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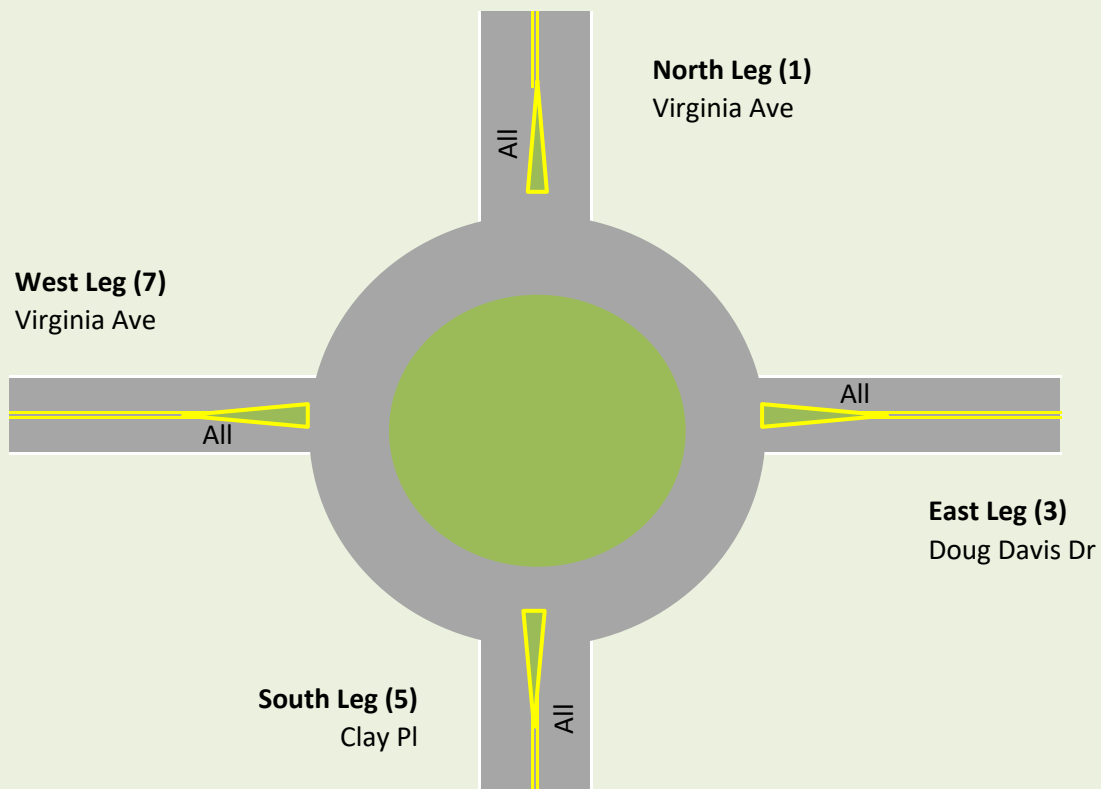
Roundabout Characteristics

Roundabout Type:	Single Lane	Mini/Single Lane	Chart Key:	
# of Approaches:	4		Street Name	
Name of Streets:	Virginia Ave	Multi-lane	All	
	Clay Pl		Bypass?	
	Doug Davis Dr		Street Name	
			Inner Ln	Outer Ln
			Bypass?	

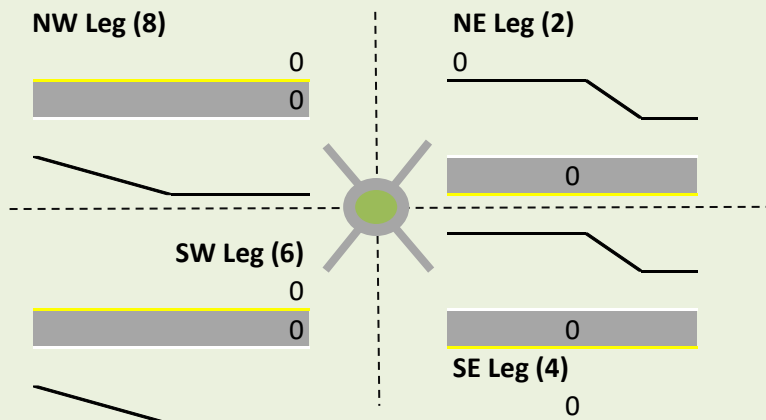
Approach Leg Characteristics:

	North Leg (1)	NE Leg (2)	East Leg (3)	SE Leg (4)
Street Name:	Virginia Ave		Doug Davis Dr	
Entry Lane Config	All		All	
Bypass to Adj Leg?	No		No	
	South Leg (5)	SW Leg (6)	West Leg (7)	NW Leg (8)
Street Name:	Clay Pl		Virginia Ave	
Entry Lane Config	All		All	
Bypass to Adj Leg?	No		No	

Preliminary Roundabout Rendering**



Additional Legs

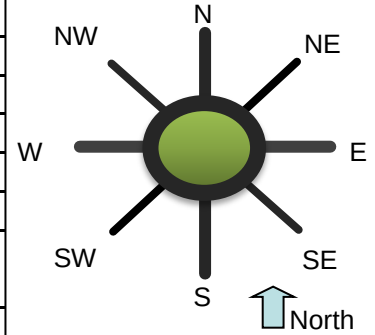


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General & Site Information v 4.1

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Date: 5/30/2019
Project or PI#: Virginia Ave Roundabout Feasibility Study
Year, Peak Hour: 2043, 12:00 PM
County/District: Fulton County
Intersection Name: Virginia Ave/Doug Davis Dr @ Clay Pl/Virginia Ave



Volumes		Entry Legs (FROM)							
		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
Exit Legs (TO)	N (1), vph	0	0	60	0	10	0	230	0
	NE (2), vph	0	0	0	0	0	0	0	0
	E (3), vph	50	0	0	0	35	0	355	0
	SE (4), vph	0	0	0		0	0	0	0
	S (5), vph	5	0	25	0	0	0	30	0
	SW (6), vph	0	0	0	0	0	0	0	0
	W (7), vph	260	0	255	0	25	0	0	0
	NW (8), vph	0	0	0	0	0	0	0	0
Output	Total Vehicles	315	0	340	0	70	0	615	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	98.5%	100.0%	97.5%	100.0%	97.5%	100.0%	97.0%	100.0%
% Heavy Vehicles	1.5%	0.0%	2.5%	0.0%	2.5%	0.0%	3.0%	0.0%
% Bicycle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians (ped/hr)	6	0	8	0	21	0	21	0
PHF	0.71	0.95	0.88	0.95	0.60	0.95	0.87	0.95
F _{HV}	0.985	1.000	0.976	1.000	0.976	1.000	0.971	1.000
F _{ped}	0.999	1.000	0.999	1.000	0.997	1.000	0.997	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	70	0	17	0	272	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	71	0	0	0	60	0	420	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	7	0	29	0	0	0	36	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	372	0	297	0	43	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	450	0	396	0	120	0	728	0
Conflicting flow, pcu/h	369	0	332	0	764	0	108	0

Results: Approach Measures of Effectiveness								
HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	933	1380	958	1380	616	1380	1197	1380
Entry Flow Rates, vph	444	0	386	0	117	0	707	0
V/C ratio	0.48	0.00	0.40	0.00	0.19	0.00	0.59	0.00
Control Delay, sec/pcu	10	3	8	3	8	3	10	3
LOS	A	A	A	A	A	A	B	A
95th % Queue (ft)	66	0	51	0	18	0	105	0

Notes: v 4.0

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
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pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)						
Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)						
Select Exit Leg for Bypass (TO)						
Does the bypass have a dedicated receiving lane?						
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F _{HV}						
F _{ped}						
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow, pcu/hr						
Conflicting Flow, pcu/hr						
Bypass Lane Results (HCM 6th Edition)						
Entry Capacity of Bypass, vph						
Flow Rates of Exiting Traffic, vph						
V/C ratio						
Control Delay, s/veh						
LOS						
95th % Queue (ft)						
Approach w/Bypass Delay, s/veh						
Approach w/Bypass LOS						

Welcome to GDOT's Roundabout Analysis Tool. This tool is designed for the user to determine the functionality of a proposed roundabout. The analysis is based on the Highway Capacity Manual 2010 Edition and 6th Edition Methodologies, NCHRP Report 672, and FHWA's Roundabout Informational Guide. Please read the notes in the [Instructions](#) tab before using the spreadsheet.

Analyst:	Joshua Ekstedt
Agency/Company:	Stantec
Date:	5/30/2019
Project Name or PI#:	Virginia Ave Roundabout Feasibility Study
Year, Peak Period:	2045, 12:00 PM
County/District:	Fulton County
Intersection:	Virginia Ave/Doug Davis Dr @ Clay Pl/Virginia Ave

Insert Project Information Here in the BLUE SPACE. This information is linked to the Mini, Single Lane and Multi Lane Worksheets.

Roundabout Considerations Worksheet

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# of circulatory lanes	ADTs (current/ build year)	Condition met?	% traffic on Major Road	Condition met?
Mini	less than 15,000	Yes	less than 90%	Yes
Single Lane	less than 25,000	Yes	less than 90%	Yes
Multi-Lane	less than 45,000	Yes	less than 90%	Yes

Other things to consider when evaluating roundabouts as an alternative are Right of Way, sight distance, environmental impacts, and access to adjacent properties.

Volume Information (for Analysis Time Period)

1 Enter the Major/Minor Street ADT Volumes in the Chart below:

	Volumes	Split
Major Street	10,375	75%
Minor Street	3,525	25%
Total volumes	13,900	

Proximity to Other Intersections

2 How close is the nearest signal (miles or feet)?

3 Is the proposed intersection located within a coordinated signal network?

[Go up to next section...](#)

➔ Proposed Design Configuration Chart

Directions for this Section only: (see *Instructions Tab* for other sections)

1. **Select** the type of roundabout you are analyzing.
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 - b. **Select** the Lane Type for each entry approach lane
**The first box is the inner lane, the second box is the outer lane*
 - c. **Select** Yes or No if a right turn bypass will be added to each approach leg

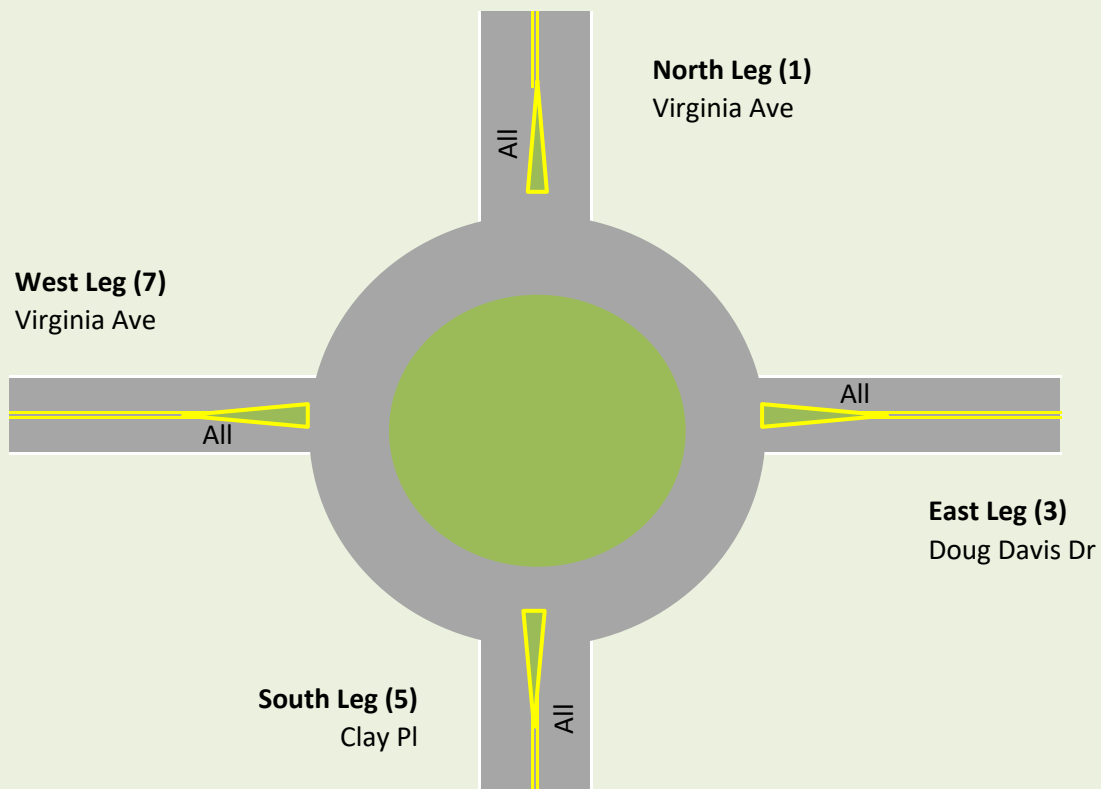
Roundabout Characteristics

Roundabout Type:	Single Lane	Mini/Single Lane	Chart Key:	
# of Approaches:	4		Street Name	
Name of Streets:	Virginia Ave	Multi-lane	All	
	Clay Pl		Bypass?	
	Doug Davis Dr		Street Name	
			Inner Ln	Outer Ln
			Bypass?	

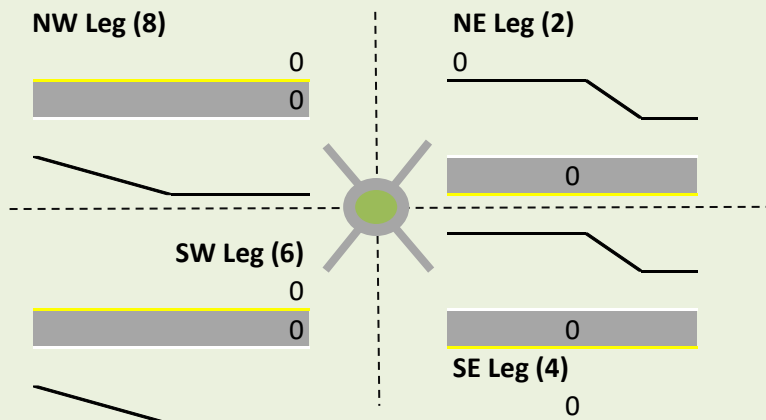
Approach Leg Characteristics:

	North Leg (1)	NE Leg (2)	East Leg (3)	SE Leg (4)
Street Name:	Virginia Ave		Doug Davis Dr	
Entry Lane Config	All		All	
Bypass to Adj Leg?	No		No	
	South Leg (5)	SW Leg (6)	West Leg (7)	NW Leg (8)
Street Name:	Clay Pl		Virginia Ave	
Entry Lane Config	All		All	
Bypass to Adj Leg?	No		No	

Preliminary Roundabout Rendering**



Additional Legs

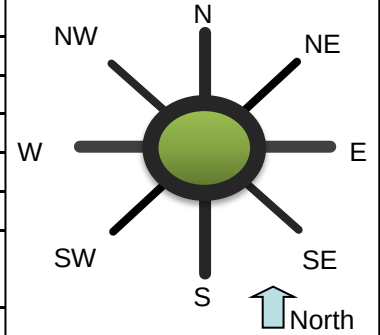


****Note**

This roundabout sketch does not include the secondary cardinal direction legs due to restrictions in the Excel software. For complex roundabouts, a separate sketch is recommended by the designer.

General & Site Information v 4.1

Analyst: Joshua Ekstedt
Agency/Co: Stantec
Date: 5/30/2019
Project or PI#: Virginia Ave Roundabout Feasibility Study
Year, Peak Hour: 2045, 12:00 PM
County/District: Fulton County
Intersection Name: Virginia Ave/Doug Davis Dr @ Clay Pl/Virginia Ave



Volumes		Entry Legs (FROM)							
		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
Exit Legs (TO)	N (1), vph	0	0	65	0	15	0	235	0
	NE (2), vph	0	0	0	0	0	0	0	0
	E (3), vph	50	0	0	0	40	0	360	0
	SE (4), vph	0	0	0	0	0	0	0	0
	S (5), vph	5	0	25	0	0	0	30	0
	SW (6), vph	0	0	0	0	0	0	0	0
	W (7), vph	265	0	260	0	25	0	0	0
	NW (8), vph	0	0	0	0	0	0	0	0
Output	Total Vehicles	320	0	350	0	80	0	625	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	98.5%	100.0%	97.5%	100.0%	97.5%	100.0%	97.0%	100.0%
% Heavy Vehicles	1.5%	0.0%	2.5%	0.0%	2.5%	0.0%	3.0%	0.0%
% Bicycle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians (ped/hr)	7	0	9	0	21	0	21	0
PHF	0.71	0.95	0.88	0.95	0.60	0.95	0.87	0.95
F _{HV}	0.985	1.000	0.976	1.000	0.976	1.000	0.971	1.000
F _{ped}	0.999	1.000	0.999	1.000	0.997	1.000	0.997	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	76	0	26	0	278	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	71	0	0	0	68	0	426	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	7	0	29	0	0	0	36	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	379	0	303	0	43	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	457	0	408	0	137	0	740	0
Conflicting flow, pcu/h	375	0	347	0	776	0	108	0

Results: Approach Measures of Effectiveness								
HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	927	1380	944	1380	608	1380	1197	1380
Entry Flow Rates, vph	451	0	398	0	133	0	718	0
V/C ratio	0.49	0.00	0.42	0.00	0.22	0.00	0.60	0.00
Control Delay, sec/pcu	10	3	9	3	9	3	10	3
LOS	A	A	A	A	A	A	B	A
95th % Queue (ft)	69	0	54	0	21	0	108	0

Notes: v 4.0

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)						
Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)						
Select Exit Leg for Bypass (TO)						
Does the bypass have a dedicated receiving lane?						
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F _{HV}						
F _{ped}						
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow, pcu/hr						
Conflicting Flow, pcu/hr						
Bypass Lane Results (HCM 6th Edition)						
Entry Capacity of Bypass, vph						
Flow Rates of Exiting Traffic, vph						
V/C ratio						
Control Delay, s/veh						
LOS						
95th % Queue (ft)						
Approach w/Bypass Delay, s/veh						
Approach w/Bypass LOS						

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Analyst:	Joshua Ekstedt
Agency/Company:	Stantec
Date:	5/30/2019
Project Name or PI#:	Virginia Ave Roundabout Feasibility Study
Year, Peak Period:	2019, 4:45 PM
County/District:	Fulton County
Intersection:	Virginia Ave/Doug Davis Dr @ Clay Pl/Virginia Ave

Insert Project Information Here in the BLUE SPACE. This information is linked to the Mini, Single Lane and Multi Lane Worksheets.

Roundabout Considerations Worksheet

Roundabouts may not operate well if there is too much traffic entering the intersection or if the percentage of traffic on the major road is too high. Candidate intersections shall be analyzed to determine whether a roundabout will perform acceptably. Shown below are planning level thresholds. A capacity analysis should be performed to determine lane configuration based on traffic volumes.

# of circulatory lanes	ADTs (current/ build year)	Condition met?	% traffic on Major Road	Condition met?
Mini	less than 15,000	Yes	less than 90%	Yes
Single Lane	less than 25,000	Yes	less than 90%	Yes
Multi-Lane	less than 45,000	Yes	less than 90%	Yes

Other things to consider when evaluating roundabouts as an alternative are Right of Way, sight distance, environmental impacts, and access to adjacent properties.

Volume Information (for Analysis Time Period)

1 Enter the Major/Minor Street ADT Volumes in the Chart below:

	Volumes	Split
Major Street	8,225	75%
Minor Street	2,775	25%
Total volumes	11,000	

Proximity to Other Intersections

2 How close is the nearest signal (miles or feet)?

3 Is the proposed intersection located within a coordinated signal network?

[Go up to next section...](#)

➔ Proposed Design Configuration Chart

Directions for this Section only: (see *Instructions Tab* for other sections)

1. **Select** the type of roundabout you are analyzing.
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 - a. **Select** the Street Name from the pulldown menu for each approach leg
 - b. **Select** the Lane Type for each entry approach lane
**The first box is the inner lane, the second box is the outer lane*
 - c. **Select** Yes or No if a right turn bypass will be added to each approach leg

Roundabout Characteristics

Roundabout Type:

of Approaches:

Name of Streets:

Chart Key:

Street Name	
All	
Bypass?	

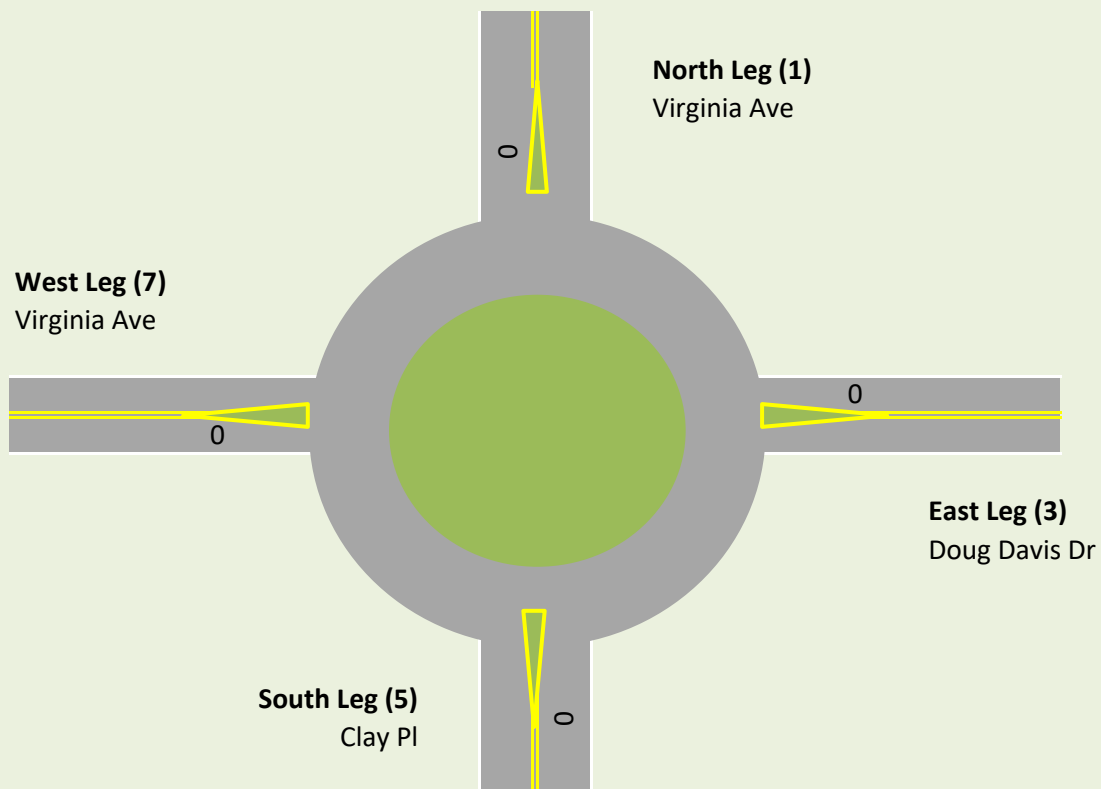
Multi-lane

Street Name	
Inner Ln	Outer Ln
Bypass?	

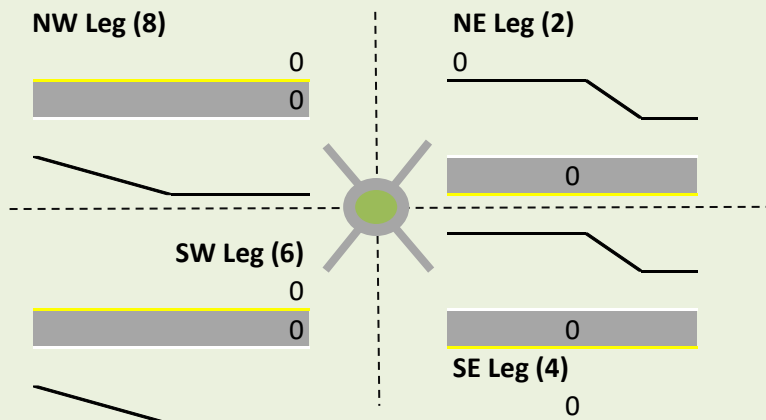
Approach Leg Characteristics:

	North Leg (1)	NE Leg (2)	East Leg (3)	SE Leg (4)
Street Name:	Virginia Ave		Doug Davis Dr	
Entry Lane Config				
Bypass to Adj Leg?				
	South Leg (5)	SW Leg (6)	West Leg (7)	NW Leg (8)
Street Name:	Clay Pl		Virginia Ave	
Entry Lane Config				
Bypass to Adj Leg?				

Preliminary Roundabout Rendering**



Additional Legs

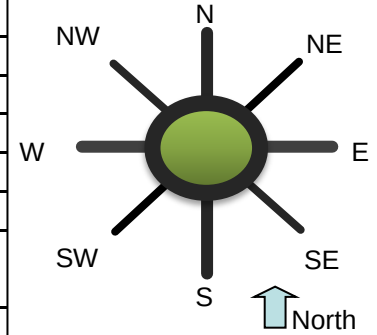


****Note**

This roundabout sketch does not include the secondary cardinal direction legs due to restrictions in the Excel software. For complex roundabouts, a separate sketch is recommended by the designer.

General & Site Information v 4.1

Analyst: Joshua Ekstedt
Agency/Co: Stantec
Date: 5/30/2019
Project or PI#: Virginia Ave Roundabout Feasibility Study
Year, Peak Hour: 2019, 4:45 PM
County/District: Fulton County
Intersection Name: Virginia Ave/Doug Davis Dr @ Clay Pl/Virginia Ave



Volumes		Entry Legs (FROM)							
		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
Exit Legs (TO)	N (1), vph	0	0	65	0	10	0	135	0
	NE (2), vph	0	0	0	0	0	0	0	0
	E (3), vph	25	0	0	0	30	0	205	0
	SE (4), vph	0	0	0	0	0	0	0	0
	S (5), vph	5	0	15	0	0	0	20	0
	SW (6), vph	0	0	0	0	0	0	0	0
	W (7), vph	130	0	285	0	20	0	0	0
	NW (8), vph	0	0	0	0	0	0	0	0
Output	Total Vehicles	160	0	365	0	60	0	360	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	98.5%	100.0%	97.5%	100.0%	97.5%	100.0%	97.0%	100.0%
% Heavy Vehicles	1.5%	0.0%	2.5%	0.0%	2.5%	0.0%	3.0%	0.0%
% Bicycle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians (ped/hr)	5	0	7	0	17	0	17	0
PHF	0.71	0.95	0.88	0.95	0.60	0.95	0.87	0.95
F _{HV}	0.985	1.000	0.976	1.000	0.976	1.000	0.971	1.000
F _{ped}	0.999	1.000	0.999	1.000	0.998	1.000	0.998	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	76	0	17	0	160	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	36	0	0	0	51	0	243	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	7	0	17	0	0	0	24	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	186	0	332	0	34	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	229	0	425	0	103	0	426	0
Conflicting flow, pcu/h	384	0	211	0	438	0	60	0

Results: Approach Measures of Effectiveness								
HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	919	1380	1085	1380	859	1380	1257	1380
Entry Flow Rates, vph	225	0	415	0	100	0	414	0
V/C ratio	0.25	0.00	0.38	0.00	0.12	0.00	0.33	0.00
Control Delay, sec/pcu	6	3	7	3	5	3	6	3
LOS	A	A	A	A	A	A	A	A
95th % Queue (ft)	24	0	47	0	10	0	37	0

Notes: v 4.0

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
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Bypass Lane Merge Point Analysis (if applicable)						
Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)						
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Entry Flow, pcu/hr						
Conflicting Flow, pcu/hr						
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Flow Rates of Exiting Traffic, vph						
V/C ratio						
Control Delay, s/veh						
LOS						
95th % Queue (ft)						
Approach w/Bypass Delay, s/veh						
Approach w/Bypass LOS						

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Year, Peak Period:	2023, 4:45 PM
County/District:	Fulton County
Intersection:	Virginia Ave/Doug Davis Dr @ Clay Pl/Virginia Ave

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1 Enter the Major/Minor Street ADT Volumes in the Chart below:

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Major Street	8,525	75%
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 - b. **Select** the Lane Type for each entry approach lane
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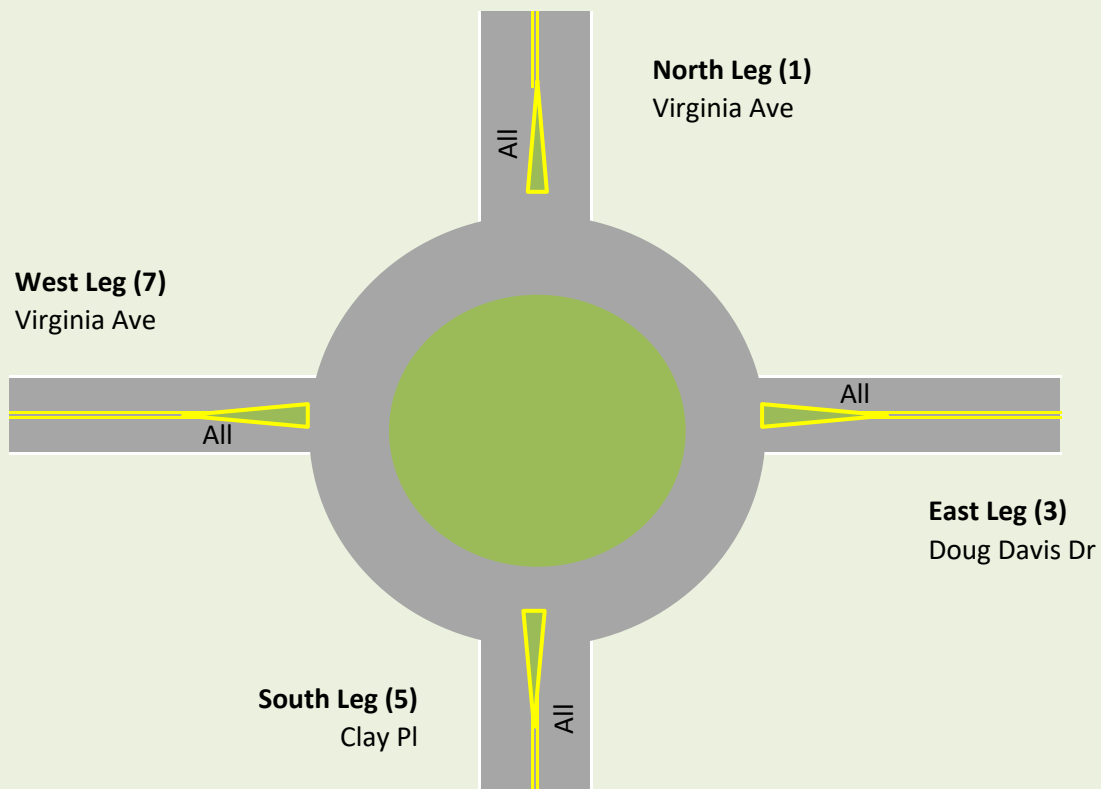
Roundabout Characteristics

Roundabout Type:	Single Lane	Mini/Single Lane	Chart Key:	
# of Approaches:	4		Street Name	
Name of Streets:	Virginia Ave	Multi-lane	All	
	Clay Pl		Bypass?	
	Doug Davis Dr		Street Name	
			Inner Ln	Outer Ln
			Bypass?	

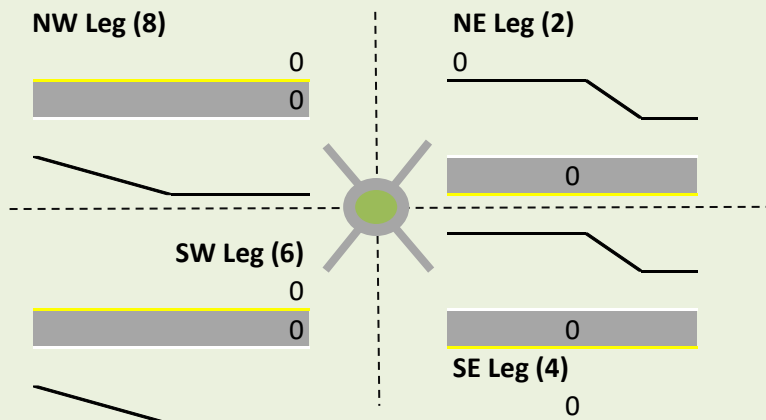
Approach Leg Characteristics:

	North Leg (1)	NE Leg (2)	East Leg (3)	SE Leg (4)
Street Name:	Virginia Ave		Doug Davis Dr	
Entry Lane Config	All		All	
Bypass to Adj Leg?	No	No	No	
	South Leg (5)	SW Leg (6)	West Leg (7)	NW Leg (8)
Street Name:	Clay Pl		Virginia Ave	
Entry Lane Config	All		All	
Bypass to Adj Leg?	No		No	

Preliminary Roundabout Rendering**



Additional Legs

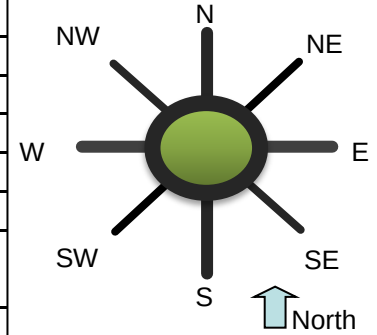


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General & Site Information v 4.1

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Date: 5/30/2019
Project or PI#: Virginia Ave Roundabout Feasibility Study
Year, Peak Hour: 2023, 4:45 PM
County/District: Fulton County
Intersection Name: Virginia Ave/Doug Davis Dr @ Clay Pl/Virginia Ave



Volumes		Entry Legs (FROM)							
		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
Exit Legs (TO)	N (1), vph	0	0	65	0	10	0	140	0
	NE (2), vph	0	0	0	0	0	0	0	0
	E (3), vph	25	0	0	0	30	0	210	0
	SE (4), vph	0	0	0	0	0	0	0	0
	S (5), vph	5	0	15	0	0	0	20	0
	SW (6), vph	0	0	0	0	0	0	0	0
	W (7), vph	135	0	295	0	20	0	0	0
	NW (8), vph	0	0	0	0	0	0	0	0
Output	Total Vehicles	165	0	375	0	60	0	370	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	98.5%	100.0%	97.5%	100.0%	97.5%	100.0%	97.0%	100.0%
% Heavy Vehicles	1.5%	0.0%	2.5%	0.0%	2.5%	0.0%	3.0%	0.0%
% Bicycle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians (ped/hr)	5	0	7	0	17	0	17	0
PHF	0.71	0.95	0.88	0.95	0.60	0.95	0.87	0.95
F _{HV}	0.985	1.000	0.976	1.000	0.976	1.000	0.971	1.000
F _{ped}	0.999	1.000	0.999	1.000	0.998	1.000	0.998	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	76	0	17	0	166	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	36	0	0	0	51	0	249	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	7	0	17	0	0	0	24	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	193	0	344	0	34	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	236	0	437	0	103	0	438	0
Conflicting flow, pcu/h	395	0	217	0	450	0	60	0

Results: Approach Measures of Effectiveness								
HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	908	1380	1078	1380	849	1380	1257	1380
Entry Flow Rates, vph	232	0	426	0	100	0	425	0
V/C ratio	0.26	0.00	0.40	0.00	0.12	0.00	0.34	0.00
Control Delay, sec/pcu	7	3	7	3	5	3	6	3
LOS	A	A	A	A	A	A	A	A
95th % Queue (ft)	26	0	49	0	10	0	39	0

Notes: v 4.0

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)						
Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)						
Select Exit Leg for Bypass (TO)						
Does the bypass have a dedicated receiving lane?						
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F _{HV}						
F _{ped}						
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow, pcu/hr						
Conflicting Flow, pcu/hr						
Bypass Lane Results (HCM 6th Edition)						
Entry Capacity of Bypass, vph						
Flow Rates of Exiting Traffic, vph						
V/C ratio						
Control Delay, s/veh						
LOS						
95th % Queue (ft)						
Approach w/Bypass Delay, s/veh						
Approach w/Bypass LOS						

Welcome to GDOT's Roundabout Analysis Tool. This tool is designed for the user to determine the functionality of a proposed roundabout. The analysis is based on the Highway Capacity Manual 2010 Edition and 6th Edition Methodologies, NCHRP Report 672, and FHWA's Roundabout Informational Guide. Please read the notes in the [Instructions](#) tab before using the spreadsheet.

Analyst:	Joshua Ekstedt
Agency/Company:	Stantec
Date:	5/30/2019
Project Name or PI#:	Virginia Ave Roundabout Feasibility Study
Year, Peak Period:	2025, 4:45 PM
County/District:	Fulton County
Intersection:	Virginia Ave/Doug Davis Dr @ Clay Pl/Virginia Ave

Insert Project Information Here in the BLUE SPACE. This information is linked to the Mini, Single Lane and Multi Lane Worksheets.

Roundabout Considerations Worksheet

Roundabouts may not operate well if there is too much traffic entering the intersection or if the percentage of traffic on the major road is too high. Candidate intersections shall be analyzed to determine whether a roundabout will perform acceptably. Shown below are planning level thresholds. A capacity analysis should be performed to determine lane configuration based on traffic volumes.

# of circulatory lanes	ADTs (current/ build year)	Condition met?	% traffic on Major Road	Condition met?
Mini	less than 15,000	Yes	less than 90%	Yes
Single Lane	less than 25,000	Yes	less than 90%	Yes
Multi-Lane	less than 45,000	Yes	less than 90%	Yes

Other things to consider when evaluating roundabouts as an alternative are Right of Way, sight distance, environmental impacts, and access to adjacent properties.

Volume Information (for Analysis Time Period)

1 Enter the Major/Minor Street ADT Volumes in the Chart below:

	Volumes	Split
Major Street	8,675	75%
Minor Street	2,900	25%
Total volumes	11,575	

Proximity to Other Intersections

2 How close is the nearest signal (miles or feet)?

3 Is the proposed intersection located within a coordinated signal network?

Go up to next section...

➔ Proposed Design Configuration Chart

Directions for this Section only: (see *Instructions Tab* for other sections)

1. **Select** the type of roundabout you are analyzing.
2. **Key in** the number of approaches and the street names at the proposed intersections.
3. Complete the Approach Characteristics Chart:
 - a. **Select** the Street Name from the pulldown menu for each approach leg
 - b. **Select** the Lane Type for each entry approach lane
**The first box is the inner lane, the second box is the outer lane*
 - c. **Select** Yes or No if a right turn bypass will be added to each approach leg

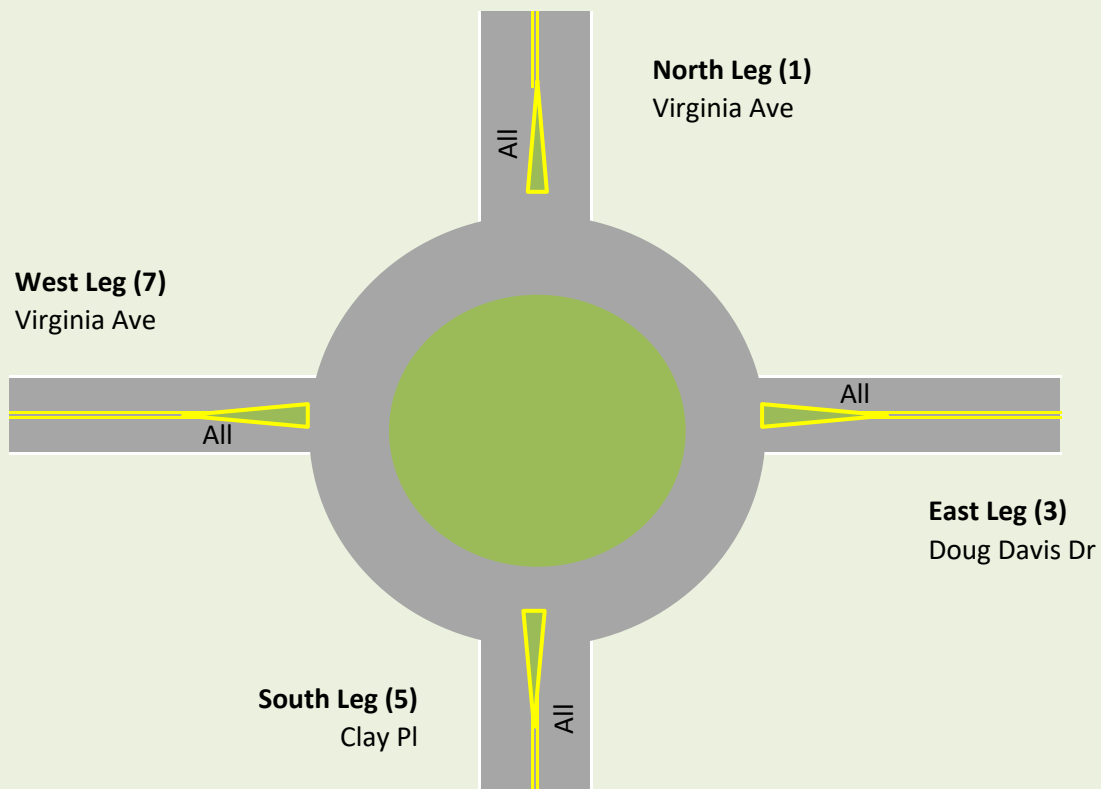
Roundabout Characteristics

Roundabout Type:	Single Lane	Mini/Single Lane	Chart Key:	
# of Approaches:	4		Street Name	
Name of Streets:	Virginia Ave	Multi-lane	All	
	Clay Pl		Bypass?	
	Doug Davis Dr		Street Name	
			Inner Ln	Outer Ln
			Bypass?	

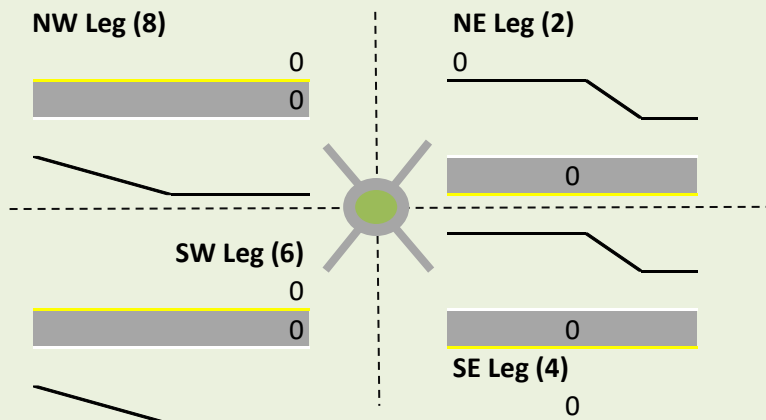
Approach Leg Characteristics:

	North Leg (1)	NE Leg (2)	East Leg (3)	SE Leg (4)
Street Name:	Virginia Ave		Doug Davis Dr	
Entry Lane Config	All		All	
Bypass to Adj Leg?	No		No	
	South Leg (5)	SW Leg (6)	West Leg (7)	NW Leg (8)
Street Name:	Clay Pl		Virginia Ave	
Entry Lane Config	All		All	
Bypass to Adj Leg?	No		No	

Preliminary Roundabout Rendering**



Additional Legs

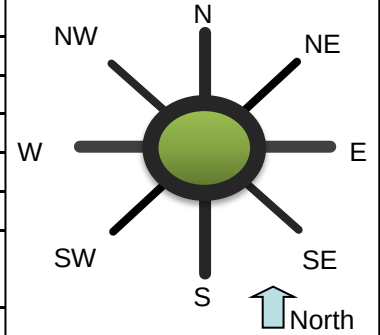


****Note**

This roundabout sketch does not include the secondary cardinal direction legs due to restrictions in the Excel software. For complex roundabouts, a separate sketch is recommended by the designer.

General & Site Information v 4.1

Analyst: Joshua Ekstedt
Agency/Co: Stantec
Date: 5/30/2019
Project or PI#: Virginia Ave Roundabout Feasibility Study
Year, Peak Hour: 2025, 4:45 PM
County/District: Fulton County
Intersection Name: Virginia Ave/Doug Davis Dr @ Clay Pl/Virginia Ave



Volumes		Entry Legs (FROM)							
		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
Exit Legs (TO)	N (1), vph	0	0	70	0	10	0	140	0
	NE (2), vph	0	0	0	0	0	0	0	0
	E (3), vph	25	0	0	0	30	0	215	0
	SE (4), vph	0	0	0	0	0	0	0	
	S (5), vph	5	0	15	0	0	0	20	0
	SW (6), vph	0	0	0	0	0	0	0	0
	W (7), vph	135	0	300	0	20	0	0	0
	NW (8), vph	0	0	0	0	0	0	0	0
Output	Total Vehicles	165	0	385	0	60	0	375	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	98.5%	100.0%	97.5%	100.0%	97.5%	100.0%	97.0%	100.0%
% Heavy Vehicles	1.5%	0.0%	2.5%	0.0%	2.5%	0.0%	3.0%	0.0%
% Bicycle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians (ped/hr)	5	0	18	0	7	0	17	0
PHF	0.71	0.95	0.88	0.95	0.60	0.95	0.87	0.95
F _{HV}	0.985	1.000	0.976	1.000	0.976	1.000	0.971	1.000
F _{ped}	0.999	1.000	0.998	1.000	0.999	1.000	0.998	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	82	0	17	0	166	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	36	0	0	0	51	0	255	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	7	0	17	0	0	0	24	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	193	0	349	0	34	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	236	0	448	0	103	0	444	0
Conflicting flow, pcu/h	401	0	217	0	456	0	60	0

Results: Approach Measures of Effectiveness								
HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	903	1380	1076	1380	845	1380	1257	1380
Entry Flow Rates, vph	232	0	438	0	100	0	431	0
V/C ratio	0.26	0.00	0.41	0.00	0.12	0.00	0.34	0.00
Control Delay, sec/pcu	7	3	8	3	5	3	6	3
LOS	A	A	A	A	A	A	A	A
95th % Queue (ft)	26	0	51	0	10	0	40	0

Notes: v 4.0

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)						
Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)						
Select Exit Leg for Bypass (TO)						
Does the bypass have a dedicated receiving lane?						
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F _{HV}						
F _{ped}						
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow, pcu/hr						
Conflicting Flow, pcu/hr						
Bypass Lane Results (HCM 6th Edition)						
Entry Capacity of Bypass, vph						
Flow Rates of Exiting Traffic, vph						
V/C ratio						
Control Delay, s/veh						
LOS						
95th % Queue (ft)						
Approach w/Bypass Delay, s/veh						
Approach w/Bypass LOS						

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Analyst:	Joshua Ekstedt
Agency/Company:	Stantec
Date:	5/30/2019
Project Name or PI#:	Virginia Ave Roundabout Feasibility Study
Year, Peak Period:	2043, 4:45 PM
County/District:	Fulton County
Intersection:	Virginia Ave/Doug Davis Dr @ Clay Pl/Virginia Ave

Insert Project Information Here in the BLUE SPACE. This information is linked to the Mini, Single Lane and Multi Lane Worksheets.

Roundabout Considerations Worksheet

Roundabouts may not operate well if there is too much traffic entering the intersection or if the percentage of traffic on the major road is too high. Candidate intersections shall be analyzed to determine whether a roundabout will perform acceptably. Shown below are planning level thresholds. A capacity analysis should be performed to determine lane configuration based on traffic volumes.

# of circulatory lanes	ADTs (current/ build year)	Condition met?	% traffic on Major Road	Condition met?
Mini	less than 15,000	Yes	less than 90%	Yes
Single Lane	less than 25,000	Yes	less than 90%	Yes
Multi-Lane	less than 45,000	Yes	less than 90%	Yes

Other things to consider when evaluating roundabouts as an alternative are Right of Way, sight distance, environmental impacts, and access to adjacent properties.

Volume Information (for Analysis Time Period)

1 Enter the Major/Minor Street ADT Volumes in the Chart below:

	Volumes	Split
Major Street	10,200	75%
Minor Street	3,425	25%
Total volumes	13,625	

Proximity to Other Intersections

2 How close is the nearest signal (miles or feet)?

3 Is the proposed intersection located within a coordinated signal network?

[Go up to next section...](#)

➔ Proposed Design Configuration Chart

Directions for this Section only: (see *Instructions Tab* for other sections)

1. **Select** the type of roundabout you are analyzing.
2. **Key in** the number of approaches and the street names at the proposed intersections.
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 - a. **Select** the Street Name from the pulldown menu for each approach leg
 - b. **Select** the Lane Type for each entry approach lane
**The first box is the inner lane, the second box is the outer lane*
 - c. **Select** Yes or No if a right turn bypass will be added to each approach leg

Roundabout Characteristics

Roundabout Type:

of Approaches:

Name of Streets:

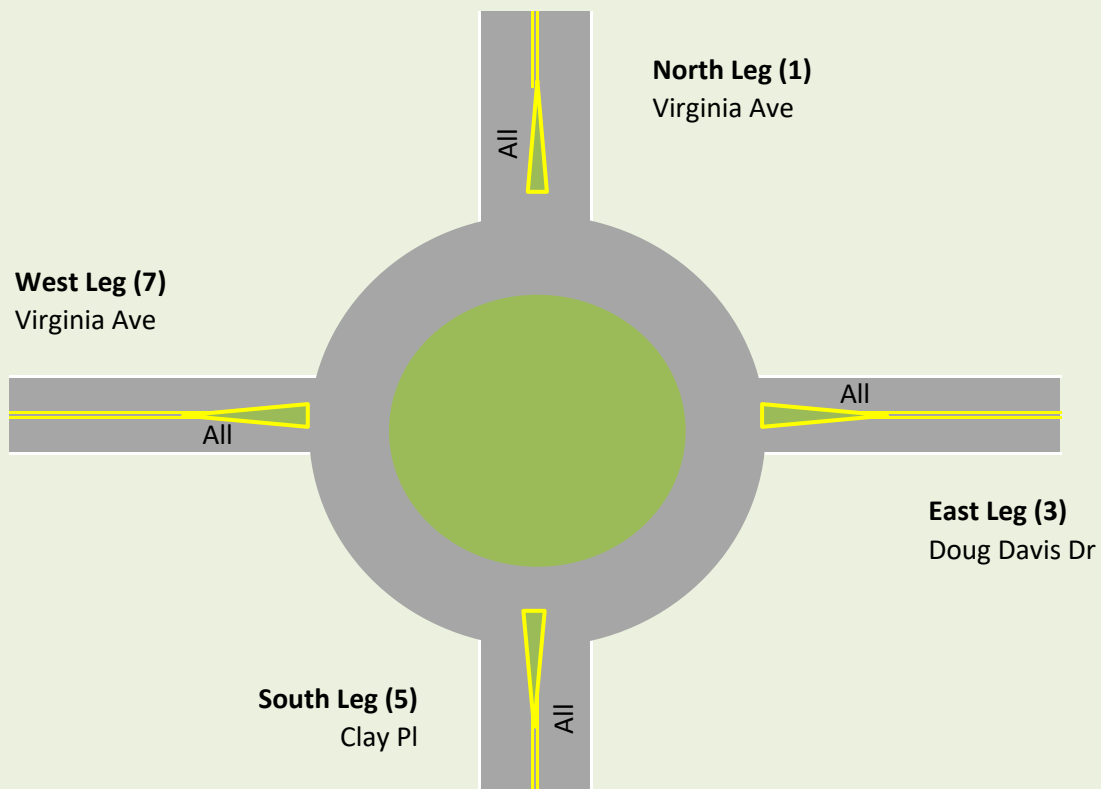
Chart Key:

Mini/Single Lane	Street Name	
	All	
	Bypass?	
Multi-lane	Street Name	
	Inner Ln	Outer Ln
	Bypass?	

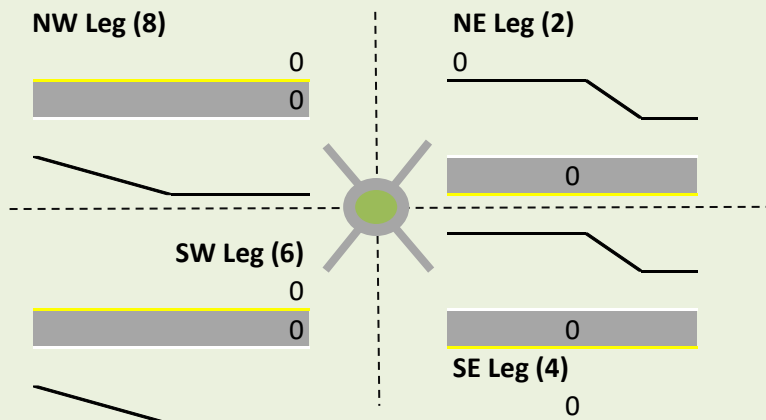
Approach Leg Characteristics:

	North Leg (1)	NE Leg (2)	East Leg (3)	SE Leg (4)
Street Name:	Virginia Ave		Doug Davis Dr	
Entry Lane Config	All		All	
Bypass to Adj Leg?	No		No	
	South Leg (5)	SW Leg (6)	West Leg (7)	NW Leg (8)
Street Name:	Clay Pl		Virginia Ave	
Entry Lane Config	All		All	
Bypass to Adj Leg?	No		No	

Preliminary Roundabout Rendering**



Additional Legs

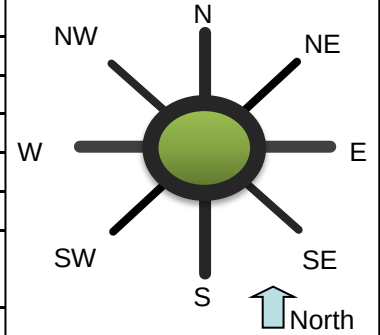


****Note**

This roundabout sketch does not include the secondary cardinal direction legs due to restrictions in the Excel software. For complex roundabouts, a separate sketch is recommended by the designer.

General & Site Information v 4.1

Analyst: Joshua Ekstedt
Agency/Co: Stantec
Date: 5/30/2019
Project or PI#: Virginia Ave Roundabout Feasibility Study
Year, Peak Hour: 2043, 4:45 PM
County/District: Fulton County
Intersection Name: Virginia Ave/Doug Davis Dr @ Clay Pl/Virginia Ave



Volumes		Entry Legs (FROM)							
		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
Exit Legs (TO)	N (1), vph	0	0	80	0	10	0	165	0
	NE (2), vph	0	0	0	0	0	0	0	0
	E (3), vph	30	0	0	0	35	0	255	0
	SE (4), vph	0	0	0		0	0	0	0
	S (5), vph	5	0	20	0	0	0	25	0
	SW (6), vph	0	0	0	0	0	0	0	0
	W (7), vph	160	0	355	0	25	0	0	0
	NW (8), vph	0	0	0	0	0	0	0	0
Output	Total Vehicles	195	0	455	0	70	0	445	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	98.5%	100.0%	97.5%	100.0%	97.5%	100.0%	97.0%	100.0%
% Heavy Vehicles	1.5%	0.0%	2.5%	0.0%	2.5%	0.0%	3.0%	0.0%
% Bicycle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians (ped/hr)	6	0	8	0	21	0	21	0
PHF	0.71	0.95	0.88	0.95	0.60	0.95	0.87	0.95
F _{HV}	0.985	1.000	0.976	1.000	0.976	1.000	0.971	1.000
F _{ped}	0.999	1.000	0.999	1.000	0.997	1.000	0.997	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	93	0	17	0	195	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	43	0	0	0	60	0	302	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	7	0	23	0	0	0	30	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	229	0	413	0	43	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	279	0	530	0	120	0	527	0
Conflicting flow, pcu/h	479	0	255	0	540	0	73	0

Results: Approach Measures of Effectiveness								
HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	833	1380	1037	1380	774	1380	1240	1380
Entry Flow Rates, vph	275	0	517	0	117	0	511	0
V/C ratio	0.33	0.00	0.50	0.00	0.15	0.00	0.41	0.00
Control Delay, sec/pcu	8	3	9	3	6	3	7	3
LOS	A	A	A	A	A	A	A	A
95th % Queue (ft)	37	0	73	0	14	0	53	0

Notes: v 4.0

Unit Legend:
 vph = vehicles per hour
 PHF = peak hour factor
 F_{HV} = heavy vehicle factor
 pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)						
Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)						
Select Exit Leg for Bypass (TO)						
Does the bypass have a dedicated receiving lane?						
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F_{HV}						
F_{ped}						
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow, pcu/hr						
Conflicting Flow, pcu/hr						
Bypass Lane Results (HCM 6th Edition)						
Entry Capacity of Bypass, vph						
Flow Rates of Exiting Traffic, vph						
V/C ratio						
Control Delay, s/veh						
LOS						
95th % Queue (ft)						
Approach w/Bypass Delay, s/veh						
Approach w/Bypass LOS						

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Agency/Company:	Stantec
Date:	5/30/2019
Project Name or PI#:	Virginia Ave Roundabout Feasibility Study
Year, Peak Period:	2045, 4:45 PM
County/District:	Fulton County
Intersection:	Virginia Ave/Doug Davis Dr @ Clay Pl/Virginia Ave

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Multi-Lane	less than 45,000	Yes	less than 90%	Yes

Other things to consider when evaluating roundabouts as an alternative are Right of Way, sight distance, environmental impacts, and access to adjacent properties.

Volume Information (for Analysis Time Period)

1 Enter the Major/Minor Street ADT Volumes in the Chart below:

	Volumes	Split
Major Street	10,375	75%
Minor Street	3,525	25%
Total volumes	13,900	

Proximity to Other Intersections

2 How close is the nearest signal (miles or feet)?

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[Go up to next section...](#)

➔ Proposed Design Configuration Chart

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1. **Select** the type of roundabout you are analyzing.
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3. Complete the Approach Characteristics Chart:
 - a. **Select** the Street Name from the pulldown menu for each approach leg
 - b. **Select** the Lane Type for each entry approach lane
**The first box is the inner lane, the second box is the outer lane*
 - c. **Select** Yes or No if a right turn bypass will be added to each approach leg

Roundabout Characteristics

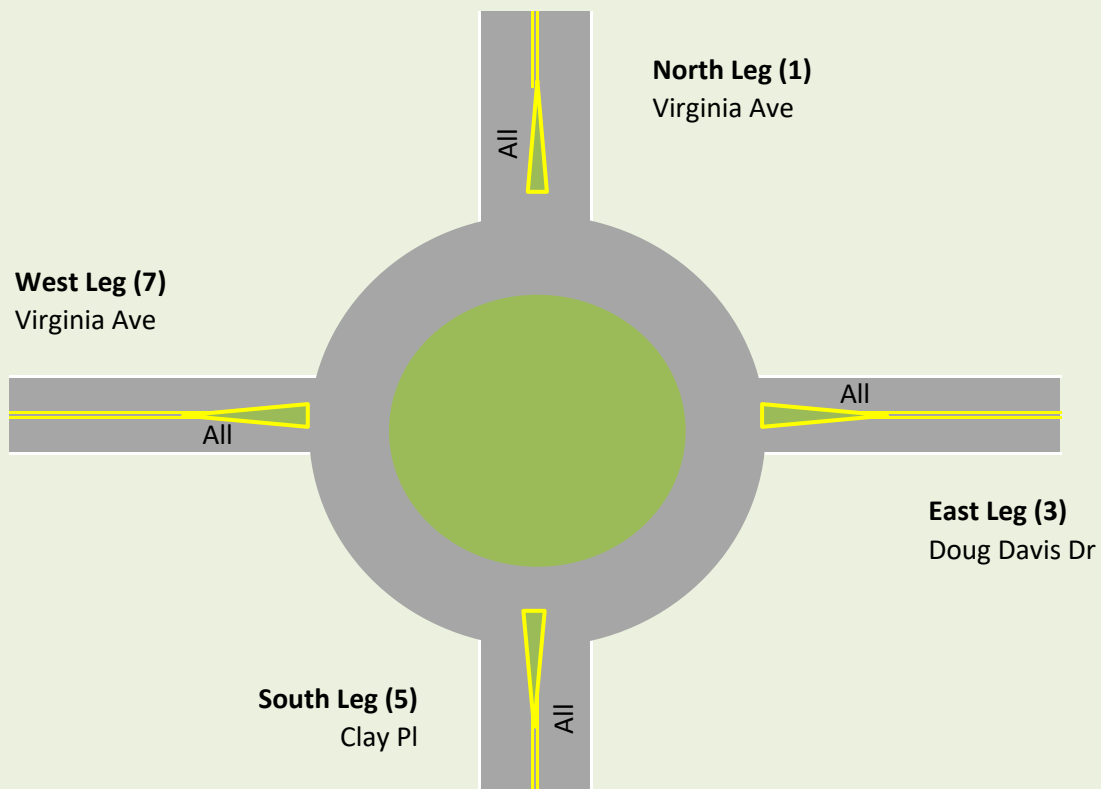
Roundabout Type:	Single Lane
# of Approaches:	4
Name of Streets:	Virginia Ave
	Clay Pl
	Doug Davis Dr

Mini/Single Lane	Chart Key:	
	Street Name	
	All	
	Bypass?	
Multi-lane	Street Name	
	Inner Ln	Outer Ln
	Bypass?	

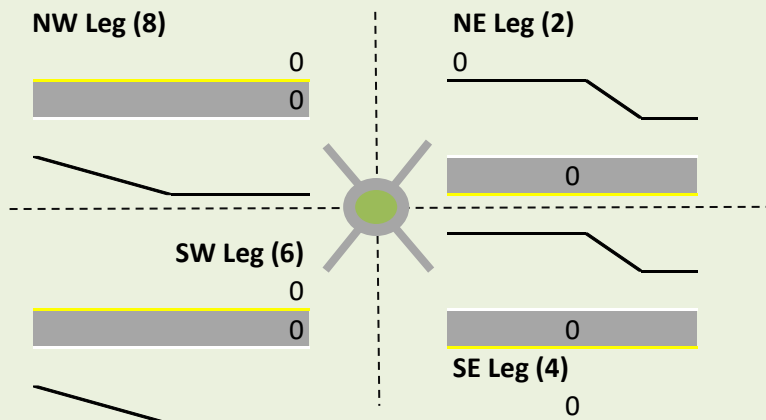
Approach Leg Characteristics:

	North Leg (1)	NE Leg (2)	East Leg (3)	SE Leg (4)
Street Name:	Virginia Ave		Doug Davis Dr	
Entry Lane Config	All		All	
Bypass to Adj Leg?	No		No	
	South Leg (5)	SW Leg (6)	West Leg (7)	NW Leg (8)
Street Name:	Clay Pl		Virginia Ave	
Entry Lane Config	All		All	
Bypass to Adj Leg?	No		No	

Preliminary Roundabout Rendering**



Additional Legs

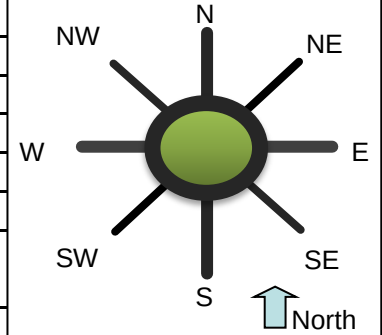


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General & Site Information v 4.1

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Agency/Co: Stantec
Date: 5/30/2019
Project or PI#: Virginia Ave Roundabout Feasibility Study
Year, Peak Hour: 2045, 4:45 PM
County/District: Fulton County
Intersection: Virginia Ave/Doug Davis Dr @ Clay Pl/Virginia Ave
Name:



Volumes		Entry Legs (FROM)							
		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
Exit Legs (TO)	N (1), vph	0	0	80	0	15	0	170	0
	NE (2), vph	0	0	0	0	0	0	0	0
	E (3), vph	30	0	0	0	40	0	260	0
	SE (4), vph	0	0	0	0	0	0	0	0
	S (5), vph	5	0	20	0	0	0	25	0
	SW (6), vph	0	0	0	0	0	0	0	0
	W (7), vph	165	0	360	0	25	0	0	0
	NW (8), vph	0	0	0	0	0	0	0	0
Output	Total Vehicles	200	0	460	0	80	0	455	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	98.5%	100.0%	97.5%	100.0%	97.5%	100.0%	97.0%	100.0%
% Heavy Vehicles	1.5%	0.0%	2.5%	0.0%	2.5%	0.0%	3.0%	0.0%
% Bicycle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians (ped/hr)	7	0	9	0	21	0	21	0
PHF	0.71	0.95	0.88	0.95	0.60	0.95	0.87	0.95
F _{HV}	0.985	1.000	0.976	1.000	0.976	1.000	0.971	1.000
F _{ped}	0.999	1.000	0.999	1.000	0.997	1.000	0.997	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	93	0	26	0	201	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	43	0	0	0	68	0	308	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	7	0	23	0	0	0	30	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	236	0	419	0	43	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	286	0	536	0	137	0	539	0
Conflicting flow, pcu/h	485	0	270	0	552	0	73	0

Results: Approach Measures of Effectiveness								
HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	828	1380	1021	1380	765	1380	1240	1380
Entry Flow Rates, vph	282	0	523	0	133	0	523	0
V/C ratio	0.34	0.00	0.51	0.00	0.17	0.00	0.42	0.00
Control Delay, sec/pcu	8	3	10	3	7	3	7	3
LOS	A	A	A	A	A	A	A	A
95th % Queue (ft)	38	0	77	0	16	0	55	0

Notes: v 4.0

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)						
Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)						
Select Exit Leg for Bypass (TO)						
Does the bypass have a dedicated receiving lane?						
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F _{HV}						
F _{ped}						
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow, pcu/hr						
Conflicting Flow, pcu/hr						
Bypass Lane Results (HCM 6th Edition)						
Entry Capacity of Bypass, vph						
Flow Rates of Exiting Traffic, vph						
V/C ratio						
Control Delay, s/veh						
LOS						
95th % Queue (ft)						
Approach w/Bypass Delay, s/veh						
Approach w/Bypass LOS						

FULTON COUNTY



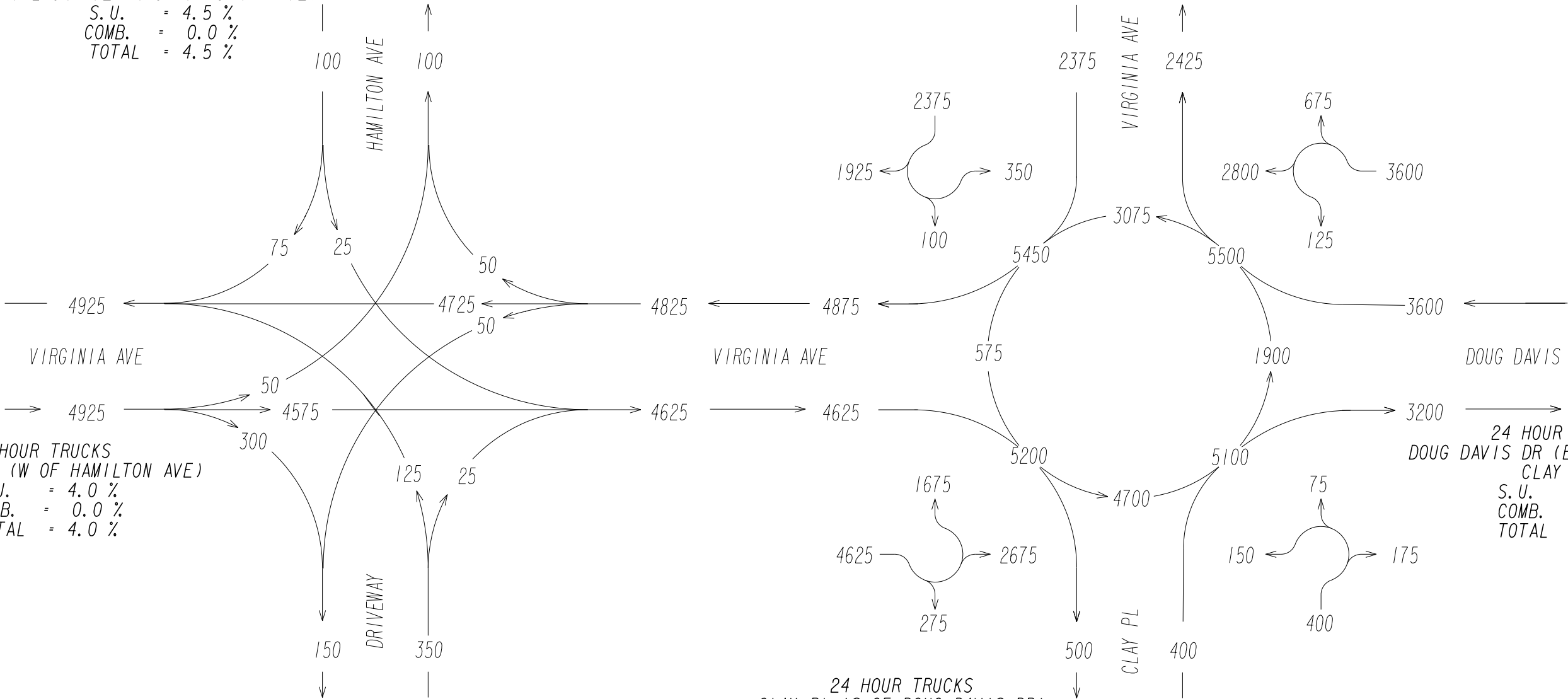
24 HOUR TRUCKS
VIRGINIA AVE (N DOUG DAVIS DR)
S.U. = 2.5 %
COMB. = 0.0 %
TOTAL = 2.5 %

24 HOUR TRUCKS
HAMILTON AVE (N OF VIRGINIA AVE)
S.U. = 4.5 %
COMB. = 0.0 %
TOTAL = 4.5 %

24 HOUR TRUCKS
VIRGINIA AVE (W OF HAMILTON AVE)
S.U. = 4.0 %
COMB. = 0.0 %
TOTAL = 4.0 %

24 HOUR TRUCKS
DOUG DAVIS DR (E VIRGINIA AVE/
CLAY PL)
S.U. = 3.0 %
COMB. = 0.0 %
TOTAL = 3.0 %

24 HOUR TRUCKS
CLAY PL (S OF DOUG DAVIS DR)
S.U. = 4.0 %
COMB. = 0.0 %
TOTAL = 4.0 %



2019 EXISTING AADT

PROJECT NUMBER: 171007021
FULTON COUNTY
VIRGINIA AVENUE
ROUNDBOUT FEASIBILITY
STUDY



REVISION DATES

TRAFFIC DIAGRAM

AC
08/2019

DRAWING No.
01-0010

FULTON COUNTY



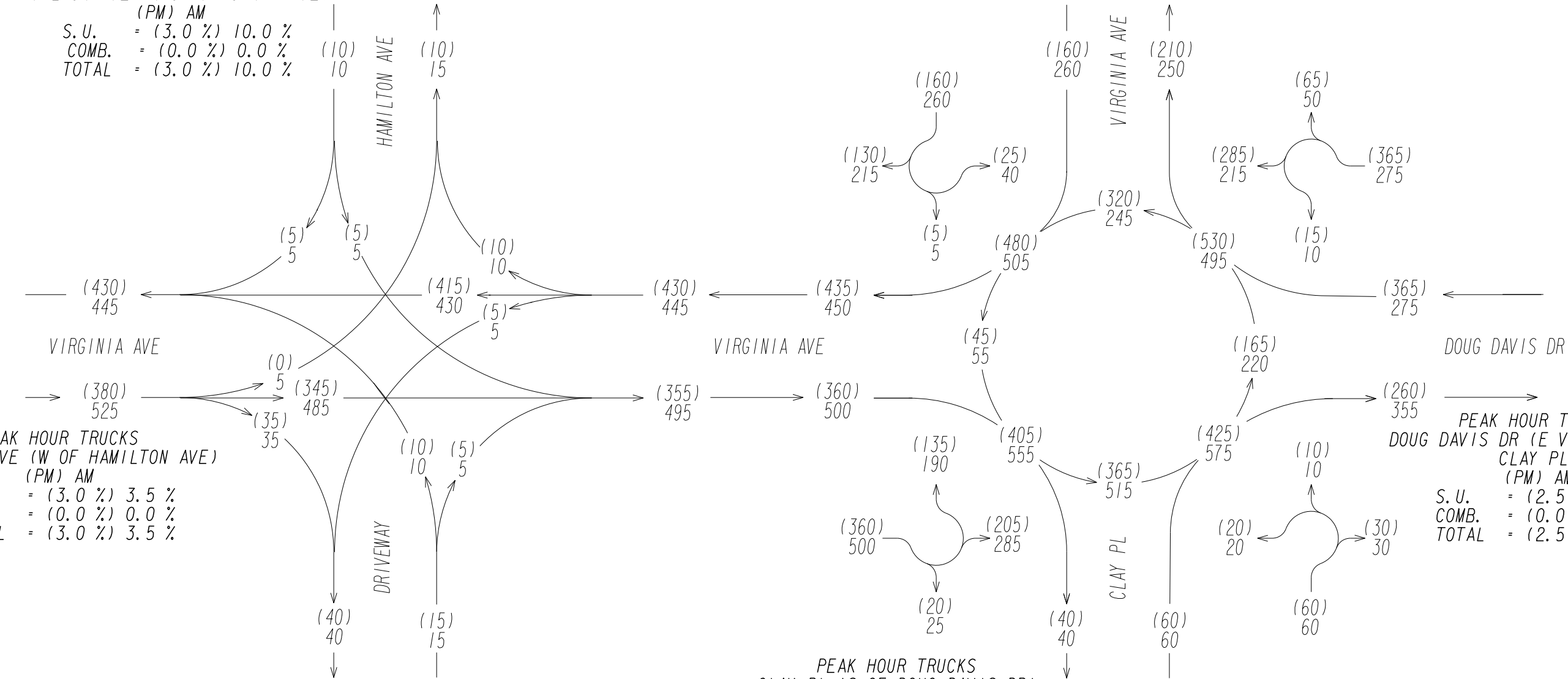
PEAK HOUR TRUCKS
VIRGINIA AVE (N DOUG DAVIS DR)
(PM) AM
S.U. = (1.5 %) 4.0 %
COMB. = (0.0 %) 0.0 %
TOTAL = (1.5 %) 4.0 %

PEAK HOUR TRUCKS
HAMILTON AVE (N OF VIRGINIA AVE)
(PM) AM
S.U. = (3.0 %) 10.0 %
COMB. = (0.0 %) 0.0 %
TOTAL = (3.0 %) 10.0 %

PEAK HOUR TRUCKS
VIRGINIA AVE (W OF HAMILTON AVE)
(PM) AM
S.U. = (3.0 %) 3.5 %
COMB. = (0.0 %) 0.0 %
TOTAL = (3.0 %) 3.5 %

PEAK HOUR TRUCKS
DOUG DAVIS DR (E VIRGINIA AVE/
CLAY PL)
(PM) AM
S.U. = (2.5 %) 3.0 %
COMB. = (0.0 %) 0.0 %
TOTAL = (2.5 %) 3.0 %

PEAK HOUR TRUCKS
CLAY PL (S OF DOUG DAVIS DR)
(PM) AM
S.U. = (2.5 %) 3.5 %
COMB. = (0.0 %) 0.0 %
TOTAL = (2.5 %) 3.5 %



2019 EXISTING DHV
(PM) NOON

PROJECT NUMBER: 171007021
FULTON COUNTY

VIRGINIA AVENUE
ROUNDBABOUT FEASIBILITY
STUDY



REVISION DATES

TRAFFIC DIAGRAM

DRAWING No.

01-0011

FULTON COUNTY



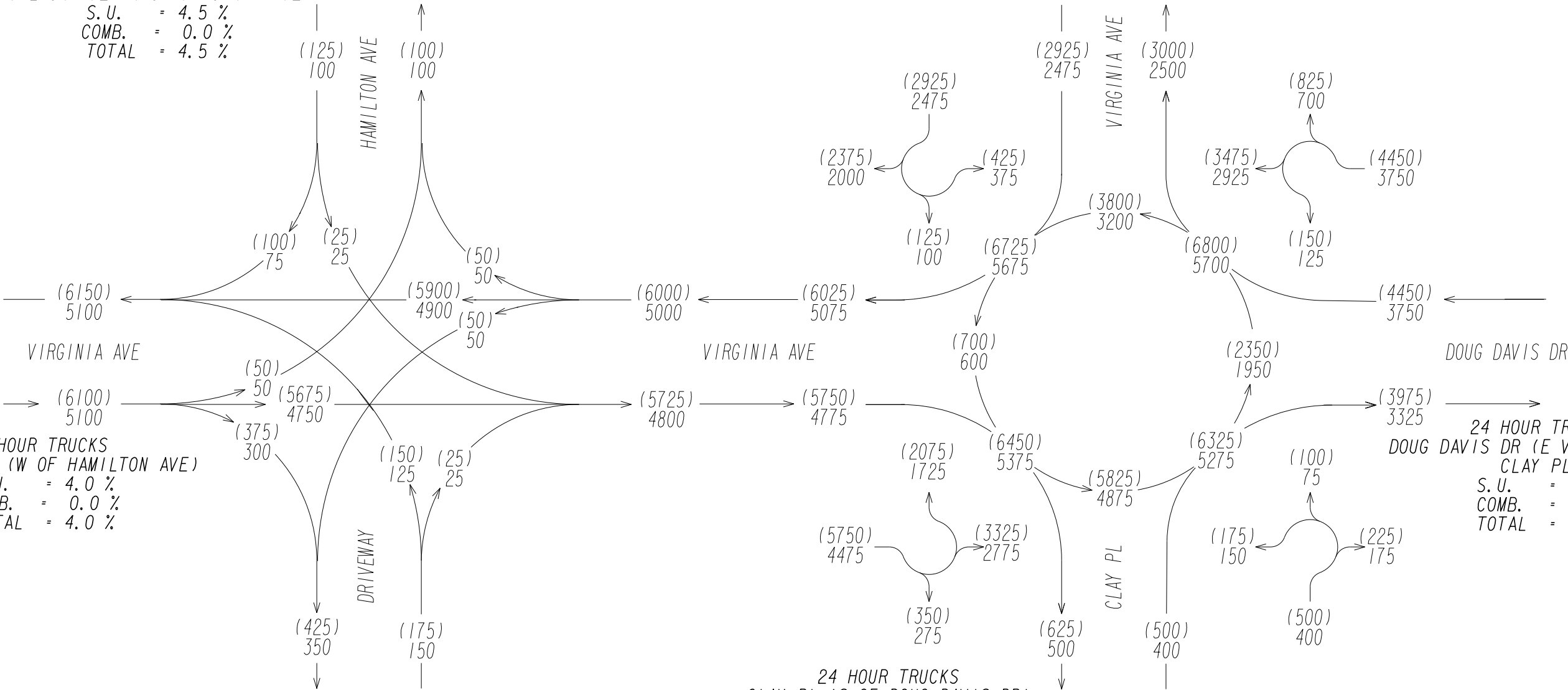
24 HOUR TRUCKS
VIRGINIA AVE (N DOUG DAVIS DR)
S. U. = 2.5 %
COMB. = 0.0 %
TOTAL = 2.5 %

24 HOUR TRUCKS
HAMILTON AVE (N OF VIRGINIA AVE)
S. U. = 4.5 %
COMB. = 0.0 %
TOTAL = 4.5 %

24 HOUR TRUCKS
VIRGINIA AVE (W OF HAMILTON AVE)
S. U. = 4.0 %
COMB. = 0.0 %
TOTAL = 4.0 %

24 HOUR TRUCKS
DOUG DAVIS DR (E VIRGINIA AVE/
CLAY PL)
S. U. = 3.0 %
COMB. = 0.0 %
TOTAL = 3.0 %

24 HOUR TRUCKS
CLAY PL (S OF DOUG DAVIS DR)
S. U. = 4.0 %
COMB. = 0.0 %
TOTAL = 4.0 %



(2043) 2023 AADT

PROJECT NUMBER: 171007021
FULTON COUNTY

VIRGINIA AVENUE
ROUNDAABOUT FEASIBILITY
STUDY



REVISION DATES

TRAFFIC DIAGRAM

DRAWING No.
01-0012

JE
09/2019

FULTON COUNTY



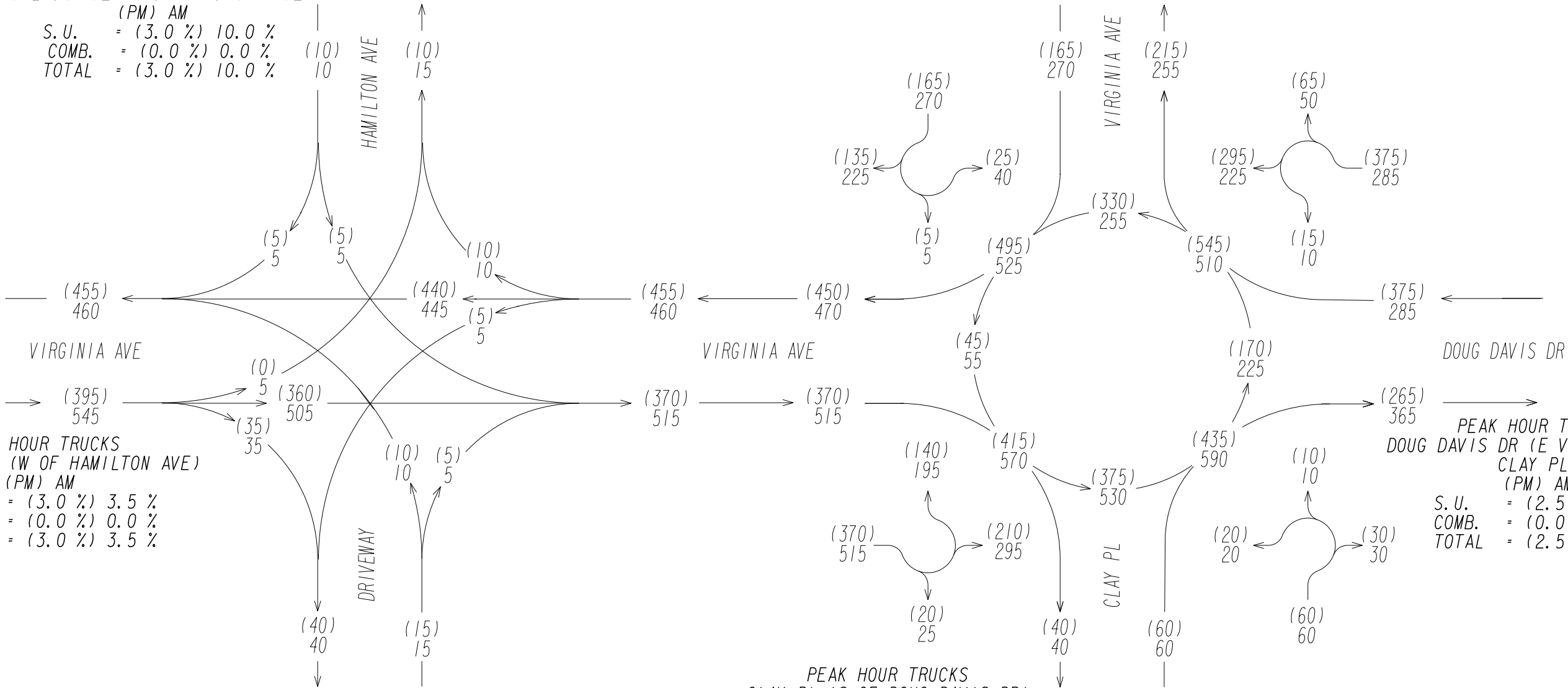
PEAK HOUR TRUCKS
VIRGINIA AVE (N DOUG DAVIS DR)
(PM) AM
S.U. = (1.5 %) 4.0 %
COMB. = (0.0 %) 0.0 %
TOTAL = (1.5 %) 4.0 %

PEAK HOUR TRUCKS
HAMILTON AVE (N OF VIRGINIA AVE)
(PM) AM
S.U. = (3.0 %) 10.0 %
COMB. = (0.0 %) 0.0 %
TOTAL = (3.0 %) 10.0 %

PEAK HOUR TRUCKS
VIRGINIA AVE (W OF HAMILTON AVE)
(PM) AM
S.U. = (3.0 %) 3.5 %
COMB. = (0.0 %) 0.0 %
TOTAL = (3.0 %) 3.5 %

PEAK HOUR TRUCKS
DOUG DAVIS DR (E VIRGINIA AVE/
CLAY PL)
(PM) AM
S.U. = (2.5 %) 3.0 %
COMB. = (0.0 %) 0.0 %
TOTAL = (2.5 %) 3.0 %

PEAK HOUR TRUCKS
CLAY PL (S OF DOUG DAVIS DR)
(PM) AM
S.U. = (2.5 %) 3.5 %
COMB. = (0.0 %) 0.0 %
TOTAL = (2.5 %) 3.5 %



2023 DHV
(PM) NOON

PROJECT NUMBER: 171007021
FULTON COUNTY
VIRGINIA AVENUE
ROUNDAABOUT FEASIBILITY
STUDY



REVISION DATES

TRAFFIC DIAGRAM

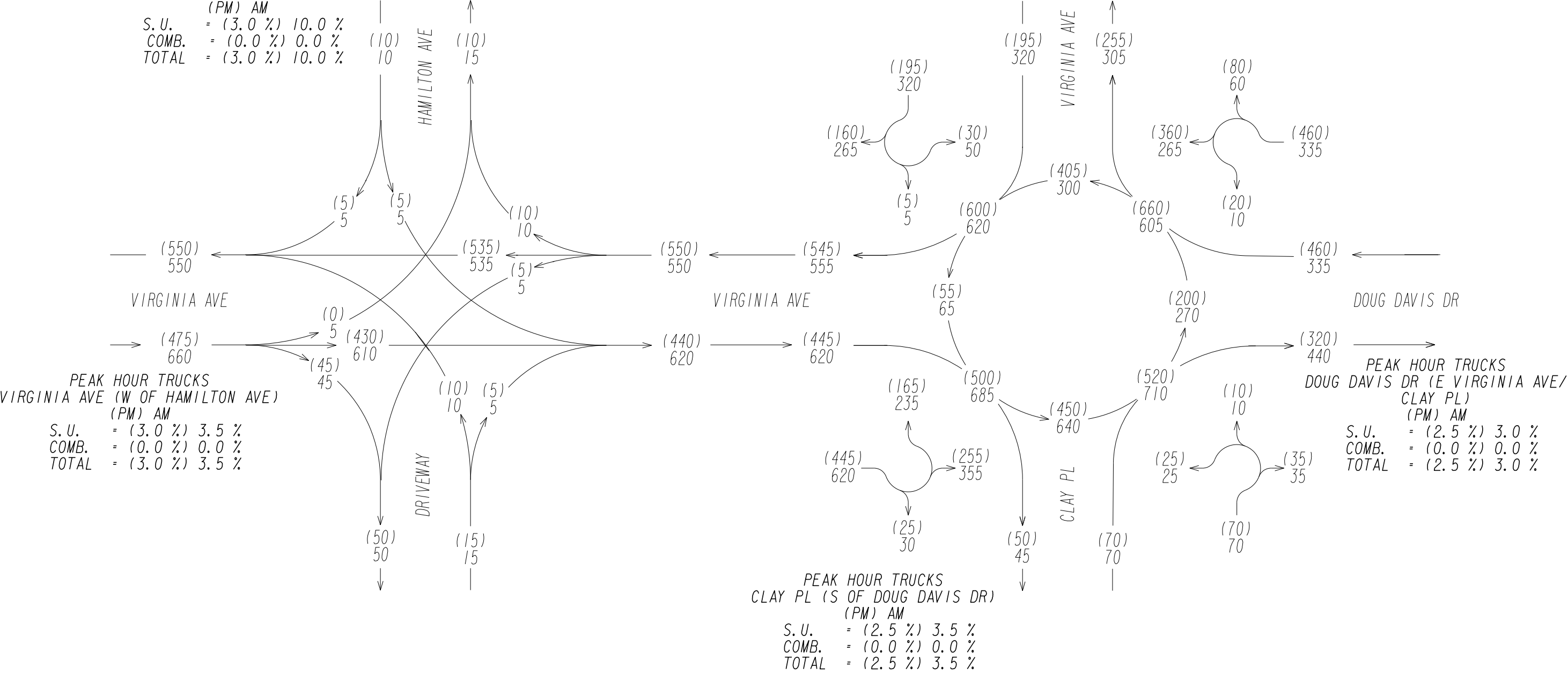
DRAWING No.
01-0013

FULTON COUNTY



PEAK HOUR TRUCKS
VIRGINIA AVE (N DOUG DAVIS DR)
(PM) AM
S.U. = (1.5 %) 4.0 %
COMB. = (0.0 %) 0.0 %
TOTAL = (1.5 %) 4.0 %

PEAK HOUR TRUCKS
HAMILTON AVE (N OF VIRGINIA AVE)
(PM) AM
S.U. = (3.0 %) 10.0 %
COMB. = (0.0 %) 0.0 %
TOTAL = (3.0 %) 10.0 %



2043 DHV
(PM) NOON

PROJECT NUMBER: 171007021
FULTON COUNTY
VIRGINIA AVENUE
ROUNDAABOUT FEASIBILITY
STUDY



REVISION DATES

TRAFFIC DIAGRAM

DRAWING No.
01-0014

FULTON COUNTY



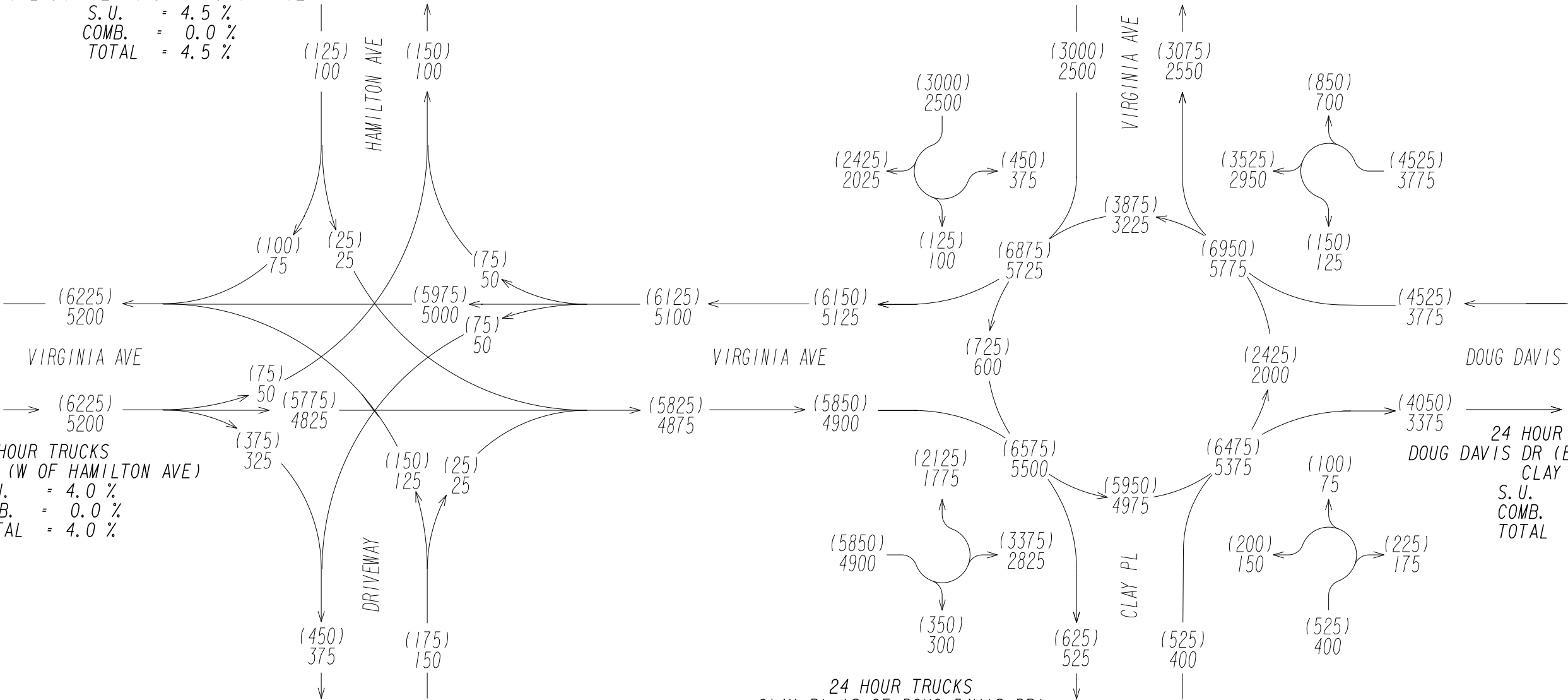
24 HOUR TRUCKS
VIRGINIA AVE (N DOUG DAVIS DR)
S.U. = 2.5 %
COMB. = 0.0 %
TOTAL = 2.5 %

24 HOUR TRUCKS
HAMILTON AVE (N OF VIRGINIA AVE)
S.U. = 4.5 %
COMB. = 0.0 %
TOTAL = 4.5 %

24 HOUR TRUCKS
VIRGINIA AVE (W OF HAMILTON AVE)
S.U. = 4.0 %
COMB. = 0.0 %
TOTAL = 4.0 %

24 HOUR TRUCKS
DOUG DAVIS DR (E VIRGINIA AVE/
CLAY PL)
S.U. = 3.0 %
COMB. = 0.0 %
TOTAL = 3.0 %

24 HOUR TRUCKS
CLAY PL (S OF DOUG DAVIS DR)
S.U. = 4.0 %
COMB. = 0.0 %
TOTAL = 4.0 %



(2045) 2025 AADT

PROJECT NUMBER: 171007021
FULTON COUNTY

VIRGINIA AVENUE
ROUNDBABOUT FEASIBILITY
STUDY



REVISION DATES

TRAFFIC DIAGRAM

DRAWING No.

01-0015

JE
09/2019

FULTON COUNTY



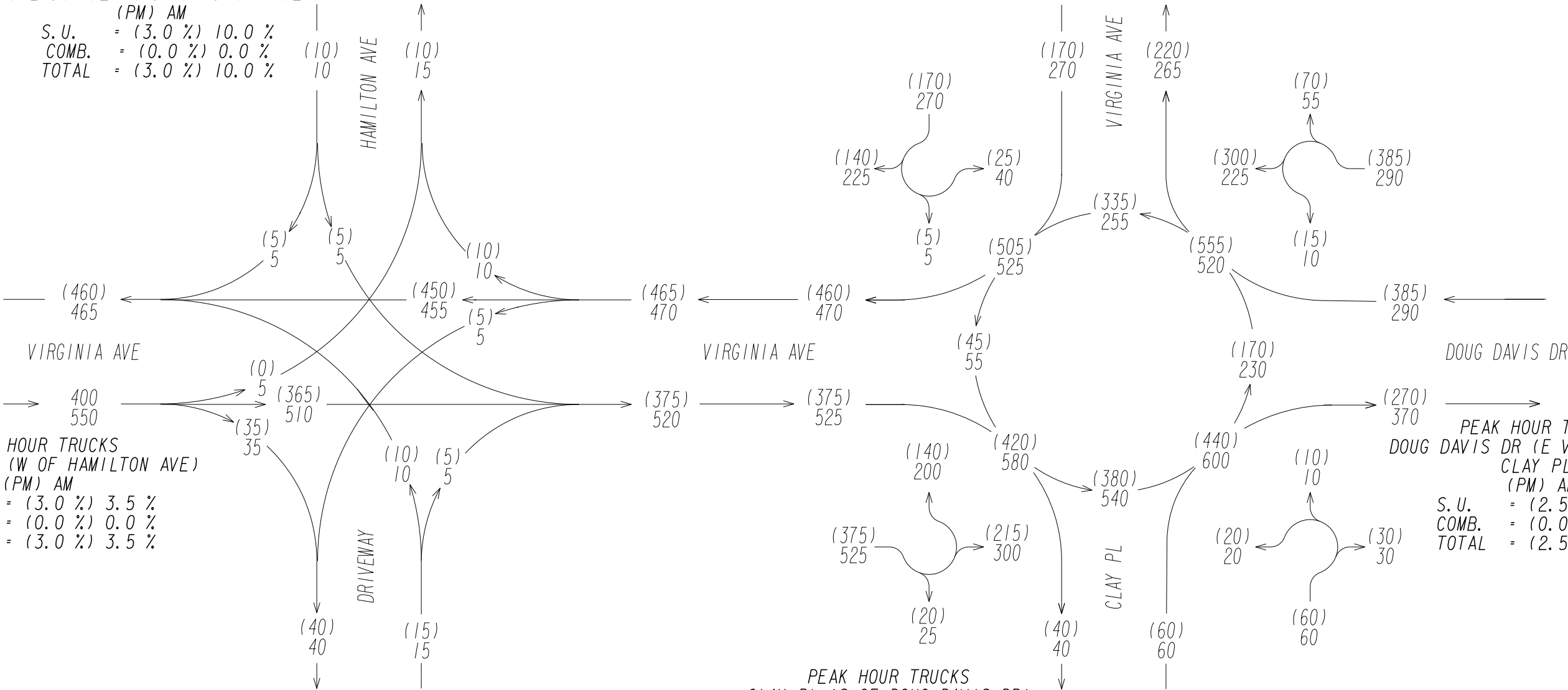
PEAK HOUR TRUCKS
VIRGINIA AVE (N DOUG DAVIS DR)
(PM) AM
S.U. = (1.5 %) 4.0 %
COMB. = (0.0 %) 0.0 %
TOTAL = (1.5 %) 4.0 %

PEAK HOUR TRUCKS
HAMILTON AVE (N OF VIRGINIA AVE)
(PM) AM
S.U. = (3.0 %) 10.0 %
COMB. = (0.0 %) 0.0 %
TOTAL = (3.0 %) 10.0 %

PEAK HOUR TRUCKS
VIRGINIA AVE (W OF HAMILTON AVE)
(PM) AM
S.U. = (3.0 %) 3.5 %
COMB. = (0.0 %) 0.0 %
TOTAL = (3.0 %) 3.5 %

PEAK HOUR TRUCKS
DOUG DAVIS DR (E VIRGINIA AVE/
CLAY PL)
(PM) AM
S.U. = (2.5 %) 3.0 %
COMB. = (0.0 %) 0.0 %
TOTAL = (2.5 %) 3.0 %

PEAK HOUR TRUCKS
CLAY PL (S OF DOUG DAVIS DR)
(PM) AM
S.U. = (2.5 %) 3.5 %
COMB. = (0.0 %) 0.0 %
TOTAL = (2.5 %) 3.5 %



2025 DHV
(PM) NOON

PROJECT NUMBER: 171007021
FULTON COUNTY

VIRGINIA AVENUE
ROUNDAABOUT FEASIBILITY
STUDY



REVISION DATES

TRAFFIC DIAGRAM

DRAWING No.

01-0016

FULTON COUNTY



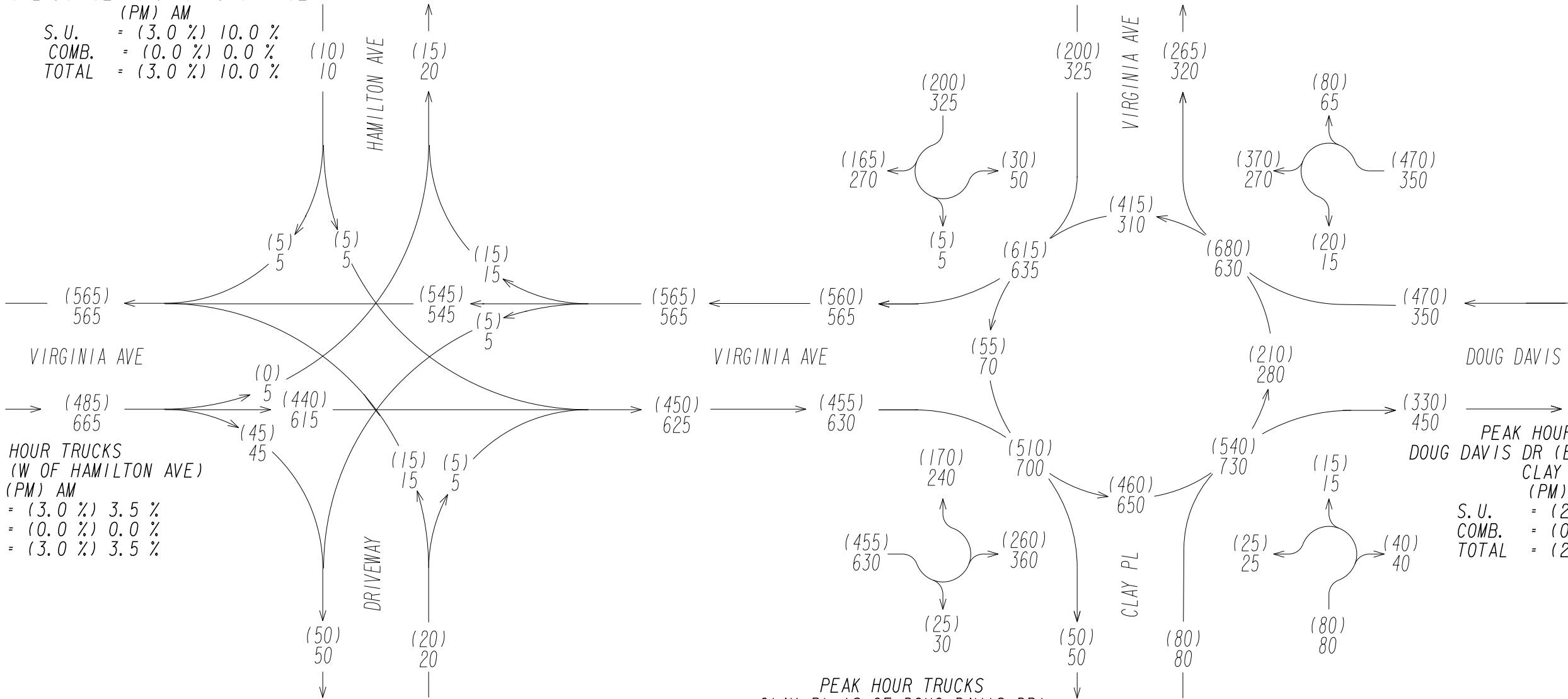
PEAK HOUR TRUCKS
VIRGINIA AVE (N DOUG DAVIS DR)
(PM) AM
S.U. = (1.5 %) 4.0 %
COMB. = (0.0 %) 0.0 %
TOTAL = (1.5 %) 4.0 %

PEAK HOUR TRUCKS
HAMILTON AVE (N OF VIRGINIA AVE)
(PM) AM
S.U. = (3.0 %) 10.0 %
COMB. = (0.0 %) 0.0 %
TOTAL = (3.0 %) 10.0 %

PEAK HOUR TRUCKS
VIRGINIA AVE (W OF HAMILTON AVE)
(PM) AM
S.U. = (3.0 %) 3.5 %
COMB. = (0.0 %) 0.0 %
TOTAL = (3.0 %) 3.5 %

PEAK HOUR TRUCKS
DOUG DAVIS DR (E VIRGINIA AVE/
CLAY PL)
(PM) AM
S.U. = (2.5 %) 3.0 %
COMB. = (0.0 %) 0.0 %
TOTAL = (2.5 %) 3.0 %

PEAK HOUR TRUCKS
CLAY PL (S OF DOUG DAVIS DR)
(PM) AM
S.U. = (2.5 %) 3.5 %
COMB. = (0.0 %) 0.0 %
TOTAL = (2.5 %) 3.5 %



**VIRGINIA AVENUE/LITTLE VIRGINIA AVENUE/DOUG DAVIS DRIVE/CLAY PLACE ROUNDABOUT
FEASIBILITY STUDY**

Appendix A

A.4 PUBLIC INVOLVEMENT PLAN & PUBLIC COMMENTS





HAPEVILLE ROUNABOUT

PUBLIC INVOLVEMNT PLAN

OVERVIEW

Given the focused nature of this study, a focused and meaningful community engagement process is proposed. As part of the process, we will work closely with a wide range of stakeholders who are key to implementation, while engaging the community to achieve a supported and implementable study.

To achieve this, stakeholders will be engaged at three levels throughout the process:

1. Project Management Team
2. Advisory Group
3. General Public

Project Management Team (PMT)

The Project Management Team will include the consultant team, the ARC and the City of Hapeville. The purpose of this team is to discuss the progress of the plan, brainstorm solutions and strategies to address challenges and needs, and to plan community engagement opportunities at a very high level. This team will meet (in-person or via phone) bi-weekly: Tuesdays, 9:30am, starting June 11.

Members of the PMT include:

Adrienne Senter, City of Hapeville
Lynn Patterson, City of Hapeville (B+C Studios)
Rachelle Eyma, City of Hapeville
Mitchell Greenway, Stantec
Stephen Hopper, Stantec
Mike Holt, Stantec
Deanna Murphy, Sizemore Group
Jonathan Tuley, Atlanta Regional Commission

Advisory Group

The Advisory Group will consist of business and property owners, community leaders, ARC, GDOT, MARTA, Aerotropolis Atlanta CIDs, and others who bring knowledge and expertise to the process. The Advisory Group will be engaged in three meetings.

Members of the Advisory Group include: (City has already worked with Mayor and Council on appointees and will send list to team shortly).

**Consider representation from the Hapeville Arts Alliance, Hispanic Community, property and business owners near the roundabout.*

General Public

The General Public will be engaged at key stages throughout the planning process. Methods for reaching out to the larger community include:

Flyer to be created by Sizemore Group and distributed by the City via

- Newsletter
- Facebook
- Email database
- Police Facebook and Twitter
- Direct mailers to business community
- A-Frame signs
- Rec Center
- City Hall and other City buildings
- City website

Critical Public Outreach Dates

- | | |
|-------------|---|
| June 1: | Advisory Group Meeting Invites to be distributed by the City. Sizemore Group can assist with text. |
| June 20: | Advisory Group Meeting 1: Vision Session
Location: City Hall
Time: 6pm |
| June 21: | Advisory Group Meeting reminder by the City. |
| June 26: | Advisory Group Meeting 2: Draft Concepts
Location: City Hall
Time: 6pm |
| June 15-20: | Community Meeting invites to be distributed (Sizemore Group to develop flyers). City to send via: <ul style="list-style-type: none">• Newsletter• Facebook• Email database• Police Facebook and Twitter• Direct mailers to business community• A-Frame signs |

- Rec Center
- City Hall and other City buildings
- City website

July 18: **Demonstration Project**
Location: Roundabout site

July 19: **Advisory Group Meeting reminder by the City.**

August 1: **Advisory Group Meeting 3: Concept Updates and Demonstration Recap**
Location: City Hall
Time: 6pm

July 15: **Community Meeting 2 invitation distribution (Sizemore Group to develop flyers)**

August 6: **City Council Presentation: Final Draft Concepts (10 minutes presentation)**

August 13: **Planning Commission Presentation: Final Draft Concepts**

August 15: **Community Meeting 2: Final Draft Plan Concepts Presented**
Location: Near Roundabout site

August 20: **City Council Adoption of Plan (anticipated)**

City of Hapeville

Community Meeting

Virginia Avenue/Little Virginia Avenue/Doug Davis Drive/Clay Place

Roundabout Feasibility Study

August 15, 2019

Please print responses.

Name

GLantz

Address

3041 Gordon Circle
Hapeville, GA 30354

Do you support the project?

☐

Yes

☒

No

☐

Conditional

☐

Uncommitted

Do you understand the project after attending this meeting?

☒

Yes

☐

No

Comments (feel free to use the back of this sheet for additional space)

I do not support this & Do NOT
WANT to pay for this.

I do not want to damage the
existing businesses. This is not right
to hurt them, they have been good
to the city!

How Are you going to substantiate this need
for A round-A-bout. Why? We can't grow
Any more And should try to keep what we
AIRREADY HAVE!!!

How did you hear about this meeting?

☐

Radio/Television

☐

Newspaper

☐

Signs

☐

Word of Mouth

☒

Email Blast

☐

City Website

Please share your suggestions on improving the way Hapeville conducts public meetings:

continue doing them

Your comments can be submitted by any of the following ways:

1 - Complete this form and place in the drop box.

2 - Complete this form and mail to:

Mr. Mitchell Greenway

Stantec Consulting Services Inc.

229 Peachtree Street NE Suite 1900

Atlanta, GA 30303-1629

3 - Email your comments to mitchell.greenway@stantec.com

City of Hapeville

Community Meeting

Virginia Avenue/Little Virginia Avenue/Doug Davis Drive/Clay Place

Roundabout Feasibility Study

August 15, 2019

Please print responses.

Name

Address

Do you support the project? ☐ Yes ☒ No ☐ Conditional ☐ Uncommitted

Do you understand the project after attending this meeting? ☒ Yes ☐ No

Comments (feel free to use the back of this sheet for additional space)

I am not in favor of this project based on Negative Impact on my business. The potential loss of business during construction and after completion of the project could be exponential

How did you hear about this meeting?

☐ Radio/Television

☐ Newspaper

☐ Signs

☐ Word of Mouth

☒ Email Blast

☐ City Website

Please share your suggestions on improving the way Hapeville conducts public meetings:

Your comments can be submitted by any of the following ways:

1 – Complete this form and place in the drop box.

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Mr. Mitchell Greenway

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3 – Email your comments to mitchell.greenway@stantec.com

City of Hapeville

Community Meeting

Virginia Avenue/Little Virginia Avenue/Doug Davis Drive/Clay Place

Roundabout Feasibility Study

August 15, 2019

Please print responses.

Name SCOTT ALLEN / Johnnys Pizza / Property owner

Address 834 VIRGINIA AVE
HAPEVILLE, GA 30354

Do you support the project? ☐ Yes ☒ No ☐ Conditional ☐ Uncommitted

Do you understand the project after attending this meeting? ☒ Yes ☐ No

Comments (feel free to use the back of this sheet for additional space)

Too much impact on my Property + BUSINESS

How did you hear about this meeting?

☐ Radio/Television
☐ Signs
☐ Email Blast

☐ Newspaper
☒ Word of Mouth
☐ City Website

Please share your suggestions on improving the way Hapeville conducts public meetings:

BETTER INFORMATION distribution

Your comments can be submitted by any of the following ways:

1 – Complete this form and place in the drop box.

2 – Complete this form and mail to:

Mr. Mitchell Greenway

Stantec Consulting Services Inc.

229 Peachtree Street NE Suite 1900

Atlanta, GA 30303-1629

3 – Email your comments to mitchell.greenway@stantec.com

City of Hapeville

Community Meeting

Virginia Avenue/Little Virginia Avenue/Doug Davis Drive/Clay Place

Roundabout Feasibility Study

August 15, 2019

Please print responses.

Name Cheryl Kelley

Address 3435 HARDING Ave
Hapeville, GA 30354

Do you support the project? ☐ Yes ☒ No ☐ Conditional ☐ Uncommitted

Do you understand the project after attending this meeting? ☒ Yes ☐ No

Comments (feel free to use the back of this sheet for additional space)

I do not see a need for this
Roundabout. It will impede the exits
onto VA Avenue from my street & Elkins.
The Businesses that will be affected
that have been loyal businesses, are not
worth aggravating or losing. They are obviously
opposed to this as ALL PARTICIPANTS
at this meeting.

STOP Lights help the traffic flow
in this area. Taking them out makes a
constant flow

How did you hear about this meeting?

☐ Radio/Television

☐ Signs

☒ Email Blast

☐ Newspaper

☐ Word of Mouth

☐ City Website

that is
not beneficial
or needed
in this
area.

Please share your suggestions on improving the way Hapeville conducts public meetings:

BETTER COMMUNICATION OF THE MEETINGS
I got an email 2 days ago from my
neighborhood association.

Your comments can be submitted by any of the following ways:

1 - Complete this form and place in the drop box.

2 - Complete this form and mail to:

Mr. Mitchell Greenway

Stantec Consulting Services Inc.

229 Peachtree Street NE Suite 1900

Atlanta, GA 30303-1629

3 - Email your comments to mitchell.greenway@stantec.com



Hapeville

georgia

SUMMARY REPORT ON WAYFINDING SIGNAGE CONCEPTS FOR

CITY OF HAPEVILLE

SEPTEMBER 26, 2019

BACKGROUND

The City of Hapeville has been engaged in a process of rebranding concurrent with Stantec's efforts involving the study of pedestrian and vehicular circulation along main corridors of the Hapeville urban core.

As these two processes progressed, the City of Hapeville engaged Stantec to help create a wayfinding concept for each of the four logo iterations that were under review. Part of the wayfinding visioning should include monument signage as well as street identification signage and directional wayfinding.

To this end, Stantec began working through wayfinding design concepts for each of the four logo variations that reflected in color, form, texture and material the unique properties of each of the individual logos.

The logo variation sheet prepared by ETHIC shown on the opposite page reflects the branding chosen by the City of Hapeville. Stantec endeavoured to respond with contextual forms and materials that reinforced the simultaneously classic and contemporary feel of the logo design created by ETHIC.

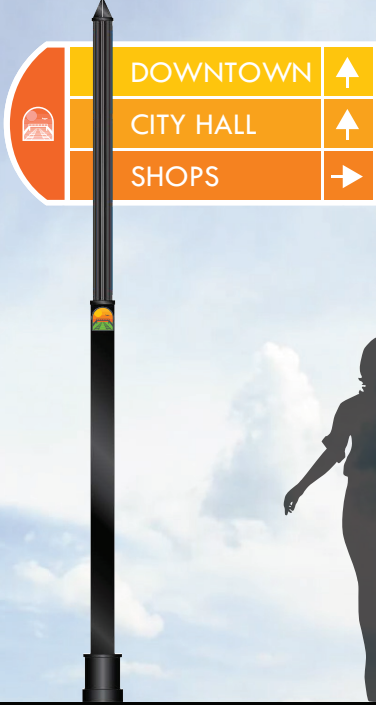




MONUMENT SIGNAGE



STREET ID SIGNAGE



VEHICULAR DIRECTIONAL SIGNAGE

THE MONUMENT SIGN

While specific materials styles and products were not necessarily considered as part of this process, general ideas about texture and color combinations as well as forms and shapes that complemented the logo style were envisioned.

The monument sign has to be grand and give the literal and figurative sense of strength and timelessness.

A textured raw concrete sculptural form contrasted with a solid yellow color field reinforces the classic and contemporary feel of the logo design. It is important in designing the monument signage to provide a conceptual design that engages the strong and active arts community that is prevalent in Hapeville.

As with many monument signs, this design could be used multifunctionally with kiosk type applications or wayfinding.



Hapeville
georgia

imagine



THE STREET IDENTIFICATION SIGN

The street identification sign design took a slightly more traditional approach in both the sign post material and street signage itself, opting more for clarity and visibility than splashy design. With street identification sign design, it is imperative to satisfy the Manual on Uniform Traffic Control Devices (MUTCD) for color and functionality.

The use of the arch in the logo, however, provided an opportunity to create an architectural element on the street sign while reinforcing the new Hapeville brand.



DIRECTIONAL WAYFINDING SIGN

The approach for the directional wayfinding sign took a slightly more playful direction. Taking a cue from the graphic sunset in the logo design, Hapeville destinations are separated by the descending colors that make up the logo's background.

The darkest orange anchors the left side of the sign, providing an ample space to apply the brand.

Hoping to achieve both strong legibility as well as create a striking image in the urban landscape the "sunset" color fields satisfy both. Between the bold, striking nature of the monument sign, the restrained classical approach of the street identification signage and the playfulness of the wayfinding signage, we feel the many facets and personalities of Hapeville expressed by

the logo design are represented in the wayfinding concepts as well.



PREPARED FOR



Hapeville
georgia

**STATE OF GEORGIA
CITY OF HAPEVILLE**

ORDINANCE NO. _____

AN AMENDMENT TO ORDINANCE NO. 2019-01 THAT PRESCRIBED THE SCHEDULING OF REGULAR MEETINGS OF THE MAYOR AND COUNCIL; TO PROVIDE FOR SEVERABILITY; TO REPEAL CONFLICTING ORDINANCES; TO PROVIDE AN EFFECTIVE DATE; AND FOR OTHER PURPOSES.

WHEREAS, the mayor and council shall have full power and authority to provide for the execution of all powers, functions, rights, privileges, duties and immunities of the city, its officers, agencies, or employees granted by the City of Hapeville's Charter or by state law; and,

WHEREAS, the municipal government of the City of Hapeville (hereinafter "City") and all powers of the City shall be vested in the mayor and council. The mayor and council shall be the legislative body of the City; and,

WHEREAS, existing ordinances, resolutions, rules and regulations of the City and its agencies now lawfully in effect not inconsistent with the provisions of the City's charter shall remain effective until they have been repealed, modified or amended; and,

WHEREAS, every official act of the mayor and council which is to become law shall be by ordinance; and,

WHEREAS, the Mayor and Council shall fix the date and time of regular meetings of the Mayor and Council by ordinance pursuant to Code of Ordinance Section 2-403; and

NOW, THEREFORE, BE IT, AND IT IS HEREBY ORDAINED BY THE MAYOR AND COUNCIL OF THE CITY OF HAPEVILLE:

SECTION 1. Scheduling of Regular Meetings. At the January 8, 2019 Mayor and Council Meeting, Ordinance No. 2019-01 was adopted scheduling the regular meetings of Mayor and Council. Mayor and Council wish to update and amend the Regular Meeting Dates as follows:

Pursuant to Section 2-403 of the Code of Ordinances, the Mayor and Council hereby announce that they shall meet on a regular basis on the first and third Tuesday of every month at 6:00 p.m. Eastern Time (ET), and continue in session from day to day in their discretion. However, Regular Meetings falling on or after a government holiday, will be cancelled or rescheduled. These Regular Meetings not following on the first or third Tuesday are indicated by an asterisks. The

holiday schedule is attached hereto and incorporated herein as Exhibit “A”. The Mayor and Council reserve the right to assemble and conduct official business on that date in the manner prescribed by law.

Regular Meeting Dates

January 8, 2019 *	July 2, 2019
January 22, 2019 *	July 16, 2019
February 5, 2019	July 18-19, 2019 **
February 7, 2019	August 6, 2019
February 19, 2019	August 20, 2019
March 5, 2019	September 17, 2019
March 19, 2019	October 1, 2019
April 2, 2019	October 15, 2019
April 16, 2019	November 5, 2019
May 7, 2019	November 19, 2019
May 21, 2019	December 3, 2019
June 4, 2019	December 17, 2019
June 18, 2019	

The meetings shall take place at 700 Doug Davis Drive, Hapeville, GA 30254. They shall begin at 6:00 p.m. and may be continued or adjourned as necessary. Notwithstanding any designation to the contrary, the Mayor and Council reserve the right to transact business without limitation at such meetings to the extent permitted by applicable law.

**The City Council Retreat will be held on July 18-19, 2019 from 7:00 a.m. to 4:00 p.m. at the Georgia Tech Hotel and Conference Center located at 800 Spring St NW, Atlanta, Georgia 30308.

Section Two. Codification. This Ordinance shall be codified in a manner consistent with the laws of the State of Georgia and the City.

Section Three. Severability.

(a) It is hereby declared to be the intention of the Mayor and Council that all sections, paragraphs, sentences, clauses and phrases of this Ordinance are or were, upon their enactment, believed by the Mayor and Council to be fully valid, enforceable and constitutional.

(b) It is hereby declared to be the intention of the Mayor and Council that, to the greatest extent allowed by law, each and every section, paragraph, sentence, clause or phrase of this Ordinance is severable from every other section, paragraph, sentence, clause or phrase of this Ordinance. It is hereby further declared to be the intention of the Mayor and Council that, to the greatest extent allowed by law, no section, paragraph, sentence, clause or phrase of this Ordinance

is mutually dependent upon any other section, paragraph, sentence, clause or phrase of this Ordinance.

(c) In the event that any phrase, clause, sentence, paragraph or section of this Ordinance shall, for any reason whatsoever, be declared invalid, unconstitutional or otherwise unenforceable by the valid judgment or decree of any court of competent jurisdiction, it is the express intent of the Mayor and Council that such invalidity, unconstitutionality or unenforceability shall, to the greatest extent allowed by law, not render invalid, unconstitutional or otherwise unenforceable any of the remaining phrases, clauses, sentences, paragraphs or sections of the Ordinance and that, to the greatest extent allowed by law, all remaining phrases, clauses, sentences, paragraphs and sections of the Ordinance shall remain valid, constitutional, enforceable, and of full force and effect.

Section Four. Repeal of Conflicting Ordinances. All ordinances and parts of ordinances in conflict herewith are hereby expressly repealed.

Section Five. Effective Date. The effective date of this Ordinance shall be the date of adoption unless otherwise stated herein.

ORDAINED this _____ day of _____, 2019.

CITY OF HAPEVILLE, GEORGIA

Alan Hallman, Mayor

ATTEST:

City Clerk

APPROVED BY:

City Attorney