Planning Commission

North Augusta
South Carolina's Riverfront

Minutes for the Wednesday, September 20, 2023, Regular Meeting
7 p.m., Council Chambers, 100 Georgia Avenue

Members of the Planning Commission

Dr. Christine Crawford
Chair

Bob Bigger, *Vice Chair*
Jesse Elliott
Timothy V. Key
Leonard Carter, Jr.
Rett Harbeson
Chelsea Waddell

CITIZEN ASSISTANCE: Individuals requiring special assistance or a sign interpreter to participate in the meeting are asked to please notify the Department of Planning and Development 48 hours prior to the meeting at 803-441-4221.

1. **Call to Order** – 7:00 p.m.

2. **Roll Call** Members present were Commissioners Bob Bigger, Leonard Carter, Jesse Elliott, Rett Harbeson and Chairman Christine Crawford.

3. **Approval of Minutes** – June 21, 2023 Regular Meeting

   Mr. Carter made a motion to approve minutes with notation of Dr Crawford's absence. Mr. Bigger seconded, Minutes were approved unanimously.

4. **Confirmation of Agenda**

5. **RZM23-001 Hawks Vista** – Rezoning – A request by CSRA Development Company to rezone ±9.84 acres located along E. Buena Vista Ave., TPN 007-15-03-002 from R-10, Medium Lot, Single-Family Residential to R-7, Small Lot, Single-Family Residential.

Keith Lawrence of 211 Dixon Court Evans Ga, spoke about the history of the project. He stated it is 9.84 acres and there will be 69 lots single family attached. He spoke about a severe slope on the parcel and the plan to address the stormwater issue due to the slope. Lawrence continued by stating that the odd shape of the parcel creates the inability to divided the lots for a single-family lot. Mr. Lawrence stated the project would be similar to all properties in the area except the four homes on Elm Street. Lawrence spoke about reforesting the slope of the property and submitting a traffic study for the area. Lawrence finished by stating that theirs is 41% green space and buffers for the project.

Mr. Harbeson asked if there is any challenges regrading grading the property.

Mr. Lawrence concurred and explained that there are slopes on the property and the developers are designing a plan to address the unique site.

Mr. Bigger asked if there was an electric line running through the center of the property.

Mr. Lawrence stated that is indeed a power line and the developers plan to take full advantage by planting community gardens under the power lines.

a. Public Hearing

There were no public comments.

b. Recommendation to City Council

Mr. Elliot made the first motion, Mr. bigger seconded. It was approved unanimously.

6. **ANX23-001 244 and 246 Clearmont Drive** – Annexation – A request by Robert Steed to annex ±27.48 acres located at 244 and 246 Clearmont Drive, TPN 011-13-01-023 and TPN 011-13-01-005. The property is requested to be zoned R-7, Small Lot, Single-Family Residential.

a. Consideration of the Annexation request by the Planning Commission

Mr. Paradise stated the parcel is located at the end of Clermont and backs up to Rushing Waters, which is zoned R-5. Mr. Paradise brought to the commissioner's attention an aerial map and pointed out there is not roadway connection. Mr. Paradise continued by stating that in order for public works, police or the fire department to service the area, they will be required to travel through Belvedere to access the parcel.

Dr Crawford asked if the building a roadway due to lack connectivity would be the responsibility of the developer or the City.

Mr. Paradise stated there is no plans on records for developer to adds a new roadway but it would be the responsibility of the developer.
Mr. Elliot asked if it would raise a concern for city services to travel through belvedere to access parcels.

Mr. Paradise stated he did not have a comment from Chief Thomas with the information.

Mr. Robert Steed of 2226 Woodbluff Way, Augusta Ga stated he is a real estate broker and not the developer. He stated that there are roadcuts in the property and could possibly serve as the new roadway if finished. He stated they developer is looking to divide the property into 80 to 90 lots of single-family homes marketed at $300,000 to $400,000. Mr. Steed stated they are also looking to inquire the small lots of land surrounding the property.

Mr. Elliot asked if there is a scale that is used to determine the travel distance for City Services.

Mr. Paradise stated that the city services would be determined by road mile and who would travel the shortest distant to service the area. He continued be saying if there was a connection from Rushing Waters to Wooden Rd., it would provide a short travel distance for city services. In order to extent the roadway, there would have to be an agreement between two developers.

Dr Crawford stated the commissioners are have difficulty processing the request due to lack of information on what the developers are proposing for the property.

Mr. Harbeson concurred and expressed his concern with city servicing accessing the property without a direct roadway.

Mr. Bigger asked if there have been any plans submitted from Rushing Waters.

Mr. Paradise replied by saying, there has not been any plans submitted as of yet.

Mr. Carter asked if they City has ever not annexed into the city.

Mr. Paradise replied that the city has denied annexation in the past but it would be uncommon.

b. Recommendation to City Council

Mr. Bigger made the first motion to approve the request for recommendation to be forwarded to City Council. Mr. Carter seconded, it was approved unanimously.

7. **PP22-006 The Hive Section 2** – Major Subdivision Preliminary Plat – A request by Stanley Martin Homes for approval of 36 single-family detached lots located in The Hive Planned Development. The request affects ±13.28 acres zoned PD, Planned Development located near the intersection of I-20, W. Martintown Rd. and Knobcone Ave, a portion of TPN 001-20-01-004.

Shawn Smith with Cranston Engineering of 452 Ellis Street, Augusta Ga, noted a correction, instead of seeking approval for 36 lots, they are seeking approval of 35 lots and the approval of the road names.

a. Consideration of the Major Subdivision Preliminary Plat application by the Planning Commission.

Mr. Harbeson made the first motion to make recommendation by the Planning Commission for the approval of the major subdivision preliminary plan for the hive section 2 given the following conditions as reflected in the application on page 7 (listed below). Mr. Bigger seconded, it was approved unanimously.

Conditions

1) Approval is conditional on the approval and implementation of any traffic mitigation required by SCDOT and the City.
2) The major subdivision preliminary plat approval includes certification of the use of the road names Yellowjacket Boulevard and Petal Court.
3) Any outstanding comments will be addressed to the satisfaction of City staff.

8. **Staff Report**

a. June, July, and August Performance Reports

9. **Adjourn** 7:52pm

Respectfully Submitted,

Thomas L. Paradise, Director
Department of Planning and Development
Secretary to the Planning Commission

Department of Planning and Development

North Augusta
South Carolina's Riverfront

Project Staff Report
Major Subdivision (Preliminary Plat)
PP22-002 Bluegrass Place Roadway & Utility Plans
Prepared by: Kuleigh Baker
Meeting Date: October 18, 2023

SECTION 1: PROJECT SUMMARY

Project Name	Bluegrass Place Roadway & Utility Plans (Bluegrass Place PD Infrastructure)
Applicant	SC North Augusta E. Buena Vista, LLC
Engineer	James Dean, Cranston Engineering Group
Address/Location	Between E. Martintown Rd. and E. Buena Vista Ave.
Parcel Numbers	007-16-03-001, 007-12-12-005, 007-12-12-006, 007-12-12-007, 007-12-12-009, and 007-15-14-001
Total Project Acreage	± 51.85 acres
Zoning	PD, Planned Development
Overlay	HC, Highway Corridor Overlay District (portions)
Traffic Impact Tier	1
Proposed Use	Road and utility infrastructure
Density	NA
Future Land Use	Mixed Use

SECTION 2: PLANNING COMMISSION CONSIDERATION

The North Augusta Development Code (NADC) § 5.8.3 specifies the procedures for Planning Commission approval of major subdivisions (preliminary plats) that exceed the minor plat threshold requirements of §5.8.3.1.

NADC 5.8.3.1 Applicability

An application is considered a major subdivision (preliminary plat) if:

a. The application does not meet the tests for a minor subdivision as set forth in §5.8.2.1;
b. The application is for property located in a PD District;
c. The application would otherwise require minor subdivision approval, but a waiver is requested pursuant to §5.9; or

d. The application proposes development in two (2) or more phases.

In addition, the code states:

5.8.3.4.4 At the conclusion of the staff review stage, the Department shall report its findings to the Planning Commission as to:

a. Type of subdivision proposed, physical characteristics of the land, relation of the proposed development to surrounding areas and existing and probable future development;
b. Relation to major roads, utilities and other facilities and services;
c. Any proposed agreements, contracts, deed restrictions, sureties, dedications, contributions, guarantees, or other instruments, or the need for such instruments, or for amendments in those proposed; and
d. Compliance of the subdivision application with the provisions of this Chapter, the suitability of plans proposed, and the desirability of conditions on the approval, waivers, or amendments, if any.

5.8.3.4.5 Based on such findings, the report to the Planning Commission on the application shall include a recommendation for approval or denial and any recommended waivers, conditions of approval or modifications to the major subdivision application as submitted, if any, with reasons therefore.

5.8.3.4.6 A majority vote is required for the Planning Commission to approve, approve with conditions, if applicable, or deny a major subdivision application. The decision of the Planning Commission provides the final approval of the application.

5.8.3.5 Scope of Major Subdivision Approval – Preliminary approval of a major subdivision development application shall confer upon the applicant the following rights:

a. The approval of the major subdivision application constitutes approval of the subdivision or land development as to its character, intensity of development, general layout, and the approximate dimensions of streets, lots, and other planned features. Such approval binds the developer to the general scheme of the subdivision or land development and permits the developer to proceed with the installation of site improvements, subject to obtaining other necessary permits.
b. The approval of the major subdivision application does not constitute approval of a final subdivision plat, and accordingly, does not authorize the sale of lots or the occupancy or use of a parcel of land.
c. The applicant may request final approval for the whole, or a section, or sections of the major subdivision application upon completion of the subdivision and approval of the development by the city and state agencies with jurisdiction.
d. A major subdivision application, a site specific development plan for the purposes of this section, approval or conditional approval shall expire two (2) years from said approval unless

a grading permit has been issued and construction has commenced. The applicant may apply for and the Planning Commission may grant extensions on such preliminary approval for additional periods up to one (1) year each but not to exceed five (5) extensions. If an amendment to this Chapter is adopted by the City Council subsequent to the major subdivision development approval that would preclude the initial approval, a request for an extension may not be granted. (Rev. 12-1-08; Ord. 2008-18) (Rev. 8-16-10; Ord. 2010-12)

Planning Commission Action:

Per §5.8.3.4.6, a majority vote is required for the Planning Commission to approve, approve with conditions, if applicable, or deny a major subdivision application.

Per §5.9.1 Planning Commission Waivers, The Planning Commission may approve waivers to the development standards contained in this Chapter except where the authority to grant waivers, variances and adjustments is vested in the Board of Zoning Appeals. Such waivers shall be approved as part of the underlying application for development approval upon a written finding, supported by substantial competent evidence.

SECTION 3: PUBLIC NOTICE

A notice of the major subdivision application and scheduled date of the Planning Commission meeting was posted on www.northaugusta.net on October 11, 2023.

SECTION 4: SITE HISTORY

The subject parcels are currently vacant. Bluegrass Place is a planned mixed-use development. Proposed uses include multifamily apartments, senior living, professional and commercial offices, single-family detached and attached housing.

The Planning Commission reviewed a Sketch/Concept Plan for the proposed Planned Development at the regular meeting of August 19, 2021. The Planned Development General Development Plan was recommended for approval by the Planning Commission at the December 16, 2021 meeting. Ordinance No. 2022-03 to approve the Bluegrass Place Planned Development was approved by City Council on March 7, 2022. Tax Parcels 007-12-12-009, 007-12-12-007, 007-12-12-006, and 007-12-12-005 were also rezoned from GC, General Commercial to PD, Planned Development at that meeting.

SECTION 5: EXISTING SITE CONDITIONS

	Existing Land Use	Future Land Use	Zoning
Subject Parcel	Vacant	Mixed Use	PD, Planned Development
North	Commercial/Single-Family Residential	Mixed Use/Commercial/Low Density Residential	GC, General Commercial
South	Vacant	Mixed Use	PD, Planned Development/GC, General Commercial/R-10, Medium Lot, Single-Family Residential
East	Single-Family Residential	Mixed Use/Commercial	R-7, Small Lot, Single-family residential
West	School/Single-Family Residential	Mixed Use/High Density Residential/Institutional, Government, and Public Facilities	P, Public Use/R-7, Small Lot, Single-Family Residential/GC, General Commercial

Access – The subject site currently has access from East Martintown Road, East Buena Vista Avenue, and Goldman Street.

Topography – Topography across the site is variable. Higher elevations are located along the East Martintown Road frontage. Low lying areas are located to the West of the site where stormwater runs North to South.

Utilities – Sanitary sewer connection is proposed for Goldman Street. An existing water main is located along Goldman Street, East Buena Vista Avenue, and East Martintown Road. Utilities will have to be extended to the site.

Floodplain – The subject property is not within federally designated floodplain. A wetland area located in the southeast corner of the property is under the jurisdiction of the U.S. Corps of Engineers.

Drainage Basin – The site is located in the Waterworks Basin. The Waterworks basin is a very large basin in the city that handles tremendous flows during rain events. Flows from this basin incorporate stormwater from residential and higher density commercial entities throughout the area. The basin enters the river through two separate channels within the River Golf Club. The City has been implementing a capital improvement project of storm sewers and roads to eliminate the flooding problems that occur during heavy rainfalls. The improved infrastructure will improve conditions and are

intended to alleviate flooding problems in various sections of the basin. Portions of the subject property have been eroded by commercial development upstream.

SECTION 6: STAFF EVALUATION AND ANALYSIS

Section §5.8.3.4.4 asks that the Department shall report its findings to the Planning Commission as to:

a. *Type of subdivision proposed, physical characteristics of the land, relation of the proposed development to surrounding areas and existing and probable future development;*

The applicant is proposing construction of infrastructure improvements for a planned development as part of a major subdivision preliminary plat. The subdivision will result in 8 parcels, a combination of future residential, commercial, and professional land uses previously approved by the Planned Development General Development Plan. The proposed development is situated between existing commercial and single-family residential development. The proposed project is also consistent with Comprehensive Plan policies for priority investment areas along Martintown Road. The vision for Martintown Road is new mixed use development along major corridors in aging commercial areas, improved connectivity between mixed use centers and surrounding neighborhoods, and new housing options integrated into new mixed use centers.

Properties zoned General Commercial along E. Martintown Rd. are included in this preliminary plat application. Portions of TPN 007-12-12-008, the current Monterrey restaurant site, are crossed by the proposed infrastructure improvements and will service future development on site. Approximately 9,172 sf from the Monterrey site are to be taken from parcel 007-12-12-008 and dedicated as a portion of the new right-of-way Preakness Boulevard. A right-in/right-out driveway will also be added to this parcel.

b. *Relation to major roads, utilities and other facilities and services;*

The Planned Development ordinance requires the interior road network including the location of exterior access points and internal access points from the internal road network to be designed in accordance with a traffic study and approved master circulation plan.

The proposed major subdivision plan provides five (5) foot wide sidewalks on both sides of the street. Minor modifications to the alignment of Capot Run will be reviewed by the Engineering Department to confirm an acceptable curve ratio for a local street classification.

E. Martintown Rd. is maintained by SCDOT and will require encroachment and driveway permits issued by SCDOT for any improvements required by the TIA.

The applicant must receive approval for a Stormwater Management Permit and satisfactorily address review comments and modify plans in response to any outstanding Stormwater, Engineering, and Planning comments.

The applicant has proposed the road names Capot Run and Preakness Boulevard. The names have been reserved by Aiken County E911 Addressing for one year. Final approval of the proposed road names is subject to Planning Commission approval of this application. Road suffixes are subject to the final road layout.

c. *Any proposed agreements, contracts, deed restrictions, sureties, dedications, contributions, guarantees, or other instruments, or the need for such instruments, or for amendments in those proposed; and;*

As part of the Final Plat process required for the issuance of individual building permits and Certificates of Occupancy for individual lots, the developer shall submit a Deed of Dedication, Maintenance Guarantee and any other required guarantees for the acceptance of infrastructure. If needed, the Planning Department will also require a Performance Guarantee with a Letter of Credit for sidewalks and street trees and any other incomplete infrastructure to allow the applicant to construct individual phases prior to completion of all site improvements.

d. *Compliance of the subdivision application with the provisions of this Chapter, the suitability of plans proposed, and the desirability of conditions on the approval, waivers, or amendments, if any.*

The application is generally in compliance with the NADC and GDP for the Planned Development.

SECTION 7: STAFF ANALYSIS AND RECOMMENDATION

1) The preliminary plat proposes the creation of 8 new parcels and two new streets. The proposed major subdivision provides internal vehicular and pedestrian circulation for the development that are generally consistent with the approved general development plan. The alignment of Preakness Boulevard requires portions of the right-of-way to encroach on the existing Monterrey restaurant site. The developer is in talks with the property owner to coordinate some of this work and has provided a conceptual drawing for the new parking lot arrangement on the restaurant site.

2) The applicant has provided a landscape plan for the preliminary plat that includes the required street trees and plantings for Capot Run and Preakness Boulevard. Individual parcels will be expected to submit landscaping and buffer plans that meet the PD ordinance and NADC at the time of site plan or subdivision plat review.

3) The applicant must receive an approved Stormwater Management permit prior to approval of the preliminary plat. Plans have not yet been approved by the Stormwater Management Department, pending details for the sequence of construction.

Based on the analysis and evaluation of each review criteria outlined above, the Department has determined the application is complete.

A recommendation by the Planning Commission for the approval of the major subdivision preliminary plat for Bluegrass Place is appropriate subject to the following conditions:

Conditions

1) Approval is conditional on the approval and implementation of any traffic mitigation required by SCDOT and the City.

2) The major subdivision preliminary plat approval includes certification of the use of the road names Capot Run and Preakness Boulevard.

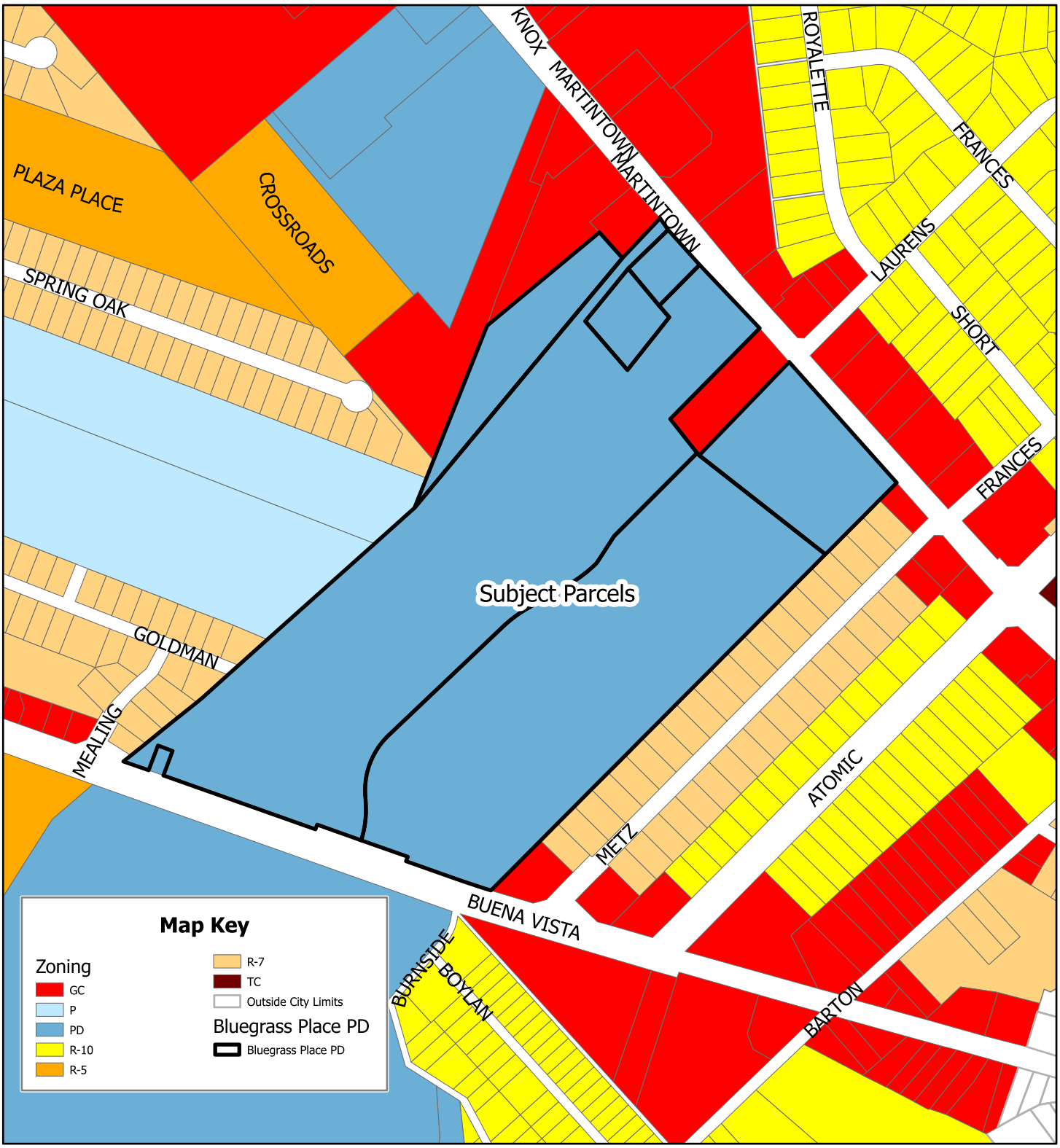
3) Any outstanding comments will be addressed to the satisfaction of City staff.

SECTION 8: ATTACHMENTS

1. Site/Aerial Map
2. Topography Map
3. Current Zoning Map
4. Future Land Use Map
5. Application Documents
6. PD Ordinance
7. Traffic Impact Study

cc. Robert Wright, SC North Augusta E. Buena Vista, LLC, via email

James Dean, Cranston Engineering Group, via email



North Augusta
South Carolina's Riverfront

0 100 200 400 600 800 Feet

10/6/2023

N

Zoning Map
Application Number PP22-005
Bluegrass Place
TPNs 007-16-03-001, 007-12-12-005, 007-12-12-006,
007-12-12-007, 007-12-12-009, and 007-15-14-001
Zoned PD, Planned Development
Approx. 51.85 ac

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North Augusta
South Carolina's Riverfront

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Aerial Map
Application Number PP22-005
Bluegrass Place
Tax Parcel Numbers
007-16-03-001, 007-12-12-005, 007-12-12-006,
007-12-12-007, 007-12-12-009, and 007-15-14-001

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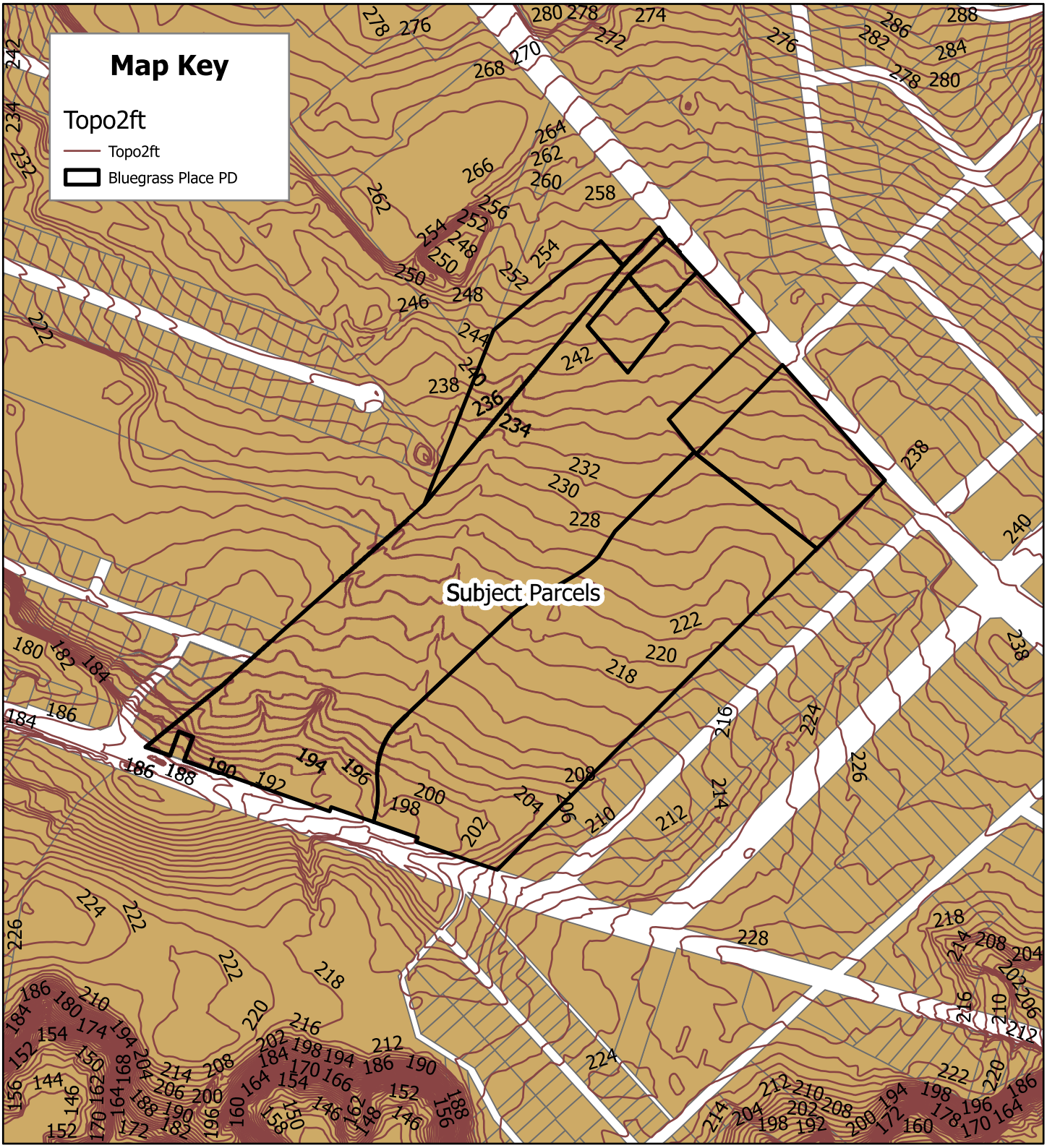

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North Augusta
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Topography Map
Application Number PP22-005
Bluegrass Place
Tax Parcel Numbers
007-16-03-001, 007-12-12-005, 007-12-12-006,
007-12-12-007, 007-12-12-009, and 007-15-14-001

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Application for Development Approval

Please type or print all information

North Augusta
South Carolina's Riverfront

Staff Use

Application Number _____ **Date Received** _____

Review Fee _____ **Date Paid** _____

1. **Project Name** Bluegrass Roadway and Utility Plan

   Project Address/Location Between Martintown Road and East Buena Vista Ave.

   Total Project Acreage 49.85 **Current Zoning** PD

   Tax Parcel Number(s) 007 15 04 001

2. **Applicant/Owner Name** SC North Augusta Buena Vista, LLC **Applicant Phone** 864-242-4008

   Mailing Address 201 Riverplace, Suite 400

   City Greenville **ST** SC **Zip** 29601 **Email** rwright@realtylinkdev.com

3. **Is there a Designated Agent for this project?** X **Yes** _____ **No**
   If Yes, attach a notarized Designation of Agent form. (required if Applicant is not property owner)

4. **Engineer/Architect/Surveyor** James Dean **License No.** 27380

   Firm Name Cranston Engineering Group, P.C. **Firm Phone** 706-722-1588

   Firm Mailing Address 452 Ellis Street

   City Augusta **ST** GA **Zip** 30901 **Email** jpdean@cranstonengineering.com

   Signature _____ **Date** 8-23-2022

5. Is there any recorded restricted covenant or other private agreement that is contrary to, conflicts with or prohibits the use or activity on the property that is the subject of the application?
   (Check one.) _____ yes X no

6. In accordance with Section 5.1.2.3 of the North Augusta Development Code, I hereby request the City of North Augusta review the attached project plans. The documents required by the City of North Augusta, as outlined in Appendix B of the North Augusta Development Code, are attached for the City's review for completeness. The applicant acknowledges that all required documents must be correct and complete to initiate the compliance review process.

7. _____ 8/23/22
   Applicant or Designated Agent Signature **Date**

   Phillip J. Wilson
   Print Applicant or Agent Name

Application for Development Approval

Please type or print all information

North Augusta
South Carolina's Riverfront

Staff Use

Application Number _____ **Date Received** _____

Review Fee _____ **Date Paid** _____

1. **Project Name** Bluegrass Roadway and Utility Plan

   Project Address/Location Between Martintown Road and East Buena Vista Ave.

   Total Project Acreage 49.85 **Current Zoning** PD

   Tax Parcel Number(s) 007-12-12-005, 007-12-12-006, 007-12-12-007, 007-12-12-009

2. **Applicant/Owner Name** NC Troutman Georgie, LLC **Applicant Phone** _____

   Mailing Address 201 Riverplace, Suite 400

   City Greenville **ST** SC **Zip** 29601 **Email** eschmidt@realtylinkdev.com

3. **Is there a Designated Agent for this project?** X **Yes** _____ **No**
   If Yes, attach a notarized Designation of Agent form. (required if Applicant is not property owner)

4. **Engineer/Architect/Surveyor** James Dean **License No.** 27380

   Firm Name Cranston Engineering Group, P.C. **Firm Phone** 706-722-1588

   Firm Mailing Address 452 Ellis Street

   City Augusta **ST** GA **Zip** 30901 **Email** jpdean@cranstonengineering.com

   Signature _____ **Date** 8.23.2022

5. Is there any recorded restricted covenant or other private agreement that is contrary to, conflicts with or prohibits the use or activity on the property that is the subject of the application?
   (Check one.) _____ yes X no

6. In accordance with Section 5.1.2.3 of the North Augusta Development Code, I hereby request the City of North Augusta review the attached project plans. The documents required by the City of North Augusta, as outlined in Appendix B of the North Augusta Development Code, are attached for the City's review for completeness. The applicant acknowledges that all required documents must be correct and complete to initiate the compliance review process.

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   Applicant or Designated Agent Signature **Date**

   Phillip J. Wilson
   Print Applicant or Agent Name

Application for Development Approval

Please type or print all information

North Augusta
South Carolina's Riverfront

Staff Use

Application Number _____ **Date Received** _____

Review Fee _____ **Date Paid** _____

1. **Project Name** Bluegrass Roadway and Utility Plan

   Project Address/Location Between Martintown Road and East Buena Vista Ave.

   Total Project Acreage 49.85 **Current Zoning** PD

   Tax Parcel Number(s) 007 16 03 001

2. **Applicant/Owner Name** Leroy D. Hunt and Sharon D. Hunt, Trustees of the Leroy and Sharon Hunt 1996 Family Trust **Applicant Phone** _____

   Mailing Address 1040 San Antonio Creek Road

   City Santa Barbara **ST** CA **Zip** 93110 **Email** _____

3. **Is there a Designated Agent for this project?** X **Yes** _____ **No**
   If Yes, attach a notarized Designation of Agent form. (required if Applicant is not property owner)

4. **Engineer/Architect/Surveyor** James Dean **License No.** 27380

   Firm Name Cranston Engineering Group, P.C. **Firm Phone** 706-722-1588

   Firm Mailing Address 452 Ellis Street

   City Augusta **ST** GA **Zip** 30901 **Email** jpdean@cranstonengineering.com

   Signature _____ **Date** 8.23.2022

5. Is there any recorded restricted covenant or other private agreement that is contrary to, conflicts with or prohibits the use or activity on the property that is the subject of the application?
   (Check one.) _____ yes X no

6. In accordance with Section 5.1.2.3 of the North Augusta Development Code, I hereby request the City of North Augusta review the attached project plans. The documents required by the City of North Augusta, as outlined in Appendix B of the North Augusta Development Code, are attached for the City's review for completeness. The applicant acknowledges that all required documents must be correct and complete to initiate the compliance review process.

7. LeRoy D Hunt
   Applicant or Designated Agent Signature

   August 23, 2022
   Date

   LEROY D HUNT
   Print Applicant or Agent Name

City of North Augusta Permanent Stormwater System Maintenance and Responsibility Agreement

Under the South Carolina Stormwater Management and Sediment Reduction Act of 1991 (48-14-10, et. seq.), Regulation 72-308, City of North Augusta Ordinance(s) Chapter 14; Article V: Sec. 14-134; Division 2 Sec. 14-159 to 163; Division 3 Sec. 14-170 to 170.9; and Ordinance 2021-22 requires the Landowner, its successors and assigns, including any homeowners' association, shall adequately maintain the stormwater management/Best Management Practices (BMP) facilities. This includes all pipes and channels built to convey stormwater to the facility, as well as all structures, improvements, and vegetation provided to control the quantity and quality of the stormwater. Adequate maintenance is herein defined as good working condition so that these facilities are performing their design functions.

The Department of Health and Control (DHEC)/Office of Ocean and Coastal Resource Management (OCRM) and the City of North Augusta (Agencies) recommends that The Landowner, its successors and assigns, shall inspect the stormwater management/BMP facility regularly. The purpose of the inspection is to assure safe and proper functioning of the facilities. The inspection shall cover the entire facilities, berms, outlet structure, pond areas, access roads, etc.

The Landowner, its successors and assigns, hereby grant permission to the "DHEC/OCRM, its authorized agents and employees, the City of North Augusta, its authorized agents and employees" (Agencies) to enter upon the Property and to inspect the stormwater management/BMP facilities whenever the agencies deem necessary. The purpose of inspection is for routine inspection or to follow-up on reported deficiencies and/or to respond to citizen complaints. Agencies shall provide the Landowner, its successors and assigns, copies of the inspection findings and a directive to commence with the repairs if necessary.

The Landowner, its successors and assigns, will perform the work necessary to keep these facilities in good working order as appropriate. In the event a maintenance schedule for the stormwater management/BMP facilities (including sediment removal) is outlined on the approved plans, the schedule will be followed.

This Agreement imposes no liability of any kind whatsoever on DHEC/OCRM or the City of North Augusta and the Landowner agrees to hold Agencies harmless from any liability in the event the stormwater management/ BMP facilities fail to operate properly.

I accept responsibility for ownership and proper maintenance of the stormwater system (pond, swales, etc.) on at the Bluegrass Place **(site name) located on parcel #** 007 15 04 001 **per the approved plan and/or maintenance plan. I will complete any necessary repairs and/or preventive maintenance procedures in a timely manner to ensure proper functioning as a stormwater management device(s).**

It is my understanding that the maintenance plan may be amended/revised at any time by the Agencies, and I will abide by any prescribed changes.

I will continue to own and maintain the pond until the City of North Augusta has approved a new maintenance responsibility agreement by its signature below. A new agreement (transfer) must include a date for the transfer of responsibility and a letter of acceptance from the new owner.

I understand that failure to adhere to the signed maintenance agreement may result in fines of up to $1,000.00 per day, per violation and /or the institution of a court action.

This fully executed document must be recorded with the land record in the county where the stormwater pond or device is located. Transfer of this agreement (new agreement) must be recorded with the land to be valid, failure to record a new agreement is the same as "no transfer of responsibility" leaving the existing agreement recorded or approved on file with the City of North Augusta fully enforceable.

Signature of Owner/Agent	Printed Name of Owner/Agent	Date signed
	Phillip J. Wilson	8/23/22

City of North Augusta Permanent Stormwater System Maintenance and Responsibility Agreement

Under the South Carolina Stormwater Management and Sediment Reduction Act of 1991 (48-14-10, et. seq.), Regulation 72-308, City of North Augusta Ordinance(s) Chapter 14; Article V: Sec. 14-134; Division 2 Sec. 14-159 to 163; Division 3 Sec. 14-170 to 170.9; and Ordinance 2021-22 requires the Landowner, its successors and assigns, including any homeowners' association, shall adequately maintain the stormwater management/Best Management Practices (BMP) facilities. This includes all pipes and channels built to convey stormwater to the facility, as well as all structures, improvements, and vegetation provided to control the quantity and quality of the stormwater. Adequate maintenance is herein defined as good working condition so that these facilities are performing their design functions.

The Department of Health and Control (DHEC)/Office of Ocean and Coastal Resource Management (OCRM) and the City of North Augusta (Agencies) recommends that The Landowner, its successors and assigns, shall inspect the stormwater management/BMP facility regularly. The purpose of the inspection is to assure safe and proper functioning of the facilities. The inspection shall cover the entire facilities, berms, outlet structure, pond areas, access roads, etc.

The Landowner, its successors and assigns, hereby grant permission to the "DHEC/OCRM, its authorized agents and employees, the City of North Augusta, its authorized agents and employees" (Agencies) to enter upon the Property and to inspect the stormwater management/BMP facilities whenever the agencies deem necessary. The purpose of inspection is for routine inspection or to follow-up on reported deficiencies and/or to respond to citizen complaints. Agencies shall provide the Landowner, its successors and assigns, copies of the inspection findings and a directive to commence with the repairs if necessary.

The Landowner, its successors and assigns, will perform the work necessary to keep these facilities in good working order as appropriate. In the event a maintenance schedule for the stormwater management/BMP facilities (including sediment removal) is outlined on the approved plans, the schedule will be followed.

This Agreement imposes no liability of any kind whatsoever on DHEC/OCRM or the City of North Augusta and the Landowner agrees to hold Agencies harmless from any liability in the event the stormwater management/ BMP facilities fail to operate properly.

I accept responsibility for ownership and proper maintenance of the stormwater system (pond, swales, etc.) on at the Bluegrass Place **(site name) located on parcel #** 007-16-03-001 **per the approved plan and/or maintenance plan. I will complete any necessary repairs and/or preventive maintenance procedures in a timely manner to ensure proper functioning as a stormwater management device(s).**

It is my understanding that the maintenance plan may be amended/revised at any time by the Agencies, and I will abide by any prescribed changes.

I will continue to own and maintain the pond until the City of North Augusta has approved a new maintenance responsibility agreement by its signature below. A new agreement (transfer) must include a date for the transfer of responsibility and a letter of acceptance from the new owner.

I understand that failure to adhere to the signed maintenance agreement may result in fines of up to $1,000.00 per day, per violation and /or the institution of a court action.

This fully executed document must be recorded with the land record in the county where the stormwater pond or device is located. Transfer of this agreement (new agreement) must be recorded with the land to be valid, failure to record a new agreement is the same as "no transfer of responsibility" leaving the existing agreement recorded or approved on file with the City of North Augusta fully enforceable.

LeRoy D. Hunt — **Signature of Owner/Agent**

LEROY D. HUNT — **Printed Name of Owner/Agent**

Aug 23, 2022 — **Date signed**

Designation of Agent

Please type or print all information

North Augusta
South Carolina's Riverfront

This form is required if the property owner is not the applicant.

Staff Use Only	
Application Number _____	**Date Received** _____

1. **Project Name** Bluegrass Roadway and Utility Plan

   Project Address/Location Between Martintown Rd. and East Buena Vista Ave.

   Project Parcel Number(s) 007-15-04-001

2. **Property Owner Name** SC North Augusta E Buena Vista, LLC **Owner Phone** 864-242-4008

   Mailing Address 201 Riverplace, Suite 400

   City Greenville **ST** SC **Zip** 29601 **Email** rwright@realtylinkdev.com

3. **Designated Agent** James Dean

   Relationship to Owner Civil Engineer

   Firm Name Cranston Engineering Group, P.C. **Phone** 706-722-1588

   Agent's Mailing Address 452 Ellis Street

   City Augusta **ST** GA **Zip** 30901 **Email** jpdean@cranstonengineering.com

   Agent's Signature _____ **Date** 8.30.2022

4. **I hereby designate the above-named person (Line 3) to serve as my agent and represent me in the referenced application.**

   _____ 8/30/22

   Owner Signature **Date**

5. **Sworn and subscribed to before me on this** 30 **day of** August, **20** 22.

   _____

   Notary Public

   _____

   Commission Expiration Date

CANDI C. HART
Notary Public-State of South Carolina
My Commission Expires
August 11, 2026

Designation of Agent

Please type or print all information

North Augusta
South Carolina's Riverfront

This form is required if the property owner is not the applicant.

Staff Use Only	
Application Number _____	**Date Received** _____

1. **Project Name** Bluegrass Roadway and Utility Plan

   Project Address/Location Between Martintown Rd. and East Buena Vista Ave.

   Project Parcel Number(s) 007-12-12-005, 007-12-12-006, 007-12-12-007, 007-12-12-009

2. **Property Owner Name** NC Troutman Georgie, LLC **Owner Phone** _____

   Mailing Address 201 Riverplace, Suite 400

   City Greenville **ST** SC **Zip** 29601 **Email** eschmidt@realtylinkdev.com

3. **Designated Agent** James Dean

   Relationship to Owner Civil Engineer

   Firm Name Cranston Engineering Group, P.C. **Phone** 706-722-1588

   Agent's Mailing Address 452 Ellis Street

   City Augusta **ST** GA **Zip** 30901 **Email** jpdean@cranstonengineering.com

   Agent's Signature _____ **Date** 8.30.2022

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   Owner Signature **Date**

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   _____
   Notary Public

   _____
   Commission Expiration Date

CANDI C. HART
Notary Public-State of South Carolina
My Commission Expires
August 11, 2026

Designation of Agent

North Augusta
South Carolina's Riverfront

Please type or print all information

This form is required if the property owner is not the applicant.

Staff Use Only	
Application Number _____	**Date Received** _____

1. **Project Name** Bluegrass Roadway and Utility Plan

   Project Address/Location Between Martintown Rd. and East Buena Vista Ave.

   Project Parcel Number(s) 007-16-03-001

2. **Property Owner Name** Leroy D. Hunt and Sharon D. Hunt, Trustees of the Leroy and Sharon Hunt 1996 Family Trust **Owner Phone** _____

   Mailing Address 1040 San Antonio Creek Road

   City Santa Barbara **ST** CA **Zip** 93110 **Email** _____

3. **Designated Agent** James Dean

   Relationship to Owner Civil Engineer

   Firm Name Cranston Engineering Group, P.C. **Phone** 706-722-1588

   Agent's Mailing Address 452 Ellis Street

   City Augusta **ST** GA **Zip** 30901 **Email** jpdean@cranstonengineering.com

   Agent's Signature _____ **Date** 8.30.2022

4. **I hereby designate the above-named person (Line 3) to serve as my agent and represent me in the referenced application.**

   LeRoy D Hunt
   Owner Signature

   August 30, 2022
   Date

5. **Sworn and subscribed to before me on this** 30 **day of** August, 2022.

   _____
   Notary Public

   CANDI C. HART
   Notary Public-State of South Carolina
   My Commission Expires
   August 11, 2026

   _____
   Commission Expiration Date

1/2013

ORDINANCE NO. 2022-03
TO APPROVE THE GENERAL DEVELOPMENT PLAN
FOR THE 51.85± ACRE BLUEGRASS PLACE PLANNED DEVELOPMENT
ON EAST MARTINTOWN ROAD AND EAST BUENA VISTA

WHEREAS, within the guidelines of the North Augusta Zoning and Development Standards Ordinance, a General Development Plan for property within a designated Planned Development zone (PD) requires Planning Commission review and subsequent recommendation to City Council for review and approval; and

WHEREAS, an application has been received from SC North Augusta Buena Vista, LLC requesting approval for a General Development Plan for a tract of land zoned Planned Development (PD) containing 51.85± acres located on the east side of on East Martintown Road and East Buena Vista; and

WHEREAS, the developer, SC North Augusta Buena Vista, LLC of Columbia, South Carolina, proposes a mixed use development on five parcels: tax parcel numbers 007-016-13-001, 007-12-12-009, 007-12-12-007, 007-12-12-006, and 007-12-12-005; and

WHEREAS, the North Augusta Planning Commission, at its December 16, 2021 regular meeting, reviewed the subject application and voted to recommend that City Council approve the General Development Plan for the 51.85± acre Bluegrass Place Planned Development.

WHEREAS, City Council held first reading on February 7, 2022 and a motion was made to delete from the plan the connection road to Golden Street with such motion being approved by Council.

NOW, THEREFORE, BE IT ORDAINED BY THE MAYOR AND CITY COUNCIL OF THE CITY OF NORTH AUGUSTA, SOUTH CAROLINA, IN MEETING DULY ASSEMBLED AND BY THE AUTHORITY THEREOF, THAT:

I. The General Development Plan for the 51.85± acre Bluegrass Place Planned Development is hereby approved as outlined below and as shown on the attached plat and identified as "General Development Plan" as prepared by Cranston Engineering, dated October 15, 2021 without the connectivity to Goldman Street and The General Development Plan Narrative for Bluegrass Place as prepared by Cranston Engineering, dated November 16, 2021

A. Scope of Development: The scope of development described in the General Development Plan for the Bluegrass Place Planned Development and described herein shall be the maximum level of development allowed. The land uses permitted in the Bluegrass Place Planned Development shall be limited to those described in this ordinance.

1. Minor Modifications: Minor modifications to the development plan and program for valid land use planning and reasonable development reasons, i.e. mix of uses, number and location of buildings, development

schedule, setbacks, parking, and landscaping, etc., may be approved by the Planning Commission at the time of subdivision approval for any portion of a phase or site plan approval for an individual parcel.

2. Flex Density and Intensity: Up to ten (10%) percent of the total residential density or commercial square footage allocated to a parcel may be deducted from the total permitted for that parcel and redistributed to one or more other parcels designated for the same use provided the total density or intensity of a recipient parcel is not increased by more than ten (10%) percent.

B. Development Program:

Parcel	Permitted Uses	Area in Acres	Maximum Density (units per gross acre) or Intensity (gross building area in sq. ft. per acre)
A	Multi-Family Apartments	11.1	36 units/acre
B	Senior Living	6.1	14.8 units/acre
C	Professional	3.0	5,000 sf building/ acre
D	Commercial	4.1	5,000 sf building/ acre
E	Single-Family Detached	12.1	5 units/acre
F	Single-Family Attached	6.0	16.7 units/acre
G	Commercial	1.1	5,000 sf building/ acre
H	Greenspace	4.2	NA

C. Parking Requirements: The minimum parking ratio will be determined by the standards set forth in the North Augusta North Augusta Development Code for the applicable use.

D. Development Standards: Development standards applicable to individual commercial and professional tract sites C, D, and G shall be those used for the General Commercial District and , except as provided for in this section and in other sections of this ordinance:

1. All setback lines shall be measured from the property line.
2. The side setbacks on the parcels in Tract C, D, and G will have 20-foot front setbacks, 0 or 5-foot side setbacks, and a 15-foot rear setbacks.
3. Setbacks along E. Martintown Road and E. Buena Vista Avenue will be consistent with existing structures through those corridors.

Development standards applicable to residential areas shall be as provided in the NADC for Detached Single-Family as R-7, Attached Single-Family, Multi-Family, and Senior Living as R-5, as described in the NADC and applied to parcels at the time of concept plan approval.

E. Plan Approval Process: Subsequent to the adoption of this ordinance the following plan approval steps shall be required in the order listed prior to the issuance of development permits.

1. Master Utility Plan – Master plans for water distribution; sewage collection; and stormwater quality, detention and drainage shall be developed and approved prior to or coincidental with the initial phase concept plan. The level of detail provided in the master utility plans shall be determined by the Project Engineer and City Engineer.

2. Master Circulation Plan – A master circulation plan that incorporates the conclusions of the Ramey Kemp Associates (RKA) Traffic Engineering study shall be developed and approved prior to or coincidental with the initial phase concept plan.

3. Wetlands Delineation and Mitigation – A wetlands delineation, permit and any mitigation plans approved by SCDHEC and the US Army Corps of Engineers shall be submitted prior to or coincidental with a Concept Plan for any phase that contains jurisdictional wetlands.

4. Phase Concept Plan – A concept plan for each tract identified in the General Development Plan shall be prepared for Planning Commission review and approval prior to or coincidental with the first preliminary plat application for each phase. The phase concept plan shall include an overall circulation system design, utility systems designs, anticipated mix and intensity or density of uses, proposed or draft master covenants and restrictions for the tract, and buffer delineation. The tract concept plan must indicate how the development of the phase will interrelate with the other phases in the development.

5. Preliminary Plat – Preliminary plats for sections or sub-phases of each phase will be processed and reviewed in accordance with the applicable provisions of the North Augusta Development Code, this ordinance and the General Development Plan Narrative for Bluegrass Place.

6. Final Plat – Final plats for sections or phases of each tract will be processed and reviewed in accordance with the applicable provisions of the North Augusta Development Code and the approved preliminary plat.

7. Site Plan – Site plans for individual parcels approved in a final plat for any portion of a tract will be processed and reviewed in accordance with the applicable provisions of the North Augusta

Development Code, the general development plan ordinance and the General Development Plan Narrative for Bluegrass Place.

F. Utilities: Water and sewer tap fees for each parcel shall be determined in accordance with the City Code provisions related to utility extensions.

G. Land Dedication: Land dedicated to the City in conjunction with the development will include road rights-of-way, utility easements and drainage ways in accordance with the applicable provisions of the North Augusta Development Code.

H. Vehicular Access and Circulation: SC North Augusta Buena Vista, LLC shall implement the mitigation recommendations contained in the RKA traffic study in conjunction with each development phase when the trips generated by the phase (or the sum of trips generated by all approved phases) create the impacts requiring mitigation.

1. The development on any parcel may proceed until the total trip generation reaches the threshold identified by RKA that warrants the required off site improvement. Off-site traffic improvements including modifications to the medians in East Martintown Road and East Buena Vista shall be the responsibility of the developer. Upon initiation of construction of an off-site improvement additional development on any tract may resume to the extent the initiated off-site improvements mitigate the traffic impacts of the additional development.

2. The number and location of exterior access points, full turning intersections, right-in/right-out access points or other limited movement access points, and internal access points to individual parcels from the internal road network to be dedicated to the city shall be reviewed by the city engineer. Exterior access points shall be developed generally as shown with Access 1 and Access 2 shown on RKA traffic analysis having one ingress lane and two egress lanes. Preliminary interior locations of the road network are shown on the general development plan. Necessary modifications to the location of access points to individual tracts shall be made at the time of concept plan consideration for each tract.

3. Vehicular cross-access shall be provided between all commercial parcels where possible and not prohibited by grade or other topography issues.

I. Pedestrian Circulation: Pedestrian connections between the various residential and commercial sections of the development shall be provided.

1. Any and all new sidewalks necessary along the East Martintown Road and East Buena Vista Avenue rights-of-way must be six (6) feet in width and shall be installed no closer than six (6) feet from the back of the finished curb.

2. Five (5) foot sidewalks shall be provided in the commercial areas on both sides of the street. Five (5) foot sidewalks shall be provided on at least one side of the street in residential areas.

3. Pedestrian walkways consisting of five (5) foot sidewalks shall be provided between all adjacent commercial parcels. Where grade differences require, stairs or steps shall be installed.

4. Pedestrian crossings of all roads, driveways, and internal circulation ways, both public and private, shall be treated with a differentiating pavement treatment.

J. Buffers and Landscaping: Landscaped buffers, site landscaping and parking lot landscaping, and street trees shall be provided in the development as required for the applicable use by the North Augusta Development Code. Title to the required buffers shall be retained by a property owners association or deed-restricted to prevent a change of use.

Individual buffer specific landscape plans shall be developed and submitted with the applicable parcel site plan that show the locations of any retaining walls and new slopes within the buffer and details how the buffer and retaining wall will be treated. Such landscape plans shall include any necessary or proposed fencing as well as landscape material.

1. Fencing provided within the buffers located on or near the property lines between the commercial and residential uses may be permitted. The Planning Commission shall approve the height and style of the fence at the site plan stage. The fence shall be no less than five (5) feet in height. Alternatively, a solid fence made of wood, vinyl, metal, or masonry may be constructed.

2. Commercial parking lot landscaping shall be designed to maximize the pervious surface area within the parking area.

3. Each commercial structure developed shall be provided with foundation/perimeter landscaping between the structure and access drives and sidewalks (excluding loading areas). Landscaping material installed along walls with no fenestration shall be selected and maintained to screen large expanses of blank wall

K. Applicable Standards for Review: The information contained in the General Development Plan shall supplement the provisions of this ordinance and shall be used in the review of subdivision and site plans for projects within Bluegrass Place. In the event of a conflict between the provisions of this ordinance and the content of the General Development Plan, the provisions of this ordinance shall prevail. General design criteria and development standards (parking, landscaping, etc.) applicable to each phase of the development and not otherwise prescribed in the General Development Plan

or this ordinance shall be as provided for in the North Augusta Development Code as it may be amended.

L. Additional Provisions: Additional conditions applicable to the development are:

1. Design guidelines for the homes to be constructed in Tract A will be included in the covenants and included with the preliminary plat submission.

2. Multi-Family and Single-Family Attached homes are required to comply with the design guideline in the North Augusta Development Code. Design guidelines for the homes to be constructed in Tract A will be included in the covenants and included with the preliminary plat submission.

3. Proposed or anticipated covenants and deed restrictions on the parcels to be sold and the management of common areas shall be provided in conjunction with the concept plan and plat submission for each phase.

5. Exterior lighting details shall be included with each commercial site plan application, including a description of the lighting levels during business versus non-business hours and shall comply with the North Augusta Development Code.

6. Outdoor display and sale of merchandise must be approved by the Planning Commission at site plan approval or is otherwise prohibited.

7. Overnight or extended parking of tractors, trailers, or railroad/truck shipping containers shall be confined to designated areas behind buildings. No tractor, trailer, container, or recreational vehicle parking shall be permitted on or in any parking area, circulation corridor or outdoor sales and display area.

8. Excessive noise associated with any use in the development including loading, unloading, trash compaction, building maintenance, parking lot or landscaping maintenance or any other activity shall be prohibited between the hours of 11:00 p.m. and 6:00 a.m.

9. Architectural plans of all elevations of proposed commercial buildings shall be submitted with a site plan application.
Permitted Materials – The following building exterior wall materials are permitted:
   a. Brick
   b. Split-face concrete block
   c. Parged block

d. Glass block
e. Decorative concrete masonry units (CMUs) (i.e. textured, glazed and other special treatments or materials)
f. Stone
g. Terra cotta
h. Fiber cementious board siding materials
i. Traditional (real) stucco or plaster
j. Carrera glass
k. Windows, window glazing and architectural glass panels
l. Architectural metal panels, laminated or otherwise
m. Exterior finish wood materials as approved by the Department.

Permitted Materials With Limitations – The following building exterior wall materials are permitted with limitation:
a. Ceramic tile as an accent on up to ten percent (10%) of the wall area
b. Drainage-backed synthetic stucco (Drainage-Backed Exterior Insulation Finishing System [Drainage-Backed EIFS]) may be applied to any wall surface four feet or more above adjacent grade.

10. Waivers may be approved for loading, maintenance, screened storage and other areas shielded from public view.

11. Stormwater detention areas shall be fenced for safety and landscaped to shield the fencing, rip rap, and drainage structures. Black vinyl clad chain link fence shall be installed below the upper edge of each detention area in a manner as to be obscured by the landscaping on top of the detention area.

12. Signs: Signs shall conform to the provisions of the North Augusta Development Code unless specified otherwise herein.

    1. Wall signage size shall be permitted as provided for in the North Augusta Development Code. The sign panels shall be darker in color than the lettering and graphics.
    2. One freestanding monument sign may be permitted for each commercial or professional parcel adjacent to an interior street. Monument signs shall not exceed 60 square feet in area or 10 feet in height and may advertise only the business or businesses located on the parcel. The sign panels shall be darker in color than the lettering and graphics.
    3. One freestanding "Bluegrass Place" identification sign may be located at both the main East Martintown Road entrance and the East Buena Vista Avenue entrance. Each monument sign shall not exceed 120 square feet in area or 20 feet in height. The sign panels shall be darker in color than the lettering and graphics and may include commercial and professional uses, apartment and living facilities,

and other subdivision identifications that are contained within the Bluegrass Place development.

4. The developer shall provide a maintenance guarantee supported by a letter of credit or monetary deposit as required by the North Augusta Development Code.

II. All ordinances or parts of ordinances in conflict herewith are, to the extent of such conflict, hereby repealed.

III. This Ordinance shall become effective immediately upon its adoption on second reading.

DONE, RATIFIED AND ADOPTED BY THE MAYOR AND CITY COUNCIL OF THE CITY OF NORTH AUGUSTA, SOUTH CAROLINA, ON THIS 7th DAY OF March, 2022.

First Reading February 7, 2022 (as amended)

Second Reading March 7, 2022

Briton S. Williams, Mayor

ATTEST:

Sharon Lamar

Sharon Lamar, City Clerk

CONSTRUCTION PLANS FOR

BLUEGRASS ROADWAY AND UTILITY PLANS

PREPARED FOR

SC NORTH AUGUSTA E BUENA VISTA, LLC

201 RIVERPLACE, SUITE 400
GREENVILLE, SC 29601

VICINITY MAP
N.T.S.

LOCATION MAP
N.T.S.

SHEET INDEX	
Sheet Title	Sheet Number
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GENERAL NOTES	02
OVERALL PLAN	03
EXISTING CONDITIONS & DEMOLITION PLAN	04
LAYOUT PLAN	05
PAVING & STRIPING PLAN	06
GRADING & DRAINAGE PLAN	07
GRADING & DRAINAGE PLAN	08
UTILITY PLAN	09
UTILITY PLAN	10
PROFILES	11
PROFILES	12
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PHASE B INTERMEDIATE SWPPP	15
PHASE B FINAL SWPPP	16
PHASE C INITIAL SWPPP	17
PHASE C INTERMEDIATE SWPPP	18
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SWPPP NOTES & DETAILS	21
SWPPP NOTES & DETAILS	22
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MISCELLANEOUS DETAILS	24
MISCELLANEOUS DETAILS	25
OVERALL LANDSCAPE PLAN	L-000
LANDSCAPE NOTES AND SCHEDULE	L-100
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LANDSCAPE PLAN SHEET 2 OF 2	L-102
ENLARGEMENT PLAN SHEET	L-400
ENLARGEMENT PLAN SHEET	L-401
CORRECTION AND OBSERVATION DETAILS	L-500

PROJECT DATA:

1. ACREAGE OF PROPERTY: 51.85 ACRES
2. ACREAGE OF DEVELOPMENT: 52.82 ACRES
3. OWNER/DEVELOPER:
   SC NORTH AUGUSTA E BUENA VISTA, LLC
   201 RIVERPLACE, SUITE 400
   GREENVILLE, SC 29601
   PHONE: 864-242-4008
   24 HOUR CONTACT:
   NAME: RIVERS CAPE
   PHONE: 864-232-0160
4. TAX MAP & PARCEL NUMBERS: 007-16-03-001, 007-12-12-005, 007-12-12-006, 007-12-12-007, 007-12-12-009, 007-15-14-001
5. ZONING: PD
6. STORM WATER OUTFALL: BUENA VISTA STORM SEWER
7. DRAINAGE AREA THIS PROJECT: 59.6 ACRES
8. IMPERVIOUS AREA:
   EXISTING: 4.48 ACRES
   PROPOSED: 33.78 ACRES
9. PERVIOUS AREA:
   EXISTING: 45.37 ACRES
   PROPOSED: 16.07 ACRES
10. RECEIVING STREAM: SAVANNAH RIVER
11. ULTIMATE STREAM: SAVANNAH RIVER
12. EXISTING LAND USE: VACANT
13. PROPOSED LAND USE: PLANNED DEVELOPMENT

PREPARED BY

CRANSTON

AUGUST 30, 2022

1 REV. 12/30/2022 PER CITY COMMENTS
2 REV. 8/17/2023

SOUTH CAROLINA PROFESSIONAL ENGINEER NC.27390 JAMES P. DEAN
8-24-2023

SOUTH CAROLINA Cranston Engineering Group NO. C00575 CERTIFICATE OF AUTHORIZATION

BENCHMARK DATA				
NAME	DESCRIPTION	NORTHING	EASTING	ELEVATION
BM-1	TBM-MAG NAIL	608,854.3070	1,708,094.1866	256.31 (NAD83/NAVD88)
BM-2	TBM-MAG NAIL	608,941.8435	1,708,998.8822	

BENCHMARK DATA:
1. COORDINATE SYSTEM IS STATE PLANE NAD 1983.
2. ALL DISTANCES SHOWN ARE GROUND.
3. REFER TO PLAN SHEET 04 FOR DELINEATION.

South Carolina 811 Call 811 Before You Dig

2021-0403
01

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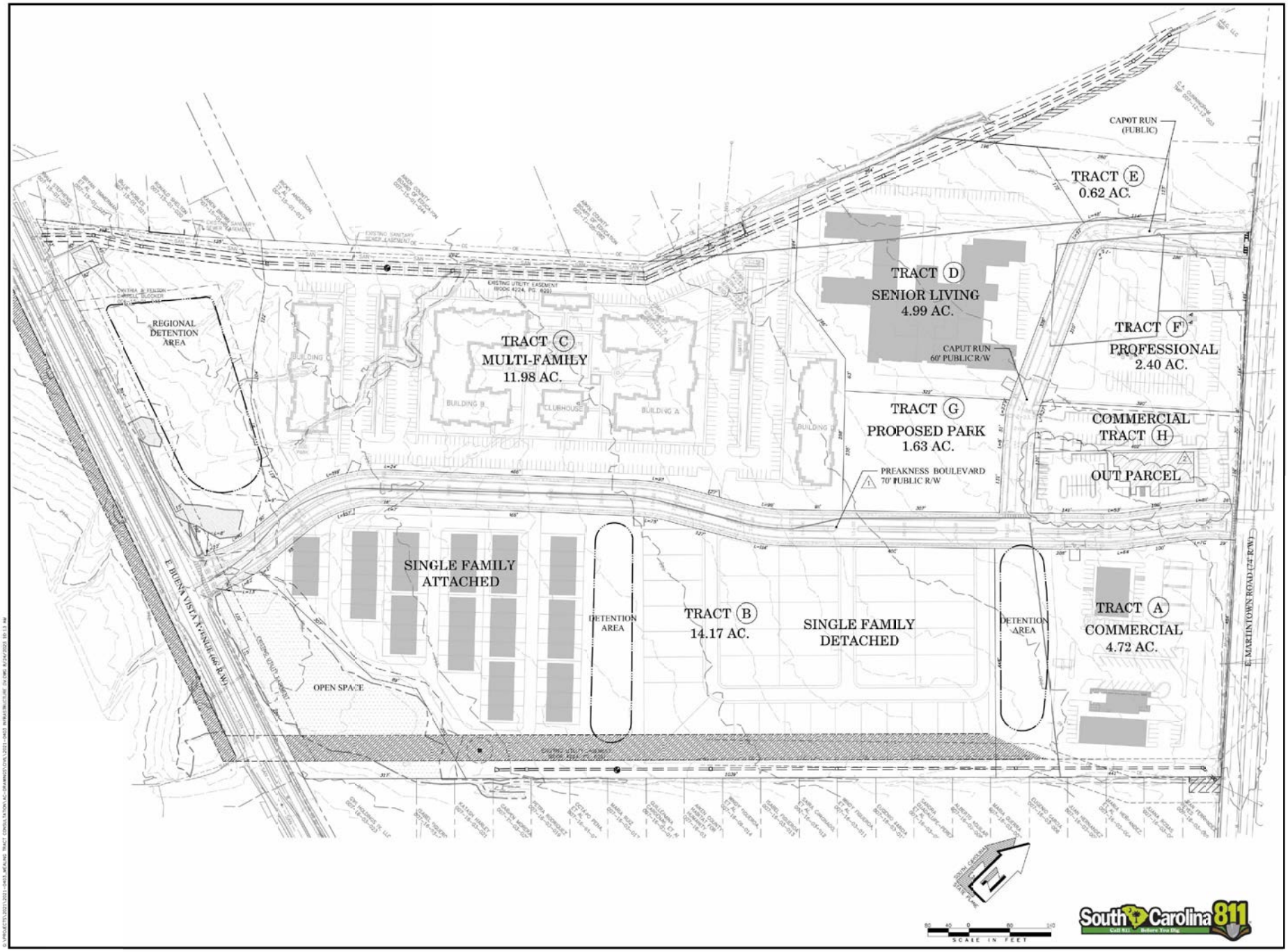

CRANSTON

SOUTH CAROLINA PROFESSIONAL ENGINEER NO. 29360 JAMES P. DEAN 8-24-2023

SOUTH CAROLINA Cranston Engineering Group NO. C00575 CERTIFICATE OF AUTHORIZATION

REV #	DATE	DESCRIPTION
2	8/17/2023	BUILDING FOOTPRINT REMOVED

BLUEGRASS ROADWAY AND UTILITY PLANS

OVERALL PLAN

DRAWN BY:	GSA
CHECKED BY:	BSF/SMS
APPROVED BY:	JPD
DATE:	AUGUST 30, 2022
SCALE:	1" = 80'
JOB No.	2021-0403
DRAWING No.	03

South Carolina 811 Call 811 Before You Dig

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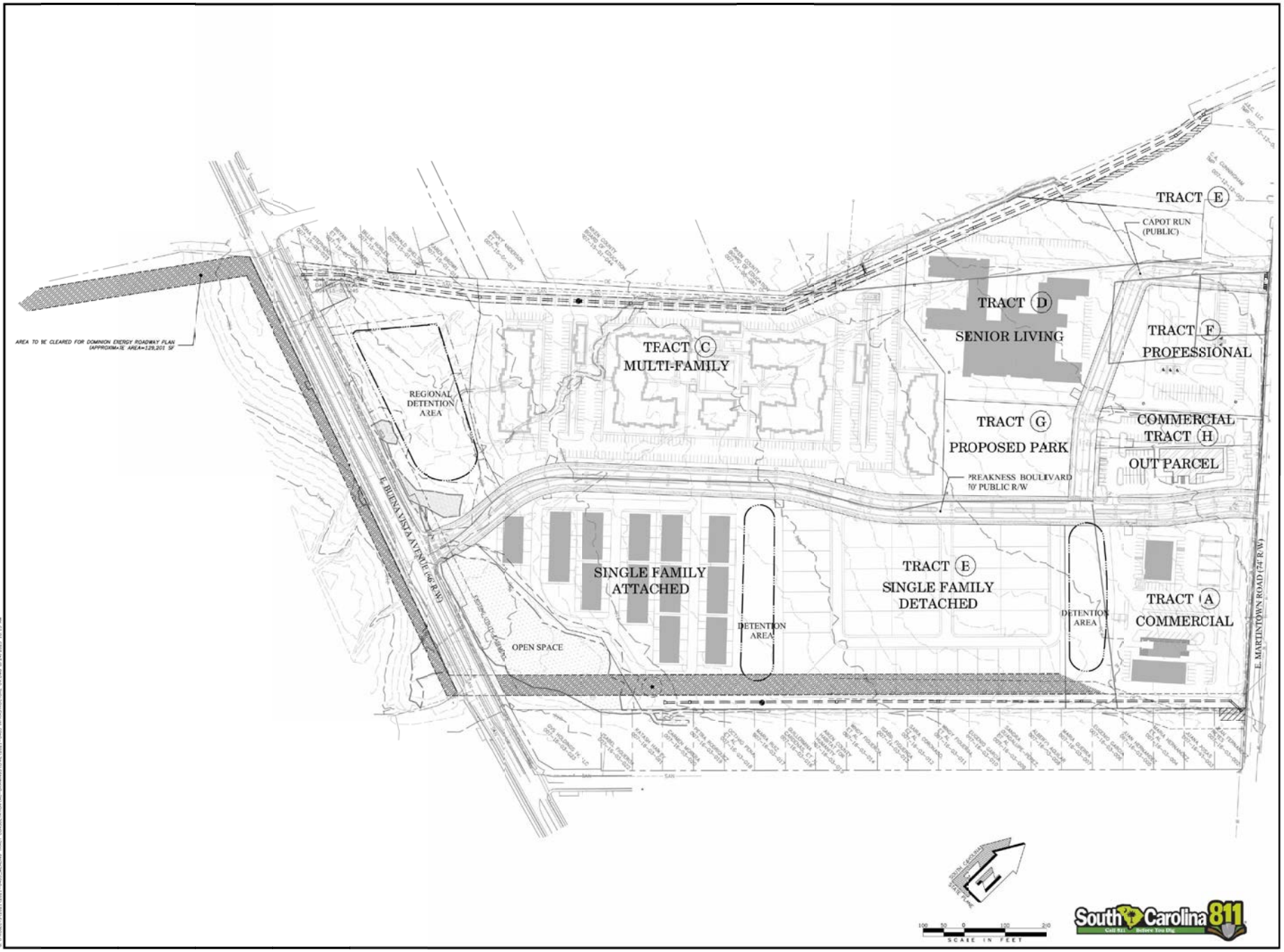

CRANSTON

SOUTH CAROLINA PROFESSIONAL ENGINEER NO. 21360 JAMES P. DEAN 8-24-2023

SOUTH CAROLINA Cranston Engineering Group NO. C00575 CERTIFICATE OF AUTHORIZATION

REV #	DATE	DESCRIPTION
1	8/17/2023	PER CITY COMMENTS

BLUEGRASS ROADWAY AND UTILITY PLANS

DOMINION ENERGY EXHIBIT

DRAWN BY:	GSA
CHECKED BY:	BSF/SMS
APPROVED BY:	JPD
DATE:	FEBRUARY 24, 2023
SCALE:	1" = 100'
JOB No.	2021-0403
DRAWING No.	03B

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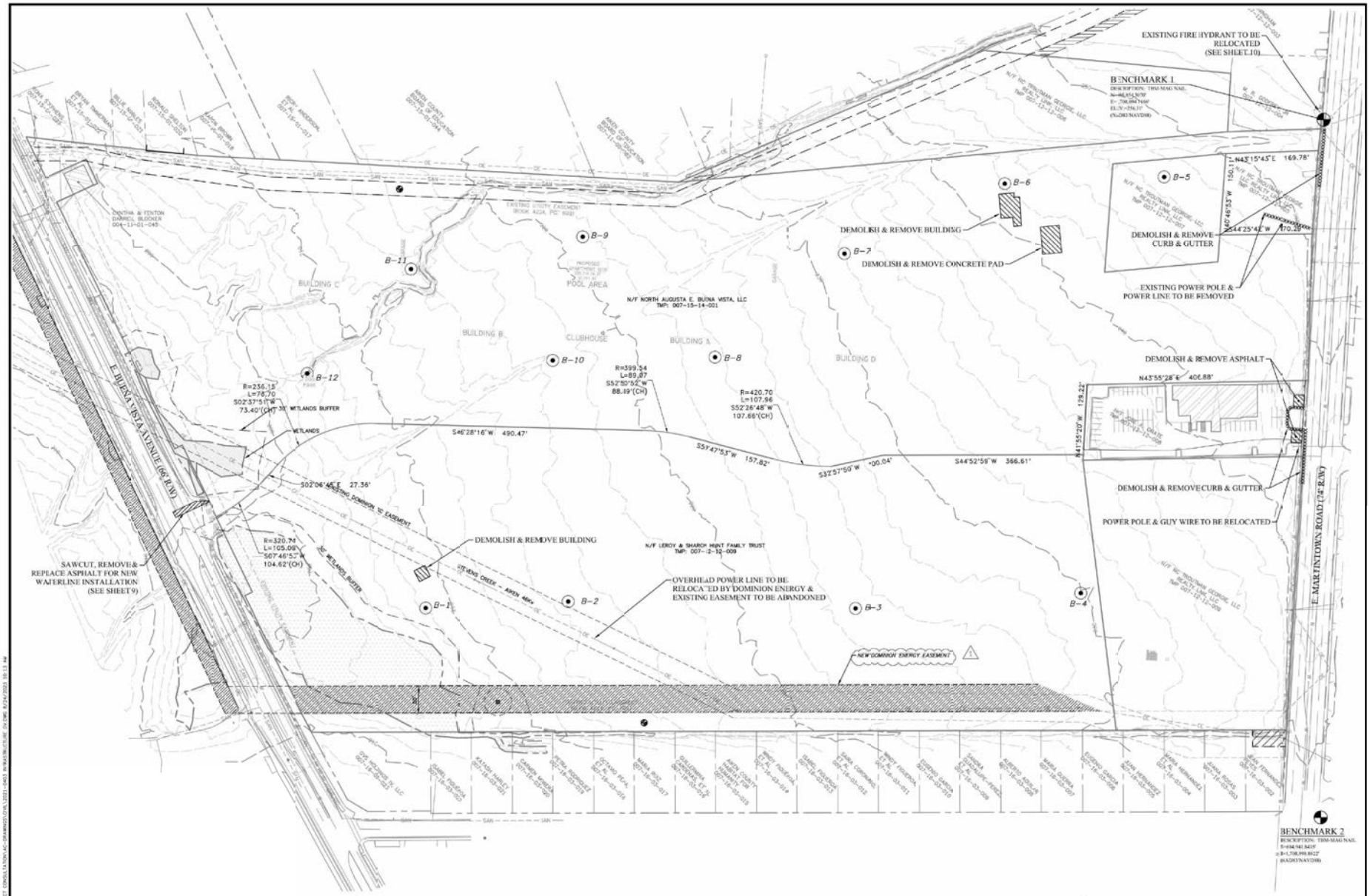

WETLANDS SHOWN WERE DELINEATED BY ENVIRONMENTAL PERMITTING CONSULTANTS, INC. AND WERE FOUND TO BE JURISDICTIONAL ON OCTOBER 12, 2021 AND SHALL BE REFERREE TO AS SAC-2021-01235.

BOUNDARY, TOPOGRAPHIC, & UTILITY SURVEY WAS PREPARED BY SITE DESIGN, INC. DATED MARCH 31, 2021 LAST REVISED NOVEMBER 4, 2021.

NOTES:
1. SOIL BORING LOCATIONS SHOWN ARE APPROXIMATE AND CORRESPOND TO THE PRELIMINARY GEOTECHNICAL REPORT PREPARED BY CSRA TESTING AND DATED SEPTEMBER 10, 2021.
2. ALL DEMOLISHED MATERIALS SHALL BE DISPOSED OF AT AN APPROVED OFF-SITE LOCATION.
3. NO WORK SHALL BE PERFORMED WITHIN THE RIGHT-OF-WAY OF E. BUENA VISTA OR E. MARTINTOWN ROAD WITHOUT AN ENCROACHMENT PERMIT FROM THE SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION.

CRANSTON

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER NO. 29360 JAMES P. DEAN
8-24-2023

SOUTH CAROLINA Cranston Engineering Group NO. C00575 CERTIFICATE OF AUTHORIZATION

REV #	DATE	DESCRIPTION
1	8/17/2023	PER CITY COMMENTS

BLUEGRASS ROADWAY AND UTILITY PLANS

EXISTING CONDITIONS & DEMOLITION PLAN

DRAWN BY:	GSA
CHECKED BY:	BSF/SMS
APPROVED BY:	JPD
DATE:	AUGUST 30, 2022
SCALE:	1" = 80'
JOB No.	2021-0403
DRAWING No.	04

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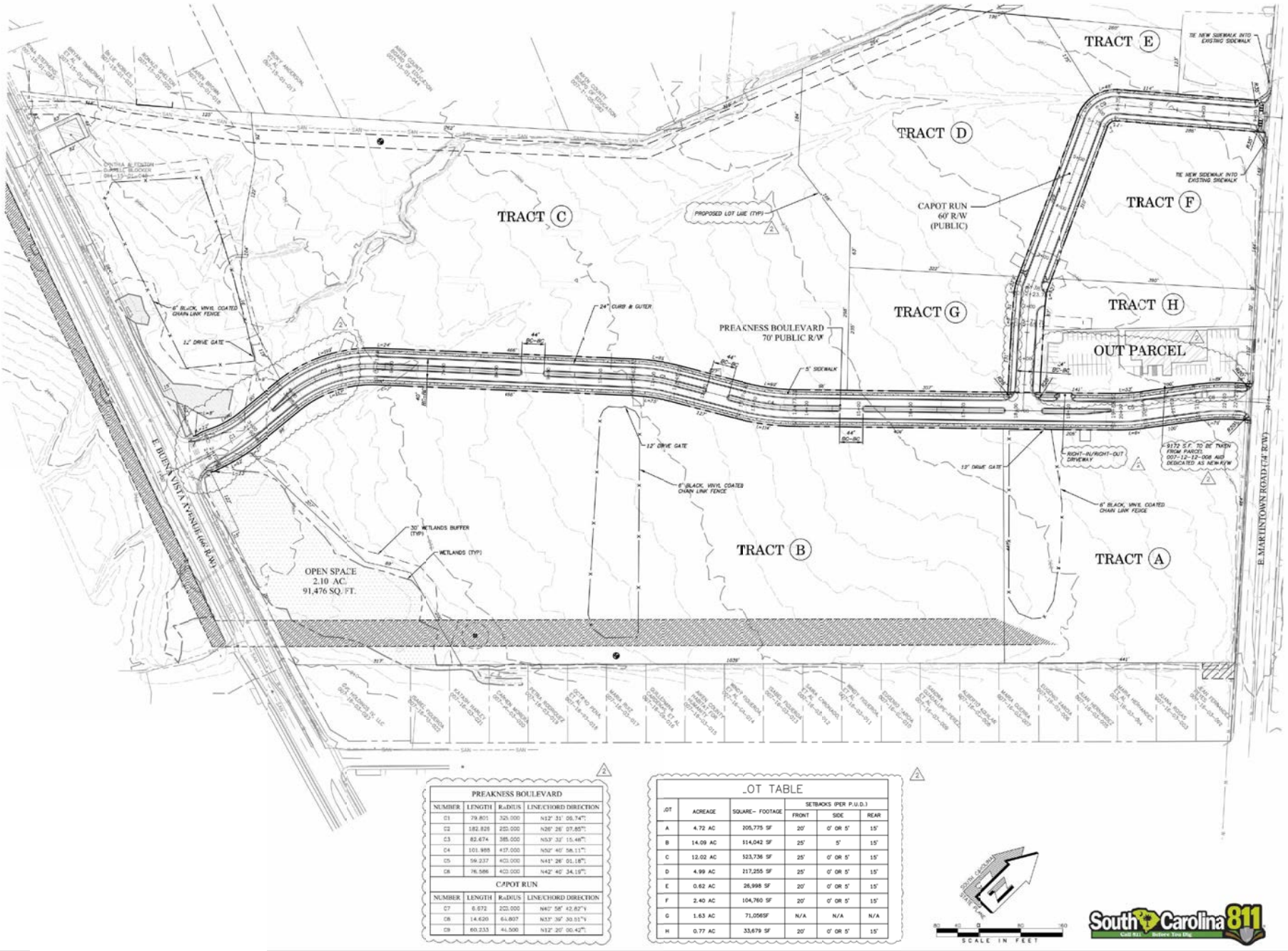

PREAKNESS BOULEVARD			
NUMBER	LENGTH	RADIUS	LINE/CHORD DIRECTION
C1	79.801	325.000	N12° 31' 06.74"E
C2	182.826	250.000	N26° 26' 07.85"E
C3	82.674	385.000	N53° 33' 15.46"E
C4	101.988	437.000	N52° 40' 58.11"E
C5	59.237	401.000	N41° 26' 01.18"E
C6	76.586	403.000	N42° 40' 34.19"E
CAPOT RUN			
NUMBER	LENGTH	RADIUS	LINE/CHORD DIRECTION
C7	6.672	203.000	N40° 58' 42.62"W
C8	14.620	64.807	N33° 39' 30.51"W
C9	60.233	44.500	N12° 20' 00.42"E

LOT TABLE					
LOT	ACREAGE	SQUARE- FOOTAGE	SETBACKS (PER P.U.D.)		
			FRONT	SIDE	REAR
A	4.72 AC	205,775 SF	20'	0' OR 5'	15'
B	14.09 AC	514,042 SF	25'	5'	15'
C	12.02 AC	523,736 SF	25'	0' OR 5'	15'
D	4.99 AC	217,255 SF	25'	0' OR 5'	15'
E	0.62 AC	26,998 SF	20'	0' OR 5'	15'
F	2.40 AC	104,760 SF	20'	0' OR 5'	15'
G	1.63 AC	71,056SF	N/A	N/A	N/A
H	0.77 AC	33,679 SF	20'	0' OR 5'	15'

SCALE IN FEET

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CRANSTON

SOUTH CAROLINA PROFESSIONAL ENGINEER NO. 21360 JAMES P. DEAN 8-24-2023

SOUTH CAROLINA Cranston Engineering Group NO. C00575 CERTIFICATE OF AUTHORIZATION

REV #	DATE	DESCRIPTION
2	8/17/2023	PER CITY COMMENTS
1	12/30/2022	PER CITY COMMENTS

BLUEGRASS ROADWAY AND UTILITY PLANS

LAYOUT PLAN

DRAWN BY:	GSA
CHECKED BY:	BSF/SMS
APPROVED BY:	JPD
DATE:	AUGUST 30, 2022
SCALE:	1" = 80'
JOB No.	2021-0403
DRAWING No.	05

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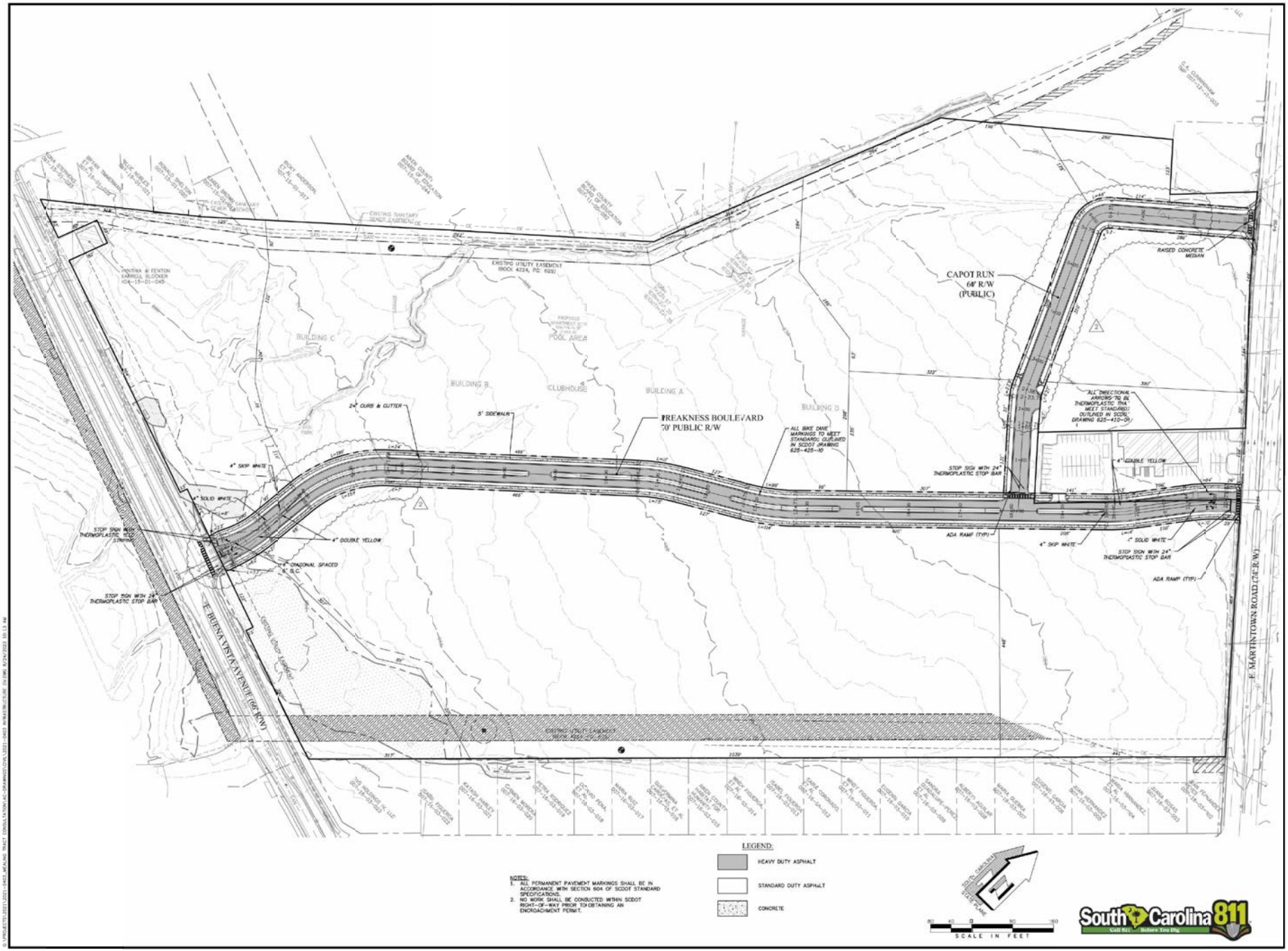


CRANSTON

SOUTH CAROLINA PROFESSIONAL ENGINEER NO. 21360 JAMES P. DEANE 8-24-2023

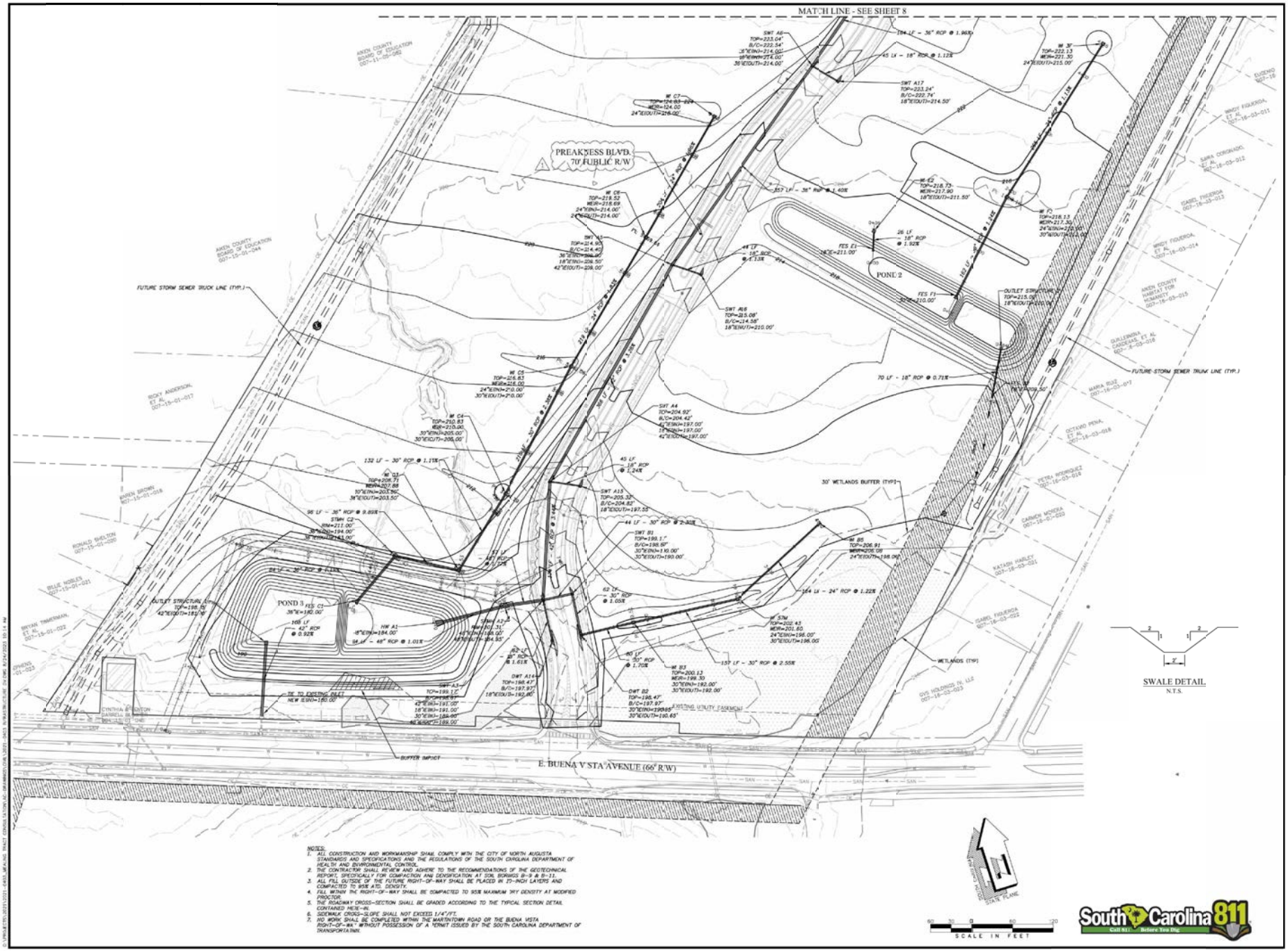
SOUTH CAROLINA Cranston Engineering Group NO. C00575 CERTIFICATE OF AUTHORIZATION

REV #	DATE	DESCRIPTION
2	8/17/2023	PER CITY COMMENTS
1	12/30/2022	PER CITY COMMENTS

BLUEGRASS ROADWAY AND UTILITY PLANS

PAVING & STRIPING PLAN

DRAWN BY:	GSA
CHECKED BY:	BSF/SMS
APPROVED BY:	JPD
DATE:	AUGUST 30, 2022
SCALE:	1" = 80'
JOB No.	2021-0403
DRAWING No.	06



CRANSTON

SOUTH CAROLINA PROFESSIONAL ENGINEER NO. 21360 JAMES P. DEAN 8-24-2023

SOUTH CAROLINA Cranston Engineering Group NO. C00575 CERTIFICATE OF AUTHORIZATION

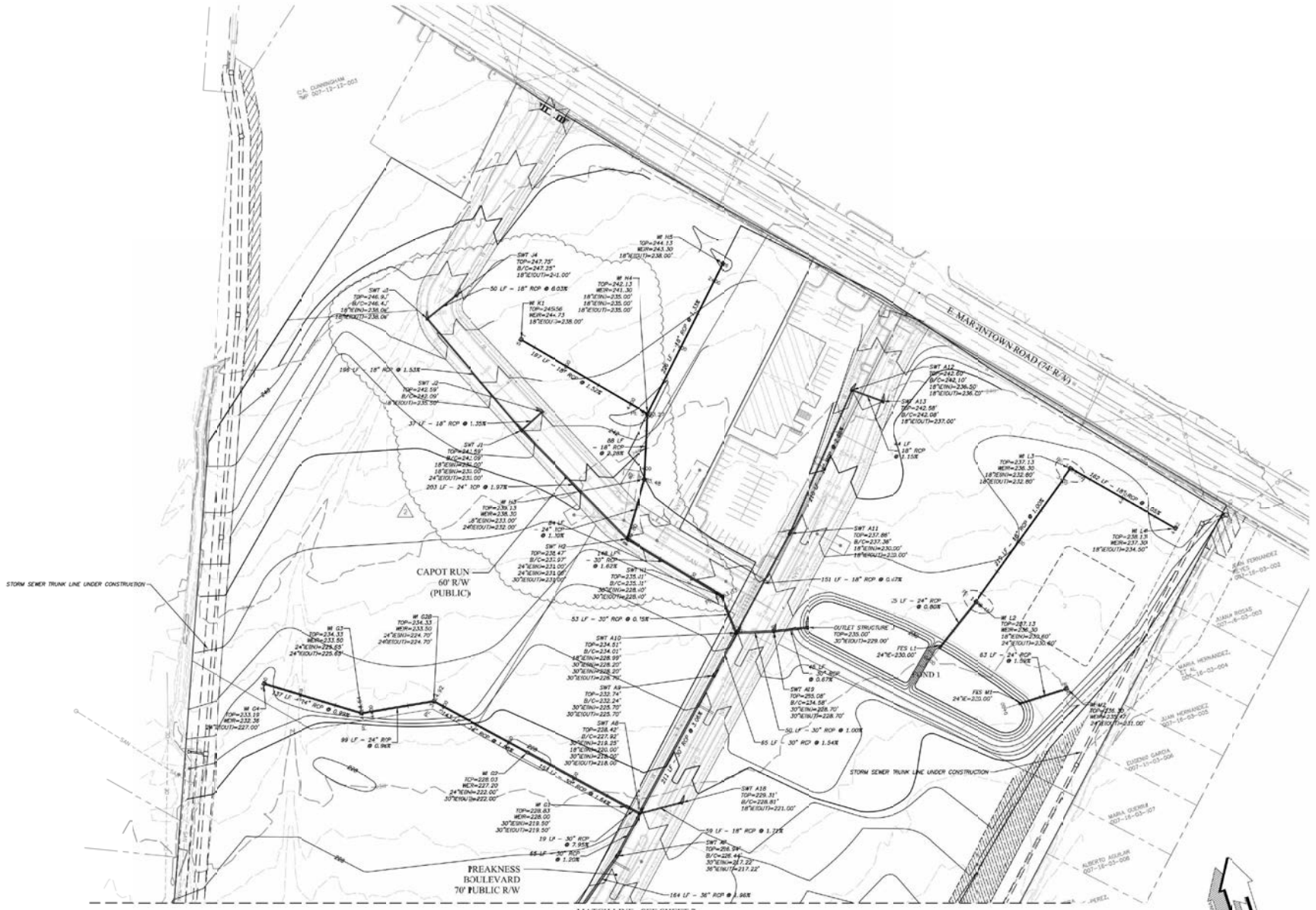
REV #	DATE	DESCRIPTION
1	12/30/2022	PER CITY COMMENTS
2	8/17/2023	PER CITY COMMENTS

BLUEBERRY ROADWAY AND UTILITY PLANS

GRADING & DRAINAGE PLAN

DRAWN BY:	GSA
CHECKED BY:	BSF/SMS
APPROVED BY:	JPD
DATE:	AUGUST 30, 2022
SCALE:	1" = 60'
JOB No.	2021-0403
DRAWING No.	07

South Carolina 811 Call 811 Before You Dig



SWALE DETAIL
N.T.S.

NOTES:
1. ALL CONSTRUCTION AND WORKMANSHIP SHALL COMPLY WITH THE CITY OF EDFIN AUGUSTA STANDARDS AND SPECIFICATIONS AND THE REGULATIONS OF THE SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL.
2. THE CONTRACTOR SHALL REVIEW AND ADHERE TO THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT, SPECIFICALLY FOR COMPACTION AND DENSIFICATION AT SOIL BORINGS B-9 & B-11.
3. ALL FILL OUTSIDE OF THE FUTURE RIGHT-OF-WAY SHALL BE PLACED IN 12-INCH LAYERS AND COMPACTED TO 95% ATD. DENSITY.
4. FILL WITHIN THE RIGHT-OF-WAY SHALL BE COMPACTED TO 95% MAXIMUM DRY DENSITY AT MODIFIED PROCTOR.
5. THE ROADWAY CROSS-SECTION SHALL BE GRADED ACCORDING TO THE TYPICAL SECTION DETAIL CONTAINED HERE-IN.
6. SIDEWALK CROSS-SLOPE SHALL NOT EXCEED 1/4"/FT.
7. NO WORK SHALL BE COMPLETED WITHIN THE WARTINTOWN ROAD OR THE BHONA VISTA RIGHT-OF-WAY WITHOUT POSSESSION OF A PERMIT ISSUED BY THE SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION.

SCALE IN FEET

South Carolina 811 Call 811 Before You Dig

CRANSTON

SOUTH CAROLINA PROFESSIONAL ENGINEER NO. 29360 JAMES P. DEAN
8-24-2023

SOUTH CAROLINA Cranston Engineering Group NO. C00575 CERTIFICATE OF AUTHORIZATION

REV #	DATE	DESCRIPTION
2	8/17/2023	PER CITY COMMENTS
1	12/30/2022	PER CITY COMMENTS

BLUEGRASS ROADWAY AND UTILITY PLANS

GRADING & DRAINAGE PLAN

DRAWN BY:	GSA
CHECKED BY:	BSF/SMS
APPROVED BY:	JPD
DATE:	AUGUST 30, 2022
SCALE:	1" = 60'
JOB No.	2021-0403
DRAWING No.	08

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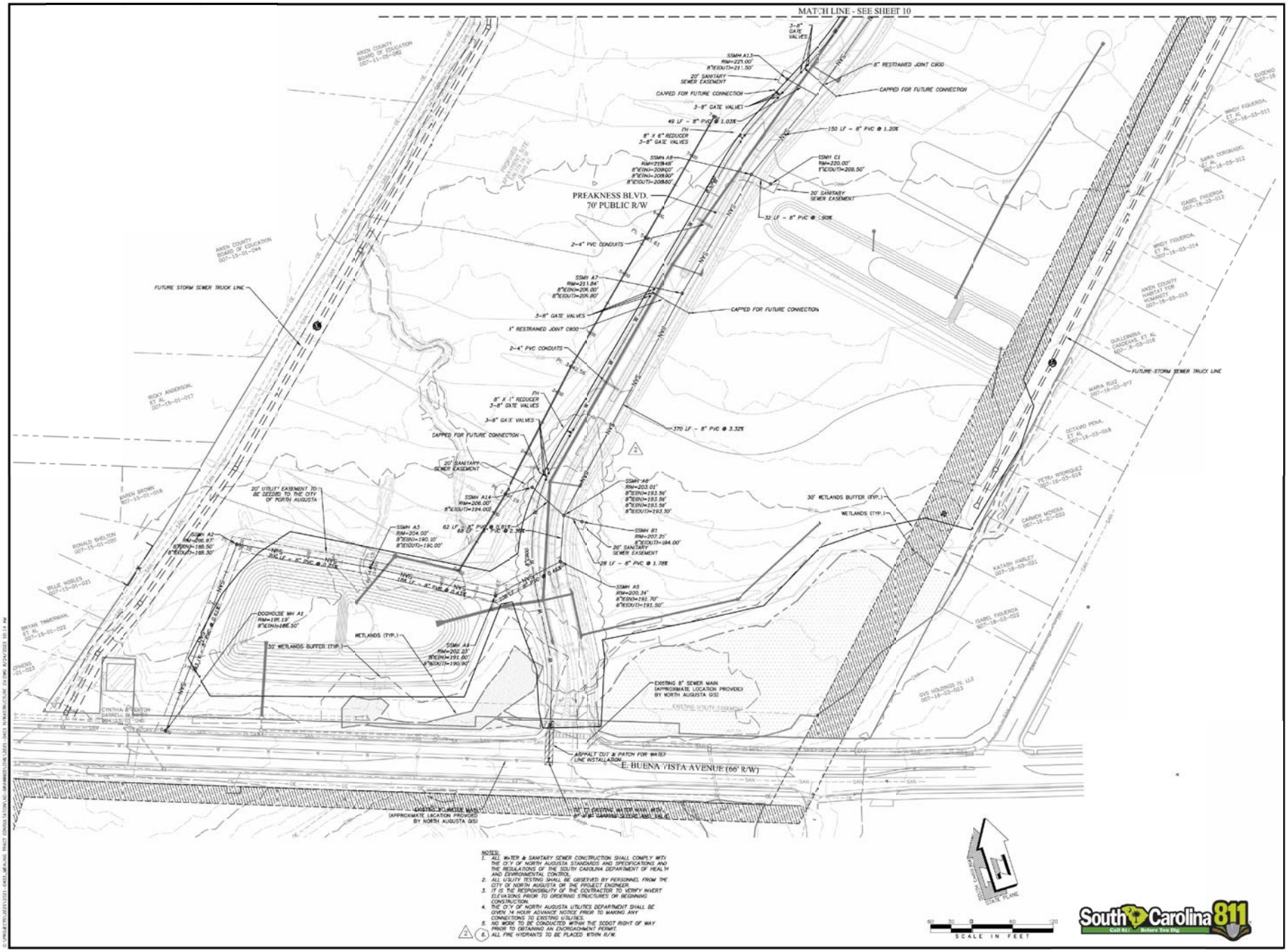


NOTES:
1. ALL WATER & SANITARY SEWER CONSTRUCTION SHALL COMPLY WITH THE CITY OF NORTH AUGUSTA STANDARDS AND SPECIFICATIONS AND THE REGULATIONS OF THE SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL.
2. ALL UTILITY TESTING SHALL BE OBSERVED BY PERSONNEL FROM THE CITY OF NORTH AUGUSTA OR THE PROJECT ENGINEER.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY INVERT ELEVATIONS PRIOR TO ORDERING STRUCTURES OR BEGINNING CONSTRUCTION.
4. THE CITY OF NORTH AUGUSTA UTILITIES DEPARTMENT SHALL BE GIVEN 24 HOUR ADVANCE NOTICE PRIOR TO MAKING ANY CONNECTIONS TO EXISTING UTILITIES.
5. NO WORK TO BE CONDUCTED WITHIN THE SCDOT RIGHT OF WAY PRIOR TO OBTAINING AN ENCROACHMENT PERMIT.
2 6. ALL FIRE HYDRANTS TO BE PLACED WITHIN R/W.

CRANSTON

SOUTH CAROLINA PROFESSIONAL ENGINEER NO. 21360 JAMES P. DEAN
8-24-2023

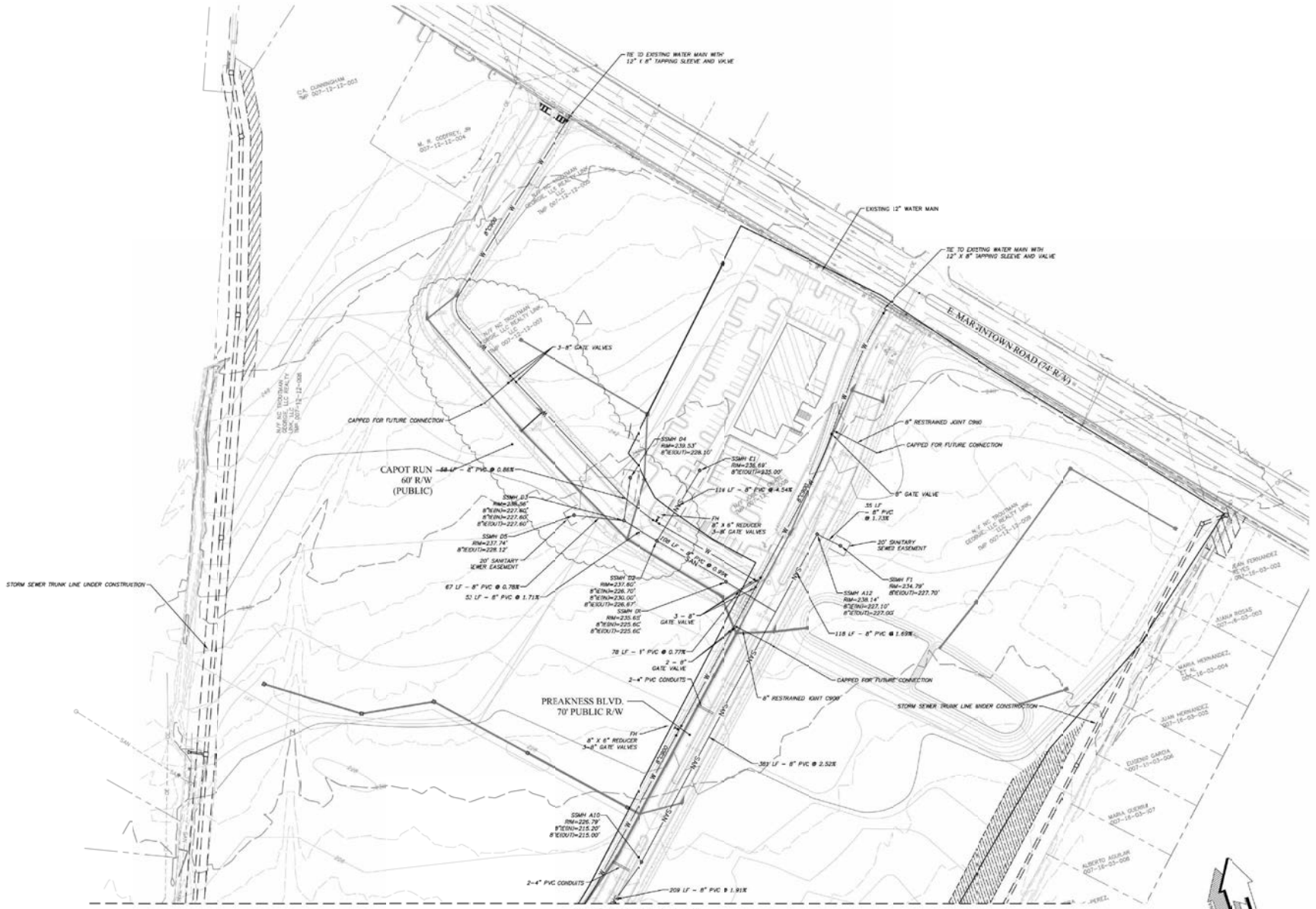
SOUTH CAROLINA Cranston Engineering Group NO. C00575 CERTIFICATE OF AUTHORIZATION

REV #	DATE	DESCRIPTION
2	8/17/2023	PER CITY COMMENTS
1	12/30/2022	PER CITY COMMENTS

BLUEGRASS ROADWAY AND UTILITY PLANS

UTILITY PLAN

DRAWN BY:	GSA
CHECKED BY:	BSF/SMS
APPROVED BY:	JPD
DATE:	AUGUST 30, 2022
SCALE:	1" = 60'
JOB No.	2021-0403
DRAWING No.	09



NOTES:
1. ALL WATER & SANITARY SEWER CONSTRUCTION SHALL COMPLY WITH THE CITY OF NORTH AUGUSTA STANDARDS AND SPECIFICATIONS AND THE REGULATIONS OF THE SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL.
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5. NO WORK TO BE CONDUCTED WITHIN THE SCDHT RIGHT-OF-WAY PRIOR TO OBTAINING AN ENCROACHMENT PERMIT.

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CRANSTON

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER NO. 21360 JAMES P. DEAN
8-24-2023

SOUTH CAROLINA Cranston Engineering Group NO. C00575 CERTIFICATE OF AUTHORIZATION

REV #	DATE	DESCRIPTION
2	8/17/2023	PER CITY COMMENTS
1	12/30/2022	PER CITY COMMENTS

BLUEGRASS ROADWAY AND UTILITY PLANS

UTILITY PLAN

DRAWN BY:	GSA
CHECKED BY:	BSF/SMS
APPROVED BY:	JPD
DATE:	AUGUST 30, 2022
SCALE:	1" = 60'
JOB No.	2021-0403
DRAWING No.	10

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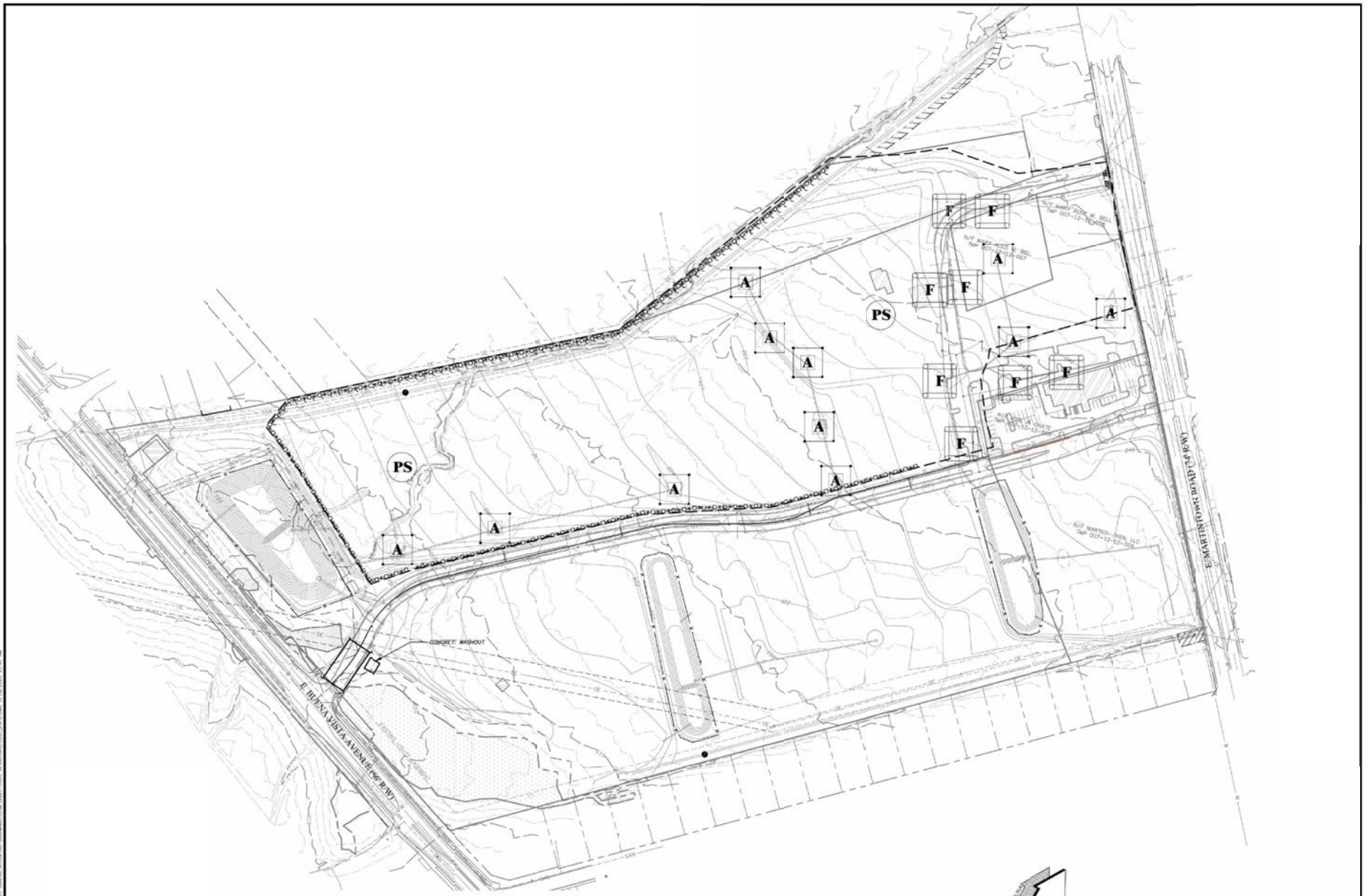

PHASE C FINAL SWPPP SEQUENCE OF CONSTRUCTION AND NOTES:

1. THE TEMPORARY SEDIMENT BASINS, SEDIMENT TRAPS AND TEMPORARY DIVERSIONS SHALL REMAIN IN PLACE UNTIL 30 DAYS AFTER FINAL STABILIZATION IS REACHED FOR THE DISTURBANCE SHOWN.
2. THE CONSTRUCTION EXIT SHALL BE REMOVED PRIOR TO COMPLETION OF SUB-BASE AND INSTALLATION OF SAND-CLAY BASE FOR ROAD CONSTRUCTION.
3. THE CONTRACTOR SHALL SEED ALL DISTURBED AREAS WITH PERMANENT GRASSES AND TEMPORARY GRASSES IN ACCORDANCE WITH THE "SC DHEC STORMWATER BMP HANDBOOK".
4. POST-PAVING INLET PROTECTOR SHALL BE PLACED AT THE MOUTH OF ALL INLETS RECEIVING STORM WATER FROM PAVED SURFACES.
5. ONCE THE SITE HAS BEEN STABILIZED FOR 30 DAYS AND THE FINAL LOT NOTICE OF TERMINATION IS ACCEPTED, THE EROSION CONTROL BMP's CAN BE REMOVED, INCLUDING PERIMETER SILT FENCE AND INLET PROTECTION.
6. ANY AREAS OF EROSION THAT OCCUR PRIOR TO FINAL STABILIZATION SHALL BE REPAIRED BY THE CONTRACTOR.
7. THE ONLY STORM WATER POLLUTANT ANTICIPATED DURING CONSTRUCTION IS SEDIMENT, THE BMP's INCLUDED ON THIS PLAN ARE DESIGNED TO REDUCE THE SEDIMENT DEPOSITION ONTO DOWNSTREAM PROPERTIES & RECEIVING WATERS.
8. NO FENCES SHALL BE INSTALLED THAT MAY OBSTRUCT MAINTENANCE OF THE STORM INLETS OR DRAINAGE SWALES ALONG PROPERTY LINES.

FLAG ALL WETLANDS BEFORE ANY CLEARING.

South Carolina 811 Call 811 Before You Dig

CRANSTON

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER NO. 21360 JAMES P. DEAN

1-05-2023

SOUTH CAROLINA Cranston Engineering Group NO. C00575 CERTIFICATE OF AUTHORIZATION

NO.	DATE	DESCRIPTION

BLUEGRASS ROADWAY AND UTILITY PLANS

PHASE C FINAL SWPPP

DRAWN BY:	GSA
CHECKED BY:	BSF/SMS
APPROVED BY:	JPD
DATE:	DECEMBER 2, 2022
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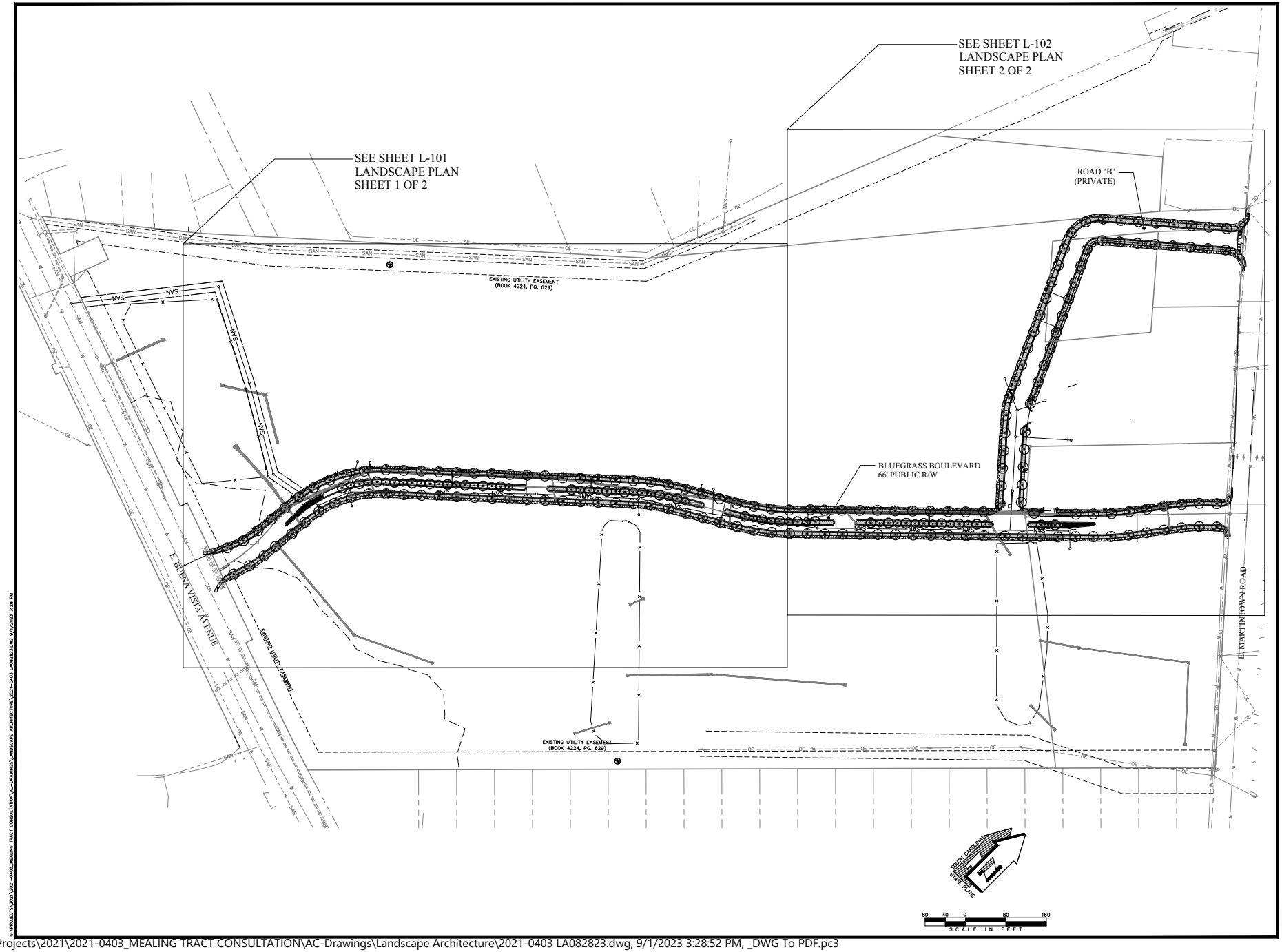
JOB No.	2021-0403
DRAWING No.	20



CRANSTON

Cranston Engineering Group NO. C00575

REV #	DATE	DESCRIPTION
1	2/23/2023	PER CITY REVIEW COMMENTS

BLUEGRASS ROADWAY AND UTILITY PLANS

OVERALL LANDSCAPE PLAN

DRAWN BY:	MC
CHECKED BY:	LFC
APPROVED BY:	LFC
DATE:	JUNE, 13, 2022
SCALE:	1" = 80'
JOB No.	2021-0403
DRAWING No.	L-100

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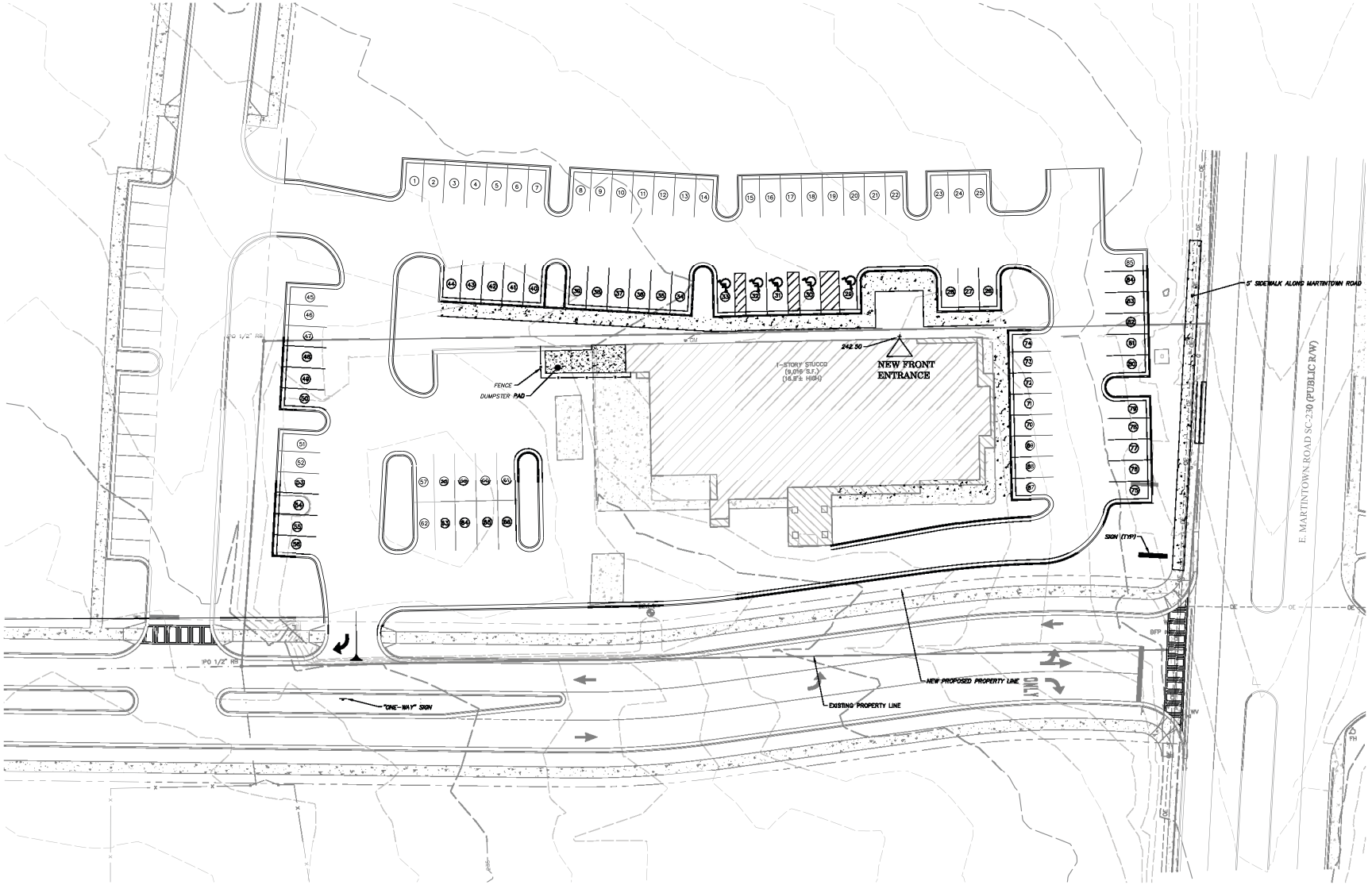

PROJECT DATA

ADDRESS:	436 E. MARTINTOWN ROAD
PARCEL #:	007-12-12-008
ZONING:	GC, GENERALL COMMERCIAL
OWNER:	JOSE A. ONATE, ET AL
ACREAGE:	1.29 ACRES
PARKING REQUIRED:	31 MIN. @ 1 SPACE /300 SF 91 MAX. @ 1 SPACE/100 SF
PARKING PROVIDED:	85 SPACES

TOTAL TAKING ALONG PREAKNESS BOULEVARD: 0.21 AC.

South Carolina 811 Call 811 Before You Dig

CRANSTON

PRELIMINARY
NOT FOR CONSTRUCTION

REV #	DATE	DESCRIPTION

MONTERREY RESTURANT SITE IMPROVEMENTS

PRERLIMINARY PLAN

DRAWN BY:	---
CHECKED BY:	---
APPROVED BY:	TMP
DATE:	---
SCALE:	1" = 20'
JOB No.	2023-0025
DRAWING No.	P-01

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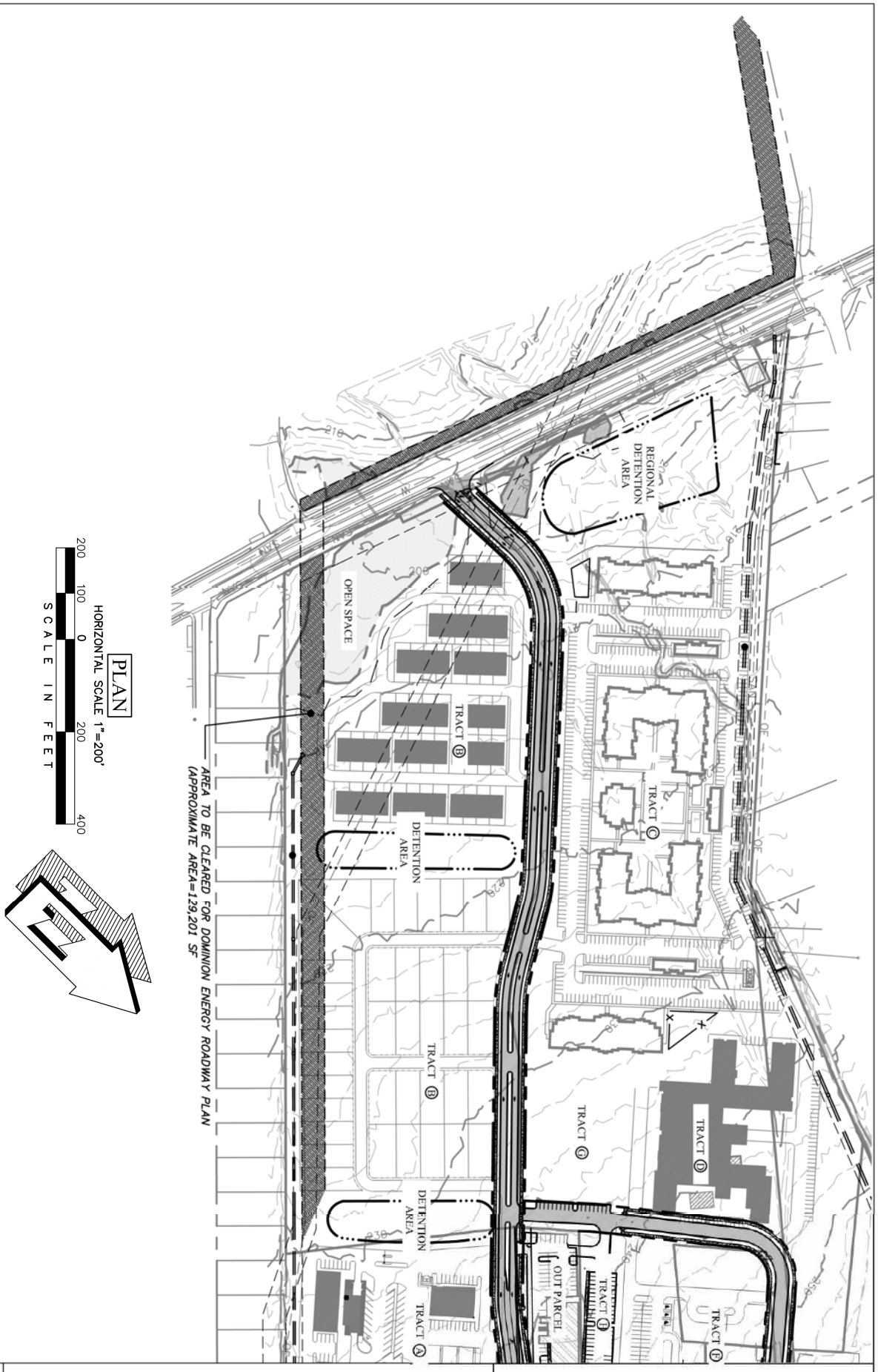

BLUEGRASS PLACE ROADWAY AND UTILITY PLAN

DOMINION ENERGY EXHIBIT

JOB NO.	DATE	DRAWN	CHECKED	APPROVED
2021-0403	JANUARY 26, 2023	---	---	---

SHEET 01

CRANSTON

UPDATED

TRAFFIC IMPACT STUDY

for the

E MARTINTOWN ROAD TRACT

Located in
North Augusta, South Carolina

Prepared for
SC North Augusta E Martintown, LLC

Prepared by
Ramey Kemp & Associates, Inc.

January 2023
RKA Project #21634

Table of Contents

List of Tables

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List of Appendices

EXECUTIVE SUMMARY

An updated traffic impact study (TIS) was conducted for the proposed E Martintown Road Tract development in accordance with Aiken County and SCDOT guidelines. This study provides an update to the November 2021 TIS. The updated TIS is prepared to reflect a reduction in the number of proposed site driveways. In the original TIS, a driveway connection to Mealing Avenue was proposed. However, the current site plan has eliminated that connection. All other driveway locations and proposed land uses and densities are anticipated to remain the same as in the original TIS.

The development is proposed to be located south of E. Martintown Road and north of E. Buena Vista Ave in North Augusta, South Carolina. Total build is anticipated to include up to 52 single family homes, 385 multi-family units, 90 senior living units, 35,000 SF of retail development, and an 11,185 SF medical clinic. Additionally, the existing Monterrey Mexican Restaurant will remain and will be accessed via the proposed site driveways.

Access to the development is proposed at two locations on E Martintown Road (one full access opposite to Laurens Street in place of the existing restaurant driveway and one Right-In Right-Out (RIRO) access) and one location on East Buena Vista Avenue.

A traffic signal warrant analysis was conducted for 2026 Build conditions at the intersection of E Martintown Road and Laurens Street/Access 1. The analysis was performed in accordance with the Manual of Uniform Traffic Control Devices (MUTCD). The traffic signal warrant criteria are anticipated not to be met.

Based on SCDOT turn lane warrant criteria, right turn lanes are not warranted or recommended at any site driveway; however, a northbound left turn lane is warranted on E Martintown Road at Access 1 and a southbound left turn lane is warranted on E Buena Vista Avenue at Access 2. A two-way left-turn lane section is present on E Martintown Road and a 150-foot exclusive left turn lane currently exists on E Buena Vista Avenue at Access 2.

The development access points should function with minor to moderate delays during the peak hours. Queues on the site driveways are expected to be short (less than four vehicles) during peak times.

- Construct Access 1 and Access 2 with one ingress lane and two egress lanes.

An overlap phase is recommended for the westbound right turn movement at the intersection of Atomic Road and E Martintown Road to mitigate anticipated 2026 Build condition LOS.

- Modify signal phasing at the intersection of Atomic Road and E Martintown Road to provide an overlap phase for the westbound right turn movement.

1. INTRODUCTION

The purpose of this report is to document an updated traffic impact study for the proposed E Martintown Road Tract development in accordance with Aiken County and SCDOT guidelines. This study provides an update to the November 2021 TIS. This report summarizes the procedures and findings of the traffic impact study. Project scoping correspondence with SCDOT is provided in Appendix A.

1.1. Project Background

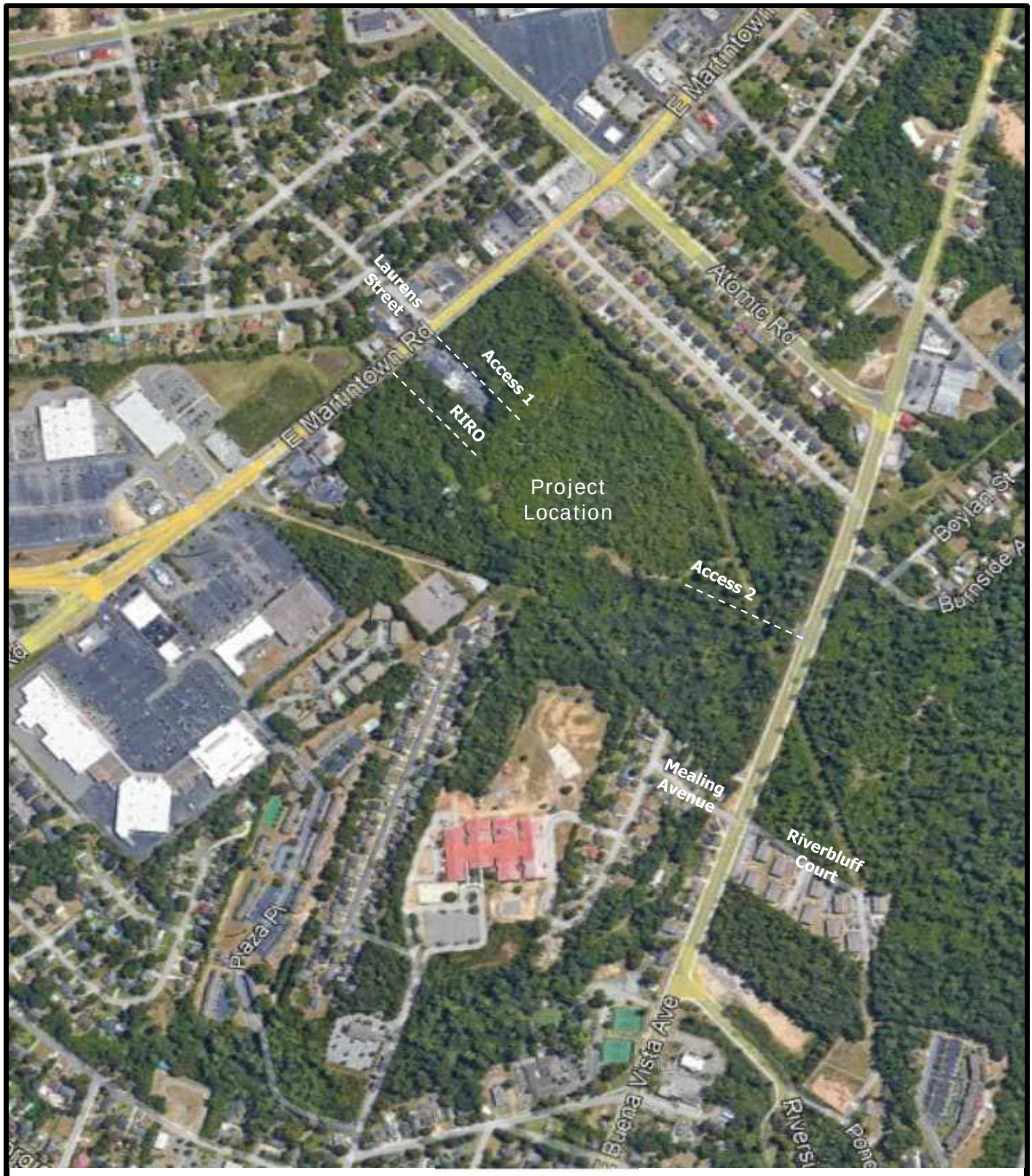
The proposed development is located south of E. Martintown Road and north of E. Buena Vista Ave in North Augusta, South Carolina. Total build is anticipated to include up to 52 single family homes, 385 multi-family units, 90 senior living units, 35,000 SF of retail development, and an 11,185 SF medical clinic. Additionally, the existing Monterrey Mexican Restaurant will remain and will be accessed via the proposed site driveways.

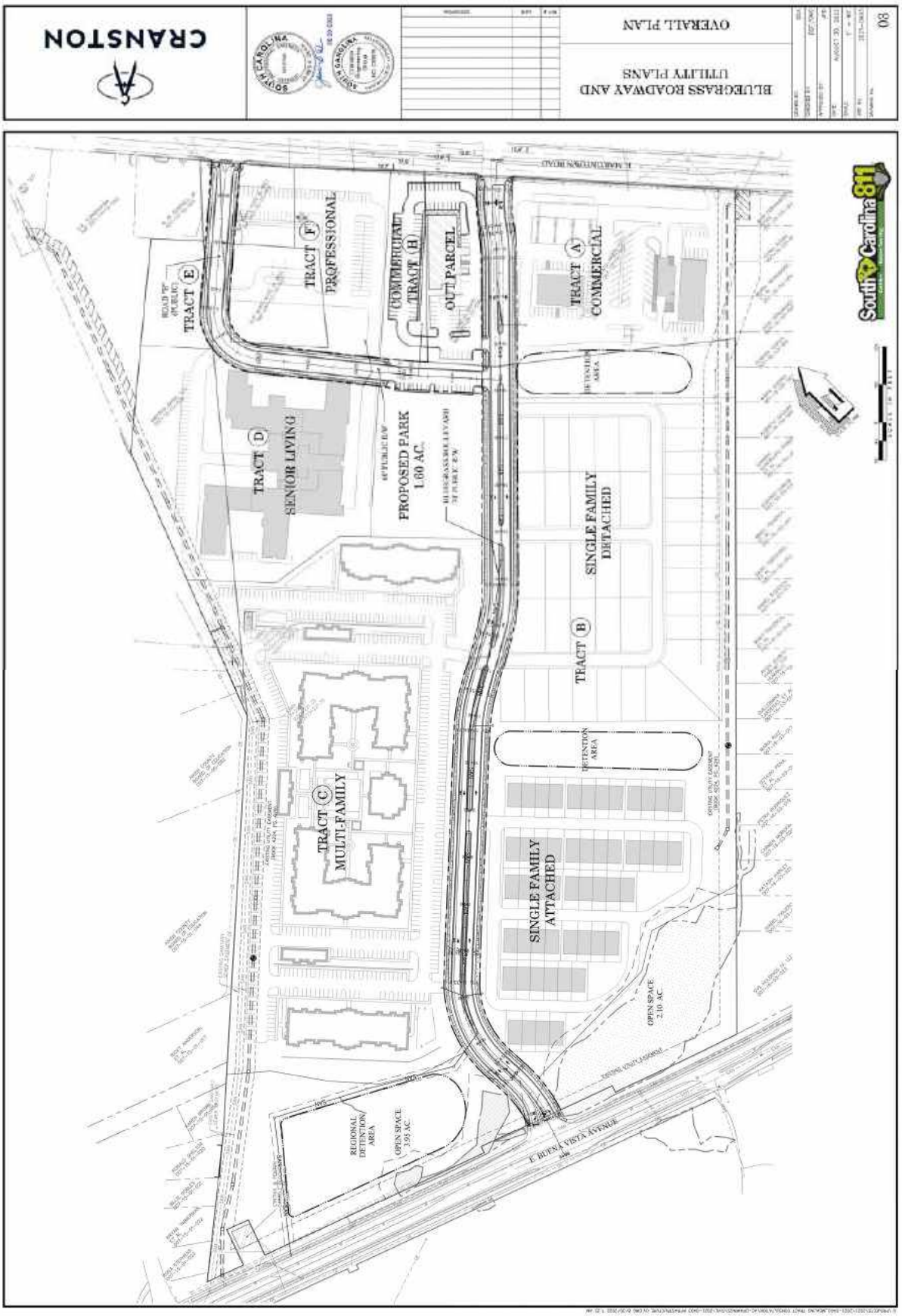
Access to the development is proposed at two locations on E Martintown Road (one full access opposite to Laurens Street in place of the existing restaurant driveway and one Right-In Right-Out (RIRO) access) and one location on East Buena Vista Avenue.

The traffic impact study considers the weekday AM peak period (between 7:00 AM and 9:00 AM) and the weekday PM peak period (between 4:00 PM and 6:00 PM) as the study time frames. The following intersections are studied:

- E Martintown Road & Atomic Avenue,
- E Martintown Road & Laurens Street/Restaurant Driveway/Access 1,
- E Buena Vista Avenue & Atomic Avenue,
- E Buena Vista Avenue & River Bluff Court/Mealing Avenue,
- E. Buena Vista Avenue & Access 2, and
- E Martintown Road & RIRO Access

Future-year analyses assume 2026 conditions as the Build scenario. Figure 1 shows the location of the project site. Figure 2 illustrates the conceptual site plan for the E Martintown Road Tract development.


Laurens Street
Access 1
RIRO
Project Location
Access 2
Mealing Avenue
Riverbluff Court
Atomic Rd
E Martintown Rd
Buena Vista Ave
Plaza Pl


CRANSTON
BLUEGRASS ROADWAY AND UTILITY PLANS
OVERALL PLAN
08
TRACT (E)
TRACT (F) PROFESSIONAL
COMMERCIAL TRACT (H)
OUT PARCEL
TRACT (A) COMMERCIAL
TRACT (D) SENIOR LIVING
PROPOSED PARK 1.60 AC.
SINGLE FAMILY DETACHED
TRACT (B)
TRACT (C) MULTI-FAMILY
SINGLE FAMILY ATTACHED
DETENTION AREA
OPEN SPACE 2.10 AC
REGIONAL DETENTION AREA
OPEN SPACE 3.95 AC
E. BUENA VISTA AVENUE
South Carolina 811

1.2. Existing Roadway Conditions

A review of the existing roadway conditions in the study area was conducted and is summarized in Table 1. Figure 3 illustrates the existing lane geometry.

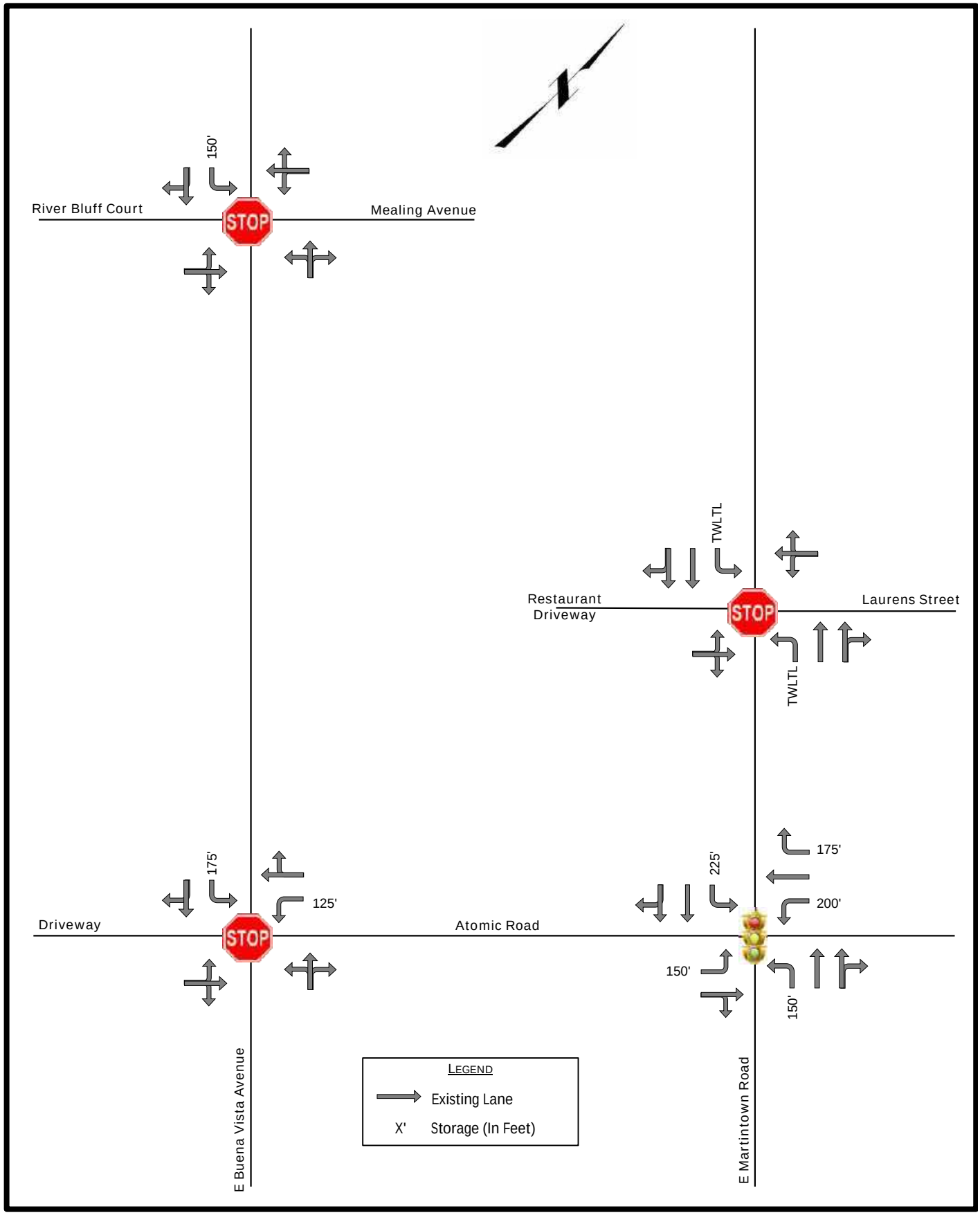
Table 1 – Street Inventory

Facility Name	Route #	Typical Cross Section	Posted Speed Limit	Maintained By	2020 AADT
E Martintown Road	US 25	5-lane undivided	40 MPH	SCDOT	21,100
Atomic Road	SC 125	3-lane undivided	35 MPH	SCDOT	3,700
Laurens Street	S-542	2-lane undivided	NP	SCDOT	N/A
E Buena Vista Avenue	SC 125	2-lane undivided[A]	40 MPH	SCDOT	5,700
Mealing Avenue	S-1532	2-lane undivided	NP	SCDOT	N/A
River Bluff Court	NA	2-lane undivided	NP	Local	N/A

[A] Some Segments along E Buena Vista are divided

1.3. Driveway Location

Access to the development is proposed to be provided at two locations on E Martintown Road (one full access opposite to Laurens Street in place of the existing restaurant driveway and one RIRO access) and one location on East Buena Vista Avenue. The spacing of the proposed access points appears to meet SCDOT criteria.


River Bluff Court
Mealing Avenue
STOP
150'
Restaurant Driveway
Laurens Street
TWLTL
TWLTL
Driveway
Atomic Road
175'
125'
225'
175'
200'
150'
150'
E Buena Vista Avenue
E Martintown Road
LEGEND
Existing Lane
X' Storage (In Feet)

2. PROJECT TRAFFIC

2.1. Proposed Land Uses

Full build out of the proposed development is anticipated to include up to 52 single family homes, 385 multi-family units, 90 senior living units, 35,000 SF of retail development, and an 11,185 SF medical clinic. Additionally, the existing Monterrey Mexican Restaurant will remain and will be accessed via the proposed site driveways. The project site is currently vacant.

2.2. Trip Generation Estimates

The trip generation potential for the E Martintown Road Tract development was estimated using information contained in ITE's *Trip Generation Manual*, 10th Edition (2017) for land use code (LUC) 210 – Single Family Detached Housing, LUC 220 – Multifamily Housing (Low Rise), LUC 252 – Senior Adult Housing – Attached, LUC 820 – Shopping Center, and LUC 630 - Clinic. The weekday daily, AM peak-hour, and PM peak-hour trip generation estimates are shown in Table 2 and documented in Appendix B.

Table 2 – Trip Generation Estimates

Land Use	ITE LUC	Size	Daily Traffic	AM Peak			PM Peak		
				Enter	Exit	Total	Enter	Exit	Total
Single Family Detached Housing	210	52 DU	570	11	31	42	34	20	54
Multifamily Housing (Low Rise)	220	385 DU	2,870	40	132	172	123	73	196
Senior Adult Housing Attached	252	90 DU	336	6	12	18	13	11	24
Shopping Center	820	35 ksf	2,944	105	65	170	120	130	250
Clinic	630	11 ksf	427	33	9	42	12	30	42
Gross Total Trips			7,147	195	249	444	302	264	566
-Internal Capture Trips				-3	-3	-6	-40	-40	-80
-Pass-By Trips				--	--	--	-36	-36	-72
Total New External Trips				**192**	**246**	**438**	**226**	**188**	**414**

2.3. Trip Distribution & Assignment

New external traffic expected to be generated by the proposed E Martintown Road Tract development was distributed and assigned to the roadway network based upon existing travel patterns and the proposed arrangement of uses within the project area.

The distribution of new external residential project trips was assumed to be:

- 35% to/from the north via E Buena Vista Avenue,
- 20% to/from the east via Atomic Road,
- 15% to/from the south via E Buena Vista Avenue,
- 15% to/from the north via E Martintown Road, and
- 15% to/from the south via E Martintown Road

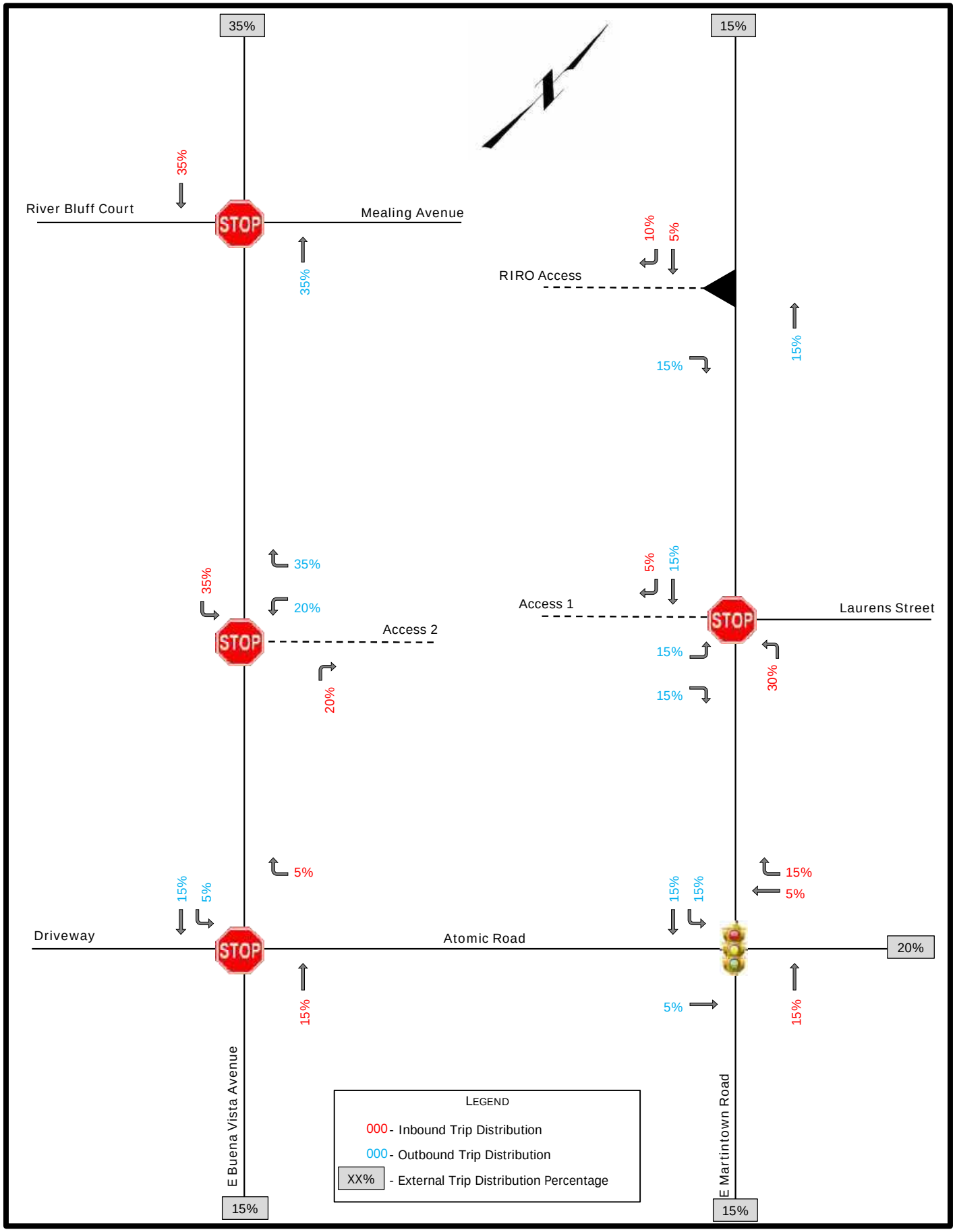
The distribution of new external retail and clinic project trips was assumed to be:

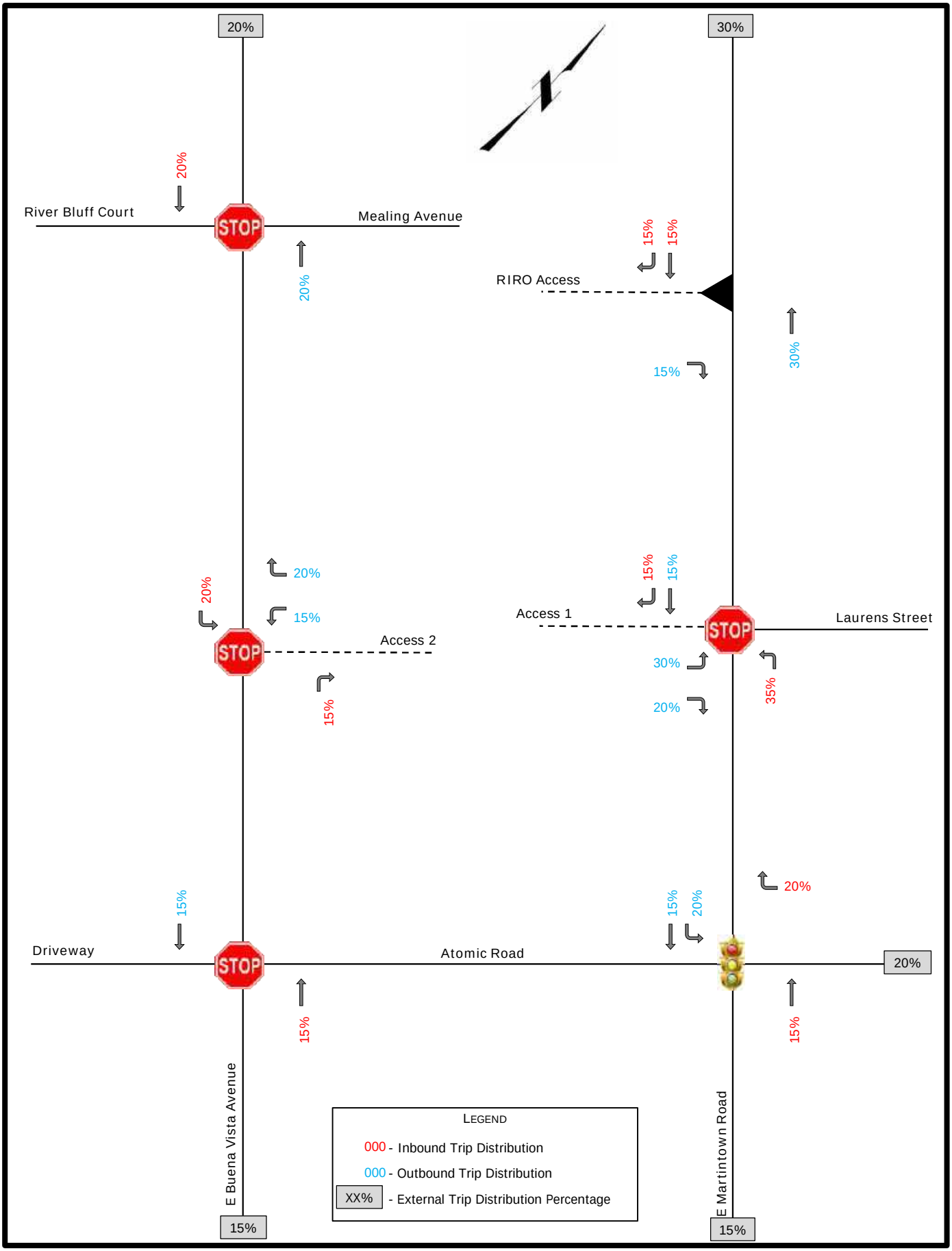
- 30% to/from the north via E Martintown Road,
- 20% to/from the north via E Buena Vista Avenue,
- 20% to/from the east via Atomic Road,
- 15% to/from the south via E Buena Vista Avenue, and
- 15% to/from the south via E Martintown Road

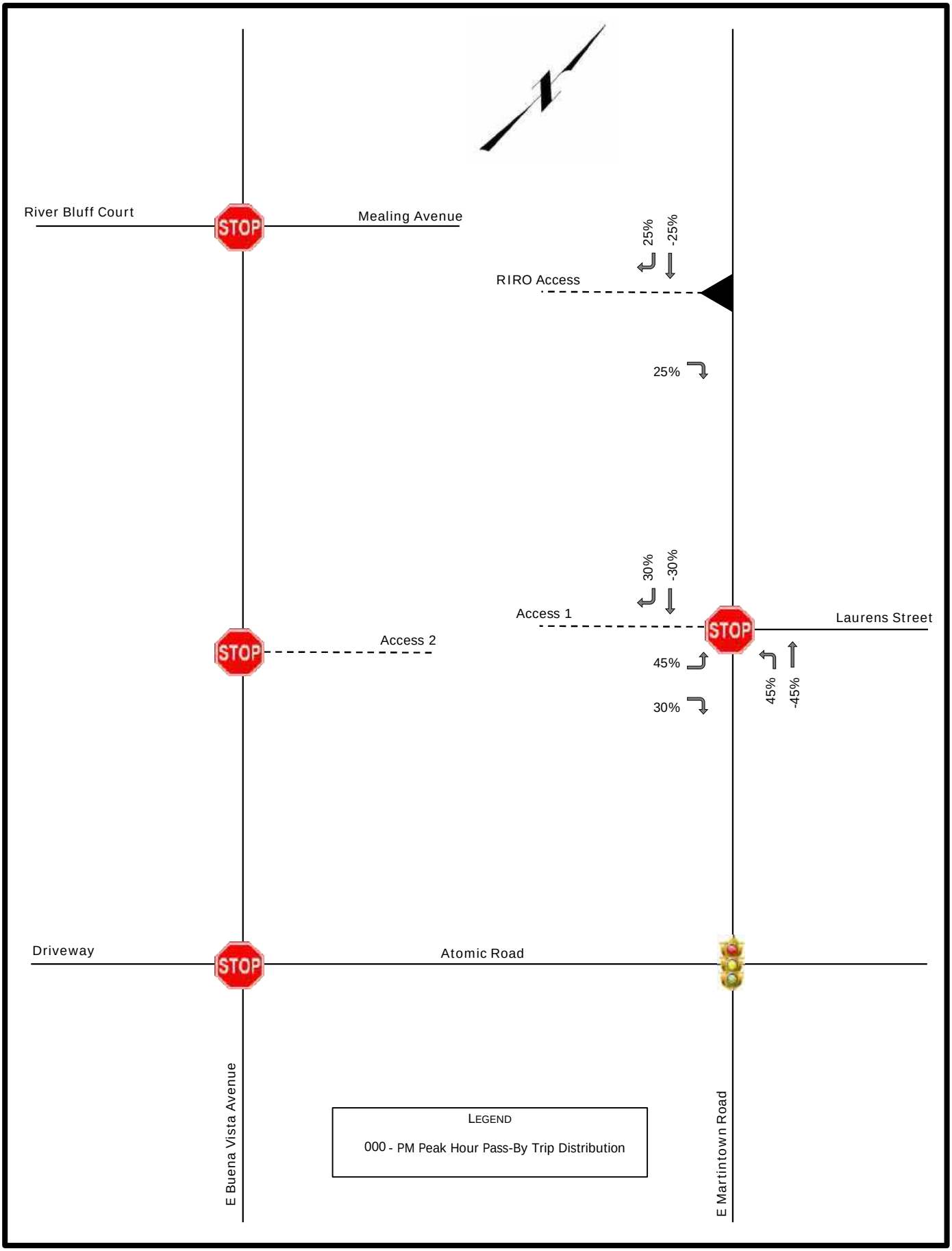
The distribution of pass-by retail project trips was assumed to be:

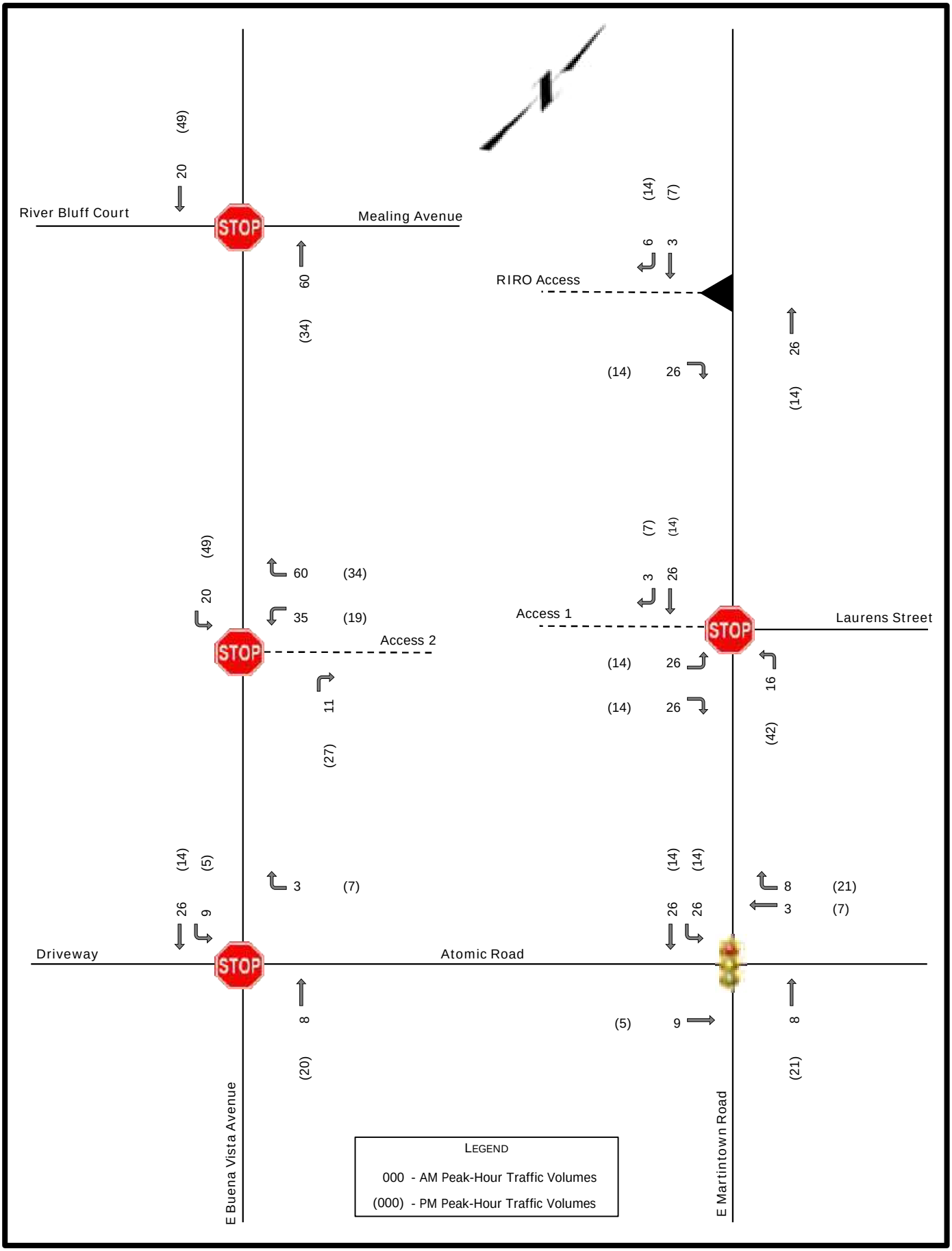
- 55% from southbound E Martintown Road; and
- 45% from northbound E Martintown Road

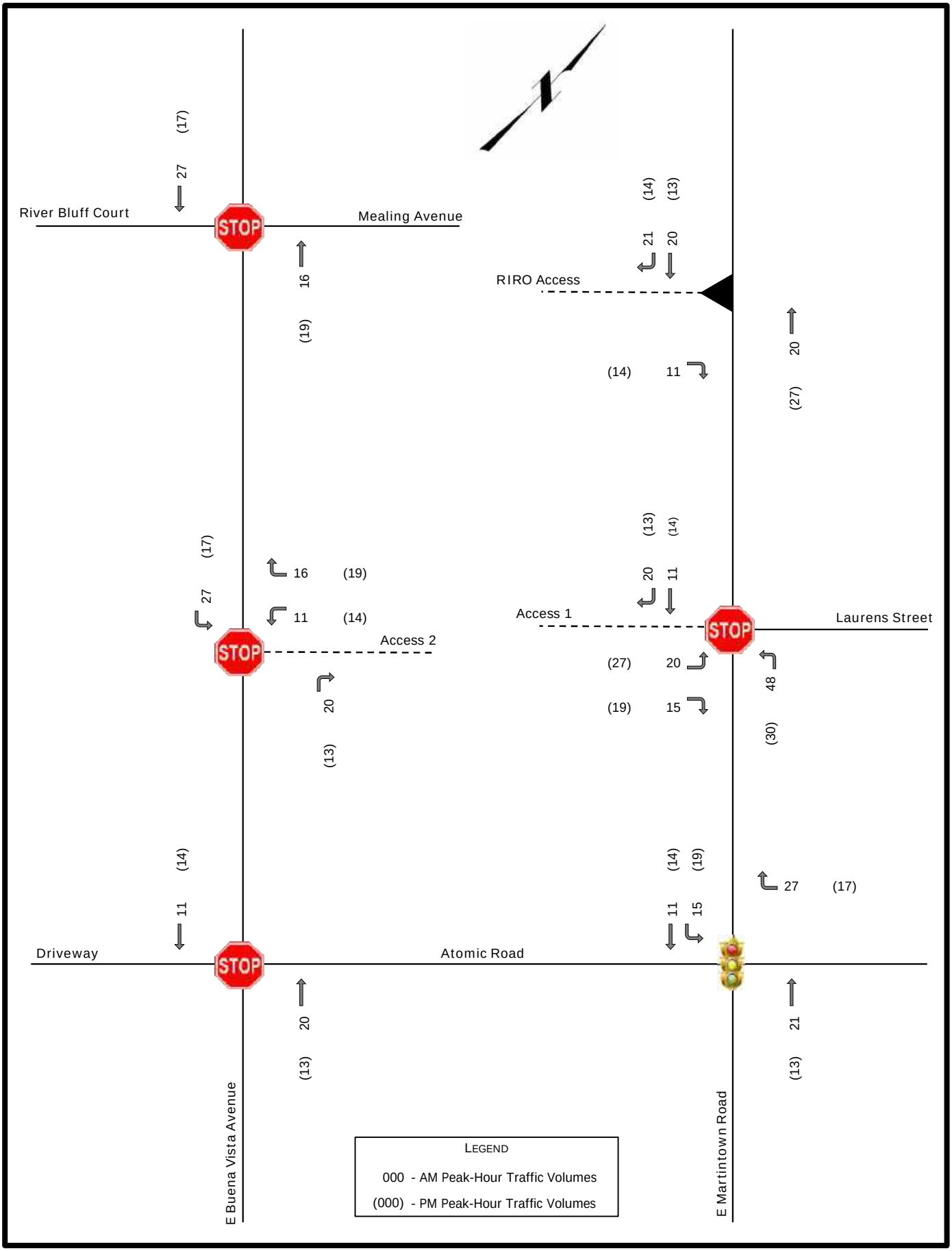
The directional distribution assumptions are shown in Figures 4a-4c. The assignment of project trips is shown in Figures 5a-5c.

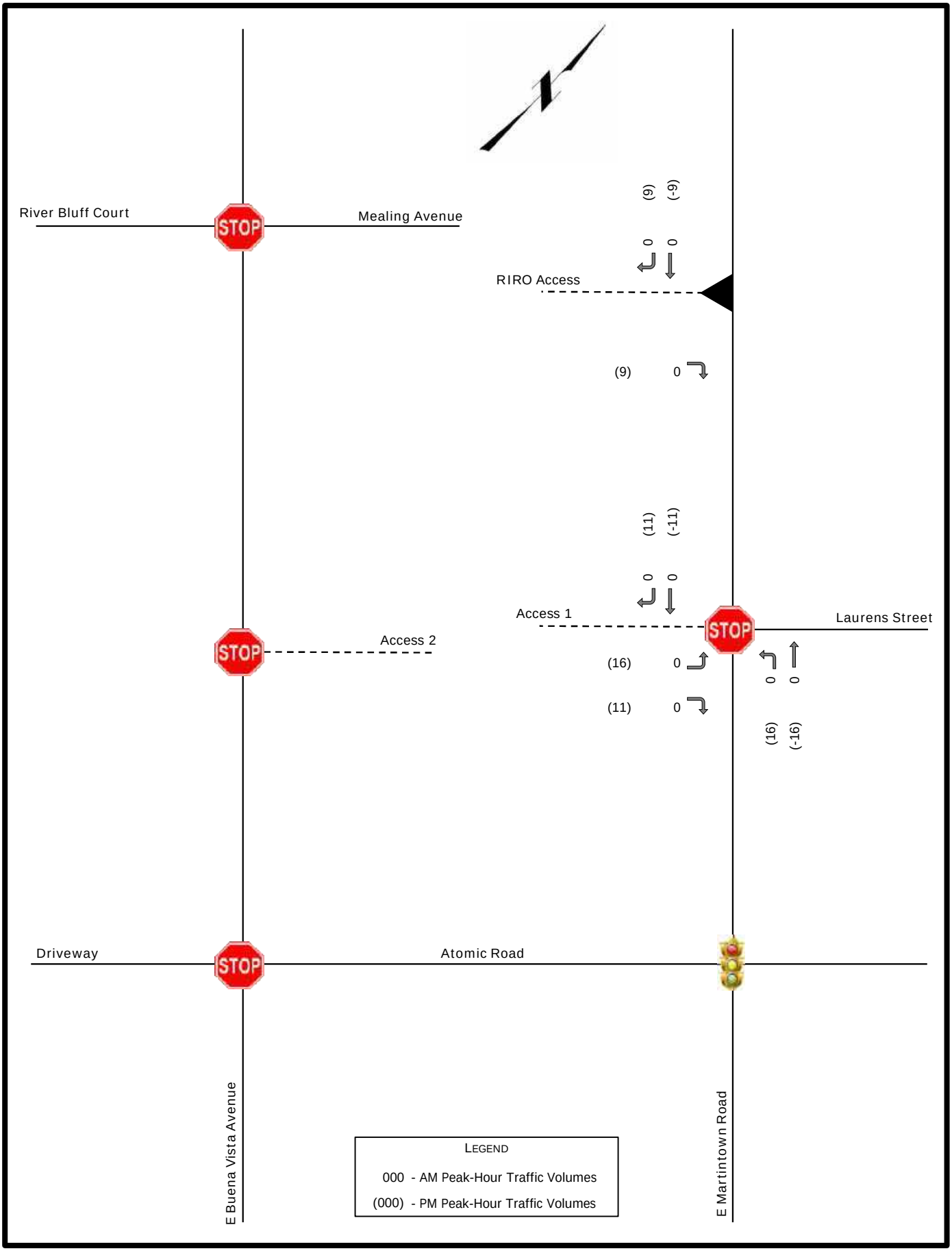

35%
15%
River Bluff Court
Mealing Avenue
STOP
35%
35%
RIRO Access
10%
5%
15%
15%
35%
20%
Access 2
20%
35%
Access 1
5%
15%
Laurens Street
15%
15%
30%
5%
15%
5%
15%
15%
Driveway
Atomic Road
20%
15%
5%
15%
5%
15%
E Buena Vista Avenue
E Martintown Road
15%
15%
LEGEND
000 - Inbound Trip Distribution
000 - Outbound Trip Distribution
XX% - External Trip Distribution Percentage


20%
30%
River Bluff Court
Mealing Avenue
STOP
20%
20%
15%
15%
RIRO Access
15%
30%
20%
20%
15%
Access 2
15%
Access 1
15%
15%
Laurens Street
30%
35%
20%
20%
15%
15%
20%
Driveway
Atomic Road
20%
15%
15%
15%
E Buena Vista Avenue
E Martintown Road
15%
15%
LEGEND
000 - Inbound Trip Distribution
000 - Outbound Trip Distribution
XX% - External Trip Distribution Percentage


River Bluff Court
STOP
Mealing Avenue
25%
-25%
RIRO Access
25%
30%
-30%
Access 1
STOP
Laurens Street
45%
30%
45%
-45%
STOP
Access 2
Driveway
STOP
Atomic Road
E Buena Vista Avenue
E Martintown Road
LEGEND
000 - PM Peak Hour Pass-By Trip Distribution


River Bluff Court
Mealing Avenue
STOP
(49)
20
60
(34)
RIRO Access
(14)
(7)
6
3
26
(14)
(14)
26
Access 2
STOP
(49)
20
60
(34)
35
(19)
11
(27)
Access 1
Laurens Street
STOP
(7)
(14)
3
26
(14)
26
(14)
26
16
(42)
Driveway
Atomic Road
STOP
(14)
(5)
26
9
3
(7)
(14)
(14)
26
26
8
(21)
3
(7)
8
(20)
(5)
9
8
(21)
E Buena Vista Avenue
E Martintown Road
LEGEND
000 - AM Peak-Hour Traffic Volumes
(000) - PM Peak-Hour Traffic Volumes


River Bluff Court
Mealing Avenue
STOP
RIRO Access
Access 1
Laurens Street
Access 2
Driveway
Atomic Road
E Buena Vista Avenue
E Martintown Road
LEGEND
000 - AM Peak-Hour Traffic Volumes
(000) - PM Peak-Hour Traffic Volumes


River Bluff Court
STOP
Mealing Avenue
(9)
(-9)
0
0
RIRO Access
(9)
0
(11)
(-11)
0
0
Access 1
STOP
Laurens Street
Access 2
STOP
(16)
0
(11)
0
0
0
(16)
(-16)
Driveway
STOP
Atomic Road
E Buena Vista Avenue
E Martintown Road
LEGEND
000 - AM Peak-Hour Traffic Volumes
(000) - PM Peak-Hour Traffic Volumes

3. TRAFFIC VOLUME DEVELOPMENT

3.1. Existing Traffic Volumes

Vehicle turning movement counts were conducted during the weekday AM peak period (7:00 AM to 9:00 AM) and the weekday PM peak period (4:00 PM to 6:00 PM) at the following intersection:

- E Martintown Road & Atomic Avenue,
- E Martintown Road & Laurens Street/Restaurant Driveway,
- E Buena Vista Avenue & Atomic Avenue, and
- E Buena Vista Avenue & River Bluff Court/Mealing Avenue,

In addition to the peak period turning movement counts, a 13-hour (6:00 AM to 7:00 PM) turning movement count was also conducted at the E Martintown Road & Laurens Street/Restaurant Driveway intersection.

All counts were conducted while the local school district was in session. The 2021 existing traffic volumes are illustrated in Figure 6, the raw traffic count data are provided in Appendix C.

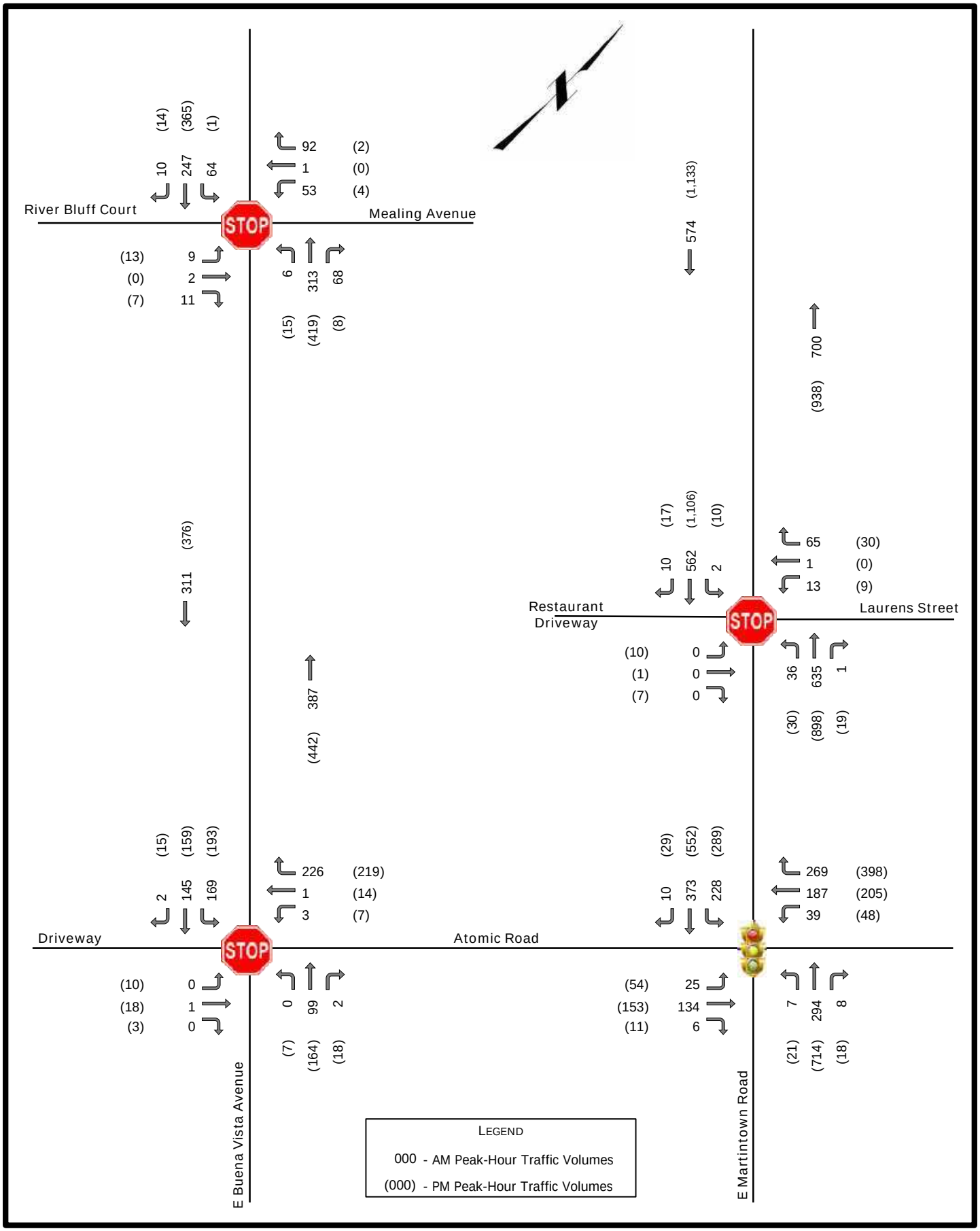
3.2. Future No-Build Traffic Volumes

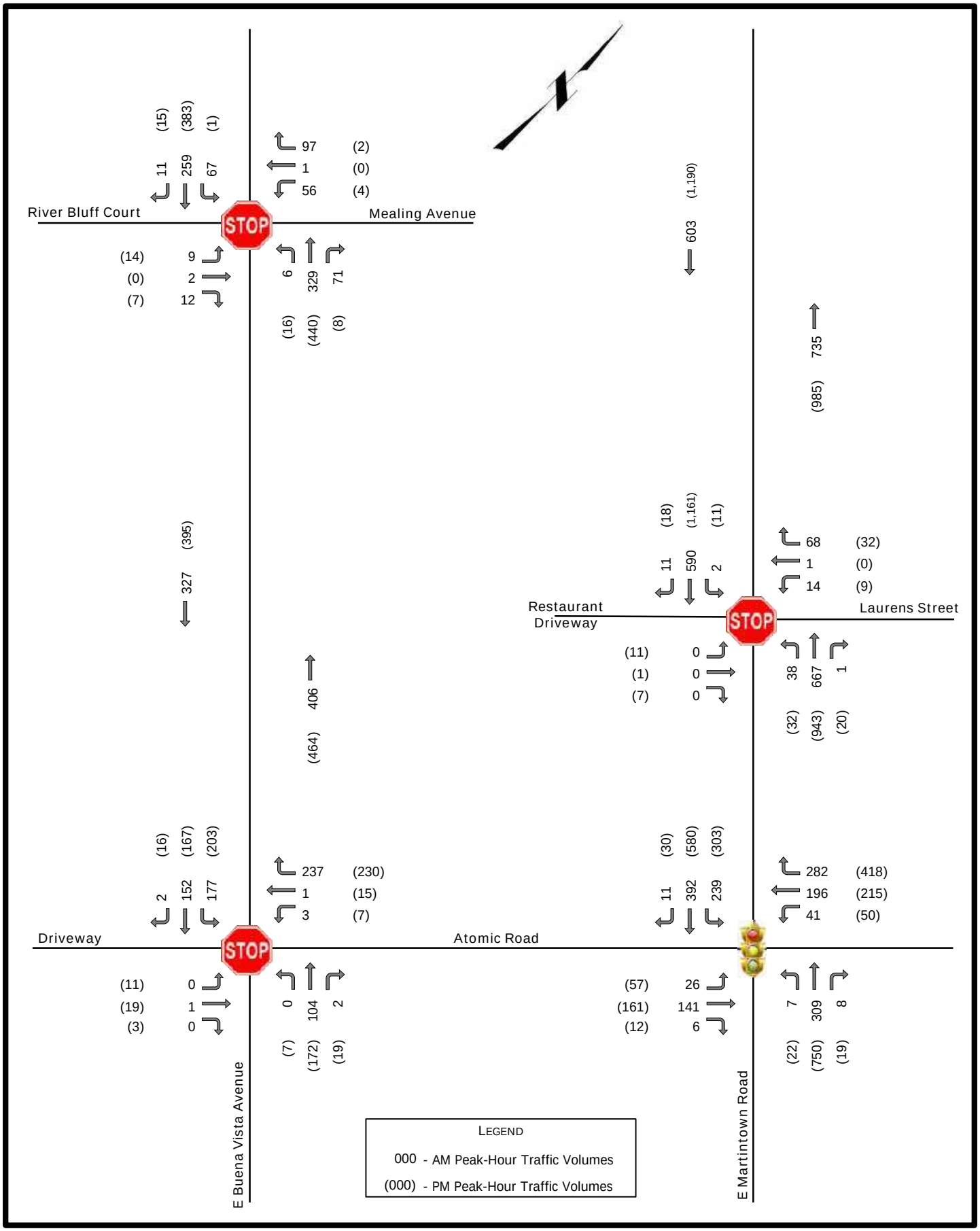
An annual 1% growth rate was applied to the existing traffic volumes to determine the 2026 No-Build volumes. The growth rate was based on SCDOT count station data (#02-125, #02-191, and #02-192) over the past 10 years

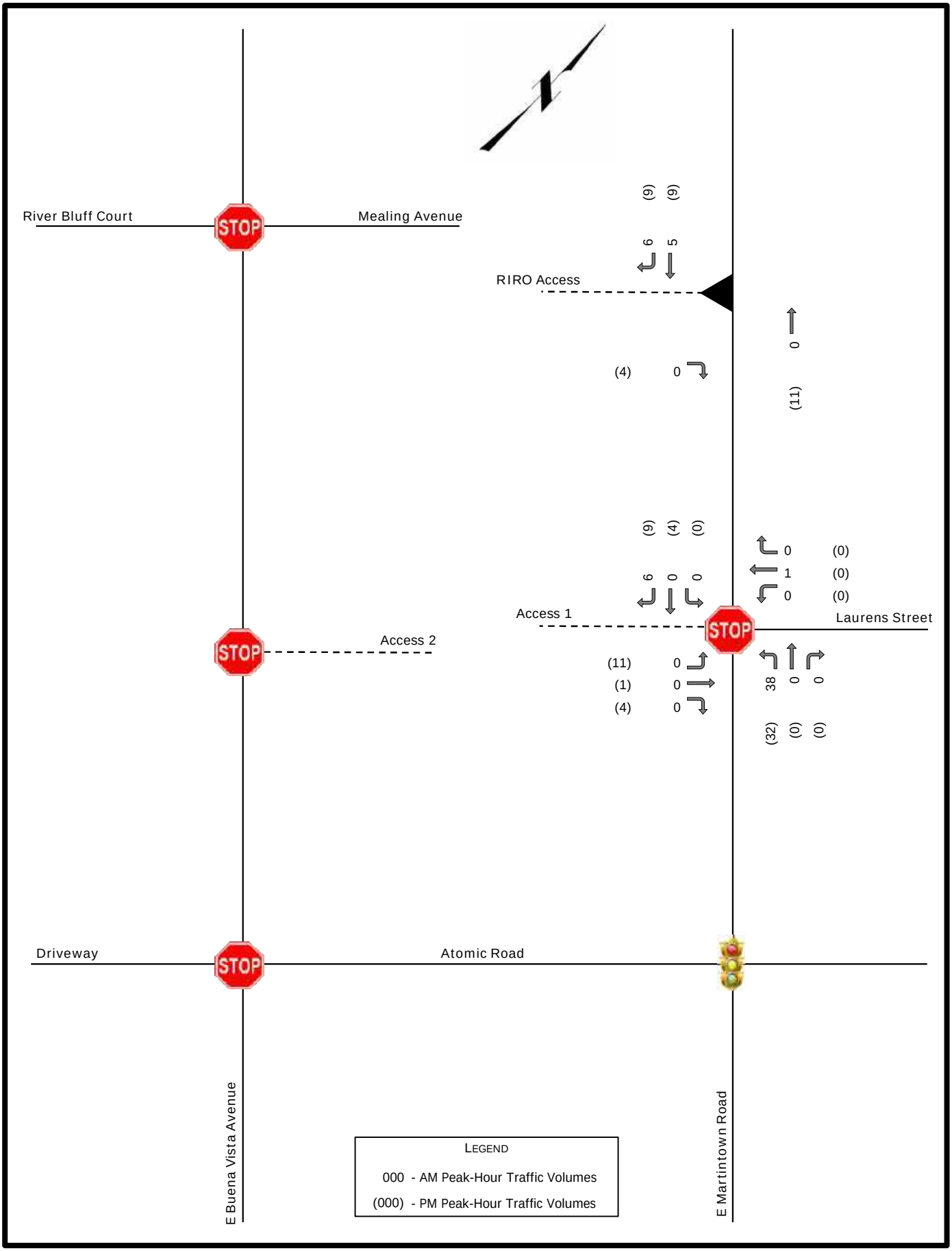
The 2026 No-Build traffic volumes are shown in Figure 7.

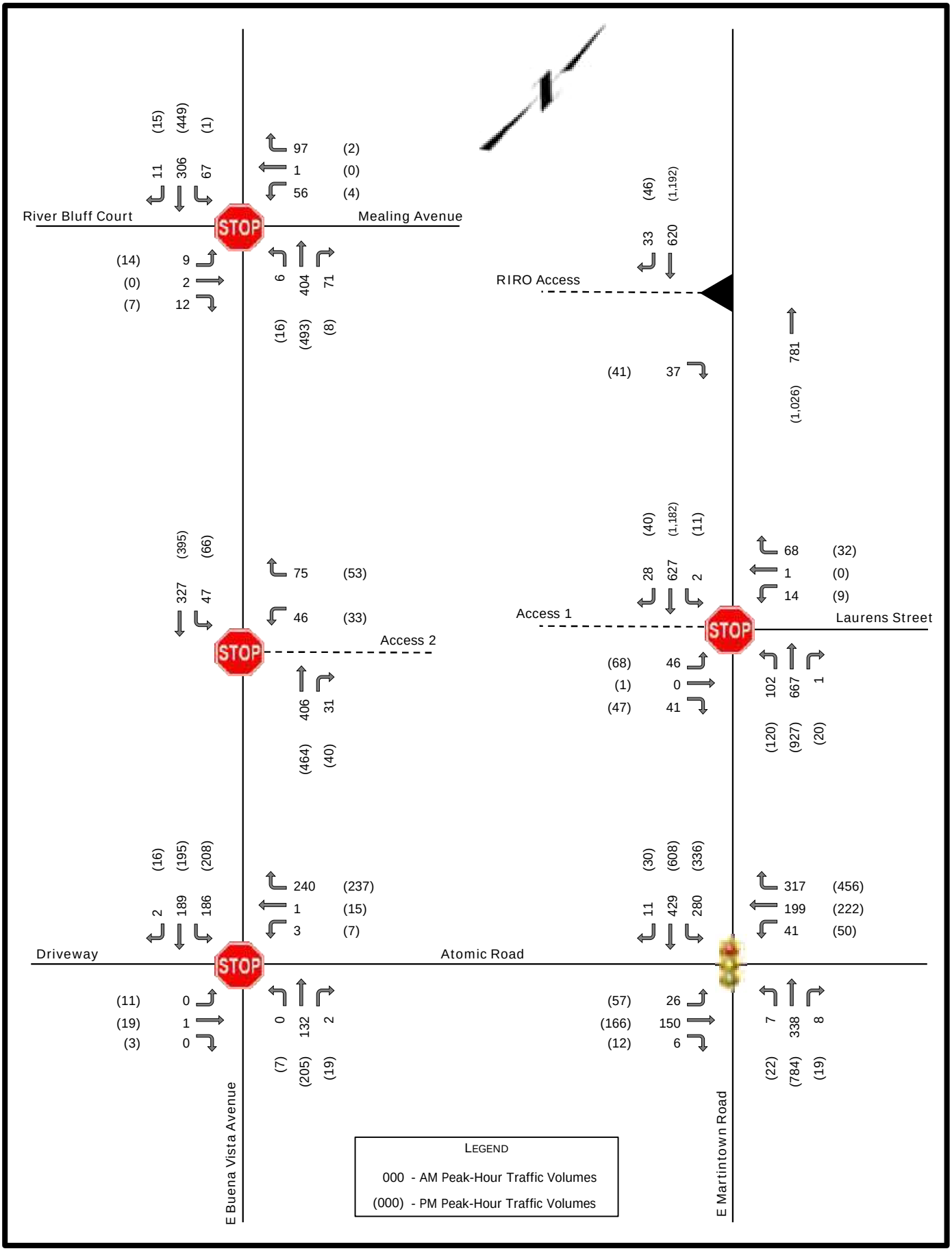
3.3. Build Out Traffic Volumes

The site generated traffic volumes (Figures 5a-5c) were added to the 2026 No-Build traffic volumes to determine the 2026 Build volumes. It should be noted that trips generated by the existing Mexican were reassigned across Access 1 and the RIRO site driveway. Refer to Figure 8 for the redistributed restaurant trips. The 2026 Build volumes are illustrated in Figure 9. Volume development worksheets are included in Appendix D.


River Bluff Court
Mealing Avenue
STOP
10 247 64
(14) (365) (1)
92 (2)
1 (0)
53 (4)
(13) 9
(0) 2
(7) 11
6 313 68
(15) (419) (8)
574 (1,133)
700
(938)
311 (376)
387
(442)
Restaurant Driveway
Laurens Street
10 562 2
(17) (1,106) (10)
65 (30)
1 (0)
13 (9)
(10) 0
(1) 0
(7) 0
36 635 1
(30) (898) (19)
Driveway
Atomic Road
2 145 169
(15) (159) (193)
226 (219)
1 (14)
3 (7)
10 373 228
(29) (552) (289)
269 (398)
187 (205)
39 (48)
(10) 0
(18) 1
(3) 0
0 99 2
(7) (164) (18)
(54) 25
(153) 134
(11) 6
7 294 8
(21) (714) (18)
E Buena Vista Avenue
E Martintown Road
LEGEND
000 - AM Peak-Hour Traffic Volumes
(000) - PM Peak-Hour Traffic Volumes


River Bluff Court
Mealing Avenue
Restaurant Driveway
Laurens Street
Driveway
Atomic Road
E Buena Vista Avenue
E Martintown Road
STOP
LEGEND
000 - AM Peak-Hour Traffic Volumes
(000) - PM Peak-Hour Traffic Volumes


River Bluff Court
Mealing Avenue
STOP
RIRO Access
(9) (9)
6 5
(4) 0
0
(11)
Access 1
Access 2
Laurens Street
(9) (4) (0)
6 0 0
0 (0)
1 (0)
0 (0)
(11) 0
(1) 0
(4) 0
38 0 0
(32) (0) (0)
Driveway
Atomic Road
E Buena Vista Avenue
E Martintown Road
LEGEND
000 - AM Peak-Hour Traffic Volumes
(000) - PM Peak-Hour Traffic Volumes


River Bluff Court
Mealing Avenue
STOP
RIRO Access
Access 2
Access 1
Laurens Street
Driveway
Atomic Road
E Buena Vista Avenue
E Martintown Road
LEGEND
000 - AM Peak-Hour Traffic Volumes
(000) - PM Peak-Hour Traffic Volumes

4. SIGNAL WARRANT ANALYSIS

A signal warrant analysis was conducted for the intersection of E Martintown Road and Laurens Street/Access 1 using the 2026 Build volumes in accordance with the Manual of Uniform Traffic Control Devices (MUTCD).

The MUTCD contains eight warrants used to evaluate intersections for potential traffic signalization. In performing this analysis, only the traffic volume warrants, Warrant 1 and Warrant 2, were applied as they are the only warrants relevant to the study intersections per SCDOT criteria.

The analysis considers the major street to be E Martintown Road and the minor streets as Access 1 and Laurens Street. The speed limit is 40 mph on E Martintown Road; therefore, no volume reductions are applied to the warrant thresholds. Since two egress lanes are proposed for Access 1, a right turn volume reduction of 50% was applied to the Access 1 approach volumes.

4.1. Warrant 1A – Eight-Hour Vehicular Volume

The Eight-Hour Vehicular Volume Warrant is separated into two conditions based upon intersection volumes. Condition A is intended for applications where a large volume of intersecting traffic is the principal reason to consider the installation of a traffic signal. The minimum hourly volumes needed to satisfy the criteria of Warrant 1, Condition A are 600 vehicles on the major-street approaches and 200 vehicles on the highest minor-street approach for a two-lane approach for each of any eight hours of an average day. The criteria are met for zero hours; therefore, Warrant 1, Condition A is **not satisfied.**

4.2. Warrant 1B – Eight-Hour Vehicular Volume

The Eight-Hour Vehicular Volume Warrant is separated into two conditions based upon intersection volumes. Condition B is intended where the traffic volume on a major street is so heavy that traffic on a minor intersecting street suffers excessive delay or conflict in entering or crossing the major street. The minimum hourly volumes needed to satisfy the criteria of Warrant 1, Condition B are 900 vehicles on the major-street approaches and 100 vehicles on the highest minor-street approach for a two-lane approach for each of any eight hours of an average day. The criteria are met for five hours; therefore, Warrant 1, Condition B is **not satisfied.**

4.3. Warrant 1 Combination – Eight-Hour Vehicular Volume

In addition to the two Conditions of Warrant 1, a combination of Conditions A and B is provided if the intersection volumes do not meet the criteria of either Condition A or Condition B. The minimum hourly volumes need to satisfy the criteria are 80% of both the respective Condition A and Condition B criteria for the major-street and minor-street approaches for each

of any eight hours of an average day. The combination warrant thresholds are met for zero hours; therefore, the Combination Warrant 1 is **not satisfied.**

4.4. Warrant 2 – Four-Hour Vehicular Volume

The Four-Hour Vehicular Volume Warrant conditions are intended to be applied where the volume of intersecting traffic is the principal reason to consider the installation of a traffic signal. The criteria of Warrant 2 are satisfied if the major-street and minor-street plotted hourly volumes fall above the applicable curve in Figure 4C-1 of the *MUTCD* for each of any four hours of an average day. The criteria are met for zero hours; therefore, Warrant 2 is **not satisfied.**

Table 3 summarizes the results of the signal warrant analysis. Worksheets documenting the traffic signal warrant analysis are provided in Appendix E.

Table 3 – Signal Warrant Analysis Summary

***MUTCD* Signal Warrants**		
Warrant 1 (Eight-Hour Vehicular Volume)	Condition A	Not Satisfied
	Condition B	Not Satisfied
	Condition A+B	Not Satisfied
Warrant 2 (Four-Hour Vehicular Volume)		Not Satisfied

The traffic signal warrant criteria are anticipated not to be met. As such, installation of a traffic signal is not recommended at this time.

5. TRAFFIC IMPACT ANALYSIS

5.1. Turn Lane Analysis

Turn lane analyses were considered based on the SCDOT Roadway Design Manual (RDM) section 9.5.1, which states to consider exclusive right-turn lanes at the following locations:

1. at the free-flowing leg of any unsignalized intersection on a two-lane urban or rural highway that satisfies the criteria in Figure 9.5-A;
2. at the free-flowing leg of any unsignalized intersection on a high-speed (50 miles per hour or greater), four-lane urban or rural highway that satisfies the criteria in Figure 9.5-B;
3. at the free-flowing leg of any unsignalized intersection on a six-lane urban or rural highway;
4. at any intersection where a capacity analysis determines a right-turn lane is necessary to meet the overall level-of-service criteria;
5. as a general rule, at any signalized intersection where the projected right-turning volume is greater than 300 vehicles per hour and where there are greater than 300 vehicles per hour per lane on the mainline (A traffic analysis will be required if the turning volumes are greater than 300 vehicles per hour.);
6. for uniformity of intersection design along the highway if other intersections have right-turn lanes;
7. at any intersection where the mainline is curved to the left and where the mainline curve requires superelevation;
8. at railroad crossings where the railroad is parallel to the facility and is located close to the intersection and where a right-turn lane would be desirable to store queued vehicles avoiding interference with the movement of through traffic; or
9. at any intersection where the crash experience, existing traffic operations, sight distance restrictions (e.g., intersection beyond a crest vertical curve) or engineering judgment indicates a significant conflict related to right-turning vehicles.

None of the above criteria are met for any study intersection. Exclusive right turn lanes are not present at unsignalized intersections on E Martintown Road. For uniformity with the rest of the corridor, exclusive right turn lanes are not recommended on E Martintown Road at the site driveways.

Figure 9.5-B showing 2026 Build volumes at the right-in/right-out driveway on E Martintown Road is provided in Appendix F for reference only. As noted, E Martintown Road is a five-lane section with a 40-mph speed limit. The anticipated peak number of right turns is 46, which is slightly higher than the threshold (40 turns) implied for consideration of a right turn lane. However, since none of the criteria outlined in the SCDOT Roadway Design Manual (RDM) are met, an exclusive right turn lane on E Martintown Road is not recommended.

2026 Build volumes at Access 2 on E Buena Vista Avenue do not meet the right turn lane warrant criteria in Figure 9.5-A, and a right turn lane is not recommended.

An existing center turn lane is present on E Martintown Road for left-turning vehicles entering the site via Access 1. An existing 150-foot left turn lane is present on the eastbound approach of E Buena Vista Avenue at Access 2.

Turn lane analyses are provided in Appendix F.

5.2. Intersection LOS Analysis

Intersection analyses were conducted for the study and project driveway intersections considering 2021 Existing conditions, 2026 No-Build conditions, and 2026 Build conditions. This analysis was conducted using the Transportation Research Board's *Highway Capacity Manual 6th Edition (HCM 6th Edition)* methodologies of the *Synchro*, Version 10 software.

Intersection level of service (LOS) grades range from LOS A to LOS F, which are directly related to the level of control delay at the intersection and characterize the operational conditions of the intersection traffic flow. LOS A operations typically represent ideal, free-flow conditions where vehicles experience little to no delays, and LOS F operations typically represent poor, forced-flow (bumper-to-bumper) conditions with high vehicular delays, and are generally considered undesirable. Table 4 summarizes the *HCM 6th Edition* control delay thresholds associated with each LOS grade for unsignalized and signalized intersections.

Table 4 – *HCM 6th Edition* LOS Criteria for Unsignalized & Signalized Intersections

Unsignalized Intersections	
LOS	**Control Delay per Vehicle (seconds)**
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Signalized Intersections	
LOS	**Control Delay per Vehicle (seconds)**
A	≤ 10
B	> 10 and ≤ 20
C	> 20 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

As part of the intersection analysis, SCDOT's default *Synchro* parameters were utilized. A constant PHF of 0.92 and a minimum heavy vehicle percentage of 2% was applied for all scenarios.

Using the *Synchro* software, intersection analyses were conducted for the weekday AM peak-hour and weekday PM peak-hour time periods. The results of the intersection analyses are summarized in Table 5 for the unsignalized intersections and Table 6 for the intersection of Atomic Road and E Martintown Road.

Table 5 – Unsignalized Intersection Analysis Results

Intersection	App.	LOS/Delay (seconds)					
		2021 Existing Conditions		2026 No-Build Conditions		2026 Build Conditions	
		AM	PM	AM	PM	AM	PM
Access 1/Laurens Street & E Martintown Road	EB[2]	A/0.0	C/23.8	A/0.0	D/26.4	C/17.2	F/64.1
	WB[2]	B/12.9	C/15.9	B/13.3	C/16.6	B/14.4	C/20.1
	NB[1]	A/8.9	B/11.7	A/9.1	B/12.2	A/9.7	B/14.3
	SB[1]	A/9.0	B/10.3	A/9.1	B/10.6	A/9.1	B/10.5
Atomic Road & E Buena Vista Avenue	EB[2]	C/15.4	C/24.0	C/15.9	D/26.6	C/17.5	D/30.8
	WB[2]	B/10.3	B/12.4	B/10.4	B/12.9	B/10.8	B/13.8
	NB[1]	A/0.0	A/7.6	A/0.0	A/7.6	A/0.0	A/7.7
	SB[1]	A/7.8	A/8.1	A/7.8	A/8.2	A/7.9	A/8.3
River Bluff Court/Mealing Avenue & E Buena Vista Avenue	EB[2]	C/15.8	C/17.0	C/16.4	C/18.0	C/19.0	C/20.9
	WB[2]	C/17.7	C/16.8	C/19.3	C/17.6	C/24.3	C/20.2
	NB[1]	A/7.8	A/8.2	A/7.9	A/8.2	A/8.0	A/8.4
	SB[1]	A/8.3	A/8.3	A/8.4	A/8.3	A/8.7	A/8.5
RIRO Access & E Martintown Road	EB[2]	--	--	--	--	B/11.0	C/15.2
	NB	--	--	--	--	--	--
	SB	--	--	--	--	--	--
Access 2 & E Buena Vista Avenue	WB[2]	--	--	--	--	C/15.0	C/17.0
	NB	--	--	--	--	--	--
	SB[1]	--	--	--	--	A/8.5	A/8.8

1. LOS for major street left turn movement
2. LOS for minor street approach

Table 6 – Intersection Analysis Results – Atomic Road and E Martintown Road

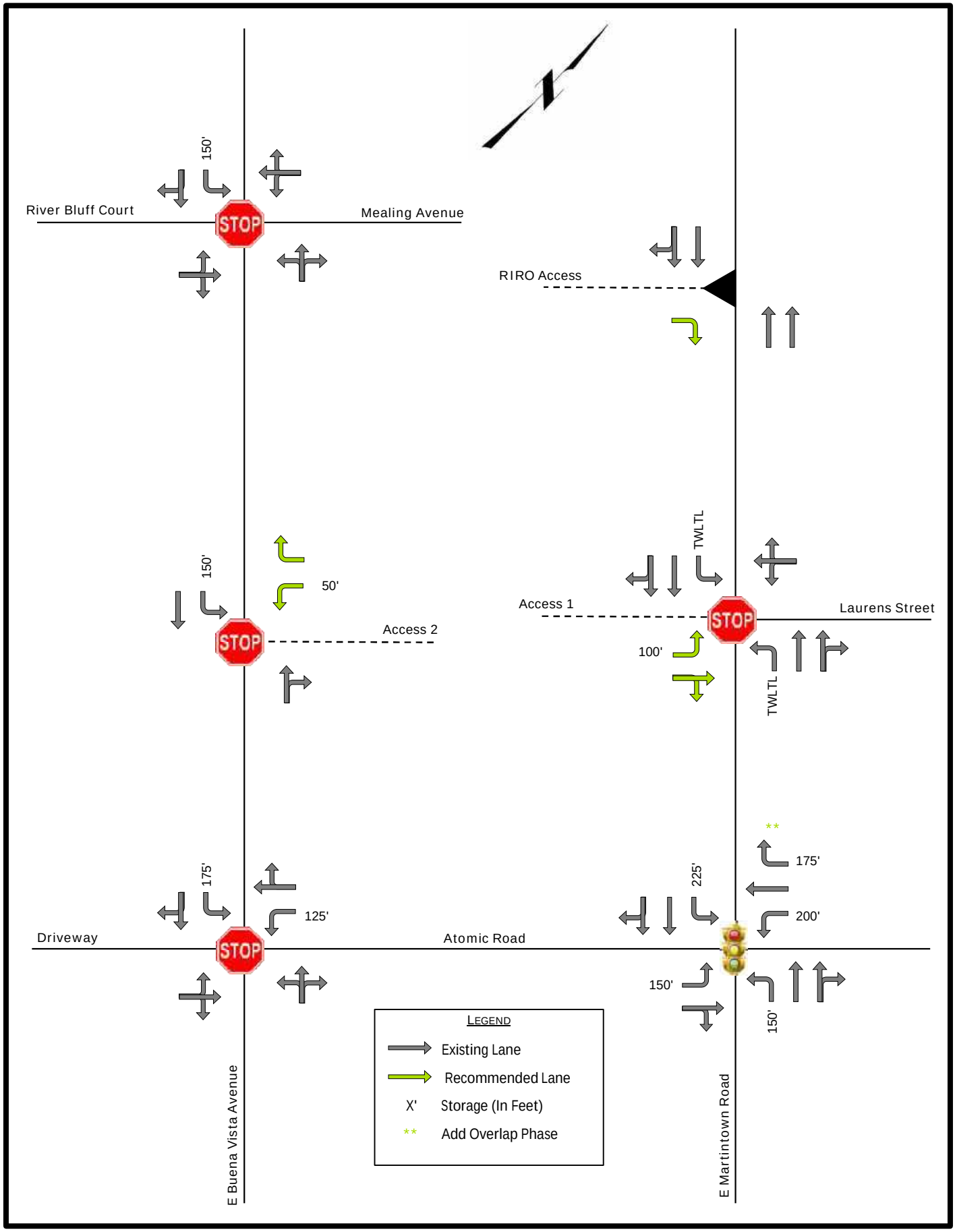
Mvmt.	LOS/Delay (seconds)							
	2021 Existing Conditions		2026 No-Build Conditions		2026 Build Conditions		2026 Build Conditions w/Imp	
			AM	PM	AM	PM	AM	PM
EBL	B/15.4	C/24.3	B/15.8	C/25.9	B/16.8	C/28.2	B/17.2	C/28.1
EBT	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0
EBR	B/13.2	B/19.2	B/13.4	C/20.2	B/14.2	C/21.7	B/14.7	C/21.7
WBL	B/14.6	C/22.0	B/15.0	C/23.3	B/16.0	C/25.2	B/16.4	C/25.1
WBT	B/13.8	B/19.8	B/14.0	C/20.8	B/14.8	C/22.4	B/15.3	C/22.5
WBR	B/16.6	D/37.1	B/17.0	D/41.9	B/18.7	E/64.8	B/10.1	B/18.9
NBL	B/14.8	B/17.2	B/15.3	B/18.1	B/16.8	B/19.1	B/15.4	B/16.9
NBT	B/18.1	C/25.7	B/18.9	C/28.6	B/21.0	C/31.6	B/19.2	C/27.3
NBR	B/18.0	C/25.6	B/18.8	C/28.4	B/20.9	C/31.4	B/19.1	C/27.1
SBL	B/11.2	B/17.7	B/11.6	B/19.5	B/12.7	C/24.3	B/11.5	B/18.8
SBT	B/12.0	B/15.3	B/12.3	B/16.1	B/12.9	B/16.4	B/11.7	B/14.4
SBR	B/12.0	B/15.3	B/12.3	B/16.1	B/12.9	B/16.4	B/11.7	B/14.4
Overall	*B/14.3*	*C/23.1*	*B/14.7*	*C/25.3*	*B/15.9*	*C/31.0*	*B/13.7*	*C/21.0*

Capacity analysis results indicate each of the unsignalized study intersections and development access points are expected to operate with minor to moderate delays during the peak hours. Queues are anticipated to be short. The eastbound approach of Access 1 is expected to operate at LOS F during the PM peak hour. Queues are expected to be less than four vehicles. It is not uncommon for unsignalized minor street approaches to operate at LOS F, but with short queues, when the mainline traffic volumes are high.

Access 1 and Access 2 should provide one ingress lane and two egress lanes.

Capacity analysis results indicate the westbound right turn movement at the signalized intersection of Atomic Road and E Martintown Road is expected to operate at LOS E during the PM peak hour under 2026 Build conditions. To mitigate this, 2026 Build conditions with improvements were analyzed with an overlap phase for the westbound right turn movement. With the overlap phase, analysis indicate the westbound right turn movement is expected to operate at LOS B, and the overall intersection is anticipated to operate with less delay than under 2026 No-Build conditions.

Figure 10 shows the proposed lane configurations for the 2026 Build conditions. Worksheets documenting the intersection analyses are provided in Appendix G for 2021 Existing conditions, Appendix H for 2026 No-Build conditions, and Appendix I for 2026 Build conditions with and without improvements.


River Bluff Court
Mealing Avenue
150'
STOP
RIRO Access
150'
50'
Access 2
STOP
TWLTL
Access 1
Laurens Street
100'
TWLTL
175'
125'
Driveway
Atomic Road
225'
175'
200'
150'
150'
**
LEGEND
Existing Lane
Recommended Lane
X' Storage (In Feet)
** Add Overlap Phase
E Buena Vista Avenue
E Martintown Road

6. SUMMARY OF FINDINGS AND RECOMMENDATIONS

An updated traffic impact study was conducted for the proposed E Martintown Road Tract development in accordance with Aiken County and SCDOT guidelines. This study provides an update to the November 2021 TIS.

The development is proposed to be located south of E Martintown Road and north of E Buena Vista Ave in North Augusta, South Carolina. Total build is anticipated to include up to 52 single family homes, 385 multi-family units, 90 senior living units, 35,000 SF of retail development, and an 11,185 SF medical clinic. Additionally, the existing Monterrey Mexican Restaurant will remain and will be accessed via the proposed site driveways.

Access to the development is proposed at two locations on E Martintown Road (one full access opposite to Laurens Street in place of the existing restaurant driveway and one Right-In Right-Out (RIRO) access) and one location on E Buena Vista Avenue.

A traffic signal warrant analysis was conducted for 2026 Build conditions at the intersection of E Martintown Road and Laurens Street/Access 1. The analysis was performed in accordance with the Manual of Uniform Traffic Control Devices (MUTCD). The traffic signal warrant criteria are anticipated not to be met.

Based on SCDOT turn lane warrant criteria, right turn lanes are not warranted or recommended at any site driveway; however, a northbound left turn lane is warranted on E Martintown Road at Access 1 and a southbound left turn lane is warranted on E Buena Vista Avenue at Access 2. A two-way left-turn lane section is present on E Martintown Road and a 150-foot exclusive left turn lane currently exists on E Buena Vista Avenue at Access 2.

The development access points should function with minor to moderate delays during the peak hours. Queues on the site driveways are expected to be short (less than four vehicles) during peak times.

- Construct Access 1 and Access 2 with one ingress lane and two egress lanes.

An overlap phase is recommended for the westbound right turn movement at the intersection of Atomic Road and E Martintown Road in order to mitigate anticipated 2026 Build condition LOS.

- Modify signal phasing at the intersection of Atomic Road and E Martintown Road to provide an overlap phase for the westbound right turn movement.

APPENDIX A

Project Scoping Correspondence

Molly Mathewson

From:	Webber, Kevin L <WebberKL@scdot.org>
Sent:	Wednesday, September 7, 2022 8:32 AM
To:	Jeff Ingham
Cc:	James Dean <JPdean@cranstonengineering.com> (JPdean@cranstonengineering.com); Brett Rogers (brogers@realtylinkdev.com); Robert Wright; Michael Dennis; Molly Mathewson
Subject:	FW: 2021-0403 - MEALING TRACT -- N Augusta -- SC 230 E Martintown Road and SC 125 Atomic Road / E. Buena Vista Ave -- Aiken County
Attachments:	E Martintown Road - Response to SCDOT comments.pdf; 21634_-E_Martintown_Road_Tract_TIS.pdf

Jeff,
Our traffic office has completed a follow up review and finds the TIS acceptable. Please see the additional comments from DTE Baskin below.

Thanks,
Kevin

Kevin L.Webber, PE
District 7 Permit Engineer
SCDOT – District 7 Engineering
1724 Charleston Hwy, 29116
Direct Office: 803-395-7168
Main Office: 803-531-6850
webberkl@scdot.org

From: Baskin, Ems <BaskinEP@scdot.org>
Sent: Wednesday, September 7, 2022 11:02 AM
To: Webber, Kevin L <WebberKL@scdot.org>
Cc: Williams, Chris <WilliamsCL@scdot.org>; Creel, Kevin J. <CreelKJ@scdot.org>
Subject: 2021-0403 - MEALING TRACT -- N Augusta -- SC 230 E Martintown Road and SC 125 Atomic Road / E. Buena Vista Ave -- Aiken County

Kevin W

The TIS comment responses dated 6-30-22 are acceptable, and thus I am satisfied with the TIS.

The #3 item for implementing a WB right turn overlap phase as a mitigation step on Atomic Road at the Martintown traffic signal needs to be accomplished by the developer. Therefore, a design in the form of a revised signal plan needs to be provided, so the developer can then have the needed signal work done under permit. As an option to adding that work to a permit, we can prepare a cost estimate from the revised signal plan and do the signal work in-house once the developer reimburses us up front for that estimated cost.

Thanks,

Ems Baskin, *P.E., C.P.M.*
District Traffic Engineer
SCDOT District 7 Office

PO Box 1086
Orangeburg, SC 29116
Phone Direct 803-395-7172
Central Line 803-531-6850 Fax 803-531-6854
BaskinEP@scdot.org

South Carolina
Department of Transportation

District 7 covers Aiken, Allendale, Bamberg, Barnwell, Calhoun, Clarendon, Hampton, and Orangeburg Counties. Note that some individual emails within this email string may be identical replicas added from other strings of the same subject matter to maintain chronological and full documentation.

From: Jeff Ingham <jingham@rameykemp.com>
Sent: Thursday, June 30, 2022 3:56 PM
To: Webber, Kevin L <WebberKL@scdot.org>; Baskin, Ems <BaskinEP@scdot.org>
Cc: James Dean <JPdean@cranstonengineering.com>; Brett Rogers <brogers@realtylinkdev.com>; Robert Wright <rwright@realtylinkdev.com>; Michael Dennis <mdennis@rameykemp.com>; Molly Mathewson <mmathewson@rameykemp.com>
Subject: RE: 2021-0403 - MEALING TRACT -- N Augusta -- SC 230 E Martintown Road and SC 125 Atomic Road / E. Buena Vista Ave -- Aiken County

Kevin/Ems,
Attached is an addendum to address the comments below; I also included the original. Changes include the addition of a RT overlap phase at the Atomic/Martintown intersection.

Please take a look and give me a call if you'd like to discuss. Thanks, hope you enjoy the long weekend.

Jeff Ingham, PE, PTOE, RSP2I
Director of South Carolina
D 843 614 3802 | C 843 819 0270
rameykemp.com

From: Webber, Kevin L <WebberKL@scdot.org>
Sent: Thursday, June 9, 2022 12:21 PM
To: James Dean <JPdean@cranstonengineering.com>
Cc: Robert Wright <rwright@realtylinkdev.com>
Subject: FW: 2021-0403 - MEALING TRACT -- N Augusta -- SC 230 E Martintown Road and SC 125 Atomic Road / E. Buena Vista Ave -- Aiken County

James,
An acceptance review of the TIS has been completed by the District Traffic Engineer Baskin. Please adequately address and respond to the below comments, make revisions as needed, and resubmit for a follow-up review.

Thanks,
Kevin

Kevin L. Webber, PE
District 7 Permit Engineer

SCDOT – District 7 Engineering
1724 Charleston Hwy, 29116
Direct Office: 803-395-7168
Main Office: 803-531-6850
webberkl@scdot.org

From: Baskin, Ems <BaskinEP@scdot.org>
Sent: Thursday, June 9, 2022 12:13 PM
To: Webber, Kevin L <WebberKL@scdot.org>
Cc: Williams, Chris <WilliamsCL@scdot.org>
Subject: 2021-0403 - MEALING TRACT -- N Augusta -- SC 230 E Martintown Road and SC 125 Atomic Road / E. Buena Vista Ave -- Aiken County

Kevin W

We have reviewed the TIS dated 11-16-21 and it is very thorough. The following comments need to be addressed.

1. Additional turn lane needs charts are missing in the Appendix.
2. Address the need for a SB right turn lane at the proposed RIRO driveway on Martintown Road.
3. Mitigate in Table 5 the drop in LOS from a C to a D for the WB approach of Atomic Road at Martintown. This involves a LOS E for the heavy right turn movement under Build conditions with a poor V/C of 0.99.
4. Show the LOS per movement for at least Table 6 to check signal capacity details for other drops that may need mitigation like #3 above.

Thanks,

Ems Baskin, *P.E., C.P.M.*
District Traffic Engineer
SCDOT District 7 Office
PO Box 1086
Orangeburg, SC 29116
Phone Direct 803-395-7172
Central Line 803-531-6850 Fax 803-531-6854
BaskinEP@scdot.org

From: Webber, Kevin L <WebberKL@scdot.org>
Sent: Tuesday, May 3, 2022 8:51 AM
To: Baskin, Ems <BaskinEP@scdot.org>
Subject: FW: 2021-0403 - MEALING TRACT CONSULTATION

Ems,
Please place in line for review.

Kevin

Kevin L.Webber, PE

District 7 Permit Engineer
SCDOT – District 7 Engineering
1724 Charleston Hwy, 29116
Direct Office: 803-395-7168
Main Office: 803-531-6850
webberkl@scdot.org

From: James Dean <JPdean@cranstonengineering.com>
Sent: Monday, May 2, 2022 4:10 PM
To: Webber, Kevin L <WebberKL@scdot.org>; Baskin, Ems <BaskinEP@scdot.org>
Cc: Robert Wright <rwright@realtylinkdev.com>
Subject: 2021-0403 - MEALING TRACT CONSULTATION

Gentlemen,

We are working on the design for a multi-use development located in North Augusta. The tract is approximately 40 acres and is situated between Martintown Road and East Buena Vista Avenue. The developer has had a TIS completed for the site. The Traffic Engineer, Ramey-Kemp, had some initial conversations with your department regarding scope. We are at a point now where we feel we can continue to move forward with our coordination efforts with your department. I am attaching the TIS that was prepared for the site. You will notice two, new driveways onto Martintown Road as you review. One item we request the department consider is the installation of a traffic signal at the main entrance at Martintown. The signal is not warranted per the warrant analysis but the developer believes it would be beneficial to the vehicular and pedestrian traffic at Martintown.

The TIS is attached for your review. Feel free to reach out with any questions you may have. We'll do our best to answer and if we can't feel free to reach out to Ramey-Kemp.

Thank you for your consideration in this matter.

James P. Dean, PE
Design Group Manager

Main Office: 706.722.1588
Direct Office: 706.288.3015
Mobile: 803.215.2711
452 Ellis Street
Augusta, Georgia 30901

CranstonEngineering.com

CRANSTON

RAMEY KEMP ASSOCIATES
Moving forward.

T 843 614 3800
7301 Rivers Avenue, Suite 242
North Charleston, SC 29406

June 30, 2022

Mr. Ems Baskin, PE, CPM
District Traffic Engineer
SCDOT District 7 Office
PO Box 1086
Orangeburg, SC 29116
Phone: (803) 395-7172
BaskinEP@scdot.org

Reference: **E. Martintown Road TIS – TIS Addendum with Response to SCDOT TIS Comments**

Dear Mr. Baskin,

This letter serves as an addendum to the November 2021 TIS and provides a response to the SCDOT TIS review comments issued via email on June 9, 2022.

1. Additional turn lane needs charts are missing in the appendix.

   - Additional turn lane charts are provided as an attachment to this addendum/response to comments. Figure 9.5-B for the access points is attached for reference only. Figure 9-5-B is applicable to high speed (50 mph+) four-lane roadways; E Martintown Road is a 5-lane section with a 40-mph speed limit.

2. Address the need for a SB right turn lane at the proposed RIRO driveway on Martintown Road.

   - Turn lane analyses were considered based on the SCDOT Roadway Design Manual (RDM) section 9.5.1, which states to consider exclusive right-turn lanes at the following locations:

     1. at the free-flowing leg of any unsignalized intersection on a two-lane urban or rural highway that satisfies the criteria in Figure 9.5-A;
     2. at the free-flowing leg of any unsignalized intersection on a high-speed (50 miles per hour or greater), four-lane urban or rural highway that satisfies the criteria in Figure 9.5-B;
     3. at the free-flowing leg of any unsignalized intersection on a six-lane urban or rural highway;
     4. at any intersection where a capacity analysis determines a right-turn lane is necessary to meet the overall level-of-service criteria;
     5. as a general rule, at any signalized intersection where the projected right-turning volume is greater than 300 vehicles per hour and where there are greater than 300 vehicles per hour per lane on the mainline (A traffic analysis will be required if the turning volumes are greater than 300 vehicles per hour.);
     6. for uniformity of intersection design along the highway if other intersections have right-turn lanes;

7. at any intersection where the mainline is curved to the left and where the mainline curve requires superelevation;
8. at railroad crossings where the railroad is parallel to the facility and is located close to the intersection and where a right-turn lane would be desirable to store queued vehicles avoiding interference with the movement of through traffic; or
9. at any intersection where the crash experience, existing traffic operations, sight distance restrictions (e.g., intersection beyond a crest vertical curve) or engineering judgment indicates a significant conflict related to right-turning vehicles.

Figure 9.5-B with the RIRO build out volumes is attached for reference only. As noted, E Martintown Road is a five-lane section with a 40-mph speed limit. The anticipated peak number of right turns is 46, which is slightly higher than the threshold (40 turns) implied for consideration of a right turn lane.

None of the criteria outlined in the RDM are met at the RIRO driveway. A separate right turn lane on E Martintown Road is not recommended.

3. Mitigate in Table 6 the drop in LOS from a C to a D for the WB approach of Atomic Road at Martintown. This involves a LOS E for the heavy right turn movement under build conditions with a poor V/C of 0.99.

   - Inclusion of an overlap phase for the westbound right turn movement would mitigate the drop in LOS and high V/C ratio. Updated Synchro reports are attached.

4. Show the LOS per movement for at least Table 6 to check signal capacity details for other drops that may need mitigation like #3 above.

   - Table 6 is updated below with the inclusion of the overlap phase noted in item 3. The 2026 Build conditions are updated.

Table 1 – Signalized Intersection Analysis Results (UPDATED with Overlap)

Intersection	Mvmt.	LOS/Delay (seconds)					
		2021 Existing Conditions		2026 No-Build Conditions		2026 Build Conditions	
		AM	PM	AM	PM	AM	PM
Atomic Road & E Martintown Road	EBL	B/15.4	C/24.3	B/15.8	C/25.9	B/17.2	C/28.1
	EBT	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0
	EBR	B/13.2	B/19.2	B/13.4	C/20.2	B/14.7	C/21.7
	WBL	B/14.6	C/22.0	B/15.0	C/23.3	B/16.4	C/25.1
	WBT	B/13.8	B/19.8	B/14.0	C/20.8	B/15.3	C/22.5
	WBR	B/16.6	D/37.1	B/17.0	D/41.9	B/10.1	B/18.9
	NBL	B/14.8	B/17.2	B/15.3	B/18.1	B/15.4	B/16.9
	NBT	B/18.1	C/25.7	B/18.9	C/28.6	B/19.2	C/27.3
	NBR	B/18.0	C/25.6	B/18.8	C/28.4	B/19.1	C/27.1
	SBL	B/11.2	B/17.7	B/11.6	B/19.5	B/11.5	B/18.8
	SBT	B/12.0	B/15.3	B/12.3	B/16.1	B/11.7	B/14.4
	SBR	B/12.0	B/15.3	B/12.3	B/16.1	B/11.7	B/14.4
	Overall	*B/14.3*	*C/23.1*	*B/14.7*	*C/25.3*	*B/13.7*	*C/21.0*

Summary of Recommendations

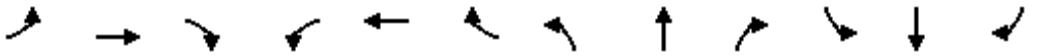
Based on the TIS comments and updated analysis, at E. Martintown Road and Atomic Road, modification of the traffic signal phasing to provide an overlap phase for the westbound right turn movement on Atomic Road is recommended.

There are no other changes to the recommendations from the previous study. Please contact me at (803) 819-0270 if you have any questions or require additional information.

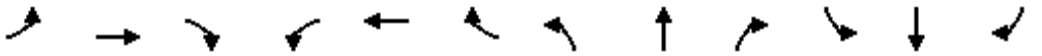
Sincerely,
Ramey Kemp Associates, Inc.

Jeff Ingham, P.E., PTOE, RSP2I
Senior Traffic Engineer
jingham@rameykemp.com

Attachments: Turn Lane Warrant Graphs
Synchro Reports



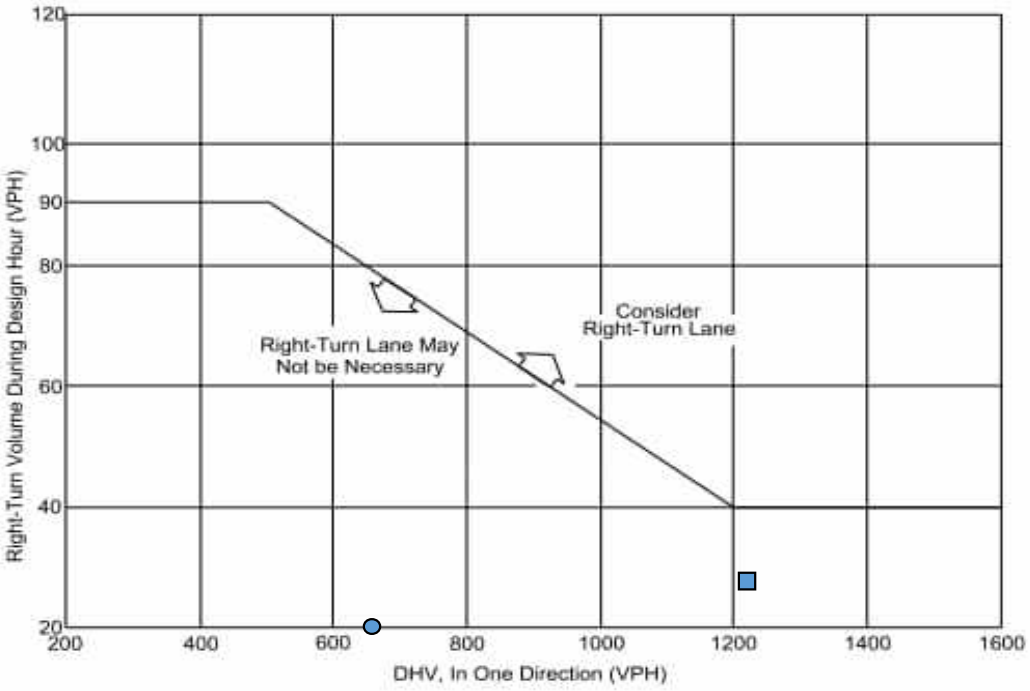
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	150	6	41	199	317	7	338	8	280	429	11
Future Volume (veh/h)	26	150	6	41	199	317	7	338	8	280	429	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	163	7	45	216	345	8	367	9	304	466	12
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	288	452	19	372	474	688	337	632	15	560	1232	32
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.01	0.18	0.18	0.18	0.35	0.35
Sat Flow, veh/h	849	1780	76	1215	1870	1585	1781	3545	87	1781	3540	91
Grp Volume(v), veh/h	28	0	170	45	216	345	8	184	192	304	234	244
Grp Sat Flow(s),veh/h/ln	849	0	1857	1215	1870	1585	1781	1777	1855	1781	1777	1854
Q Serve(g_s), s	1.3	0.0	3.5	1.5	4.5	7.3	0.2	4.4	4.4	5.7	4.6	4.6
Cycle Q Clear(g_c), s	5.9	0.0	3.5	5.0	4.5	7.3	0.2	4.4	4.4	5.7	4.6	4.6
Prop In Lane	1.00		0.04	1.00		1.00	1.00		0.05	1.00		0.05
Lane Grp Cap(c), veh/h	288	0	471	372	474	688	337	317	330	560	619	646
V/C Ratio(X)	0.10	0.00	0.36	0.12	0.46	0.50	0.02	0.58	0.58	0.54	0.38	0.38
Avail Cap(c_a), veh/h	584	0	1119	796	1128	1242	740	957	999	1351	1645	1717
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.1	0.0	14.2	16.3	14.6	9.5	15.4	17.5	17.5	10.7	11.4	11.4
Incr Delay (d2), s/veh	0.1	0.0	0.5	0.1	0.7	0.6	0.0	1.7	1.6	0.8	0.4	0.4
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	0.2	0.0	1.3	0.4	1.7	1.9	0.1	1.6	1.7	1.7	1.4	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.2	0.0	14.7	16.4	15.3	10.1	15.4	19.2	19.1	11.5	11.7	11.7
LnGrp LOS	B	A	B	B	B	B	B	B	B	B	B	B
Approach Vol, veh/h		198			606			384			782	
Approach Delay, s/veh		15.1			12.4			19.1			11.6	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.4	14.3		17.8	6.5	22.2		17.8				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	29.0	25.0		28.0	11.0	43.0		28.0				
Max Q Clear Time (g_c+I1), s	7.7	6.4		7.9	2.2	6.6		9.3				
Green Ext Time (p_c), s	0.8	1.9		1.0	0.0	2.8		2.5				
Intersection Summary												
HCM 6th Ctrl Delay			13.7									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	166	12	50	222	456	22	784	19	336	608	30
Future Volume (veh/h)	57	166	12	50	222	456	22	784	19	336	608	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	62	180	13	54	241	496	24	852	21	365	661	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	225	490	35	335	531	718	373	1082	27	451	1542	77
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.03	0.31	0.31	0.17	0.45	0.45
Sat Flow, veh/h	721	1723	124	1190	1870	1585	1781	3544	87	1781	3444	172
Grp Volume(v), veh/h	62	0	193	54	241	496	24	427	446	365	341	353
Grp Sat Flow(s),veh/h/ln	721	0	1848	1190	1870	1585	1781	1777	1855	1781	1777	1839
Q Serve(g_s), s	5.8	0.0	6.2	2.8	7.9	18.5	0.7	16.4	16.4	9.6	9.8	9.8
Cycle Q Clear(g_c), s	13.6	0.0	6.2	9.0	7.9	18.5	0.7	16.4	16.4	9.6	9.8	9.8
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.05	1.00		0.09
Lane Grp Cap(c), veh/h	225	0	525	335	531	718	373	543	566	451	795	824
V/C Ratio(X)	0.28	0.00	0.37	0.16	0.45	0.69	0.06	0.79	0.79	0.81	0.43	0.43
Avail Cap(c_a), veh/h	234	0	546	349	553	736	541	764	798	821	1218	1261
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.5	0.0	21.3	24.9	21.9	16.2	16.8	23.6	23.6	15.3	14.0	14.0
Incr Delay (d2), s/veh	0.7	0.0	0.4	0.2	0.6	2.7	0.1	3.6	3.5	3.5	0.4	0.4
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	1.0	0.0	2.6	0.8	3.3	6.5	0.3	6.7	7.0	3.6	3.5	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.1	0.0	21.7	25.1	22.5	18.9	16.9	27.3	27.1	18.8	14.4	14.4
LnGrp LOS	C	A	C	C	C	B	B	C	C	B	B	B
Approach Vol, veh/h		255			791			897			1059	
Approach Delay, s/veh		23.3			20.4			26.9			15.9	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.5	28.7		27.1	8.0	39.3		27.1				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	28.0	32.0		22.0	9.0	51.0		22.0				
Max Q Clear Time (g_c+I1), s	11.6	18.4		15.6	2.7	11.8		20.5				
Green Ext Time (p_c), s	1.0	4.4		0.7	0.0	4.4		0.6				

Intersection Summary			
HCM 6th Ctrl Delay		21.0	
HCM 6th LOS		C	



Note: Figure is only applicable on highways with a design speed of 50 miles per hour or greater.

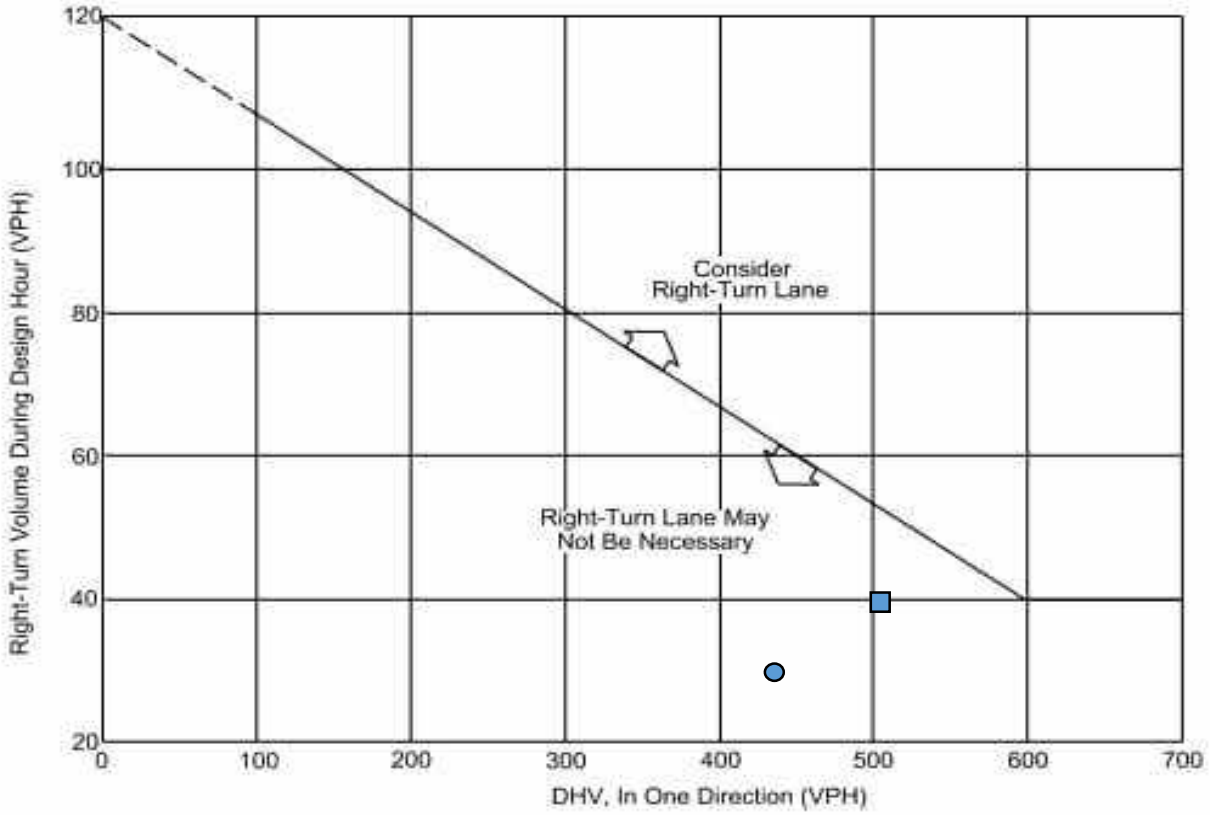
GUIDELINES FOR RIGHT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON FOUR-LANE HIGHWAYS

Figure 9.5-B

INTERSECTION: Access 1/Laurens Street & E Martintown Road

MOVEMENT: Southbound Right Turn

SCENARIO	Design Hour Volume	Right Turn Volume	Symbol
AM Build	657	28	●
PM Build	1233	40	■



Note: For highways with a design speed below 50 miles per hour with a DHV < 300 and where right turns > 40, an adjustment should be used. To read the vertical axis of the chart, subtract 20 from the actual number of right turns.

GUIDELINES FOR RIGHT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON TWO-LANE HIGHWAYS

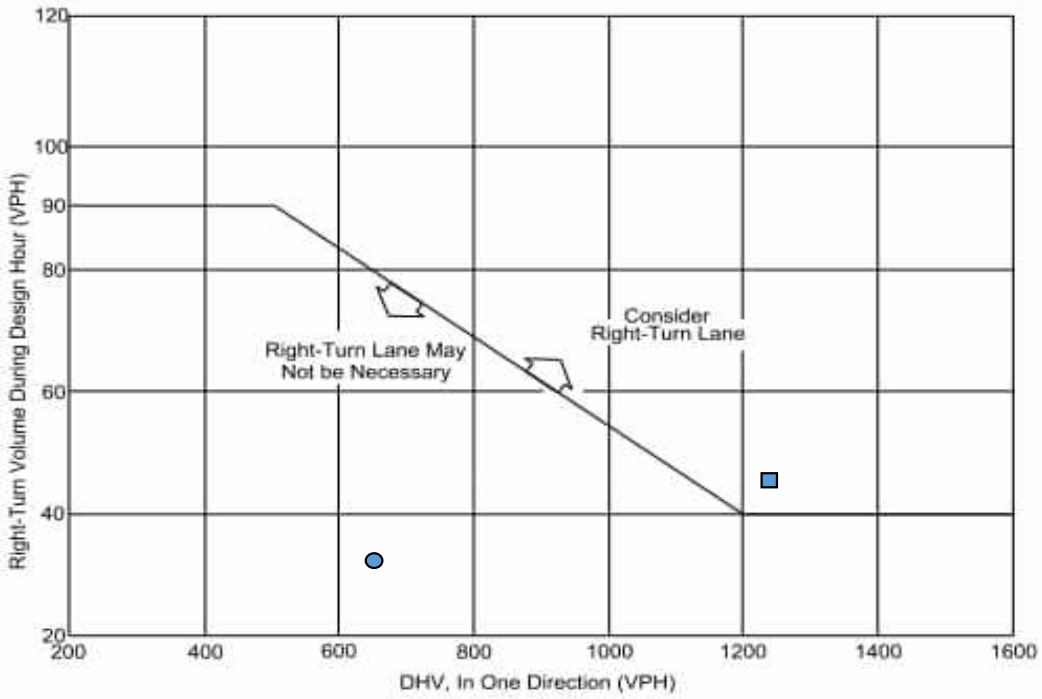
Figure 9.5-A

INTERSECTION: Access 2 & E Buena Vista Avenue

MOVEMENT: Northbound Right Turn

SCENARIO	Design Hour Volume	Right Turn Volume	Symbol
AM Build	437	31	●
PM Build	504	40	■

RAMEY KEMP ASSOCIATES



Note: Figure is only applicable on highways with a design speed of 50 miles per hour or greater.

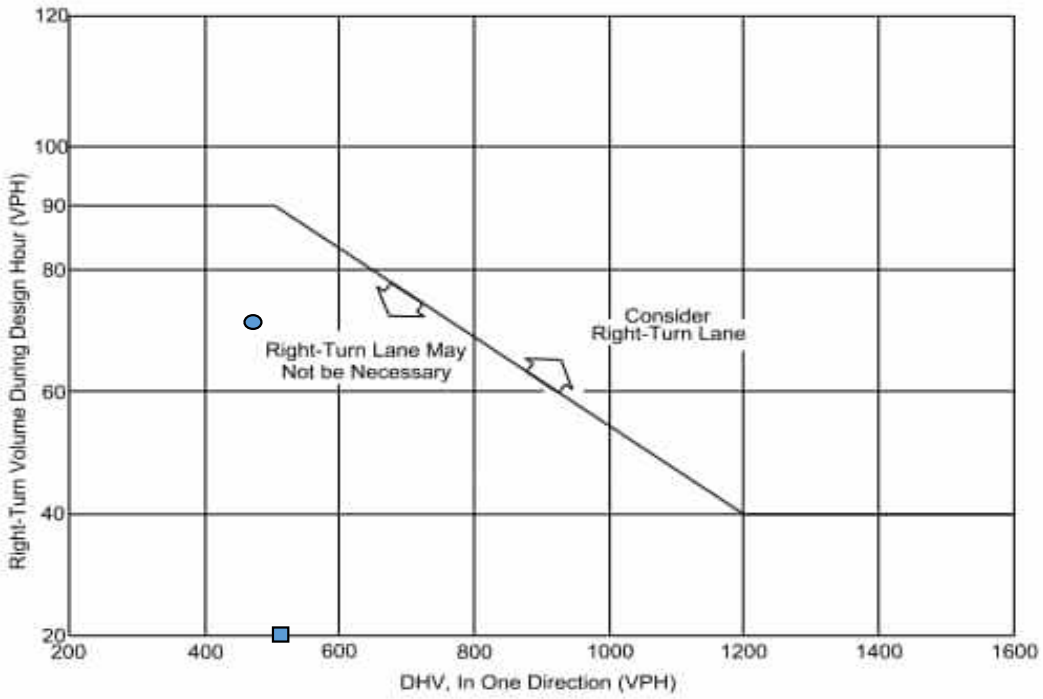
GUIDELINES FOR RIGHT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON FOUR-LANE HIGHWAYS

Figure 9.5-B

INTERSECTION: RIRO Access & E Martintown Road

MOVEMENT: Southbound Right Turn

SCENARIO	Design Hour Volume	Right Turn Volume	Symbol
AM Build	653	33	●
PM Build	1238	46	■



Note: Figure is only applicable on highways with a design speed of 50 miles per hour or greater.

GUIDELINES FOR RIGHT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON FOUR-LANE HIGHWAYS

Figure 9.5-B

INTERSECTION: E. Buena Vista Avenue & Mealing Avenue

MOVEMENT: Northbound Right Turn

SCENARIO	Design Hour Volume	Right Turn Volume	Symbol
AM Build	473	71	●
PM Build	512	8	■

APPENDIX B

Trip Generation Worksheet

E MARTINTOWN ROAD TRACT TIS
TRIP GENERATION ESTIMATES

Daily Trips

Land Use	ITE LUC Code	Size	Gross Trips			Internal Capture				External Trips			Pass By				New External Trips		
			In	Out	Total	%	In	Out	Total	In	Out	Total	%	In	Out	Total	In	Out	Total
Single Family Detached Housing	210	52	285	285	570														
Multifamily Housing (Low Rise)	220	385	1,435	1,435	2,870														
Senior Adult Housing- Attached	252	90	168	168	336														
Clinic	630	11	214	213	427														
Shopping Center	820	35.00	1,472	1,472	2,944														
			3,574	3,573	7,147														

AM Peak Hour Trips

Land Use	ITE LUC Code	Size	Gross Trips			Internal Capture				External Trips			Pass By				New External Trips		
			In	Out	Total	%	In	Out	Total	In	Out	Total	%	In	Out	Total	In	Out	Total
Single Family Detached Housing	210	52	11	31	42	0.0%	0	0	0	11	31	42	0%	0	0	0	11	31	42
Multifamily Housing (Low Rise)	220	385	40	132	172	1.7%	1	2	3	39	130	169	0%	0	0	0	39	130	169
Senior Adult Housing- Attached	252	90	6	12	18	0.0%	0	0	0	6	12	18	0%	0	0	0	6	12	18
Clinic	630	11	33	9	42	0.0%	0	0	0	33	9	42	0%	0	0	0	33	9	42
Shopping Center	820	35	105	65	170	1.8%	2	1	3	103	64	167	0%	0	0	0	103	64	167
			195	249	444	1.4%	3	3	6	192	246	438	0%	0	0	0	192	246	438

PM Peak Hour Trips

Land Use	ITE LUC Code	Size	Gross Trips			Internal Capture				External Trips			Pass By				New External Trips		
			In	Out	Total	%	In	Out	Total	In	Out	Total	%	In	Out	Total	In	Out	Total
Single Family Detached Housing	210	52	34	20	54	14.8%	6	2	8	28	18	46	0%	0	0	0	28	18	46
Multifamily Housing (Low Rise)	220	385	123	73	196	14.3%	22	6	28	101	67	168	0%	0	0	0	101	67	168
Senior Adult Housing- Attached	252	90	13	11	24	16.7%	3	1	4	10	10	20	0%	0	0	0	10	10	20
Clinic	630	11	12	30	42	0.0%	0	0	0	12	30	42	0%	0	0	0	12	30	42
Shopping Center	820	35	120	130	250	16.0%	9	31	40	111	99	210	34%	36	36	72	75	63	138
			302	264	566	14.1%	40	40	80	262	224	486	13%	36	36	72	226	188	414

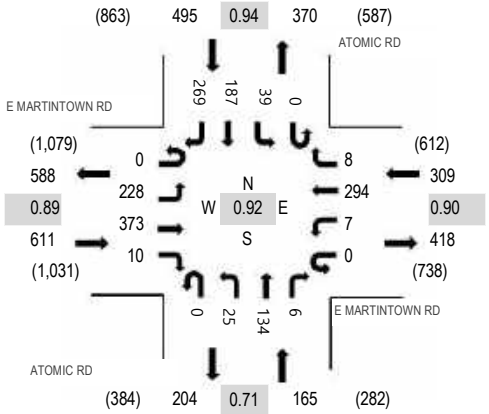
APPENDIX C

Traffic Count Data

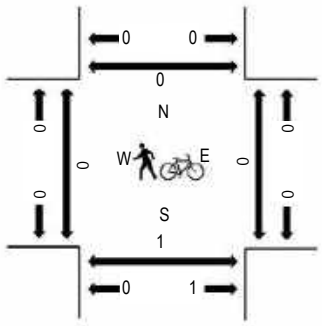
(303) 216-2439
www.alltrafficdata.net

Location: #1 ATOMIC RD & E MARTINTOWN RD AM
Date: Tuesday, October 19, 2021
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - Motorized Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	E MARTINTOWN RD Eastbound				E MARTINTOWN RD Westbound				ATOMIC RD Northbound				ATOMIC RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	40	52	5	0	2	46	4	0	6	30	1	0	2	56	65	309	1,544	0	0	0	0
7:15 AM	0	49	81	2	0	1	57	0	0	6	57	0	0	7	51	72	383	1,580	0	0	0	0
7:30 AM	0	74	94	4	0	1	57	4	0	8	35	3	0	14	47	81	422	1,518	0	0	0	0
7:45 AM	0	53	106	3	0	2	93	2	0	5	26	2	0	10	58	70	430	1,348	0	0	1	0
8:00 AM	0	52	92	1	0	3	87	2	0	6	16	1	0	8	31	46	345	1,244	0	0	0	0
8:15 AM	0	30	94	2	0	5	85	2	0	6	19	3	0	9	32	34	321		0	0	1	0
8:30 AM	0	28	64	3	0	6	58	5	0	6	10	4	0	4	24	40	252		0	0	0	0
8:45 AM	0	25	75	2	0	5	83	2	0	6	22	4	0	8	38	56	326		0	0	0	0

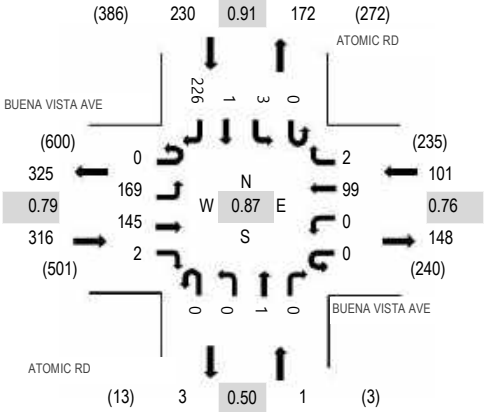
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	7	0	0	0	1	0	0	0	0	0	0	0	0	2	10
Lights	0	228	364	10	0	7	291	7	0	25	134	6	0	38	186	265	1,561
Mediums	0	0	2	0	0	0	2	1	0	0	0	0	0	1	1	2	9
Total	0	228	373	10	0	7	294	8	0	25	134	6	0	39	187	269	1,580

(303) 216-2439
www.alltrafficdata.net

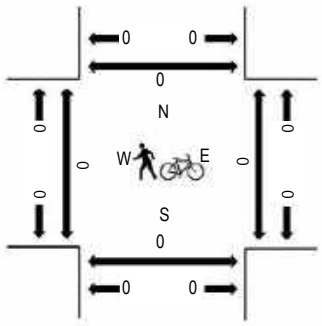
Location: #2 ATOMIC RD & BUENA VISTA AVE AM
Date: Tuesday, October 19, 2021
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:15 AM - 07:30 AM

Peak Hour - Motorized Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	BUENA VISTA AVE Eastbound				BUENA VISTA AVE Westbound				ATOMIC RD Northbound				ATOMIC RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	36	39	1	0	0	17	1	0	0	0	0	0	2	0	59	155	648	0	0	0	0
7:15 AM	0	61	39	0	0	0	30	0	0	0	0	0	0	0	0	57	187	594	0	0	0	0
7:30 AM	0	41	36	1	0	0	22	1	0	0	0	0	0	1	0	48	150	535	0	0	0	0
7:45 AM	0	31	31	0	0	0	30	0	0	0	1	0	0	0	1	62	156	498	0	0	0	0
8:00 AM	0	18	21	1	0	0	26	2	0	0	0	0	0	1	0	32	101	477	0	0	0	0
8:15 AM	0	21	19	0	0	1	40	3	0	0	1	0	0	0	2	41	128		0	0	0	0
8:30 AM	0	27	24	1	0	0	24	1	0	0	0	0	0	2	0	34	113		0	0	0	0
8:45 AM	0	26	24	3	0	1	36	0	0	0	1	0	0	1	1	42	135		0	0	0	0

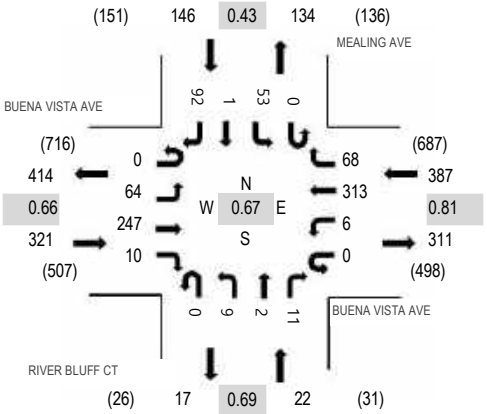
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	169	145	2	0	0	98	2	0	0	1	0	0	2	1	226	646
Mediums	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2
Total	0	169	145	2	0	0	99	2	0	0	1	0	0	3	1	226	648

(303) 216-2439
www.alltrafficdata.net

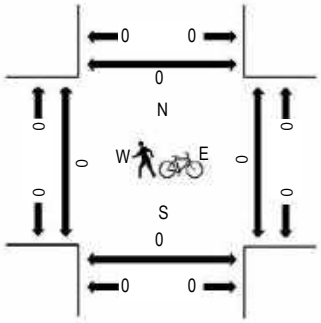
Location: #3 RIVER BLUFF CT & BUENA VISTA AVE AM
Date: Tuesday, October 19, 2021
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:15 AM - 07:30 AM

Peak Hour - Motorized Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	BUENA VISTA AVE Eastbound				BUENA VISTA AVE Westbound				RIVER BLUFF CT Northbound				MEALING AVE Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	23	49	2	0	1	62	18	0	0	0	4	0	14	0	24	197	876	0	0	0	0
7:15 AM	0	40	80	2	0	0	72	47	0	1	2	0	0	30	1	54	329	792	0	0	0	0
7:30 AM	0	1	64	4	0	4	79	0	0	3	0	4	0	9	0	11	179	596	0	0	0	0
7:45 AM	0	0	54	2	0	1	100	3	0	5	0	3	0	0	0	3	171	530	0	0	0	0
8:00 AM	0	0	42	2	0	1	64	0	0	1	0	1	0	1	0	1	113	500	0	0	0	0
8:15 AM	0	1	41	0	0	2	85	0	0	1	0	1	0	2	0	0	133		0	0	1	0
8:30 AM	0	0	43	2	0	0	64	1	0	2	0	0	0	1	0	0	113		0	0	0	1
8:45 AM	0	0	53	2	0	0	83	0	0	1	0	2	0	0	0	0	141		0	0	0	0

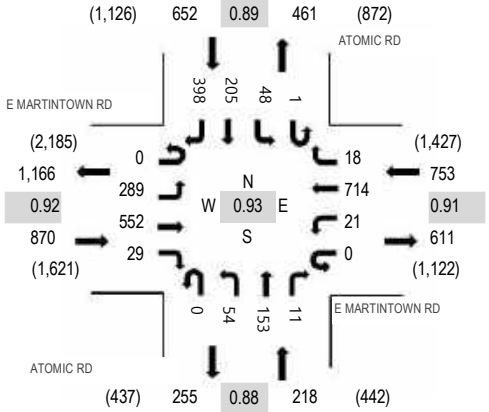
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	64	246	10	0	6	311	68	0	9	2	11	0	53	1	92	873
Mediums	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	3
Total	0	64	247	10	0	6	313	68	0	9	2	11	0	53	1	92	876

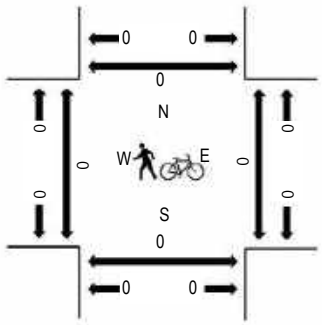
(303) 216-2439
www.alltrafficdata.net

Location: #1 ATOMIC RD & E MARTINTOWN RD PM
Date: Tuesday, October 19, 2021
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - Motorized Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	E MARTINTOWN RD Eastbound				E MARTINTOWN RD Westbound				ATOMIC RD Northbound				ATOMIC RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	44	104	11	0	6	166	3	0	12	33	9	0	6	26	64	484	2,174	0	0	0	0
4:15 PM	0	68	116	6	0	1	173	2	0	11	36	1	0	12	19	87	532	2,359	0	0	0	0
4:30 PM	0	73	133	13	0	4	174	6	0	15	38	3	0	2	44	73	578	2,422	0	0	0	0
4:45 PM	0	68	128	5	0	5	165	9	0	10	38	3	1	8	39	101	580	2,493	0	0	0	0
5:00 PM	0	78	133	10	0	6	199	1	0	15	43	1	0	14	65	104	669	2,442	0	0	0	0
5:15 PM	0	64	140	7	0	6	171	4	0	16	43	3	0	10	44	87	595		0	0	0	0
5:30 PM	0	79	151	7	0	4	179	4	0	13	29	4	0	16	57	106	649		0	0	0	0
5:45 PM	0	64	109	10	0	2	129	8	0	27	36	3	0	13	40	88	529		1	0	0	1

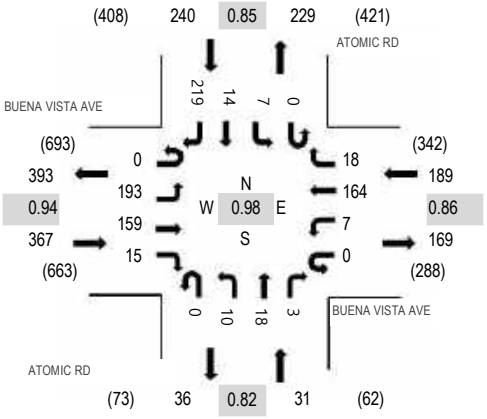
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	3	8
Lights	0	288	550	29	0	21	710	18	0	53	151	11	1	48	205	395	2,480
Mediums	0	1	0	0	0	0	1	0	0	1	2	0	0	0	0	0	5
Total	0	289	552	29	0	21	714	18	0	54	153	11	1	48	205	398	2,493

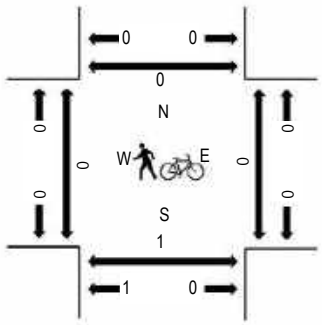
(303) 216-2439
www.alltrafficdata.net

Location: #2 ATOMIC RD & BUENA VISTA AVE PM
Date: Tuesday, October 19, 2021
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:30 PM - 05:45 PM

Peak Hour - Motorized Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	BUENA VISTA AVE Eastbound				BUENA VISTA AVE Westbound				ATOMIC RD Northbound				ATOMIC RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	43	31	4	0	2	37	2	0	2	4	1	0	2	3	35	166	675	0	0	0	0
4:15 PM	0	39	20	4	0	4	21	0	0	4	4	0	0	2	3	19	120	716	0	0	0	0
4:30 PM	0	42	35	4	0	0	39	2	0	5	5	1	1	2	3	51	190	805	0	0	1	0
4:45 PM	0	46	38	5	0	1	41	9	0	4	5	1	0	1	2	46	199	827	0	0	0	0
5:00 PM	0	47	45	6	0	2	34	4	0	2	4	1	0	3	4	55	207	800	0	0	1	0
5:15 PM	0	51	37	1	0	3	48	4	0	0	7	0	0	1	6	51	209		0	0	0	0
5:30 PM	0	49	39	3	0	1	41	1	0	4	2	1	0	2	2	67	212		0	0	0	0
5:45 PM	0	47	24	3	0	6	40	0	0	2	3	0	0	1	1	45	172		0	0	0	0

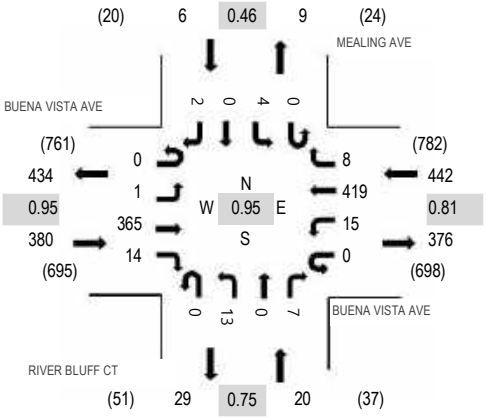
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	192	159	15	0	7	164	17	0	10	18	3	0	7	14	219	825
Mediums	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2
Total	0	193	159	15	0	7	164	18	0	10	18	3	0	7	14	219	827

(303) 216-2439
www.alltrafficdata.net

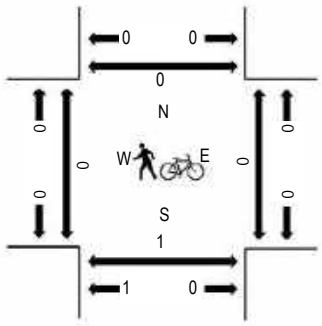
Location: #3 RIVER BLUFF CT & BUENA VISTA AVE PM
Date: Tuesday, October 19, 2021
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:30 PM - 05:45 PM

Peak Hour - Motorized Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	BUENA VISTA AVE Eastbound				BUENA VISTA AVE Westbound				RIVER BLUFF CT Northbound				MEALING AVE Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	2	75	2	0	5	78	1	0	2	0	1	0	1	0	1	168	701	0	0	0	0
4:15 PM	0	3	71	1	0	5	61	2	0	2	0	0	0	1	0	1	147	744	0	0	0	0
4:30 PM	0	1	81	0	0	4	88	1	0	0	0	4	0	5	0	2	186	812	2	0	0	0
4:45 PM	0	0	93	5	0	4	93	0	0	1	0	3	0	1	0	0	200	848	0	0	0	0
5:00 PM	0	0	96	4	0	5	94	2	0	5	0	3	0	1	0	1	211	833	0	0	0	0
5:15 PM	0	0	95	4	0	3	100	5	0	4	0	1	0	2	0	1	215		0	0	1	0
5:30 PM	0	1	81	1	0	3	132	1	0	3	0	0	0	0	0	0	222		0	0	0	0
5:45 PM	0	1	77	1	0	4	89	2	0	1	2	5	0	1	0	2	185		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	1	365	14	0	15	419	8	0	13	0	7	0	4	0	2	848
Mediums	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	365	14	0	15	419	8	0	13	0	7	0	4	0	2	848

APPENDIX D

Traffic Volume Development Worksheets

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

Atomic Road & E Martintown Road

TRAFFIC CONTROL: Signalized

DATE COUNTED: Tuesday, October 19, 2021

AM PEAK HOUR (7:15-8:15 AM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2021 TRAFFIC VOLUMES	25	134	6	39	187	269	7	294	8	228	373	10
Years To Buildout (2026)	5	5	5	5	5	5	5	5	5	5	5	5
Yearly Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Background Traffic Growth	1	7	0	2	9	13	0	15	0	11	19	1
2026 NO-BUILD TRAFFIC VOLUMES	26	141	6	41	196	282	7	309	8	239	392	11
Residential Project Traffic		9			3	8		8		26	26	
Retail Project Traffic (Primary)						27		21		15	11	
Retail Project Traffic (Pass-By)												
Total Project Traffic		9			3	35		29		41	37	
2026 BUILD TRAFFIC VOLUMES	26	150	6	41	199	317	7	338	8	280	429	11

PM PEAK HOUR (4:45-5:45 PM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2021 TRAFFIC VOLUMES	54	153	11	48	205	398	21	714	18	289	552	29
Years To Buildout (2026)	5	5	5	5	5	5	5	5	5	5	5	5
Yearly Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Background Traffic Growth	3	8	1	2	10	20	1	36	1	14	28	1
2026 NO-BUILD TRAFFIC VOLUMES	57	161	12	50	215	418	22	750	19	303	580	30
Residential Project Traffic		5			7	21		21		14	14	
Retail Project Traffic (Primary)						17		13		19	14	
Retail Project Traffic (Pass-By)												
Total Project Traffic		5			7	38		34		33	28	
2026 BUILD TRAFFIC VOLUMES	57	166	12	50	222	456	22	784	19	336	608	30

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

Access 1/Laurens Street & E Martintown Road

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: Tuesday, October 19, 2021

AM PEAK HOUR (7:15-8:15 AM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2021 TRAFFIC VOLUMES	0	0	0	13	1	65	36	635	1	2	562	10
Years To Current Year (2021)	0	0	0	0	0	0	0	0	0	0	0	0
Yearly Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Background Traffic Growth	0	0	0	0	0	0	0	0	0	0	0	0
2021 TRAFFIC VOLUMES	0	0	0	13	1	65	36	635	1	2	562	10
COVID-19 Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2021 ADJUSTED TRAFFIC VOLUMES	0	0	0	13	1	65	36	635	1	2	562	10
Years To Buildout (2026)	5	5	5	5	5	5	5	5	5	5	5	5
Yearly Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Background Traffic Growth	0	0	0	1	0	3	2	32	0	0	28	1
2026 NO-BUILD TRAFFIC VOLUMES	0	0	0	14	1	68	38	667	1	2	590	11
Reassigned Restaurant Trips												-6
Residential Project Traffic	26		26				16				26	3
Retail Project Traffic (Primary)	20		15				48				11	20
Retail Project Traffic (Pass-By)												
Total Project Traffic	46		41				64				37	23
2026 BUILD TRAFFIC VOLUMES	46	0	41	14	1	68	102	667	1	2	627	28

PM PEAK HOUR (4:45-5:45 PM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2021 TRAFFIC VOLUMES	10	1	7	9	0	30	30	898	19	10	1,106	17
Years To Buildout (2026)	5	5	5	5	5	5	5	5	5	5	5	5
Yearly Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Background Traffic Growth	1	0	0	0	0	2	2	45	1	1	55	1
2026 NO-BUILD TRAFFIC VOLUMES	11	1	7	9	0	32	32	943	20	11	1,161	18
Reassigned Restaurant Trips			-4								4	-9
Residential Project Traffic	14		14				42				14	7
Retail Project Traffic (Primary)	27		19				30				14	13
Retail Project Traffic (Pass-By)	16		11				16	-16			-11	11
Total Project Traffic	57		44				88	-16			17	31
2026 BUILD TRAFFIC VOLUMES	68	1	47	9	0	32	120	927	20	11	1,182	40

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

Atomic Road & E Buena Vista Avenue

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: Tuesday, October 19, 2021

AM PEAK HOUR (7:45-8:45 AM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2021 TRAFFIC VOLUMES	0	1	0	3	1	226	0	99	2	169	145	2
Years To Buildout (2026)	5	5	5	5	5	5	5	5	5	5	5	5
Yearly Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Background Traffic Growth	0	0	0	0	0	11	0	5	0	8	7	0
2026 NO-BUILD TRAFFIC VOLUMES	0	1	0	3	1	237	0	104	2	177	152	2
Residential Project Traffic						3		8		9	26	
Retail Project Traffic (Primary)								20			11	
Retail Project Traffic (Pass-By)												
Total Project Traffic						3		28		9	37	
2026 BUILD TRAFFIC VOLUMES	0	1	0	3	1	240	0	132	2	186	189	2

PM PEAK HOUR (4:45-5:45 PM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2021 TRAFFIC VOLUMES	10	18	3	7	14	219	7	164	18	193	159	15
Years To Buildout (2026)	5	5	5	5	5	5	5	5	5	5	5	5
Yearly Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Background Traffic Growth	1	1	0	0	1	11	0	8	1	10	8	1
2026 NO-BUILD TRAFFIC VOLUMES	11	19	3	7	15	230	7	172	19	203	167	16
Residential Project Traffic						7		20		5	14	
Retail Project Traffic (Primary)								13			14	
Retail Project Traffic (Pass-By)												
Total Project Traffic						7		33		5	28	
2026 BUILD TRAFFIC VOLUMES	11	19	3	7	15	237	7	205	19	208	195	16

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

River Bluff Court/Mealing Avenue & E Buena Vista Avenue

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: Tuesday, October 19, 2021

AM PEAK HOUR (7:00-8:00 AM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2021 TRAFFIC VOLUMES	9	2	11	53	1	92	6	313	68	64	247	10
Years To Buildout (2026)	5	5	5	5	5	5	5	5	5	5	5	5
Yearly Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Background Traffic Growth	0	0	1	3	0	5	0	16	3	3	12	1
2026 NO-BUILD TRAFFIC VOLUMES	9	2	12	56	1	97	6	329	71	67	259	11
Residential Project Traffic								60			20	
Retail Project Traffic (Primary)								16			27	
Retail Project Traffic (Pass-By)												
Total Project Traffic						0		75		0	47	
2026 BUILD TRAFFIC VOLUMES	9	2	12	56	1	97	6	404	71	67	306	11

PM PEAK HOUR (4:45-5:45 PM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2021 TRAFFIC VOLUMES	13	0	7	4	0	2	15	419	8	1	365	14
Years To Buildout (2026)	5	5	5	5	5	5	5	5	5	5	5	5
Yearly Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Background Traffic Growth	1	0	0	0	0	0	1	21	0	0	18	1
2026 NO-BUILD TRAFFIC VOLUMES	14	0	7	4	0	2	16	440	8	1	383	15
Residential Project Traffic								34			49	
Retail Project Traffic (Primary)								19			17	
Retail Project Traffic (Pass-By)												
Total Project Traffic						0		53		0	66	
2026 BUILD TRAFFIC VOLUMES	14	0	7	4	0	2	16	493	8	1	449	15

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

RIRO Access & E Martintown Road

TRAFFIC CONTROL: Unsignalized

DATE COUNTED:

AM PEAK HOUR (7:45-8:45 AM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2021 TRAFFIC VOLUMES			0					700			574	0
Years To Buildout (2026)			5					5			5	5
Yearly Growth Rate			1.0%					1.0%			1.0%	1.0%
Background Traffic Growth			0					35			29	0
2026 NO-BUILD TRAFFIC VOLUMES			0					735			603	0
Reassigned Restaurant Trips											-6	6
Residential Project Traffic			26					26			3	6
Retail Project Traffic (Primary)			11					20			20	21
Retail Project Traffic (Pass-By)												
Total Project Traffic			37					46			23	27
2026 BUILD TRAFFIC VOLUMES			37					781			620	33

PM PEAK HOUR (4:45-5:45 PM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2021 TRAFFIC VOLUMES			0					938			1,133	0
Years To Buildout (2026)			5					5			5	5
Yearly Growth Rate			1.0%					1.0%			1.0%	1.0%
Background Traffic Growth			0					47			57	0
2026 NO-BUILD TRAFFIC VOLUMES			0					985			1,190	0
Reassigned Restaurant Trips			4								-9	9
Residential Project Traffic			14					14			7	14
Retail Project Traffic (Primary)			14					27			13	14
Retail Project Traffic (Pass-By)			9								-9	9
Total Project Traffic			37					41			11	37
2026 BUILD TRAFFIC VOLUMES			41					1,026			1,192	46

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

Access 2 & E Buena Vista Avenue

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: Balanced from Mealing Avenue intersection

AM PEAK HOUR (7:45-8:45 AM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2021 TRAFFIC VOLUMES				0		0		387	0	0	311	
Years To Buildout (2026)				5		5		5	5	5	5	
Yearly Growth Rate				1.0%		1.0%		1.0%	1.0%	1.0%	1.0%	
Background Traffic Growth				0		0		19	0	0	16	
2026 NO-BUILD TRAFFIC VOLUMES				0		0		406	0	0	327	
Residential Project Traffic				35		60			11	20		
Retail Project Traffic (Primary)				11		16			20	27		
Retail Project Traffic (Pass-By)												
Total Project Traffic				46		75			31	47		
2026 BUILD TRAFFIC VOLUMES				46		75		406	31	47	327	

PM PEAK HOUR (4:45-5:45 PM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2021 TRAFFIC VOLUMES				0		0		442	0	0	376	
Years To Buildout (2026)				5		5		5	5	5	5	
Yearly Growth Rate				1.0%		1.0%		1.0%	1.0%	1.0%	1.0%	
Background Traffic Growth				0		0		22	0	0	19	
2026 NO-BUILD TRAFFIC VOLUMES				0		0		464	0	0	395	
Residential Project Traffic				19		34			27	49		
Retail Project Traffic (Primary)				14		19			13	17		
Retail Project Traffic (Pass-By)												
Total Project Traffic				33		53			40	66		
2026 BUILD TRAFFIC VOLUMES				33		53		464	40	66	395	

APPENDIX E

Signal Warrant Analysis Worksheet

Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Access 1/Laurens Street & E Martintown Road
Project/File #	21226
Scenario	2026 Build Conditions

Intersection Information			
Major Street (E/W Road)	E Martintown Road	Minor Street (N/S Road)	Laurens Street/Access 1
Analyzed with	2 or more approach lanes	Analyzed with	2 or more approach lanes
Total Approach Volume	21143.2 vehicles	Total Approach Volume	1884.46275 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	50 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

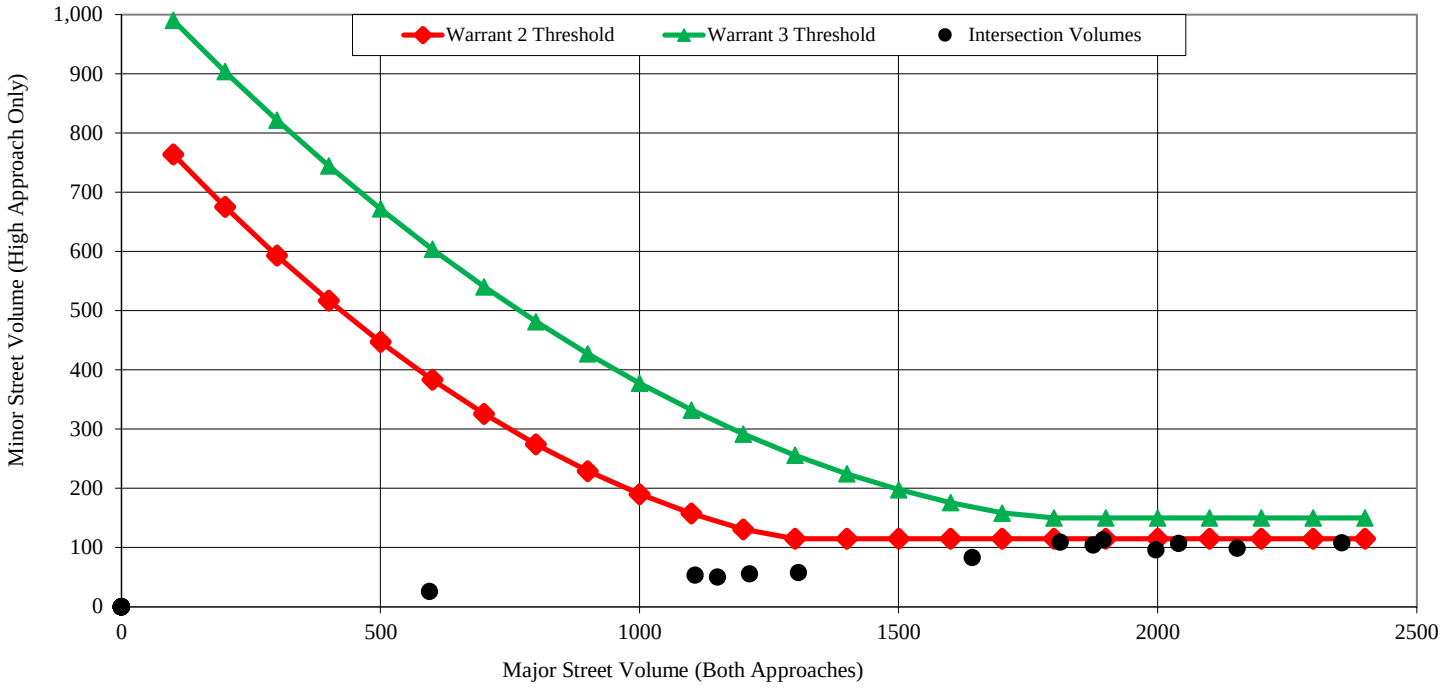
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	Condition B	Condition A+B*
Condition Satisfied?	Not Satisfied	Not Satisfied	Not Satisfied
Required values reached for	0 hours	5 hours	0 (Cond. A) & 8 (Cond. B)
Criteria - Major Street (veh/hr)	600	900	480 (Cond. A) & 720 (Cond. B)
Criteria - Minor Street (veh/hr)	200	100	160 (Cond. A) & 80 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	Not Satisfied
Required values reached for	0 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	Condition B
Condition Satisfied?	Not Satisfied	Not Satisfied
Required values reached for	2536 total, 137 minor, 0 delay	0 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	150	
Criteria - Minor Street High Side Delay (veh-hrs)	5	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



E Martintown Road & Laurens Street/Access 1
2021 Existing Hourly Combined

	E Martintown Road Eastbound				E Martintown Road Westbound				Restaurant Driveway Northbound				Laurens St Southbound			
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
6:00	1	201	4	0	5	330	0	0	1	0	0	0	8	0	14	0
7:00	1	537	10	0	33	591	0	0	0	0	0	0	14	0	64	0
8:00	2	498	4	0	10	494	2	0	0	0	1	0	9	1	33	0
9:00	3	511	6	0	9	428	2	0	2	0	1	0	4	0	13	0
10:00	6	553	14	0	13	454	3	0	1	1	1	0	5	0	19	0
11:00	17	703	6	0	23	656	13	0	7	0	10	0	9	0	24	0
12:00	15	859	16	0	17	855	17	0	14	0	15	0	5	1	24	0
13:00	9	767	8	0	19	844	5	0	23	0	19	0	8	1	33	0
14:00	7	727	7	0	39	840	9	0	11	0	14	0	7	0	33	0
15:00	6	843	22	0	42	818	6	0	8	0	12	0	8	0	51	0
16:00	13	969	12	0	42	832	10	1	7	1	6	0	9	0	33	0
17:00	16	1083	18	0	32	892	20	0	10	0	11	0	7	1	34	0
18:00	10	702	10	0	40	780	27	0	22	1	19	0	12	1	26	0

2026 Background Volumes

	E Martintown Road Eastbound				E Martintown Road Westbound				Restaurant Driveway Northbound				Laurens St Southbound			
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
6:00	1	211	4	0	5	347	0	0	1	0	0	0	8	0	15	0
7:00	1	564	11	0	35	621	0	0	0	0	0	0	15	0	67	0
8:00	2	523	4	0	11	519	2	0	0	0	1	0	9	1	35	0
9:00	3	537	6	0	9	449	2	0	2	0	1	0	4	0	14	0
10:00	6	581	15	0	14	477	3	0	1	1	1	0	5	0	20	0
11:00	18	738	6	0	24	689	14	0	7	0	11	0	9	0	25	0
12:00	16	902	17	0	18	898	18	0	15	0	16	0	5	1	25	0
13:00	9	805	8	0	20	886	5	0	24	0	20	0	8	1	35	0
14:00	7	763	7	0	41	882	9	0	12	0	15	0	7	0	35	0
15:00	6	885	23	0	44	859	6	0	8	0	13	0	8	0	54	0
16:00	14	1017	13	0	44	874	11	1	7	1	6	0	9	0	35	0
17:00	17	1137	19	0	34	937	21	0	11	0	12	0	7	1	36	0
18:00	11	737	11	0	42	819	28	0	23	1	20	0	13	1	27	0

2026 Build

	E Martintown Road Eastbound				E Martintown Road Westbound				Access 1 Northbound				Laurens St Southbound			
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
6:00	1	227	6	0	14	347	0	0	18	0	16	0	8	0	15	0
7:00	1	600	20	0	65	621	0	0	39	0	37	0	15	0	67	0
8:00	2	553	18	0	57	519	2	0	34	0	32	0	9	1	35	0
9:00	3	565	24	0	64	449	2	0	38	0	31	0	4	0	14	0
10:00	6	608	37	0	81	477	3	0	39	1	31	0	5	0	20	0
11:00	18	778	35	0	109	689	14	0	60	0	46	0	9	0	25	0
12:00	16	950	48	0	111	898	18	0	79	0	56	0	5	1	25	0
13:00	9	853	37	0	104	886	5	0	85	0	55	0	8	1	35	0
14:00	7	811	36	0	130	882	9	0	76	0	56	0	7	0	35	0
15:00	6	930	53	0	142	859	6	0	70	0	52	0	8	0	54	0
16:00	14	1061	44	0	151	874	11	1	72	1	51	0	9	0	35	0
17:00	17	1187	50	0	144	937	21	0	79	0	58	0	7	1	36	0
18:00	11	785	36	0	133	819	28	0	81	1	54	0	13	1	27	0

Hourly Distribution of Entering and Exiting Vehicle Trips by Land Use

Source: ITE Trip Generation Manual , 10th Edition

Land Use Code	210							
Land Use	Single-Family Detached Housing							
Setting	General Urban/Suburban							
Time Period	Weekday							
Trip Type	Vehicle					Daily Traffic	285	285
# Data Sites	6							
	% of 24-Hour Traffic			Percentages				
Time	Entering	Exiting	Time	Entering	Exiting	Time	Entering	Exiting
12-1 AM	0.5	0.2	12-1 AM	0.005	0.002	12-1 AM	1	1
1-2 AM	0.2	0.2	1-2 AM	0.002	0.002	1-2 AM	1	1
2-3 AM	0.2	0	2-3 AM	0.002	0.000	2-3 AM	1	0
3-4 AM	0.2	0.2	3-4 AM	0.002	0.002	3-4 AM	1	1
4-5 AM	0.3	0.8	4-5 AM	0.003	0.008	4-5 AM	1	2
5-6 AM	0.5	2.0	5-6 AM	0.005	0.020	5-6 AM	1	6
6-7 AM	1.6	5.9	6-7 AM	0.016	0.059	6-7 AM	5	17
7-8 AM	3.2	10.2	7-8 AM	0.032	0.102	7-8 AM	9	29
8-9 AM	3.7	8.6	8-9 AM	0.037	0.086	8-9 AM	11	25
9-10 AM	3.2	5.4	9-10 AM	0.032	0.054	9-10 AM	9	15
10-11 AM	4.2	5.4	10-11 AM	0.042	0.054	10-11 AM	12	15
11-12 PM	5.4	5.1	11-12 PM	0.054	0.051	11-12 PM	15	15
12-1 PM	5.5	5.6	12-1 PM	0.055	0.056	12-1 PM	16	16
1-2 PM	6.0	5.9	1-2 PM	0.060	0.059	1-2 PM	17	17
2-3 PM	7.0	6.2	2-3 PM	0.070	0.062	2-3 PM	20	18
3-4 PM	8.5	6.0	3-4 PM	0.085	0.060	3-4 PM	24	17
4-5 PM	10.5	7.5	4-5 PM	0.105	0.075	4-5 PM	30	21
5-6 PM	10.3	7.4	5-6 PM	0.103	0.074	5-6 PM	29	21
6-7 PM	8.6	5.9	6-7 PM	0.086	0.059	6-7 PM	25	17
7-8 PM	6.2	4.3	7-8 PM	0.062	0.043	7-8 PM	18	12
8-9 PM	6.3	3.1	8-9 PM	0.063	0.031	8-9 PM	18	9
9-10 PM	4.5	2.4	9-10 PM	0.045	0.024	9-10 PM	13	7
10-11 PM	2.2	1.1	10-11 PM	0.022	0.011	10-11 PM	6	3
11-12 AM	1.3	0.7	11-12 AM	0.013	0.007	11-12 AM	4	2

Hourly Distribution of Entering and Exiting Vehicle Trips by Land Use

Source: ITE Trip Generation Manual , 10th Edition

Land Use Code	220							
Land Use	Multifamily Housing (Low-Rise)							
Setting	General Urban/Suburban						Multifam	
Time Period	Weekday							
Trip Type	Vehicle					Daily Traffic	1435	1435
# Data Sites	9							
	% of 24-Hour Traffic			Percentages				
Time	Entering	Exiting	Time	Entering	Exiting	Time	Entering	Exiting
12-1 AM	0.7	0.3	12-1 AM	0.007	0.003	12-1 AM	10	4
1-2 AM	0.4	0.1	1-2 AM	0.004	0.001	1-2 AM	6	1
2-3 AM	0.3	0.3	2-3 AM	0.003	0.003	2-3 AM	4	4
3-4 AM	0.3	0.4	3-4 AM	0.003	0.004	3-4 AM	4	6
4-5 AM	0.4	1.0	4-5 AM	0.004	0.010	4-5 AM	6	14
5-6 AM	0.1	2.6	5-6 AM	0.001	0.026	5-6 AM	1	37
6-7 AM	1.1	5.8	6-7 AM	0.011	0.058	6-7 AM	16	83
7-8 AM	2.6	12.9	7-8 AM	0.026	0.129	7-8 AM	37	185
8-9 AM	4.0	9.1	8-9 AM	0.040	0.091	8-9 AM	57	131
9-10 AM	3.9	7.2	9-10 AM	0.039	0.072	9-10 AM	56	103
10-11 AM	3.9	4.7	10-11 AM	0.039	0.047	10-11 AM	56	67
11-12 PM	4.9	5.5	11-12 PM	0.049	0.055	11-12 PM	70	79
12-1 PM	5.6	5.4	12-1 PM	0.056	0.054	12-1 PM	80	77
1-2 PM	4.8	4.9	1-2 PM	0.048	0.049	1-2 PM	69	70
2-3 PM	5.9	6.0	2-3 PM	0.059	0.060	2-3 PM	85	86
3-4 PM	8.3	5.2	3-4 PM	0.083	0.052	3-4 PM	119	75
4-5 PM	10.0	5.1	4-5 PM	0.100	0.051	4-5 PM	144	73
5-6 PM	11.4	6.7	5-6 PM	0.114	0.067	5-6 PM	164	96
6-7 PM	9.5	6.3	6-7 PM	0.095	0.063	6-7 PM	136	90
7-8 PM	7.1	4.3	7-8 PM	0.071	0.043	7-8 PM	102	62
8-9 PM	5.7	3.5	8-9 PM	0.057	0.035	8-9 PM	82	50
9-10 PM	4.7	1.4	9-10 PM	0.047	0.014	9-10 PM	67	20
10-11 PM	2.9	1.0	10-11 PM	0.029	0.010	10-11 PM	42	14
11-12 AM	1.5	0.4	11-12 AM	0.015	0.004	11-12 AM	22	6

Hourly Distribution of Entering and Exiting Vehicle Trips by Land Use

Source: ITE Trip Generation Manual , 10th Edition

Land Use Code	252							
Land Use	Senior Adult Housing - Attached							
Setting	General Urban/Suburban							
Time Period	Weekday							
Trip Type	Vehicle					Daily Traffic	168	168
# Data Sites	1							
	% of 24-Hour Traffic			Percentages				
Time	Entering	Exiting	Time	Entering	Exiting	Time	Entering	Exiting
12-1 AM	0.3	0.4	12-1 AM	0.003	0.004	12-1 AM	1	1
1-2 AM	0.2	0.5	1-2 AM	0.002	0.005	1-2 AM	0	1
2-3 AM	0	0.1	2-3 AM	0.000	0.001	2-3 AM	0	0
3-4 AM	0.1	0.2	3-4 AM	0.001	0.002	3-4 AM	0	0
4-5 AM	0.2	0.5	4-5 AM	0.002	0.005	4-5 AM	0	1
5-6 AM	0.9	2.2	5-6 AM	0.009	0.022	5-6 AM	2	4
6-7 AM	1.3	3.0	6-7 AM	0.013	0.030	6-7 AM	2	5
7-8 AM	2.1	5.1	7-8 AM	0.021	0.051	7-8 AM	4	9
8-9 AM	3.9	6.3	8-9 AM	0.039	0.063	8-9 AM	7	11
9-10 AM	4.7	6.7	9-10 AM	0.047	0.067	9-10 AM	8	11
10-11 AM	6.4	7.5	10-11 AM	0.064	0.075	10-11 AM	11	13
11-12 PM	6.8	6.5	11-12 PM	0.068	0.065	11-12 PM	11	11
12-1 PM	8.5	9.0	12-1 PM	0.085	0.090	12-1 PM	14	15
1-2 PM	7.7	8.0	1-2 PM	0.077	0.080	1-2 PM	13	13
2-3 PM	9.1	6.7	2-3 PM	0.091	0.067	2-3 PM	15	11
3-4 PM	8.7	5.7	3-4 PM	0.087	0.057	3-4 PM	15	10
4-5 PM	8.3	6.3	4-5 PM	0.083	0.063	4-5 PM	14	11
5-6 PM	7.3	5.7	5-6 PM	0.073	0.057	5-6 PM	12	10
6-7 PM	6.3	5.2	6-7 PM	0.063	0.052	6-7 PM	11	9
7-8 PM	5.8	5.2	7-8 PM	0.058	0.052	7-8 PM	10	9
8-9 PM	4.8	4.1	8-9 PM	0.048	0.041	8-9 PM	8	7
9-10 PM	3.1	2.2	9-10 PM	0.031	0.022	9-10 PM	5	4
10-11 PM	2.5	1.8	10-11 PM	0.025	0.018	10-11 PM	4	3
11-12 AM	0.8	1.1	11-12 AM	0.008	0.011	11-12 AM	1	2

Hourly Distribution of Entering and Exiting Vehicle Trips by Land Use

Source: ITE Trip Generation Manual , 10th Edition

Land Use Code	630
Land Use	Clinic
Setting	General Urban/Suburban
Time Period	Weekday
Trip Type	Vehicle
# Data Sites	3

	% of 24-Hour Traffic			Percentages				
Time	Entering	Exiting	Time	Entering	Exiting	Daily Traffic	214	213
12-1 AM	0	0	12-1 AM	0.000	0.000	12-1 AM	0	0
1-2 AM	0	0	1-2 AM	0.000	0.000	1-2 AM	0	0
2-3 AM	0	0	2-3 AM	0.000	0.000	2-3 AM	0	0
3-4 AM	0	0	3-4 AM	0.000	0.000	3-4 AM	0	0
4-5 AM	0	0	4-5 AM	0.000	0.000	4-5 AM	0	0
5-6 AM	0	0	5-6 AM	0.000	0.000	5-6 AM	0	0
6-7 AM	0	0	6-7 AM	0.000	0.000	6-7 AM	0	0
7-8 AM	11.4	2.7	7-8 AM	0.114	0.027	7-8 AM	24	6
8-9 AM	15.0	4.3	8-9 AM	0.150	0.043	8-9 AM	32	9
9-10 AM	11.4	8.9	9-10 AM	0.114	0.089	9-10 AM	24	19
10-11 AM	9.6	9.4	10-11 AM	0.096	0.094	10-11 AM	21	20
11-12 PM	7.4	11.6	11-12 PM	0.074	0.116	11-12 PM	16	25
12-1 PM	7.1	10.2	12-1 PM	0.071	0.102	12-1 PM	15	22
1-2 PM	9.9	5.7	1-2 PM	0.099	0.057	1-2 PM	21	12
2-3 PM	9.1	9.5	2-3 PM	0.091	0.095	2-3 PM	19	20
3-4 PM	9.2	9.9	3-4 PM	0.092	0.099	3-4 PM	20	21
4-5 PM	6.5	11.5	4-5 PM	0.065	0.115	4-5 PM	14	24
5-6 PM	2.5	12.2	5-6 PM	0.025	0.122	5-6 PM	5	26
6-7 PM	1.0	4.1	6-7 PM	0.010	0.041	6-7 PM	2	9
7-8 PM	0	0	7-8 PM	0.000	0.000	7-8 PM	0	0
8-9 PM	0	0	8-9 PM	0.000	0.000	8-9 PM	0	0
9-10 PM	0	0	9-10 PM	0.000	0.000	9-10 PM	0	0
10-11 PM	0	0	10-11 PM	0.000	0.000	10-11 PM	0	0
11-12 AM	0	0	11-12 AM	0.000	0.000	11-12 AM	0	0

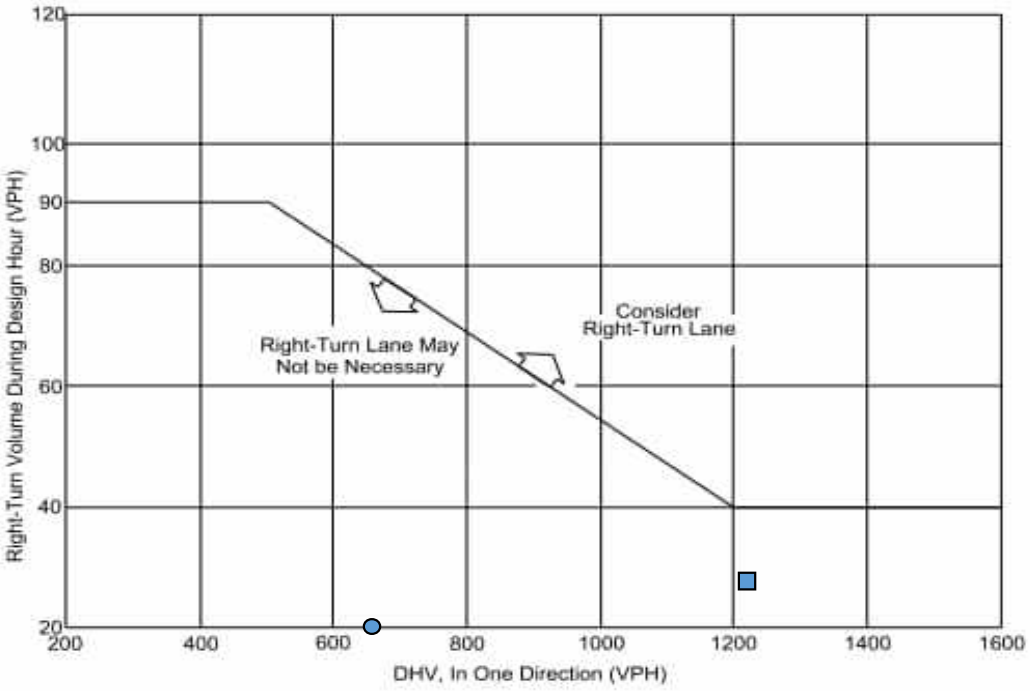
Hourly Distribution of Entering and Exiting Vehicle Trips by Land Use

Source: ITE Trip Generation Manual , 10th Edition

Land Use Code	820							
Land Use	Shopping Center							
Setting	General Urban/Suburban							
Time Period	Weekday							
Trip Type	Vehicle					Daily Traffic	1472	1472
# Data Sites	10							
	% of 24-Hour Traffic			Percentages				
Time	Entering	Exiting	Time	Entering	Exiting	Time	Entering	Exiting
12-1 AM	0.0	0.3	12-1 AM	0.000	0.003	12-1 AM	0	4
1-2 AM	0.0	0.2	1-2 AM	0.000	0.002	1-2 AM	0	3
2-3 AM	0	0.0	2-3 AM	0.000	0.000	2-3 AM	0	0
3-4 AM	0.0	0.0	3-4 AM	0.000	0.000	3-4 AM	0	0
4-5 AM	0.0	0.0	4-5 AM	0.000	0.000	4-5 AM	0	0
5-6 AM	0.1	0.1	5-6 AM	0.001	0.001	5-6 AM	1	1
6-7 AM	0.3	0.2	6-7 AM	0.003	0.002	6-7 AM	4	3
7-8 AM	1.4	0.9	7-8 AM	0.014	0.009	7-8 AM	21	13
8-9 AM	2.6	1.5	8-9 AM	0.026	0.015	8-9 AM	38	22
9-10 AM	4.7	2.5	9-10 AM	0.047	0.025	9-10 AM	69	37
10-11 AM	7.1	4.1	10-11 AM	0.071	0.041	10-11 AM	105	60
11-12 PM	9.7	6.8	11-12 PM	0.097	0.068	11-12 PM	143	100
12-1 PM	10.6	9.4	12-1 PM	0.106	0.094	12-1 PM	156	138
1-2 PM	9.2	9.5	1-2 PM	0.092	0.095	1-2 PM	135	140
2-3 PM	8.9	9.2	2-3 PM	0.089	0.092	2-3 PM	131	135
3-4 PM	8.5	9.0	3-4 PM	0.085	0.090	3-4 PM	125	132
4-5 PM	8.9	9.4	4-5 PM	0.089	0.094	4-5 PM	131	138
5-6 PM	9.2	9.4	5-6 PM	0.092	0.094	5-6 PM	135	138
6-7 PM	7.6	8.5	6-7 PM	0.076	0.085	6-7 PM	112	125
7-8 PM	5.3	6.9	7-8 PM	0.053	0.069	7-8 PM	78	102
8-9 PM	3.2	5.6	8-9 PM	0.032	0.056	8-9 PM	47	82
9-10 PM	1.6	4.3	9-10 PM	0.016	0.043	9-10 PM	24	63
10-11 PM	0.7	1.5	10-11 PM	0.007	0.015	10-11 PM	10	22
11-12 AM	0.3	0.7	11-12 AM	0.003	0.007	11-12 AM	4	10

APPENDIX F

Turn Lane Analysis Worksheets



Note: Figure is only applicable on highways with a design speed of 50 miles per hour or greater.

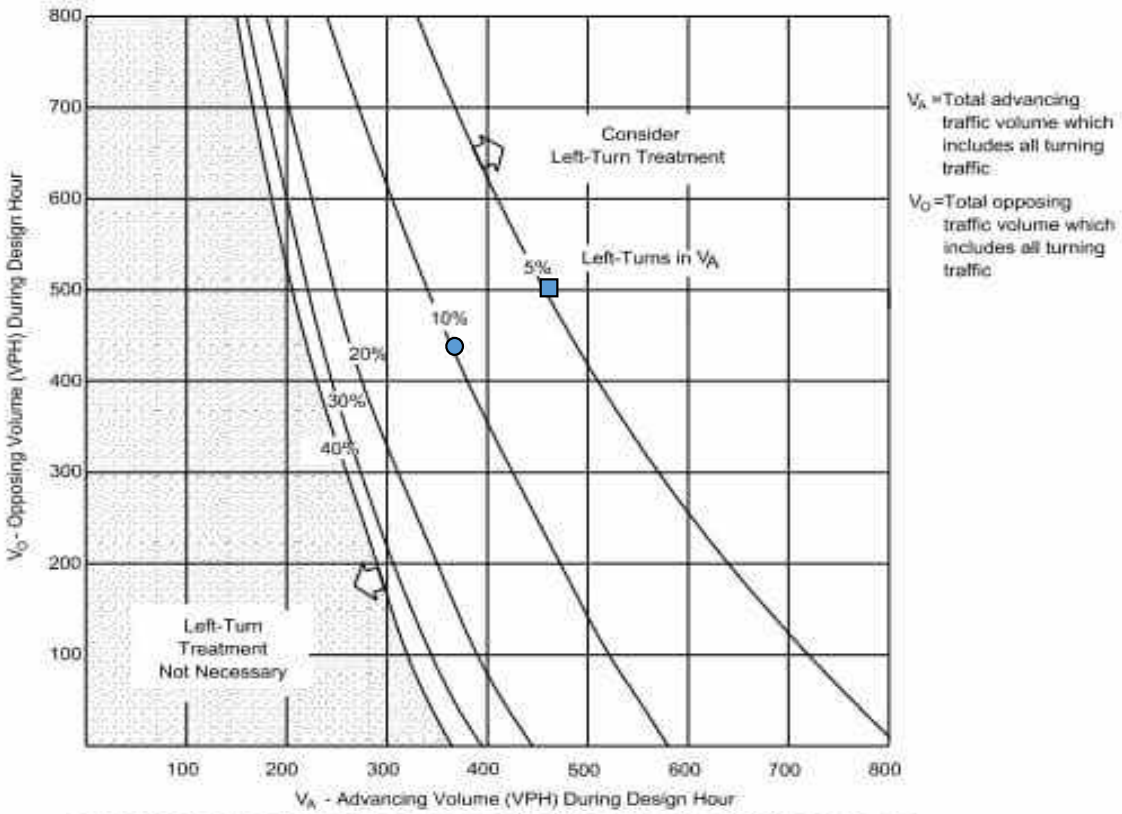
GUIDELINES FOR RIGHT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON FOUR-LANE HIGHWAYS

Figure 9.5-B

INTERSECTION: Access 1/Laurens Street & E Martintown Road

MOVEMENT: Southbound Right Turn

SCENARIO	Design Hour Volume	Right Turn Volume	Symbol
AM Build	657	28	●
PM Build	1233	40	■

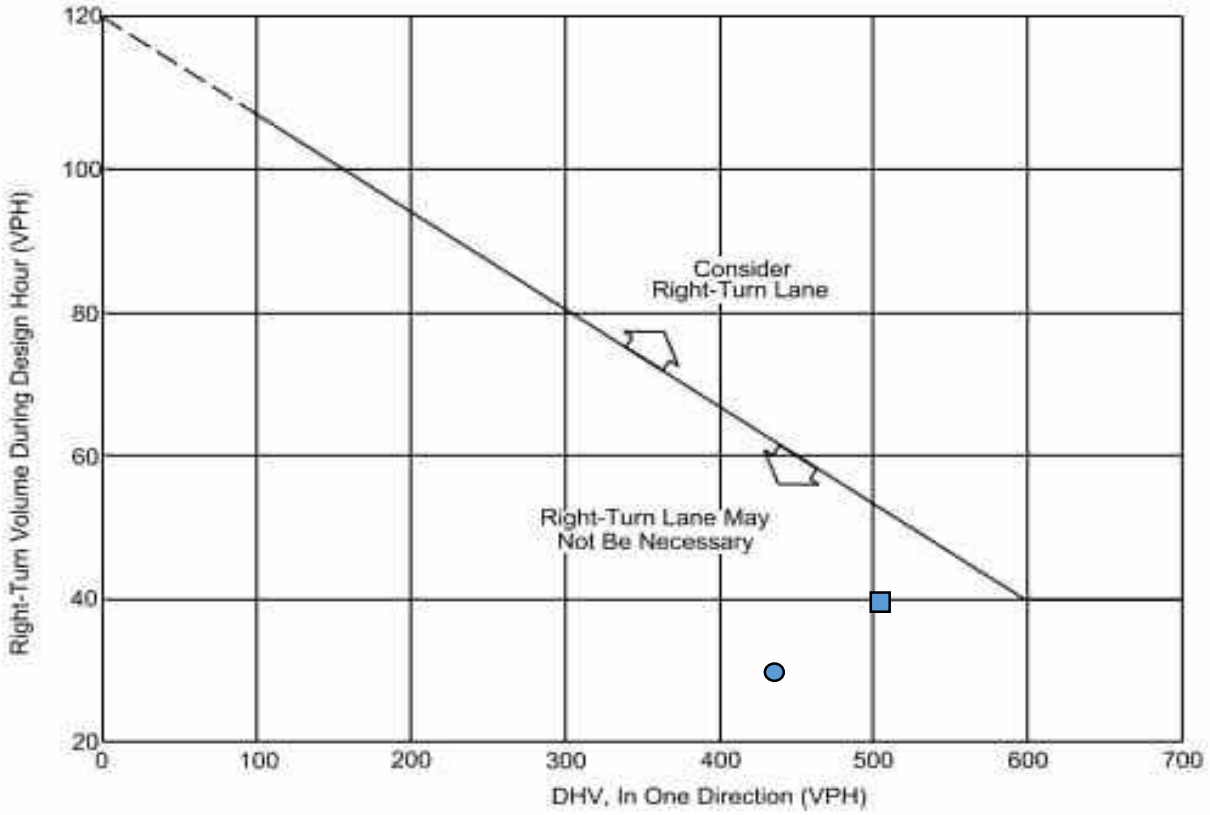


VOLUME GUIDELINES FOR LEFT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON TWO-LANE HIGHWAYS (40 mph)
Figure 9.5-G

INTERSECTION: Access 2 & E Buena Vista Avenue

MOVEMENT: Southbound left turn

SCENARIO	Advancing Volume (V_a)	Southbound left turn	Opposing Volume (V_o)	Left Turn % of V_a	Symbol
AM Build	374	47	437	12.6%	●
PM Build	461	66	504	14.3%	■



Note: For highways with a design speed below 50 miles per hour with a DHV < 300 and where right turns > 40, an adjustment should be used. To read the vertical axis of the chart, subtract 20 from the actual number of right turns.

GUIDELINES FOR RIGHT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON TWO-LANE HIGHWAYS

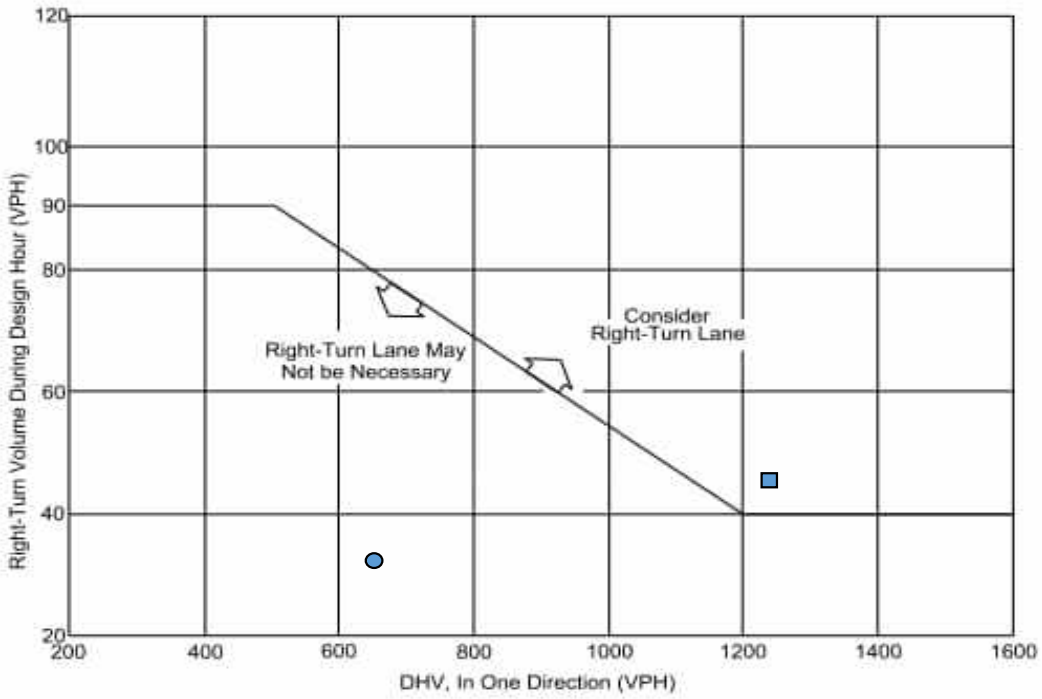
Figure 9.5-A

INTERSECTION: Access 2 & E Buena Vista Avenue

MOVEMENT: Northbound Right Turn

SCENARIO	Design Hour Volume	Right Turn Volume	Symbol
AM Build	437	31	●
PM Build	504	40	■

RAMEY KEMP ASSOCIATES



Note: Figure is only applicable on highways with a design speed of 50 miles per hour or greater.

GUIDELINES FOR RIGHT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON FOUR-LANE HIGHWAYS

Figure 9.5-B

INTERSECTION: RIRO Access & E Martintown Road

MOVEMENT: Southbound Right Turn

SCENARIO	Design Hour Volume	Right Turn Volume	Symbol
AM Build	653	33	●
PM Build	1238	46	■

APPENDIX G

Synchro Analysis Worksheets (2021 Existing Conditions)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	134	6	39	187	269	7	294	8	228	373	10
Future Volume (veh/h)	25	134	6	39	187	269	7	294	8	228	373	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	146	7	42	203	292	8	320	9	248	405	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	322	466	22	409	492	417	347	590	17	530	1101	30
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.01	0.17	0.17	0.16	0.31	0.31
Sat Flow, veh/h	902	1770	85	1234	1870	1585	1781	3530	99	1781	3534	96
Grp Volume(v), veh/h	27	0	153	42	203	292	8	161	168	248	203	213
Grp Sat Flow(s),veh/h/ln	902	0	1855	1234	1870	1585	1781	1777	1853	1781	1777	1853
Q Serve(g_s), s	1.1	0.0	2.9	1.2	3.9	7.2	0.2	3.6	3.6	4.4	3.9	3.9
Cycle Q Clear(g_c), s	5.0	0.0	2.9	4.1	3.9	7.2	0.2	3.6	3.6	4.4	3.9	3.9
Prop In Lane	1.00		0.05	1.00		1.00	1.00		0.05	1.00		0.05
Lane Grp Cap(c), veh/h	322	0	488	409	492	417	347	297	310	530	554	577
V/C Ratio(X)	0.08	0.00	0.31	0.10	0.41	0.70	0.02	0.54	0.54	0.47	0.37	0.37
Avail Cap(c_a), veh/h	688	0	1240	909	1250	1059	780	1064	1110	1362	1720	1793
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.3	0.0	12.8	14.5	13.2	14.4	14.7	16.5	16.6	10.5	11.6	11.6
Incr Delay (d2), s/veh	0.1	0.0	0.4	0.1	0.6	2.1	0.0	1.5	1.5	0.6	0.4	0.4
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	0.2	0.0	1.0	0.3	1.4	2.3	0.1	1.3	1.4	1.3	1.2	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.4	0.0	13.2	14.6	13.8	16.6	14.8	18.1	18.0	11.2	12.0	12.0
LnGrp LOS	B	A	B	B	B	B	B	B	B	B	B	B
Approach Vol, veh/h		180			537			337			664	
Approach Delay, s/veh		13.5			15.4			18.0			11.7	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.7	13.3		17.4	6.5	19.5		17.4				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	27.0	26.0		29.0	11.0	42.0		29.0				
Max Q Clear Time (g_c+I1), s	6.4	5.6		7.0	2.2	5.9		9.2				
Green Ext Time (p_c), s	0.7	1.6		0.9	0.0	2.4		2.2				
Intersection Summary												
HCM 6th Ctrl Delay			14.3									
HCM 6th LOS			B									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	153	11	48	205	398	21	714	18	289	552	29
Future Volume (veh/h)	54	153	11	48	205	398	21	714	18	289	552	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	59	166	12	52	223	433	23	776	20	314	600	32
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	268	533	39	385	578	490	375	1019	26	431	1421	76
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.03	0.29	0.29	0.15	0.41	0.41
Sat Flow, veh/h	777	1723	125	1206	1870	1585	1781	3540	91	1781	3431	183
Grp Volume(v), veh/h	59	0	178	52	223	433	23	389	407	314	310	322
Grp Sat Flow(s),veh/h/ln	777	0	1848	1206	1870	1585	1781	1777	1854	1781	1777	1837
Q Serve(g_s), s	4.6	0.0	5.3	2.5	6.7	18.6	0.6	14.3	14.3	8.2	8.9	8.9
Cycle Q Clear(g_c), s	11.3	0.0	5.3	7.7	6.7	18.6	0.6	14.3	14.3	8.2	8.9	8.9
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.05	1.00		0.10
Lane Grp Cap(c), veh/h	268	0	571	385	578	490	375	511	533	431	736	761
V/C Ratio(X)	0.22	0.00	0.31	0.14	0.39	0.88	0.06	0.76	0.76	0.73	0.42	0.42
Avail Cap(c_a), veh/h	310	0	670	449	678	575	553	818	853	732	1165	1205
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.9	0.0	18.9	21.9	19.4	23.5	17.1	23.3	23.3	15.3	14.9	14.9
Incr Delay (d2), s/veh	0.4	0.0	0.3	0.2	0.4	13.6	0.1	2.4	2.3	2.4	0.4	0.4
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	0.8	0.0	2.1	0.7	2.8	8.2	0.2	5.7	6.0	3.0	3.2	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.3	0.0	19.2	22.0	19.8	37.1	17.2	25.7	25.6	17.7	15.3	15.3
LnGrp LOS	C	A	B	C	B	D	B	C	C	B	B	B
Approach Vol, veh/h		237			708			819			946	
Approach Delay, s/veh		20.5			30.5			25.4			16.1	
Approach LOS		C			C			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.9	26.6		28.2	7.8	35.7		28.2				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	23.0	33.0		26.0	9.0	47.0		26.0				
Max Q Clear Time (g_c+I1), s	10.2	16.3		13.3	2.6	10.9		20.6				
Green Ext Time (p_c), s	0.7	4.3		1.0	0.0	3.9		1.6				
Intersection Summary												
HCM 6th Ctrl Delay			23.1									
HCM 6th LOS			C									

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	0	0	13	1	65	36	635	1	2	562	10
Future Vol, veh/h	0	0	0	13	1	65	36	635	1	2	562	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	14	1	71	39	690	1	2	611	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1045	1390	311	1079	1395	346	622	0	0	691	0	0
Stage 1	621	621	-	769	769	-	-	-	-	-	-	-
Stage 2	424	769	-	310	626	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	183	141	685	173	140	650	955	-	-	900	-	-
Stage 1	442	477	-	360	409	-	-	-	-	-	-	-
Stage 2	578	409	-	675	475	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	157	135	685	167	134	650	955	-	-	900	-	-
Mov Cap-2 Maneuver	336	311	-	311	303	-	-	-	-	-	-	-
Stage 1	424	476	-	345	392	-	-	-	-	-	-	-
Stage 2	493	392	-	674	474	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	12.9	0.5	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	955	-	-	-	544	900	-	-
HCM Lane V/C Ratio	0.041	-	-	-	0.158	0.002	-	-
HCM Control Delay (s)	8.9	-	-	0	12.9	9	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6	0	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	1	7	9	0	30	30	898	19	10	1106	17
Future Vol, veh/h	10	1	7	9	0	30	30	898	19	10	1106	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	1	8	10	0	33	33	976	21	11	1202	18

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1787	2296	610	1677	2295	499	1220	0	0	997	0	0
Stage 1	1233	1233	-	1053	1053	-	-	-	-	-	-	-
Stage 2	554	1063	-	624	1242	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	51	38	437	62	38	517	567	-	-	690	-	-
Stage 1	187	247	-	242	301	-	-	-	-	-	-	-
Stage 2	484	298	-	440	245	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	45	35	437	57	35	517	567	-	-	690	-	-
Mov Cap-2 Maneuver	157	173	-	192	161	-	-	-	-	-	-	-
Stage 1	176	243	-	228	284	-	-	-	-	-	-	-
Stage 2	427	281	-	424	241	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	23.8	15.9	0.4	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	567	-	-	211	372	690	-	-
HCM Lane V/C Ratio	0.058	-	-	0.093	0.114	0.016	-	-
HCM Control Delay (s)	11.7	-	-	23.8	15.9	10.3	-	-
HCM Lane LOS	B	-	-	C	C	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.3	0.4	0	-	-

Intersection												
Int Delay, s/veh	5.7											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1	0	3	1	226	0	99	2	169	145	2
Future Vol, veh/h	0	1	0	3	1	226	0	99	2	169	145	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	125	-	-	-	-	-	175	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	0	3	1	246	0	108	2	184	158	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	760	637	159	637	637	109	160	0	0	110	0	0
Stage 1	527	527	-	109	109	-	-	-	-	-	-	-
Stage 2	233	110	-	528	528	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	323	395	886	390	395	945	1419	-	-	1480	-	-
Stage 1	535	528	-	896	805	-	-	-	-	-	-	-
Stage 2	770	804	-	534	528	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	216	346	886	352	346	945	1419	-	-	1480	-	-
Mov Cap-2 Maneuver	216	346	-	352	346	-	-	-	-	-	-	-
Stage 1	535	463	-	896	805	-	-	-	-	-	-	-
Stage 2	569	804	-	467	463	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.4	10.3	0	4.2
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1419	-	-	346	352	938	1480	-	-
HCM Lane V/C Ratio	-	-	-	0.003	0.009	0.263	0.124	-	-
HCM Control Delay (s)	0	-	-	15.4	15.3	10.2	7.8	-	-
HCM Lane LOS	A	-	-	C	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	1.1	0.4	-	-

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	18	3	7	14	219	7	164	18	193	159	15
Future Vol, veh/h	10	18	3	7	14	219	7	164	18	193	159	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	125	-	-	-	-	-	175	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	20	3	8	15	238	8	178	20	210	173	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	932	815	181	817	813	188	189	0	0	198	0	0
Stage 1	601	601	-	204	204	-	-	-	-	-	-	-
Stage 2	331	214	-	613	609	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	247	312	862	295	313	854	1385	-	-	1375	-	-
Stage 1	487	489	-	798	733	-	-	-	-	-	-	-
Stage 2	682	725	-	480	485	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	150	262	862	244	263	854	1385	-	-	1375	-	-
Mov Cap-2 Maneuver	150	262	-	244	263	-	-	-	-	-	-	-
Stage 1	484	414	-	792	728	-	-	-	-	-	-	-
Stage 2	478	720	-	386	411	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	24	12.4	0.3	4.3
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1385	-	-	223	244	752	1375	-	-
HCM Lane V/C Ratio	0.005	-	-	0.151	0.031	0.337	0.153	-	-
HCM Control Delay (s)	7.6	0	-	24	20.2	12.2	8.1	-	-
HCM Lane LOS	A	A	-	C	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.1	1.5	0.5	-	-

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↰	↕	
Traffic Vol, veh/h	9	2	11	53	1	92	6	313	68	64	247	10
Future Vol, veh/h	9	2	11	53	1	92	6	313	68	64	247	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	2	12	58	1	100	7	340	74	70	268	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	856	842	274	812	810	377	279	0	0	414	0	0
Stage 1	414	414	-	391	391	-	-	-	-	-	-	-
Stage 2	442	428	-	421	419	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	278	301	765	298	314	670	1284	-	-	1145	-	-
Stage 1	616	593	-	633	607	-	-	-	-	-	-	-
Stage 2	594	585	-	610	590	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	224	281	765	277	293	670	1284	-	-	1145	-	-
Mov Cap-2 Maneuver	224	281	-	277	293	-	-	-	-	-	-	-
Stage 1	612	557	-	629	603	-	-	-	-	-	-	-
Stage 2	501	581	-	562	554	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.8	17.7	0.1	1.7
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1284	-	-	357	440	1145	-	-
HCM Lane V/C Ratio	0.005	-	-	0.067	0.361	0.061	-	-
HCM Control Delay (s)	7.8	0	-	15.8	17.7	8.3	-	-
HCM Lane LOS	A	A	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	1.6	0.2	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↰	↕	
Traffic Vol, veh/h	13	0	7	4	0	2	15	419	8	1	365	14
Future Vol, veh/h	13	0	7	4	0	2	15	419	8	1	365	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	0	8	4	0	2	16	455	9	1	397	15

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	900	903	405	903	906	460	412	0	0	464	0	0
Stage 1	407	407	-	492	492	-	-	-	-	-	-	-
Stage 2	493	496	-	411	414	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	259	277	646	258	276	601	1147	-	-	1097	-	-
Stage 1	621	597	-	558	548	-	-	-	-	-	-	-
Stage 2	558	545	-	618	593	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	254	271	646	251	270	601	1147	-	-	1097	-	-
Mov Cap-2 Maneuver	254	271	-	251	270	-	-	-	-	-	-	-
Stage 1	609	596	-	547	538	-	-	-	-	-	-	-
Stage 2	545	535	-	610	592	-	-	-	-	-	-	-

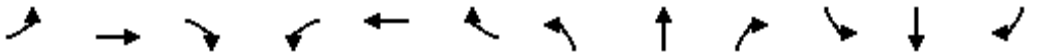
Approach	EB	WB	NB	SB
HCM Control Delay, s	17	16.8	0.3	0
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1147	-	-	322	311	1097	-	-
HCM Lane V/C Ratio	0.014	-	-	0.068	0.021	0.001	-	-
HCM Control Delay (s)	8.2	0	-	17	16.8	8.3	-	-
HCM Lane LOS	A	A	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-	-

APPENDIX H

Synchro Analysis Worksheets (2026 No-Build Conditions)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	141	6	41	196	282	7	309	8	239	392	11
Future Volume (veh/h)	26	141	6	41	196	282	7	309	8	239	392	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	153	7	45	213	307	8	336	9	260	426	12
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	317	483	22	409	510	432	339	597	16	529	1123	32
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.01	0.17	0.17	0.16	0.32	0.32
Sat Flow, veh/h	882	1775	81	1226	1870	1585	1781	3536	95	1781	3530	99
Grp Volume(v), veh/h	28	0	160	45	213	307	8	169	176	260	214	224
Grp Sat Flow(s),veh/h/ln	882	0	1856	1226	1870	1585	1781	1777	1853	1781	1777	1852
Q Serve(g_s), s	1.2	0.0	3.1	1.4	4.2	7.9	0.2	3.9	3.9	4.8	4.2	4.2
Cycle Q Clear(g_c), s	5.4	0.0	3.1	4.5	4.2	7.9	0.2	3.9	3.9	4.8	4.2	4.2
Prop In Lane	1.00		0.04	1.00		1.00	1.00		0.05	1.00		0.05
Lane Grp Cap(c), veh/h	317	0	506	409	510	432	339	300	313	529	565	589
V/C Ratio(X)	0.09	0.00	0.32	0.11	0.42	0.71	0.02	0.56	0.56	0.49	0.38	0.38
Avail Cap(c_a), veh/h	722	0	1357	972	1368	1159	754	945	986	1231	1497	1560
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.7	0.0	13.1	14.8	13.5	14.8	15.3	17.2	17.2	10.9	11.9	11.9
Incr Delay (d2), s/veh	0.1	0.0	0.4	0.1	0.5	2.2	0.0	1.7	1.6	0.7	0.4	0.4
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	0.2	0.0	1.1	0.3	1.5	2.5	0.1	1.5	1.5	1.5	1.3	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.8	0.0	13.4	15.0	14.0	17.0	15.3	18.9	18.8	11.6	12.3	12.3
LnGrp LOS	B	A	B	B	B	B	B	B	B	B	B	B
Approach Vol, veh/h		188			565			353			698	
Approach Delay, s/veh		13.8			15.7			18.8			12.1	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.2	13.6		18.3	6.5	20.3		18.3				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	25.0	24.0		33.0	11.0	38.0		33.0				
Max Q Clear Time (g_c+I1), s	6.8	5.9		7.4	2.2	6.2		9.9				
Green Ext Time (p_c), s	0.7	1.7		1.0	0.0	2.5		2.4				
Intersection Summary												
HCM 6th Ctrl Delay			14.7									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	161	12	50	215	418	22	750	19	303	580	30
Future Volume (veh/h)	57	161	12	50	215	418	22	750	19	303	580	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	62	175	13	54	234	454	24	815	21	329	630	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	260	546	41	381	594	503	366	1035	27	423	1448	76
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.03	0.29	0.29	0.16	0.42	0.42
Sat Flow, veh/h	755	1720	128	1195	1870	1585	1781	3540	91	1781	3435	180
Grp Volume(v), veh/h	62	0	188	54	234	454	24	409	427	329	326	337
Grp Sat Flow(s),veh/h/ln	755	0	1847	1195	1870	1585	1781	1777	1854	1781	1777	1838
Q Serve(g_s), s	5.3	0.0	5.9	2.8	7.5	21.0	0.7	16.2	16.2	9.1	9.9	10.0
Cycle Q Clear(g_c), s	12.8	0.0	5.9	8.7	7.5	21.0	0.7	16.2	16.2	9.1	9.9	10.0
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.05	1.00		0.10
Lane Grp Cap(c), veh/h	260	0	586	381	594	503	366	519	542	423	749	775
V/C Ratio(X)	0.24	0.00	0.32	0.14	0.39	0.90	0.07	0.79	0.79	0.78	0.43	0.44
Avail Cap(c_a), veh/h	286	0	651	423	660	559	528	743	775	682	1068	1104
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.4	0.0	19.9	23.2	20.4	25.0	18.0	24.9	24.9	16.4	15.7	15.7
Incr Delay (d2), s/veh	0.5	0.0	0.3	0.2	0.4	16.9	0.1	3.7	3.5	3.1	0.4	0.4
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	0.9	0.0	2.4	0.8	3.1	9.6	0.3	6.8	7.0	3.5	3.7	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.9	0.0	20.2	23.3	20.8	41.9	18.1	28.6	28.4	19.5	16.1	16.1
LnGrp LOS	C	A	C	C	C	D	B	C	C	B	B	B
Approach Vol, veh/h		250			742			860			992	
Approach Delay, s/veh		21.6			33.9			28.2			17.2	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	17.9	28.4		30.3	8.0	38.3		30.3				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	23.0	32.0		27.0	9.0	46.0		27.0				
Max Q Clear Time (g_c+I1), s	11.1	18.2		14.8	2.7	12.0		23.0				
Green Ext Time (p_c), s	0.8	4.2		1.1	0.0	4.1		1.3				

Intersection Summary			
HCM 6th Ctrl Delay		25.3	
HCM 6th LOS		C	

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	0	0	14	1	68	38	667	1	2	590	11
Future Vol, veh/h	0	0	0	14	1	68	38	667	1	2	590	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	15	1	74	41	725	1	2	641	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1096	1459	327	1133	1465	363	653	0	0	726	0	0
Stage 1	651	651	-	808	808	-	-	-	-	-	-	-
Stage 2	445	808	-	325	657	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	168	128	669	158	127	634	930	-	-	873	-	-
Stage 1	424	463	-	341	392	-	-	-	-	-	-	-
Stage 2	562	392	-	661	460	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	143	122	669	152	121	634	930	-	-	873	-	-
Mov Cap-2 Maneuver	319	297	-	294	288	-	-	-	-	-	-	-
Stage 1	405	462	-	326	375	-	-	-	-	-	-	-
Stage 2	473	375	-	659	459	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	13.3	0.5	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	930	-	-	-	524	873	-	-
HCM Lane V/C Ratio	0.044	-	-	-	0.172	0.002	-	-
HCM Control Delay (s)	9.1	-	-	0	13.3	9.1	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6	0	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	1	7	9	0	32	32	943	20	11	1161	18
Future Vol, veh/h	11	1	7	9	0	32	32	943	20	11	1161	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	1	8	10	0	35	35	1025	22	12	1262	20

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1879	2413	641	1762	2412	524	1282	0	0	1047	0	0
Stage 1	1296	1296	-	1106	1106	-	-	-	-	-	-	-
Stage 2	583	1117	-	656	1306	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	44	32	417	54	32	498	537	-	-	660	-	-
Stage 1	171	231	-	224	284	-	-	-	-	-	-	-
Stage 2	465	281	-	421	228	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	38	29	417	49	29	498	537	-	-	660	-	-
Mov Cap-2 Maneuver	142	160	-	177	147	-	-	-	-	-	-	-
Stage 1	160	227	-	209	266	-	-	-	-	-	-	-
Stage 2	404	263	-	404	224	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	26.4	16.6	0.4	0.1
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	537	-	-	189	356	660	-	-
HCM Lane V/C Ratio	0.065	-	-	0.109	0.125	0.018	-	-
HCM Control Delay (s)	12.2	-	-	26.4	16.6	10.6	-	-
HCM Lane LOS	B	-	-	D	C	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.4	0.4	0.1	-	-

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1	0	3	1	237	0	104	2	177	152	2
Future Vol, veh/h	0	1	0	3	1	237	0	104	2	177	152	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	125	-	-	-	-	-	175	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	0	3	1	258	0	113	2	192	165	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	794	665	166	665	665	114	167	0	0	115	0	0
Stage 1	550	550	-	114	114	-	-	-	-	-	-	-
Stage 2	244	115	-	551	551	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	306	381	878	374	381	939	1411	-	-	1474	-	-
Stage 1	519	516	-	891	801	-	-	-	-	-	-	-
Stage 2	760	800	-	519	515	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	200	331	878	336	331	939	1411	-	-	1474	-	-
Mov Cap-2 Maneuver	200	331	-	336	331	-	-	-	-	-	-	-
Stage 1	519	449	-	891	801	-	-	-	-	-	-	-
Stage 2	551	800	-	450	448	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.9	10.4	0	4.2
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1411	-	-	331	336	932	1474	-	-
HCM Lane V/C Ratio	-	-	-	0.003	0.01	0.278	0.131	-	-
HCM Control Delay (s)	0	-	-	15.9	15.8	10.3	7.8	-	-
HCM Lane LOS	A	-	-	C	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	1.1	0.4	-	-

Intersection

Int Delay, s/veh	6.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	19	3	7	15	230	7	172	19	203	167	16
Future Vol, veh/h	11	19	3	7	15	230	7	172	19	203	167	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	125	-	-	-	-	-	175	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	21	3	8	16	250	8	187	21	221	182	17

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	980	857	191	859	855	198	199	0	0	208	0	0
Stage 1	633	633	-	214	214	-	-	-	-	-	-	-
Stage 2	347	224	-	645	641	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	229	295	851	277	296	843	1373	-	-	1363	-	-
Stage 1	468	473	-	788	725	-	-	-	-	-	-	-
Stage 2	669	718	-	461	469	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	134	245	851	225	246	843	1373	-	-	1363	-	-
Mov Cap-2 Maneuver	134	245	-	225	246	-	-	-	-	-	-	-
Stage 1	465	396	-	782	720	-	-	-	-	-	-	-
Stage 2	457	713	-	365	393	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	26.6	12.9	0.3	4.3
HCM LOS	D	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1373	-	-	202	225	734	1363	-	-
HCM Lane V/C Ratio	0.006	-	-	0.178	0.034	0.363	0.162	-	-
HCM Control Delay (s)	7.6	0	-	26.6	21.6	12.7	8.2	-	-
HCM Lane LOS	A	A	-	D	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0.1	1.7	0.6	-	-

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↰	↕	
Traffic Vol, veh/h	9	2	12	56	1	97	6	329	71	67	259	11
Future Vol, veh/h	9	2	12	56	1	97	6	329	71	67	259	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	2	13	61	1	105	7	358	77	73	282	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	898	883	288	853	851	397	294	0	0	435	0	0
Stage 1	434	434	-	411	411	-	-	-	-	-	-	-
Stage 2	464	449	-	442	440	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	260	285	751	279	297	652	1268	-	-	1125	-	-
Stage 1	600	581	-	618	595	-	-	-	-	-	-	-
Stage 2	578	572	-	594	578	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	205	264	751	258	276	652	1268	-	-	1125	-	-
Mov Cap-2 Maneuver	205	264	-	258	276	-	-	-	-	-	-	-
Stage 1	596	543	-	614	591	-	-	-	-	-	-	-
Stage 2	480	568	-	544	540	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.4	19.3	0.1	1.7
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1268	-	-	341	417	1125	-	-
HCM Lane V/C Ratio	0.005	-	-	0.073	0.401	0.065	-	-
HCM Control Delay (s)	7.9	0	-	16.4	19.3	8.4	-	-
HCM Lane LOS	A	A	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	1.9	0.2	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↰	↕	
Traffic Vol, veh/h	14	0	7	4	0	2	16	440	8	1	383	15
Future Vol, veh/h	14	0	7	4	0	2	16	440	8	1	383	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	0	8	4	0	2	17	478	9	1	416	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	944	947	424	947	951	483	432	0	0	487	0	0
Stage 1	426	426	-	517	517	-	-	-	-	-	-	-
Stage 2	518	521	-	430	434	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	242	261	630	241	260	584	1128	-	-	1076	-	-
Stage 1	606	586	-	541	534	-	-	-	-	-	-	-
Stage 2	541	532	-	603	581	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	237	255	630	234	254	584	1128	-	-	1076	-	-
Mov Cap-2 Maneuver	237	255	-	234	254	-	-	-	-	-	-	-
Stage 1	593	585	-	530	523	-	-	-	-	-	-	-
Stage 2	528	521	-	595	580	-	-	-	-	-	-	-

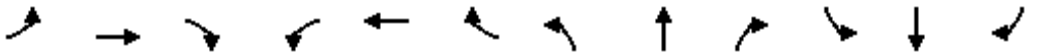
Approach	EB	WB	NB	SB
HCM Control Delay, s	18	17.6	0.3	0
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1128	-	-	299	292	1076	-	-
HCM Lane V/C Ratio	0.015	-	-	0.076	0.022	0.001	-	-
HCM Control Delay (s)	8.2	0	-	18	17.6	8.3	-	-
HCM Lane LOS	A	A	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-	-

APPENDIX I

Synchro Analysis Worksheets
(2026 Build Conditions with and without Improvements)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	150	6	41	199	317	7	338	8	280	429	11
Future Volume (veh/h)	26	150	6	41	199	317	7	338	8	280	429	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	163	7	45	216	345	8	367	9	304	466	12
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	310	513	22	408	539	457	321	610	15	540	1205	31
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.01	0.17	0.17	0.18	0.34	0.34
Sat Flow, veh/h	849	1780	76	1215	1870	1585	1781	3545	87	1781	3540	91
Grp Volume(v), veh/h	28	0	170	45	216	345	8	184	192	304	234	244
Grp Sat Flow(s),veh/h/ln	849	0	1857	1215	1870	1585	1781	1777	1855	1781	1777	1854
Q Serve(g_s), s	1.4	0.0	3.6	1.5	4.6	9.9	0.2	4.8	4.8	6.3	5.0	5.0
Cycle Q Clear(g_c), s	6.0	0.0	3.6	5.1	4.6	9.9	0.2	4.8	4.8	6.3	5.0	5.0
Prop In Lane	1.00		0.04	1.00		1.00	1.00		0.05	1.00		0.05
Lane Grp Cap(c), veh/h	310	0	536	408	539	457	321	306	319	540	605	631
V/C Ratio(X)	0.09	0.00	0.32	0.11	0.40	0.75	0.02	0.60	0.60	0.56	0.39	0.39
Avail Cap(c_a), veh/h	610	0	1190	836	1199	1016	623	855	892	1149	1460	1523
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.7	0.0	13.9	15.9	14.3	16.1	16.7	19.1	19.1	11.8	12.5	12.5
Incr Delay (d2), s/veh	0.1	0.0	0.3	0.1	0.5	2.6	0.0	1.9	1.8	0.9	0.4	0.4
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	0.2	0.0	1.3	0.4	1.7	3.3	0.1	1.8	1.9	2.0	1.6	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.8	0.0	14.2	16.0	14.8	18.7	16.8	21.0	20.9	12.7	12.9	12.9
LnGrp LOS	B	A	B	B	B	B	B	C	C	B	B	B
Approach Vol, veh/h		198			606			384			782	
Approach Delay, s/veh		14.6			17.1			20.9			12.8	
Approach LOS		B			B			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.9	14.6		20.4	6.5	23.0		20.4				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	26.0	24.0		32.0	9.0	41.0		32.0				
Max Q Clear Time (g_c+I1), s	8.3	6.8		8.0	2.2	7.0		11.9				
Green Ext Time (p_c), s	0.8	1.8		1.0	0.0	2.8		2.5				
Intersection Summary												
HCM 6th Ctrl Delay			15.9									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	166	12	50	222	456	22	784	19	336	608	30
Future Volume (veh/h)	57	166	12	50	222	456	22	784	19	336	608	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	62	180	13	54	241	496	24	852	21	365	661	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	243	546	39	370	592	502	357	1056	26	432	1510	75
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.03	0.30	0.30	0.17	0.44	0.44
Sat Flow, veh/h	721	1723	124	1190	1870	1585	1781	3544	87	1781	3444	172
Grp Volume(v), veh/h	62	0	193	54	241	496	24	427	446	365	341	353
Grp Sat Flow(s),veh/h/ln	721	0	1848	1190	1870	1585	1781	1777	1855	1781	1777	1839
Q Serve(g_s), s	6.1	0.0	6.5	3.0	8.3	25.5	0.8	18.2	18.2	10.8	10.9	11.0
Cycle Q Clear(g_c), s	14.4	0.0	6.5	9.5	8.3	25.5	0.8	18.2	18.2	10.8	10.9	11.0
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.05	1.00		0.09
Lane Grp Cap(c), veh/h	243	0	585	370	592	502	357	529	553	432	779	806
V/C Ratio(X)	0.25	0.00	0.33	0.15	0.41	0.99	0.07	0.81	0.81	0.85	0.44	0.44
Avail Cap(c_a), veh/h	243	0	585	370	592	502	507	714	746	635	1017	1053
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.6	0.0	21.4	25.0	22.0	27.9	19.0	26.6	26.6	17.4	16.0	16.0
Incr Delay (d2), s/veh	0.5	0.0	0.3	0.2	0.4	36.9	0.1	5.0	4.8	6.9	0.4	0.4
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	1.0	0.0	2.7	0.8	3.5	14.1	0.3	7.9	8.2	4.6	4.1	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.2	0.0	21.7	25.2	22.4	64.8	19.1	31.6	31.4	24.3	16.4	16.4
LnGrp LOS	C	A	C	C	C	E	B	C	C	C	B	B
Approach Vol, veh/h		255			791			897			1059	
Approach Delay, s/veh		23.3			49.2			31.2			19.1	
Approach LOS		C			D			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.6	30.5		32.0	8.1	42.0		32.0				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	23.0	33.0		26.0	9.0	47.0		26.0				
Max Q Clear Time (g_c+I1), s	12.8	20.2		16.4	2.8	13.0		27.5				
Green Ext Time (p_c), s	0.8	4.2		1.0	0.0	4.4		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		31.0	
HCM 6th LOS		C	

HCM 6th Signalized Intersection Summary
1: E Martintown Road & Atomic Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	150	6	41	199	317	7	338	8	280	429	11
Future Volume (veh/h)	26	150	6	41	199	317	7	338	8	280	429	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	163	7	45	216	345	8	367	9	304	466	12
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	288	452	19	372	474	688	337	632	15	560	1232	32
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.01	0.18	0.18	0.18	0.35	0.35
Sat Flow, veh/h	849	1780	76	1215	1870	1585	1781	3545	87	1781	3540	91
Grp Volume(v), veh/h	28	0	170	45	216	345	8	184	192	304	234	244
Grp Sat Flow(s),veh/h/ln	849	0	1857	1215	1870	1585	1781	1777	1855	1781	1777	1854
Q Serve(g_s), s	1.3	0.0	3.5	1.5	4.5	7.3	0.2	4.4	4.4	5.7	4.6	4.6
Cycle Q Clear(g_c), s	5.9	0.0	3.5	5.0	4.5	7.3	0.2	4.4	4.4	5.7	4.6	4.6
Prop In Lane	1.00		0.04	1.00		1.00	1.00		0.05	1.00		0.05
Lane Grp Cap(c), veh/h	288	0	471	372	474	688	337	317	330	560	619	646
V/C Ratio(X)	0.10	0.00	0.36	0.12	0.46	0.50	0.02	0.58	0.58	0.54	0.38	0.38
Avail Cap(c_a), veh/h	584	0	1119	796	1128	1242	740	957	999	1351	1645	1717
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.1	0.0	14.2	16.3	14.6	9.5	15.4	17.5	17.5	10.7	11.4	11.4
Incr Delay (d2), s/veh	0.1	0.0	0.5	0.1	0.7	0.6	0.0	1.7	1.6	0.8	0.4	0.4
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	0.2	0.0	1.3	0.4	1.7	1.9	0.1	1.6	1.7	1.7	1.4	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.2	0.0	14.7	16.4	15.3	10.1	15.4	19.2	19.1	11.5	11.7	11.7
LnGrp LOS	B	A	B	B	B	B	B	B	B	B	B	B
Approach Vol, veh/h		198			606			384			782	
Approach Delay, s/veh		15.1			12.4			19.1			11.6	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.4	14.3		17.8	6.5	22.2		17.8				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	29.0	25.0		28.0	11.0	43.0		28.0				
Max Q Clear Time (g_c+I1), s	7.7	6.4		7.9	2.2	6.6		9.3				
Green Ext Time (p_c), s	0.8	1.9		1.0	0.0	2.8		2.5				
Intersection Summary												
HCM 6th Ctrl Delay			13.7									
HCM 6th LOS			B									

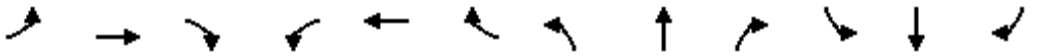
Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	46	0	41	14	1	68	102	667	1	2	627	28
Future Vol, veh/h	46	0	41	14	1	68	102	667	1	2	627	28
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	-	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	50	0	45	15	1	74	111	725	1	2	682	30

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1286	1649	356	1293	1664	363	712	0	0	726	0	0
Stage 1	701	701	-	948	948	-	-	-	-	-	-	-
Stage 2	585	948	-	345	716	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	122	98	640	120	96	634	884	-	-	873	-	-
Stage 1	395	439	-	280	338	-	-	-	-	-	-	-
Stage 2	464	338	-	644	432	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	97	85	640	101	84	634	884	-	-	873	-	-
Mov Cap-2 Maneuver	252	243	-	220	221	-	-	-	-	-	-	-
Stage 1	345	438	-	245	295	-	-	-	-	-	-	-
Stage 2	357	295	-	598	431	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.2	14.4	1.3	0
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	884	-	-	252	640	473	873	-	-
HCM Lane V/C Ratio	0.125	-	-	0.198	0.07	0.191	0.002	-	-
HCM Control Delay (s)	9.7	-	-	22.8	11	14.4	9.1	-	-
HCM Lane LOS	A	-	-	C	B	B	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	0.7	0.2	0.7	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	166	12	50	222	456	22	784	19	336	608	30
Future Volume (veh/h)	57	166	12	50	222	456	22	784	19	336	608	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	62	180	13	54	241	496	24	852	21	365	661	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	225	490	35	335	531	718	373	1082	27	451	1542	77
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.03	0.31	0.31	0.17	0.45	0.45
Sat Flow, veh/h	721	1723	124	1190	1870	1585	1781	3544	87	1781	3444	172
Grp Volume(v), veh/h	62	0	193	54	241	496	24	427	446	365	341	353
Grp Sat Flow(s),veh/h/ln	721	0	1848	1190	1870	1585	1781	1777	1855	1781	1777	1839
Q Serve(g_s), s	5.8	0.0	6.2	2.8	7.9	18.5	0.7	16.4	16.4	9.6	9.8	9.8
Cycle Q Clear(g_c), s	13.6	0.0	6.2	9.0	7.9	18.5	0.7	16.4	16.4	9.6	9.8	9.8
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.05	1.00		0.09
Lane Grp Cap(c), veh/h	225	0	525	335	531	718	373	543	566	451	795	824
V/C Ratio(X)	0.28	0.00	0.37	0.16	0.45	0.69	0.06	0.79	0.79	0.81	0.43	0.43
Avail Cap(c_a), veh/h	234	0	546	349	553	736	541	764	798	821	1218	1261
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.5	0.0	21.3	24.9	21.9	16.2	16.8	23.6	23.6	15.3	14.0	14.0
Incr Delay (d2), s/veh	0.7	0.0	0.4	0.2	0.6	2.7	0.1	3.6	3.5	3.5	0.4	0.4
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	1.0	0.0	2.6	0.8	3.3	6.5	0.3	6.7	7.0	3.6	3.5	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.1	0.0	21.7	25.1	22.5	18.9	16.9	27.3	27.1	18.8	14.4	14.4
LnGrp LOS	C	A	C	C	C	B	B	C	C	B	B	B
Approach Vol, veh/h		255			791			897			1059	
Approach Delay, s/veh		23.3			20.4			26.9			15.9	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.5	28.7		27.1	8.0	39.3		27.1				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	28.0	32.0		22.0	9.0	51.0		22.0				
Max Q Clear Time (g_c+I1), s	11.6	18.4		15.6	2.7	11.8		20.5				
Green Ext Time (p_c), s	1.0	4.4		0.7	0.0	4.4		0.6				

Intersection Summary			
HCM 6th Ctrl Delay		21.0	
HCM 6th LOS		C	

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	68	1	47	9	0	32	120	927	20	11	1182	40
Future Vol, veh/h	68	1	47	9	0	32	120	927	20	11	1182	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	-	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	74	1	51	10	0	35	130	1008	22	12	1285	43

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2095	2621	664	1946	2631	515	1328	0	0	1030	0	0
Stage 1	1331	1331	-	1279	1279	-	-	-	-	-	-	-
Stage 2	764	1290	-	667	1352	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 30	24	403	39	23	505	516	-	-	670	-	-
Stage 1	163	222	-	176	235	-	-	-	-	-	-	-
Stage 2	362	232	-	414	217	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 22	18	403	27	17	505	516	-	-	670	-	-
Mov Cap-2 Maneuver	104	122	-	110	72	-	-	-	-	-	-	-
Stage 1	122	218	-	132	176	-	-	-	-	-	-	-
Stage 2	252	174	-	353	213	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	64.1	20.1	1.6	0.1
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	516	-	-	104	385	282	670	-	-
HCM Lane V/C Ratio	0.253	-	-	0.711	0.136	0.158	0.018	-	-
HCM Control Delay (s)	14.3	-	-	98.2	15.8	20.1	10.5	-	-
HCM Lane LOS	B	-	-	F	C	C	B	-	-
HCM 95th %tile Q(veh)	1	-	-	3.7	0.5	0.6	0.1	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1	0	3	1	240	0	132	2	186	189	2
Future Vol, veh/h	0	1	0	3	1	240	0	132	2	186	189	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	125	-	-	-	-	-	175	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	0	3	1	261	0	143	2	202	205	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	885	755	206	755	755	144	207	0	0	145	0	0
Stage 1	610	610	-	144	144	-	-	-	-	-	-	-
Stage 2	275	145	-	611	611	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	266	338	835	325	338	903	1364	-	-	1437	-	-
Stage 1	482	485	-	859	778	-	-	-	-	-	-	-
Stage 2	731	777	-	481	484	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	168	290	835	289	290	903	1364	-	-	1437	-	-
Mov Cap-2 Maneuver	168	290	-	289	290	-	-	-	-	-	-	-
Stage 1	482	417	-	859	778	-	-	-	-	-	-	-
Stage 2	519	777	-	412	416	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.5	10.8	0	3.9
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1364	-	-	290	289	895	1437	-	-
HCM Lane V/C Ratio	-	-	-	0.004	0.011	0.293	0.141	-	-
HCM Control Delay (s)	0	-	-	17.5	17.6	10.7	7.9	-	-
HCM Lane LOS	A	-	-	C	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	1.2	0.5	-	-

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	19	3	7	15	237	7	205	19	208	195	16
Future Vol, veh/h	11	19	3	7	15	237	7	205	19	208	195	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	125	-	-	-	-	-	175	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	21	3	8	16	258	8	223	21	226	212	17

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1060	933	221	935	931	234	229	0	0	244	0	0
Stage 1	673	673	-	250	250	-	-	-	-	-	-	-
Stage 2	387	260	-	685	681	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	202	266	819	246	267	805	1339	-	-	1322	-	-
Stage 1	445	454	-	754	700	-	-	-	-	-	-	-
Stage 2	637	693	-	438	450	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	112	219	819	197	220	805	1339	-	-	1322	-	-
Mov Cap-2 Maneuver	112	219	-	197	220	-	-	-	-	-	-	-
Stage 1	442	376	-	749	695	-	-	-	-	-	-	-
Stage 2	420	688	-	342	373	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	30.8	13.8	0.2	4.1
HCM LOS	D	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1339	-	-	175	197	695	1322	-	-
HCM Lane V/C Ratio	0.006	-	-	0.205	0.039	0.394	0.171	-	-
HCM Control Delay (s)	7.7	0	-	30.8	24	13.5	8.3	-	-
HCM Lane LOS	A	A	-	D	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.7	0.1	1.9	0.6	-	-

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↰	↕	
Traffic Vol, veh/h	9	2	12	56	1	97	6	404	71	67	306	11
Future Vol, veh/h	9	2	12	56	1	97	6	404	71	67	306	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	2	13	61	1	105	7	439	77	73	333	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1030	1015	339	985	983	478	345	0	0	516	0	0
Stage 1	485	485	-	492	492	-	-	-	-	-	-	-
Stage 2	545	530	-	493	491	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	212	238	703	227	249	587	1214	-	-	1050	-	-
Stage 1	563	552	-	558	548	-	-	-	-	-	-	-
Stage 2	523	527	-	558	548	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	163	220	703	208	230	587	1214	-	-	1050	-	-
Mov Cap-2 Maneuver	163	220	-	208	230	-	-	-	-	-	-	-
Stage 1	558	513	-	554	544	-	-	-	-	-	-	-
Stage 2	425	523	-	507	510	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19	24.3	0.1	1.5
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1214	-	-	283	351	1050	-	-
HCM Lane V/C Ratio	0.005	-	-	0.088	0.477	0.069	-	-
HCM Control Delay (s)	8	0	-	19	24.3	8.7	-	-
HCM Lane LOS	A	A	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	2.5	0.2	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↰	↕	
Traffic Vol, veh/h	14	0	7	4	0	2	16	493	8	1	449	15
Future Vol, veh/h	14	0	7	4	0	2	16	493	8	1	449	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	0	8	4	0	2	17	536	9	1	488	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1074	1077	496	1077	1081	541	504	0	0	545	0	0
Stage 1	498	498	-	575	575	-	-	-	-	-	-	-
Stage 2	576	579	-	502	506	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	198	219	574	197	218	541	1061	-	-	1024	-	-
Stage 1	554	544	-	503	503	-	-	-	-	-	-	-
Stage 2	503	501	-	552	540	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	194	214	574	191	213	541	1061	-	-	1024	-	-
Mov Cap-2 Maneuver	194	214	-	191	213	-	-	-	-	-	-	-
Stage 1	541	543	-	491	491	-	-	-	-	-	-	-
Stage 2	489	489	-	544	539	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20.9	20.2	0.3	0
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1061	-	-	249	244	1024	-	-
HCM Lane V/C Ratio	0.016	-	-	0.092	0.027	0.001	-	-
HCM Control Delay (s)	8.4	0	-	20.9	20.2	8.5	-	-
HCM Lane LOS	A	A	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.1	0	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	37	0	781	620	33
Future Vol, veh/h	0	37	0	781	620	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	40	0	849	674	36

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	355	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	641	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	641	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	641	-	-
HCM Lane V/C Ratio	-	0.063	-	-
HCM Control Delay (s)	-	11	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.2	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	41	0	1026	1192	46
Future Vol, veh/h	0	41	0	1026	1192	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	45	0	1115	1296	50

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	673	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	398	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	398	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.2	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	398	-	-
HCM Lane V/C Ratio	-	0.112	-	-
HCM Control Delay (s)	-	15.2	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	0.4	-	-

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	46	75	406	31	47	327
Future Vol, veh/h	46	75	406	31	47	327
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	50	82	441	34	51	355

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	915	458	0	0	475	0
Stage 1	458	-	-	-	-	-
Stage 2	457	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	303	603	-	-	1087	-
Stage 1	637	-	-	-	-	-
Stage 2	638	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	289	603	-	-	1087	-
Mov Cap-2 Maneuver	289	-	-	-	-	-
Stage 1	637	-	-	-	-	-
Stage 2	608	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15	0	1.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	289	603	1087	-
HCM Lane V/C Ratio	-	-	0.173	0.135	0.047	-
HCM Control Delay (s)	-	-	20	11.9	8.5	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0.5	0.1	-

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	53	464	40	66	395
Future Vol, veh/h	33	53	464	40	66	395
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	58	504	43	72	429

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1099	526	0	0	547	0
Stage 1	526	-	-	-	-	-
Stage 2	573	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	235	552	-	-	1022	-
Stage 1	593	-	-	-	-	-
Stage 2	564	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	219	552	-	-	1022	-
Mov Cap-2 Maneuver	219	-	-	-	-	-
Stage 1	593	-	-	-	-	-
Stage 2	525	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17	0	1.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	219	552	1022	-
HCM Lane V/C Ratio	-	-	0.164	0.104	0.07	-
HCM Control Delay (s)	-	-	24.6	12.3	8.8	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0.3	0.2	-

DEPARTMENT OF PLANNING AND DEVELOPMENT

TOMMY PARADISE
DIRECTOR

MONTHLY REPORT
FOR
September 2022

City of North Augusta

Department of Planning and Development

Monthly Report for September 2023

Item	This Month		Year To Date		Same Month, Last Year		Last Year To Date	
Development Applications	**Received**	**Approved**	**Received**	**Approved**	**Received**	**Approved**	**Received**	**Approved**
Subdivisions								
Major Subdivision Plans (PP)	1	0	2	1	1	0	6	1
Planned Acres	219.5	0.00	271.98	23.50	49.85	0.00	161.81	8.00
Planned Lots	554	0	108	90	0	0	184	79
Minor Subdivision Plats (MP)	2	1	9	7	0	0	13	9
Platted New Lots	2	1	23	21	0	0	46	45
Major Subdivision Plats (FP)	0	1	6	3	0	1	5	5
Platted Acres	0	27.54	130.2	55.06	0.00	5.75	236.64	236.64
Platted Lots	0	50	326	164	0	5	244	249
Site Plans								
Minor Site Plans (MSP)	1	1	12	5	2	0	11	7
Major Site Plans (SP)	1	0	2	1	0	0	3	1
Site Plan Modification (SPM)	0	0	0	0	0	0	0	0
Total Site Plan Acres	16.71	3.18	74.83	22.89	9.50	0.00	68.26	19.92
Planned Developments								
PD Gen Dev Plans/Major Mod. (PD)	0	0	3	1	0	0	1	0
PD Acres	0	0	245.7	174.5	0	0	68.73	0
Development Plan Modification (PDM)	0	0	0	0	1	0	3	0
Annexations								
Annexation Agreements Received	0	0	5	4	0	0	0	0
Annexation Cases (ANX)	0	0	5	4	0	0	2	1
Approved by City Council	0	0	4	4	0	0	1	1
Parcels	0	0	6	4	0	0	1	0
Acres	0	0	28	1.00	0	0	45	43.9

City of North Augusta

Department of Planning and Development

Monthly Report for September 2023

Item	This Month		Year To Date		Same Month Last Year		Last Year To Date	
	Received	Approved	Received	Approved	Received	Approved	Received	Approved
Zoning/Text Amendments								
Rezoning (RZM)	0	0	1	0	0	0	2	1
Parcels	0	0	1	0	0	0	1	1
Acres	0	0.00	9.84	0.00	0.00	0.00	15.64	4.39
Conditional Zoning (RZC)	0	0	0	0	0	0	0	0
Parcels	0	0	0	0	0	0	0	0
Acres	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Text Amendments (RZT)	0	0	1	1	0	0	1	1
Other								
Certificates of Zoning Compliance (CZC)	13	11	89	85	10	10	111	109
Zoning Confirmation Letters (LZC)	0	0	17	16	1	1	10	10
Residential Site Reviews	12	12	158	158	11	11	270	270
Sign Permits (SN)	6	6	19	19	3	3	41	41
Right of Way Naming (RWN)	0	0	1	1	0	0	2	2
Right of Way Abandonment	0	0	0	0	0	0	0	0
Planning Projects (PROJ)	0	0	0	0	0	0	0	0
Communications Towers (CT)	0	0	0	0	0	0	0	0
Conditional Use Permits (CU)	0	0	6	6	0	0	5	5

Item	This Month		Year To Date		Same Month Last Year		Last Year To Date	
Appeals	Received	Approved	Received	Approved	Received	Approved	Received	Approved
Variances	1	0	11	8	3	0	16	10
Special Exceptions	0	0	0	0	0	0	0	0
Administrative Decisions	0	0	0	0	0	0	0	0
Waivers	0	0	2	2	1	0	2	1

City of North Augusta

Department of Planning and Development

Monthly Report for September 2023

Item	This Month	Year To Date	Same Month Last Year	Last Year To Date
Fees Collected				
Development Applications	$4,846.77	$33,121.38	$6,318.58	$37,865.49
Appeals	$250.00	$2,213.74	$750.00	$4,007.77
Maps/Publications	$0.00	$0.00	$0.00	$0.00
Special Review Fees	$0.00	$0.00	$0.00	$0.00
Total Fees	**$5,096.77**	**$35,335.12**	**$7,068.58**	**$41,873.26**

* Not yet recorded

Item	This Month		Year To Date		Same Month, Last Year		Last Year To Date	
Code Enforcement	**Case Received or Investigated**	**Case Closed**	**Case Received or Investigated**	**Case Closed**	**Case Received or Investigated**	**Case Closed**	**Case Received or Investigated**	**Case Closed**
Property Maintenance	14	17	123	112	18	10	148	122
Property Leins/Contractor Mitigation	1	1	5	5	1	1	1	1
Swimming Pools	0	0	5	5	0	0	11	6
Recreational Vehicles/RV/Boat/Utility Trailers	1	3	11	20	1	2	27	25
Illegal Vehicles	5	4	33	37	5	8	37	35
Commercial Vehicles/Equipment	0	0	5	5	2	1	3	3
Temporary Signs	71	71	889	889	67	67	708	708
Landscape Inspections	11	11	178	178	12	12	157	157
Structure Demolitions	0	0	0	0	0	0	0	0
Citation/Summons Issued	1	0	4	3	1	1	2	1

City of North Augusta
Department of Planning and Development

North Augusta Planning Department

September 2023 Staff Approvals

Residential Site Plans

Application Number	Tax Parcel Number	Applicant	Legal Description	Zone	Approval Date	Structure
B23-0498	014 00 02 162	B.E.C Custom Homes	668 Rivernorth Dr.	PD	9/5/2023	New Residential Construction
B23-0551	006 11 07 002	Ivey Residential SC LLC	5023 Anna Creek Way	R-7	9/5/2023	New Residential Construction
B23-0539	006 11 03 014	Mason Raines	1876 Green Forest Dr.	R-7	9/7/2023	Construct Storage Shed
B23-0555	007 09 11 001	Cobbs Way Investments	518 Carolyn Circle	R-5	9/11/2023	Bathroom Addition 8x12
B23-0561	006 06 05 005	Starnes Company	1861 LodgePole Ave.	R-14	9/11/2023	Bedroom/Bath Addition
B23-0564	007 10 02 015	Charlene Melton	317 Jackson Ave.	R-7	9/15/2023	Storage Room Addition
B23-0568	013 05 10 007	Janson LLC	907 Seymour Dr.	R-10	9/15/2023	18x16 Screen Porch Addition
B23-0581	007 16 06 014	Starnes Company	431 Barton Rd.	GC	9/22/2023	New Residential Construction
B23-0587	006 10 08 022	Samuel Stutt	1932 Bolin RD	R-14	9/22/2023	Repair/Extend Rear Deck
B23-0535	005 12 19 022	DR Horton Inc.	359 Expedition Dr.	R-5	9/26/2023	New Residential Construction
B23-0577	013 05 06 017	Ellis Bell	3 Seymour Place	R-10	9/26/2023	Detached Garage

Sign Permits

Application Number	Tax Parcel Number	Applicant	Legal Description	Zone	Approval Date	Use
SN23-021	007 12 06 001	Martko-Plaza etal	Advance America	GC\HC	9/13/2023	
SN23-023	006 12 12 027	Mukesh Patel	Lucky's Liquors	GC\HC	9/15/2023	
SN23-024	007 10 13 007	Finuf Sign	Sno Cap Drive In	D	9/18/2023	
SN23-025	007 12 06 001	Joshua Hargrave	Wells Fargo ATM	GC\HC	9/18/2023	
SN23-026	007 12 06 035	Summer Trull	Sherwin-Williams	GC\HC	9/21/2023	
SN23-028	001 20 02 004	Savannah Mock	Circle K	GC\HC	9/22/2023	

City of North Augusta
Department of Planning and Development

Certificate of Zoning Compliance Approvals

Application Number	Tax Parcel Number	Applicant	Legal Description	Zone	Approval Date	Use
CZC23-077	007 14 17 009	The Ledges	Brenda's Hair	R-5	9/1/2023	
CZC23-078	005 09 11 028	Scott Converse	Digital Automation Solutions	PD	9/22/2023	
CZC23-079	006 16 14 001	Andrea Dublin	Dreya the Hairslaya	GC	9/11/2023	
CZC23-080	007 12 14 004	Vivian Frails	th Augusta Boys and Girls Hang	TC	9/28/2023	
CZC23-082	005 10 13 021	Wanda Eslinger	NaNa'a Nook	PD	9/19/2023	
CZC23-083	007 10 21 004	Kathy & David Webb	West Avenue Market	D	9/21/2023	
CZC23-084	010 11 05 005	Valarie Wells	French Horn Helps	PD	9/22/2023	
CZC23-085	007 16 05 004	Freddy Ramirez	Aishi Steak & Wings	GC\HC	9/28/2023	
CZC23-086	007 12 14 004	Tamesha Bussey	Mesha Glamar Touch	TC	9/28/2023	
CZC23-087	005 09 18 009	Jeanne Zamith	Becoming Homebody LLC	PD	9/28/2023	
CZC23-088	005 09 18 009	Synclaire Lawson	Oak and Home Co LLP	PD	9/28/2023	