BEAUFORT–PORT ROYAL
METROPOLITAN PLANNING COMMISSION
REVISED AGENDA

1911 Boundary Street, Beaufort, SC 29902
Phone: 843-525-7011 ~ Fax: 843-986-5606

Monday, May 18, 2020, 5:00 P.M.

~~**City Hall, Planning Conference Room – 1911 Boundary Street, Beaufort, SC**~~

Please note, this meeting will be conducted electronically via Zoom and broadcasted via livestream on Facebook. You can view the meeting live via Facebook at the City's website www.cityofbeaufort.org and via Zoom at https://us02web.zoom.us/j/85046239745?pwd=Q1BmZlkrb2c2NGh1eHE4Wi9rSjlMQT09
Password: 412419

STATEMENT OF MEDIA NOTIFICATION: "In accordance with South Carolina Code of Laws, 1976, Section 30-4-80(d), as amended, all local media were duly notified of the time, date, place and agenda of this meeting."

I. Call to Order

II. Pledge of Allegiance

III. Review Commission Meeting Minutes:

A. March 16, 2020 Regular Meeting Minutes

IV. Questions Relating to Military Operations

V. Review of Projects for the City of Beaufort:

A. The City of Beaufort – Whitehall Sketch Plan. Applicant: Whitehall Point Holdings, LLC.

B. The City of Beaufort – 3484 Trask Parkway – Annexation/Rezoning. Annexation and zoning of 2.0 acres at 3484 Trask Parkway to Regional Mixed-Use (RMX). The property is further identified as R100, Map 25, and Parcel 12B. Applicant: Wod Timber, LLC

C. Update of Council Actions

VI. Review of Projects for the Town of Port Royal:

A. Town of Port Royal – Text Amendment. An amendment to Article 4, Specific to Use, of the Port Royal Code. The amendment would allow Campground Recreation Facilities in the T4 Neighborhood Center transect district.

B. Town of Port Royal – Rezoning Request. Rezone 13.964 acres at 1 Hamrick Dr. The property is further identified as District 112, Map 33B, Parcels 90A, 138 and a portion of 137. The current zoning is T3 Sub-Urban Neighborhood. The requested zoning is T4 Neighborhood Center-Open.

C. Update of Council Actions

VII. Review of Projects for Beaufort County:

A. None.

VIII. Adjournment

Note: If you have special needs due to a physical challenge, please call Julie Bachety at (843) 525-7011.

Metropolitan Planning Commission
Meeting Minutes – City Hall Council Chambers, 2nd Floor

March 16, 2020

I. CALL TO ORDER 5:00 PM

A meeting of the Metropolitan Planning Commission was held at Council Chambers, Beaufort City Hall, 1911 Boundary Street, Beaufort, SC on March 16, 2020.

II. ATTENDEES

Attendees: Michael Tomy (Chairman), James Crower (Vice-Chair), Bill Bardenwerper, Jason Hincher, Judy Alling, Caroline Fermin

Absent: none

III. REVIEW OF MINUTES

A motion was made to approve the meeting minutes of December 16, 2019 by James Crower and seconded by Jason Hincher. The motion passed unanimously.

IV. OLD BUSINESS

Update of Council Actions

V. NEW BUSINESS

Lady's Island Village Center Study Presentation- Paul Butare

Paul Butare presented an outline for the creation of the Lady's Island Village Center Study. He asked for the Commission's endorsement for creating the study, A motion was made by Judy Alling, seconded by Jason Hincher in support of the Lady's Island Village Center Study and passed unanimously.

City of Beaufort Agenda Items:

a. City of Beaufort – Rezoning of 0.31 acres at 2411 Oak Haven Street from T3-S to T5-UC. The property is further identified as District 120, Map 5, Parcel 277A. Applicant Sam Levin

   Judy Alling made a motion to deny the request seconded by Caroline Fermin. The motion passed 4/2. Jason Hincher and Bill Bardenwerper opposed

Town of Port Royal Agenda Items:

DRAFT

a. Town of Port Royal – Text Amendment. An amendment to article 4, specific to use, of The Port Royal Code. The amendment would allow campground Recreation Facilities in the T4-Neighborhood Center transect district.

   James Crower made a motion to deny the request, seconded by Judy Alling. The motion carried 5/1. Caroline Fermin was opposed to the motion.

b. Town of Port Royal – Rezoning Request. Rezone 1.19 acres at 100 Windsor Road and 616 Parris Island Gateway. The property is further identified as District 112, map31A, Parcels 182 and 218. The applicant is Lowcountry Habitat for Humanity. The property currently sites the offices for Lowcountry Habitat for Humanity as well as the Lowcountry Habitat for Humanity Restore. The current zoning designation is T4 Neighborhood Center. The requested zoning designation is T4 Neighborhood center – Open

   A motion was made by Jason Hincher Seconded by Caroline Fermin the motion passed unanimously

Beaufort County Projects:

a. Beaufort County- Zoning Map Amendment. Zoning Map Amendment for 18.3 acres at the intersection of Bay Pines Road and Laurel Bay Road from T2 Rural S1-industrial to C4-Community Center Mixed-Use District.

   The motion carried, with one abstention by Jason Hincher

VI. ADJOURN 6:45 PM

James Crower made a motion to adjourn. The motion passed unanimously

Disclaimer: All Metropolitan Planning commission Meeting minutes are recorded, which can be found on the City's website at www.cityofbeaufort.org (Agenda section). Audio recordings are available upon request by contacting the City Clerk, Ivette Burgess at 843-525-7018 or by email at iburgess@cityofbeaufort.org.

CITY OF BEAUFORT

Whitehall Sketch Plan
5 Harborview Circle

Staff Report for MPC

From the Director of Community and Economic Development

May 10, 2020

SUBJECT: Whitehall Major Subdivision

Request: The applicant, Sam Levin, has requested a major subdivision of approximately 10.1 acres located at 4 Harborview Circle (Whitehall). The subdivision will result in 2 lots (8.4 ac and 1.6 ac) and 4 new streets.

The addition of streets along with the size of the parcel designates this as a Major subdivision and requires a sketch plan approval from the Metropolitan Planning Commission (MPC).

In accordance with the Beaufort Development Code §9.9.3.E, the MPC "shall approve, approve with conditions, or disapprove the sketch plan within 60 days after submission. Unless this time limit is extended by mutual agreement, failing to act within the time limit constitutes approval of the sketch plan. If the proposed sketch plan is approved by the MPC, the MPC shall advise the applicant in writing of:

a. the conditions of such approval, if any;
b. certification of the plan by the city; and
c. the date on which the MPC granted approval.

PROCESS

Subdivisions involving the creation of new streets require a pre-application conference prior to filing an application. This was accomplished by multiple meetings with the final pre-application conference on April 7, 2020.

On March 27, 2020, the sketch plan was sent to the Technical Review Committee (TRC) for comments. The TRC consists of city staff and the staff of outside agencies' having development permit authority.

Staff reports were sent to the MPC, the applicant, and to all citizens who have requested, and was posted to city's website on May 11, 2020.

MPC review is in accordance §9.9.3.E supra. If the MPC disapproves the sketch plan, written notice will be given to the applicant.

If the MPC approves the sketch plan, the applicant will submit a preliminary plat incorporating any conditions required by the MPC. The preliminary plat will serve as the site plan for the development and will be reviewed by the TRC.

SUBDIVISION/DEVELOPMENT STANDARDS

The parcel is zoned T4-N. There are no lot-width-at-front-setback standards, nor is there a minimum lot size requirement. Maximum lot area coverage by impervious surfaces is 70%. Lot frontage build-out requirements are 60% minimum and 85% maximum.

Front setback: 0 ft minimum; 15 ft maximum
Side setback for a corner lot on with an alley: 0 ft minimum; 10 ft maximum
Side setback – interior: 5 ft minimum or 0 ft, if attached
Rear setback: 10 ft minimum

Note: Building form and use standards will be evaluated upon submittal for a project permit in accordance with the Beaufort Development Code and International Building Code.

Tree Planting and Protection: One broad-leaved overstory tree per 6,000 ft of lot size. Reasonable design alternatives shall be explored to preserve specimen and landmark trees. A certified arborist report is required when specimen trees will be impacted or removed due to development unless the administrator determines the report would not change the outcome of the plan. The report is always required for landmark trees.

Because the subdivision abuts a county residential district, 5-ft side and rear buffers are required consisting of at least two broad-leaved overstory trees every 100 ft. The buffers must have a minimum opacity of 50% at planting and be designed to reach 100% opacity in three years. Shrubs must be 2 ft in height at time of installation and be projected to grow to 4 ft within 4 years.

The critical area buffer is 30 ft. The entire buffer area shall be undisturbed.

Parking requirements will be determined once specific uses are known. Parking space requirements (Beaufort Development Code 5.7.4) are attached.

Light encroachment on to adjacent residential properties must not exceed 0.5 foot-candles.

Stormwater: all development will provide adequate drainage, peak rate, volume and pollution control in accordance with the *Beaufort County Manual for Stormwater Best Management and Design Practices (BMP).* Post-development stormwater run-off levels will not exceed pre-development runoff levels for the 95th percentile storm event.

Required Improvements:

- Public water and sewer in accordance with the standards of Beaufort/Jasper Water & Sewer Authority (BJWSA) and South Carolina Department of Health and Environmental Control (DHEC).
- Hydrants must be within 400 ft of any building. Distance between hydrants must not exceed 800 ft.
- Underground wiring on-site
- Streets
    - Paved streets in accordance with South Carolina Department of Transportation (SCDOT) standards
    - Street design will be accordance with Appendix C of the Beaufort Development Code standards for Main Street 2 – Limited or Neighborhood Street 1- General as appropriate.
        - Main Street 2: curb, 50 to 68 ft ROW, two lanes (10 ft each or 14 ft each with sharrows), 25 mph, one side parallel parking, sidewalks on both sides (12 to 16 ft each), street trees every 40 feet (overstory) or every 24 feet (understory/palms)
        - Neighborhood Street 1: curb, 50 to 62 ft ROW, two lanes (30 to 36 feet total), 25 mph, one side informal, parallel parking if a bike lane is included, sidewalks on both sides (5 to 6 ft each), street trees every 40 feet (overstory) or every 24 feet (understory/palms)
    - Street signs
    - Street layout shall be coordinated with street system of the surrounding area to form an interconnected street pattern
    - Block size shall be no more than 400 feet on any side. The block perimeter shall not exceed 1,320 ft.
    - No cul-de-sacs or dead-end streets.
    - Lot access
        - No curb or other access point shall be closer than 20 feet from the intersecting ROWs or 25 feet from intersecting curb lines
        - Access points must be at least 25 ft apart (except for shared driveways)
        - Driveways serving individual residential lots shall not have direct access to major thoroughfares
        - Driveways must not exceed 12 ft in width

        - Blocks with an average lot width of 60 ft or less must be accessed by an alley
        - Lots intended for multi-family or mixed-use must be accessed by an alley
        - Alley pavement width may be a maximum of 24 ft wide for two-way traffic and 16 ft for one-way traffic
    - A traffic impact analysis (TIA) is required for any development expected to generate more than 50 trips during the peak hour on any adjacent street

STAFF ASSESSMENT

The Sketch Plan is consistent with the City of Beaufort Code. It is also compatible with the vision set forth in the *Civic Master Plan* (Section 8.4 attached).

Public infrastructure currently does not exist on the site, but the site does have adjacent access to three public roads, Sea Island Parkway, Meridian Road and Harborview Circle, and to water and sewer.

Staff is satisfied with the street layout.

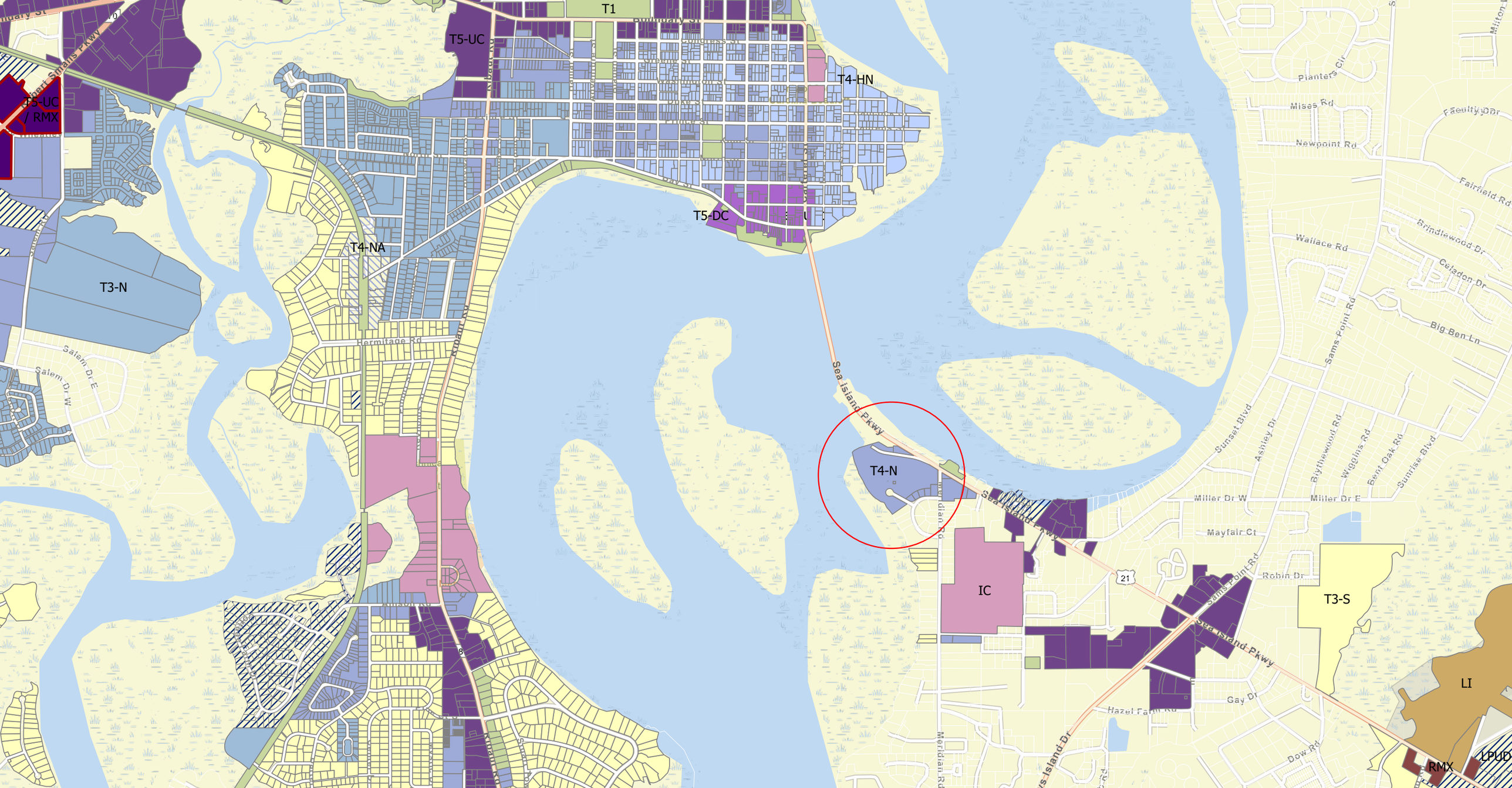
Suitability and adequacy of required infrastructure, given the future plans for the property, will be assessed during preliminary plat review by the Technical Review Committee in accordance with the Beaufort Development Code Chapter 7 (Land Development) and Chapter 9 (Development Review Procedures).

The applicant is currently in discussion with SCDOT about the currency and relevancy of a previous TIA. Permits from SCDOT will be required.

Dominion Energy has provided pre-design guidance.

BJWSA has reviewed the sketch plan and will provide comments after submittal of preliminary plat.

Permits from DHEC will be required (land disturbance, stormwater, and coastal zone consistency certification)


T1
T5-UC
T5-UC / RMX
T4-HN
T5-DC
T4-NA
T3-N
T4-N
IC
T3-S
LI
RMX
LPUD
Sea Island Pkwy
Hermitage Rd
Salem Dr E
Salem Dr W
Meridian Rd
Miller Dr W
Miller Dr E
Mayfair Ct
Robin Dr
Gay Dr
Dow Rd
Sams Point Rd
Sunset Blvd
Ashley Dr
Brythewood Rd
Wiggins Rd
Bent Oak Rd
Sunrise Blvd
Planters Cir
Mises Rd
Newpoint Rd
Faculty Dr
Fairfield Rd
Brindlewood Dr
Celadon Dr
Big Ben Ln
Wallace Rd
21

WHITEHALL

SKETCH MASTER PLAN

FOR ILLUSTRATIVE PURPOSES



DATE: 6 MAY 2020
LOCATION: BEAUFORT, SC

N
W E

0 25 50 75 100 125 150 175 200

Scale 1 " = 50'

DRAFT

Note: Plan is conceptual in nature and subject to change.

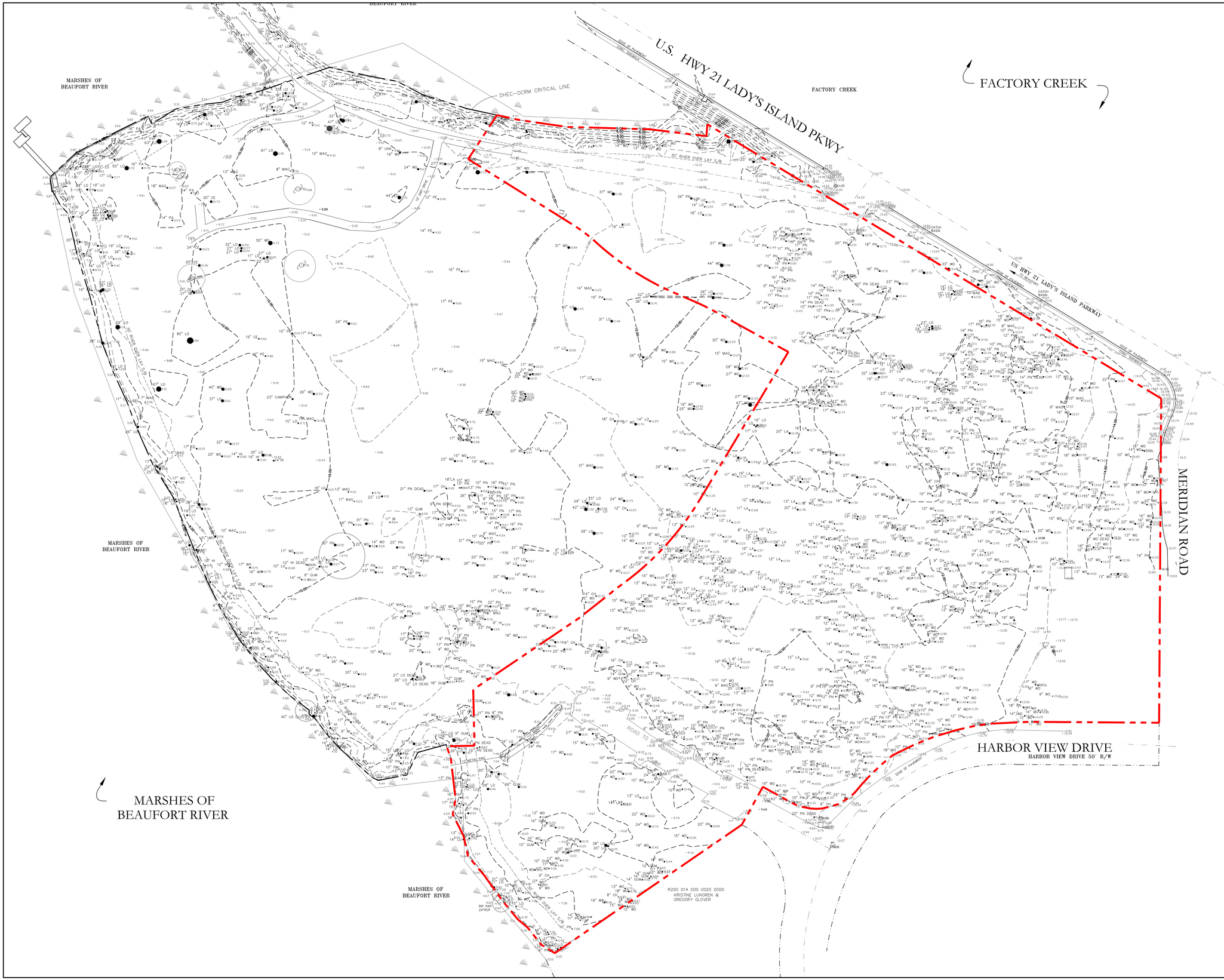
Wimer Jones Keefer Ltd.
landscape architecture
land planning
www.wjkltd.com

WHITEHALL

EXISTING CONDITIONS

APRIL 7, 2020

DRAFT



N

W E

0 25 50 75 100 125 150 175 200

Scale 1 " = 50'

Witmer Jones Keefer Ltd.

landscape architecture
land planning

www.wjkltd.com

23 Promenade Street, Suite 201 ǂ Bluffton, South Carolina ǂ 29910 ǂ ph 843.757.7411

PLAN IS CONCEPTUAL IN NATURE
NOT FOR CONSTRUCTION

WHITEHALL

TREE OVERLAY PLAN

FOR ILLUSTRATIVE PURPOSES



- Trees with slight defects having an improbable likelihood of failure. These are highlighted in Green.
- Trees with moderate defects having a possible likelihood of failure. These are highlighted in Orange.
- Trees with severe defects having a probable likelihood of failure. These are highlighted in Blue.
- Trees with critical defects having an imminent likelihood of failure. These will need immediate attention and will be highlighted in Red.

DATE: 11 MAY 2020
LOCATION: BEAUFORT, SC

N

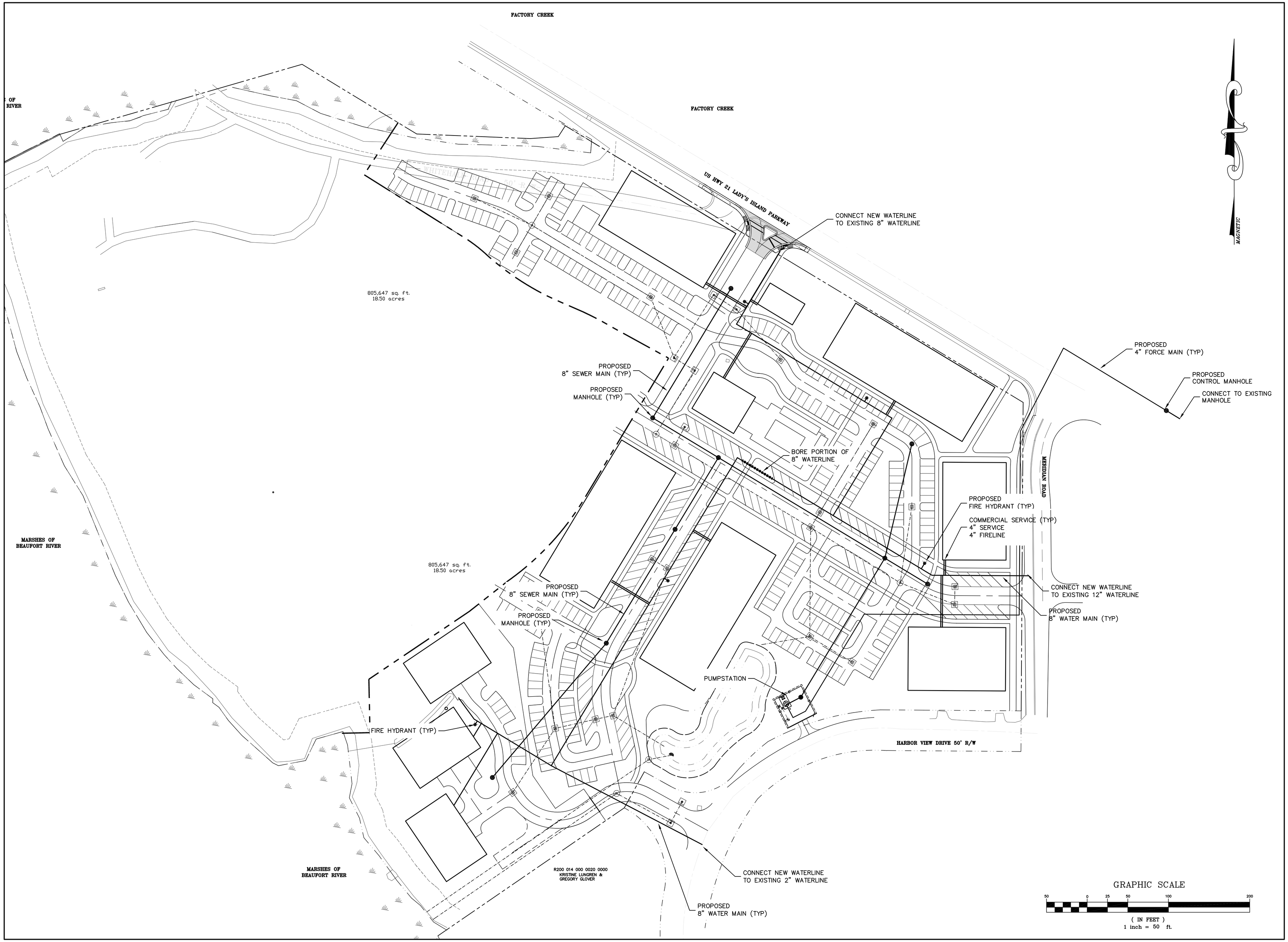
0 25 50 75 100 125 150 175 200

Scale 1 " = 50'

DRAFT

Note: Plan is conceptual in nature and subject to change.

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PLAN REVISIONS

NO.	DESCRIPTION	DATE
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-

WHITEHALL
LADYS ISLAND
BEAUFORT COUNTY, SC

CAROLINA ENGINEERING CONSULTANTS, INC.
PO BOX 294
BEAUFORT, SC 29901
843/322-0553
843/322-0556 (FAX)
WWW.CAROLINAENGINEERING.COM

PROJECT:	2085
DATE:	03/31/20
REVISED:	05/11/20
DRAWN BY:	TAB
ENGINEER:	JPA
SCALE:	1"=50'

WATER & SEWER MASTER PLAN

1
OF 1

MAJOR SUBDIVISION APPLICATION

SUBDIVISIONS 10 ACRES OR MORE

Community & Economic Development Department
1911 Boundary Street, Beaufort, South Carolina, 29902
p. (843) 525-7011 / f. (843) 986-5606 | www.cityofbeaufort.org

Application Fees:
$500 + $10/lot
Additional Fees on back
*Receipt #*_____

OFFICE USE ONLY: **Date Filed:** _____ **Application #:** _____ **Received by:** _____

Zoning District: _____ **Average Lot Size:** _____ **Smallest Lot Size:** _____

Total Acreage: _____ **# Of Lots:** _____ **Date Approved:** _____

Applicant and Property Information

Applicant Name: Whitehall Point Holdings LLC

Applicant Address: 1124 Park West Blvd., Suite 101 Mount Pleasant, SC 29466

Applicant E-mail: sam.levin234@gmail.com Applicant Phone Number: 843-345-0824

Applicant Title: ☐ Homeowner ☐ Tenant ☐ Architect ☐ Engineer ■ Developer

Property Owner (if other than the Applicant): _____

Property Owner Address: _____

Property Owner E-Mail: _____ Property Owner Phone Number: _____

Property Address: _____

Property Identification Number *(Tax Map & Parcel Number):* R 123 014 000 0149 0000

Submittal Requirements

Provide 6 copies of the Subdivision Plat showing:

- ☐ North arrow, graphic scale
- ☐ Vicinity Map
- ☐ Property lines, bearings, and distances
- ☐ Existing covenants or restrictions
- ☐ Flood hazard district line
- ☐ Existing and proposed lots, buildings, structures, etc.
- ☐ Existing and proposed roads, parking, ditches, open space, and recreation areas and amenities, rivers, creeks, marshes, and other wetlands
- ☐ Adjacent roads, highways (name, number, right-of-way width, public or private)
- ☐ Existing and proposed easements (type, size, holder)
- ☐ Proposed street names
- ☐ Open space areas/calculations
- ☐ Seal of Registered Surveyor

OFFICE USE ONLY:

- ☐ STAFF REVIEW / ☐ PLANNING COMMISSION
- ☐ AICUZ Disclosure Statement (if applicable)
- ☐ Existing water, sewer lines on or adjacent to property
- ☐ Existing electric/telephone/gas utility lines on or adjacent to property.
- ☐ Proposed access to existing roads, and approval from DOT, City Public Works or County Engineer's Office as Appropriate
- ☐ Water supply, sewage disposal system layouts and BJWSA Approval
- ☐ Storm water drainage plan and approval from County Engineer's Office and OCRM
- ☐ Proposed phasing schedule
- ☐ Letters of capability and intent to serve electric, telephone, and gas utility service
- ☐ Construction approval water/sewer systems by DHEC

Applicant's Signature: Samuel M. Levin Date: 03/25/20

Property Owner's Signature Samuel M. Levin Date: 03/25/20

5.7.4 PARKING SPACE REQUIREMENTS

A. **Minimum Number of Parking Spaces:** The number of motor vehicle parking spaces required shall be determined by the table below. Uses not listed in the following chart shall use the parking requirement for the most similar use, as determined by the administrator.

	MINIMUM NUMBER OF MOTOR VEHICLE PARKING SPACES REQUIRED	
USE	**CONVENTIONAL DISTRICTS**	**TRANSECT-BASED DISTRICTS**
RESIDENTIAL		
Single-Family, and Short-Term Rental	2 per unit	
2- and 3-Family, Multi-Family and Accessory Units		
Studio	1 per unit	
1 Bedroom	1 per unit	
2 Bedrooms	1.75 per unit	
3+ Bedrooms	2 per unit	
Dwelling units located within mixed-use buildings	No spaces required	
Group Homes	1 per 3 bedrooms	
RETAIL		
Gas Stations/Fuel Sales	1 per employee, plus requirements for retail and/or service bays	1 per 400 gross square feet
Restaurant, Café, Coffee Shop, Bar, Tavern and Nightclub	1 per 4 seats,* plus 1 per every 2 employees (at max. shift, typical) *Only interior seats are counted unless the business only has exterior seating.	1 per 400 gross square feet
Drive-Through Facilities	1 per 4 seats* plus 1 per every 2 employees *Only interior seats are counted unless the business only has exterior seating.	1 per 400 gross square feet
All Other Retail Uses	1 per 300 gross square feet	1 per 400 gross square feet
RECREATION, EDUCATION, PUBLIC ASSEMBLY		
Colleges and Universities	1 per 4 students at capacity class attendance	
Community/Public Safety Facilities	1 per 300 gross square feet	1 per 400 gross square feet
Schools, Public or Private		
Grades K-8	2 per classroom	1 per 400 gross square feet
Grades 9-12 or Trade	1 per 4 students and employees	1 per 400 gross square feet
Theaters	1 per 4 seats, plus 1 per 2 employees	1 per 400 gross square feet
All Other Assembly Uses		
With Fixed Seats	1 per 5 seats	1 per 400 gross square feet
Without Fixed Seats	1 per 300 gross square feet	1 per 400 gross square feet
SERVICES		
Day Care (Child or Adult) - 5 or greater	1 per 10 persons cared for (child or adult)	1 per 400 gross square feet
Lodging	1 per room, plus spaces required for on-site accessory uses	1 per 2 rooms
Medical		
Doctor's Offices	1 per 300 gross square feet	1 per 400 gross square feet
Other	1 per 2 beds, plus 1 per staff, plus 1 per 4 employees	1 per 400 gross square feet
All Other Service Uses	1 per 300 gross square feet	1 per 400 gross square feet
INDUSTRIAL	No minimum number of spaces	

8.4 Sea Island Parkway and Lady's Island Village Center

Sector: 5

Project Type: Private

Civic Investment Required: None

See Also: 2.7; 6.6

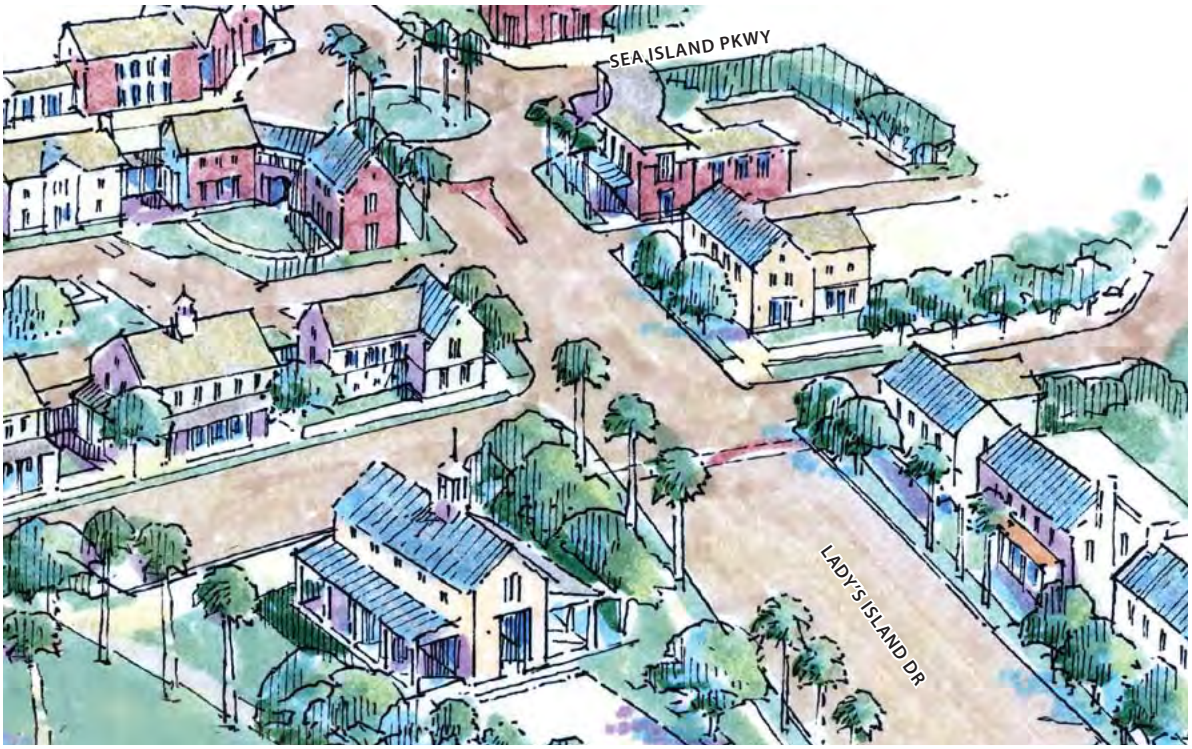
Streetscape Improvements

As Carteret Street extends south from downtown Beaufort across the Beaufort River, it becomes Sea Island Parkway, the primary thoroughfare to Lady's Island, St. Helena Island and Hunting Island. Sea Island Parkway is primarily a four-lane rural thoroughfare with scattered sidewalks in the more developed areas near the Beaufort River.

Proposed streetscape improvements are limited to the Lady's Island Village Center area located west of the Beaufort County Airport; the areas beyond this point quickly transition to a rural road with sparse development and little need for additional infrastructure. Along Sea Island Parkway, this plan recommends widening sidewalks and installing planting strips to buffer the sidewalks from vehicular travel lanes. In some areas, on-street parking may be appropriate to serve new development located at the edge of the sidewalk. A series of roundabouts is also proposed to calm traffic through the Lady's Island Village Center and create focal points for redevelopment.

Redevelopment Strategies

The conceptual plan for Lady's Island Village Center focuses on creating a more connected and coherent pattern of circulation and reinforcing the streetscape with walkable development that defines a consistent street edge. Beaufort High School continues to be a prominent, yet secluded civic presence in this area. The proposed plan for the Whitehall area and Hamilton Village seek to complement the mixed-use walkable character of downtown Beaufort by echoing this pattern directly across the Beaufort River. (See 6.6 for more detail about each of these areas.)



▲ CONCEPTUAL ILLUSTRATION OF LADY'S ISLAND VILLAGE CENTER



▲ EXISTING STRIP CENTER

Building Redevelopment Strategies

As streetscape improvements create redevelopment opportunities, there will not be one building type or scale that is appropriate for all locations. The two illustrations below show options for how the strip center at left could be redeveloped to create a more pedestrian-friendly destination. The multi-story building option frames the street and allows for vertical mixing of uses: retail on the ground floor and offices or housing above. Multi-story buildings will not be economically viable in all locations, and the one-story building option shows a configuration that establishes a similarly attractive place that may be more appropriate for some locations, such as at mid-block.



▲ ONE-STORY BUILDING OPTION



▲ MULTI-STORY BUILDING OPTION



▲ CONCEPTUAL ILLUSTRATION OF LADY'S ISLAND HOUSING INFILL



▲ CONCEPTUAL PLAN OF LADY'S ISLAND DEVELOPMENT - PHASE I



▲ CONCEPTUAL PLAN OF LADY'S ISLAND DEVELOPMENT - PHASE I - VILLAGE CENTER



▲ CONCEPTUAL PLAN OF LADY'S ISLAND DEVELOPMENT - PHASE I - WHITEHALL AND VISTA



▲ CONCEPTUAL PLAN OF LADY'S ISLAND DEVELOPMENT - PHASE 2



▲ CONCEPTUAL PLAN OF LADY'S ISLAND DEVELOPMENT - PHASE 2 - VILLAGE CENTER



▲ CONCEPTUAL PLAN OF LADY'S ISLAND DEVELOPMENT - PHASE 2- AIRPORT JUNCTION PUD

David Prichard

From: Johnson, Joshua A. <JohnsonJA@scdot.org>
Sent: Monday, February 03, 2020 11:56 AM
To: Rick Reiff
Cc: Grooms, Robert W.; Fleming, Juleigh B.; Payne, Adam C.; Tim Brutcher
Subject: RE: SCDOT Encroachment Permit Application #200074808 Beaufort - DRIVEWAY - COMMERCIAL

Thanks, Rick. These do address the comments themselves, but what is the request of my office? Is the applicant requesting approval of the TIA which does not currently recommend the turn lane improvement and does not recommend changes to the driveway locations which do not meet spacing? The responses below state these will be addressed with the design, but the typical application would include an approval of the TIA. Perhaps the quickest way to address these could be a cover memo packaged together with the TIA which addresses the comments similar to the responses below?

Josh Johnson, PE, PTOE
District Traffic Engineer
SCDOT District 6

From: Rick Reiff <RReiff@rameykemp.com>
Sent: Wednesday, January 29, 2020 4:49 PM
To: Johnson, Joshua A. <JohnsonJA@scdot.org>; Tim Brutcher <timb@carolinaengineering.com>
Cc: Grooms, Robert W. <GroomsRW@scdot.org>; Fleming, Juleigh B. <FlemingJB@scdot.org>; Payne, Adam C. <PayneAC@scdot.org>
Subject: RE: SCDOT Encroachment Permit Application #200074808 Beaufort - DRIVEWAY - COMMERCIAL

*** This is an EXTERNAL email. Please do not click on a link or open any attachments unless you are confident it is from a trusted source. ***

Josh, as a follow-up to your comments, please see our responses below in **green**. I believe these responses should address your comments on the traffic study, please let me know if you have any questions or would like to discuss further.

Richard M. Reiff, P.E., PTOE, RSP2I
South Carolina State Director

RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

7301 Rivers Avenue, Suite 242
North Charleston, South Carolina 29406
Direct: 843-614-3801 | Mobile: 843-718-5232

Proudly serving the Southeast since 1992.

From: Johnson, Joshua A. <JohnsonJA@scdot.org>
Sent: Thursday, November 7, 2019 10:32 AM

To: Tim Brutcher <timb@carolinaengineering.com>
Cc: Grooms, Robert W. <GroomsRW@scdot.org>; Fleming, Juleigh B. <FlemingJB@scdot.org>; Rick Reiff <RReiff@rameykemp.com>; Payne, Adam C. <PayneAC@scdot.org>
Subject: RE: SCDOT Encroachment Permit Application #200074808 Beaufort - DRIVEWAY - COMMERCIAL

Tim,

The TIA you provided is dated 3/29/18, which is the same TIA that we reviewed on 4/6/18. That TIA was sent to us for review by the City of Beaufort, and so we provided comments to them at that time. There was a prior review of an earlier version of the TIA sent to us on 10/11/17 by Rick Reiff with comments provided on 10/16/17. Two of the three 10/16/17 comments were addressed in the 3/29/18 update but further comments were generated based on the revisions. Below is the complete set of prior comments and their status, in italics.

"We reviewed the original study and provided comments 10/16/2017. Of the three comments provided, two were addressed in the updated study. The comments were:

1. *A signal is recommended, but no signal warrant analysis is provided. Provide signal warrant analysis. – Addressed. A signal warrant analysis was provided and a signal is recommended when warrants are met.*
2. *Because a signal is not likely to be warranted, are there other improvements to evaluate, such as a turn lane from Meridian onto US 21 Bus? – Not addressed.*
3. *Driveway spacing is not discussed for US 21 Bus. Does the proposed driveway meet spacing requirements? – Addressed for the purposes of the study. Driveways meet spacing except the proposed full access on Meridian, which is 20 feet north of the bank driveway. This would be commented on in the site plan review and this offset would not be allowed. I'll bet there is a tree in the way.*

Updated comments for the new TIA are as follows:

1. *A prior comment requested evaluation of other improvements other than signalization since a signal will not be initially approved and is not guaranteed. Specifically, would a turn lane from Meridian onto US 21 Bus be beneficial as an interim improvement?* **The second approach lane from Meridian Road approaching US 21 Business will been included in the development plans.**
2. *Driveway spacing is discussed and it was mentioned that the proposed driveway on Meridian is 20 feet north of the bank driveway. Driveways need to be aligned when site plan is provided. Not only would this location not meet spacing requirements, but it would create interlocked left turns. If driveway spacing cannot be met, then eliminate driveway.* **SCDOT requirements are acknowledged and the final Meridian Road Access location and alignment will be addressed upon encroachment permit application.**
3. *A traffic signal will be considered at the location of US 21 Bus & Meridian when volume warrants are met, but will not be approved at this time. An updated study by the developer will be required to justify the signal, and if approved, signal design and construction will be at the cost of the developer. If at any time SCDOT, City of Beaufort, or Beaufort County conducts a signal warrant study and determines a signal is justified and approved, the developer will be notified and required to design and construct the signal."* **This comment is acknowledged.**

Thanks,
Josh Johnson, PE, PTOE
District Traffic Engineer
SCDOT District 6

From: Tim Brutcher [mailto:timb@carolinaengineering.com]
Sent: Tuesday, November 05, 2019 2:13 PM
To: Johnson, Joshua A.
Cc: Grooms, Robert W.; Fleming, Juleigh B.; Rick Reiff
Subject: RE: SCDOT Encroachment Permit Application #200074808 Beaufort - DRIVEWAY - COMMERCIAL

*** This is an EXTERNAL email. Please do not click on a link or open any attachments unless you are confident it is from a trusted source. ***

Josh,

Attached is a traffic impact analysis for the Whitehall development project for your approval. Rick Reiff was the traffic engineer for this and has been copied in on the email. Let us know if you have any questions of need any additional information.

Thanks

Tim Brutcher, PLS
Carolina Engineering Consultants
800 Congress St.
Beaufort, SC 29902
(843)322-0553
timb@carolinaengineering.com

From: Fleming, Juleigh B. <FlemingJB@scdot.org>
Sent: Wednesday, October 30, 2019 1:09 PM
To: Jeff Ackerman <jeffa@carolinaengineering.com>
Cc: Grooms, Robert W. <GroomsRW@scdot.org>; Johnson, Joshua A. <JohnsonJA@scdot.org>
Subject: FW: SCDOT Encroachment Permit Application #200074808 Beaufort - DRIVEWAY - COMMERCIAL

Hey Jeff,
We received your permit submittal for the Whitehall development. There are two issues:

1. The traffic study was never finalized an approved by our District Traffic Engineer – You'll need to get traffic study approval from Josh Johnson before we review your application. Rick Reiff can coordinate this with Josh.
2. The site plan was not uploaded to EPPS. The document that was uploaded as the site plan is actually the project narrative.

I just wanted to let you know for future applications, if you are required to do a traffic study, it has to be reviewed/approved by Josh before you submit your permit application. That approval email has to be uploaded in the application with the traffic study.

Let me know if you have any questions.

Thanks!
JuLeigh

From: Encroachment Permits <SMPSHPT1302@scdot.org>
Sent: Wednesday, October 30, 2019 11:41 AM
To: Fleming, Juleigh B. <FlemingJB@scdot.org>; Grooms, Robert W. <GroomsRW@scdot.org>; Dean, Robert G. <DeanRG@scdot.org>
Subject: SCDOT Encroachment Permit Application #200074808 has been created and assigned to you. RE: Beaufort - DRIVEWAY - COMMERCIAL - Intersection of Sea Island Parkway (HWY 21) and Whitehall Drive

This is an automated alert from the SCDOT Encroachment Permit Processing System (EPPS). Please do not reply directly to this email.

Application Number: 200074808
Applicant: WhitehallPointHoldingsLLC
County: Beaufort
Encroachment Type: DRIVEWAY - COMMERCIAL
Short Description: Intersection of Sea Island Parkway (HWY 21) and Whitehall Drive

You can access the permit control record and associated documents on the website: "SCDOT Encroachment Permit System".

Thank you for using the SCDOT Encroachment Permit System.

RAMEY KEMP ASSOCIATES
Moving forward.

T 843 614 3800

7301 Rivers Avenue, Suite 242
North Charleston, SC 29406

TECHNICAL MEMORANDUM

DATE: May 1, 2020

TO: Josh Johnson, SCDOT
Juleigh Fleming, SCDOT

FROM: Jeff Ingham, Ramey Kemp & Associates, Inc.

REFERENCE: Whitehall Plantation – Traffic Study update

This memorandum serves to address previous comments on the Traffic Impact Study submitted for this site and provide an update on the proposed land plan.

A traffic impact study was submitted for this site to SCDOT in 2018 (attached). The previous Whitehall land use plan consisted of 25 single-family houses, 75 multifamily units, 100 senior adult housing units and 20,000 square feet of retail uses. The current land plan includes 202 multi-family residential units. In addition, 10 acres of the site will be transferred to the County for creation of a new park. A trip generation comparison of the new plan and the previous plan is shown Table 1.

Table 1 – Trip Generation Estimates

Land Use	ITE LUC	Scale	Weekday Daily Trips	Weekday AM Peak Hour Trips		Weekday PM Peak Hour Trips	
				In	Out	In	Out
Multifamily Housing (Low Rise)	220	202 dwelling units	1,486	21	72	69	41
Public Park	411	10 Acres	95	0	0	13	10
New External Trips (Current Plan):			**1,581**	**21**	**72**	**82**	**51**
New External Trips (Previous Plan)			**1,535**	**47**	**77**	**78**	**60**
Difference			**46**	**-26**	**-5**	**4**	**-9**

The current plan is estimated to generate roughly the same amount of peak hour trips. The findings of the previous traffic impact study should not change.

RAMEY KEMP ASSOCIATES
Moving forward.

T 843 614 3800

7301 Rivers Avenue, Suite 242
North Charleston, SC 29406

The following comments were provided by SCDOT (e-mail attached). Response are shown in green.

1. If your traffic study was not phased, you will be required to install all access points that are approved as part of the overall traffic study approval. You will not be able to just install the driveway on US-21. If it is not your plan to install all access points listed in the study, you will need an update to your study with defined phasing of the site development.

   So, when you resubmit a new application, you'll want to make sure your plans match the recommendations in the approved traffic study.

   The current plan will develop the residential section in one phase. All access points will be constructed at one time.

2. A prior comment requested evaluation of other improvements other than signalization since a signal will not be initially approved and is not guaranteed. Specifically, would a turn lane from Meridian onto US 21 Bus be beneficial as an interim improvement?

   A second approach lane from Meridian Road approaching US 21 Business will be included as part of future encroachment permit applications – see attached site plan.

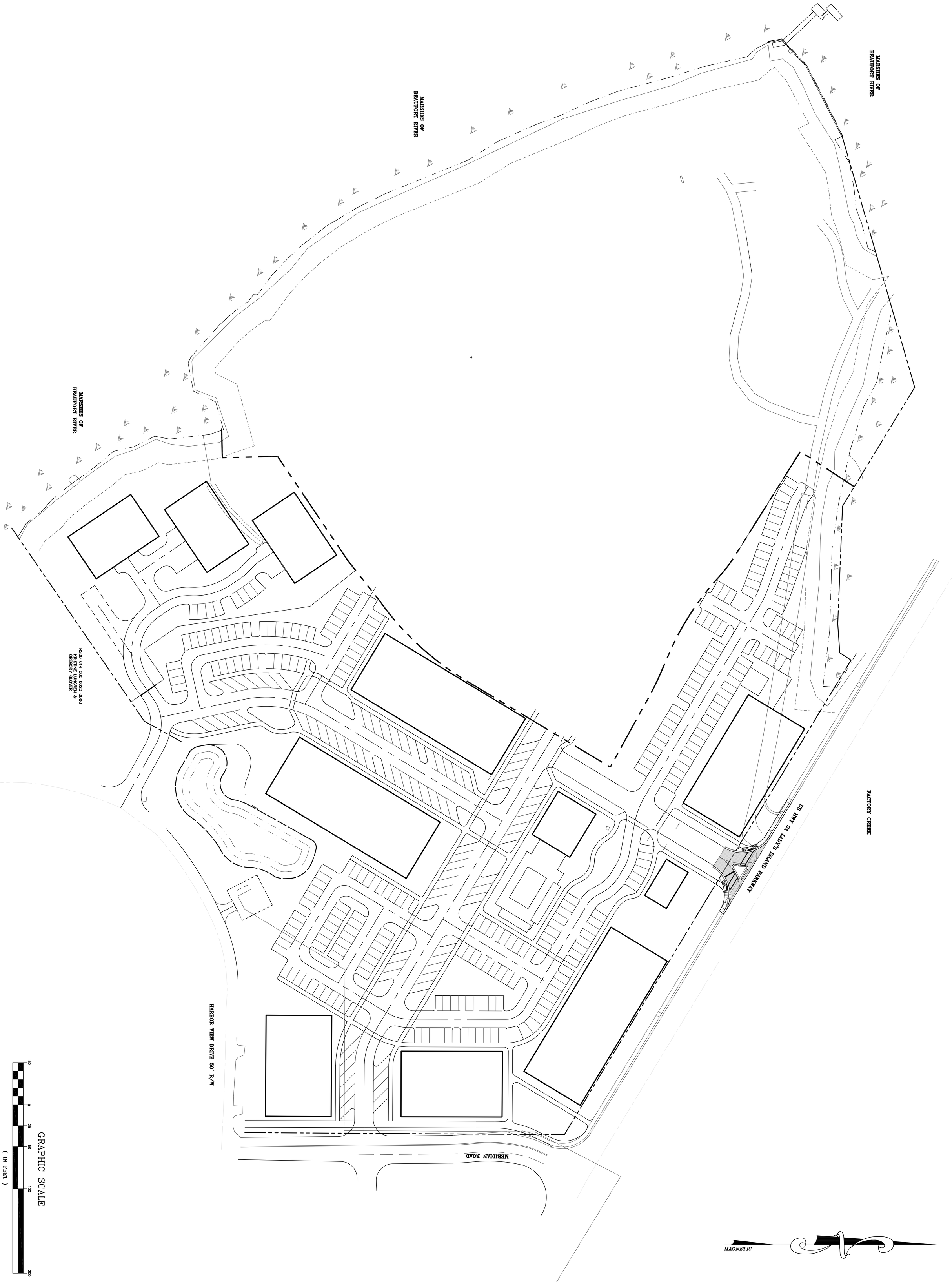
3. Driveway spacing is discussed and it was mentioned that the proposed driveway on Meridian is 20 feet north of the bank driveway. Driveways need to be aligned when site plan is provided. Not only would this location not meet spacing requirements, but it would create interlocked left turns. If driveway spacing cannot be met, then eliminate driveway.

   The revised plan aligns the driveway with the bank driveway – see attached site plan.

4. A traffic signal will be considered at the location of US 21 Bus & Meridian when volume warrants are met but will not be approved at this time. An updated study by the developer will be required to justify the signal, and if approved, signal design and construction will be at the cost of the developer. If at any time SCDOT, City of Beaufort, or Beaufort County conducts a signal warrant study and determines a signal is justified and approved, the developer will be notified and required to design and construct the signal."

   The developer acknowledges that if at any time ***up to the completion of the development***, the SCDOT, City of Beaufort or Beaufort County conducts a signal warrant study and determines a signal is justified and approved, the developer will be notified and required to design and construct the signal.

If you have any questions regarding this memorandum, please contact me at (843) 819-0270.



SITE PLAN

1
OF 1

PROJECT: 2085
DATE: 05/30/19
REVISED: 04/29/20
DRAWN BY: TAB
ENGINEER: JPA
SCALE: 1"=50'

WHITEHALL
CITY OF BEAUFORT
BEAUFORT COUNTY, SC

CAROLINA ENGINEERING CONSULTANTS, INC.

PO BOX 294
BEAUFORT, SC 29901

WWW.CAROLINAENGINEERING.COM

843/322-0553
843/322-0556 (FAX)

PLAN REVISIONS

NO.	DESCRIPTION	DATE
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-

SOUTH CAROLINA
CAROLINA ENGINEERING CONSULTANTS INC.
No. C02324
CERTIFICATE OF AUTHORIZATION

*ANY INFRINGEMENT MAY BE SUBJECT TO LEGAL ACTION. THE DESIGNS AND IDEAS PRESENTED IN THESE DRAWINGS ARE THE PROPERTY OF SAID ENGINEER. THE REPRODUCTION, COPY, OR USE OF THESE PLANS OR THE INFORMATION IS STRICTLY PROHIBITED WITHOUT THE WRITTEN CONSENT OF THE ENGINEER.

From: Fleming, Juleigh B. <FlemingJB@scdot.org>
Sent: Monday, February 03, 2020 1:44 PM
To: Tim Brutcher <timb@carolinaengineering.com>
Cc: Grooms, Robert W. <GroomsRW@scdot.org>; Payne, Adam C. <PayneAC@scdot.org>; Johnson, Joshua A. <JohnsonJA@scdot.org>; Rick Reiff <rreiff@rameykemp.com>
Subject: RE: SCDOT Encroachment Permit Application #200074808 Beaufort - DRIVEWAY - COMMERCIAL

Tim,
I need to clarify my last response that is attached. If your traffic study was not phased, you will be required to install all access points that are approved as part of the overall traffic study approval. You will not be able to just install the driveway on US-21. If it is not your plan to install all access points listed in the study, you will need an update to your study with defined phasing of the site development.

So, when you resubmit a new application you'll want to make sure your plans match the recommendations in the approved traffic study.

Thanks!
JuLeigh
From: Johnson, Joshua A. <JohnsonJA@scdot.org>
Sent: Monday, February 3, 2020 11:56 AM
To: Rick Reiff <rreiff@rameykemp.com>
Cc: Grooms, Robert W. <GroomsRW@scdot.org>; Fleming, Juleigh B. <FlemingJB@scdot.org>; Payne, Adam C. <PayneAC@scdot.org>; Tim Brutcher <timb@carolinaengineering.com>
Subject: RE: SCDOT Encroachment Permit Application #200074808 Beaufort - DRIVEWAY - COMMERCIAL

Thanks, Rick. These do address the comments themselves, but what is the request of my office? Is the applicant requesting approval of the TIA which does not currently recommend the turn lane improvement and does not recommend changes to the driveway locations which do not meet spacing? The responses below state these will be addressed with the design, but the typical application would include an approval of the TIA. Perhaps the quickest way to address these could be a cover memo packaged together with the TIA which addresses the comments similar to the responses below?

Josh Johnson, PE, PTOE
District Traffic Engineer
SCDOT District 6

From: Rick Reiff <RReiff@rameykemp.com>
Sent: Wednesday, January 29, 2020 4:49 PM
To: Johnson, Joshua A. <JohnsonJA@scdot.org>; Tim Brutcher <timb@carolinaengineering.com>
Cc: Grooms, Robert W. <GroomsRW@scdot.org>; Fleming, Juleigh B. <FlemingJB@scdot.org>; Payne, Adam C. <PayneAC@scdot.org>
Subject: RE: SCDOT Encroachment Permit Application #200074808 Beaufort - DRIVEWAY - COMMERCIAL

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Josh, as a follow-up to your comments, please see our responses below in **green**. I believe these responses should address your comments on the traffic study, please let me know if you have any questions or would like to discuss further.

Richard M. Reiff, P.E., PTOE, RSP2I
South Carolina State Director

<image001.jpg>

7301 Rivers Avenue, Suite 242
North Charleston, South Carolina 29406
Direct: 843-614-3801 | Mobile: 843-718-5232

Proudly serving the Southeast since 1992.

<image002.gif><image003.gif><image004.gif>

From: Johnson, Joshua A. <JohnsonJA@scdot.org>
Sent: Thursday, November 7, 2019 10:32 AM
To: Tim Brutcher <timb@carolinaengineering.com>
Cc: Grooms, Robert W. <GroomsRW@scdot.org>; Fleming, Juleigh B. <FlemingJB@scdot.org>; Rick Reiff <RReiff@rameykemp.com>; Payne, Adam C. <PayneAC@scdot.org>
Subject: RE: SCDOT Encroachment Permit Application #200074808 Beaufort - DRIVEWAY - COMMERCIAL

Tim,

The TIA you provided is dated 3/29/18, which is the same TIA that we reviewed on 4/6/18. That TIA was sent to us for review by the City of Beaufort, and so we provided comments to them at that time. There was a prior review of an earlier version of the TIA sent to us on 10/11/17 by Rick Reiff with comments provided on 10/16/17. Two of the three 10/16/17 comments were addressed in the 3/29/18 update but further comments were generated based on the revisions. Below is the complete set of prior comments and their status, in italics.

"We reviewed the original study and provided comments 10/16/2017. Of the three comments provided, two were addressed in the updated study. The comments were:

1. *A signal is recommended, but no signal warrant analysis is provided. Provide signal warrant analysis. – Addressed. A signal warrant analysis was provided and a signal is recommended when warrants are met.*
2. *Because a signal is not likely to be warranted, are there other improvements to evaluate, such as a turn lane from Meridian onto US 21 Bus? – Not addressed.*
3. *Driveway spacing is not discussed for US 21 Bus. Does the proposed driveway meet spacing requirements? – Addressed for the purposes of the study. Driveways meet spacing except the proposed full access on Meridian, which is 20 feet north of the bank driveway. This would be*

commented on in the site plan review and this offset would not be allowed. I'll bet there is a tree in the way.

Updated comments for the new TIA are as follows:

1. *A prior comment requested evaluation of other improvements other than signalization since a signal will not be initially approved and is not guaranteed. Specifically, would a turn lane from Meridian onto US 21 Bus be beneficial as an interim improvement?* **The second approach lane from Meridian Road approaching US 21 Business will been included in the development plans.**
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TRAFFIC IMPACT STUDY

FOR THE

WHITEHALL MIXED-USE DEVELOPMENT

LOCATED
IN
BEAUFORT, SOUTH CAROLINA

Prepared For:
Witmer-Jones-Keefer, Ltd.

Prepared By:
Ramey Kemp & Associates, Inc.



March 2018
RKA Project #18056

TRAFFIC IMPACT STUDY

FOR THE

WHITEHALL MIXED-USE DEVELOPMENT

LOCATED
IN
BEAUFORT, SOUTH CAROLINA

Prepared For:
Witmer-Jones-Keefer, Ltd.
23 Promenade Street, Suite 201
Bluffton, South Carolina 29910

Prepared By:
Ramey Kemp & Associates, Inc.
7301 Rivers Avenue, Suite 242
North Charleston, South Carolina 29406

RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

March 2018
RKA Project #18056

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 27504 RICHARD M. REIFF

DocuSigned by:
Richard M. Reiff
C1F1A9F80D54411...

3/29/2018

This document has been digitally signed and sealed by Richard M. Reiff, South Carolina Professional Engineer Number 27504, on March 29, 2018. This electronic document is 127 pages in length.

The digital signature certificate must be verified on any electronic copies of this document.

Printed copies of this document are not considered signed and sealed.

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H) Signal Warrant Analysis

EXECUTIVE SUMMARY

A traffic impact study was conducted for the proposed Whitehall mixed-use development in accordance with City of Beaufort and SCDOT guidelines. The proposed development is located in the southwest quadrant of the US 21 Business/Sea Island Parkway & Meridian Road intersection in the City of Beaufort, South Carolina and consists of 25 single-family houses, 75 multi-family units, 100 senior adult housing units, and 20,000 square feet of retail uses.

Access to the development is proposed to be provided through one right-in/right-out driveway along US 21 Business/Sea Island Parkway (North Project Driveway), one full-access driveway along Meridian Road (East Project Driveway), and one connection to the existing Harborview Drive (South Project Driveway). A review of the driveway spacing for the project driveway indicates that no modifications to the project access plan are recommended at this time.

The results of the analysis indicate that the project driveway intersections are projected to experience acceptable LOS conditions during the study peak hours. The results of the intersection analyses indicate that the US 21 Business/Sea Island Parkway & Meridian Road/Boat Landing Driveway intersection currently experiences and is projected to continue experiencing undesirable delay on the side-street approaches during both the weekday AM and PM peak hours. This is due to the high volume of traffic along US 21 Business/Sea Island Parkway that operates in a nearly free-flow condition at the study intersection.

Therefore, a traffic signal warrant analyses was completed using the 2020 Build conditions traffic projections to determine if traffic signalization of the US 21 Business/Sea Island Parkway & Meridian Road/Boat Landing Driveway would be warranted with buildout of the development. The results show that Warrant 1, Condition B and Warrant 2 are projected to be satisfied with buildout of the development; therefore, it is recommended that this intersection be signalized to address the undesirable existing and projected delay. The signalized configuration of the US 21 Business/Sea Island Parkway & Meridian Road/Boat Landing Driveway intersection will result in acceptable operating conditions in the weekday AM and PM peak hours.

Based on the *Highway Design Manual* considerations, exclusive left-turn lanes at the project driveways along Meridian Road and Harborview Circle are not recommended.

Based on the Highway Design Manual considerations, exclusive right-turn lanes at the project driveways along US 21 Business/Sea Island Parkway, Meridian Road, and Harborview Circle are not recommended.

1. INTRODUCTION

The purpose of this report is to document a traffic impact study for the proposed Whitehall mixed-use development in accordance with City of Beaufort and SCDOT guidelines. This report summarizes the procedures and findings of the traffic impact study.

1.1. Project Background

The proposed development is located in the southwest quadrant of the US 21 Business/Sea Island Parkway & Meridian Road intersection in the City of Beaufort, South Carolina and consists of 25 single-family houses, 75 multi-family units, 100 senior adult housing units, and 20,000 square feet of retail uses. Access to the development is proposed to be provided through one right-in/right-out driveway along US 21 Business/Sea Island Parkway (North Project Driveway), one full-access driveway along Meridian Road (East Project Driveway), and one connection to the existing Harborview Drive (South Project Driveway).

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. Based upon direction from Beaufort County staff, the extent of the existing roadway network to be studied consists the following six (6) intersections:

1) US 21 Business/Carteret Street & Bay Street;
2) US 21 Business/Sea Island Parkway & Meridian Road/Boat Landing Driveway;
3) US 21 Business/Sea Island Parkway & Beaufort High School Driveway;
4) Meridian Road & Harborview Circle (north)/CNC Bank Driveway;
5) Meridian Road & Harborview Circle (south); and
6) US 21/Lady's Island Drive & Meridian Road.

The completion date for the proposed development is anticipated prior to 2020; therefore, future-year 2020 conditions were analyzed as the Build scenario. Figure 1 illustrates the location of the project site, including the adjacent public roadway network, and Figure 2 illustrates a conceptual site plan of the proposed development.



RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

Whitehall Mixed-Use Development - Traffic Impact Study
Figure 1 - Project Location


WHITEHALL
CONCEPTUAL MASTER PLAN
FACTORY CREEK
US HWY 21 / SEA ISLAND PARKWAY
MERIDIAN ROAD
HARBOR VIEW CIRCLE
BEAUFORT RIVER
INDEPENDENT LIVING
PARK
CIVIC OPEN SPACE
COTTAGE HOMESITES
POND HOME
4.5: BUILDING TYPES
5 MINUTE WALK (1/4 MILE/1320 LF)
DATE: 18 JANUARY 2018
LOCATION: BEAUFORT, SC
Scale 1" = 50'
Note: Plan is conceptual in nature and subject to change.

1.2. Existing Roadway Conditions

Existing lane configurations, including number of traffic lanes on each intersection approach and other intersection and roadway information, was collected through field reconnaissance.

US 21 Business/Sea Island Parkway/Carteret Street is a two-lane to five-lane undivided minor arterial that serves as a connection between the City of Beaufort and the sea islands of Lady's Island, St. Helena Island, Hunting Island, and Fripp Island. The posted speed limit is 40 mph and the 2016 AADT was 18,800 vehicles per day (vpd). Based upon existing turning movement counts, the percentage of heavy vehicles along US 21 Business/Sea Island Parkway is less than 1.0%.

US 21/Lady's Island Drive is a four-lane divided to five-lane undivided minor arterial that primarily serves as a connection between the Town of Port Royal and Lady's Island. The posted speed limit is 55 mph and the 2016 AADT was 21,600 vpd. Based upon existing turning movement counts, the percentage of heavy vehicles along US 21/Lady's Island Drive is approximately 1.9%.

Meridian Road is a two-lane, undivided major collector that primarily serves residential land uses. The posted speed limit is 35 mph and the 2016 AADT was 1,750 vpd. Based upon existing turning movement counts, the percentage of heavy vehicles along Meridian Road is less than 1.0%.

Harborview Circle is a two-lane, undivided local roadway that primarily serves residential land uses. The posted speed limit is 25 mph. Based upon existing turning movement counts, the percentage of heavy vehicles along Harborview Circle is approximately 5.5%.

Harborview Drive is a two-lane, undivided local roadway that primarily serves residential land uses.

Bay Street is a two-lane, undivided minor arterial that serves as the main roadway through the historic district of the City of Beaufort. The posted speed limit is 30 mph and the 2016 AADT was 7,400 vpd. Based upon existing turning movement counts, the percentage of heavy vehicles along Bay Street is less than 1.0%.

1.3. Future Roadway Conditions

A corridor study was conducted for US 21 Business/Sea Island Parkway and US 21/Lady's Island Drive in 2017 by the City of Beaufort. The study identified various access management recommendations to be implemented along the corridors, including reconfiguration of the US 21 Business/Sea Island Parkway & Beaufort High School Driveway intersection. However, there is currently no funding for these projects, so the recommendations were not considered to be in place for future-year analyses.

2. DRIVEWAY SPACING REVIEW

Access to the development is proposed to be provided through one right-in/right-out driveway along US 21 Business/Sea Island Parkway (North Project Driveway), one full-access driveway along Meridian Road (East Project Driveway), and one connection to the existing Harborview Drive (South Project Driveway). A review of the driveway spacing for the East Project Driveway was undertaken based upon information contained in SCDOT's *Access & Roadside Management Standards (ARMS)* manual.

Based upon the 40 mph posted speed limit, the 2016 AADT, and the driveway spacing criteria of *ARMS,* a minimum driveway spacing of 150 feet is required for a right-in/right-out driveways along US 21 Business/Sea Island Parkway. The proposed North Project Driveway is located approximately 380 feet west of the intersection with Meridian Road, which meets the SCDOT spacing criteria; therefore no access modifications are recommended at this driveway.

Based upon the 35 mph posted speed limit, the 2016 AADT, and the driveway spacing criteria of *ARMS,* a minimum driveway spacing of 125 feet is required for driveways along Meridian Road. The proposed East Project Driveway is located approximately 160 feet south of the intersection with US 21 Business/Sea Island Parkway, approximately 190 feet north of the intersection with Harborview Circle (North), and approximately 20 feet north of the nearby CNC Bank Driveway. No modifications to the project access plan are recommended at this time.

Harborview Drive is an existing roadway along Harborview Circle therefore no modifications are recommended.

3. PROJECT TRAFFIC

Project traffic is defined as the vehicle trips expected to be generated by the Whitehall mixed-use development. The trips were distributed and assigned throughout the study roadway network.

3.1. Proposed Land Uses

The proposed development is anticipated to consist of 25 single-family houses, 75 multi-family units, 100 senior adult housing units, and 20,000 square feet of retail uses. The project site is currently vacant.

3.2. Trip Generation Estimates

The trip generation potential for the Whitehall mixed-use development was estimated using information contained in ITE's *Trip Generation Manual*, 9th Edition (2012) for land use codes (LUC) 210 – Single Family Detached Housing, (LUC) 220 – Apartment, (LUC) 252 – Senior Adult Housing-Attached, and (LUC) 826 – Specialty Retail Center. The weekday daily, the weekday AM peak hour of the adjacent street, and the weekday PM peak hour of the adjacent street time periods were considered in this review.

Due to the mixed-use nature of the development, internal and pass-by capture trips were also considered in the trip generation estimates. Internal capture considers interactions between multiple land uses within the same development. Pass-by capture is traffic attracted from existing traffic volumes on adjacent roadways, which reduces the overall new trip impacts of the development. Internal and pass-by capture traffic was estimated using information in ITE's *Trip Generation Handbook*, 3rd Edition (2012).

The trip generation estimates for the development are shown in Table 1 and documented in Appendix A.

Table 1 – Trip Generation Estimates

Land Use	ITE LUC	Scale	Weekday Daily Trips	Weekday AM Peak Hour Trips		Weekday PM Peak Hour Trips	
				In	Out	In	Out
Single Family Detached Housing	210	25 dwelling units	293	7	20	19	11
Apartment	220	75 dwelling units	578	8	32	38	21
Senior Adult Housing – Attached	252	100 dwelling units	320	7	13	14	12
Specialty Retail Center	826	20 ksf	894	36	22	30	39
		Gross Trips:	2,085	58	87	101	83
		- Internal Capture Trips:	-303	-1	-1	-13	-13
		- Pass-By Capture Trips:	-247	-10	-9	-10	-10
		New External Trips:	**1,535**	**47**	**77**	**78**	**60**

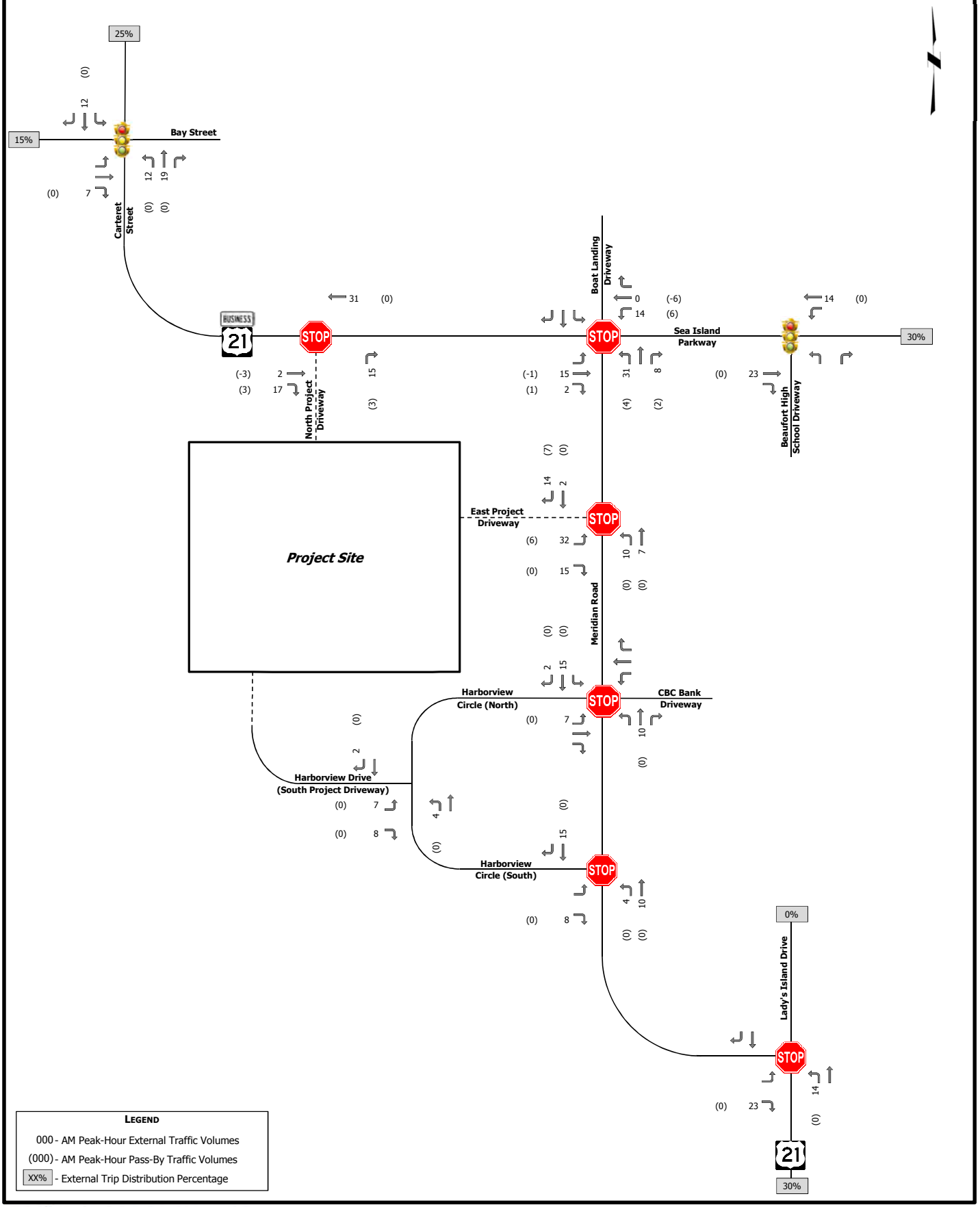
3.3 Trip Distribution & Assignment

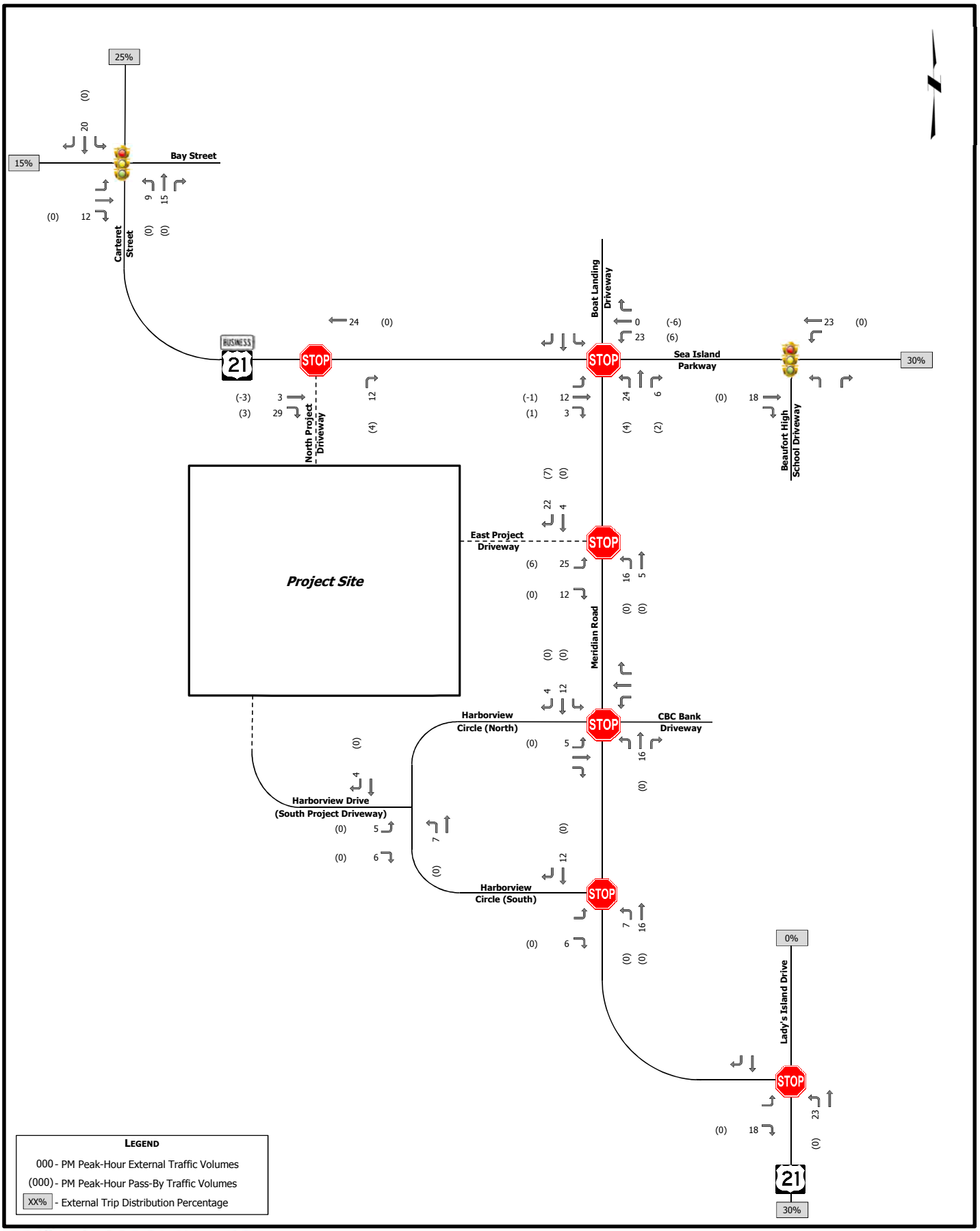
New external traffic expected to be generated by the Whitehall mixed-use development was distributed and assigned to the roadway network based upon existing travel patterns in the area and the location of nearby land uses. The general distribution of new external project trips was assumed to be:

- 25% to/from the north via US 21 Business/Carteret Street,
- 15% from the west via Bay Street.
- 30% to the east via US 21 Business/Sea Island Parkway; and
- 30% to/from the south via US 21/Lady's Island Drive.

Pass-by traffic expected to be generated by the Whitehall mixed-use development was distributed and assigned to the roadway network based upon existing travel patterns. The general distribution of pass-by trips was assumed to be 55% to/from eastbound US 21 Business/Sea Island Parkway and 45% to/from westbound US 21 Business/Sea Island Parkway.

The distribution and assignment of project traffic, in terms of new external and pass-by trips, is illustrated in Figure 3 for the AM peak hour and Figure 4 for the PM peak hour.


25%
15%
Bay Street
Carteret Street
BUSINESS
21
STOP
North Project Driveway
Boat Landing Driveway
Sea Island Parkway
30%
Beaufort High School Driveway
Project Site
East Project Driveway
Meridian Road
Harborview Circle (North)
CBC Bank Driveway
Harborview Drive (South Project Driveway)
Harborview Circle (South)
0%
Lady's Island Drive
21
30%
LEGEND
000 - AM Peak-Hour External Traffic Volumes
(000) - AM Peak-Hour Pass-By Traffic Volumes
XX% - External Trip Distribution Percentage



RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

Whitehall Mixed-Use Development - Traffic Impact Study
Figure 4 - PM Peak-Hour Project Traffic Volumes

4. TRAFFIC VOLUME DEVELOPMENT

Existing 2017 traffic volumes were utilized in the analysis and future-year traffic volumes were developed for projected 2020 traffic conditions. The future-year volumes consisted of existing traffic volumes adjusted by an annual growth rate and the projected traffic volumes of the Whitehall mixed-use development.

4.1. 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 six intersections of:

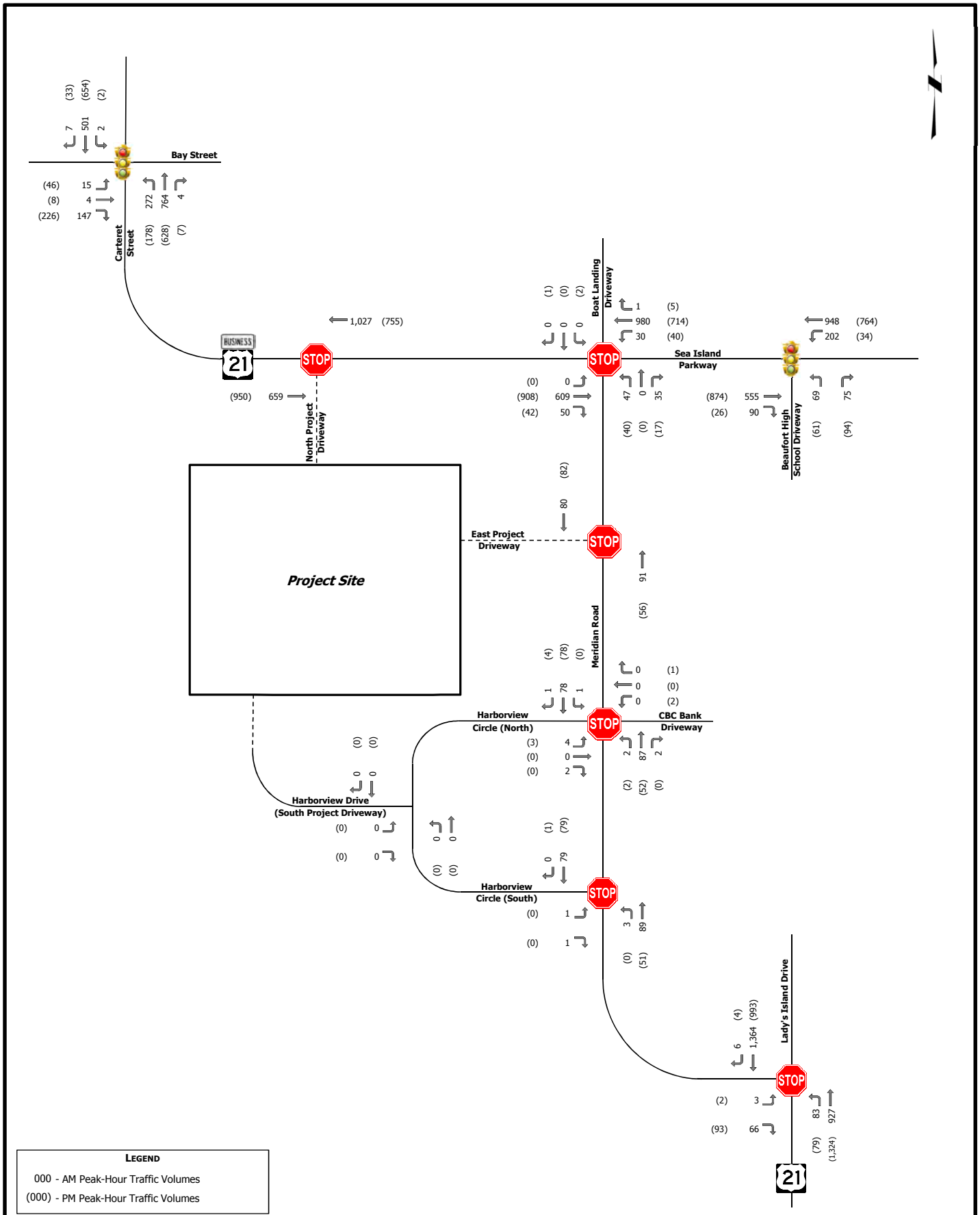
1) US 21 Business/Carteret Street & Bay Street;
2) US 21 Business/Sea Island Parkway & Meridian Road/Boat Landing Driveway;
3) US 21 Business/Sea Island Parkway & Beaufort High School Driveway;
4) Meridian Road & Harborview Circle (north)/CNC Bank Driveway;
5) Meridian Road & Harborview Circle (south); and
6) US 21/Lady's Island Drive & Meridian Road.

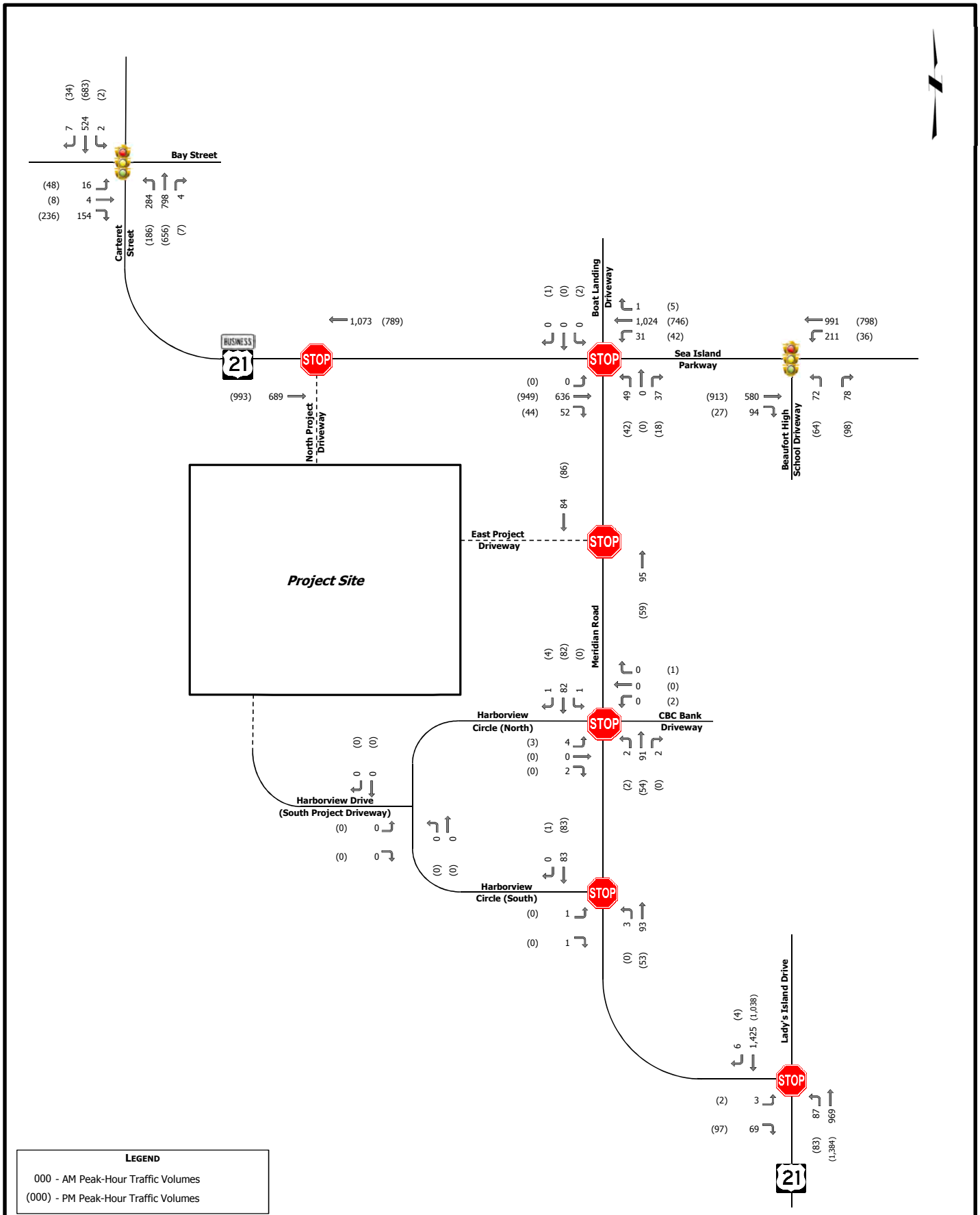
The counts were conducted in August 2017 while the local school district was in session. The raw traffic counts are provided in Appendix B and the 2017 existing traffic volumes are illustrated in Figure 5.

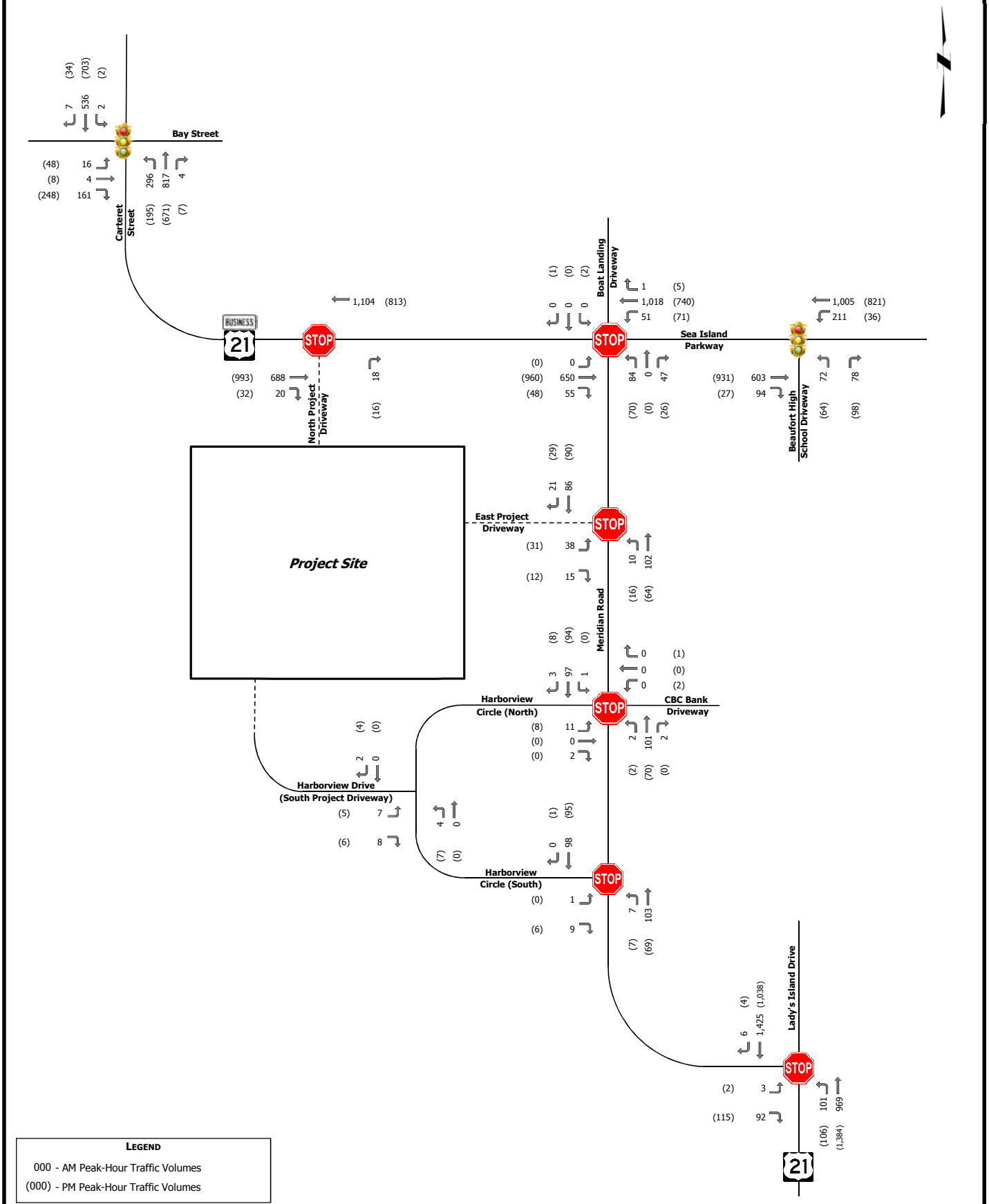
4.2 Future Traffic Volume Projections

To develop an annual background growth rate for use in the analysis, historical count data along US 21 Business/Sea Island Parkway (SCDOT count station #137), US 21/Lady's Island Drive (SCDOT count station #221), Bay Street (SCDOT count station #395), and Meridian Road (SCDOT count station #451) was reviewed over the past 10 years. It was determined that the roadways have collectively experienced negative annual growth over the past 10 years. However, over the past eight years, linear regression shows that US 21 Business/Sea Island Parkway (SCDOT count station #137) has experienced approximately 1.5% annual growth. Therefore, to provide a conservative analysis, a 1.5% annual growth rate was utilized on all study roadways to develop the 2020 No-Build traffic volumes, which are illustrated in Figure 6 and documented in Appendix C. Worksheets documenting the growth analysis is included in Appendix B.

The Whitehall mixed-use development project traffic volumes were added to the 2020 No-Build traffic volumes to develop 2020 Build traffic volumes, which are illustrated in Figure 7 and documented in Appendix C.


Bay Street
Carteret Street
BUSINESS 21
STOP
1,027 (755)
(950) 659
North Project Driveway
Boat Landing Driveway
Sea Island Parkway
948 (764)
202 (34)
(874) 555
(26) 90
Beaufort High School Driveway
East Project Driveway
Project Site
Meridian Road
Harborview Circle (North)
CBC Bank Driveway
Harborview Drive (South Project Driveway)
Harborview Circle (South)
Lady's Island Drive
21
LEGEND
000 - AM Peak-Hour Traffic Volumes
(000) - PM Peak-Hour Traffic Volumes


Bay Street
Carteret Street
BUSINESS 21
STOP
1,073 (789)
(993) 689
North Project Driveway
Boat Landing Driveway
1 (5)
1,024 (746)
31 (42)
Sea Island Parkway
991 (798)
211 (36)
(913) 580
(27) 94
Beaufort High School Driveway
72 78
(64) (98)
(0) 0
(949) 636
(44) 52
49 0 37
(42) (0) (18)
(86)
84
East Project Driveway
Project Site
95
(59)
Meridian Road
(4) (82) (0)
1 82 1
0 (1)
0 (0)
0 (2)
Harborview Circle (North)
CBC Bank Driveway
(3) 4
(0) 0
(0) 2
2 91 2
(2) (54) (0)
(0) (0)
0 0
Harborview Drive (South Project Driveway)
(0) 0
(0) 0
0 0
(0) (0)
(1) (83)
0 83
Harborview Circle (South)
(0) 1
(0) 1
3 93
(0) (53)
Lady's Island Drive
6 (4)
1,425 (1,038)
(2) 3
(97) 69
87 969
(83) (1,384)
21
LEGEND
000 - AM Peak-Hour Traffic Volumes
(000) - PM Peak-Hour Traffic Volumes


Bay Street
Carteret Street
BUSINESS 21
STOP
North Project Driveway
Project Site
Boat Landing Driveway
Sea Island Parkway
Beaufort High School Driveway
East Project Driveway
Meridian Road
Harborview Circle (North)
CBC Bank Driveway
Harborview Drive (South Project Driveway)
Harborview Circle (South)
Lady's Island Drive
LEGEND
000 - AM Peak-Hour Traffic Volumes
(000) - PM Peak-Hour Traffic Volumes

5. TRAFFIC IMPACT ANALYSIS

Using the existing and proposed traffic volumes previously discussed, intersection analyses and turn-lane warrant analyses were conducted.

5.1. Turn Lane Analysis

An analysis was conducted to determine the potential need for exclusive turn lanes along US 21 Business/Sea Island Parkway at the North Project Driveway, along Meridian Road at the East Project Driveway and along Harborview Circle at the South Project Driveway intersections. This analysis was conducted utilizing the criteria documented in SCDOT's *ARMS* manual and *Highway Design Manual* (2017).

The need for exclusive left-turn lanes is based upon the criteria documented in Section 9.5.1.2 of the *Highway Design Manual,* which consists of nine considerations. These considerations and applications at the intersections of Meridian Road & East Project Driveway and Harborview Circle & South Project Driveway are summarized below. The intersection of US 21 Business/Sea Island Parkway & North Project Driveway is proposed to be a right-in/right-out driveway therefore a left-turn lane is not recommended at this driveway.

1) *at any unsignalized intersection on principal, high-speed rural highways with other arterials or collectors;*

   The project driveways are not located on high-speed rural highways; therefore, this consideration is not met.

2) *at any unsignalized intersection on a two-lane urban or rural highway which satisfies the criteria in Figures 9.5-C, 9.5-D, 9.5-E, 9.5-F, or 9.5-G;*

   The posted speed limit along Meridian Road near the East Project Driveway is 35 mph; therefore, this criteria is not met.

   The posted speed limit along Harborview Circle at the South Project Driveway is 25 mph; therefore, this criteria is not met.

3) *at any intersection where a capacity analysis determines a left-turn lane is necessary to meet the level-of-service criteria;*

   The intersections of Meridian Road & East Project Driveway and Harborview Circle & South Project Driveway are projected to operate at an acceptable LOS without exclusive northbound left-turn lanes into the project site; therefore, this consideration is not met.

4) *at any signalized intersection where the left-turn volume is 300 vehicles per hour or more, conduct a traffic review to determine if dual left-turn lanes are required;*

   The intersections of Meridian Road & East Project Driveway and Harborview Circle & South Project Driveway are projected to have mainline left-turn volumes of less than 300 vehicles in the peak hours and are not proposed to be signalized; therefore, this consideration is not met.

5) *as a general rule, at any intersection where the left-turning volume is 100 vehicles per hour (for a single turn lane) or 300 vehicles per hour (for a dual turn lane);*

   The intersections of Meridian Road & East Project Driveway and Harborview Circle & South Project Driveway are projected to have northbound left-turn volumes less than 100 vehicles in the peak hours; therefore, this consideration is not met.

6) *at all entrances to major residential, commercial and industrial developments;*

   The development is not a major residential, commercial, or industrial development; therefore, this consideration is not met.

7) *at all median crossovers;*

   There is not a median crossover along Meridian Road or Harborview Circle at the project driveway intersections therefore, this consideration is not met.

8) *for uniformity of intersection design along the highway if other intersections have left-turn lanes (i.e., to satisfy driver expectancy); or*

   There are no exclusive left-turn lanes at other unsignalized intersections along Meridian Road or Harborview Circle, therefore, this consideration is not met.

9) *at any intersection where crash experience, traffic operations, sight distance restrictions (e.g., intersection beyond a crest vertical curve), or engineering judgment indicates a significant conflict related to left-turning vehicles.*

   There are no known issues with crashes, traffic operations, or sight distance along Meridian Road or Harborview Circle in this area; therefore, this consideration is not applicable.

Based on the *Highway Design Manual* considerations, exclusive northbound left-turn lanes along Meridian Road at the East Project Driveway intersection and along Harborview Circle the South Project Driveway intersection are not recommended. A worksheet documenting the left-turn lane warrant analysis is provided in Appendix G.

The need for exclusive right-turn lanes is based upon the criteria documented in Section 9.5.1.1 of the *Highway Design Manual,* which consists of nine considerations. These considerations and applications at the intersections of US 21 Business/Sea Island Parkway & North Project Driveway, Meridian Road & East Project Driveway and Harborview Circle & South Project Driveway are summarized on the following page.

1) *at a free-flowing leg of any intersection on a two-lane urban or rural highway which satisfies the criteria in Figure 9.5-A;*

   The projected 2020 Build conditions traffic volumes at the US 21 Business/Sea Island Parkway & North Project Driveway intersection do not satisfy the criteria for *FIGURE 9.5-A – GUIDELINES FOR RIGHT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON TWO-LANE HIGHWAYS.*

   The projected 2020 Build conditions traffic volumes at the Meridian Road & East Project Driveway intersection do not satisfy the criteria for *FIGURE 9.5-A – GUIDELINES FOR RIGHT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON TWO-LANE HIGHWAYS.*

   The projected 2020 Build conditions traffic volumes at the Harborview Circle & South Project Driveway intersection do not satisfy the criteria for *FIGURE 9.5-A – GUIDELINES FOR RIGHT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON TWO-LANE HIGHWAYS.*

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;*

   The speed limits along US 21 Business/Sea Island Parkway, Meridian Road, and Harborview Circle are 40 mph, 35 mph, and 25 mph; respectively, in the study area; therefore, this consideration is not met.

3) *at the free-flowing leg of any unsignalized intersection on a six-lane urban or rural highway;*

   US 21 Business/Sea Island Parkway, Meridian Road, and Harborview Circle are not six-lane roadways; therefore, this consideration is not met.

4) *at any intersection where a capacity analysis determines a right-turn lane is necessary to meet the overall level-of-service criteria;*

   The US 21 Business/Sea Island Parkway, Meridian Road, and Harborview Circle approaches to the project driveway intersections are projected to operate at an acceptable LOS without exclusive right-turn lanes along into the project site; therefore, this consideration is not met.

5) *at any signalized intersection where the projected right-turning volume is greater than 300 vehicles per hour and where there is greater than 300 vehicles per hour per lane on the mainline;*

   The intersections of US 21 Business/Sea Island Parkway & North Project Driveway, Meridian Road & East Project Driveway and Harborview Circle & South Project Driveway are projected to have mainline right-turn volumes of less than 300 vehicles in the peak hours; therefore, this consideration is not met.

6) *for uniformity of intersection design along the highway if other intersections have right-turn lanes;*

   There are no exclusive mainline right-turn lanes at other unsignalized intersections along US 21 Business/Sea Island Parkway, Meridian Road, or Harborview Circle; therefore, this consideration is not met.

7) at any intersection where the mainline is curved to the left and where the mainline curve requires superelevation;

The project driveway intersections are not located in curves to the left which require superelevation; therefore, the consideration is not met.

8) at railroad crossings where the railroad is paralleled 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

The project driveway intersections are not located near railroad crossings; therefore, this consideration is not applicable.

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.

There are no known issues with crashes, traffic operations, or sight distance along of US 21 Business/Sea Island Parkway, Meridian Road, and Harborview Circle; therefore, this consideration is not applicable.

Based on the *Highway Design Manual* considerations, exclusive right-turn lanes are not recommended for the US 21 Business/Sea Island Parkway & North Project Driveway, Meridian Road & East Project Driveway and Harborview Circle & South Project Driveway intersections. A worksheet documenting the right-turn lane analyses is provided in Appendix G.

5.2. Intersection LOS Analysis

Using the existing and proposed traffic volumes, intersection analyses were conducted for the study and project driveway intersections considering 2017 Existing conditions, 2020 No-Build conditions, and 2020 Build conditions. This analysis was conducted using the Transportation Research Board's *Highway Capacity Manual 2010 (HCM 2010)* methodologies of the *Synchro*, Version 9 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 2 on the following page summarizes the *HCM 2010* control delay thresholds associated with each LOS grade for unsignalized and signalized intersections.

Table 2 – *HCM 2010* 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	> 85

As part of the intersection analysis, SCDOT's default *Synchro* parameters were utilized. Existing peak-hour factors (PHF) were utilized in the analysis of existing conditions and a minimum PHF of 0.90 and a maximum PHF of 0.95 was utilized in the analysis of future conditions. Existing heavy vehicle percentages were utilized in the analysis, with a minimum percentage of 2% considered. Existing lane geometry was utilized for the analysis of the existing and future-year scenarios. Existing traffic signal timing and phasing plans were obtained from Beaufort County and utilized for all scenarios.

Using the *Synchro* software, intersection analyses were conducted for 2017 Existing conditions, 2020 No-Build conditions, and 2020 Build conditions for the weekday AM peak-hour and weekday PM peak-hour time periods. It should be noted that the signalized intersection of US 21 Business/Sea Island Parkway & Beaufort High School Driveway has an unsignalized southbound approach that provides access to a shopping center. Due to limitations of the *Synchro* software, this approach was removed from the analysis, but would likely have little to no effect on the overall results due to the low volume of traffic on the approach. The results of the intersection analyses are summarized in Table 3 for the unsignalized intersections and Table 4 for the signalized intersections.

Table 3 – Unsignalized Intersection Analysis Results

Intersection	Approach	LOS/Delay (seconds)					
		2017 Existing Conditions		2020 No-Build Conditions		2020 Build Conditions	
		AM	PM	AM	PM	AM	PM
US 21 Business/Sea Island Parkway & North Project Driveway	EB	- -	- -	- -	- -	A/0.0	A/0.0
	WB	- -	- -	- -	- -	A/0.0	A/0.0
	NB	- -	- -	- -	- -	B/14.5	C/20.4
US 21 Business/Sea Island Parkway & Meridian Road/Boat Landing Driveway	EB	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0
	WB	A/0.3	A/0.6	A/0.3	A/0.6	A/0.4	A/1.0
	NB	F/110.5	F/134.2	F/180.9	F/203.4	F/540.6	F/541.8
	SB	A/0.0	F/53.7	A/0.0	F/63.2	A/0.0	F/75.8
Meridian Road & East Project Driveway	EB	- -	- -	- -	- -	A/9.9	A/9.8
	NB	- -	- -	- -	- -	A/0.7	A/1.5
	SB	- -	- -	- -	- -	A/0.0	A/0.0
Meridian Road & Harborview Circle (North)/CBC Bank Driveway	EB	A/9.4	A/9.6	A/9.5	A/9.5	A/9.9	A/9.8
	WB	A/0.0	A/9.2	A/0.0	A/9.2	A/0.0	A/9.4
	NB	A/0.2	A/0.3	A/0.2	A/0.3	A/0.1	A/0.2
	SB	A/0.1	A/0.0	A/0.1	A/0.0	A/0.1	A/0.0
Harborview Circle & Harborview Drive (South Project Driveway)	EB	- -	- -	- -	- -	A/8.5	A/8.5
	NB	- -	- -	- -	- -	A/7.3	A/7.3
	SB	- -	- -	- -	- -	A/0.0	A/0.0
Meridian Road & Harborview Circle (South)	EB	A/9.3	A/0.0	A/9.2	A/0.0	A/9.0	A/8.9
	NB	A/0.2	A/0.0	A/0.2	A/0.0	A/0.5	A/0.7
	SB	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0
US 21/Lady's Island Drive & Meridian Road	EB	D/25.1	C/15.6	D/27.8	C/17.1	D/29.8	C/17.9
	NB	A/1.2	A/0.6	A/1.3	A/0.7	A/1.5	A/0.8
	SB	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0

Table 4 – Signalized Intersection Analysis Results

Intersection	LOS/Delay (seconds)							
	2017 Existing Conditions		2020 No-Build Conditions		2020 Build Conditions		2020 Build + Improvement Conditions	
	AM	PM	AM	PM	AM	PM	AM	PM
US 21 Business/Carteret Street & Bay Street	B/11.9	B/19.5	B/12.5	C/20.5	B/13.1	C/21.5	- -	- -
US 21 Business/Sea Island Parkway & Beaufort High	B/10.5	B/13.0	B/10.9	B/13.4	B/11.0	B/13.6	- -	- -
US 21 Business/Sea Island Parkway Meridian Road/Boat Landing Driveway	- -	- -	- -	- -	- -	- -	B/8.7*	A/9.6*

*LOS considering signalization of the US 21 Business/Sea Island Parkway & Meridian Road/Boat Landing Driveway intersection.

The results of the analysis indicate that the project driveway intersections are projected to experience acceptable LOS conditions during the study peak hours.

The results of the intersection analyses indicate that the US 21 Business/Sea Island Parkway & Meridian Road/Boat Landing Driveway intersection currently experiences and is projected to continue experiencing undesirable delay on the side-street approaches during both the weekday AM and PM peak hours. This is due to the high volume of traffic along US 21 Business/Sea Island Parkway that operates in a nearly free-flow condition at the study intersection. Therefore, it is recommended that this intersection be signalized with the development of the proposed Whitehall mixed-use development to address the undesirable existing and projected delay; the signalized configuration of the US 21 Business/Sea Island Parkway & Meridian Road/Boat Landing Driveway intersection will result in acceptable operating conditions in the weekday AM and PM peak hours.

Worksheets documenting the intersection analyses are provided in Appendix D for 2017 Existing conditions, Appendix E for 2020 No-Build conditions, and Appendix F for 2020 Build conditions and 2020 Build + Improvement conditions.

6. SIGNAL WARRANT ANALYSIS

A traffic signal warrant analysis was conducted for the US 21 Business/Sea Island Parkway & Meridian Road/Boat Landing Driveway intersection. The methods used for the signal warrant analysis were based upon the criteria set forth in the 2009 Edition of the Federal Highway Administration's *Manual on Uniform Traffic Control Devices (MUTCD).*

The analysis considered the projected 2020 No-Build hourly traffic volumes plus the projected hourly traffic volumes from the Whitehall mixed-use development , which are documented in Appendix H. Traffic volumes for the US 21 Business/Sea Island Parkway & Meridian Road/Boat Landing Driveway intersection approaches were developed for each hour between 6:00 AM to 7:00 PM using the daily trip generation estimates from the ITE's *Trip Generation Manual*, 9th Edition (2012) as previously discussed. Hourly distribution percentages considered the ITE's *Trip Generation Manual*, 9th Edition (2012) percentages for LUC 820 – Shopping Center and the ITE's *Trip Generation Manual*, 10th Edition (2017) percentages for the residential land uses. A worksheet documenting the hourly traffic volumes is provided in Appendix H.

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 considered applicable in evaluating the projected intersection characteristics. Worksheets documenting the traffic signal analysis are provided in Appendix H.

For the purposes of the analysis, it is expected that the minor-street Meridian Road right-turn movements will impact the need for a traffic signal; therefore, 50% of the minor-street right-turn traffic volumes were included in the signal warrant analysis.

6.1. 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 need to satisfy the criteria of Warrant 1, Condition A are 500 vehicles on the major-street approaches and 150 vehicles on the highest minor-street approach for a one-lane approach for each of any eight hours of an average day.

For build 2020 traffic volumes, considering the major street as US 21 Business/Sea Island Parkway and the minor street as Meridian Road, the criteria are met for zero hours; therefore, Warrant 1, Condition A is **not satisfied** for build 2020 conditions.

6.2. 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 need to satisfy the criteria of Warrant 1, Condition B are 750 vehicles on the major-street approaches and 75 vehicles on the highest minor-street approach for a one-lane approach for each of any eight hours of an average day.

For build 2020 traffic volumes, considering the major street as US 21 Business/Sea Island Parkway and the minor street as Meridian Road, the criteria are met for 11 hours; therefore, Warrant 1, Condition B is **satisfied** for build 2020 conditions.

6.3. 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.

For build 2020 traffic volumes, considering the major street as US 21 Business/Sea Island Parkway and the minor street as Meridian Road, Warrant 1, Combination is **not applicable** due to the fact that the traffic volumes meet Warrant 1, Condition B for build 2020 conditions.

6.4. 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.

For build 2020 traffic volumes, considering the major street as US 21 Business/Sea Island Parkway and the minor street as Meridian Road, the criteria are met for nine hours; therefore, Warrant 2 is **satisfied** for build 2020 conditions.

6.5. Traffic Signal Warrant Analysis Summary

Table 5 summarizes the results of the signal warrant analysis for the US 21 Business/Sea Island Parkway & Meridian Road/Boat Landing Driveway intersection. Worksheets documenting the signal warrant analysis are provided in Appendix H.

Table 5 – Signal Warrant Analysis Summary

***MUTCD* Warrant**		**Signal Warrant Results Build 2020 Conditions**
Warrant 1 (Eight-Hour Vehicular Volume)	Condition A	Not Satisfied
	Condition B	Satisfied
	Combination	Not Applicable
Warrant 2 (Four-Hour Vehicular Volume)		Satisfied

Based upon build 2020 traffic volumes, considering the major street as US 21 Business/Sea Island Parkway and the minor street as Meridian Road, the traffic signal warrant criteria are met for 11 (of eight) hours of Warrant 1, Condition B and for nine (of four) hours of Warrant 2. Based upon the results of the traffic signal warrant analysis, traffic signalization is recommended for consideration at the US 21 Business/Sea Island Parkway & Meridian Road/Boat Landing Driveway intersection once the future traffic volumes meet the warrant criteria with the development of the Whitehall mixed-use development.

The analyses considered 50% of the right-turning vehicles, however it should be noted that the Warrant 1, Condition B and Warrant 2 will still be satisfied considering only 30% of the right-turning vehicles during the 2020 Build conditions.

7. SUMMARY OF FINDINGS AND RECOMMENDATIONS

A traffic impact study was conducted for the proposed Whitehall mixed-use development in accordance with City of Beaufort and SCDOT guidelines. The proposed development is located in the southwest quadrant of the US 21 Business/Sea Island Parkway & Meridian Road intersection in the City of Beaufort, South Carolina and consists of 25 single-family houses, 75 multi-family units, 100 senior adult housing units, and 20,000 square feet of retail uses.

Access to the development is proposed to be provided through one right-in/right-out driveway along US 21 Business/Sea Island Parkway (North Project Driveway), one full-access driveway along Meridian Road (East Project Driveway), and one connection to the existing Harborview Drive (South Project Driveway). A review of the driveway spacing for the project driveway indicates that no modifications to the project access plan are recommended at this time.

The results of the analysis indicate that the project driveway intersections are projected to experience acceptable LOS conditions during the study peak hours. The results of the intersection analyses indicate that the US 21 Business/Sea Island Parkway & Meridian Road/Boat Landing Driveway intersection currently experiences and is projected to continue experiencing undesirable delay on the side-street approaches during both the weekday AM and PM peak hours. This is due to the high volume of traffic along US 21 Business/Sea Island Parkway that operates in a nearly free-flow condition at the study intersection.

Therefore, a traffic signal warrant analyses was completed using the 2020 Build conditions traffic projections to determine if traffic signalization of the US 21 Business/Sea Island Parkway & Meridian Road/Boat Landing Driveway would be warranted with buildout of the development. The results show that Warrant 1, Condition B and Warrant 2 are projected to be satisfied with buildout of the development; therefore, it is recommended that this intersection be signalized to address the undesirable existing and projected delay. The signalized configuration of the US 21 Business/Sea Island Parkway & Meridian Road/Boat Landing Driveway intersection will result in acceptable operating conditions in the weekday AM and PM peak hours.

Based on the *Highway Design Manual* considerations, exclusive left-turn lanes at the project driveways along Meridian Road and Harborview Circle are not recommended.

Based on the Highway Design Manual considerations, exclusive right-turn lanes at the project driveways along US 21 Business/Sea Island Parkway, Meridian Road, and Harborview Circle are not recommended.

APPENDIX A

Trip Generation Worksheet

WHITEHALL MIXED-USE DEVELOPMENT
TRIP GENERATION ESTIMATES (9th Edition Trip Generation Manual)
2/16/2018

Daily Trips

Land Use	ITE LUC Code	Size	Unit	Equation					Directional Distribution		Gross Trips			Internal Capture				External Trips			Pass By				New External Trips		
									In	Out	In	Out	Total	%	In	Out	Total	In	Out	Total	%	In	Out	Total	In	Out	Total
Single Family Homes	210	25	DU	Ln(T)=	0.92	Ln(X)	+	2.72	50%	50%	147	146	293	13.3%	20	19	39	127	127	254	0%	0	0	0	127	127	254
Apartment	220	75	DU	T=	6.06	(X)	+	123.6	50%	50%	289	289	578	10.2%	30	29	59	259	260	519	0%	0	0	0	259	260	519
Senior Adult Housing- Attached	252	100	DU	T=	2.98	(X)	+	21.05	50%	50%	160	160	320	11.5%	19	18	37	141	142	283	0%	0	0	0	141	142	283
Specialty Retail Center	826	20	ksf	T=	42.78	(X)	+	37.66	50%	50%	447	447	894	18.8%	84	84	168	363	363	726	34%	124	123	247	239	240	479
								Total:			1,043	1,042	2,085	14.5%	153	150	303	890	892	1,782	12%	124	123	247	**766**	**769**	**1,535**

AM Peak Hour Trips

Land Use	ITE LUC Code	Size	Unit	Equation					Directional Distribution		Gross Trips			Internal Capture				External Trips			Pass By				New External Trips		
									In	Out	In	Out	Total	%	In	Out	Total	In	Out	Total	%	In	Out	Total	In	Out	Total
Single Family Homes	210	25	DU	T=	0.7	(X)	+	9.74	25%	75%	7	20	27	0.0%	0	0	0	7	20	27	0%	0	0	0	7	20	27
Apartment	220	75	DU	T=	0.49	(X)	+	3.73	20%	80%	8	32	40	2.5%	0	1	1	8	31	39	0%	0	0	0	8	31	39
Senior Adult Housing- Attached	252	100	DU	T=	0.2	(X)	-	0.13	34%	66%	7	13	20	0.0%	0	0	0	7	13	20	0%	0	0	0	7	13	20
Shopping Center	820	20	ksf	Ln(T)=	0.61	Ln(X)	+	2.24	62%	38%	36	22	58	1.7%	1	0	1	35	22	57	34%	10	9	19	25	13	38
								Total:			58	87	145	1.4%	1	1	2	57	86	143	13%	10	9	19	**47**	**77**	**124**

PM Peak Hour Trips

Land Use	ITE LUC Code	Size	Unit	Equation					Directional Distribution		Gross Trips			Internal Capture				External Trips			Pass By				New External Trips		
									In	Out	In	Out	Total	%	In	Out	Total	In	Out	Total	%	In	Out	Total	In	Out	Total
Single Family Homes	210	25	DU	Ln(T)=	0.9	Ln(X)	+	0.51	63%	37%	19	11	30	13.3%	3	1	4	16	10	26	0%	0	0	0	16	10	26
Apartment	220	75	DU	T=	0.55	(X)	+	17.65	65%	35%	38	21	59	10.2%	5	1	6	33	20	53	0%	0	0	0	33	20	53
Senior Adult Housing- Attached	252	100	DU	T=	0.24	(X)	+	1.64	54%	46%	14	12	26	11.5%	2	1	3	12	11	23	0%	0	0	0	12	11	23
Specialty Retail Center	826	20	ksf	T=	2.4	(X)	+	21.48	44%	56%	30	39	69	18.8%	3	10	13	27	29	56	34%	10	10	20	17	19	36
								Total:			101	83	184	14.1%	13	13	26	88	70	158	11%	10	10	20	**78**	**60**	**138**

APPENDIX B

Traffic Count Data

SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : Meridian Rd @ Sea Island Pkwy
Site Code : 00110717
Start Date : 11/7/2017
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	Meridian Rd Eastbound				Sea Island Pkwy Westbound				Meridian Rd Northbound				Boat Ramp Southbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
06:00	0	19	0	1	0	78	0	1	2	0	1	0	0	0	0	0	102
06:15	0	23	1	2	2	87	0	0	2	0	1	0	1	0	0	0	119
06:30	0	53	6	1	1	150	0	0	5	0	2	0	0	0	0	0	218
06:45	0	66	6	3	0	183	0	0	6	0	4	0	0	0	0	0	268
Total	0	161	13	7	3	498	0	1	15	0	8	0	1	0	0	0	707
07:00	0	89	1	1	1	198	4	0	4	0	5	0	1	0	0	0	304
07:15	0	141	7	0	6	203	0	0	6	0	7	0	0	0	0	0	370
07:30	0	144	9	1	9	247	2	0	12	0	9	0	1	0	0	0	434
07:45	0	136	10	0	3	272	0	0	9	0	15	0	0	0	0	0	445
Total	0	510	27	2	19	920	6	0	31	0	36	0	2	0	0	0	1553
08:00	0	133	14	0	10	234	2	1	8	0	11	0	0	0	0	0	413
08:15	0	150	15	0	14	211	1	0	19	0	13	0	1	0	0	0	424
08:30	0	159	12	1	4	159	2	0	8	0	16	0	2	0	0	0	363
08:45	0	123	6	0	9	172	1	0	7	0	12	0	1	0	0	0	331
Total	0	565	47	1	37	776	6	1	42	0	52	0	4	0	0	0	1531
09:00	0	93	10	3	17	128	0	1	12	0	7	0	0	0	0	0	271
09:15	0	121	7	2	11	157	0	0	7	0	7	0	2	0	0	0	314
09:30	0	102	8	0	13	138	2	1	5	0	11	0	0	0	1	0	281
09:45	1	135	14	0	7	159	0	0	7	0	10	0	0	0	0	0	333
Total	1	451	39	5	48	582	2	2	31	0	35	0	2	0	1	0	1199
10:00	0	126	12	0	4	144	0	1	6	0	9	0	1	0	1	0	304
10:15	0	133	8	0	14	154	0	1	13	0	11	0	2	0	1	0	337
10:30	0	106	7	0	9	156	2	1	8	0	4	0	2	0	0	0	295
10:45	0	128	14	0	8	162	0	0	10	0	6	0	3	0	0	0	331
Total	0	493	41	0	35	616	2	3	37	0	30	0	8	0	2	0	1267
11:00	0	127	5	0	1	138	0	0	4	1	7	0	0	0	0	0	283
11:15	0	146	4	3	3	113	0	0	11	0	6	0	1	1	0	0	288
11:30	0	107	10	0	14	145	1	0	6	0	5	0	1	0	0	0	289
11:45	0	180	6	5	6	157	3	0	11	0	12	0	1	0	0	0	381
Total	0	560	25	8	24	553	4	0	32	1	30	0	3	1	0	0	1241
12:00	0	111	5	0	16	130	1	0	4	0	10	0	0	0	1	0	278
12:15	2	192	9	1	6	140	1	0	9	0	10	0	0	0	1	0	371
12:30	1	103	13	1	19	149	1	1	5	0	7	0	0	0	3	0	303
12:45	0	189	18	1	11	175	2	1	9	0	14	0	1	0	2	0	423
Total	3	595	45	3	52	594	5	2	27	0	41	0	1	0	7	0	1375
13:00	0	193	13	0	10	148	1	0	4	0	4	0	0	0	1	0	374
13:15	0	167	9	0	8	182	2	0	6	0	9	0	1	0	1	0	385
13:30	0	151	9	0	6	156	1	0	2	1	7	0	2	0	0	0	335
13:45	0	139	13	0	8	149	2	0	4	1	6	0	3	1	0	0	326
Total	0	650	44	0	32	635	6	0	16	2	26	0	6	1	2	0	1420
14:00	0	136	14	0	9	160	0	0	5	0	5	0	0	0	0	0	329
14:15	0	146	13	3	12	152	1	0	10	0	8	0	1	0	0	0	346
14:30	0	127	7	0	19	139	0	0	4	0	12	0	1	0	0	0	309
14:45	1	201	7	0	10	153	3	0	9	0	17	0	2	0	1	0	404
Total	1	610	41	3	50	604	4	0	28	0	42	0	4	0	1	0	1388
15:00	0	172	12	0	9	170	0	0	11	0	10	0	0	0	0	0	384
15:15	0	196	14	0	16	184	0	0	10	0	11	0	0	0	0	0	431
15:30	1	188	15	0	9	182	0	0	11	0	10	0	0	0	0	0	416
15:45	0	214	9	0	18	165	1	2	20	0	16	0	5	0	0	0	450
Total	1	770	50	0	52	701	1	2	52	0	47	0	5	0	0	0	1681

SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : Meridian Rd @ Sea Island Pkwy
Site Code : 00110717
Start Date : 11/7/2017
Page No : 2

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	Meridian Rd Eastbound				Sea Island Pkwy Westbound				Meridian Rd Northbound				Boat Ramp Southbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
16:00	0	187	14	1	18	234	0	0	24	0	16	0	0	0	0	0	494
16:15	0	222	9	1	11	171	0	0	10	0	3	0	0	0	0	0	427
16:30	0	202	19	0	10	187	0	0	6	0	8	0	0	0	0	0	432
16:45	1	213	11	1	5	157	1	0	12	0	5	0	1	0	0	0	407
Total	1	824	53	3	44	749	1	0	52	0	32	0	1	0	0	0	1760
17:00	0	238	17	4	10	182	2	2	15	0	13	0	0	0	0	0	483
17:15	0	264	13	4	9	173	0	0	17	0	11	0	0	0	0	0	491
17:30	0	229	14	0	11	155	0	0	13	0	8	0	0	0	0	0	430
17:45	0	232	6	0	9	161	0	0	13	0	14	0	2	0	0	0	437
Total	0	963	50	8	39	671	2	2	58	0	46	0	2	0	0	0	1841
18:00	0	159	9	1	6	126	0	0	1	0	6	0	0	0	1	0	309
18:15	0	173	4	0	6	142	0	0	9	0	3	0	0	0	0	0	337
18:30	0	183	7	1	9	120	1	0	6	0	5	0	0	0	0	0	332
18:45	0	146	5	0	8	108	0	0	11	0	5	0	0	0	0	0	283
Total	0	661	25	2	29	496	1	0	27	0	19	0	0	0	1	0	1261
Grand Total	7	7813	500	42	464	8395	40	13	448	3	444	0	39	2	14	0	18224
Apprch %	0.1	93.4	6	0.5	5.2	94.2	0.4	0.1	50.1	0.3	49.6	0	70.9	3.6	25.5	0	
Total %	0	42.9	2.7	0.2	2.5	46.1	0.2	0.1	2.5	0	2.4	0	0.2	0	0.1	0	
Passenger Vehicles	7	7749	497	25	453	8317	38	6	447	3	440	0	37	2	14	0	18035
% Passenger Vehicles	100	99.2	99.4	59.5	97.6	99.1	95	46.2	99.8	100	99.1	0	94.9	100	100	0	99
Heavy Vehicles	0	44	0	0	10	50	2	0	0	0	2	0	2	0	0	0	110
% Heavy Vehicles	0	0.6	0	0	2.2	0.6	5	0	0	0	0.5	0	5.1	0	0	0	0.6
Buses	0	20	3	17	1	28	0	7	1	0	2	0	0	0	0	0	79
% Buses	0	0.3	0.6	40.5	0.2	0.3	0	53.8	0.2	0	0.5	0	0	0	0	0	0.4

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File Name : Meridian Rd @ Sea Island Pkwy
Site Code : 00110717
Start Date : 11/7/2017
Page No : 3

	Meridian Rd Eastbound					Sea Island Pkwy Westbound					Meridian Rd Northbound					Boat Ramp Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30																					
07:30	0	144	9	**1**	154	9	247	**2**	0	258	12	0	9	0	21	**1**	0	0	0	**1**	434
07:45	0	136	10	0	146	3	**272**	0	0	**275**	9	0	**15**	0	24	0	0	0	0	0	**445**
08:00	0	133	14	0	147	10	234	2	**1**	247	8	0	11	0	19	0	0	0	0	0	413
08:15	0	**150**	**15**	0	**165**	**14**	211	1	0	226	**19**	0	13	0	**32**	1	0	0	0	1	424
Total Volume	0	563	48	1	612	36	964	5	1	1006	48	0	48	0	96	2	0	0	0	2	1716
% App. Total	0	92	7.8	0.2		3.6	95.8	0.5	0.1		50	0	50	0		100	0	0	0		
PHF	.000	.938	.800	.250	.927	.643	.886	.625	.250	.915	.632	.000	.800	.000	.750	.500	.000	.000	.000	.500	.964
Passenger Vehicles	0	555	48	1	604	36	956	4	0	996	48	0	48	0	96	2	0	0	0	2	1698
% Passenger Vehicles																					
Heavy Vehicles	0	5	0	0	5	0	6	1	0	7	0	0	0	0	0	0	0	0	0	0	12
% Heavy Vehicles	0	0.9	0	0	0.8	0	0.6	20.0	0	0.7	0	0	0	0	0	0	0	0	0	0	0.7
Buses	0	3	0	0	3	0	2	0	1	3	0	0	0	0	0	0	0	0	0	0	6
% Buses	0	0.5	0	0	0.5	0	0.2	0	100	0.3	0	0	0	0	0	0	0	0	0	0	0.3
Peak Hour Analysis From 11:00 to 12:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00																					
12:00	0	111	5	0	116	16	130	1	0	147	4	0	10	0	14	0	0	1	0	1	278
12:15	**2**	**192**	9	**1**	204	6	140	1	0	147	**9**	0	10	0	19	0	0	1	0	1	371
12:30	1	103	13	1	118	**19**	149	1	**1**	170	5	0	7	0	12	0	0	**3**	0	**3**	303
12:45	0	189	**18**	1	**208**	11	**175**	**2**	1	**189**	9	0	**14**	0	**23**	**1**	0	2	0	3	**423**
Total Volume	3	595	45	3	646	52	594	5	2	653	27	0	41	0	68	1	0	7	0	8	1375
% App. Total	0.5	92.1	7	0.5		8	91	0.8	0.3		39.7	0	60.3	0		12.5	0	87.5	0		
PHF	.375	.775	.625	.750	.776	.684	.849	.625	.500	.864	.750	.000	.732	.000	.739	.250	.000	.583	.000	.667	.813
Passenger Vehicles	3	590	45	1	639	49	590	5	0	644	27	0	41	0	68	1	0	7	0	8	1359
% Passenger Vehicles																					
Heavy Vehicles	0	3	0	0	3	2	3	0	0	5	0	0	0	0	0	0	0	0	0	0	8
% Heavy Vehicles	0	0.5	0	0	0.5	3.8	0.5	0	0	0.8	0	0	0	0	0	0	0	0	0	0	0.6
Buses	0	2	0	2	4	1	1	0	2	4	0	0	0	0	0	0	0	0	0	0	8
% Buses	0	0.3	0	66.7	0.6	1.9	0.2	0	100	0.6	0	0	0	0	0	0	0	0	0	0	0.6
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	0	238	**17**	**4**	259	10	**182**	**2**	**2**	**196**	15	0	13	0	**28**	0	0	0	0	0	483
17:15	0	**264**	13	4	**281**	9	173	0	0	182	**17**	0	11	0	28	0	0	0	0	0	**491**
17:30	0	229	14	0	243	**11**	155	0	0	166	13	0	8	0	21	0	0	0	0	0	430
17:45	0	232	6	0	238	9	161	0	0	170	13	0	**14**	0	27	**2**	0	0	0	**2**	437
Total Volume	0	963	50	8	1021	39	671	2	2	714	58	0	46	0	104	2	0	0	0	2	1841
% App. Total	0	94.3	4.9	0.8		5.5	94	0.3	0.3		55.8	0	44.2	0		100	0	0	0		
PHF	.000	.912	.735	.500	.908	.886	.922	.250	.250	.911	.853	.000	.821	.000	.929	.250	.000	.000	.000	.250	.937
Passenger Vehicles	0	961	50	8	1019	39	668	2	2	711	58	0	46	0	104	2	0	0	0	2	1836
% Passenger Vehicles																					
Heavy Vehicles	0	2	0	0	2	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	5
% Heavy Vehicles	0	0.2	0	0	0.2	0	0.4	0	0	0.4	0	0	0	0	0	0	0	0	0	0	0.3
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

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Default Comments
Change These in The Preferences Window
Select File/Preference in the Main Scree
Then Click the Comments Tab

File Name : Hwy 21 Bus @ Bay St
Site Code :
Start Date : 8/24/2017
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Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

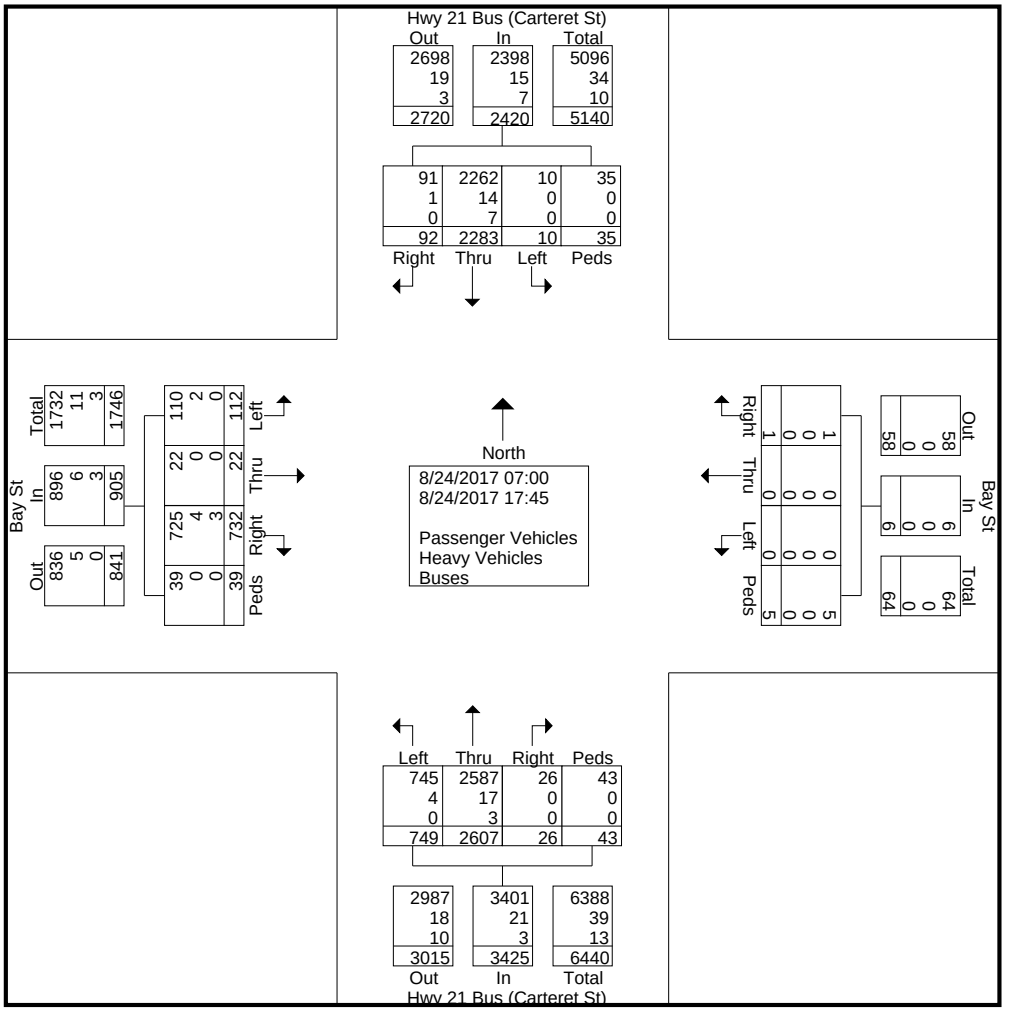
	Hwy 21 Bus (Carteret St) Southbound				Bay St Westbound				Hwy 21 Bus (Carteret St) Northbound				Bay St Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00	0	78	3	1	0	0	0	0	28	150	0	2	1	0	10	0	273
07:15	0	111	1	0	0	0	0	0	51	163	0	0	1	0	35	2	364
07:30	0	122	1	1	0	0	0	0	65	191	0	1	2	0	28	0	411
07:45	0	136	3	0	0	0	0	0	81	214	1	2	4	1	40	0	482
Total	0	447	8	2	0	0	0	0	225	718	1	5	8	1	113	2	1530
08:00	0	124	1	1	0	0	0	0	68	170	1	4	4	1	38	1	413
08:15	2	119	2	0	0	0	0	1	58	189	2	6	5	2	41	2	429
08:30	0	117	8	1	0	0	0	0	43	159	2	4	4	1	41	2	382
08:45	2	115	7	0	0	0	0	0	38	135	5	5	6	3	31	0	347
Total	4	475	18	2	0	0	0	1	207	653	10	19	19	7	151	5	1571
16:00	0	165	9	4	0	0	0	1	63	173	0	2	8	0	69	3	497
16:15	1	169	9	6	0	0	0	0	41	169	5	1	12	3	60	3	479
16:30	1	153	4	3	0	0	0	0	33	135	1	2	13	1	51	9	406
16:45	0	167	11	6	0	0	1	1	41	151	1	1	13	4	46	4	447
Total	2	654	33	19	0	0	1	2	178	628	7	6	46	8	226	19	1829
17:00	0	157	6	0	0	0	0	0	36	132	1	7	11	1	85	5	441
17:15	3	194	7	5	0	0	0	1	30	176	2	3	6	1	56	6	490
17:30	0	188	12	1	0	0	0	0	37	139	3	1	9	0	49	0	439
17:45	1	168	8	6	0	0	0	1	36	161	2	2	13	4	52	2	456
Total	4	707	33	12	0	0	0	2	139	608	8	13	39	6	242	13	1826
Grand Total	10	2283	92	35	0	0	1	5	749	2607	26	43	112	22	732	39	6756
Apprch %	0.4	94.3	3.8	1.4	0	0	16.7	83.3	21.9	76.1	0.8	1.3	12.4	2.4	80.9	4.3	
Total %	0.1	33.8	1.4	0.5	0	0	0	0.1	11.1	38.6	0.4	0.6	1.7	0.3	10.8	0.6	
Passenger Vehicles	10	2262	91	35	0	0	1	5	745	2587	26	43	110	22	725	39	6701
% Passenger Vehicles	100	99.1	98.9	100	0	0	100	100	99.5	99.2	100	100	98.2	100	99	100	99.2
Heavy Vehicles	0	14	1	0	0	0	0	0	4	17	0	0	2	0	4	0	42
% Heavy Vehicles	0	0.6	1.1	0	0	0	0	0	0.5	0.7	0	0	1.8	0	0.5	0	0.6
Buses	0	7	0	0	0	0	0	0	0	3	0	0	0	0	3	0	13
% Buses	0	0.3	0	0	0	0	0	0	0	0.1	0	0	0	0	0.4	0	0.2

SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : Hwy 21 Bus @ Bay St
Site Code :
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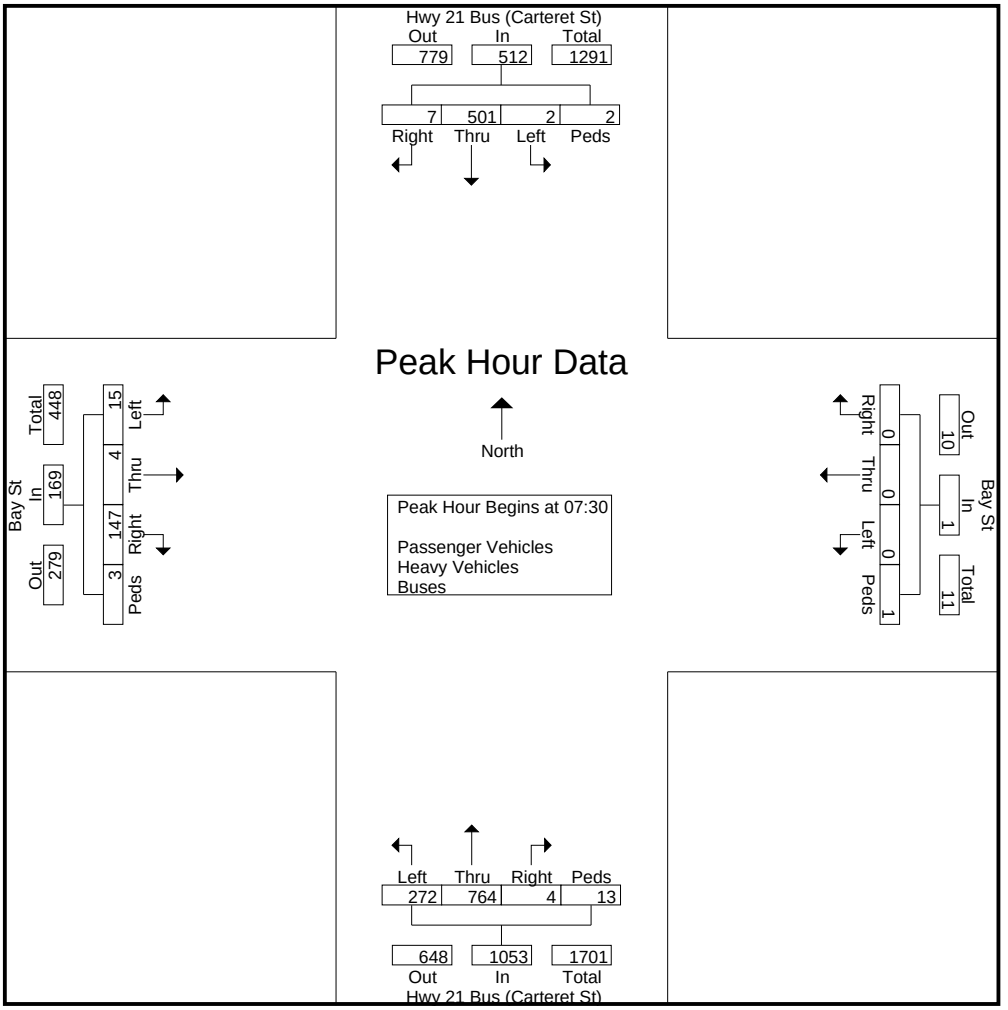
SHORT COUNTS, LLC

735 Maryland St
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We can't say we're the Best, but you Can!

File Name : Hwy 21 Bus @ Bay St
Site Code :
Start Date : 8/24/2017
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	Hwy 21 Bus (Carteret St) Southbound					Bay St Westbound					Hwy 21 Bus (Carteret St) Northbound					Bay St Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30																					
07:30	0	122	1	**1**	124	0	0	0	0	0	65	191	0	1	257	2	0	28	0	30	411
07:45	0	**136**	**3**	0	**139**	0	0	0	0	0	**81**	**214**	1	2	**298**	4	1	40	0	45	**482**
08:00	0	124	1	1	126	0	0	0	0	0	68	170	1	4	243	4	1	38	1	44	413
08:15	**2**	119	2	0	123	0	0	0	**1**	**1**	58	189	**2**	**6**	255	**5**	**2**	**41**	**2**	**50**	429
Total Volume	2	501	7	2	512	0	0	0	1	1	272	764	4	13	1053	15	4	147	3	169	1735
% App. Total	0.4	97.9	1.4	0.4		0	0	0	100		25.8	72.6	0.4	1.2		8.9	2.4	87	1.8		
PHF	.250	.921	.583	.500	.921	.000	.000	.000	.250	.250	.840	.893	.500	.542	.883	.750	.500	.896	.375	.845	.900



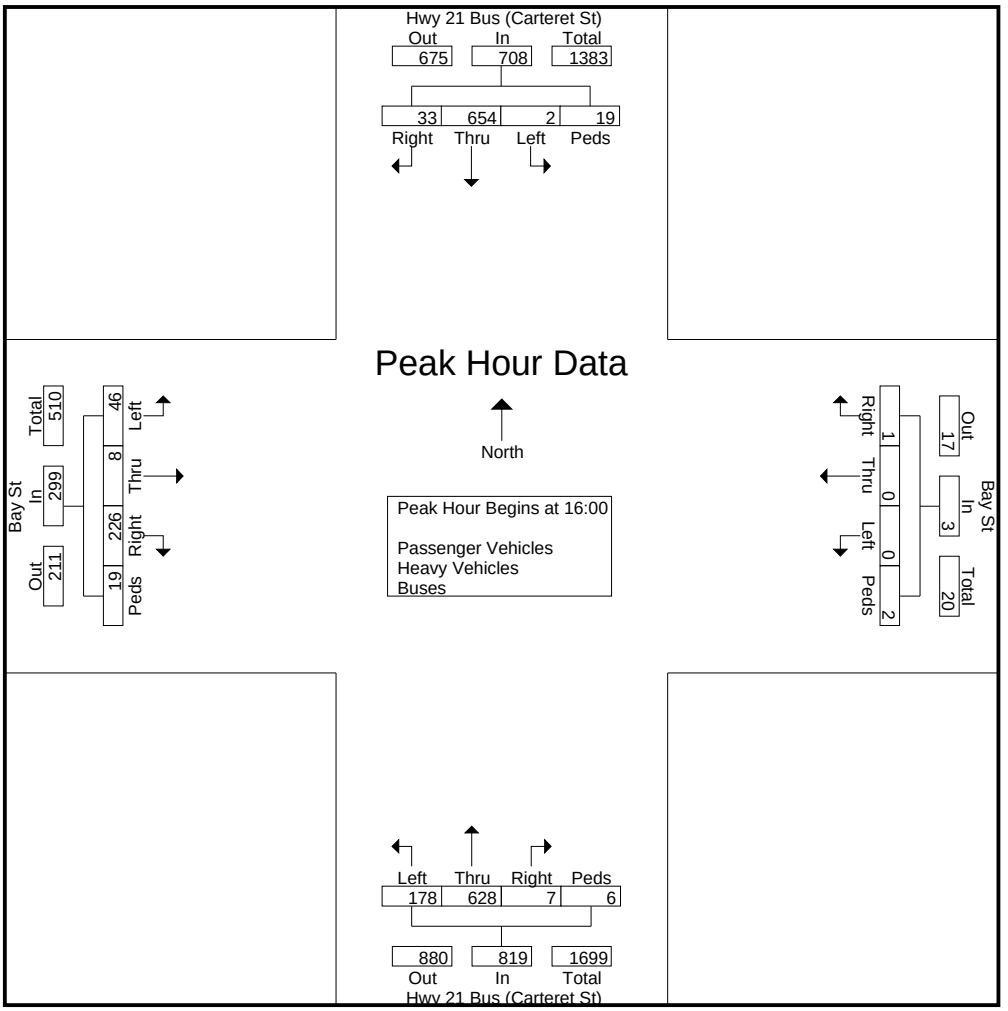
SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : Hwy 21 Bus @ Bay St
Site Code :
Start Date : 8/24/2017
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	Hwy 21 Bus (Carteret St) Southbound					Bay St Westbound					Hwy 21 Bus (Carteret St) Northbound					Bay St Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:00																					
16:00	0	165	9	4	178	0	0	0	**1**	1	**63**	**173**	0	**2**	**238**	8	0	**69**	3	**80**	**497**
16:15	**1**	**169**	9	**6**	**185**	0	0	0	0	0	41	169	**5**	1	216	12	3	60	3	78	479
16:30	1	153	4	3	161	0	0	0	0	0	33	135	1	2	171	**13**	1	51	**9**	74	406
16:45	0	167	**11**	6	184	0	0	**1**	1	**2**	41	151	1	1	194	13	**4**	46	4	67	447
Total Volume	2	654	33	19	708	0	0	1	2	3	178	628	7	6	819	46	8	226	19	299	1829
% App. Total	0.3	92.4	4.7	2.7		0	0	33.3	66.7		21.7	76.7	0.9	0.7		15.4	2.7	75.6	6.4		
PHF	.500	.967	.750	.792	.957	.000	.000	.250	.500	.375	.706	.908	.350	.750	.860	.885	.500	.819	.528	.934	.920



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File Name : Meridian Rd @ Harborview Cir North
Site Code :
Start Date : 8/24/2017
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Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

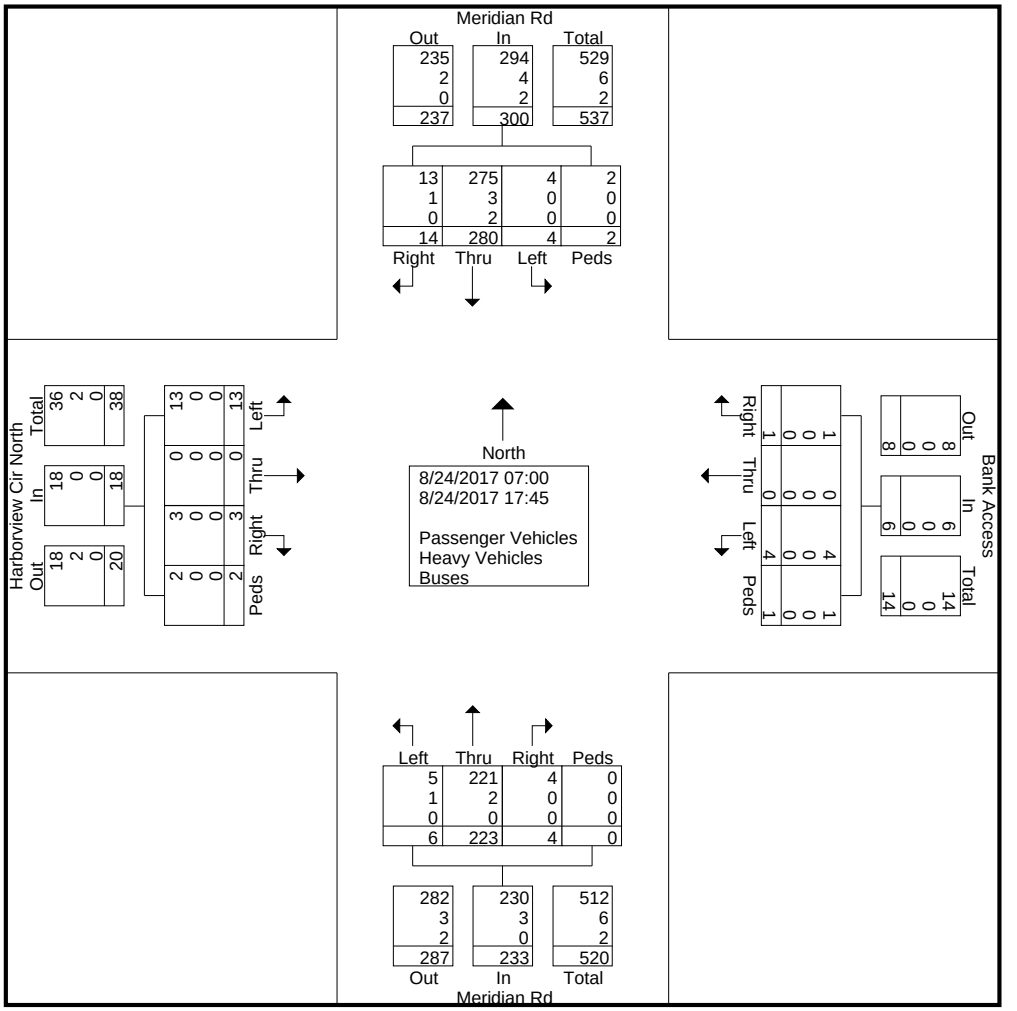
	Meridian Rd Southbound				Bank Access Westbound				Meridian Rd Northbound				Harborview Cir North Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00	0	6	2	0	0	0	0	0	0	10	0	0	0	0	0	0	18
07:15	0	12	0	0	0	0	0	0	0	13	0	0	1	0	0	0	26
07:30	1	12	1	0	0	0	0	0	0	16	0	0	0	0	1	0	31
07:45	0	20	1	0	0	0	0	0	1	9	0	0	3	0	0	1	35
Total	1	50	4	0	0	0	0	0	1	48	0	0	4	0	1	1	110
08:00	0	18	0	0	0	0	0	0	0	29	0	0	0	0	1	0	48
08:15	1	23	0	0	0	0	0	0	0	25	1	0	0	0	0	0	50
08:30	0	17	0	1	0	0	0	0	1	24	1	0	1	0	1	1	47
08:45	1	18	0	0	0	0	0	0	0	11	0	0	1	0	0	0	31
Total	2	76	0	1	0	0	0	0	1	89	2	0	2	0	2	1	176
16:00	0	29	3	0	2	0	0	0	1	16	2	0	2	0	0	0	55
16:15	0	13	2	0	0	0	0	0	0	4	0	0	1	0	0	0	20
16:30	1	17	1	0	0	0	0	0	1	7	0	0	1	0	0	0	28
16:45	0	17	0	0	0	0	0	0	0	7	0	0	0	0	0	0	24
Total	1	76	6	0	2	0	0	0	2	34	2	0	4	0	0	0	127
17:00	0	24	1	1	2	0	1	1	1	13	0	0	0	0	0	0	44
17:15	0	17	1	0	0	0	0	0	1	11	0	0	1	0	0	0	31
17:30	0	18	1	0	0	0	0	0	0	13	0	0	0	0	0	0	32
17:45	0	19	1	0	0	0	0	0	0	15	0	0	2	0	0	0	37
Total	0	78	4	1	2	0	1	1	2	52	0	0	3	0	0	0	144
Grand Total	4	280	14	2	4	0	1	1	6	223	4	0	13	0	3	2	557
Apprch %	1.3	93.3	4.7	0.7	66.7	0	16.7	16.7	2.6	95.7	1.7	0	72.2	0	16.7	11.1	
Total %	0.7	50.3	2.5	0.4	0.7	0	0.2	0.2	1.1	40	0.7	0	2.3	0	0.5	0.4	
Passenger Vehicles	4	275	13	2	4	0	1	1	5	221	4	0	13	0	3	2	548
% Passenger Vehicles	100	98.2	92.9	100	100	0	100	100	83.3	99.1	100	0	100	0	100	100	98.4
Heavy Vehicles	0	3	1	0	0	0	0	0	1	2	0	0	0	0	0	0	7
% Heavy Vehicles	0	1.1	7.1	0	0	0	0	0	16.7	0.9	0	0	0	0	0	0	1.3
Buses	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
% Buses	0	0.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4

SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : Meridian Rd @ Harborview Cir North
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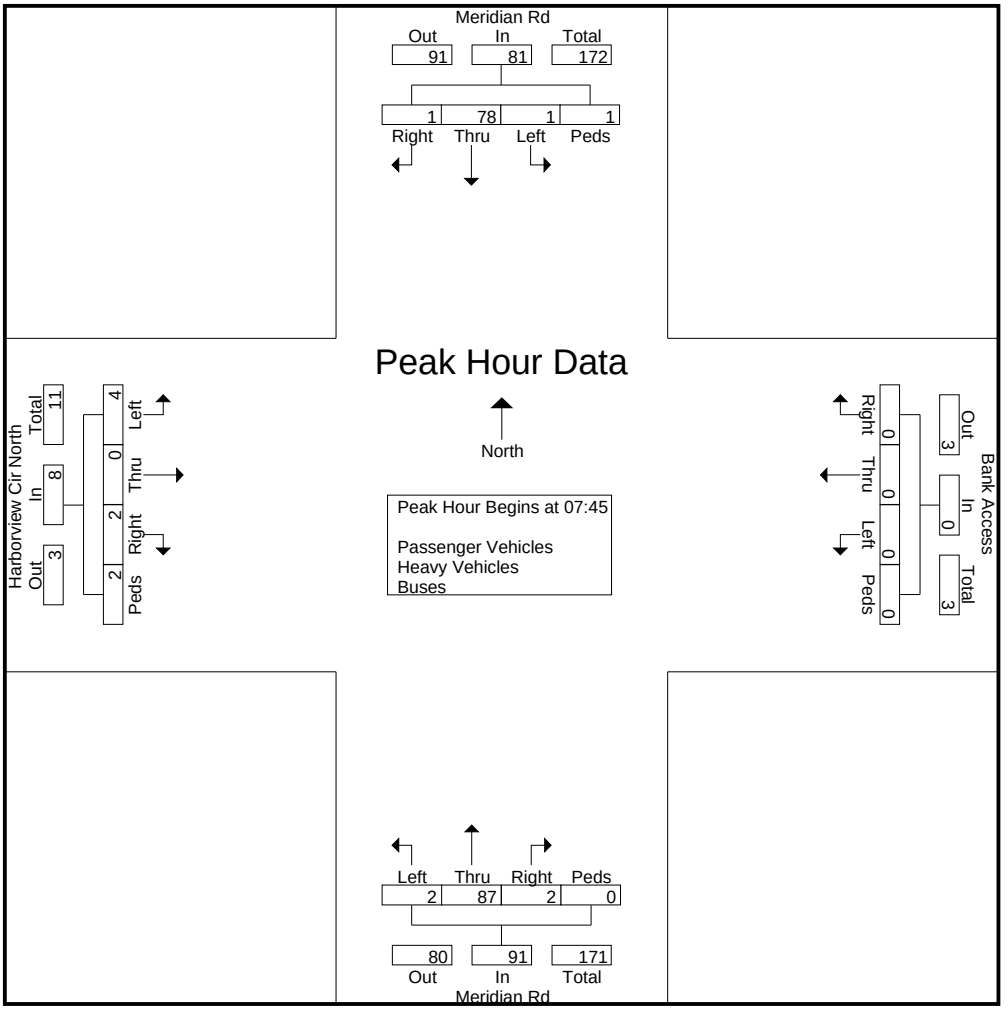
SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : Meridian Rd @ Harborview Cir North
Site Code :
Start Date : 8/24/2017
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	Meridian Rd Southbound					Bank Access Westbound					Meridian Rd Northbound					Harborview Cir North Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45																					
07:45	0	20	**1**	0	21	0	0	0	0	0	**1**	9	0	0	10	**3**	0	0	**1**	**4**	35
08:00	0	18	0	0	18	0	0	0	0	0	0	**29**	0	0	**29**	0	0	**1**	0	1	48
08:15	**1**	**23**	0	0	**24**	0	0	0	0	0	0	25	**1**	0	26	0	0	0	0	0	**50**
08:30	0	17	0	**1**	18	0	0	0	0	0	1	24	1	0	26	1	0	1	1	3	47
Total Volume	1	78	1	1	81	0	0	0	0	0	2	87	2	0	91	4	0	2	2	8	180
% App. Total	1.2	96.3	1.2	1.2		0	0	0	0		2.2	95.6	2.2	0		50	0	25	25		
PHF	.250	.848	.250	.250	.844	.000	.000	.000	.000	.000	.500	.750	.500	.000	.784	.333	.000	.500	.500	.500	.900



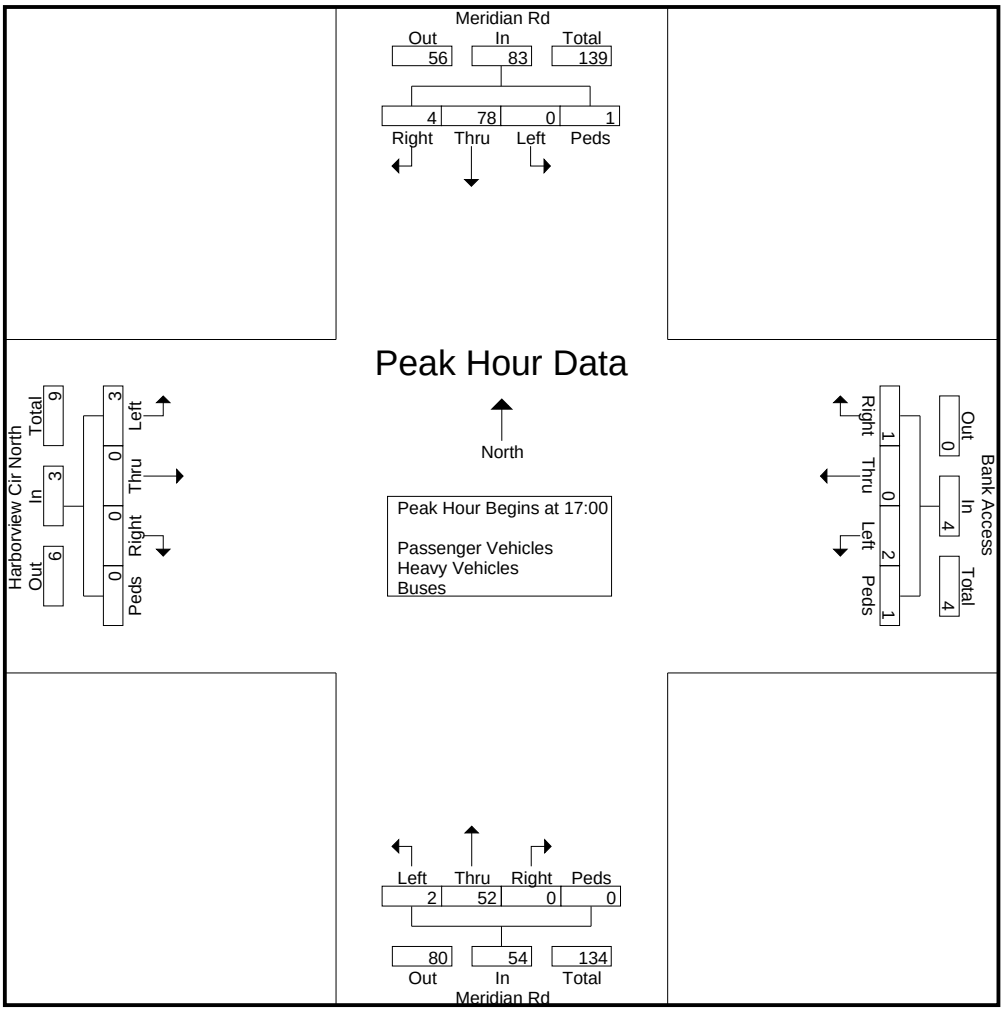
SHORT COUNTS, LLC

735 Maryland St
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We can't say we're the Best, but you Can!

File Name : Meridian Rd @ Harborview Cir North
Site Code :
Start Date : 8/24/2017
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	Meridian Rd Southbound					Bank Access Westbound					Meridian Rd Northbound					Harborview Cir North Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	0	**24**	**1**	**1**	**26**	**2**	0	**1**	**1**	**4**	**1**	13	0	0	14	0	0	0	0	0	**44**
17:15	0	17	1	0	18	0	0	0	0	0	1	11	0	0	12	1	0	0	0	1	31
17:30	0	18	1	0	19	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	32
17:45	0	19	1	0	20	0	0	0	0	0	0	**15**	0	0	**15**	**2**	0	0	0	**2**	37
Total Volume	0	78	4	1	83	2	0	1	1	4	2	52	0	0	54	3	0	0	0	3	144
% App. Total	0	94	4.8	1.2		50	0	25	25		3.7	96.3	0	0		100	0	0	0		
PHF	.000	.813	1.00	.250	.798	.250	.000	.250	.250	.250	.500	.867	.000	.000	.900	.375	.000	.000	.000	.375	.818



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File Name : Meridian Rd @ Harborview Cir South
Site Code :
Start Date : 8/24/2017
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Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

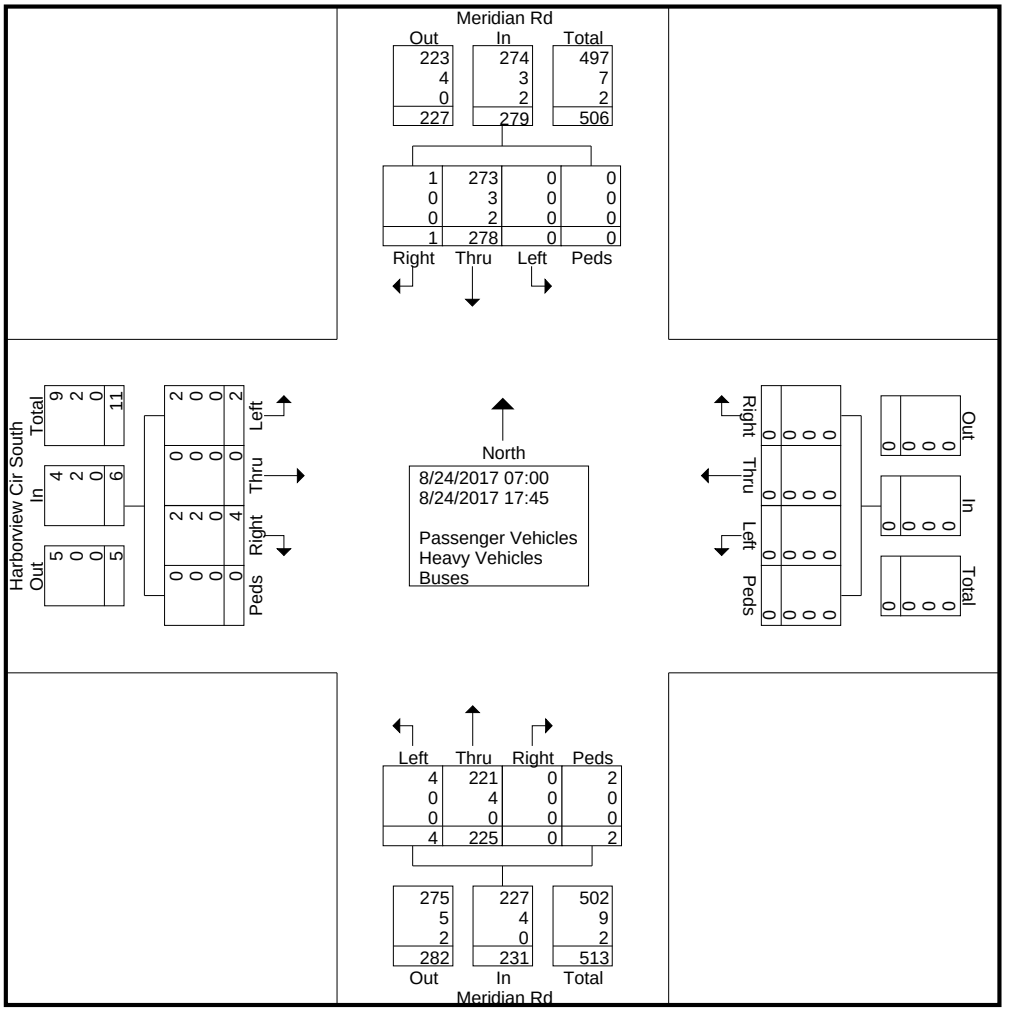
	Meridian Rd Southbound				Westbound				Meridian Rd Northbound				Harborview Cir South Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00	0	7	0	0	0	0	0	0	0	11	0	0	0	0	0	0	18
07:15	0	12	0	0	0	0	0	0	0	11	0	0	0	0	0	0	23
07:30	0	12	0	0	0	0	0	0	0	17	0	0	0	0	1	0	30
07:45	0	16	0	0	0	0	0	0	0	11	0	0	0	0	0	0	27
Total	0	47	0	0	0	0	0	0	0	50	0	0	0	0	1	0	98
08:00	0	24	0	0	0	0	0	0	0	24	0	0	0	0	0	0	48
08:15	0	21	0	0	0	0	0	0	0	31	0	0	0	0	1	0	53
08:30	0	19	0	0	0	0	0	0	0	23	0	0	0	0	0	0	42
08:45	0	15	0	0	0	0	0	0	3	11	0	0	1	0	0	0	30
Total	0	79	0	0	0	0	0	0	3	89	0	0	1	0	1	0	173
16:00	0	28	0	0	0	0	0	0	1	18	0	0	0	0	0	0	47
16:15	0	14	0	0	0	0	0	0	0	3	0	0	1	0	1	0	19
16:30	0	17	0	0	0	0	0	0	0	5	0	0	0	0	1	0	23
16:45	0	14	0	0	0	0	0	0	0	9	0	0	0	0	0	0	23
Total	0	73	0	0	0	0	0	0	1	35	0	0	1	0	2	0	112
17:00	0	26	0	0	0	0	0	0	0	13	0	0	0	0	0	0	39
17:15	0	20	0	0	0	0	0	0	0	10	0	0	0	0	0	0	30
17:30	0	14	1	0	0	0	0	0	0	13	0	1	0	0	0	0	29
17:45	0	19	0	0	0	0	0	0	0	15	0	1	0	0	0	0	35
Total	0	79	1	0	0	0	0	0	0	51	0	2	0	0	0	0	133
Grand Total	0	278	1	0	0	0	0	0	4	225	0	2	2	0	4	0	516
Apprch %	0	99.6	0.4	0	0	0	0	0	1.7	97.4	0	0.9	33.3	0	66.7	0	
Total %	0	53.9	0.2	0	0	0	0	0	0.8	43.6	0	0.4	0.4	0	0.8	0	
Passenger Vehicles	0	273	1	0	0	0	0	0	4	221	0	2	2	0	2	0	505
% Passenger Vehicles	0	98.2	100	0	0	0	0	0	100	98.2	0	100	100	0	50	0	97.9
Heavy Vehicles	0	3	0	0	0	0	0	0	0	4	0	0	0	0	2	0	9
% Heavy Vehicles	0	1.1	0	0	0	0	0	0	0	1.8	0	0	0	0	50	0	1.7
Buses	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
% Buses	0	0.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4

SHORT COUNTS, LLC

735 Maryland St
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We can't say we're the Best, but you Can!

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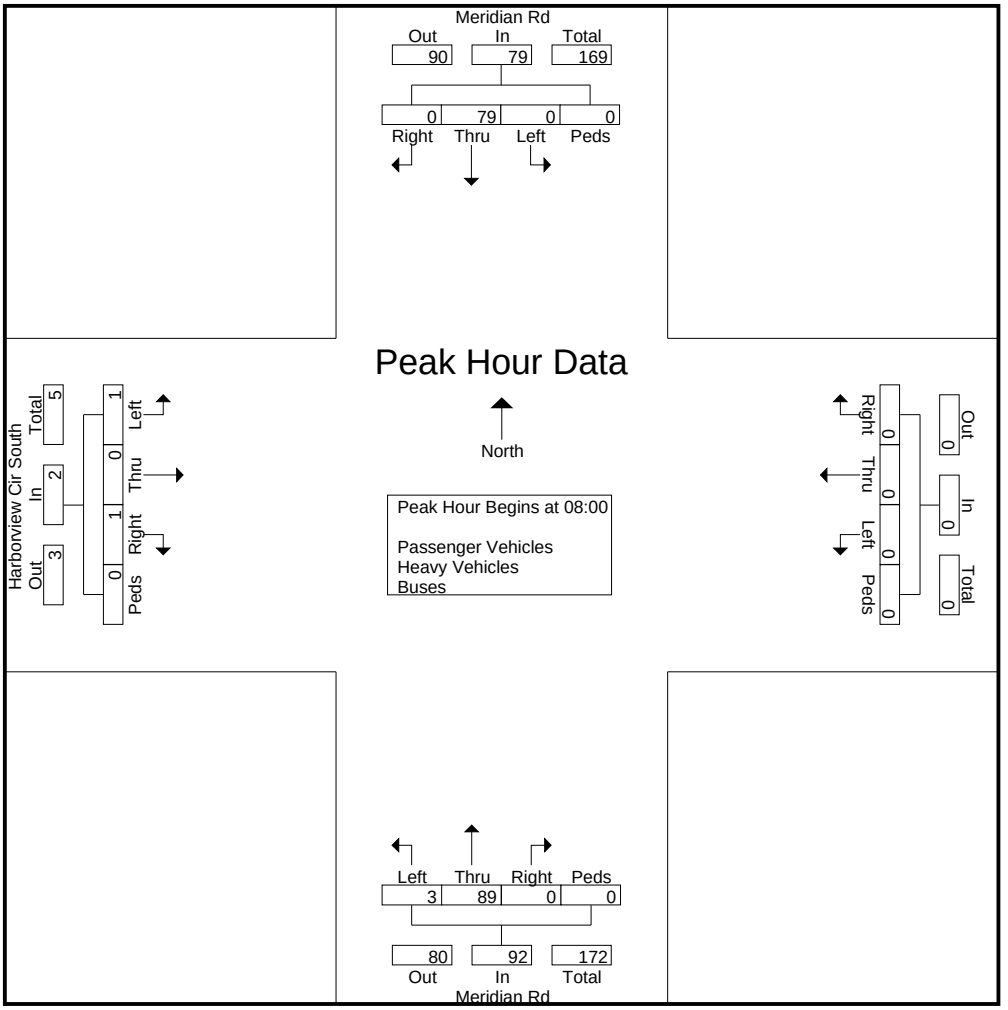
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File Name : Meridian Rd @ Harborview Cir South
Site Code :
Start Date : 8/24/2017
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	Meridian Rd Southbound					Westbound					Meridian Rd Northbound					Harborview Cir South Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00																					
08:00	0	**24**	0	0	**24**	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	48
08:15	0	21	0	0	21	0	0	0	0	0	0	**31**	0	0	**31**	0	0	**1**	0	**1**	**53**
08:30	0	19	0	0	19	0	0	0	0	0	0	23	0	0	23	0	0	0	0	0	42
08:45	0	15	0	0	15	0	0	0	0	0	**3**	11	0	0	14	**1**	0	0	0	1	30
Total Volume	0	79	0	0	79	0	0	0	0	0	3	89	0	0	92	1	0	1	0	2	173
% App. Total	0	100	0	0		0	0	0	0		3.3	96.7	0	0		50	0	50	0		
PHF	.000	.823	.000	.000	.823	.000	.000	.000	.000	.000	.250	.718	.000	.000	.742	.250	.000	.250	.000	.500	.816



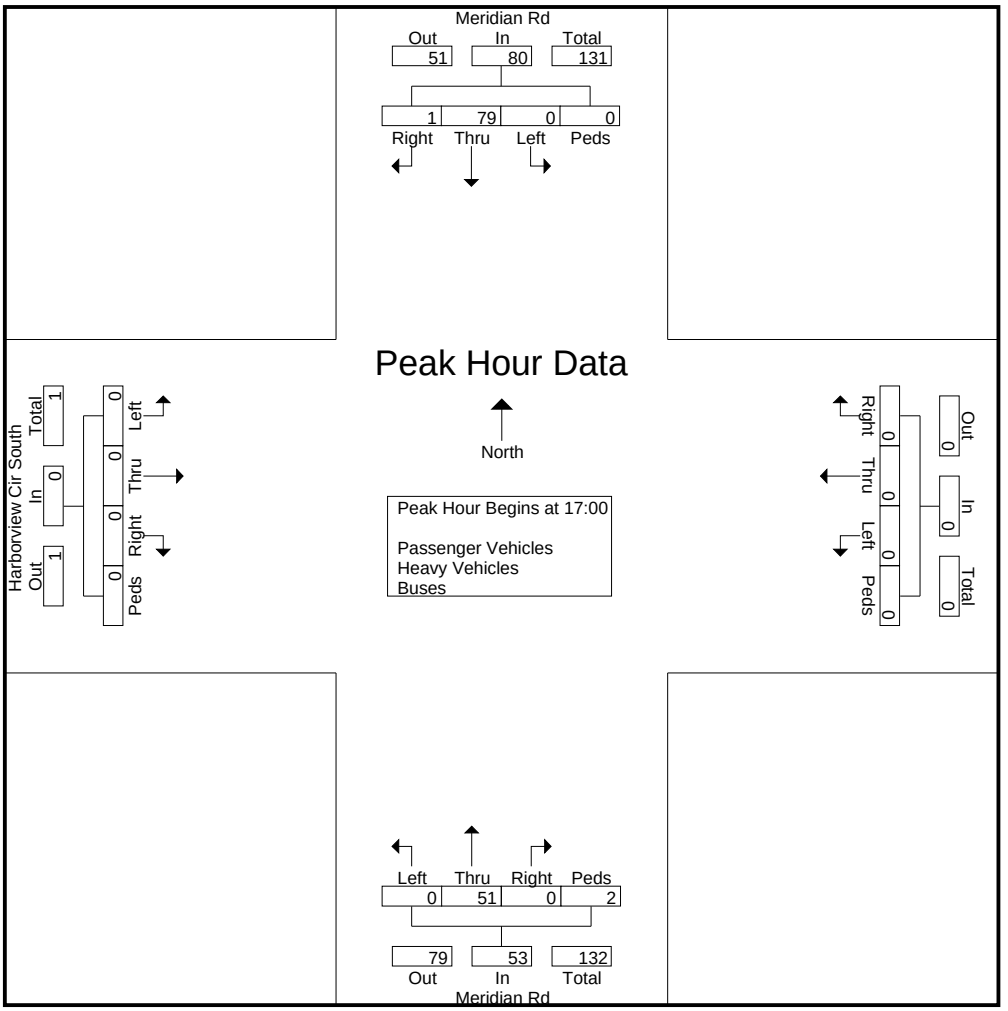
SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : Meridian Rd @ Harborview Cir South
Site Code :
Start Date : 8/24/2017
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	Meridian Rd Southbound					Westbound					Meridian Rd Northbound					Harborview Cir South Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	0	**26**	0	0	**26**	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	**39**
17:15	0	20	0	0	20	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	30
17:30	0	14	**1**	0	15	0	0	0	0	0	0	13	0	**1**	14	0	0	0	0	0	29
17:45	0	19	0	0	19	0	0	0	0	0	0	**15**	0	1	**16**	0	0	0	0	0	35
Total Volume	0	79	1	0	80	0	0	0	0	0	0	51	0	2	53	0	0	0	0	0	133
% App. Total	0	98.8	1.2	0		0	0	0	0		0	96.2	0	3.8		0	0	0	0		
PHF	.000	.760	.250	.000	.769	.000	.000	.000	.000	.000	.000	.850	.000	.500	.828	.000	.000	.000	.000	.000	.853



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Default Comments
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File Name : Meridian Rd @ Ladys Island Dr
Site Code :
Start Date : 8/24/2017
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

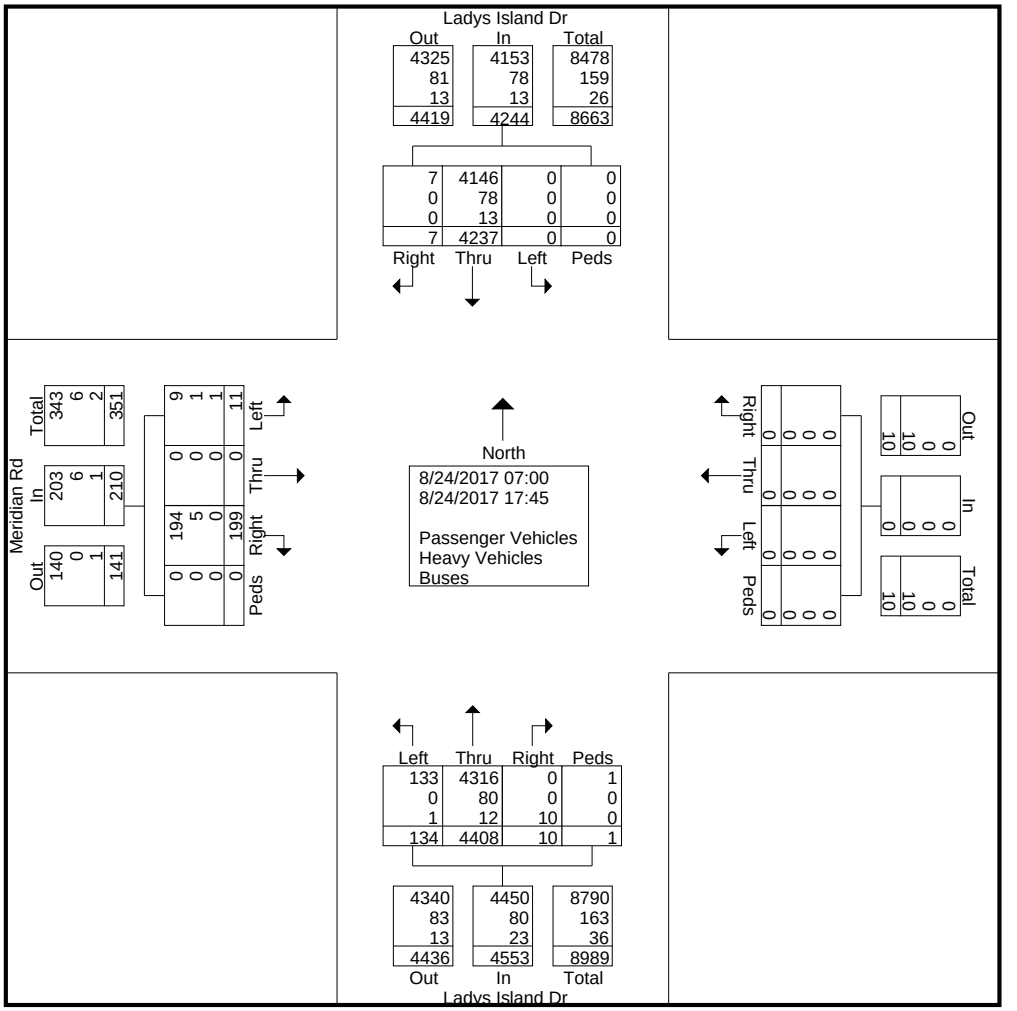
	Ladys Island Dr Southbound				Westbound				Ladys Island Dr Northbound				Meridian Rd Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00	0	229	0	0	0	0	0	0	8	112	1	0	2	0	9	0	361
07:15	0	293	0	0	0	0	0	0	8	133	0	1	1	0	11	0	447
07:30	0	339	0	0	0	0	0	0	15	216	1	0	1	0	13	0	585
07:45	0	371	1	0	0	0	0	0	14	252	1	0	2	0	17	0	658
Total	0	1232	1	0	0	0	0	0	45	713	3	1	6	0	50	0	2051
08:00	0	366	3	0	0	0	0	0	26	219	3	0	0	0	17	0	634
08:15	0	288	2	0	0	0	0	0	28	240	2	0	0	0	19	0	579
08:30	0	224	0	0	0	0	0	0	22	251	2	0	0	0	15	0	514
08:45	0	245	0	0	0	0	0	0	13	190	0	0	0	0	12	0	460
Total	0	1123	5	0	0	0	0	0	89	900	7	0	0	0	63	0	2187
16:00	0	262	0	0	0	0	0	0	0	371	0	0	3	0	18	0	654
16:15	0	222	0	0	0	0	0	0	0	357	0	0	0	0	17	0	596
16:30	0	214	0	0	0	0	0	0	0	343	0	0	0	0	11	0	568
16:45	0	238	0	0	0	0	0	0	0	365	0	0	0	0	6	0	609
Total	0	936	0	0	0	0	0	0	0	1436	0	0	3	0	52	0	2427
17:00	0	270	0	0	0	0	0	0	0	354	0	0	1	0	9	0	634
17:15	0	263	0	0	0	0	0	0	0	336	0	0	0	0	11	0	610
17:30	0	208	0	0	0	0	0	0	0	346	0	0	1	0	6	0	561
17:45	0	205	1	0	0	0	0	0	0	323	0	0	0	0	8	0	537
Total	0	946	1	0	0	0	0	0	0	1359	0	0	2	0	34	0	2342
Grand Total	0	4237	7	0	0	0	0	0	134	4408	10	1	11	0	199	0	9007
Apprch %	0	99.8	0.2	0	0	0	0	0	2.9	96.8	0.2	0	5.2	0	94.8	0	
Total %	0	47	0.1	0	0	0	0	0	1.5	48.9	0.1	0	0.1	0	2.2	0	
Passenger Vehicles	0	4146	7	0	0	0	0	0	133	4316	0	1	9	0	194	0	8806
% Passenger Vehicles	0	97.9	100	0	0	0	0	0	99.3	97.9	0	100	81.8	0	97.5	0	97.8
Heavy Vehicles	0	78	0	0	0	0	0	0	0	80	0	0	1	0	5	0	164
% Heavy Vehicles	0	1.8	0	0	0	0	0	0	0	1.8	0	0	9.1	0	2.5	0	1.8
Buses	0	13	0	0	0	0	0	0	1	12	10	0	1	0	0	0	37
% Buses	0	0.3	0	0	0	0	0	0	0.7	0.3	100	0	9.1	0	0	0	0.4

SHORT COUNTS, LLC

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We can't say we're the Best, but you Can!

File Name : Meridian Rd @ Ladys Island Dr
Site Code :
Start Date : 8/24/2017
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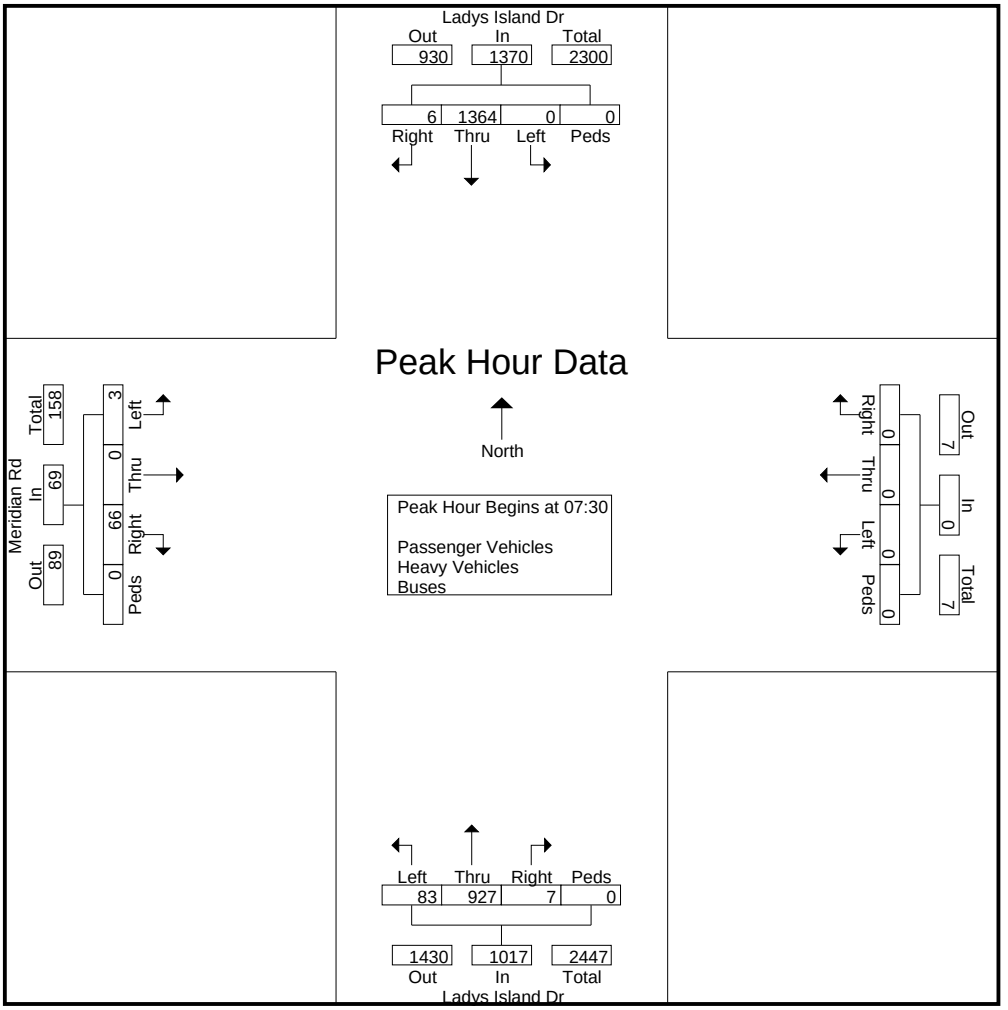
SHORT COUNTS, LLC

735 Maryland St
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We can't say we're the Best, but you Can!

File Name : Meridian Rd @ Ladys Island Dr
Site Code :
Start Date : 8/24/2017
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	Ladys Island Dr Southbound					Westbound					Ladys Island Dr Northbound					Meridian Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30																					
07:30	0	339	0	0	339	0	0	0	0	0	15	216	1	0	232	1	0	13	0	14	585
07:45	0	**371**	1	0	**372**	0	0	0	0	0	14	**252**	1	0	267	**2**	0	17	0	**19**	**658**
08:00	0	366	**3**	0	369	0	0	0	0	0	26	219	**3**	0	248	0	0	17	0	17	634
08:15	0	288	2	0	290	0	0	0	0	0	**28**	240	2	0	**270**	0	0	**19**	0	19	579
Total Volume	0	1364	6	0	1370	0	0	0	0	0	83	927	7	0	1017	3	0	66	0	69	2456
% App. Total	0	99.6	0.4	0		0	0	0	0		8.2	91.2	0.7	0		4.3	0	95.7	0		
PHF	.000	.919	.500	.000	.921	.000	.000	.000	.000	.000	.741	.920	.583	.000	.942	.375	.000	.868	.000	.908	.933



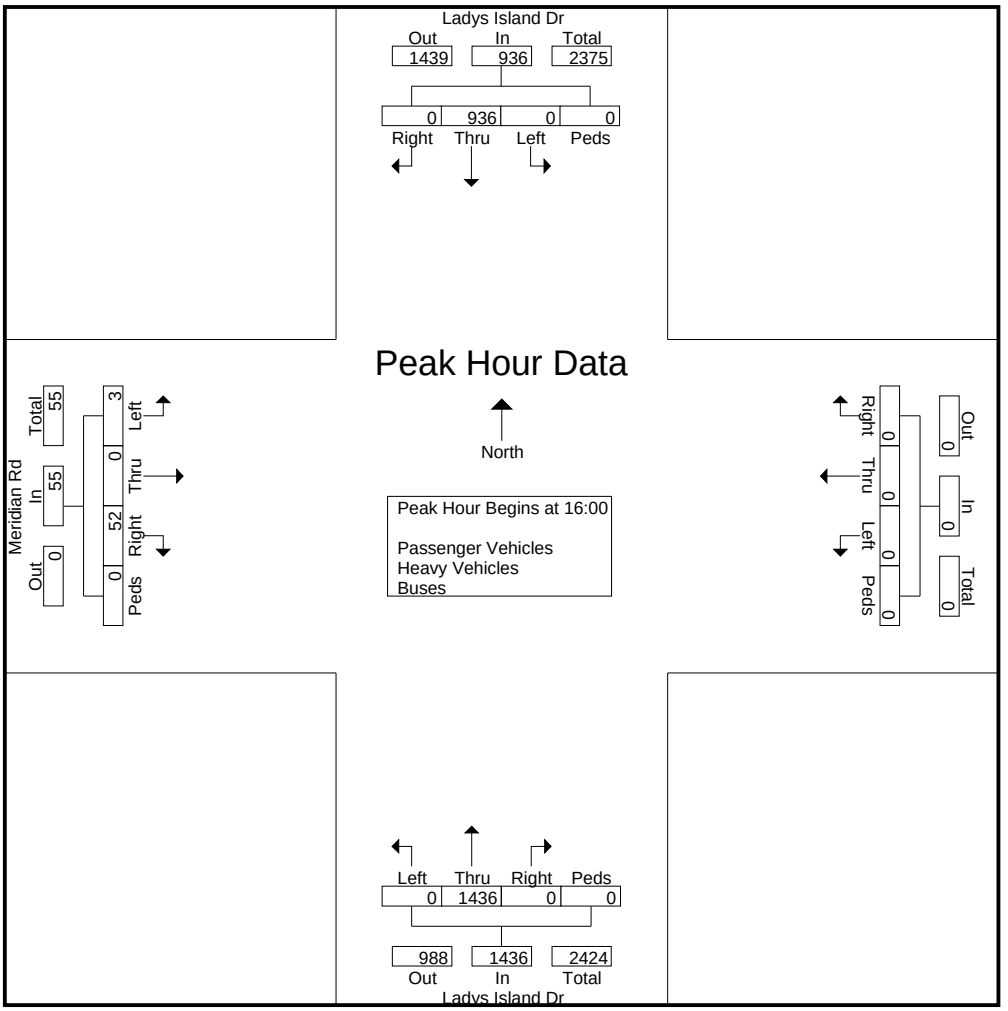
SHORT COUNTS, LLC

735 Maryland St
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We can't say we're the Best, but you Can!

File Name : Meridian Rd @ Ladys Island Dr
Site Code :
Start Date : 8/24/2017
Page No : 4

	Ladys Island Dr Southbound					Westbound					Ladys Island Dr Northbound					Meridian Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:00																					
16:00	0	**262**	0	0	**262**	0	0	0	0	0	0	**371**	0	0	**371**	**3**	0	**18**	0	**21**	**654**
16:15	0	222	0	0	222	0	0	0	0	0	0	357	0	0	357	0	0	17	0	17	596
16:30	0	214	0	0	214	0	0	0	0	0	0	343	0	0	343	0	0	11	0	11	568
16:45	0	238	0	0	238	0	0	0	0	0	0	365	0	0	365	0	0	6	0	6	609
Total Volume	0	936	0	0	936	0	0	0	0	0	0	1436	0	0	1436	3	0	52	0	55	2427
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		5.5	0	94.5	0		
PHF	.000	.893	.000	.000	.893	.000	.000	.000	.000	.000	.000	.968	.000	.000	.968	.250	.000	.722	.000	.655	.928



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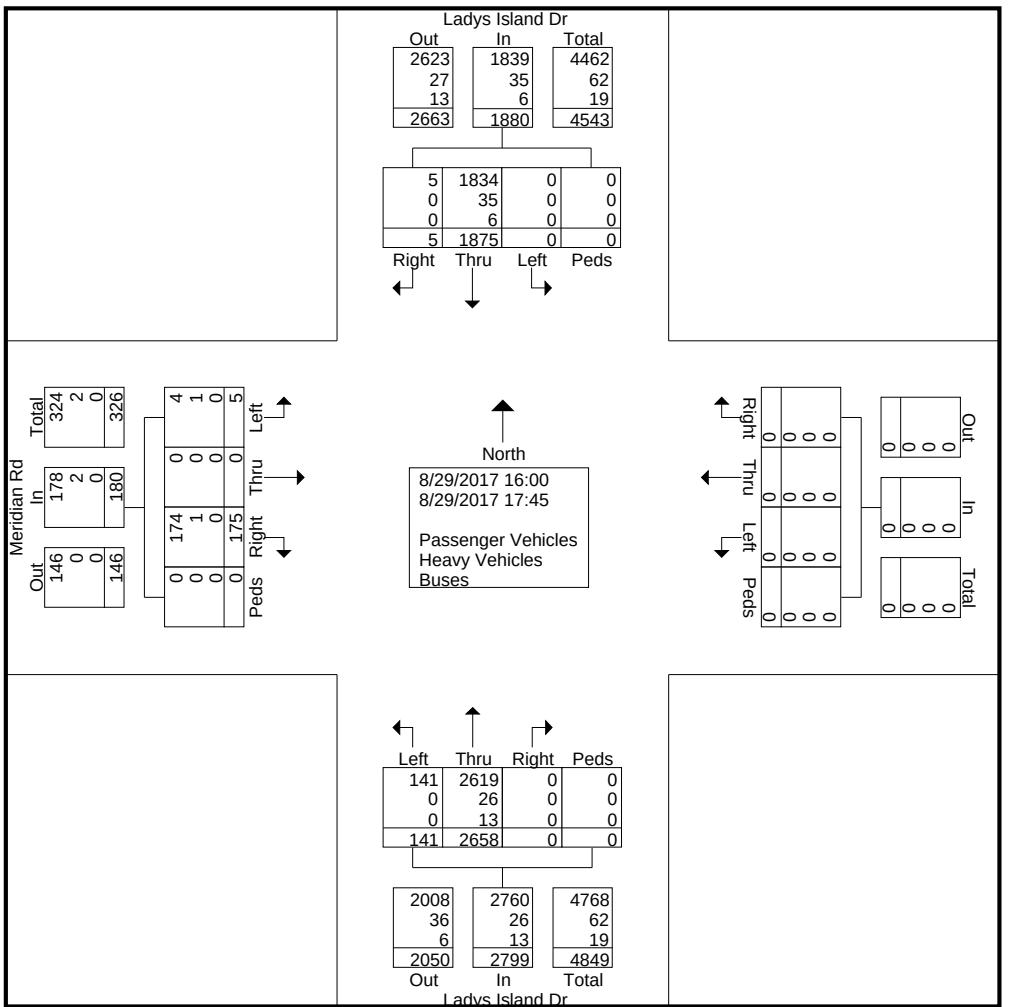
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Default Comments
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File Name : Meridian Rd @ Ladys Island Dr PM
Site Code :
Start Date : 8/29/2017
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	Ladys Island Dr Southbound				Westbound				Ladys Island Dr Northbound				Meridian Rd Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
16:00	0	244	0	0	0	0	0	0	18	350	0	0	2	0	14	0	628
16:15	0	227	0	0	0	0	0	0	20	337	0	0	0	0	17	0	601
16:30	0	222	1	0	0	0	0	0	21	321	0	0	0	0	30	0	595
16:45	0	235	2	0	0	0	0	0	16	353	0	0	0	0	24	0	630
Total	0	928	3	0	0	0	0	0	75	1361	0	0	2	0	85	0	2454
17:00	0	265	1	0	0	0	0	0	19	327	0	0	1	0	20	0	633
17:15	0	271	0	0	0	0	0	0	23	323	0	0	1	0	19	0	637
17:30	0	201	1	0	0	0	0	0	15	329	0	0	1	0	26	0	573
17:45	0	210	0	0	0	0	0	0	9	318	0	0	0	0	25	0	562
Total	0	947	2	0	0	0	0	0	66	1297	0	0	3	0	90	0	2405
Grand Total	0	1875	5	0	0	0	0	0	141	2658	0	0	5	0	175	0	4859
Apprch %	0	99.7	0.3	0	0	0	0	0	5	95	0	0	2.8	0	97.2	0	
Total %	0	38.6	0.1	0	0	0	0	0	2.9	54.7	0	0	0.1	0	3.6	0	
Passenger Vehicles	0	1834	5	0	0	0	0	0	141	2619	0	0	4	0	174	0	4777
% Passenger Vehicles	0	97.8	100	0	0	0	0	0	100	98.5	0	0	80	0	99.4	0	98.3
Heavy Vehicles	0	35	0	0	0	0	0	0	0	26	0	0	1	0	1	0	63
% Heavy Vehicles	0	1.9	0	0	0	0	0	0	0	1	0	0	20	0	0.6	0	1.3
Buses	0	6	0	0	0	0	0	0	0	13	0	0	0	0	0	0	19
% Buses	0	0.3	0	0	0	0	0	0	0	0.5	0	0	0	0	0	0	0.4



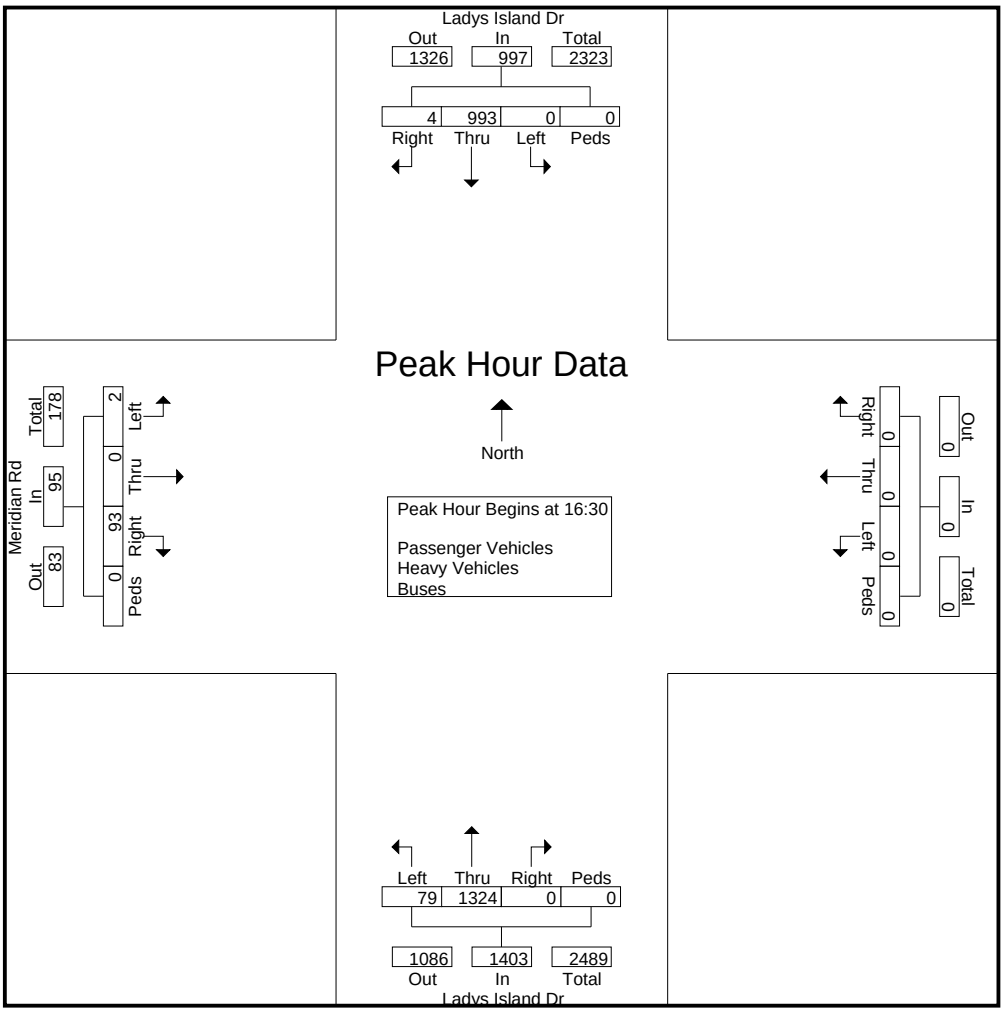
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We can't say we're the Best, but you Can!

File Name : Meridian Rd @ Ladys Island Dr PM
Site Code :
Start Date : 8/29/2017
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	Ladys Island Dr Southbound					Westbound					Ladys Island Dr Northbound					Meridian Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:30																					
16:30	0	222	1	0	223	0	0	0	0	0	21	321	0	0	342	0	0	**30**	0	**30**	595
16:45	0	235	**2**	0	237	0	0	0	0	0	16	**353**	0	0	**369**	0	0	24	0	24	630
17:00	0	265	1	0	266	0	0	0	0	0	19	327	0	0	346	**1**	0	20	0	21	633
17:15	0	**271**	0	0	**271**	0	0	0	0	0	**23**	323	0	0	346	1	0	19	0	20	**637**
Total Volume	0	993	4	0	997	0	0	0	0	0	79	1324	0	0	1403	2	0	93	0	95	2495
% App. Total	0	99.6	0.4	0		0	0	0	0		5.6	94.4	0	0		2.1	0	97.9	0		
PHF	.000	.916	.500	.000	.920	.000	.000	.000	.000	.000	.859	.938	.000	.000	.951	.500	.000	.775	.000	.792	.979



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File Name : Meridian Rd @ Sea Island Pkwy
Site Code :
Start Date : 8/24/2017
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

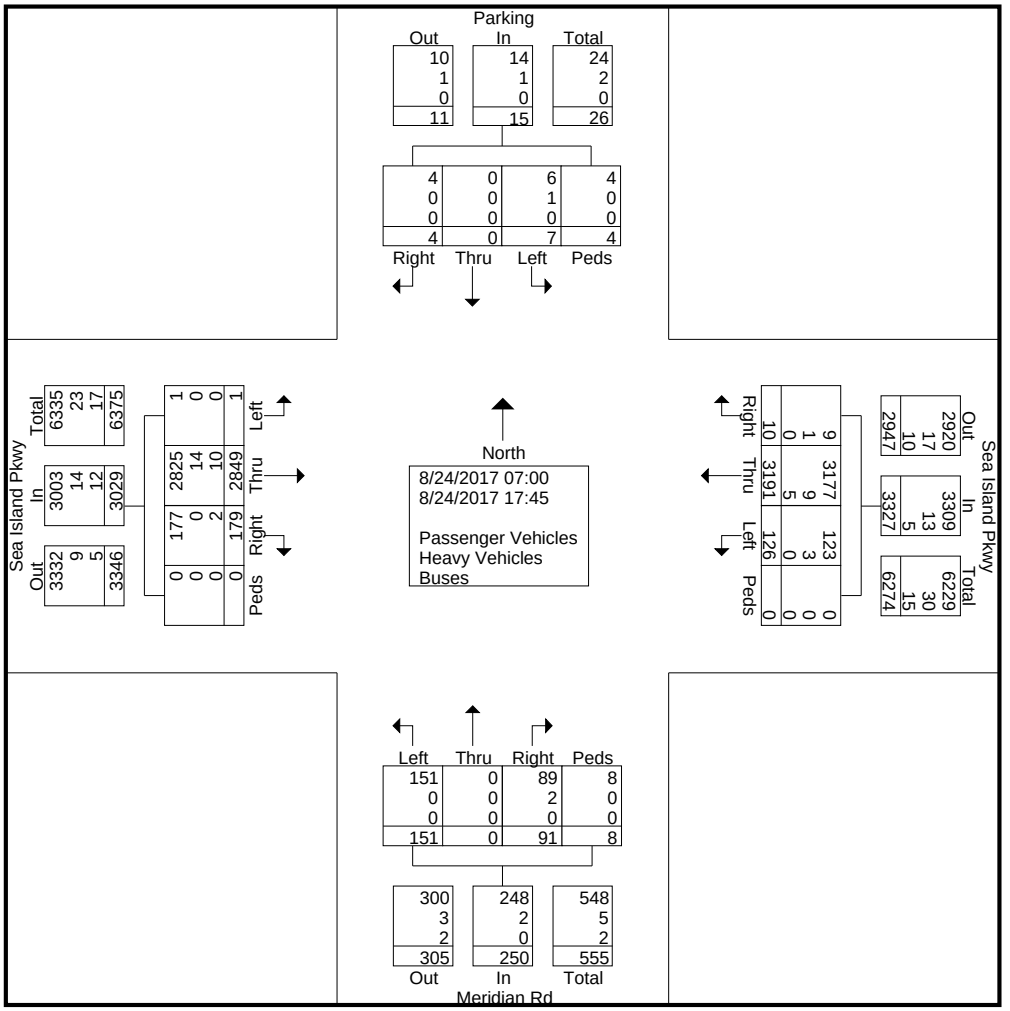
	Parking Southbound				Sea Island Pkwy Westbound				Meridian Rd Northbound				Sea Island Pkwy Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00	1	0	0	1	2	200	1	0	7	0	3	0	0	90	4	0	309
07:15	0	0	1	2	7	210	1	0	11	0	4	2	1	138	5	0	382
07:30	0	0	0	0	9	267	0	0	13	0	3	1	0	150	5	0	448
07:45	0	0	0	0	8	261	1	0	7	0	5	0	0	160	13	0	455
Total	1	0	1	3	26	938	3	0	38	0	15	3	1	538	27	0	1594
08:00	0	0	0	1	7	235	0	0	16	0	13	1	0	146	13	0	432
08:15	0	0	0	0	6	217	0	0	11	0	14	1	0	153	19	0	421
08:30	1	0	0	0	6	169	0	0	13	0	11	0	0	136	10	0	346
08:45	1	0	0	0	8	169	0	0	10	0	4	0	0	139	13	0	344
Total	2	0	0	1	27	790	0	0	50	0	42	2	0	574	55	0	1543
16:00	2	0	1	0	13	210	0	0	12	0	7	1	0	215	18	0	479
16:15	0	0	0	0	9	184	0	0	0	0	5	0	0	220	9	0	427
16:30	0	0	1	0	3	185	1	0	7	0	2	0	0	191	19	0	409
16:45	0	0	0	0	8	170	1	0	4	0	3	0	0	203	9	0	398
Total	2	0	2	0	33	749	2	0	23	0	17	1	0	829	55	0	1713
17:00	0	0	0	0	11	173	3	0	9	0	6	0	0	242	11	0	455
17:15	1	0	1	0	10	179	1	0	7	0	3	2	0	247	10	0	461
17:30	0	0	0	0	14	179	1	0	11	0	4	0	0	237	7	0	453
17:45	1	0	0	0	5	183	0	0	13	0	4	0	0	182	14	0	402
Total	2	0	1	0	40	714	5	0	40	0	17	2	0	908	42	0	1771
Grand Total	7	0	4	4	126	3191	10	0	151	0	91	8	1	2849	179	0	6621
Apprch %	46.7	0	26.7	26.7	3.8	95.9	0.3	0	60.4	0	36.4	3.2	0	94.1	5.9	0	
Total %	0.1	0	0.1	0.1	1.9	48.2	0.2	0	2.3	0	1.4	0.1	0	43	2.7	0	
Passenger Vehicles	6	0	4	4	123	3177	9	0	151	0	89	8	1	2825	177	0	6574
% Passenger Vehicles	85.7	0	100	100	97.6	99.6	90	0	100	0	97.8	100	100	99.2	98.9	0	99.3
Heavy Vehicles	1	0	0	0	3	9	1	0	0	0	2	0	0	14	0	0	30
% Heavy Vehicles	14.3	0	0	0	2.4	0.3	10	0	0	0	2.2	0	0	0.5	0	0	0.5
Buses	0	0	0	0	0	5	0	0	0	0	0	0	0	10	2	0	17
% Buses	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0.4	1.1	0	0.3

SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : Meridian Rd @ Sea Island Pkwy
Site Code :
Start Date : 8/24/2017
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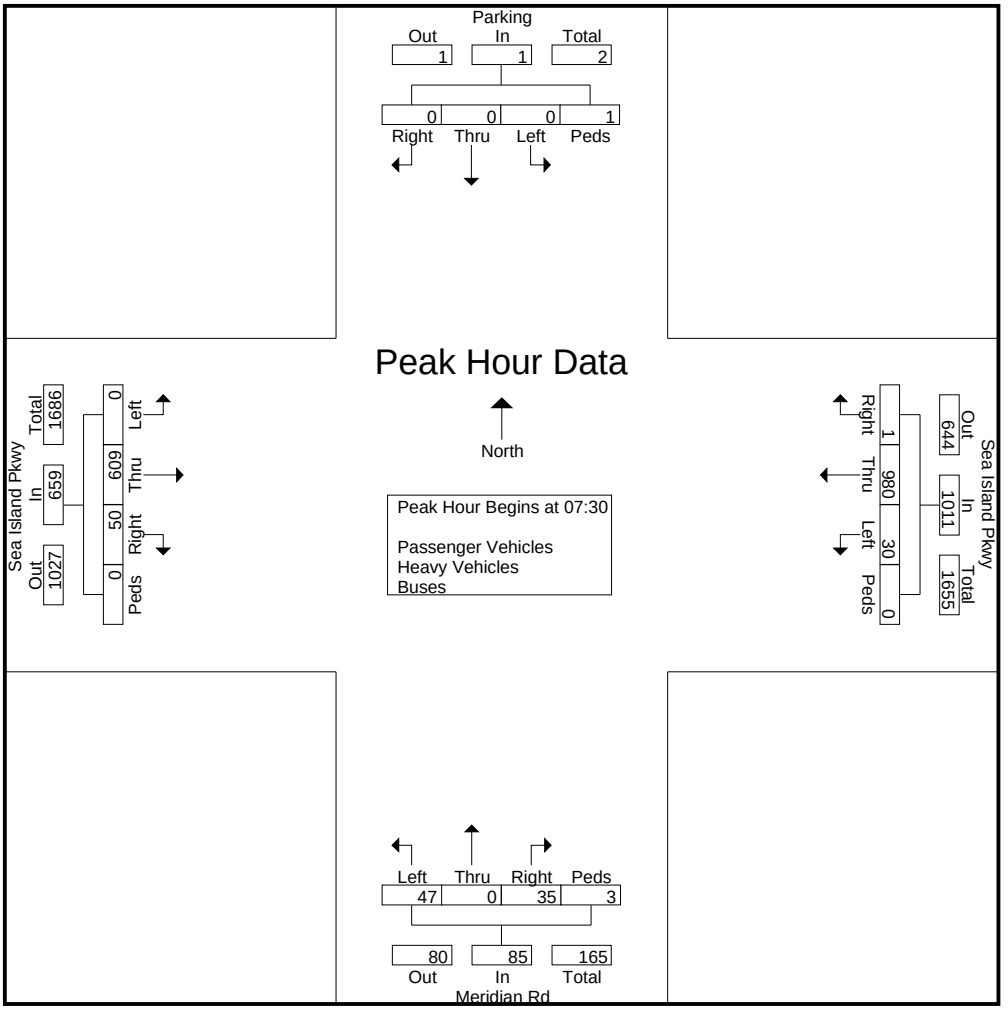
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We can't say we're the Best, but you Can!

File Name : Meridian Rd @ Sea Island Pkwy
Site Code :
Start Date : 8/24/2017
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	Parking Southbound					Sea Island Pkwy Westbound					Meridian Rd Northbound					Sea Island Pkwy Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30																					
07:30	0	0	0	0	0	**9**	**267**	0	0	**276**	13	0	3	**1**	17	0	150	5	0	155	448
07:45	0	0	0	0	0	8	261	**1**	0	270	7	0	5	0	12	0	**160**	13	0	**173**	**455**
08:00	0	0	0	**1**	**1**	7	235	0	0	242	**16**	0	13	1	**30**	0	146	13	0	159	432
08:15	0	0	0	0	0	6	217	0	0	223	11	0	**14**	1	26	0	153	**19**	0	172	421
Total Volume	0	0	0	1	1	30	980	1	0	1011	47	0	35	3	85	0	609	50	0	659	1756
% App. Total	0	0	0	100		3	96.9	0.1	0		55.3	0	41.2	3.5		0	92.4	7.6	0		
PHF	.000	.000	.000	.250	.250	.833	.918	.250	.000	.916	.734	.000	.625	.750	.708	.000	.952	.658	.000	.952	.965



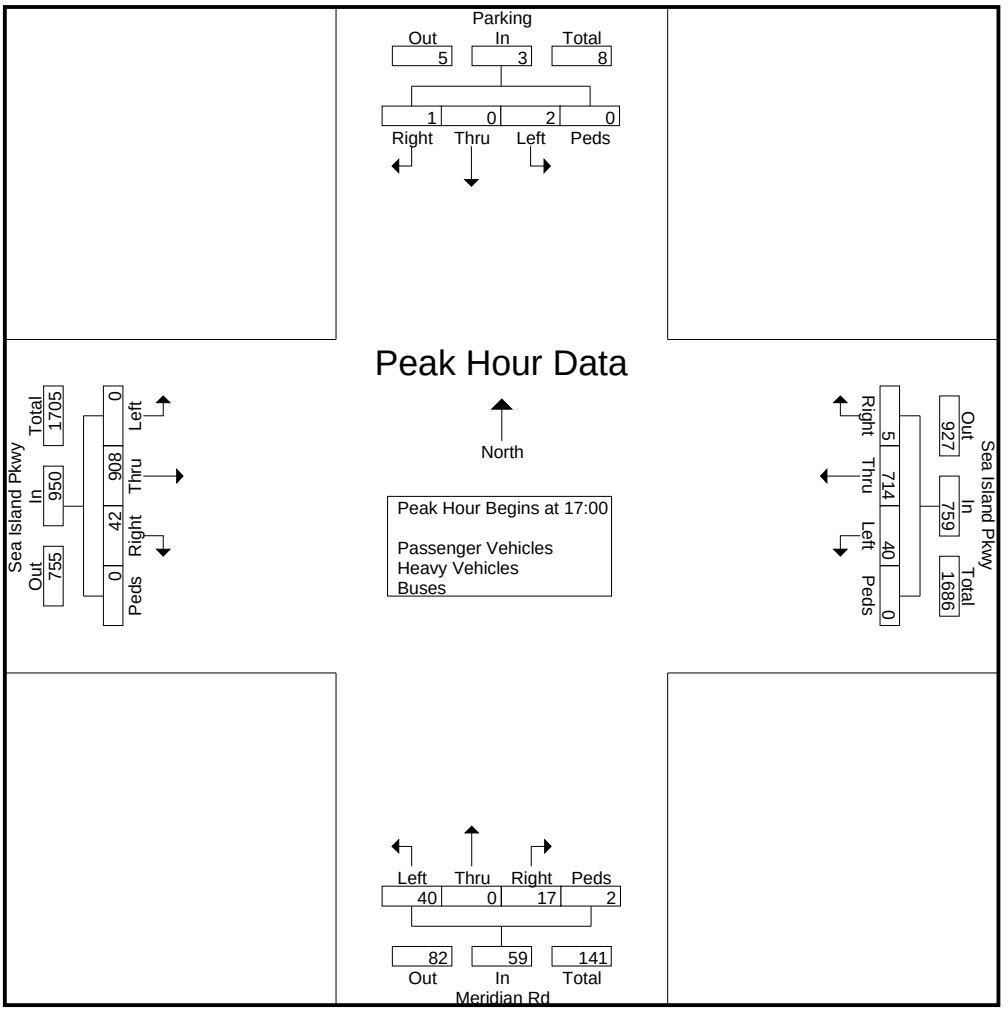
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File Name : Meridian Rd @ Sea Island Pkwy
Site Code :
Start Date : 8/24/2017
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	Parking Southbound					Sea Island Pkwy Westbound					Meridian Rd Northbound					Sea Island Pkwy Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	0	0	0	0	0	11	173	**3**	0	187	9	0	**6**	0	15	0	242	11	0	253	455
17:15	**1**	0	**1**	0	**2**	10	179	1	0	190	7	0	3	**2**	12	0	**247**	10	0	**257**	**461**
17:30	0	0	0	0	0	**14**	179	1	0	**194**	11	0	4	0	15	0	237	7	0	244	453
17:45	1	0	0	0	1	5	**183**	0	0	188	**13**	0	4	0	**17**	0	182	**14**	0	196	402
Total Volume	2	0	1	0	3	40	714	5	0	759	40	0	17	2	59	0	908	42	0	950	1771
% App. Total	66.7	0	33.3	0		5.3	94.1	0.7	0		67.8	0	28.8	3.4		0	95.6	4.4	0		
PHF	.500	.000	.250	.000	.375	.714	.975	.417	.000	.978	.769	.000	.708	.250	.868	.000	.919	.750	.000	.924	.960



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Default Comments
Change These in The Preferences Window
Select File/Preference in the Main Scree
Then Click the Comments Tab

File Name : Sea Island Pkwy @ High School Entrance
Site Code :
Start Date : 8/24/2017
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

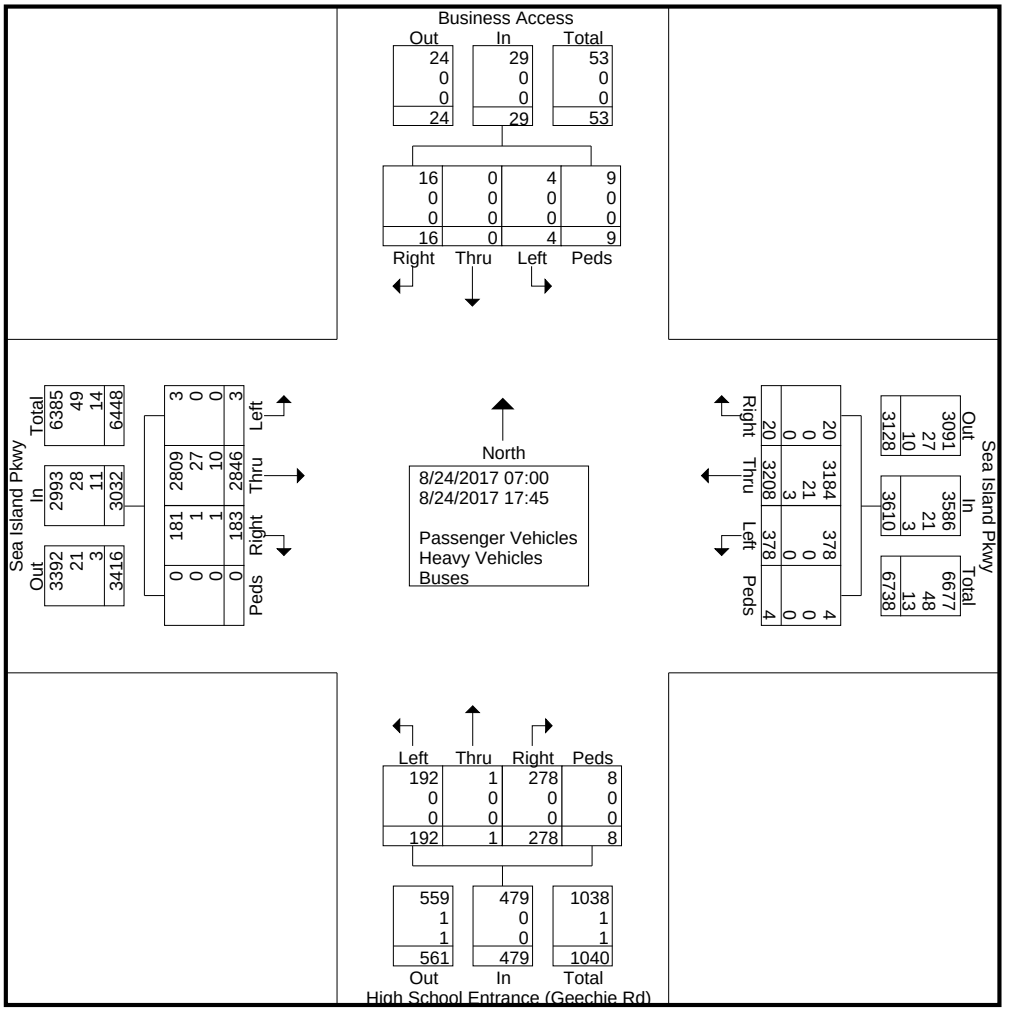
	Business Access Southbound				Sea Island Pkwy Westbound				High School Entrance (Geechie Rd) Northbound				Sea Island Pkwy Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00	0	0	1	0	9	203	2	0	1	0	3	3	0	85	2	0	309
07:15	2	0	2	0	10	218	3	0	2	0	2	0	1	136	4	0	380
07:30	1	0	3	1	12	271	2	0	7	0	2	0	0	141	7	0	447
07:45	0	0	1	1	34	260	2	1	12	0	11	2	0	164	19	0	507
Total	3	0	7	2	65	952	9	1	22	0	18	5	1	526	32	0	1643
08:00	0	0	0	0	61	223	0	1	23	0	19	0	0	138	20	0	485
08:15	0	0	1	0	95	194	2	1	27	0	43	1	0	112	44	0	520
08:30	0	0	1	3	53	150	0	0	23	1	47	0	0	138	25	0	441
08:45	0	0	2	1	14	173	1	0	7	0	11	1	1	127	6	0	344
Total	0	0	4	4	223	740	3	2	80	1	120	2	1	515	95	0	1790
16:00	0	0	1	0	16	205	2	0	32	0	49	0	0	217	8	0	530
16:15	0	0	1	0	6	189	1	0	11	0	21	0	0	246	6	0	481
16:30	0	0	0	0	6	185	0	0	12	0	10	1	0	202	4	0	420
16:45	0	0	0	0	6	185	1	0	6	0	14	0	0	209	8	0	429
Total	0	0	2	0	34	764	4	0	61	0	94	1	0	874	26	0	1860
17:00	0	0	1	1	15	180	0	0	10	0	10	0	1	245	6	0	469
17:15	1	0	0	2	18	196	0	1	3	0	11	0	0	248	5	0	485
17:30	0	0	2	0	9	188	3	0	11	0	16	0	0	234	8	0	471
17:45	0	0	0	0	14	188	1	0	5	0	9	0	0	204	11	0	432
Total	1	0	3	3	56	752	4	1	29	0	46	0	1	931	30	0	1857
Grand Total	4	0	16	9	378	3208	20	4	192	1	278	8	3	2846	183	0	7150
Apprch %	13.8	0	55.2	31	10.5	88.9	0.6	0.1	40.1	0.2	58	1.7	0.1	93.9	6	0	
Total %	0.1	0	0.2	0.1	5.3	44.9	0.3	0.1	2.7	0	3.9	0.1	0	39.8	2.6	0	
Passenger Vehicles	4	0	16	9	378	3184	20	4	192	1	278	8	3	2809	181	0	7087
% Passenger Vehicles	100	0	100	100	100	99.3	100	100	100	100	100	100	100	98.7	98.9	0	99.1
Heavy Vehicles	0	0	0	0	0	21	0	0	0	0	0	0	0	27	1	0	49
% Heavy Vehicles	0	0	0	0	0	0.7	0	0	0	0	0	0	0	0.9	0.5	0	0.7
Buses	0	0	0	0	0	3	0	0	0	0	0	0	0	10	1	0	14
% Buses	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0.4	0.5	0	0.2

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File Name : Sea Island Pkwy @ High School Entrance
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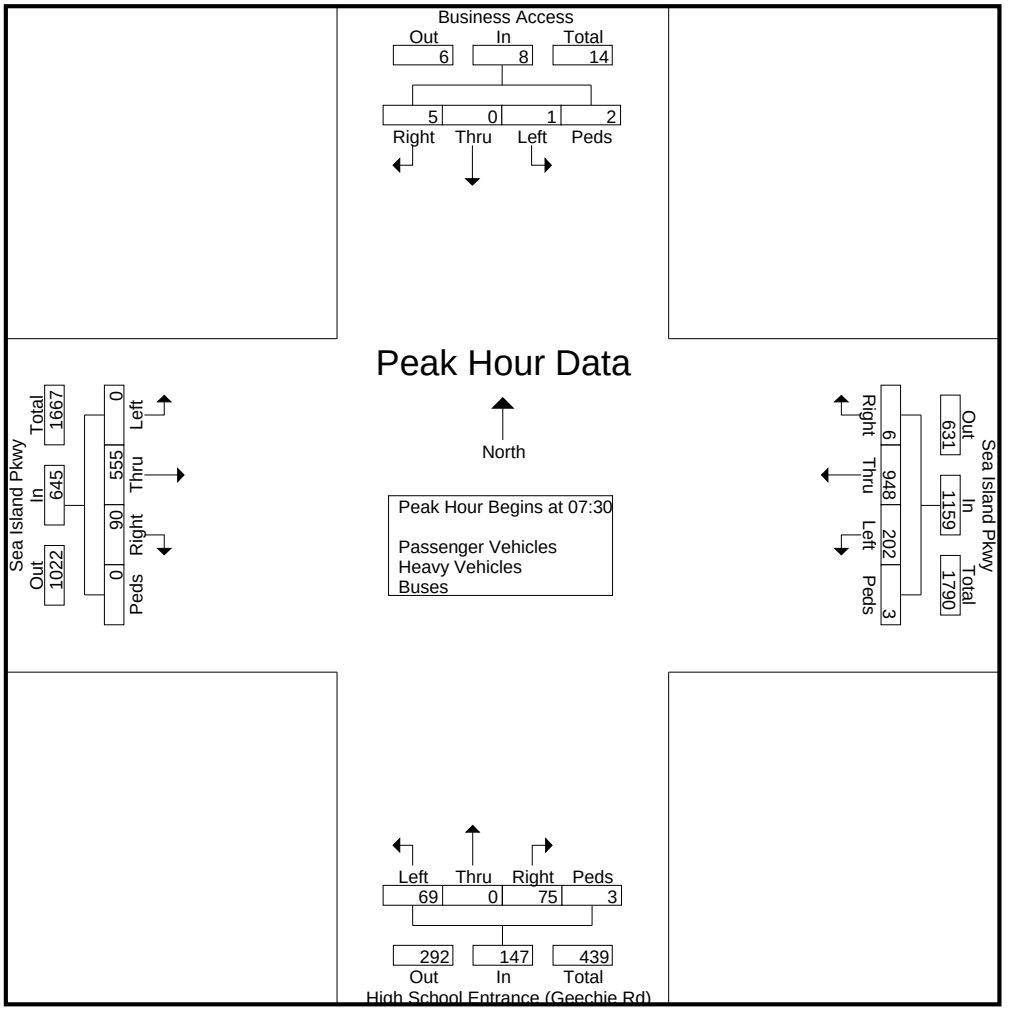
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File Name : Sea Island Pkwy @ High School Entrance
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	Business Access Southbound					Sea Island Pkwy Westbound					High School Entrance (Geechie Rd) Northbound					Sea Island Pkwy Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30																					
07:30	**1**	0	**3**	**1**	**5**	12	**271**	**2**	0	285	7	0	2	0	9	0	141	7	0	148	447
07:45	0	0	1	1	2	34	260	2	**1**	**297**	12	0	11	**2**	25	0	**164**	19	0	**183**	507
08:00	0	0	0	0	0	61	223	0	1	285	23	0	19	0	42	0	138	20	0	158	485
08:15	0	0	1	0	1	**95**	194	2	1	292	**27**	0	**43**	1	**71**	0	112	**44**	0	156	**520**
Total Volume	1	0	5	2	8	202	948	6	3	1159	69	0	75	3	147	0	555	90	0	645	1959
% App. Total	12.5	0	62.5	25		17.4	81.8	0.5	0.3		46.9	0	51	2		0	86	14	0		
PHF	.250	.000	.417	.500	.400	.532	.875	.750	.750	.976	.639	.000	.436	.375	.518	.000	.846	.511	.000	.881	.942



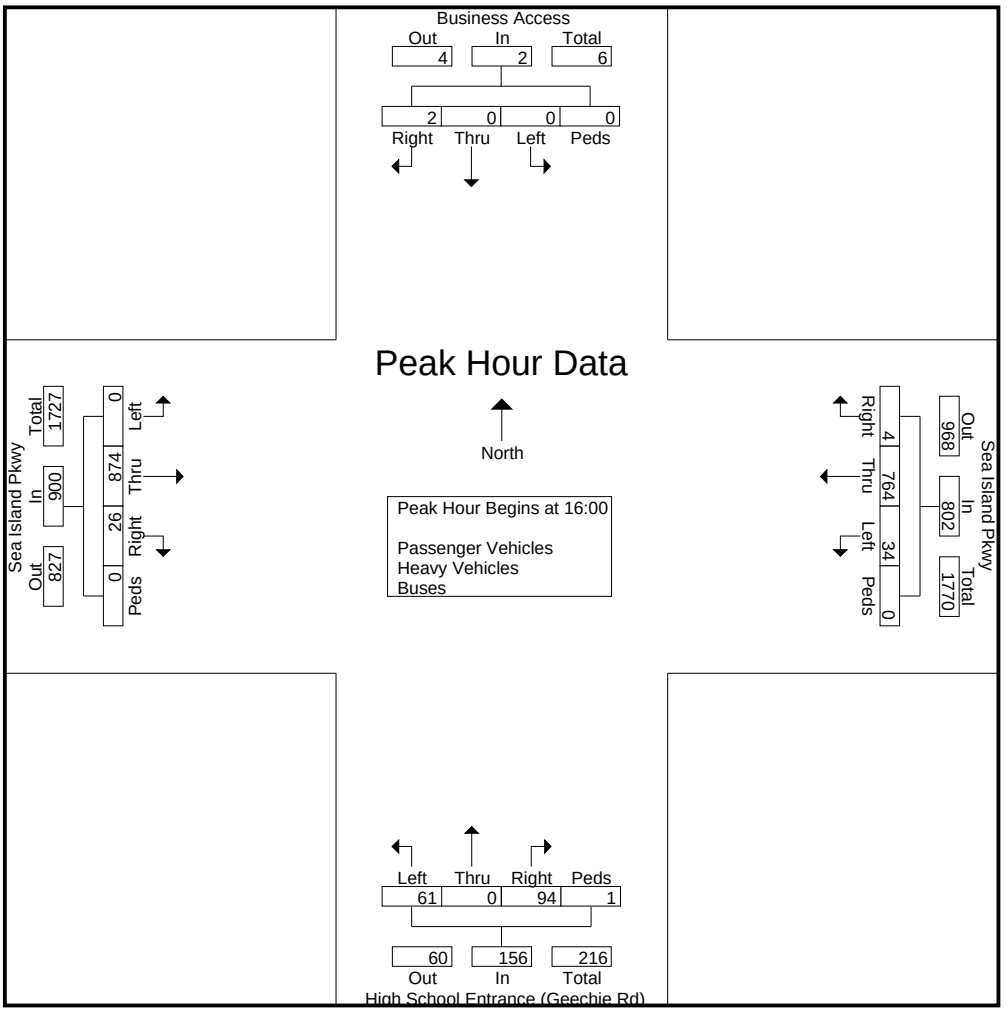
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File Name : Sea Island Pkwy @ High School Entrance
Site Code :
Start Date : 8/24/2017
Page No : 4

	Business Access Southbound					Sea Island Pkwy Westbound					High School Entrance (Geechie Rd) Northbound					Sea Island Pkwy Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:00																					
16:00	0	0	**1**	0	**1**	**16**	**205**	**2**	0	**223**	**32**	0	**49**	0	**81**	0	217	**8**	0	225	**530**
16:15	0	0	1	0	1	6	189	1	0	196	11	0	21	0	32	0	**246**	6	0	**252**	481
16:30	0	0	0	0	0	6	185	0	0	191	12	0	10	**1**	23	0	202	4	0	206	420
16:45	0	0	0	0	0	6	185	1	0	192	6	0	14	0	20	0	209	8	0	217	429
Total Volume	0	0	2	0	2	34	764	4	0	802	61	0	94	1	156	0	874	26	0	900	1860
% App. Total	0	0	100	0		4.2	95.3	0.5	0		39.1	0	60.3	0.6		0	97.1	2.9	0		
PHF	.000	.000	.500	.000	.500	.531	.932	.500	.000	.899	.477	.000	.480	.250	.481	.000	.888	.813	.000	.893	.877



APPENDIX C

Traffic Volume Development Worksheets

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

US 21 Business/Carteret Street & Bay Street

TRAFFIC CONTROL: Signalized

DATE COUNTED: Thursday, August 24, 2017

AM PEAK HOUR (7:30-8:30 AM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES	**15**	**4**	**147**				**272**	**764**	**4**	**2**	**501**	**7**
Years To Buildout (2020)	3	3	3				3	3	3	3	3	3
Yearly Growth Rate	1.5%	1.5%	1.5%				1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Background Traffic Growth	1	0	7				12	34	0	0	23	0
2020 NO-BUILD TRAFFIC VOLUMES	**16**	**4**	**154**				**284**	**798**	**4**	**2**	**524**	**7**
New Project Traffic			7				12	19			12	
Pass-By Project Traffic												
2020 BUILD TRAFFIC VOLUMES	**16**	**4**	**161**				**296**	**817**	**4**	**2**	**536**	**7**

PM PEAK HOUR (4:00-5:00 PM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES	**46**	**8**	**226**				**178**	**628**	**7**	**2**	**654**	**33**
Years To Buildout (2020)	3	3	3				3	3	3	3	3	3
Yearly Growth Rate	1.5%	1.5%	1.5%				1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Background Traffic Growth	2	0	10				8	28	0	0	29	1
2020 NO-BUILD TRAFFIC VOLUMES	**48**	**8**	**236**				**186**	**656**	**7**	**2**	**683**	**34**
New Project Traffic			12				9	15			20	
Pass-By Project Traffic												
2020 BUILD TRAFFIC VOLUMES	**48**	**8**	**248**				**195**	**671**	**7**	**2**	**703**	**34**

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

US 21 Business/Sea Island Parkway & North Project Driveway

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: Thursday, August 24, 2017

AM PEAK HOUR (7:30-8:30 AM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES		**659**	**0**	**0**	**1,027**		**0**		**0**			
Years To Buildout (2020)		3	3	3	3		3		3			
Yearly Growth Rate		1.5%	1.5%	1.5%	1.5%		1.5%		1.5%			
Background Traffic Growth		30	0	0	46		0		0			
2020 NO-BUILD TRAFFIC VOLUMES		**689**	**0**	**0**	**1,073**		**0**		**0**			
New Project Traffic		2	17		31				15			
Pass-By Project Traffic		-3	3						3			
2020 BUILD TRAFFIC VOLUMES		**688**	**20**	**0**	**1,104**		**0**		**18**			

PM PEAK HOUR (5:00-6:00 PM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES		**950**	**0**	**0**	**755**		**0**		**0**			
Years To Buildout (2020)		3	3	3	3		3		3			
Yearly Growth Rate		1.5%	1.5%	1.5%	1.5%		1.5%		1.5%			
Background Traffic Growth		43	0	0	34		0		0			
2020 NO-BUILD TRAFFIC VOLUMES		**993**	**0**	**0**	**789**		**0**		**0**			
New Project Traffic		3	29		24				12			
Pass-By Project Traffic		-3	3						4			
2020 BUILD TRAFFIC VOLUMES		**993**	**32**	**0**	**813**		**0**		**16**			

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

US 21 Business/Sea Island Parkway & Meridian Road

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: Thursday, August 24, 2017

AM PEAK HOUR (7:30-8:30 AM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES	**0**	**609**	**50**	**30**	**980**	**1**	**47**	**0**	**35**	**0**	**0**	**0**
Years To Buildout (2020)	3	3	3	3	3	3	3	3	3	3	3	3
Yearly Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Background Traffic Growth	0	27	2	1	44	0	2	0	2	0	0	0
2020 NO-BUILD TRAFFIC VOLUMES	**0**	**636**	**52**	**31**	**1,024**	**1**	**49**	**0**	**37**	**0**	**0**	**0**
New Project Traffic		15	2	14			31		8			
Pass-By Project Traffic		-1	1	6	-6		4		2			
2020 BUILD TRAFFIC VOLUMES	**0**	**650**	**55**	**51**	**1,018**	**1**	**84**	**0**	**47**	**0**	**0**	**0**

PM PEAK HOUR (5:00-6:00 PM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES	**0**	**908**	**42**	**40**	**714**	**5**	**40**	**0**	**17**	**2**	**0**	**1**
Years To Buildout (2020)	3	3	3	3	3	3	3	3	3	3	3	3
Yearly Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Background Traffic Growth	0	41	2	2	32	0	2	0	1	0	0	0
2020 NO-BUILD TRAFFIC VOLUMES	**0**	**949**	**44**	**42**	**746**	**5**	**42**	**0**	**18**	**2**	**0**	**1**
New Project Traffic		12	3	23			24		6			
Pass-By Project Traffic		-1	1	6	-6		4		2			
2020 BUILD TRAFFIC VOLUMES	**0**	**960**	**48**	**71**	**740**	**5**	**70**	**0**	**26**	**2**	**0**	**1**

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

US 21 Business/Sea Island Parkway & Beaufort High School Driveway

TRAFFIC CONTROL: Signalized

DATE COUNTED: Thursday, August 24, 2017

AM PEAK HOUR (7:30-8:30 AM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES	**0**	**555**	**90**	**202**	**948**	**6**	**69**	**0**	**75**	**1**	**0**	**5**
Years To Buildout (2020)	3	3	3	3	3	3	3	3	3	3	3	3
Yearly Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Background Traffic Growth	0	25	4	9	43	0	3	0	3	0	0	0
2020 NO-BUILD TRAFFIC VOLUMES	**0**	**580**	**94**	**211**	**991**	**6**	**72**	**0**	**78**	**1**	**0**	**5**
New Project Traffic		23			14							
Pass-By Project Traffic												
2020 BUILD TRAFFIC VOLUMES	**0**	**603**	**94**	**211**	**1,005**	**6**	**72**	**0**	**78**	**1**	**0**	**5**

PM PEAK HOUR (4:00-5:00 PM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES	**0**	**874**	**26**	**34**	**764**	**4**	**61**	**0**	**94**	**0**	**0**	**2**
Years To Buildout (2020)	3	3	3	3	3	3	3	3	3	3	3	3
Yearly Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Background Traffic Growth	0	39	1	2	34	0	3	0	4	0	0	0
2020 NO-BUILD TRAFFIC VOLUMES	**0**	**913**	**27**	**36**	**798**	**4**	**64**	**0**	**98**	**0**	**0**	**2**
New Project Traffic		18			23							
Pass-By Project Traffic												
2020 BUILD TRAFFIC VOLUMES	**0**	**931**	**27**	**36**	**821**	**4**	**64**	**0**	**98**	**0**	**0**	**2**

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

Meridian Road & East Project Driveway

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: Thursday, August 24, 2017

AM PEAK HOUR (7:30-8:30 AM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES	**0**		**0**				**0**	**91**			**80**	**0**
Years To Buildout (2020)	3		3				3	3			3	3
Yearly Growth Rate	1.5%		1.5%				1.5%	1.5%			1.5%	1.5%
Background Traffic Growth	0		0				0	4			4	0
2020 NO-BUILD TRAFFIC VOLUMES	**0**		**0**				**0**	**95**			**84**	**0**
New Project Traffic	32		15				10	7			2	14
Pass-By Project Traffic	6											7
2020 BUILD TRAFFIC VOLUMES	**38**		**15**				**10**	**102**			**86**	**21**

PM PEAK HOUR (5:00-6:00 PM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES	**0**		**0**				**0**	**56**			**82**	**0**
Years To Buildout (2020)	3		3				3	3			3	3
Yearly Growth Rate	1.5%		1.5%				1.5%	1.5%			1.5%	1.5%
Background Traffic Growth	0		0				0	3			4	0
2020 NO-BUILD TRAFFIC VOLUMES	**0**		**0**				**0**	**59**			**86**	**0**
New Project Traffic	25		12				16	5			4	22
Pass-By Project Traffic	6											7
2020 BUILD TRAFFIC VOLUMES	**31**		**12**				**16**	**64**			**90**	**29**

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

Meridian Road & Harborview Circle (North)

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: Thursday, August 24, 2017

AM PEAK HOUR (7:45-8:45 AM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES	**4**	**0**	**2**	**0**	**0**	**0**	**2**	**87**	**2**	**1**	**78**	**1**
Years To Buildout (2020)	3	3	3	3	3	3	3	3	3	3	3	3
Yearly Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Background Traffic Growth	0	0	0	0	0	0	0	4	0	0	4	0
2020 NO-BUILD TRAFFIC VOLUMES	**4**	**0**	**2**	**0**	**0**	**0**	**2**	**91**	**2**	**1**	**82**	**1**
New Project Traffic	7							10			15	2
Pass-By Project Traffic												
2020 BUILD TRAFFIC VOLUMES	**11**	**0**	**2**	**0**	**0**	**0**	**2**	**101**	**2**	**1**	**97**	**3**

PM PEAK HOUR (5:00-6:00 PM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES	**3**	**0**	**0**	**2**	**0**	**1**	**2**	**52**	**0**	**0**	**78**	**4**
Years To Buildout (2020)	3	3	3	3	3	3	3	3	3	3	3	3
Yearly Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Background Traffic Growth	0	0	0	0	0	0	0	2	0	0	4	0
2020 NO-BUILD TRAFFIC VOLUMES	**3**	**0**	**0**	**2**	**0**	**1**	**2**	**54**	**0**	**0**	**82**	**4**
New Project Traffic	5							16			12	4
Pass-By Project Traffic												
2020 BUILD TRAFFIC VOLUMES	**8**	**0**	**0**	**2**	**0**	**1**	**2**	**70**	**0**	**0**	**94**	**8**

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

Meridian Road & Harborview Circle (South)

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: Thursday, August 24, 2017

AM PEAK HOUR (8:00-9:00 AM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES	**1**		**1**				**3**	**89**			**79**	**0**
Years To Buildout (2020)	3		3				3	3			3	3
Yearly Growth Rate	1.5%		1.5%				1.5%	1.5%			1.5%	1.5%
Background Traffic Growth	0		0				0	4			4	0
2020 NO-BUILD TRAFFIC VOLUMES	**1**		**1**				**3**	**93**			**83**	**0**
New Project Traffic			8				4	10			15	
Pass-By Project Traffic												
2020 BUILD TRAFFIC VOLUMES	**1**		**9**				**7**	**103**			**98**	**0**

PM PEAK HOUR (5:00-6:00 PM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES	**0**		**0**				**0**	**51**			**79**	**1**
Years To Buildout (2020)	3		3				3	3			3	3
Yearly Growth Rate	1.5%		1.5%				1.5%	1.5%			1.5%	1.5%
Background Traffic Growth	0		0				0	2			4	0
2020 NO-BUILD TRAFFIC VOLUMES	**0**		**0**				**0**	**53**			**83**	**1**
New Project Traffic			6				7	16			12	
Pass-By Project Traffic												
2020 BUILD TRAFFIC VOLUMES	**0**		**6**				**7**	**69**			**95**	**1**

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

Harborview Circle & Harborview Drive/South Project Driveway

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: N/A

AM PEAK HOUR (8:00-9:00 AM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES	**0**		**0**				**0**	**0**			**0**	**0**
Years To Buildout (2020)	3		3				3	3			3	3
Yearly Growth Rate	1.5%		1.5%				1.5%	1.5%			1.5%	1.5%
Background Traffic Growth	0		0				0	0			0	0
2020 NO-BUILD TRAFFIC VOLUMES	**0**		**0**				**0**	**0**			**0**	**0**
New Project Traffic	7		8				4					2
Pass-By Project Traffic												
2020 BUILD TRAFFIC VOLUMES	**7**		**8**				**4**	**0**			**0**	**2**

PM PEAK HOUR (5:00-6:00 PM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES	**0**		**0**				**0**	**0**			**0**	**0**
Years To Buildout (2020)	3		3				3	3			3	3
Yearly Growth Rate	1.5%		1.5%				1.5%	1.5%			1.5%	1.5%
Background Traffic Growth	0		0				0	0			0	0
2020 NO-BUILD TRAFFIC VOLUMES	**0**		**0**				**0**	**0**			**0**	**0**
New Project Traffic	5		6				7					4
Pass-By Project Traffic												
2020 BUILD TRAFFIC VOLUMES	**5**		**6**				**7**	**0**			**0**	**4**

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

US 21/Lady's Island Drive & Meridian Road

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: Thursday, August 24, 2017

AM PEAK HOUR (7:30-8:30 AM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES	**3**		**66**				**83**	**927**			**1,364**	**6**
Years To Buildout (2020)	3		3				3	3			3	3
Yearly Growth Rate	1.5%		1.5%				1.5%	1.5%			1.5%	1.5%
Background Traffic Growth	0		3				4	42			61	0
2020 NO-BUILD TRAFFIC VOLUMES	**3**		**69**				**87**	**969**			**1,425**	**6**
New Project Traffic			23				14					
Pass-By Project Traffic												
2020 BUILD TRAFFIC VOLUMES	**3**		**92**				**101**	**969**			**1,425**	**6**

PM PEAK HOUR (4:30-5:30 PM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES	**2**		**93**				**79**	**1,324**			**993**	**4**
Years To Buildout (2020)	3		3				3	3			3	3
Yearly Growth Rate	1.5%		1.5%				1.5%	1.5%			1.5%	1.5%
Background Traffic Growth	0		4				4	60			45	0
2020 NO-BUILD TRAFFIC VOLUMES	**2**		**97**				**83**	**1,384**			**1,038**	**4**
New Project Traffic			18				23					
Pass-By Project Traffic												
2020 BUILD TRAFFIC VOLUMES	**2**		**115**				**106**	**1,384**			**1,038**	**4**

APPENDIX D

Synchro Analysis Worksheets (2017 Existing Conditions)

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	609	50	30	980	1	47	0	35	0	0	0
Future Vol, veh/h	0	609	50	30	980	1	47	0	35	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	300	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	628	52	31	1010	1	48	0	36	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1011	0	0	679	0	0	1727	1727	654	1745	1752	1011
Stage 1	-	-	-	-	-	-	654	654	-	1073	1073	-
Stage 2	-	-	-	-	-	-	1073	1073	-	672	679	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	686	-	-	913	-	-	70	89	467	68	85	291
Stage 1	-	-	-	-	-	-	456	463	-	267	297	-
Stage 2	-	-	-	-	-	-	267	297	-	445	451	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	686	-	-	913	-	-	68	86	467	61	82	291
Mov Cap-2 Maneuver	-	-	-	-	-	-	68	86	-	61	82	-
Stage 1	-	-	-	-	-	-	456	463	-	267	287	-
Stage 2	-	-	-	-	-	-	258	287	-	411	451	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	110.5	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	107	686	-	-	913	-	-	-
HCM Lane V/C Ratio	0.79	-	-	-	0.034	-	-	-
HCM Control Delay (s)	110.5	0	-	-	9.1	-	-	0
HCM Lane LOS	F	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	4.4	0	-	-	0.1	-	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	0	2	0	0	0	2	87	2	1	78	1
Future Vol, veh/h	4	0	2	0	0	0	2	87	2	1	78	1
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	6	6	6	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	0	2	0	0	0	2	97	2	1	87	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	191	192	87	193	192	98	88	0	0	99	0	0
Stage 1	89	89	-	102	102	-	-	-	-	-	-	-
Stage 2	102	103	-	91	90	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.56	6.26	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.16	5.56	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.56	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.054	3.354	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	760	696	961	767	703	958	1508	-	-	1494	-	-
Stage 1	909	813	-	904	811	-	-	-	-	-	-	-
Stage 2	894	802	-	916	820	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	759	695	961	764	702	958	1508	-	-	1494	-	-
Mov Cap-2 Maneuver	759	695	-	764	702	-	-	-	-	-	-	-
Stage 1	908	812	-	903	810	-	-	-	-	-	-	-
Stage 2	893	801	-	913	819	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.4	0	0.2	0.1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1508	-	-	816	-	1494	-	-
HCM Lane V/C Ratio	0.001	-	-	0.008	-	0.001	-	-
HCM Control Delay (s)	7.4	0	-	9.4	0	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	1	3	89	79	0
Future Vol, veh/h	1	1	3	89	79	0
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	82	82	82	82	82	82
Heavy Vehicles, %	6	6	2	2	2	2
Mvmt Flow	1	1	4	109	96	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	212	96	96	0	-	0
Stage 1	96	-	-	-	-	-
Stage 2	116	-	-	-	-	-
Critical Hdwy	6.46	6.26	4.12	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.354	2.218	-	-	-
Pot Cap-1 Maneuver	767	950	1498	-	-	-
Stage 1	918	-	-	-	-	-
Stage 2	899	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	765	950	1498	-	-	-
Mov Cap-2 Maneuver	765	-	-	-	-	-
Stage 1	918	-	-	-	-	-
Stage 2	896	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	0.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1498	-	848	-	-
HCM Lane V/C Ratio	0.002	-	0.003	-	-
HCM Control Delay (s)	7.4	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

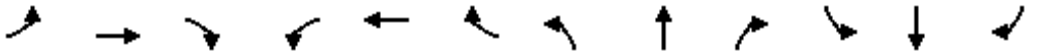
Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	66	83	927	1364	6
Future Vol, veh/h	3	66	83	927	1364	6
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	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	71	89	997	1467	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2147	737	1473	0	-	0
Stage 1	1470	-	-	-	-	-
Stage 2	677	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	41	361	454	-	-	-
Stage 1	178	-	-	-	-	-
Stage 2	466	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	33	361	454	-	-	-
Mov Cap-2 Maneuver	33	-	-	-	-	-
Stage 1	178	-	-	-	-	-
Stage 2	375	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	25.1	1.2	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	454	-	252	-	-
HCM Lane V/C Ratio	0.197	-	0.294	-	-
HCM Control Delay (s)	14.9	-	25.1	-	-
HCM Lane LOS	B	-	D	-	-
HCM 95th %tile Q(veh)	0.7	-	1.2	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	4	147	0	0	0	272	764	4	2	501	7
Future Volume (veh/h)	15	4	147	0	0	0	272	764	4	2	501	7
Number	3	8	18				1	6	16	5	2	12
Initial Q (Qb), veh	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
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863				1863	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	17	4	163				302	849	4	2	557	8
Adj No. of Lanes	0	1	1				1	1	0	0	1	1
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				2	2	2	2	2	2
Cap, veh/h	165	39	296				613	1443	7	31	1213	1032
Arrive On Green	0.11	0.11	0.11				0.07	0.78	0.78	0.65	0.65	0.65
Sat Flow, veh/h	1449	341	1583				1774	1852	9	1	1860	1583
Grp Volume(v), veh/h	21	0	163				302	0	853	559	0	8
Grp Sat Flow(s),veh/h/ln	1790	0	1583				1774	0	1861	1861	0	1583
Q Serve(g_s), s	1.3	0.0	11.3				6.4	0.0	22.6	0.0	0.0	0.2
Cycle Q Clear(g_c), s	1.3	0.0	11.3				6.4	0.0	22.6	18.0	0.0	0.2
Prop In Lane	0.81		1.00				1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	204	0	296				613	0	1449	1243	0	1032
V/C Ratio(X)	0.10	0.00	0.55				0.49	0.00	0.59	0.45	0.00	0.01
Avail Cap(c_a), veh/h	388	0	459				711	0	1552	1243	0	1032
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.0	0.0	44.6				7.5	0.0	5.5	10.5	0.0	7.4
Incr Delay (d2), s/veh	0.2	0.0	1.6				0.5	0.0	0.5	1.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	5.1				3.2	0.0	11.6	9.6	0.0	0.1
LnGrp Delay(d),s/veh	48.3	0.0	46.2				7.9	0.0	6.0	11.6	0.0	7.4
LnGrp LOS	D		D				A		A	B		A
Approach Vol, veh/h		184						1155			567	
Approach Delay, s/veh		46.4						6.5			11.6	
Approach LOS		D						A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	15.3	85.0				100.3		20.5
Change Period (Y+Rc), s	6.5	* 6.2				* 6.2		6.8
Max Green Setting (Gmax), s	15.5	* 79				* 1E2		26.2
Max Q Clear Time (g_c+I1), s	8.4	20.0				24.6		13.3
Green Ext Time (p_c), s	0.4	16.9				17.5		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	11.9
HCM 2010 LOS	B

Notes



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	555	90	202	948	69	75
Future Volume (veh/h)	555	90	202	948	69	75
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1863
Adj Flow Rate, veh/h	590	96	215	1009	73	80
Adj No. of Lanes	1	0	1	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1212	197	607	1589	118	105
Arrive On Green	0.77	0.77	0.04	0.85	0.07	0.07
Sat Flow, veh/h	1563	254	1774	1863	1774	1583
Grp Volume(v), veh/h	0	686	215	1009	73	80
Grp Sat Flow(s),veh/h/ln	0	1818	1774	1863	1774	1583
Q Serve(g_s), s	0.0	19.2	3.3	24.4	5.6	7.0
Cycle Q Clear(g_c), s	0.0	19.2	3.3	24.4	5.6	7.0
Prop In Lane		0.14	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1409	607	1589	118	105
V/C Ratio(X)	0.00	0.49	0.35	0.63	0.62	0.76
Avail Cap(c_a), veh/h	0	1409	910	1589	362	323
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	5.7	4.5	3.3	63.9	64.5
Incr Delay (d2), s/veh	0.0	0.4	0.3	1.9	5.2	10.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.7	1.8	12.9	2.9	3.4
LnGrp Delay(d),s/veh	0.0	6.1	4.8	5.3	69.1	75.1
LnGrp LOS		A	A	A	E	E
Approach Vol, veh/h	686			1224	153	
Approach Delay, s/veh	6.1			5.2	72.2	
Approach LOS	A			A	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.0	115.0				126.0		14.7
Change Period (Y+Rc), s	5.0	6.0				6.0		5.3
Max Green Setting (Gmax), s	30.0	85.0				120.0		28.7
Max Q Clear Time (g_c+I1), s	5.3	21.2				26.4		9.0
Green Ext Time (p_c), s	0.4	33.0				38.5		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	10.5
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	908	42	40	714	5	40	0	17	2	0	1
Future Vol, veh/h	0	908	42	40	714	5	40	0	17	2	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	300	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	946	44	42	744	5	42	0	18	2	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	749	0	0	990	0	0	1798	1800	968	1807	1820	746
Stage 1	-	-	-	-	-	-	968	968	-	830	830	-
Stage 2	-	-	-	-	-	-	830	832	-	977	990	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	860	-	-	698	-	-	62	80	308	61	78	413
Stage 1	-	-	-	-	-	-	305	332	-	364	385	-
Stage 2	-	-	-	-	-	-	364	384	-	302	324	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	860	-	-	698	-	-	59	75	308	55	73	413
Mov Cap-2 Maneuver	-	-	-	-	-	-	59	75	-	55	73	-
Stage 1	-	-	-	-	-	-	305	332	-	364	362	-
Stage 2	-	-	-	-	-	-	341	361	-	285	324	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.6	134.2	53.7
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	78	860	-	-	698	-	-	77
HCM Lane V/C Ratio	0.761	-	-	-	0.06	-	-	0.041
HCM Control Delay (s)	134.2	0	-	-	10.5	-	-	53.7
HCM Lane LOS	F	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	3.7	0	-	-	0.2	-	-	0.1

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	0	0	2	0	1	2	52	0	0	78	4
Future Vol, veh/h	3	0	0	2	0	1	2	52	0	0	78	4
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	6	6	6	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	0	0	2	0	1	2	63	0	0	95	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	167	166	98	166	168	63	100	0	0	63	0	0
Stage 1	98	98	-	68	68	-	-	-	-	-	-	-
Stage 2	69	68	-	98	100	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.56	6.26	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.16	5.56	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.56	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.054	3.354	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	788	719	947	798	725	1002	1493	-	-	1540	-	-
Stage 1	899	806	-	942	838	-	-	-	-	-	-	-
Stage 2	931	830	-	908	812	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	786	718	947	797	724	1002	1493	-	-	1540	-	-
Mov Cap-2 Maneuver	786	718	-	797	724	-	-	-	-	-	-	-
Stage 1	898	806	-	941	837	-	-	-	-	-	-	-
Stage 2	929	829	-	908	812	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.6	9.2	0.3	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1493	-	-	786	855	1540	-	-
HCM Lane V/C Ratio	0.002	-	-	0.005	0.004	-	-	-
HCM Control Delay (s)	7.4	0	-	9.6	9.2	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	51	79	1
Future Vol, veh/h	0	0	0	51	79	1
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	85	85	85	85	85	85
Heavy Vehicles, %	6	6	2	2	2	2
Mvmt Flow	0	0	0	60	93	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	154	94	94	0	-	0
Stage 1	94	-	-	-	-	-
Stage 2	60	-	-	-	-	-
Critical Hdwy	6.46	6.26	4.12	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.354	2.218	-	-	-
Pot Cap-1 Maneuver	828	952	1500	-	-	-
Stage 1	920	-	-	-	-	-
Stage 2	952	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	828	952	1500	-	-	-
Mov Cap-2 Maneuver	828	-	-	-	-	-
Stage 1	920	-	-	-	-	-
Stage 2	952	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1500	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

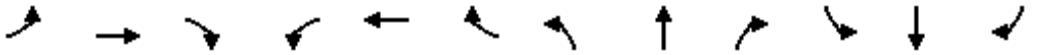
Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	93	79	1324	993	4
Future Vol, veh/h	2	93	79	1324	993	4
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	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	95	81	1351	1013	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1852	509	1017	0	-	0
Stage 1	1015	-	-	-	-	-
Stage 2	837	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	66	509	678	-	-	-
Stage 1	311	-	-	-	-	-
Stage 2	385	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	58	509	678	-	-	-
Mov Cap-2 Maneuver	58	-	-	-	-	-
Stage 1	311	-	-	-	-	-
Stage 2	339	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.6	0.6	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	678	-	437	-	-
HCM Lane V/C Ratio	0.119	-	0.222	-	-
HCM Control Delay (s)	11	-	15.6	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.4	-	0.8	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	8	226	0	0	0	178	628	7	2	654	33
Future Volume (veh/h)	46	8	226	0	0	0	178	628	7	2	654	33
Number	3	8	18				1	6	16	5	2	12
Initial Q (Qb), veh	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
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863				1863	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	50	9	246				193	683	8	2	711	36
Adj No. of Lanes	0	1	1				1	1	0	0	1	1
Peak Hour Factor	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
Cap, veh/h	246	44	336				450	1375	16	25	1216	1035
Arrive On Green	0.16	0.16	0.16				0.05	0.75	0.75	0.65	0.65	0.65
Sat Flow, veh/h	1514	273	1583				1774	1837	22	1	1861	1583
Grp Volume(v), veh/h	59	0	246				193	0	691	713	0	36
Grp Sat Flow(s),veh/h/ln	1787	0	1583				1774	0	1859	1862	0	1583
Q Serve(g_s), s	4.2	0.0	21.1				5.0	0.0	21.7	0.0	0.0	1.2
Cycle Q Clear(g_c), s	4.2	0.0	21.1				5.0	0.0	21.7	31.2	0.0	1.2
Prop In Lane	0.85		1.00				1.00		0.01	0.00		1.00
Lane Grp Cap(c), veh/h	290	0	336				450	0	1391	1241	0	1035
V/C Ratio(X)	0.20	0.00	0.73				0.43	0.00	0.50	0.57	0.00	0.03
Avail Cap(c_a), veh/h	347	0	386				551	0	1391	1241	0	1035
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	52.8	0.0	53.4				11.7	0.0	7.3	14.1	0.0	8.9
Incr Delay (d2), s/veh	0.3	0.0	6.0				0.5	0.0	1.3	1.9	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	9.8				2.5	0.0	11.4	16.7	0.0	0.5
LnGrp Delay(d),s/veh	53.1	0.0	59.4				12.2	0.0	8.6	16.1	0.0	9.0
LnGrp LOS	D		E				B		A	B		A
Approach Vol, veh/h		305						884			749	
Approach Delay, s/veh		58.2						9.4			15.7	
Approach LOS		E						A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	13.8	101.2				115.0		30.4
Change Period (Y+Rc), s	6.5	* 6.2				* 6.2		6.8
Max Green Setting (Gmax), s	15.5	* 87				* 1.1E2		28.2
Max Q Clear Time (g_c+I1), s	7.0	33.2				23.7		23.1
Green Ext Time (p_c), s	0.3	16.1				17.2		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	19.5
HCM 2010 LOS	B

Notes



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	874	26	34	764	61	94
Future Volume (veh/h)	874	26	34	764	61	94
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1863
Adj Flow Rate, veh/h	993	30	39	868	69	107
Adj No. of Lanes	1	0	1	1	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1361	41	367	1544	151	135
Arrive On Green	0.76	0.76	0.03	0.83	0.09	0.09
Sat Flow, veh/h	1799	54	1774	1863	1774	1583
Grp Volume(v), veh/h	0	1023	39	868	69	107
Grp Sat Flow(s),veh/h/ln	0	1853	1774	1863	1774	1583
Q Serve(g_s), s	0.0	39.5	0.6	19.6	4.9	8.7
Cycle Q Clear(g_c), s	0.0	39.5	0.6	19.6	4.9	8.7
Prop In Lane		0.03	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1402	367	1544	151	135
V/C Ratio(X)	0.00	0.73	0.11	0.56	0.46	0.79
Avail Cap(c_a), veh/h	0	1402	481	1544	401	358
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	8.7	9.6	3.6	57.3	59.0
Incr Delay (d2), s/veh	0.0	2.1	0.1	1.5	2.2	10.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	20.7	0.5	10.5	2.5	4.2
LnGrp Delay(d),s/veh	0.0	10.8	9.7	5.1	59.4	69.1
LnGrp LOS		B	A	A	E	E
Approach Vol, veh/h	1023			907	176	
Approach Delay, s/veh	10.8			5.3	65.3	
Approach LOS	B			A	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	9.6	105.4				115.0		16.5
Change Period (Y+Rc), s	5.0	6.0				6.0		5.3
Max Green Setting (Gmax), s	13.6	91.0				109.0		29.7
Max Q Clear Time (g_c+I1), s	2.6	41.5				21.6		10.7
Green Ext Time (p_c), s	0.0	33.5				46.7		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	13.0
HCM 2010 LOS	B

APPENDIX E

Synchro Analysis Worksheets (2020 No-Build Conditions)

Intersection	
Int Delay, s/veh	8.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	636	52	31	1024	1	49	0	37	0	0	0
Future Vol, veh/h	0	636	52	31	1024	1	49	0	37	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	300	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	669	55	33	1078	1	52	0	39	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1079	0	0	724	0	0	1841	1841	697	1860	1868	1078
Stage 1	-	-	-	-	-	-	697	697	-	1144	1144	-
Stage 2	-	-	-	-	-	-	1144	1144	-	716	724	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	646	-	-	879	-	-	58	75	441	56	72	266
Stage 1	-	-	-	-	-	-	431	443	-	243	275	-
Stage 2	-	-	-	-	-	-	243	275	-	421	430	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	646	-	-	879	-	-	56	72	441	50	69	266
Mov Cap-2 Maneuver	-	-	-	-	-	-	56	72	-	50	69	-
Stage 1	-	-	-	-	-	-	431	443	-	243	265	-
Stage 2	-	-	-	-	-	-	234	265	-	384	430	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	180.9	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	90	646	-	-	879	-	-	-
HCM Lane V/C Ratio	1.006	-	-	-	0.037	-	-	-
HCM Control Delay (s)	180.9	0	-	-	9.3	-	-	0
HCM Lane LOS	F	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	5.9	0	-	-	0.1	-	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	0	2	0	0	0	2	91	2	1	82	1
Future Vol, veh/h	4	0	2	0	0	0	2	91	2	1	82	1
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	6	6	6	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	0	2	0	0	0	2	101	2	1	91	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	201	202	92	202	201	102	92	0	0	103	0	0
Stage 1	94	94	-	107	107	-	-	-	-	-	-	-
Stage 2	107	108	-	95	94	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.56	6.26	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.16	5.56	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.56	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.054	3.354	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	749	687	954	756	695	953	1503	-	-	1489	-	-
Stage 1	903	809	-	898	807	-	-	-	-	-	-	-
Stage 2	889	798	-	912	817	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	748	686	954	753	694	953	1503	-	-	1489	-	-
Mov Cap-2 Maneuver	748	686	-	753	694	-	-	-	-	-	-	-
Stage 1	902	808	-	897	806	-	-	-	-	-	-	-
Stage 2	888	797	-	909	816	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.5	0	0.2	0.1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1503	-	-	806	-	1489	-	-
HCM Lane V/C Ratio	0.001	-	-	0.008	-	0.001	-	-
HCM Control Delay (s)	7.4	0	-	9.5	0	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	1	3	93	83	0
Future Vol, veh/h	1	1	3	93	83	0
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	90	90	90	90	90	90
Heavy Vehicles, %	6	6	2	2	2	2
Mvmt Flow	1	1	3	103	92	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	202	92	92	0	-	0
Stage 1	92	-	-	-	-	-
Stage 2	110	-	-	-	-	-
Critical Hdwy	6.46	6.26	4.12	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.354	2.218	-	-	-
Pot Cap-1 Maneuver	778	954	1503	-	-	-
Stage 1	922	-	-	-	-	-
Stage 2	905	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	776	954	1503	-	-	-
Mov Cap-2 Maneuver	776	-	-	-	-	-
Stage 1	922	-	-	-	-	-
Stage 2	903	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.2	0.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1503	-	856	-	-
HCM Lane V/C Ratio	0.002	-	0.003	-	-
HCM Control Delay (s)	7.4	0	9.2	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	69	87	969	1425	6
Future Vol, veh/h	3	69	87	969	1425	6
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	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	74	94	1042	1532	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2243	769	1539	0	-	0
Stage 1	1535	-	-	-	-	-
Stage 2	708	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	36	344	428	-	-	-
Stage 1	164	-	-	-	-	-
Stage 2	449	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	28	344	428	-	-	-
Mov Cap-2 Maneuver	28	-	-	-	-	-
Stage 1	164	-	-	-	-	-
Stage 2	350	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	27.8	1.3	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	428	-	234	-	-
HCM Lane V/C Ratio	0.219	-	0.331	-	-
HCM Control Delay (s)	15.7	-	27.8	-	-
HCM Lane LOS	C	-	D	-	-
HCM 95th %tile Q(veh)	0.8	-	1.4	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	4	154	0	0	0	284	798	4	2	524	7
Future Volume (veh/h)	16	4	154	0	0	0	284	798	4	2	524	7
Number	3	8	18				1	6	16	5	2	12
Initial Q (Qb), veh	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
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863				1863	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	18	4	171				316	887	4	2	582	8
Adj No. of Lanes	0	1	1				1	1	0	0	1	1
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				2	2	2	2	2	2
Cap, veh/h	173	38	308				593	1437	6	30	1201	1023
Arrive On Green	0.12	0.12	0.12				0.08	0.78	0.78	0.65	0.65	0.65
Sat Flow, veh/h	1464	325	1583				1774	1853	8	1	1860	1583
Grp Volume(v), veh/h	22	0	171				316	0	891	584	0	8
Grp Sat Flow(s),veh/h/ln	1790	0	1583				1774	0	1861	1861	0	1583
Q Serve(g_s), s	1.3	0.0	11.9				6.9	0.0	25.1	0.0	0.0	0.2
Cycle Q Clear(g_c), s	1.3	0.0	11.9				6.9	0.0	25.1	19.7	0.0	0.2
Prop In Lane	0.82		1.00				1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	211	0	308				593	0	1444	1231	0	1023
V/C Ratio(X)	0.10	0.00	0.56				0.53	0.00	0.62	0.47	0.00	0.01
Avail Cap(c_a), veh/h	384	0	461				683	0	1538	1231	0	1023
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.1	0.0	44.4				8.2	0.0	5.9	11.1	0.0	7.7
Incr Delay (d2), s/veh	0.2	0.0	1.6				0.6	0.0	0.7	1.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	5.3				3.4	0.0	12.9	10.5	0.0	0.1
LnGrp Delay(d),s/veh	48.3	0.0	46.0				8.8	0.0	6.6	12.5	0.0	7.7
LnGrp LOS	D		D				A		A	B		A
Approach Vol, veh/h		193						1207			592	
Approach Delay, s/veh		46.2						7.2			12.4	
Approach LOS		D						A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	15.8	85.0				100.8		21.2
Change Period (Y+Rc), s	6.5	* 6.2				* 6.2		6.8
Max Green Setting (Gmax), s	15.5	* 79				* 1E2		26.2
Max Q Clear Time (g_c+I1), s	8.9	21.7				27.1		13.9
Green Ext Time (p_c), s	0.4	18.3				19.2		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	12.5
HCM 2010 LOS	B

Notes



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	580	94	211	991	72	78
Future Volume (veh/h)	580	94	211	991	72	78
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1863
Adj Flow Rate, veh/h	617	100	224	1054	77	83
Adj No. of Lanes	1	0	1	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1210	196	584	1586	122	109
Arrive On Green	0.77	0.77	0.04	0.85	0.07	0.07
Sat Flow, veh/h	1564	254	1774	1863	1774	1583
Grp Volume(v), veh/h	0	717	224	1054	77	83
Grp Sat Flow(s),veh/h/ln	0	1818	1774	1863	1774	1583
Q Serve(g_s), s	0.0	20.8	3.5	27.3	6.0	7.3
Cycle Q Clear(g_c), s	0.0	20.8	3.5	27.3	6.0	7.3
Prop In Lane		0.14	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1406	584	1586	122	109
V/C Ratio(X)	0.00	0.51	0.38	0.66	0.63	0.76
Avail Cap(c_a), veh/h	0	1406	886	1586	361	322
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	6.0	5.0	3.6	63.9	64.5
Incr Delay (d2), s/veh	0.0	0.4	0.3	2.2	5.3	10.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	10.5	2.0	14.7	3.1	3.5
LnGrp Delay(d),s/veh	0.0	6.4	5.3	5.8	69.3	75.1
LnGrp LOS		A	A	A	E	E
Approach Vol, veh/h	717			1278	160	
Approach Delay, s/veh	6.4			5.7	72.3	
Approach LOS	A			A	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.0	115.0				126.0		15.0
Change Period (Y+Rc), s	5.0	6.0				6.0		5.3
Max Green Setting (Gmax), s	30.0	85.0				120.0		28.7
Max Q Clear Time (g_c+I1), s	5.5	22.8				29.3		9.3
Green Ext Time (p_c), s	0.4	35.5				42.4		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	10.9
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	949	44	42	746	5	42	0	18	2	0	1
Future Vol, veh/h	0	949	44	42	746	5	42	0	18	2	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	300	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	999	46	44	785	5	44	0	19	2	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	791	0	0	1045	0	0	1899	1901	1022	1908	1921	788
Stage 1	-	-	-	-	-	-	1022	1022	-	876	876	-
Stage 2	-	-	-	-	-	-	877	879	-	1032	1045	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	829	-	-	666	-	-	53	69	287	52	67	391
Stage 1	-	-	-	-	-	-	285	313	-	344	367	-
Stage 2	-	-	-	-	-	-	343	365	-	281	306	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	829	-	-	666	-	-	50	64	287	46	63	391
Mov Cap-2 Maneuver	-	-	-	-	-	-	50	64	-	46	63	-
Stage 1	-	-	-	-	-	-	285	313	-	344	343	-
Stage 2	-	-	-	-	-	-	319	341	-	262	306	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.6	203.4	63.2
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	66	829	-	-	666	-	-	65
HCM Lane V/C Ratio	0.957	-	-	-	0.066	-	-	0.049
HCM Control Delay (s)	203.4	0	-	-	10.8	-	-	63.2
HCM Lane LOS	F	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	4.7	0	-	-	0.2	-	-	0.1

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	0	0	2	0	1	2	54	0	0	82	4
Future Vol, veh/h	3	0	0	2	0	1	2	54	0	0	82	4
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	6	6	6	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	0	0	2	0	1	2	60	0	0	91	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	158	157	93	157	160	60	96	0	0	60	0	0
Stage 1	93	93	-	64	64	-	-	-	-	-	-	-
Stage 2	65	64	-	93	96	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.56	6.26	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.16	5.56	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.56	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.054	3.354	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	799	728	953	809	732	1005	1498	-	-	1544	-	-
Stage 1	904	810	-	947	842	-	-	-	-	-	-	-
Stage 2	936	834	-	914	815	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	798	727	953	808	731	1005	1498	-	-	1544	-	-
Mov Cap-2 Maneuver	798	727	-	808	731	-	-	-	-	-	-	-
Stage 1	903	810	-	946	841	-	-	-	-	-	-	-
Stage 2	934	833	-	914	815	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.5	9.2	0.3	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1498	-	-	798	864	1544	-	-
HCM Lane V/C Ratio	0.001	-	-	0.004	0.004	-	-	-
HCM Control Delay (s)	7.4	0	-	9.5	9.2	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	53	83	1
Future Vol, veh/h	0	0	0	53	83	1
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	90	90	90	90	90	90
Heavy Vehicles, %	6	6	2	2	2	2
Mvmt Flow	0	0	0	59	92	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	152	93	93	0	-	0
Stage 1	93	-	-	-	-	-
Stage 2	59	-	-	-	-	-
Critical Hdwy	6.46	6.26	4.12	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.354	2.218	-	-	-
Pot Cap-1 Maneuver	830	953	1501	-	-	-
Stage 1	921	-	-	-	-	-
Stage 2	953	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	830	953	1501	-	-	-
Mov Cap-2 Maneuver	830	-	-	-	-	-
Stage 1	921	-	-	-	-	-
Stage 2	953	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1501	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

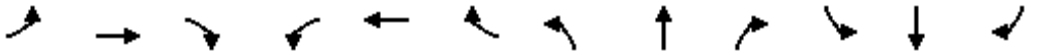
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	97	83	1384	1038	4
Future Vol, veh/h	2	97	83	1384	1038	4
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	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	102	87	1457	1093	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1998	548	1097	0	-	0
Stage 1	1095	-	-	-	-	-
Stage 2	903	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	52	480	632	-	-	-
Stage 1	282	-	-	-	-	-
Stage 2	356	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	45	480	632	-	-	-
Mov Cap-2 Maneuver	45	-	-	-	-	-
Stage 1	282	-	-	-	-	-
Stage 2	307	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.1	0.7	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	632	-	402	-	-
HCM Lane V/C Ratio	0.138	-	0.259	-	-
HCM Control Delay (s)	11.6	-	17.1	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.5	-	1	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	8	236	0	0	0	186	656	7	2	683	34
Future Volume (veh/h)	48	8	236	0	0	0	186	656	7	2	683	34
Number	3	8	18				1	6	16	5	2	12
Initial Q (Qb), veh	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
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863				1863	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	52	9	257				202	713	8	2	742	37
Adj No. of Lanes	0	1	1				1	1	0	0	1	1
Peak Hour Factor	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
Cap, veh/h	256	44	349				426	1366	15	25	1203	1023
Arrive On Green	0.17	0.17	0.17				0.05	0.74	0.74	0.65	0.65	0.65
Sat Flow, veh/h	1523	264	1583				1774	1838	21	1	1861	1583
Grp Volume(v), veh/h	61	0	257				202	0	721	744	0	37
Grp Sat Flow(s),veh/h/ln	1787	0	1583				1774	0	1859	1862	0	1583
Q Serve(g_s), s	4.3	0.0	22.1				5.4	0.0	23.8	0.0	0.0	1.2
Cycle Q Clear(g_c), s	4.3	0.0	22.1				5.4	0.0	23.8	34.4	0.0	1.2
Prop In Lane	0.85		1.00				1.00		0.01	0.00		1.00
Lane Grp Cap(c), veh/h	300	0	349				426	0	1382	1228	0	1023
V/C Ratio(X)	0.20	0.00	0.74				0.47	0.00	0.52	0.61	0.00	0.04
Avail Cap(c_a), veh/h	344	0	388				521	0	1382	1228	0	1023
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	52.5	0.0	53.1				13.2	0.0	7.9	15.2	0.0	9.4
Incr Delay (d2), s/veh	0.3	0.0	6.4				0.6	0.0	1.4	2.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	10.3				2.9	0.0	12.6	18.3	0.0	0.6
LnGrp Delay(d),s/veh	52.8	0.0	59.5				13.8	0.0	9.3	17.5	0.0	9.4
LnGrp LOS	D		E				B		A	B		A
Approach Vol, veh/h		318						923			781	
Approach Delay, s/veh		58.3						10.3			17.1	
Approach LOS		E						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	14.2	100.8				115.0		31.4
Change Period (Y+Rc), s	6.5	* 6.2				* 6.2		6.8
Max Green Setting (Gmax), s	15.5	* 87				* 1.1E2		28.2
Max Q Clear Time (g_c+I1), s	7.4	36.4				25.8		24.1
Green Ext Time (p_c), s	0.3	17.2				18.8		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	20.5
HCM 2010 LOS	C

Notes



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	913	27	36	798	64	98
Future Volume (veh/h)	913	27	36	798	64	98
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1863
Adj Flow Rate, veh/h	1014	30	40	887	71	109
Adj No. of Lanes	1	0	1	1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1359	40	353	1542	153	137
Arrive On Green	0.75	0.75	0.04	0.83	0.09	0.09
Sat Flow, veh/h	1800	53	1774	1863	1774	1583
Grp Volume(v), veh/h	0	1044	40	887	71	109
Grp Sat Flow(s),veh/h/ln	0	1853	1774	1863	1774	1583
Q Serve(g_s), s	0.0	41.6	0.6	20.6	5.0	8.9
Cycle Q Clear(g_c), s	0.0	41.6	0.6	20.6	5.0	8.9
Prop In Lane		0.03	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1399	353	1542	153	137
V/C Ratio(X)	0.00	0.75	0.11	0.58	0.46	0.80
Avail Cap(c_a), veh/h	0	1399	466	1542	400	357
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	9.1	10.4	3.7	57.2	59.0
Incr Delay (d2), s/veh	0.0	2.4	0.1	1.6	2.2	10.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	21.8	0.5	11.0	2.6	4.3
LnGrp Delay(d),s/veh	0.0	11.5	10.5	5.3	59.4	69.1
LnGrp LOS		B	B	A	E	E
Approach Vol, veh/h	1044			927	180	
Approach Delay, s/veh	11.5			5.5	65.3	
Approach LOS	B			A	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	9.6	105.4				115.0		16.7
Change Period (Y+Rc), s	5.0	6.0				6.0		5.3
Max Green Setting (Gmax), s	13.6	91.0				109.0		29.7
Max Q Clear Time (g_c+I1), s	2.6	43.6				22.6		10.9
Green Ext Time (p_c), s	0.0	33.5				48.7		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	13.4
HCM 2010 LOS	B

APPENDIX F

Synchro Analysis Worksheets (2020 Build Conditions)

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	688	20	0	1104	0	18
Future Vol, veh/h	688	20	0	1104	0	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	764	22	0	1227	0	20

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	776
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0	397
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	397
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	14.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	397	-	-	-
HCM Lane V/C Ratio	0.05	-	-	-
HCM Control Delay (s)	14.5	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection	
Int Delay, s/veh	37.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	650	55	51	1018	1	84	0	47	0	0	0
Future Vol, veh/h	0	650	55	51	1018	1	84	0	47	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	300	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	684	58	54	1072	1	88	0	49	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1073	0	0	742	0	0	1892	1893	713	1917	1921	1072
Stage 1	-	-	-	-	-	-	713	713	-	1179	1179	-
Stage 2	-	-	-	-	-	-	1179	1180	-	738	742	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	650	-	-	865	-	-	~ 53	70	432	51	67	268
Stage 1	-	-	-	-	-	-	423	435	-	232	264	-
Stage 2	-	-	-	-	-	-	232	264	-	410	422	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	650	-	-	865	-	-	~ 50	66	432	43	63	268
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 50	66	-	43	63	-
Stage 1	-	-	-	-	-	-	423	435	-	232	248	-
Stage 2	-	-	-	-	-	-	218	248	-	363	422	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.4	$ 540.6	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	73	650	-	-	865	-	-	-
HCM Lane V/C Ratio	1.889	-	-	-	0.062	-	-	-
HCM Control Delay (s)	$ 540.6	0	-	-	9.4	-	-	0
HCM Lane LOS	F	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	12.3	0	-	-	0.2	-	-	-

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	650	55	51	1018	1	84	0	47	0	0	0
Future Volume (veh/h)	0	650	55	51	1018	1	84	0	47	0	0	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	0	684	58	54	1072	1	88	0	49	0	0	0
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	90	1244	106	486	1367	1	177	7	61	0	216	0
Arrive On Green	0.00	0.73	0.73	0.73	0.73	0.73	0.12	0.00	0.12	0.00	0.00	0.00
Sat Flow, veh/h	524	1694	144	715	1861	2	893	60	531	0	1863	0
Grp Volume(v), veh/h	0	0	742	54	0	1073	137	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	524	0	1837	715	0	1862	1484	0	0	0	1863	0
Q Serve(g_s), s	0.0	0.0	14.4	2.9	0.0	29.0	6.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	14.4	17.3	0.0	29.0	7.2	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.08	1.00		0.00	0.64		0.36	0.00		0.00
Lane Grp Cap(c), veh/h	90	0	1350	486	0	1368	246	0	0	0	216	0
V/C Ratio(X)	0.00	0.00	0.55	0.11	0.00	0.78	0.56	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	507	0	2815	1056	0	2854	533	0	0	0	580	0
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)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	4.7	8.6	0.0	6.7	34.5	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.4	0.1	0.0	1.0	2.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	7.3	0.6	0.0	15.0	3.1	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	0.0	5.1	8.7	0.0	7.7	36.5	0.0	0.0	0.0	0.0	0.0
LnGrp LOS			A	A		A	D					
Approach Vol, veh/h		742			1127			137			0	
Approach Delay, s/veh		5.1			7.7			36.5			0.0	
Approach LOS		A			A			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		65.0		15.3		65.0		15.3
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		123.0		25.0		123.0		25.0
Max Q Clear Time (g_c+I1), s		16.4		0.0		31.0		9.2
Green Ext Time (p_c), s		28.7		0.0		28.0		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	8.7
HCM 2010 LOS	A

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	38	15	10	102	86	21
Future Vol, veh/h	38	15	10	102	86	21
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	42	17	11	113	96	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	243	107	119	0	-	0
Stage 1	107	-	-	-	-	-
Stage 2	136	-	-	-	-	-
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	745	947	1469	-	-	-
Stage 1	917	-	-	-	-	-
Stage 2	890	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	739	947	1469	-	-	-
Mov Cap-2 Maneuver	739	-	-	-	-	-
Stage 1	917	-	-	-	-	-
Stage 2	883	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.9	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1469	-	788	-	-
HCM Lane V/C Ratio	0.008	-	0.075	-	-
HCM Control Delay (s)	7.5	0	9.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	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	11	0	2	0	0	0	2	101	2	1	97	3
Future Vol, veh/h	11	0	2	0	0	0	2	101	2	1	97	3
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	6	6	6	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	0	2	0	0	0	2	112	2	1	108	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	230	231	109	231	231	113	111	0	0	114	0	0
Stage 1	112	112	-	118	118	-	-	-	-	-	-	-
Stage 2	118	119	-	113	113	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.56	6.26	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.16	5.56	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.56	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.054	3.354	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	717	662	934	724	669	940	1479	-	-	1475	-	-
Stage 1	883	795	-	887	798	-	-	-	-	-	-	-
Stage 2	877	790	-	892	802	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	716	661	934	721	668	940	1479	-	-	1475	-	-
Mov Cap-2 Maneuver	716	661	-	721	668	-	-	-	-	-	-	-
Stage 1	882	794	-	886	797	-	-	-	-	-	-	-
Stage 2	876	789	-	889	801	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.9	0	0.1	0.1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1479	-	-	743	-	1475	-	-
HCM Lane V/C Ratio	0.002	-	-	0.019	-	0.001	-	-
HCM Control Delay (s)	7.4	0	-	9.9	0	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0	-	-

Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	8	4	0	0	2
Future Vol, veh/h	7	8	4	0	0	2
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	6	6	6	6
Mvmt Flow	8	9	4	0	0	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	10	1	2	0	-	0
Stage 1	1	-	-	-	-	-
Stage 2	9	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.16	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.254	-	-	-
Pot Cap-1 Maneuver	1010	1084	1594	-	-	-
Stage 1	1022	-	-	-	-	-
Stage 2	1014	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	1007	1084	1594	-	-	-
Mov Cap-2 Maneuver	1007	-	-	-	-	-
Stage 1	1022	-	-	-	-	-
Stage 2	1011	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	7.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1594	-	1047	-	-
HCM Lane V/C Ratio	0.003	-	0.016	-	-
HCM Control Delay (s)	7.3	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	9	7	103	98	0
Future Vol, veh/h	1	9	7	103	98	0
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	90	90	90	90	90	90
Heavy Vehicles, %	6	6	2	2	2	2
Mvmt Flow	1	10	8	114	109	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	239	109	109	0	-	0
Stage 1	109	-	-	-	-	-
Stage 2	130	-	-	-	-	-
Critical Hdwy	6.46	6.26	4.12	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.354	2.218	-	-	-
Pot Cap-1 Maneuver	741	934	1481	-	-	-
Stage 1	906	-	-	-	-	-
Stage 2	886	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	737	934	1481	-	-	-
Mov Cap-2 Maneuver	737	-	-	-	-	-
Stage 1	906	-	-	-	-	-
Stage 2	881	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	0.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1481	-	910	-	-
HCM Lane V/C Ratio	0.005	-	0.012	-	-
HCM Control Delay (s)	7.4	0	9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

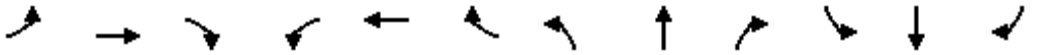
Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	92	101	969	1425	6
Future Vol, veh/h	3	92	101	969	1425	6
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	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	99	109	1042	1532	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2273	769	1539	0	-	0
Stage 1	1535	-	-	-	-	-
Stage 2	738	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	34	344	428	-	-	-
Stage 1	164	-	-	-	-	-
Stage 2	434	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	25	344	428	-	-	-
Mov Cap-2 Maneuver	25	-	-	-	-	-
Stage 1	164	-	-	-	-	-
Stage 2	323	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	29.8	1.5	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	428	-	245	-	-
HCM Lane V/C Ratio	0.254	-	0.417	-	-
HCM Control Delay (s)	16.2	-	29.8	-	-
HCM Lane LOS	C	-	D	-	-
HCM 95th %tile Q(veh)	1	-	1.9	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	4	161	0	0	0	296	817	4	2	536	7
Future Volume (veh/h)	16	4	161	0	0	0	296	817	4	2	536	7
Number	3	8	18				1	6	16	5	2	12
Initial Q (Qb), veh	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
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863				1863	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	18	4	179				329	908	4	2	596	8
Adj No. of Lanes	0	1	1				1	1	0	0	1	1
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				2	2	2	2	2	2
Cap, veh/h	179	40	320				582	1431	6	30	1190	1013
Arrive On Green	0.12	0.12	0.12				0.08	0.77	0.77	0.64	0.64	0.64
Sat Flow, veh/h	1464	325	1583				1774	1853	8	1	1860	1583
Grp Volume(v), veh/h	22	0	179				329	0	912	598	0	8
Grp Sat Flow(s),veh/h/ln	1790	0	1583				1774	0	1861	1861	0	1583
Q Serve(g_s), s	1.3	0.0	12.5				7.4	0.0	26.9	0.0	0.0	0.2
Cycle Q Clear(g_c), s	1.3	0.0	12.5				7.4	0.0	26.9	21.0	0.0	0.2
Prop In Lane	0.82		1.00				1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	218	0	320				582	0	1438	1220	0	1013
V/C Ratio(X)	0.10	0.00	0.56				0.57	0.00	0.63	0.49	0.00	0.01
Avail Cap(c_a), veh/h	381	0	463				663	0	1523	1220	0	1013
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.1	0.0	44.2				8.9	0.0	6.3	11.8	0.0	8.0
Incr Delay (d2), s/veh	0.2	0.0	1.5				0.6	0.0	0.8	1.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	5.6				3.7	0.0	14.0	11.1	0.0	0.1
LnGrp Delay(d),s/veh	48.3	0.0	45.8				9.5	0.0	7.1	13.2	0.0	8.0
LnGrp LOS	D		D				A		A	B		A
Approach Vol, veh/h		201						1241			606	
Approach Delay, s/veh		46.0						7.7			13.1	
Approach LOS		D						A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	16.3	85.0				101.3		21.8
Change Period (Y+Rc), s	6.5	* 6.2				* 6.2		6.8
Max Green Setting (Gmax), s	15.5	* 79				* 1E2		26.2
Max Q Clear Time (g_c+I1), s	9.4	23.0				28.9		14.5
Green Ext Time (p_c), s	0.4	19.1				20.2		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	13.1
HCM 2010 LOS	B

Notes



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	603	94	211	1005	72	78
Future Volume (veh/h)	603	94	211	1005	72	78
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1863
Adj Flow Rate, veh/h	641	100	224	1069	77	83
Adj No. of Lanes	1	0	1	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1217	190	568	1586	122	109
Arrive On Green	0.77	0.77	0.04	0.85	0.07	0.07
Sat Flow, veh/h	1574	246	1774	1863	1774	1583
Grp Volume(v), veh/h	0	741	224	1069	77	83
Grp Sat Flow(s),veh/h/ln	0	1819	1774	1863	1774	1583
Q Serve(g_s), s	0.0	22.0	3.5	28.2	6.0	7.3
Cycle Q Clear(g_c), s	0.0	22.0	3.5	28.2	6.0	7.3
Prop In Lane		0.13	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1407	568	1586	122	109
V/C Ratio(X)	0.00	0.53	0.39	0.67	0.63	0.76
Avail Cap(c_a), veh/h	0	1407	870	1586	361	322
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	6.1	5.3	3.7	63.9	64.5
Incr Delay (d2), s/veh	0.0	0.5	0.3	2.3	5.3	10.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	11.1	2.2	15.0	3.1	3.5
LnGrp Delay(d),s/veh	0.0	6.6	5.6	6.0	69.3	75.1
LnGrp LOS		A	A	A	E	E
Approach Vol, veh/h	741			1293	160	
Approach Delay, s/veh	6.6			5.9	72.3	
Approach LOS	A			A	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.0	115.0				126.0		15.0
Change Period (Y+Rc), s	5.0	6.0				6.0		5.3
Max Green Setting (Gmax), s	30.0	85.0				120.0		28.7
Max Q Clear Time (g_c+I1), s	5.5	24.0				30.2		9.3
Green Ext Time (p_c), s	0.4	36.4				44.3		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	11.0
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	993	32	0	813	0	16
Future Vol, veh/h	993	32	0	813	0	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1103	36	0	903	0	18

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1121
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0	251
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	251
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	20.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	251	-	-	-
HCM Lane V/C Ratio	0.071	-	-	-
HCM Control Delay (s)	20.4	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection	
Int Delay, s/veh	27.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	960	48	71	740	5	70	0	26	2	0	1
Future Vol, veh/h	0	960	48	71	740	5	70	0	26	2	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	300	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1011	51	75	779	5	74	0	27	2	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	784	0	0	1061	0	0	1968	1970	1036	1980	1992	782
Stage 1	-	-	-	-	-	-	1036	1036	-	931	931	-
Stage 2	-	-	-	-	-	-	932	934	-	1049	1061	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	834	-	-	657	-	-	~ 47	63	281	46	61	394
Stage 1	-	-	-	-	-	-	280	309	-	320	346	-
Stage 2	-	-	-	-	-	-	320	345	-	275	300	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	834	-	-	657	-	-	~ 43	56	281	38	54	394
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 43	56	-	38	54	-
Stage 1	-	-	-	-	-	-	280	309	-	320	307	-
Stage 2	-	-	-	-	-	-	283	306	-	248	300	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1	$ 541.8	75.8
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	56	834	-	-	657	-	-	54
HCM Lane V/C Ratio	1.805	-	-	-	0.114	-	-	0.058
HCM Control Delay (s)	$ 541.8	0	-	-	11.2	-	-	75.8
HCM Lane LOS	F	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	9.6	0	-	-	0.4	-	-	0.2

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	960	48	71	740	5	70	0	26	2	0	1
Future Volume (veh/h)	0	960	48	71	740	5	70	0	26	2	0	1
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	0	1011	51	75	779	5	74	0	27	2	0	1
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	51	1463	74	371	1538	10	131	2	32	120	8	43
Arrive On Green	0.00	0.83	0.83	0.83	0.83	0.83	0.08	0.00	0.08	0.08	0.00	0.08
Sat Flow, veh/h	687	1758	89	529	1849	12	1049	20	390	930	101	515
Grp Volume(v), veh/h	0	0	1062	75	0	784	101	0	0	3	0	0
Grp Sat Flow(s),veh/h/ln	687	0	1847	529	0	1861	1459	0	0	1546	0	0
Q Serve(g_s), s	0.0	0.0	32.0	9.2	0.0	17.2	9.4	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	32.0	41.2	0.0	17.2	9.6	0.0	0.0	0.2	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.01	0.73		0.27	0.67		0.33
Lane Grp Cap(c), veh/h	51	0	1536	371	0	1548	165	0	0	171	0	0
V/C Ratio(X)	0.00	0.00	0.69	0.20	0.00	0.51	0.61	0.00	0.00	0.02	0.00	0.00
Avail Cap(c_a), veh/h	51	0	1536	371	0	1548	262	0	0	266	0	0
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)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	4.7	12.8	0.0	3.4	63.5	0.0	0.0	59.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	2.6	1.2	0.0	1.2	3.6	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	17.0	1.5	0.0	9.2	4.0	0.0	0.0	0.1	0.0	0.0
LnGrp Delay(d),s/veh	0.0	0.0	7.3	14.1	0.0	4.6	67.2	0.0	0.0	59.3	0.0	0.0
LnGrp LOS			A	B		A	E			E		
Approach Vol, veh/h		1062			859			101			3	
Approach Delay, s/veh		7.3			5.4			67.2			59.3	
Approach LOS		A			A			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		123.0		17.7		123.0		17.7
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		117.0		21.0		117.0		21.0
Max Q Clear Time (g_c+I1), s		34.0		2.2		43.2		11.6
Green Ext Time (p_c), s		29.8		0.4		28.9		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	9.6
HCM 2010 LOS	A

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	31	12	16	64	90	29
Future Vol, veh/h	31	12	16	64	90	29
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	13	18	71	100	32

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	223	116	132	0	-	0
Stage 1	116	-	-	-	-	-
Stage 2	107	-	-	-	-	-
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	765	936	1453	-	-	-
Stage 1	909	-	-	-	-	-
Stage 2	917	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	755	936	1453	-	-	-
Mov Cap-2 Maneuver	755	-	-	-	-	-
Stage 1	909	-	-	-	-	-
Stage 2	905	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	1.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1453	-	798	-	-
HCM Lane V/C Ratio	0.012	-	0.06	-	-
HCM Control Delay (s)	7.5	0	9.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	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	8	0	0	2	0	1	2	70	0	0	94	8
Future Vol, veh/h	8	0	0	2	0	1	2	70	0	0	94	8
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	6	6	6	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	0	0	2	0	1	2	78	0	0	104	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	192	191	109	191	195	78	113	0	0	78	0	0
Stage 1	109	109	-	82	82	-	-	-	-	-	-	-
Stage 2	83	82	-	109	113	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.56	6.26	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.16	5.56	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.56	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.054	3.354	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	759	697	934	769	700	983	1476	-	-	1520	-	-
Stage 1	887	797	-	926	827	-	-	-	-	-	-	-
Stage 2	915	819	-	896	802	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	758	696	934	768	699	983	1476	-	-	1520	-	-
Mov Cap-2 Maneuver	758	696	-	768	699	-	-	-	-	-	-	-
Stage 1	886	797	-	925	826	-	-	-	-	-	-	-
Stage 2	913	818	-	896	802	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.8	9.4	0.2	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1476	-	-	758	828	1520	-	-
HCM Lane V/C Ratio	0.002	-	-	0.012	0.004	-	-	-
HCM Control Delay (s)	7.4	0	-	9.8	9.4	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	6	7	0	0	4
Future Vol, veh/h	5	6	7	0	0	4
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	6	6	6	6
Mvmt Flow	6	7	8	0	0	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	18	2	4	0	-	0
Stage 1	2	-	-	-	-	-
Stage 2	16	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.16	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.254	-	-	-
Pot Cap-1 Maneuver	1000	1082	1592	-	-	-
Stage 1	1021	-	-	-	-	-
Stage 2	1007	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	995	1082	1592	-	-	-
Mov Cap-2 Maneuver	995	-	-	-	-	-
Stage 1	1021	-	-	-	-	-
Stage 2	1002	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	7.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1592	-	1041	-	-
HCM Lane V/C Ratio	0.005	-	0.012	-	-
HCM Control Delay (s)	7.3	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	6	7	69	95	1
Future Vol, veh/h	0	6	7	69	95	1
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	90	90	90	90	90	90
Heavy Vehicles, %	6	6	2	2	2	2
Mvmt Flow	0	7	8	77	106	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	198	106	107	0	-	0
Stage 1	106	-	-	-	-	-
Stage 2	92	-	-	-	-	-
Critical Hdwy	6.46	6.26	4.12	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.354	2.218	-	-	-
Pot Cap-1 Maneuver	782	937	1484	-	-	-
Stage 1	908	-	-	-	-	-
Stage 2	922	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	777	937	1484	-	-	-
Mov Cap-2 Maneuver	777	-	-	-	-	-
Stage 1	908	-	-	-	-	-
Stage 2	916	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1484	-	937	-	-
HCM Lane V/C Ratio	0.005	-	0.007	-	-
HCM Control Delay (s)	7.4	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

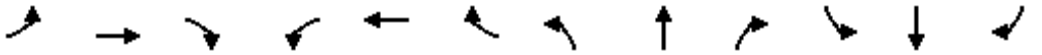
Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	115	106	1384	1038	4
Future Vol, veh/h	2	115	106	1384	1038	4
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	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	121	112	1457	1093	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2047	548	1097	0	-	0
Stage 1	1095	-	-	-	-	-
Stage 2	952	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	48	480	632	-	-	-
Stage 1	282	-	-	-	-	-
Stage 2	335	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	39	480	632	-	-	-
Mov Cap-2 Maneuver	39	-	-	-	-	-
Stage 1	282	-	-	-	-	-
Stage 2	276	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.9	0.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	632	-	402	-	-
HCM Lane V/C Ratio	0.177	-	0.306	-	-
HCM Control Delay (s)	11.9	-	17.9	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.6	-	1.3	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	8	248	0	0	0	195	671	7	2	703	34
Future Volume (veh/h)	48	8	248	0	0	0	195	671	7	2	703	34
Number	3	8	18				1	6	16	5	2	12
Initial Q (Qb), veh	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
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863				1863	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	52	9	270				212	729	8	2	764	37
Adj No. of Lanes	0	1	1				1	1	0	0	1	1
Peak Hour Factor	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
Cap, veh/h	266	46	364				407	1356	15	25	1188	1011
Arrive On Green	0.17	0.17	0.17				0.06	0.74	0.74	0.64	0.64	0.64
Sat Flow, veh/h	1523	264	1583				1774	1839	20	1	1861	1583
Grp Volume(v), veh/h	61	0	270				212	0	737	766	0	37
Grp Sat Flow(s),veh/h/ln	1787	0	1583				1774	0	1859	1862	0	1583
Q Serve(g_s), s	4.3	0.0	23.4				5.9	0.0	25.4	0.0	0.0	1.3
Cycle Q Clear(g_c), s	4.3	0.0	23.4				5.9	0.0	25.4	37.3	0.0	1.3
Prop In Lane	0.85		1.00				1.00		0.01	0.00		1.00
Lane Grp Cap(c), veh/h	312	0	364				407	0	1371	1213	0	1011
V/C Ratio(X)	0.20	0.00	0.74				0.52	0.00	0.54	0.63	0.00	0.04
Avail Cap(c_a), veh/h	341	0	390				496	0	1371	1213	0	1011
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	52.1	0.0	52.8				14.8	0.0	8.4	16.4	0.0	9.9
Incr Delay (d2), s/veh	0.3	0.0	7.0				0.8	0.0	1.5	2.5	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	11.0				3.4	0.0	13.5	19.8	0.0	0.6
LnGrp Delay(d),s/veh	52.4	0.0	59.8				15.6	0.0	9.9	18.9	0.0	10.0
LnGrp LOS	D		E				B		A	B		A
Approach Vol, veh/h		331						949			803	
Approach Delay, s/veh		58.4						11.2			18.5	
Approach LOS		E						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	14.6	100.4				115.0		32.5
Change Period (Y+Rc), s	6.5	* 6.2				* 6.2		6.8
Max Green Setting (Gmax), s	15.5	* 87				* 1.1E2		28.2
Max Q Clear Time (g_c+I1), s	7.9	39.3				27.4		25.4
Green Ext Time (p_c), s	0.3	17.8				19.9		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	21.5
HCM 2010 LOS	C

Notes



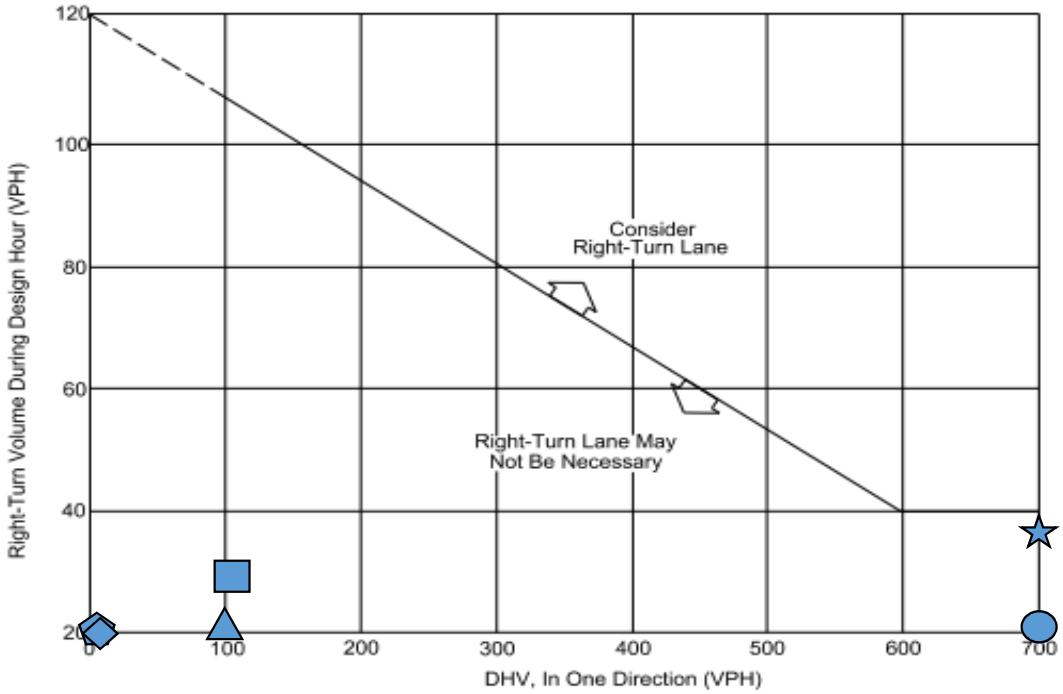
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	931	27	36	821	64	98
Future Volume (veh/h)	931	27	36	821	64	98
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1863
Adj Flow Rate, veh/h	1034	30	40	912	71	109
Adj No. of Lanes	1	0	1	1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1360	39	341	1542	153	137
Arrive On Green	0.75	0.75	0.04	0.83	0.09	0.09
Sat Flow, veh/h	1801	52	1774	1863	1774	1583
Grp Volume(v), veh/h	0	1064	40	912	71	109
Grp Sat Flow(s),veh/h/ln	0	1854	1774	1863	1774	1583
Q Serve(g_s), s	0.0	43.5	0.6	21.7	5.0	8.9
Cycle Q Clear(g_c), s	0.0	43.5	0.6	21.7	5.0	8.9
Prop In Lane		0.03	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1399	341	1542	153	137
V/C Ratio(X)	0.00	0.76	0.12	0.59	0.46	0.80
Avail Cap(c_a), veh/h	0	1399	454	1542	400	357
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	9.3	11.1	3.8	57.2	59.0
Incr Delay (d2), s/veh	0.0	2.7	0.1	1.7	2.2	10.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	22.9	0.6	11.6	2.6	4.3
LnGrp Delay(d),s/veh	0.0	12.0	11.2	5.5	59.4	69.1
LnGrp LOS		B	B	A	E	E
Approach Vol, veh/h	1064			952	180	
Approach Delay, s/veh	12.0			5.7	65.3	
Approach LOS	B			A	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	9.6	105.4				115.0		16.7
Change Period (Y+Rc), s	5.0	6.0				6.0		5.3
Max Green Setting (Gmax), s	13.6	91.0				109.0		29.7
Max Q Clear Time (g_c+I1), s	2.6	45.5				23.7		10.9
Green Ext Time (p_c), s	0.0	33.6				50.7		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	13.6
HCM 2010 LOS	B

APPENDIX G

Turn-Lane Analysis Worksheet



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: US 21 (Sea Island Parkway)/Meridan Road/Harborview Circle & Project Driveways

MOVEMENT: Eastbound/Southbound Right Turn

SCENARIO		Design-Hour Volume	Right-Turn Volume	Symbol
North Project Driveway	AM Peak Hour	708	20	●
	PM Peak Hour	1025	32	★
East Project Driveway	AM Peak Hour	107	21	▲
	PM Peak Hour	119	29	■
South Project Driveway	AM Peak Hour	2	2	⬟
	PM Peak Hour	4	4	◆

APPENDIX H

Signal Warrant Analysis Worksheets

Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Whitehall TIS
Project/File #	18056
Scenario	2017 Existing with ITE% Volumes (50% RT reduction)

Intersection Information			
Major Street (E/W Road)	US 21 Business	Minor Street (N/S Road)	Meridian Road
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	18615.455 vehicles	Total Approach Volume	1503.75 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.

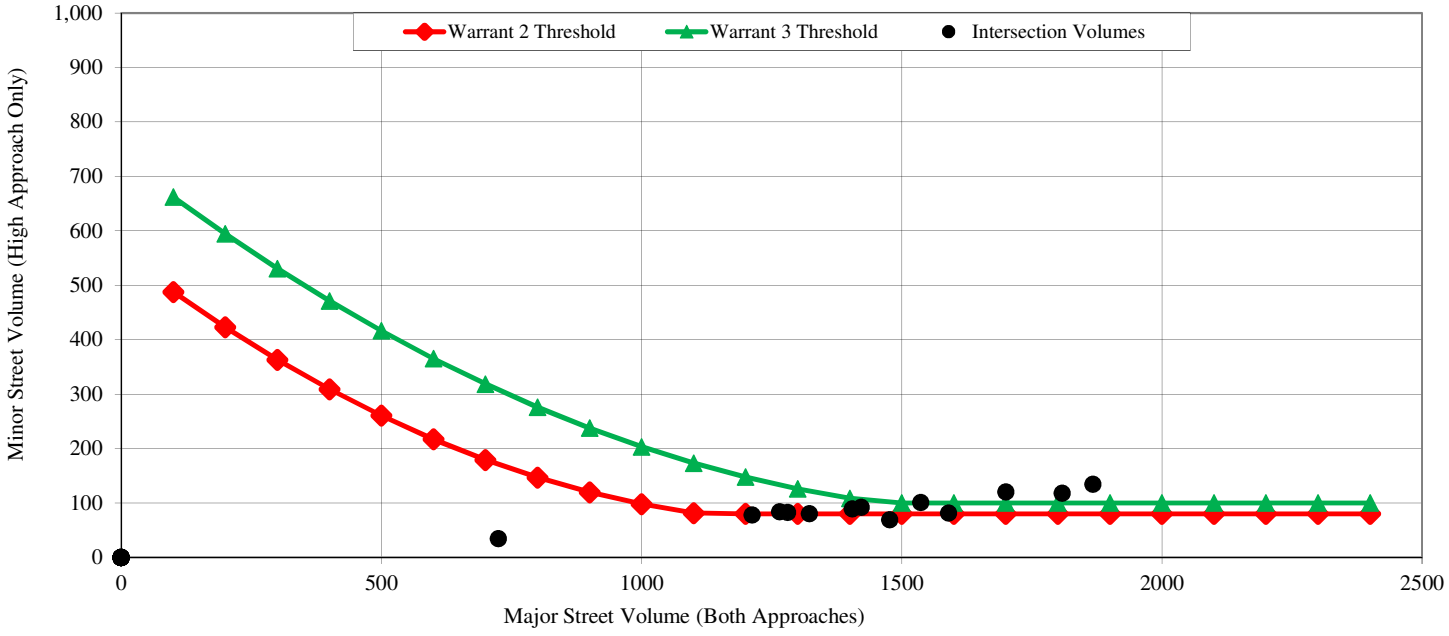
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Satisfied**	**Not Satisfied**
Required values reached for	0 hours	11 hours	2 (Cond. A) & 12 (Cond. B)
Criteria - Major Street (veh/hr)	500	750	400 (Cond. A) & 600 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (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?	**Satisfied**
Required values reached for	9 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Not Satisfied**	**Satisfied**
Required values reached for	418.355 total, 94.57 minor, 14.2 del	4 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

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



Traffic Signal Warrant Analysis

Warrants 4 to 6 (Pedestrian, School, Coordinated Systems)

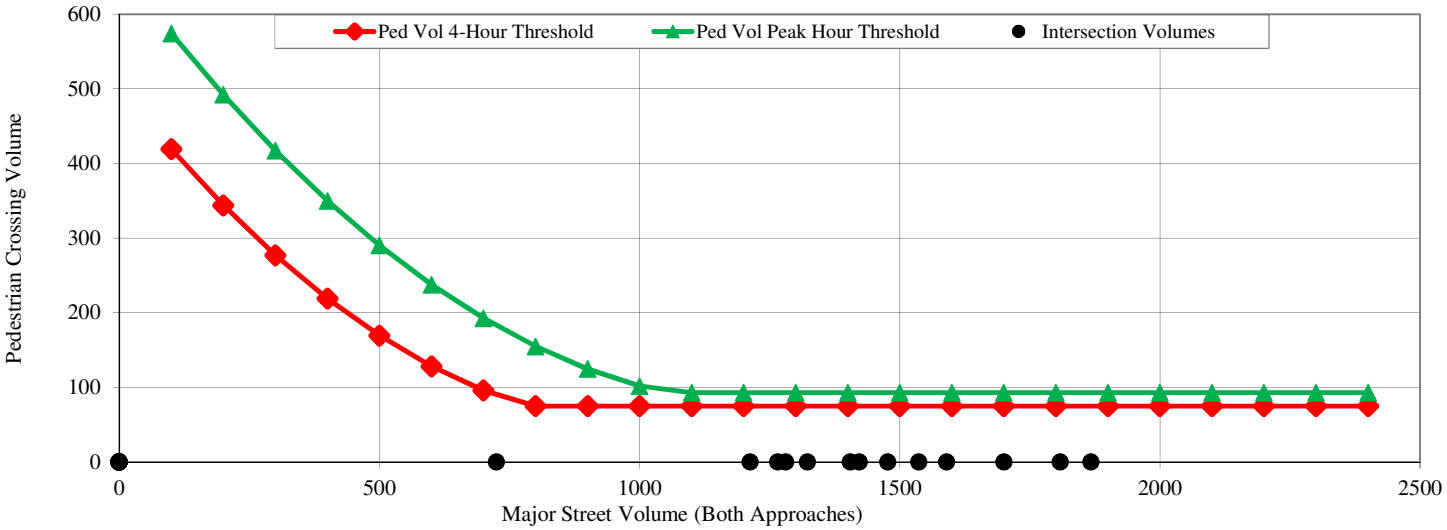
Project Name	Whitehall TIS
Project/File #	18056
Scenario	Build 2020

Intersection Information			
Major Street (E/W Road)	US 21 Business	Minor Street (N/S Road)	Meridian Road
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	18615.455 vehicles	Total Approach Volume	1503.75 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

Reduction applied to Pedestrian Warrant thresholds due to high speeds on US 21 Business.

Warrant 4, Pedestrian Volume		
	Condition A - Four Hour Vol.	**Condition B - Peak Hour Vol.**
Condition Satisfied?	**Not Examined**	**Not Examined**
Required values reached for		
Criteria - Min. Distance to Nearest Controlled Crossing		
Criteria - Major Street Volume and Crossing Volume		

Figure 4C-5 & Figure 4C-7 (Warrant 4 Four Hour & Peak Hour)



Warrant 5, School Crossing	
Condition Satisfied?	**Not Examined**
Criteria - School Crossing Data	

Warrant 6, Coordinated Signal System	
Condition Satisfied?	**Not Examined**
Criteria - Coordinated Signal System	

Traffic Signal Warrant Analysis

Warrants 7-9 (Crash, Network, Rail Crossing)

Project Name	Whitehall TIS
Project/File #	18056
Scenario	Build 2020

Intersection Information			
Major Street (E/W Road)	US 21 Business	Minor Street (N/S Road)	Meridian Road
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	18615.455 vehicles	Total Approach Volume	1503.75 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

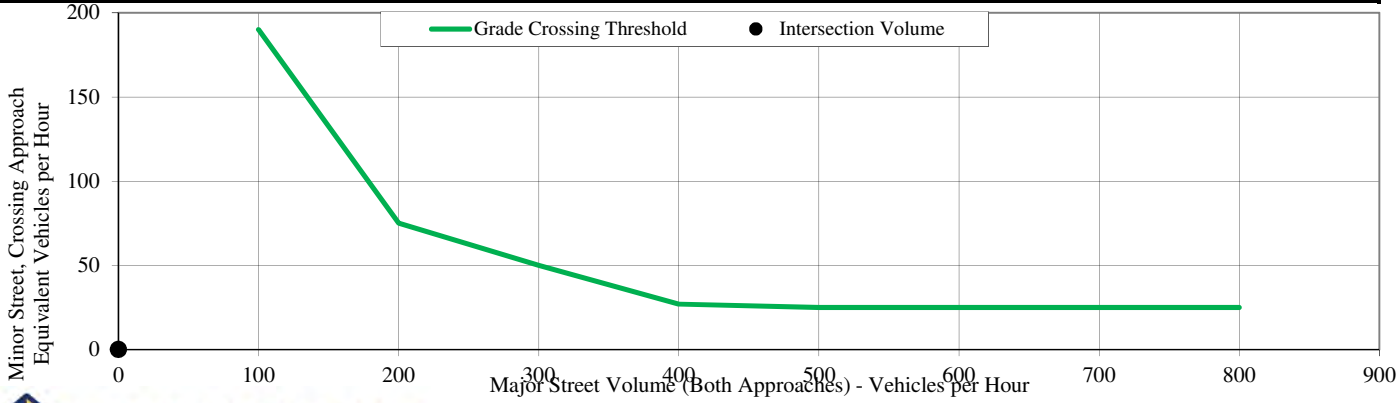
Reduction applied to Crash and Roadway Network Warrant thresholds due to high speed on US 21 Business.

Warrant 7, Crash Experience	
Condition Satisfied?	**Not Examined**
Required values reached for	
Criteria - Alternatives	
Criteria - Reported Crashes (within 12-month period)	
Criteria - Major Street (veh/hr) - Minor Street (veh/hr)	
(Alternative Volume Requirement) Criteria - Pedestrian Volume	

Warrant 8, Roadway Network	
Condition Satisfied?	**Not Examined**
Required values reached for	
Criteria - Common Intersection of Two Major Routes	
Criteria - Existing or Immediately Projected Entering Volume	
Criteria - Warrants	
(Alternative Requirement) Criteria - Non-normal Business Day	

Warrant 9, Intersection Near a Grade Crossing	
Condition Satisfied?	**Not Examined**
Required values reached for	
Criteria - Alternatives	
Criteria - Max. Distance to Nearest Controlled Crossing	
Criteria - Major Street Volume and Crossing Volume	

Figure 4C-10 (Two or More Approach Lanes): Distance D = 70 feet



Traffic Signal Warrant Analysis

Multi-Way Stop Warrants

Project Name	Whitehall TIS
Project/File #	18056
Scenario	Build 2020

Intersection Information			
Major Street (E/W Road)	US 21 Business	Minor Street (N/S Road)	Meridian Road
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	18615.455 vehicles	Total Approach Volume	1503.75 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 Multi-Way Stop Warrant thresholds.

Condition A - Traffic Signal Warrant	
Condition Satisfied?	**Not Examined**
Criteria*	

* Multi-way stop control may be used as an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of the traffic control signal.

Condition B - Crash Experience	
Condition Satisfied?	**Not Examined**
Required values reached for	
Criteria - Crash Experience	

Condition C - Intersection Volume & Delay	
Condition Satisfied?	**Not Examined**
Required values reached for	
Criteria - Major Street (veh/hr)	
Criteria - Minor Street (total vol-veh, ped, & bikes/hr)	
Criteria - Delay (average sec/veh)	

Condition D - Combination Volume, Crash Experience, & Delay	
Condition Satisfied?	**Not Examined**
Required values reached for	
Criteria - Major Street (veh/hr)	
Criteria - Minor Street (total vol-veh, ped, & bikes/hr)	
Criteria - Crash Experience	
Criteria - Delay (average sec/veh)	

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

US 21 Business/Sea Island Parkway & Meridian Road

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: Tuesday, November 07, 2017

	2017 EXISTING TRAFFIC VOLUMES											
START HOUR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
6:00 AM	0	161	13	3	498	0	15	0	8	1	0	0
7:00 AM	0	510	27	19	920	6	31	0	36	2	0	0
8:00 AM	0	565	47	37	776	6	42	0	52	4	0	0
9:00 AM	1	451	39	48	582	2	31	0	35	2	0	1
10:00 AM	0	493	41	35	616	2	37	0	30	8	0	2
11:00 AM	0	560	25	24	553	4	32	1	30	3	1	0
12:00 PM	3	595	45	52	594	5	27	0	41	1	0	7
1:00 PM	0	650	44	32	635	6	16	2	26	6	1	2
2:00 PM	1	610	41	50	604	4	28	0	42	4	0	1
3:00 PM	1	770	50	52	701	1	52	0	47	5	0	0
4:00 PM	1	824	53	44	749	1	52	0	32	1	0	0
5:00 PM	0	963	50	39	671	2	58	0	46	2	0	0
6:00 PM	0	661	25	29	496	1	27	0	19	0	0	1

	PROJECT TRAFFIC VOLUMES											
START HOUR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
6:00 AM	0	6	3	10	0	0	13	0	3	0	0	0
7:00 AM	0	13	7	21	0	0	27	0	7	0	0	0
8:00 AM	0	13	7	21	0	0	26	0	7	0	0	0
9:00 AM	0	12	7	20	0	0	24	0	6	0	0	0
10:00 AM	0	13	7	21	0	0	25	0	6	0	0	0
11:00 AM	0	15	8	24	0	0	30	0	8	0	0	0
12:00 PM	0	17	9	27	0	0	35	0	9	0	0	0
1:00 PM	0	16	8	24	0	0	33	0	8	0	0	0
2:00 PM	0	18	9	26	0	0	36	0	9	0	0	0
3:00 PM	0	18	9	27	0	0	37	0	9	0	0	0
4:00 PM	0	21	10	31	0	0	42	0	10	0	0	0
5:00 PM	0	22	11	32	0	0	44	0	11	0	0	0
6:00 PM	0	19	9	28	0	0	37	0	9	0	0	0

	2020 NO-BUILD TRAFFIC VOLUMES											
START HOUR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
6:00 AM	0	168	14	3	520	0	16	0	8	1	0	0
7:00 AM	0	533	28	20	961	6	32	0	38	2	0	0
8:00 AM	0	590	49	39	811	6	44	0	54	4	0	0
9:00 AM	1	471	41	50	608	2	32	0	37	2	0	1
10:00 AM	0	515	43	37	644	2	39	0	31	8	0	2
11:00 AM	0	585	26	25	578	4	33	1	31	3	1	0
12:00 PM	3	622	47	54	621	5	28	0	43	1	0	7
1:00 PM	0	679	46	33	664	6	17	2	27	6	1	2
2:00 PM	1	637	43	52	631	4	29	0	44	4	0	1
3:00 PM	1	805	52	54	733	1	54	0	49	5	0	0
4:00 PM	1	861	55	46	783	1	54	0	33	1	0	0
5:00 PM	0	1,006	52	41	701	2	61	0	48	2	0	0
6:00 PM	0	691	26	30	518	1	28	0	20	0	0	1

	2020 BUILD TRAFFIC VOLUMES											
START HOUR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
6:00 AM	0	175	17	13	520	0	28	0	12	1	0	0
7:00 AM	0	546	35	41	961	6	59	0	44	2	0	0
8:00 AM	0	604	56	60	811	6	70	0	61	4	0	0
9:00 AM	1	483	48	71	608	2	56	0	43	2	0	1
10:00 AM	0	528	50	58	644	2	64	0	38	8	0	2
11:00 AM	0	600	34	49	578	4	63	1	39	3	1	0
12:00 PM	3	639	56	81	621	5	63	0	52	1	0	7
1:00 PM	0	696	54	58	664	6	50	2	35	6	1	2
2:00 PM	1	656	52	79	631	4	66	0	53	4	0	1
3:00 PM	1	823	61	81	733	1	91	0	58	5	0	0
4:00 PM	1	882	66	77	783	1	96	0	44	1	0	0
5:00 PM	0	1,028	63	73	701	2	105	0	59	2	0	0
6:00 PM	0	709	36	59	518	1	65	0	29	0	0	1

WHITEHALL TIS

Hourly Volume Estimates for the Projected Traffic Signal Warrant Analysis

US 21 Business/Sea Island Parkway & Meridian Road Intersection

ITE Daily Trip Generation Estimates

Land Use	Land Use Category	ITE LUC Code	Size	Unit	Daily Trips		
					In	Out	Total
Apartment	Residential	220	75	DU	259	260	519
Senior Adult Housing - Attached	Residential	252	100	DU	141	142	283
Specialty Retail Center	Retail	826	20	ksf	239	240	479
Single Family Detached Housing	Residential	210	25	DU	127	127	254
Residential Land Use Category Total:					**527**	**529**	**1,056**
Retail Land Use Category Total:					**239**	**240**	**479**
Grand Total:					**766**	**769**	**1,535**

Start Hour	Hourly Retail Trip Distribution								
	LUC 820 Entering %[1]	Whitehall Entering Retail Trips	EBR (IN)	WBL (IN)	LUC 820 Exiting %[1]	Whitehall Exiting Retail Trips	EBT (OUT)	NBL (OUT)	NBR (OUT)
6:00 AM	0.8%	2	0	1	0.3%	1	0	0	0
7:00 AM	2.0%	5	1	2	0.9%	2	0	1	0
8:00 AM	3.1%	7	1	2	1.2%	3	1	1	0
9:00 AM	5.5%	13	1	4	2.0%	5	1	2	1
10:00 AM	7.0%	17	2	5	4.3%	10	2	4	1
11:00 AM	8.4%	20	2	6	6.2%	15	3	6	2
12:00 PM	9.4%	22	2	7	8.3%	20	4	8	2
1:00 PM	8.2%	20	2	6	8.6%	21	4	8	2
2:00 PM	7.7%	18	2	5	8.9%	21	4	8	2
3:00 PM	7.8%	19	2	6	8.8%	21	4	8	2
4:00 PM	8.0%	19	2	6	8.9%	21	4	8	2
5:00 PM	8.4%	20	2	6	9.2%	22	4	9	2
6:00 PM	8.0%	19	2	6	7.5%	18	4	7	2

Start Hour	Hourly Apartment Trip Distribution							Hourly Single Family Trip Distribution							Hourly Senior Housing Trip Distribution						
	ITE % of Daily Traffic	Hourly Total	EBR (IN)	WBL (IN)	EBT (OUT)	NBL (OUT)	NBR (OUT)	ITE % of Daily Traffic	Hourly Total	EBR (IN)	WBL (IN)	EBT (OUT)	NBL (OUT)	NBR (OUT)	ITE % of Daily Traffic	Hourly Total	EBR (IN)	WBL (IN)	EBT (OUT)	NBL (OUT)	NBR (OUT)
6:00 AM	2.9%	15	2	5	3	6	2	3.8%	10	1	3	2	4	1	2.1%	6	1	2	1	2	1
7:00 AM	7.4%	38	4	11	8	15	4	6.7%	17	2	5	3	7	2	3.5%	10	1	3	2	4	1
8:00 AM	6.3%	33	3	10	7	13	3	6.2%	16	2	5	3	6	2	5.0%	14	1	4	3	6	1
9:00 AM	5.3%	28	3	8	6	11	3	4.3%	11	1	3	2	4	1	5.6%	16	2	5	3	6	2
10:00 AM	4.0%	21	2	6	4	8	2	4.8%	12	1	4	2	5	1	6.9%	20	2	6	4	8	2
11:00 AM	5.3%	28	3	8	6	11	3	5.2%	13	1	4	3	5	1	6.7%	19	2	6	4	8	2
12:00 PM	5.4%	28	3	8	6	11	3	5.5%	14	1	4	3	6	1	8.8%	25	3	8	5	10	3
1:00 PM	4.6%	24	2	7	5	10	2	6.0%	15	2	5	3	6	2	7.8%	22	2	7	4	9	2
2:00 PM	5.7%	30	3	9	6	12	3	6.6%	17	2	5	3	7	2	8.0%	23	2	7	5	9	2
3:00 PM	6.2%	32	3	10	6	13	3	7.2%	18	2	5	4	7	2	7.3%	21	2	6	4	8	2
4:00 PM	7.6%	39	4	12	8	16	4	9.0%	23	2	7	5	9	2	7.3%	21	2	6	4	8	2
5:00 PM	9.1%	47	5	14	9	19	5	8.8%	22	2	7	4	9	2	6.6%	19	2	6	4	8	2
6:00 PM	7.9%	41	4	12	8	16	4	7.2%	18	2	5	4	7	2	5.8%	16	2	5	3	6	2

Start Hour	Whitehall Project Volumes					
Movement:	EBT	EBR	WBL	WBT	NBL	NBR
Movement Type:	Exiting	Entering	Entering	Entering	Exiting	Exiting
Project Traffic Distribution[3]:	20%	10%	30%	0%	40%	10%
6:00 AM	6	3	10	0	13	3
7:00 AM	13	7	21	0	27	7
8:00 AM	13	7	21	0	26	7
9:00 AM	12	7	20	0	24	6
10:00 AM	13	7	21	0	25	6
11:00 AM	15	8	24	0	30	8
12:00 PM	17	9	27	0	35	9
1:00 PM	16	8	24	0	33	8
2:00 PM	18	9	26	0	36	9
3:00 PM	18	9	27	0	37	9
4:00 PM	21	10	31	0	42	10
5:00 PM	22	11	32	0	44	11
6:00 PM	19	9	28	0	37	9

David Prichard

From: Martie Kay McTeer
Sent: Monday, March 30, 2020 8:43 AM
To: Heather Spade
Subject: FW: City of Beaufort - Technical Review Committee (TRC)
Attachments: New Outdoor Lighting Brochure 2020.pdf; Underground Commercial Electric Service 2020.pdf; Underground Residential Electric Service Manual 2020.pdf

Let me know if you want me to print the attachments for you😊

MK

From: HENRY MOSS <henry.moss@dominionenergy.com>
Sent: Friday, March 27, 2020 1:32 PM
To: Martie Kay McTeer <mmcteer@cityofbeaufort.org>
Cc: EVAN WHEELER <evan.wheeler@dominionenergy.com>
Subject: FW: City of Beaufort - Technical Review Committee (TRC)

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Martie Kay,

Please see our Underground Electric Commercial and Residential Specifications the TRC may find helpful. I have also included our new area lighting brochure.

Regards,
Parks

Parks Moss
Senior Account and Project Manager
Customer Service Engineering
Dominion Energy South Carolina
843.815.8808 office
843.540.1315 mobile

From: EVAN WHEELER (DESC Trans Distribution - 7)
Sent: Friday, March 27, 2020 1:06 PM
To: WILLIAM HAGER (DESC Trans Distribution - 7) <william.hager@dominionenergy.com>; HENRY MOSS (DESC Trans Distribution - 7) <henry.moss@dominionenergy.com>
Subject: FW: City of Beaufort - Technical Review Committee (TRC)

From: Martie Kay McTeer <mmcteer@cityofbeaufort.org>
Sent: Friday, March 27, 2020 10:42 AM
To: Brian Chemsak <brian.chemsak@bjwsa.org>; Clarke, Bridget <CLARKEBM@dhec.sc.gov>; Elizabeth Penn-Sanders <PennEG@scdot.org>; EVAN WHEELER (DESC Trans Distribution - 7) <evan.wheeler@dominionenergy.com>; Gina Abbott <abbottgb@dhec.sc.gov>; James Clardy <james.clardy@bjwsa.org>; John Badgett

<jbadgett@cityofbeaufort.org>; Matt St. Clair <mstclair@cityofbeaufort.org>; Nathan Farrow <nfarrow@cityofbeaufort.org>; Tim Ogden <togden@cityofbeaufort.org>; Tyler Ward <wardte@scdot.org>
Cc: Heather Spade <hspade@cityofbeaufort.org>
Subject: [EXTERNAL] FW: City of Beaufort - Technical Review Committee (TRC)

Dear All,

Please find the attached sketch plan for a major subdivision known as Whitehall located at 4 Harbor View Circle, which is scheduled to go to the Metropolitan Planning Commission on April 20th for a recommendation. Please provide general comments for us to include in the staff report by Friday, April 3rd. This will give you an opportunity to make sure the applicant is aware of your agencies standards and requirements. As always you will have the opportunity to provide more-detailed comments when the applicant submits the preliminary plat (site plan)

Heather Spade
Planning Tech
City of Beaufort
(843)470-3507
hspade@cityofbeaufort.org

David Prichard

From: James Clardy <James.Clardy@bjwsa.org>
Sent: Thursday, April 02, 2020 10:56 AM
To: Martie Kay McTeer
Subject: RE: City of Beaufort - TRC

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Martie Kay,
The project is pending formal submittal of water/sewer design for BJWSA review/comments/approval.
Should they have any questions please do not hesitate to give them my contact information.

James Clardy
Development Projects Manager
James.Clardy@bjwsa.org

BJWSA
6 Snake Rd.
Okatie, SC 29909
Phone: 843-987-8082
Mobile: 843-505-8529
http://www.bjwsa.org

Our mission: Inspire trust and enhance public health.

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From: Martie Kay McTeer <mmcteer@cityofbeaufort.org>
Sent: Thursday, April 2, 2020 10:15 AM
To: Brian Chemsak, PE <Brian.Chemsak@bjwsa.org>; Clarke, Bridget <CLARKEBM@dhec.sc.gov>; Elizabeth Penn-Sanders <PennEG@scdot.org>; Evan Wheeler <evan.wheeler@dominionenergy.com>; Gina Abbott <abbottgb@dhec.sc.gov>; James Clardy <James.Clardy@bjwsa.org>; John Badgett <jbadgett@cityofbeaufort.org>; Matt St. Clair <mstclair@cityofbeaufort.org>; Nathan Farrow <nfarrow@cityofbeaufort.org>; Tim Ogden <togden@cityofbeaufort.org>; Tyler Ward <wardte@scdot.org>
Cc: Heather Spade <hspade@cityofbeaufort.org>
Subject: FW: City of Beaufort - Technical Review Committee (TRC)
Importance: High

This message originated from an **External Source**. Please use proper judgment and caution when opening attachments, clicking links, or responding to this email.

Good morning – Since tomorrow is the deadline for responses on the attached (Whitehall) sketch plan, we wanted to verify that you're agency doesn't have any comments prior to us preparing our staff report for the 4/20 MPC meeting. I've only received one response from Dominion. If you don't mind, please respond with **'no comments at this time' or your specific comments**. Stay safe 😊
Thank you.

Martie Kay McTeer
City of Beaufort
1911 Boundary St.
Beaufort, SC 29902
Ph: 843-379-7051
Fax: 843-986-5606

From: Martie Kay McTeer
Sent: Friday, March 27, 2020 10:42 AM
To: Brian Chemsak <brian.chemsak@bjwsa.org>; Clarke, Bridget <CLARKEBM@dhec.sc.gov>; Elizabeth Penn-Sanders <PennEG@scdot.org>; Evan Wheeler <evan.wheeler@dominionenergy.com>; Gina Abbott <abbottgb@dhec.sc.gov>; James Clardy <james.clardy@bjwsa.org>; John Badgett <jbadgett@cityofbeaufort.org>; Matt StClair (mstclair@cityofbeaufort.org) <mstclair@cityofbeaufort.org>; Nate Farrow <nfarrow@cityofbeaufort.org>; Tim Ogden <togden@cityofbeaufort.org>; Tyler Ward <wardte@scdot.org>
Cc: Heather Spade <hspade@cityofbeaufort.org>
Subject: FW: City of Beaufort - Technical Review Committee (TRC)

Dear All,

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Heather Spade
Planning Tech
City of Beaufort
(843)470-3507
hspade@cityofbeaufort.org

David Prichard

From: Matt St. Clair
Sent: Thursday, April 02, 2020 11:23 AM
To: Martie Kay McTeer
Subject: RE: City of Beaufort - Technical Review Committee (TRC)

No comments at this time.

Semper Fidelis,

Matthew St. Clair
Colonel, USMC (Ret.)
Director of Public Projects and Facilities
Military Liaison
City of Beaufort, SC
E-Mail: mstclair@cityofbeaufort.org
Office: (843)-470-3512
Cell: (843)-263-8587

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Sent: Thursday, April 02, 2020 10:15 AM
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Heather Spade
Planning Tech
City of Beaufort
(843)470-3507
hspade@cityofbeaufort.org

CITY OF BEAUFORT

3484 Trask Parkway
Annexation/Rezoning

Staff Report for City Council

From the Department of
Community and Economic Development

May 11, 2020

1 SUBJECT

Annexation: Wod Timber, LLC has requested that the parcel at 3484 Trask Parkway (R100 025 000 012B 0000) be annexed into the City of Beaufort, SC.

Zoning: Contingent of annexation Wod Timber, LLC has requested that the parcel be zoned Regional Mixed-use (RMX)

Size: 2.00 acres

Current Zoning [County]: Industrial (S1)

Current Land Use: vacant commercial

Future Land Use: O-2 – Rural/Conservation Lands

Comprehensive Plan: in accordance in terms of service area, but in contradiction to FLU.

The Beaufort Code: In accordance with 10.2.1.C.3 of the *Beaufort Code* the Metropolitan Planning Commission shall have the power and duty to recommend the annexation of parcels into the City limits for adoption by City Council.

Public Notices: Published in The Beaufort Gazette on March 31, 2020; in the Island Packet on April 2, 2020. Signs posted on property on April 1, 2020. Postcards sent to adjacent property owners on April 6, 2020.

2 STAFF ASSESSMENT

The parcel is adjacent to an RMX district to the north and the Military Reservation (MR) district to the east. See Maps (attached).

The parcel to be annexed is within two miles of the primary service area and is therefore in accordance with the 2009 comprehensive plan.

The RMX district accommodates regional and community commercial uses. See Table of Permitted Uses (attached).

The future land use designation is O-2, which identifies appropriate land uses as conservation areas, parks and greenways, agricultural and forestry uses, limited civic uses such as schools, very low-density residential development and clustered development (maximum density: 1 dwelling unit per 10 gross

acres). Ref: 2009 Comprehensive Plan, p.61. See Future Land Use Map and FLU O-2 Designation (attached).

The parcel is in the 70 - 72 DNL noise contour. See MCAS Noise Contours (attached). New construction requires measures to reduce noise by 30 dB.

3 STAFF RECOMMENDATION

Annexation:
Given that the annexation will help to fill a gap in the city jurisdiction, staff recommends the annexation.

Zoning:
Given that zoning the parcel "RMX" extends the City's RMX district; and

Given that RMX is an appropriate zoning district along a highway corridor

Staff recommends that the parcel be zoned RMX.



3484 Trask Parkway

REZONING APPLICATION (EXCEPT FOR PUDS)

Community & Economic Development Department
1911 Boundary Street, Beaufort, South Carolina, 29902
p. (843) 525-7011 / f. (843) 986-5606
www.cityofbeaufort.org

Application Fee: $250 +
$10 for each additional lot
*Receipt #*_____

OFFICE USE ONLY: Date Filed: Application #: Zoning District:

Submittal Requirements: You must attach a boundary map prepared by a registered land surveyor of the tract, plot, or properties, in question, and all other adjoining lots of properties under the same ownership. 12 copies of all application materials are required.

Pursuant to Section 6-29-1145 of the South Carolina Code of Laws, is this tract or parcel restricted by any recorded covenant that is contrary to, conflicts with, or prohibits the activity described in this application? ☐ Yes ☒ No

Applicant, Owner and Property Information

Property Address: 3484 Trask Parkway Beaufort, SC 29902

Property Identification Number *(Tax Map & Parcel Number)*: R100 025 000 012B 0000

Applicant Name: Wod Timber, LLC

Applicant Address: P.O. Box 13069 East Dublin, GA 31027

Applicant E-mail: april.wooten@cherokeebrick.com Applicant Phone Number: 478-781-6800

Property Owner (if other than the Applicant): Six L's Packing Company, Inc.

Property Owner Address: PO BOX 3088 IMMOKALEE FL 34143

Have any previous applications been made for a map amendment affecting these same premises? ◯ YES ◉ NO

If yes, give action(s) taken:

Present zone classification: Industrial S1

Requested zone classification: RMX

Total area of property: 2 Acres

Existing land use: Packing Shed

Desired land use: Storage / Laydown Yard / Retail

Reasons for requesting rezoning: Unsuitable Zoning in County for Intended Use.

Applicant's Signature: April Pearce Date: 3-16-20

NOTE: If the applicant is not the property owner, the property owner must sign below.

Property Owner's Signature: Jaime Weisinger 03/16/2020 11:33 AM EDT Date:

TO THE MEMBERS OF)
CITY COUNCIL) PETITION OF ANNEXATION
CITY OF BEAUFORT, SOUTH CAROLINA)

We, the undersigned freeholders, pursuant to Section 5-3-150, South Carolina Code of Laws, 1976, as amended, do pray that your Honorable Body accept the petition and annex the enclosed described area, and enact an Ordinance declaring the area annexed to the City of Beaufort with full City privileges accorded to, and responsibilities required of, the said residents thereof and the lands and properties and businesses erected therein, subject only to the conditions, provisions, and limitations hereinafter set forth. The said annexation shall be upon terms, limitations, provisions, and conditions as follows:

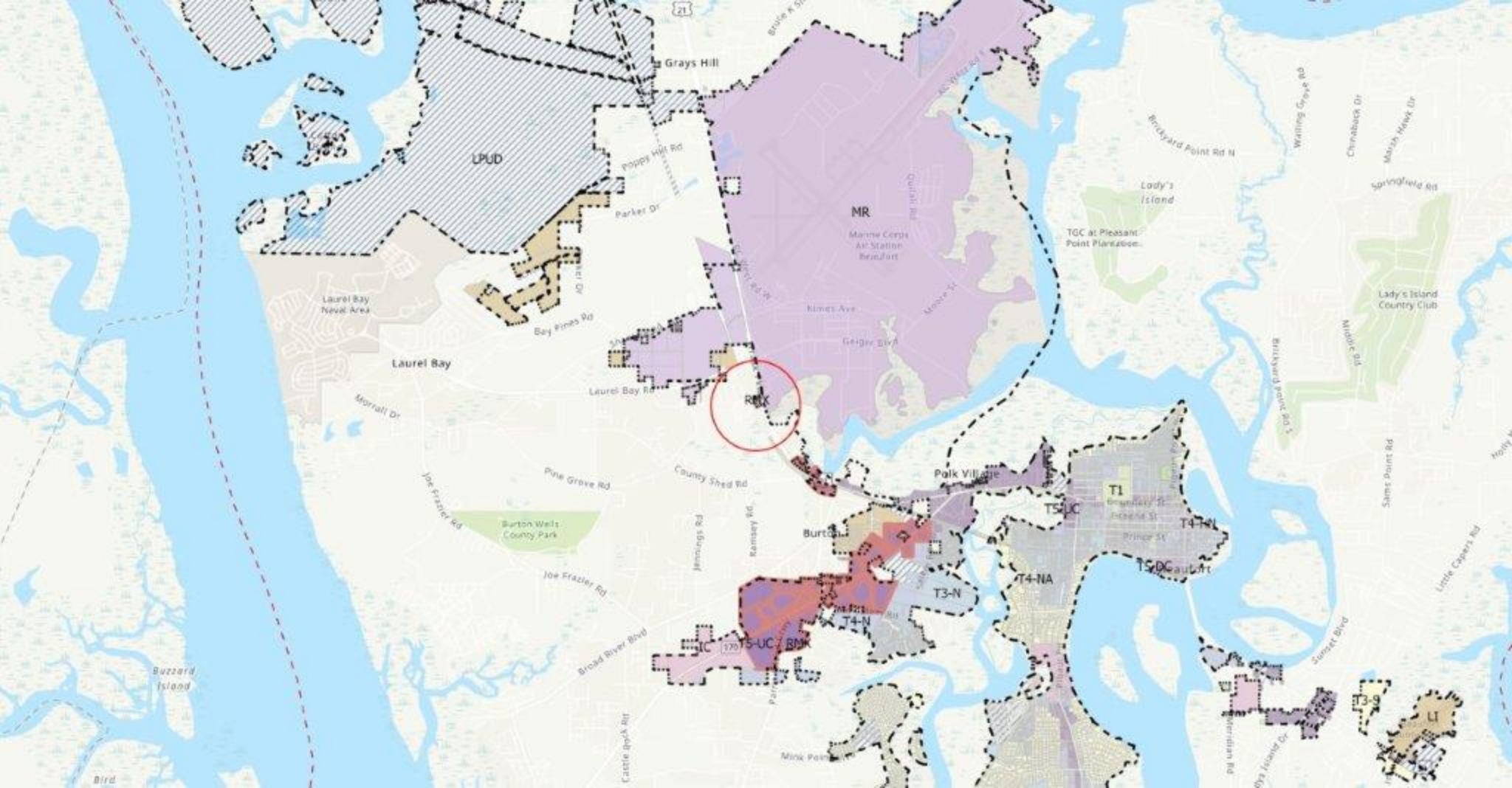
The City of Beaufort shall furnish and render as promptly as practical to said area, its residents and properties, all of privileges, benefits, rights and services now and hereinafter to be accorded the citizens within the corporate limits of the City of Beaufort in every particular under its charter and general special laws of South Carolina applicable to the City of Beaufort, and subject to the existing ordinances of the City.

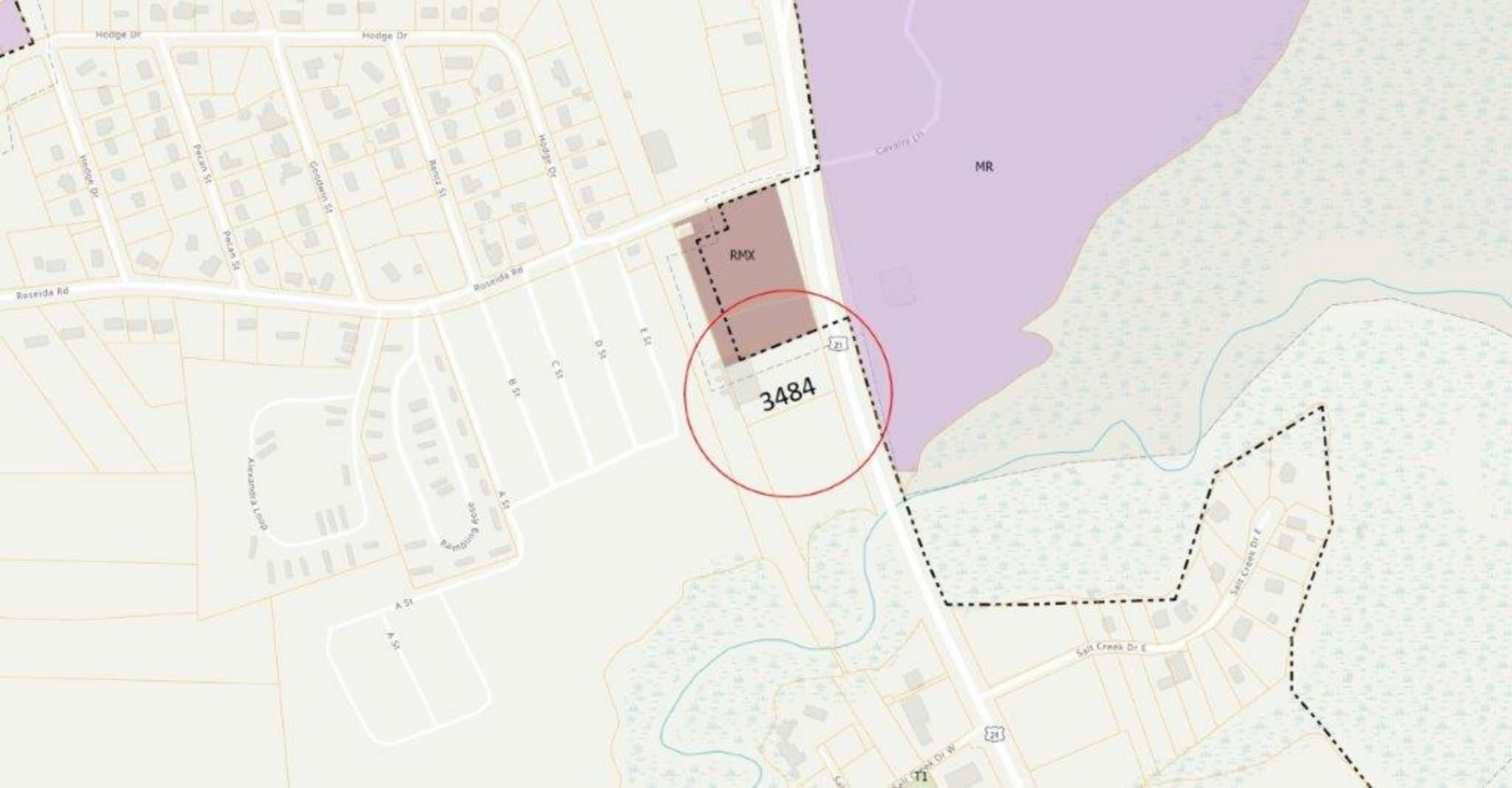
The petitioning area to be annexed is described as follows:

3484 Trask Parkway

Plat of area to be annexed and list of freeholders are attached hereto.

Name (print)	Address	Signature	Date of Signature
Jaime Weisinger	PO BOX 3088 IMMOKALEE FL 34143	Jaime Weisinger	03/16/2020 11:36 AM EDT


Grays Hill
UPUD
MR
Marine Corps Air Station Beaufort
Laurel Bay Naval Area
Laurel Bay
Bay Pines Rd
Laurel Bay Rd
Morrall Dr
RMX
Pine Grove Rd
County Shed Rd
Joe Frazier Rd
Burton Wells County Park
Burton
Polk Village
T1
T5-UC
T4-HN
T5-DC
Beaufort
T4-NA
T3-N
T4-N
IC
T5-UC
RMX
Broad River Blvd
Buzzard Island
Bird
Castle Rock Rit
Mink Point
Lady's Island
TGC at Pleasant Point Plantation
Lady's Island Country Club
Brickyard Point Rd N
Springfield Rd
Sams Point Rd
Sunset Blvd
T3-S
LI


Hodge Dr
Hodge Dr
Hodge Dr
Pecan St
Pecan St
Goodwin St
Ramz St
Hodge Dr
Roseida Rd
Roseida Rd
Cavalry Ln
MR
RMX
3484
21
B St
C St
D St
E St
A St
A St
Alexander Loop
Rambling Rose
Salt Creek Dr E
Salt Creek Dr E
Salt Creek Dr W
21
71

District. Conditions may be listed in the "Additional Standards" section as appropriate. Other uses permitted in the general T4-N district may have special conditions for T4-NA; those conditions are also listed in the additional standards section as appropriate.

G. **Prohibited Uses (—):** The use is prohibited in the specified district.

3.2 TABLE OF PERMITTED USES

Land uses in transect-based and conventional districts shall be permitted in accordance with the table below. Special provisions related to uses in the AICUZ Overlay District are in Section 2.7.4. The zoning designation of water is the same as the land it is adjacent to.

DISTRICT	T1	T3-S	T3-N	T4-HN	T4-N	T5-DC	T5-UC	RMX	LI	IC	MHP	*ADD'L STANDARDS WHEN APPLICABLE*
RESIDENTIAL												**3.3**
Household Living												
Single-Family Dwelling	—	P	P	P	P	E	E	E	E	E	—	—
2- or 3-Unit Dwelling	—	—	C	P	P	P	P	—	—	P	—	4.5.5
Rowhome	—	—	—	—	C	P	P	P	—	P	—	4.5.6
Apartment House (a.k.a. Multifamily Dwelling - 4+ units)	—	—	—	—	C	P	P	P	—	P	—	4.5.7
Home Occupation - Minor	—	C	C	C	C	P	P	P	—	—	—	3.3.2.D
Home Occupation - Major	—	SE	SE	SE	C	P	P	—	—	—	—	
Live-Aboard Boat	C	C	C	C	C	C	C	C	C	C	C	3.3.2.D
Live/Work Unit	—	—	—	—	C	P	P	P	C	P	—	4.5.8
Manufactured Home	—	—	—	—	—	—	—	—	—	—	C	3.3.2.G
Group Living												
Group Dwelling (≤ 8 residents)	—	—	—	—	P	P	P	P	—	—	—	—
Group Dwelling (> 8 residents)	—	—	—	—	SE	SE	P	P	—	P	—	—
PUBLIC AND CIVIC												**3.4**
Civic / Government Facilities	**C**	**—**	**SE**	**SE**	**P**	**P**	**P**	**P**	**P**	**P**	**—**	**3.4.2.A**
Educational Facilities												
College/University/Trade/Vocational	—	—	—	—	C	P	P	P	C	P	—	3.4.2.B.1
School, Public or Private	—	C	C	C	P	P	P	P	—	P	—	3.4.2.B.2
Parks and Open Space												
Cemetery	C	E	E	E	E	E	E	C	E	E	E	3.4.2.C
Park/Open Space	P	P	P	P	P	P	P	P	P	P	P	7.4
INSTITUTIONAL												**3.5**
Community Service	—	SE	SE	SE	P	P	P	P	SE	P	—	—
Day Care Facility												
Family Day Care Home (≤ 6 clients)	see Home Occupation — Minor											

P=Permitted Use C=Conditional Use SE=Special Exception E=in Existing Building/Facility Only RF = Retail Frontage Only A=T4-Neighborhood Artisan subdistrict Only — = Prohibited use

DISTRICT	T1	T3-S	T3-N	T4-HN	T4-N	T5-DC	T5-UC	RMX	LI	IC	MHP	*ADD'L STANDARDS WHEN APPLICABLE*
Group Day Care Home (7-12 clients) & Commercial Day Care Center (>12 clients)	—	—	SE	C	C	P	P	P	P	P	—	3.5.2.A
Treatment Facility	—	—	—	—	SE	SE	SE	P	—	SE	—	—
Health Care Facilities	—	—	—	—	—	—	P	P	—	P	—	—
Religious Institution	—	C	C	P	P	P	P	P	—	P	—	3.5.2.B
COMMERCIAL												3.6
Entertainment												
Indoor Entertainment	—	C	C	—	C	P	P	P	P	P	—	3.6.2.A
Outdoor Entertainment	—	—	—	—	C	P	P	P	—	P	—	3.6.2.A
Sexually-Oriented Business	—	—	—	—	—	—	—	—	C	—	—	13.2.1
Office	—	—	—	—	P	P	P	P	P	P	—	—
Overnight Guest Accommodation												
Bed and Breakfast	—	—	SE	SE	P	P	P	—	—	—	—	3.6.2.C.1
Short-Term Rental	—	C	C	C	C	C	C	—	—	C	—	3.6.2.C.2
Inn/Motel/Hotel	—	—	—	—	C	P	P	P	—	—	—	3.6.2.C.3
Recreational Vehicle Park	—	—	—	—	—	—	—	SE	—	—	—	—
Retail & Restaurants					C	C	C	P	—	C	—	3.6.2.D
VEHICLE- AND BOAT-RELATED USES												3.7
Vehicle and Boat Sales and Rental	—	—	—	—	A	—	C	P	—	—	—	3.7.2.A
Drive-Thru Facility	—	—	—	—	—	—	C	C	SE	—	—	3.7.2.B
Fuel Sales / Car Wash	—	—	—	—	—	—	C	C	P	—	—	3.7.2.C
Vehicle Service and Repair	—	—	—	—	C	—	C	C	P	—	—	3.7.2.D
Parking, Commercial, Surface	—	—	—	—	C	C	P	P	P	P	—	3.7.2.F
Parking, Structure	—	—	—	—	RF	P	P	P	P	P	—	—
Passenger Terminals	—	—	—	—	—	—	SE	P	P	—	—	3.7.2.G
Water/Marine-Oriented Facilities	P	—	—	—	P	P	P	—	—	P	—	—
INDUSTRIAL												3.8
Aviation Services	—	—	—	—	—	—	—	—	P	—	—	—
Light Industrial Services	—	—	—	—	A	—	C	C	P	—	—	3.8.2.A
Manufacturing and Production Services	—	—	—	—	A	—	—	C	P	—	—	3.8.2.B
Truck Terminal	—	—	—	—	—	—	—	—	P	—	—	—
COMMUNICATION & INFRASTRUCTURE USES												3.9
Major Infrastructure/Utilities	—	—	—	—	A	—	—	SE	P	—	—	3.9.2.A
Minor Infrastructure/Utilities	E	C	C	C	C	C	C	C	P	C	—	3.9.2.B
Waste Related Services	—	—	—	—	—	—	—	—	SE	—	—	3.9.2.C
Wireless Communications Facility	—	—	—	—	—	—	—	C	C	—	—	3.9.2.D
FORESTRY, AGRICULTURE, HORTICULTURE	C	C	C	C	C	C	C	C	C	C	—	3.10

P=Permitted Use C=Conditional Use SE=Special Exception E=in Existing Building/Facility Only RF = Retail Frontage Only A=T4-Neighborhood Artisan subdistrict Only — = Prohibited use



Source: Thomas Hylton

Rural area outside of a historic Pennsylvania town center

FG 1.2 OPEN SPACE SECTOR 2 (O-2): RURAL/CONSERVATION LANDS

This sector includes areas that are prime candidates for moving into the O-1 sector through conservation easements or other open space acquisition/protection measures. This sector, shown in medium green on the Framework Map, consists of lands that should be off-limits to development except occasional conservation neighborhoods at very low densities. These areas may be legally developable based on current federal, state, and local regulations. However, they are areas that based on environmental conditions, urban service factors (distance from existing City services and difficulty in providing efficient services and infrastructure such as roadways, for example), and proximity to the MCAS operations (as identified by the AICUZ zones) should be lightly developed or undeveloped, remaining in a rural or natural state.

These areas include lands identified as rural and preserved lands for future preservation in the *Northern Beaufort County Regional Plan*. Future parks and open space identified in the *City of Beaufort Comprehensive Plan Update 2004* were also incorporated into the O2 category.

For Beaufort, this sector also consists of:

- proposed greenspace and greenways
- future rural and preserved lands
- 100-year floodplain
- 100-ft. riparian stream buffer
- Air Installations Compatible Use Zones (AICUZ) accident potential zones (APZ's)

The AICUZ noise zones are designed as a tool for local planning agencies. The US Department of Defense measures noise in and around the base to determine what land use activities are compatible in the area. This area, shown in hatching, outlines uses that are conditionally compatible as well as incompatible; therefore, caution should be exercised when developing within a noise zone.

APPROPRIATE LAND USES/DEVELOPMENT TYPES:

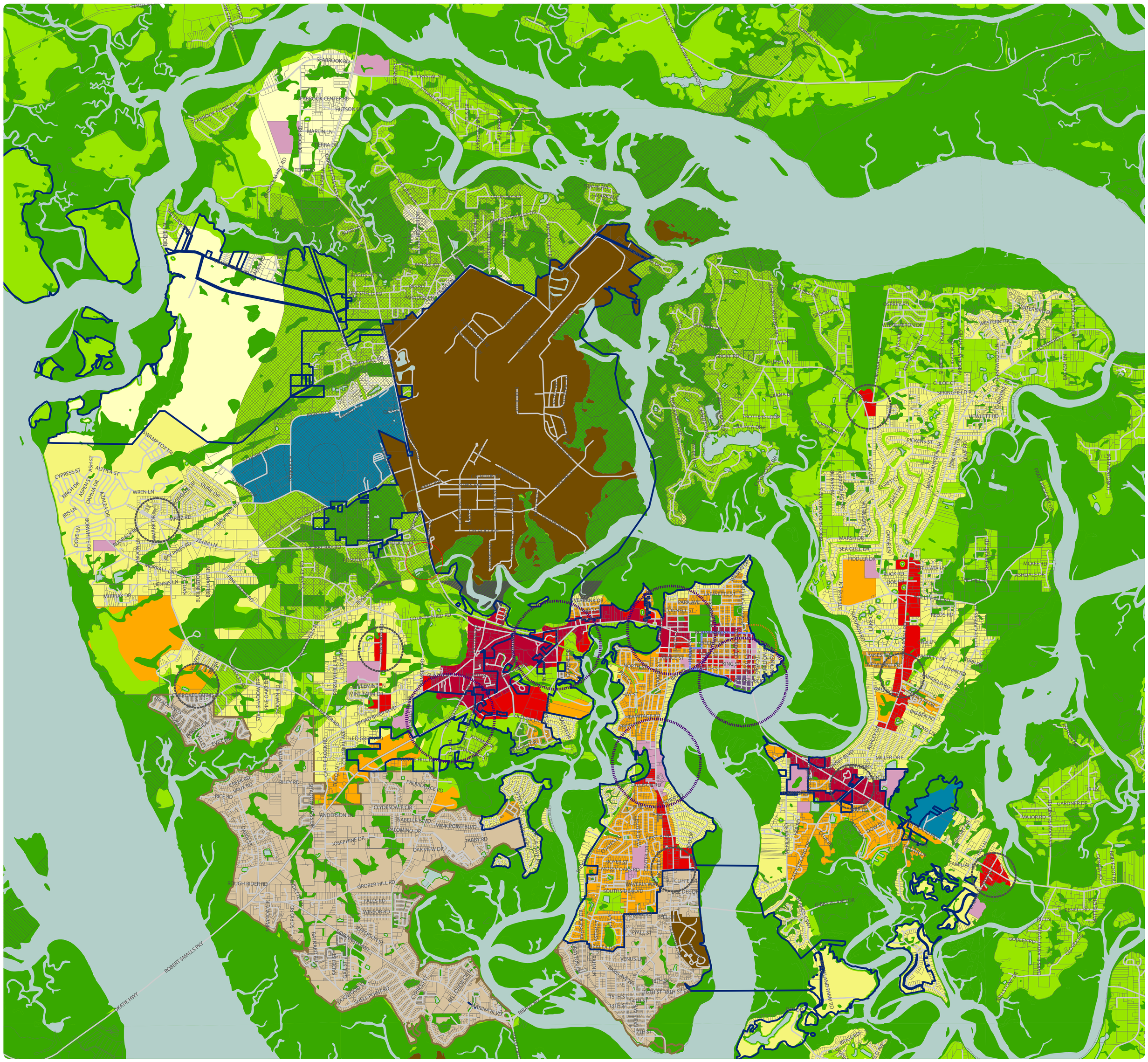
- conservation areas
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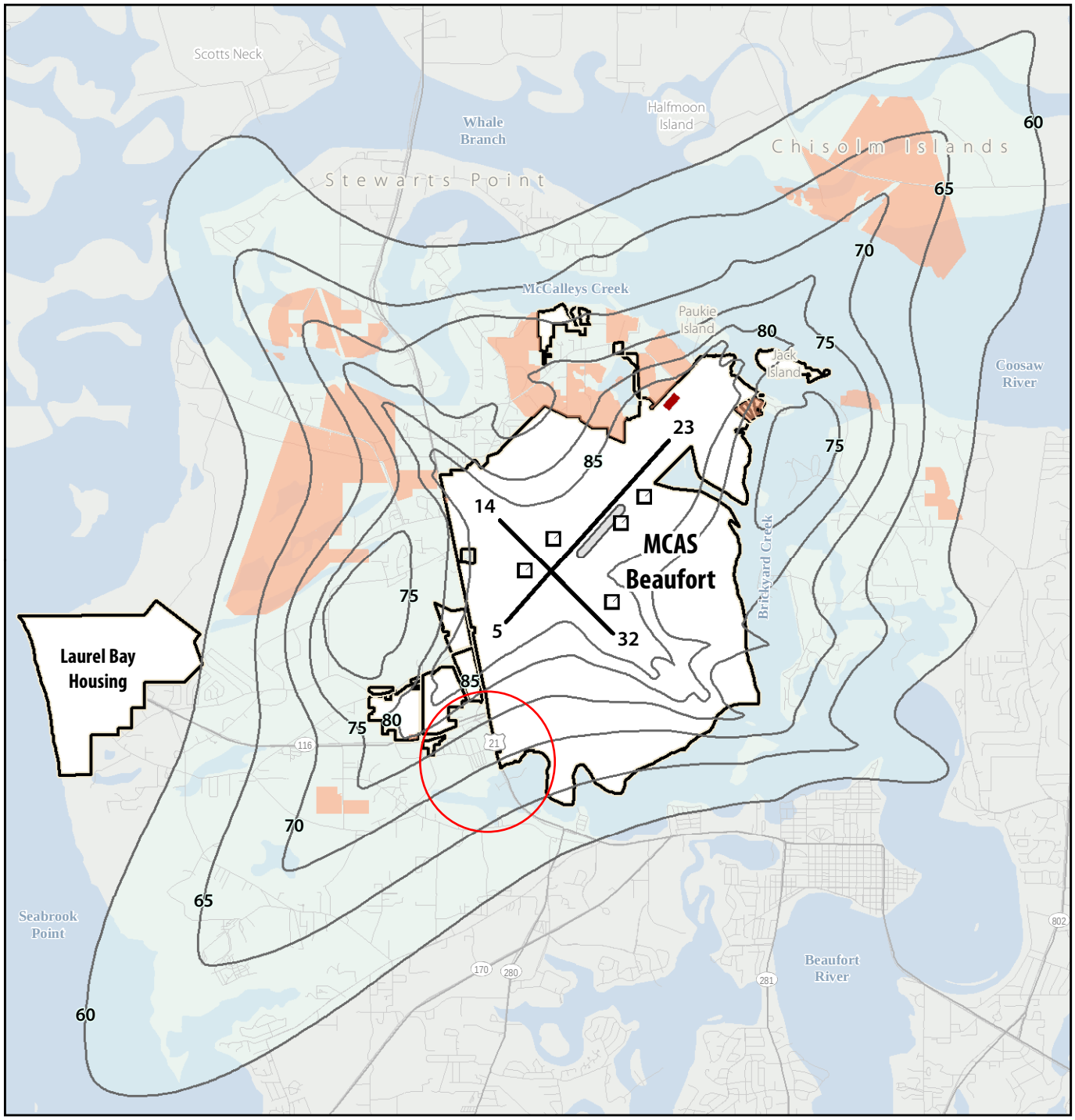


VISION BEAUFORT

2009 Comprehensive Plan

LAWRENCE GROUP


SEABROOK RD
SEABROOK POINT DR
SEABROOK CENTER RD
HUTSON LN
MARTIN LN
TERRA DR
DEFOUR RD
TENAH RD
FANNING CT
CRYSTAL ST
STUART POINT RD
TWIN DR
CORNELIUS DR
BALLPARK DR
SALTGRASS LN
WISSEHICKY COSGAW PLANTATION DR
BOWERS RD
PAMELA AVE
MARCIA CT
CORNETT SMALLEY LN
CROSSROADS DR
CORNETT RD
BIDDIE LN
PATRICIA DR
ROBERT SMALLS PKY
ROSEMARY DR
TOGUS LN
JONESFIELD RD
BIG RD
PARADISE ENTRANCE
POPPY HILL RD
SHANKLIN RD
SWAMP FOX TRL
CYPRESS ST
BIRCH DR
ASPEN ST
ASH ST
ALTHEA ST
DAHLIA DR
AZALEA DR
IRIS LN
DOVE LN
BOBWHITE DR
WREN LN
MIRROR RD
HANGING MOSS DR
QUAIL DR
BAY PINES RD
ZEHM LN
RUGRACK RD
MAGNOLIA LN
MORRALL DR
DENNIS LN
KATIE LN
BURLINGTON DR
BRILLIANT LN
MURRAY DR
PINE GROVE RD
ROSEVILLE RD
ROSEVILLE DR
PARADISE WAY DR
SHANKLIN RD
SAWMILL CREEK DR
COUNTY SHED RD
OLD MILL RD
OLD MILL CT
OLD MILL DR
SALEM DR
ADAMS WAY DR
ADAMS WAY CT
HARDING CT
HILL CT
LEO GREEN RD
BROAD RIVER BLVD
MINT FARM DR
FLEMINGTON DR
ROSSUM HILL RD
PINE OAKS DR
GODWIN RD
STILL SHADOW DR
TREELANDS
TREELANDS CT
RIVER DR
VALLEY DR
ROLLING DR
LEBOKES FARM RD
LEBOKES FARM CT
VANTIA
CASTLE ROCK RD
TORO LN
COLONIAL AVE
RILEY RD
RICE RD
CREEK RD
VAUX RD
DAWN ST
SAVANNAH WAY
ANDERSON LN
CLYDESDALE CIR
PROVIDENCE RD
ISABELLE BLVD
PALOMINO DR
MINK POINT BLVD
JOSEPHINE DR
OAKVIEW DR
TABBY RD
ROUGH RIDER RD
GROBER HILL RD
FALLS RD
WINSOR RD
SCIPIO RD
SAVANNAH HWY
JEFFERSON ST
BANNARD RD
KADER RD
GAULT ST
DOGWOOD ST
SHELL POINT RD
CYPRESS ST
BELLEVIEW CREEK
MARINA BLVD
RIBAUT RD
ROBERT SMALLS PKY
OKATIE HWY
OSPREY RD
WHITE HERON DR
SPOONBILL DR
WESTERN TRCE
WATERBIRD DR
ASTOR RD
PONDEROSA PINE DR
BRYAN LN
OSMUNDA
SHIMMER
HEDGEHOG
ARGOVIEW RD
GREENWOOD LN
CHRISTINE LN
CHLOE CT
SPRINGFIELD RD
HEWLETT RD
PICKENS ST
COVE RD
PINE RUN TRL
WADE HAMPTON DR
EGRET DR
LEWAYNE DR
MARSH DR
SEA GULL DR
FIDDLER DR
CHARLTON DR
BUCK RD
DOE RD
STELLATA LN
MCKEE RD
ASHDALE DR
STEVENS KY
AUDUBON BLVD
LAKE CT
REEDS RD
LITTLE CAPERS RD
SURREY LN
MISSES RD
NEWPORT RD
ALUMNI RD
BIRKFIELD RD
WALKER DR
TAYLOR DR
BIG BEN RD
MOYD LN
ASHLEY DR
SUNSET BLVD
MILLER DR E
MILLER DR W
ROBIN DR
ROBERT SMALLS PKY
PARKWOOD DR
PARKWOOD CT
WESTWOOD DR
WESTWOOD CT
HOPEWOOD LN
TROTTERS LOOP
DIANA LN
CRANBERRY LN
GROVE RD
PALMER LN
ONTARIO ROAD
LAFAYETTE ST
PARK AVE
CONNELL ST
PRINCE ST
KING ST
HARVEY ST
NORTH ST
BAY ST
HAY ST
HERMITAGE RD
FRIPP PT
PINCKNEY DR
PINCKNEY CT
CARTER DR
CARTER CT
BOUNDARY ST
BOUNDARY CT
BOUNDARY LN
BOUNDARY PL
BOUNDARY WAY
BOUNDARY CIR
BOUNDARY CV
BOUNDARY TRL
BOUNDARY RD
BOUNDARY DR
BOUNDARY CT
BOUNDARY ST



SCALE
0 0.5 1 Miles

Legend

- Vertical Landing Pads
- 2013 Noise Countour (db DNL)
- Runway
- FBO
- LHD Facility
- Major Road
- MCAS Beaufort Base Boundary
- USMC Land Protected Under Restrictive Easements
- Waterbody

Figure 4-1
AICUZ Noise Contours
MCAS Beaufort
MCAS Beaufort AICUZ
Beaufort County, SC

Note: The location of Vertical Landing Pads, FBO, and LHD Facility, as well as the Flight Tracks and Noise Contours are based on the 2010 USMC F-35B East Coast Final EIS.

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PORT ROYAL – REZONING

Amend Article 4
Specific to Use, of Port Royal Code

MEMORANDUM

To:	BEAUFORT–PORT ROYAL METROPOLITAN PLANNING COMMISSION
From:	Linda Bridges, Planning Administrator
Subject:	Amend Article 4, Specific to Use, of The Port Royal Code
Meeting Date:	May 18, 2020

Currently The Port Royal Code makes no allowance for a Campground in any transect district. The following amendments to The Port Royal Code have been submitted to staff. The amendments will:

- Allow, Recreational Campground as a Use in The Port Royal Code
- Allow the Use in the T4 Neighborhood Center transect
- Establish Conditions for the Use

Analysis

Following a presentation to Town Council in April, the applicant was asked to return to the Planning Commission.
The 2009 Comprehensive Plan, in the Chapter – Economic Development, a Community Principal states: *Our government services will be fiscally responsible and maximize return on investment. We will support entrepreneurial ventures which strengthen our local economy.*

A stated Goal to accomplish this: *Port Royal will support the growth and development of quality jobs and businesses in the community.*

- As proposed the text amendment will add the use Campground as a Conditional Use to the Article 4 Specific to Use chart
- Limit the use to transect T4 Neighborhood Center
- Provide a definition for the use.
- Provide conditions/limitations for the use.

Please find attached the applicant's requested text amendment that reflects the feedback that they received from Town Council and the Town's current Zoning Map (Exhibit B).

Text Amendment Narrative

Property Owner:
11 Sea Gull LLC
1208 Southern Oak Way
Mount Pleasant, SC 29466

Contact: Mike Richardson
(617)-312-7188
Email: mike@richardsonra.com

Text Amendment Prepared by:
J. Michael Brock- PLA # 1076
M. Brock Designs, LLC
PO BOX 358
Port Royal, SC 29935
843-540-6407
mbrock@mbrockdesigns.com

Summary:

This text amendment is for the addition of a specific use for T4NC under Recreation, Education, Safety, Public Assembly within the Principal Uses Allowed in Each Zone Section 4.1.30 of The Port Royal Code 4-5.
The specific use is for **Recreation Facility- Campground** to be a conditional Use within the **T4NC Zone**. This use is currently not allowed within the Town of Port Royal but is allowed within Beaufort County. The text amendment has been modified from the Beaufort County Community Development Code. The modifications are more related to smaller scale Recreation Vehicular parks that would be more appropriate for the Town of Port Royal. This use would only be allowed within the T4NC zone property that is accessible only by major arterial roadways. This use would be limited for a minor number of lots within the Town of Port Royal.

The property owner is proposing the text amendment to allow for this use on their property within the town with the purpose of constructing a RV park. The park would facilitate visitors seeking a RV slip close to the town and within northern Beaufort County which is not currently offered to the public.

The economic impact for this use within the Town of Port Royal would be greatly beneficial as a means of bringing tourism dollars to the Port Royal's front door. This use would initially bring a new business license to the town. That business would bring property taxes for a commercial use, personal property taxes, and a Hospitality/ Accommodation tax of 3% gross revenue monthly. The economic impact on the community would bring visitors to our restaurants, coffee shops, and retail businesses. It would offer another option for visitors of the military bases to stay and enjoy our community.

We believe that this is a use that would be highly sought by visitors traveling the 95 corridor and looking for a place to stay close to the towns in Northern Beaufort. Currently there is one RV park on Paris Island Recruit Station that has 18 sites for parking an RV and the use is only for eligible patrons (service members and family) or guests of graduating Marines. The location is also limited to the south end of Paris Island limiting accessibility to the Town of Port Royal.

In the 2009 Comprehensive plan, the chapter on Economic Development, a Community Principal sates: Our government services will be fiscally responsible and maximize return on investments. Further, it states "we will support entrepreneurial ventures which strengthen our local economy". We believe with the rise in use of RV's to travel the country, and the increase of RV parks being planned inside municipalities, this is a great opportunity for Port Royal to capture more tourists and bring economic growth to the community. With the continual concerns of short term rentals, an RV Park and Campground will offer those tourists wanting to be closer to the towns and cities yet also travel in an economical manner, a place to stay within the town but under the control of the town by setting specific conditions.

What the new owners envision on this property is offering something new that would bring people to our community to learn about the history, to shop in the retail stores, to eat in our restaurants, and to explore and enjoy the Lowcountry. The new owners have already begun to clean up the site from the previous uses, a mobile home park. They are awaiting the next steps of removal of the existing homes fronting Paris Island Gateway in hopes that this text amendment will offer the construction of the RV Park/ Campground.

Why an RV park campground? Mike Richardson would like to invest in a development with less impact on the environment than what could be developed. An RV park would offer a more open atmosphere while remaining inside the town limits. The new camping and RV trend is to be closer to urban areas. In some

circles it is called "Urban camping". The trend is to either stay in a parking lot for several nights and visit the community or to go to a community that has the RV parks closer to the town. Smaller RV's or conversions is the new normal for travelers searching for those special communities. Young families are finding ways to explore on a budget and the urban RV park is one of those methods they are exploring. This will bring people to the town experiencing the culture and spending money in the restaurants and retail business. This would offer a destination location to specific users. Those who want to camp or stay in an RV but be close to town.

The property owner bringing this text amendment to the town is looking to make the best possible use for his property. The adjacent property to the East is Beaufort county land is possibly slated for a park or open space area. This is a great opportunity to keep the area less intensive of development and impervious surfaces. It will have a natural buffer, owned by Beaufort County, along Parris Island Gateway, and with the hope that this trend will continue as the older properties along Paris Island Gateway are develop.

What could the new owners currently do on the property?
Residential:

- Single Family- detached (P)
- Two- Family unit
- Group Home
- Temporary Shelter
- Accessory Building unit (C)
- Home Occupation

Office

- General Office and Services (P)
- Animal Services
- Lodging
- B&B
- Inn
- Medical Services- Clinics
- Vehicle services- Minor Repair/ Maintenance

- General Offices and Services with drive-thru (C)

- Day Care Minor
- Day care Major
- Vehicle services- Major Repair/ Maintenance

Retail & Restaurants

- General (P)
- Restaurants
- General Retail and Restaurant with Drive Thru (c)
- Vehicle Sales and Rental

Recreation, Education, Safety, Public assembly

- Community safety Facility (P) fire stations, police, holding cells
- Marine Oriented facility
- Meeting facility / worship < 5K SF
- Meeting facility/ Worship 5K SF- 10K SF
- Parks and open space
- Public or private school
- Specialized training
- College/ university

Transportation, communications, infrastructure

- Infrastructure utilities (c)
- Parking facility

Industrial
Manufacturing/ process/ packaging (SE)
Warehousing and Distribution- (c)

These uses are currently allowed in the T4-NC zone. The recreational uses allowed within the zone are similar to the use being requested. At the time the new code was being prepared and the zone uses were created, the use of RV Parks might not have been something desirable for the Town of Port Royal. Today, RV parks are being developed within towns and cities to offer more opportunities for visitors. They are opening along coastal towns and cities and bringing more visitors to explore the special communities that are allowing this use.

Specific Use	T1 NP	T3 Edge	T3 SN	T3 N	T4 NC	T4 NC-O	T4 UC	T5 MS	Section For Additional Conditions	Additional Design Criteria
RECREATION, EDUCATION, SAFETY, PUBLIC ASSEMBLY *(continued)*										
1. Institutional Care Facility	-	-	-	-	-	P	P	-		
2. Marine Oriented Facility	-	P	P	P	P	P	P	P		(Multi-bldg) 2.2.100
3. Meeting Facility or Place of Worship: < 5,000 SF	-	P	P	P	P	P	P	P		5.2.30
4. Meeting Facility or Place of Worship: 5,000 SF - 10,000 SF	-	-	-	-	P	P	P	P		5.2.30
5. Meeting Facility or Place of Worship: > 10,000 SF	-	-	-	-	-	P	P	P		5.2.30
6. Parks & Open Areas	P	P	P	P	P	P	P	P		2.4
7. Recreation & Entertainment Facility: Indoor	-	-	-	-	P	P	P	P		(>35,000sf) 5.2.50
8. Recreation & Entertainment Facility: Outdoor	-	-	-	-	-	C	-	-	4.2.40.A	(Multi-bldg) 2.2.100
9. School: Public or Private	-	-	P	P	P	P	P	P		5.2.30
10. School: Specialized Training or Studio	-	-	-	-	P	P	P	P		
11. School: College or University	-	-	-	-	P	P	P	P		5.2.30 (Multi-bldg) 2.2.100
12. Recreation Facility- RV Park/ Campground	-	-	-	-	C	-	-	-	4.2.40.B	

RECREATION, EDUCATION, SAFETY, PUBLIC ASSEMBLY *(continued)*

This category is intended to encompass uses of a public, nonprofit, or charitable nature that serve a recreational, educational, safety, or social function, and benefit the people of the community.

Specific Use	Definition
12. Recreation Facility- Campground	This use is intended to provide commercial rental parking spaces and sites for recreational vehicles (RVs), including motor homes, travel trailers, pick-up campers, tent trailers, and tent camping; to provide goods and services customarily needed by occupants of the park; and to assure reasonable standards for the development of facilities for the occupancy of recreational vehicles on a temporary basis, ranging from short overnight stops to longer destination-type stays of several days to weeks.

4.2.40 Recreation, Education, Safety, Public Assembly

A. *Recreation & Entertainment Facility: Outdoor.*

1. Outdoor amusement and entertainment facilities shall comply with the following standards:

   a. **Site Design.** To the maximum extent practicable, all buildings on the site shall conform to the building type standards of Division 5.1 (Traditional Building Types), and contain an associated private frontage as conveyed in Division 5.3 (Private Frontage Standards). The building shall be sited per the dimensional and development standards of Article 3 (Specific to Zones) and conform to the architectural provisions of Division 5.4 (Architectural Standards and Guidelines).

   b. **Screening.** Any portion of the site or function requiring (or resulting in) additional external lighting, noise, or odors shall be located 50 feet from the lot line and shall be completely screened using vegetative plantings, fencing, buildings, or a combination thereof.

   c. **Hours of Operation.** Outdoor operations shall be closed and exterior lighting turned off by 11:00 p.m. Facilities seeking to remain open after this time must apply for and receive approval of a Special Exception Permit, see Section 8.2.50 (Special Exception Permit).

2. **Reserved.**

B. *Recreation Facility- RV park/ Campground.*

1. All recreational vehicle (RV) parks within the Town of Port Royal shall be governed by the following regulations:

   a. **Site Design. Campgrounds can be located with conditions only in the T4-NC zones.** Campground is required to be located with direct access from a major arterial road. Minimal size of property to be 3.0 acres. Setback requirements shall meet the following requirements: Fifty (50) feet when abutting a State or Federal Highway or designated major arterial road; Twenty-five (25) feet when abutting a public right-of-way; Fifteen (15) feet when abutting any property line other than a or b. There shall be a minimum distance of ten (10) feet provided between RV units parked side by side. There shall be a minimal distance of Ten (10) feet between RV units parked end to end. There shall be a minimum distance of Twenty (20) feet between and RV space and any building. RV pads provided shall be a minimum of Fifteen (15) feet wide.

   b. **Screening.** This use shall be screened with a Fifteen (15) wide, opaque, visual buffer next to all property lines. A fence can be installed in addition to a planted buffer. An eight-foot (8') height fence may be installed along adjacent property lines.

   c. **Hours of Operation/ length of stay.** Outdoor operations shall be closed by 11:00 p.m. Facilities seeking to remain open after this time must apply for and receive approval of a Special Exception Permit, see Section 8.2.50 (Special Exception Permit). Security measures must be installed for users arriving later. All campers are limited to a 14- day length of stay.

   d. **Facility amenities.** This use shall be provided one or more service buildings equipped with flush toilets, lavatories, showers and laundry facilities meeting minimum state Health Department standards. Such facilities shall be

conveniently located at a distance of not more than three hundred (300) feet from any RV served. Such facilities shall be kept in a clean and sanitary condition, and plumbing fixtures shall be maintained in good working order. All such facilities shall be adequately lighted at all times of the day and night and shall be well ventilated. Portable fire extinguishers of a type approved by the Town of Port Royal Fire Protection District shall be kept in the service buildings and at all locations designed by the fire district and shall be maintained in operating condition.

e. **Accessory Uses.** Recreational facilities and amenities shall be for the purpose of the camper enjoyment including sports facilities, equipment for amusement, playground facilities, swimming pools and a camp store/office. These amenities shall not be for general public use and shall not exceed 3,000 square feet.

f.

g. Sanitary disposal stations. This use shall contain at least one sanitary disposal station for the sole purpose of removing and disposing of wastes from holding tanks in a clean, efficient and convenient manner.

h. **Utilities**. All utilities shall be placed underground.

i. **Water supply.** An accessible, adequate, safe and potable supply of water under pressure shall be provided in every RV park. The water supply system shall be designed, constructed and maintained in compliance with the state Health Department standards and applicable city, standards. All plans and specifications shall be submitted with the zoning or rezoning request. Each rental space equipped with sewer and electrical hookups shall also be equipped with two water outlets, to provide connection for the RV and a garden hose. All other rental spaces shall be equipped with one water outlet.

j. **Sanitary sewer.** A minimum of eighty percent (80%) of all rental spaces shall be equipped with a hookup to a public sewage system by way of a branch line and riser pipe at least four (4) inches inside diameter. The riser pipe shall be capped with a watertight cap or plug when not in use. Sanitary sewage systems shall be installed in compliance with the state Health Department standards and the rules and regulations of the BJWSA or other such governing authority. All plumbing in the RV park shall comply with state and local plumbing laws and regulations.

k. **Electricity**. A minimum of eighty percent (80%) of all rental spaces shall be equipped with an electrical outlet supplying at least 110 volts, or 110/220 volts, installed in accordance with applicable state electrical codes.

l. **Refuse disposal.** The storage, collection and disposal of refuse shall be performed so as to minimize accidents, fire hazards, air pollution, odors, insects, rodents or other nuisance conditions. All refuse shall be stored in durable, washable and nonabsorbent metal or plastic containers with tight-fitting lids. Such containers shall be provided at the rate of at least one thirty (30) gallon container, secured in a rack or holder, for each rental space, or an equivalent storage capacity in centralized storage facilities. Adequate refuse collection and removal shall be the responsibility of the park owner.

m. Landscaping. A landscape plan, to be approved by the Planning Director of the Town of Port Royal, shall be required for all RV parks. Landscaping shall be designed to perform the following functions:

a. Screen the RV park visually and audibly from adjacent properties as completely as possible;

b. Provide an attractive entrance and street frontage;

c. Provide dust and erosion control;

d. Provide a neat, attractive and aesthetically pleasing appearance.

Existing trees shall remain between all campsites and/or RV pads, to the maximum extent practicable. If there are no trees between campsites, tent sites, or RV pads, at least one tree shall be planted per 2 sites.

Grass and ornamental landscaping shall be required in all RV parks, together with adequate water outlets to maintain all landscaping. The RV park shall be screened from adjacent properties by means of fences or walls, eight (8) feet in height, or by means of hedges or other landscaping. This use shall be screened with a 15-ft. wide, opaque, visual buffer next to all property lines.

n. **Open space**. Open space for common areas, playgrounds and other recreational uses shall be provided at the rate of at least ten percent (10%) of the gross area of the RV park, and shall be of sufficient size and distribution as to be a functional part of the entire development plan.

o. **Length of Stay.** All camping units are limited to a 30-day length of stay.

p. **Safety.** There shall be low-intensity night lighting throughout the recreational vehicle park. Each RV parking pad shall have a light in front of the unit, next to the driveway at the roadway. Designated walkways and all other park facilities will also have night lighting as approved by the Town of Port Royal and applicable permitting agencies. There shall be fire hydrants installed within the park or within close proximity to the park, as per the town fire department's recommendations or requirements. Animals shall be kept inside the RV or on a leash while inside of the recreational vehicle park apart from a dog park. . Only one recreational vehicle is permitted at any time per RV parking pad. The park manager may opt to rent a maximum of two contiguous pads to one oversized recreational vehicle. Detached accessory structures are not permitted on RV parking pads or in their accompanying side yards. Parking of any motorized vehicle is prohibited in RV parking pad side yards. All accessory structures installed in a recreational vehicle park shall meet or exceed the requirements of the International Building Code and other applicable laws.

NAICS CODE 721211- RV (RECREATIONAL VEHICAL) PARKS AND CAMPGROUNDS

Industry Sector

Accommodation and Food Services

Total Companies

11,262

Verified Companies

8,597

Est. Employment

22,351

Annual Payroll

$620,475,000

Total Revenue

$2,997,491,000

Description

This U.S. industry comprises establishments primarily engaged in operating sites to accommodate campers and their equipment, including tents, tent trailers, travel trailers, and RVs (recreational vehicles). These establishments may provide access to facilities, such as washrooms, laundry rooms, recreation halls and playgrounds, stores, and snack bars.

Snapshot

NAICS Code 721211 - RV (Recreational Vehicle) Parks and Campgrounds is a final level code of the "Accommodation and Food Services" Sector. There are 8,597 companies verified as active in this industry in the USA with an estimated employment of 22,351 people.

Hierarchy Navigation

Parent Category

- 72121_ - RV (Recreational Vehicle) Parks and Recreational Camps

Industry Examples

Common types of examples within NAICS Code 721211 - RV (Recreational Vehicle) Parks and Campgrounds are:

- Campgrounds
- Campsites
- Recreational vehicle parks
- RV (recreational vehicle) parks

Companies

SICCODE.com compiles comprehensive business data and executive contact leads for businesses within NAICS Code 721211 - RV (Recreational Vehicle) Parks and Campgrounds . Some of the leading and most notable companies are listed below. To order a list of companies within NAICS Code 721211 - RV (Recreational Vehicle) Parks and Campgrounds for marketing (postal mailing, telemarketing, emailing) or analytics-use, click on the link below to "Buy Business List". Our data analysts are standing by to assist in your list setup and target marketing.

- Jackson Companies
- Kampgrounds of America Inc
- Ocean Lakes Family Campground
- Willamette National Forest
- Game And Fish Department
- St Croix Casino Danbury
- Wildwood Association Inc
- Camp Maiden Rock West
- Cal Expo RV Park
- Komfort Corp

Exhibit B1
Town Zoning Map
East Side

This is T4 NC Color

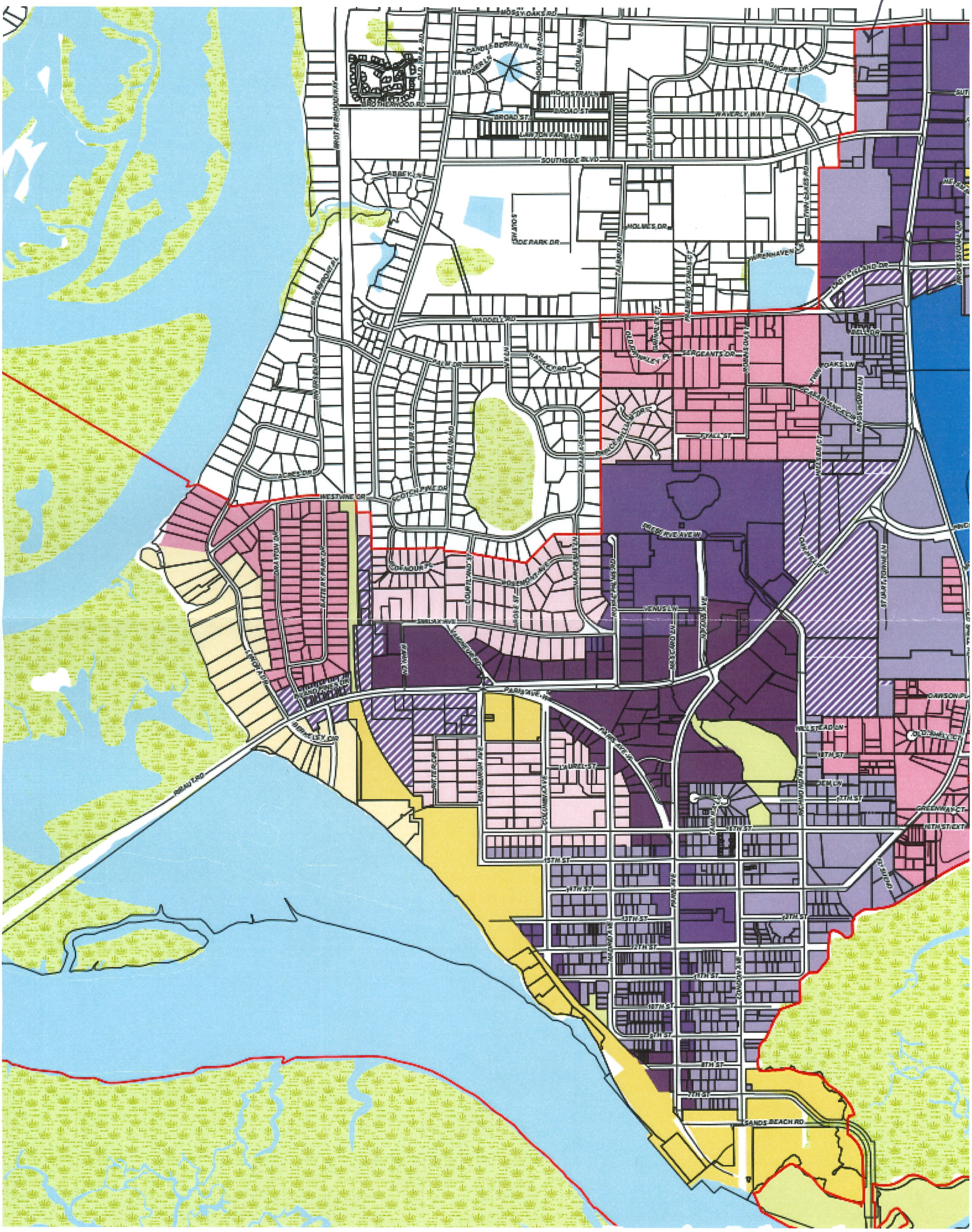
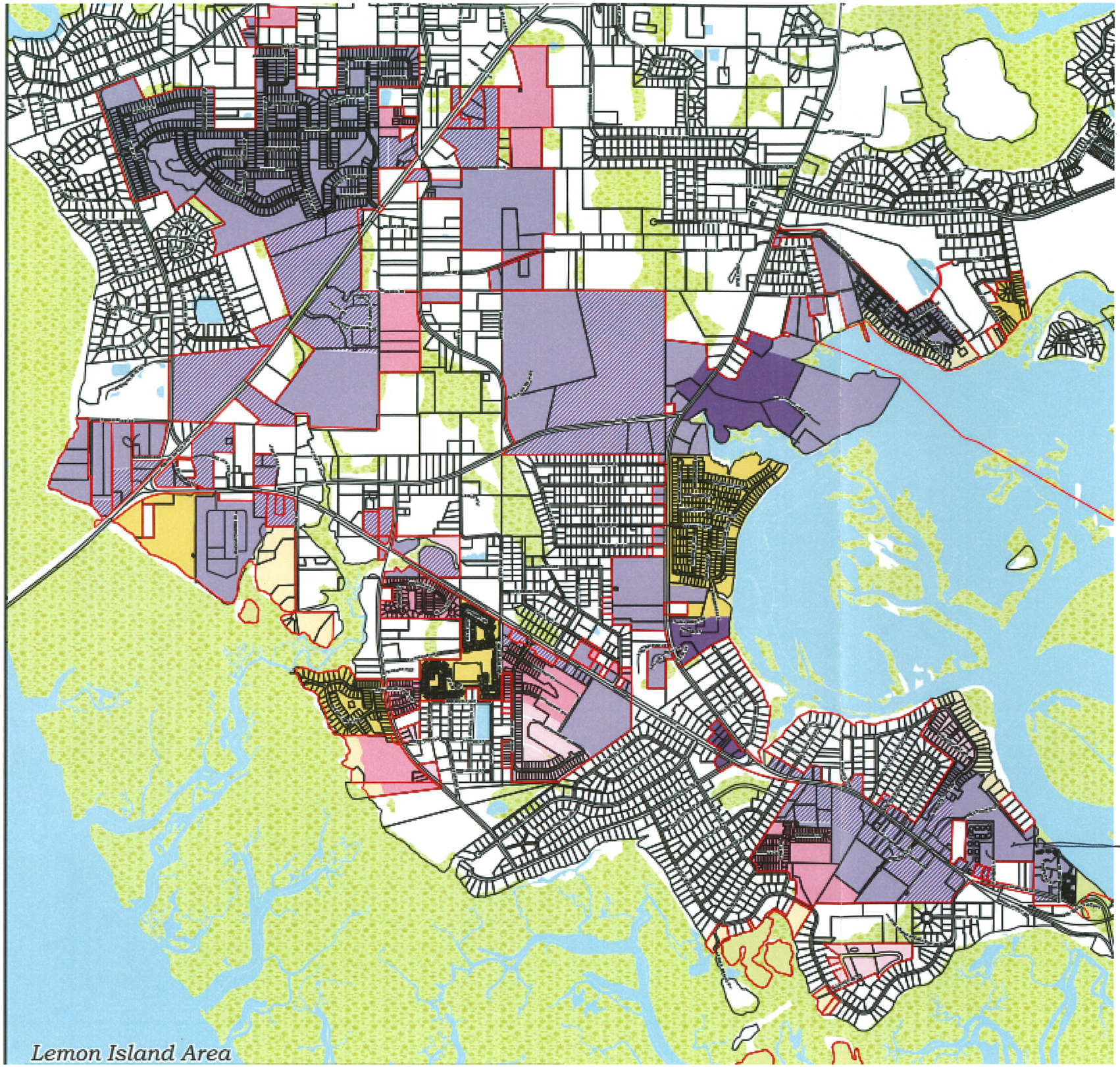


Exhibit B2
Town Zoning Map
West Side



This is TH NC Color

PORT ROYAL – REZONING

Hamrick Drive at Broad River Drive
District R112, Map 33B, Parcels 90A, 138, and a portion of 137

City of Beaufort - Town of Port Royal – Beaufort County
Joint Metropolitan Planning Commission
Rezoning Analysis
Meeting Date: May 18, 2020

Applicant
Cross Community Church
Site
Approximately 13.964 acres located on Hamrick Drive at Broad River Drive, also identified as District 112, Map 33B, Parcels 90A, 138 and a portion of 137. See Location Map, Exhibit A.

Present Zoning and Existing Development
The parcels are zoned T3 Sub-Urban Neighborhood. The parcels are undeveloped. The property was annexed into the Town in 2001.

Proposed Zoning
The Neighborhood Center (T4NC) Zone is intended to integrate appropriate, medium-density residential building types, such as duplexes, townhouses, small courtyard housing, and mansion apartments into a neighborhood framework that is conducive to walking and bicycling. Civic, transit, and commercial functions are located within walking distance.
See Exhibit B, Zoning Map and Text Beyond a single family home to the north there is a public park, medical offices and commercial development. The commercial property and the medical offices are zoned T4 NC-O

Comprehensive Plan / Land Use Compatibility
The Future Land Use map from the Comprehensive Plan classifies this portion of the parcel in a Restricted Growth Sector **(G-1)**, Conventional Neighborhood area and a northern portion in a Controlled Growth Sector **(G-2)**. See Exhibit C, The Future Land Use Map.



Property zoned T3 Neighborhood (County Designated) is adjacent to the north of the subject property. T3 Hamlet Neighborhood (County Designated) is to the south. See Exhibit D, the County Zoning Map Please note the applicant's submittal and narrative. The rezoning will allow the applicant the opportunity to develop a place of worship greater than 10,000 square feet .
In the event of development the town's development codes will also regulate tree removal and storm water management.

Environmental Issues
No environmental issues noted.

Public Service Issues
None

Letters were sent to property owners within 400 feet of the property being rezoned

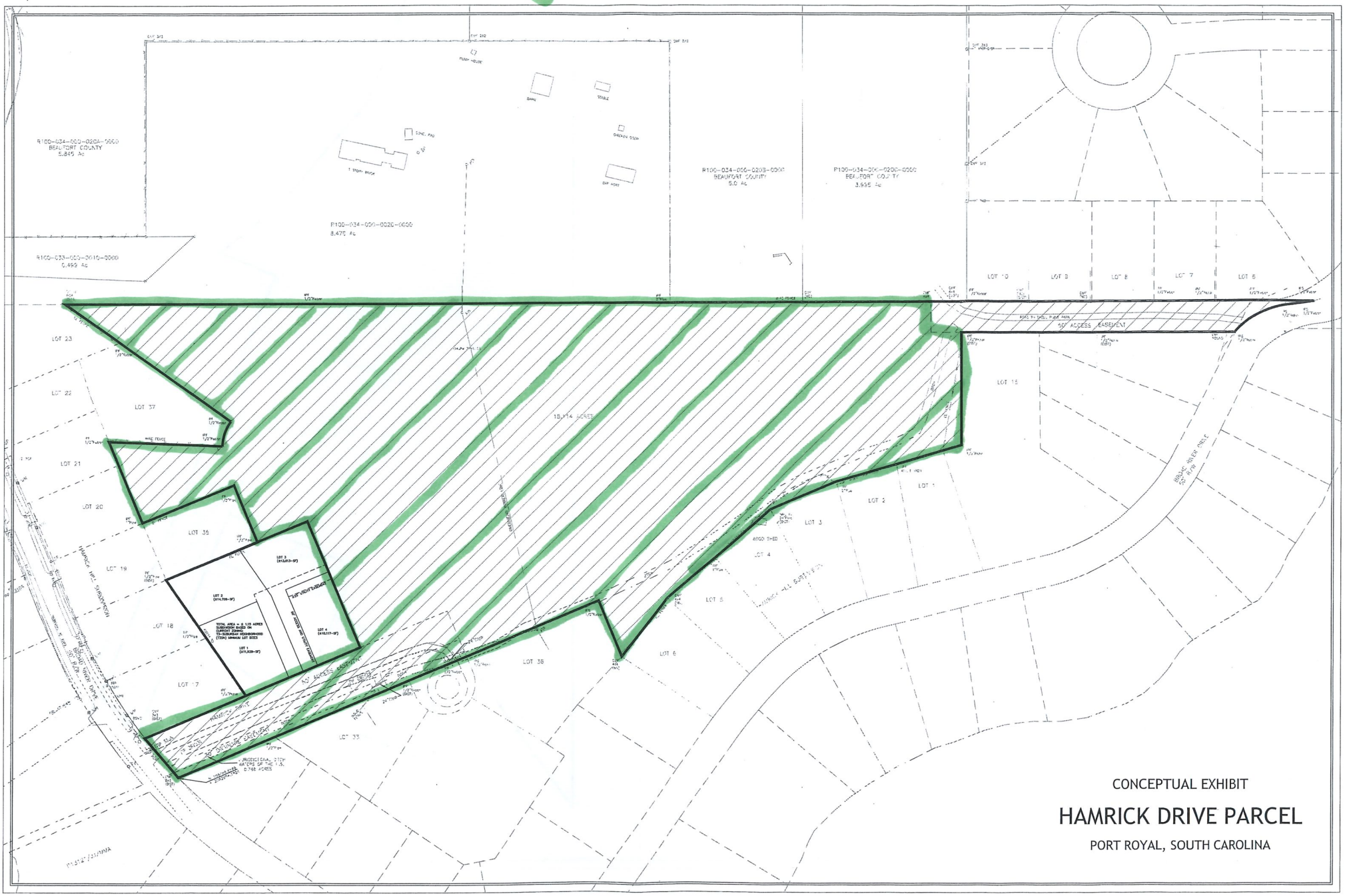
Exibit A - Location

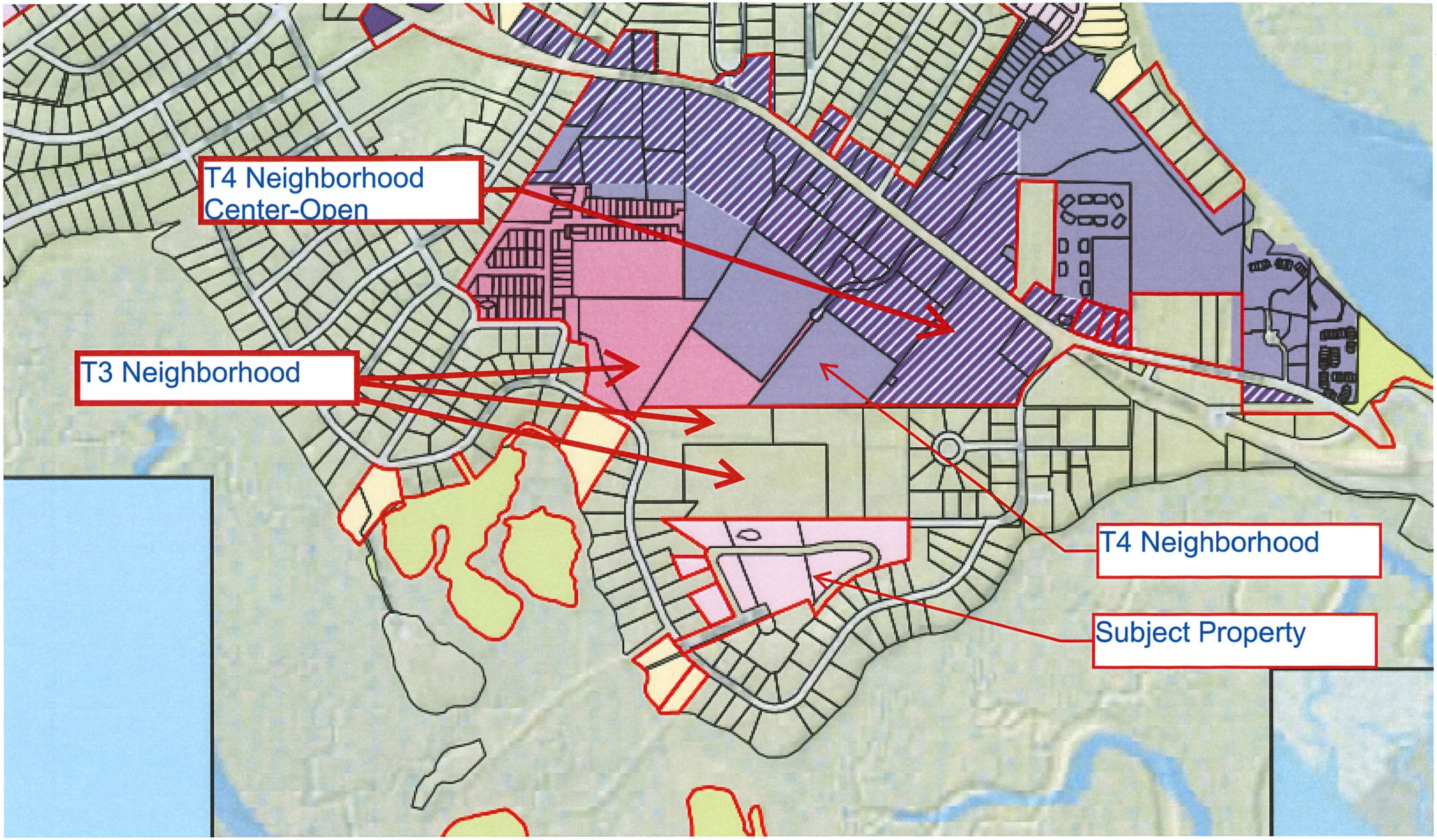
Hamrick Hill



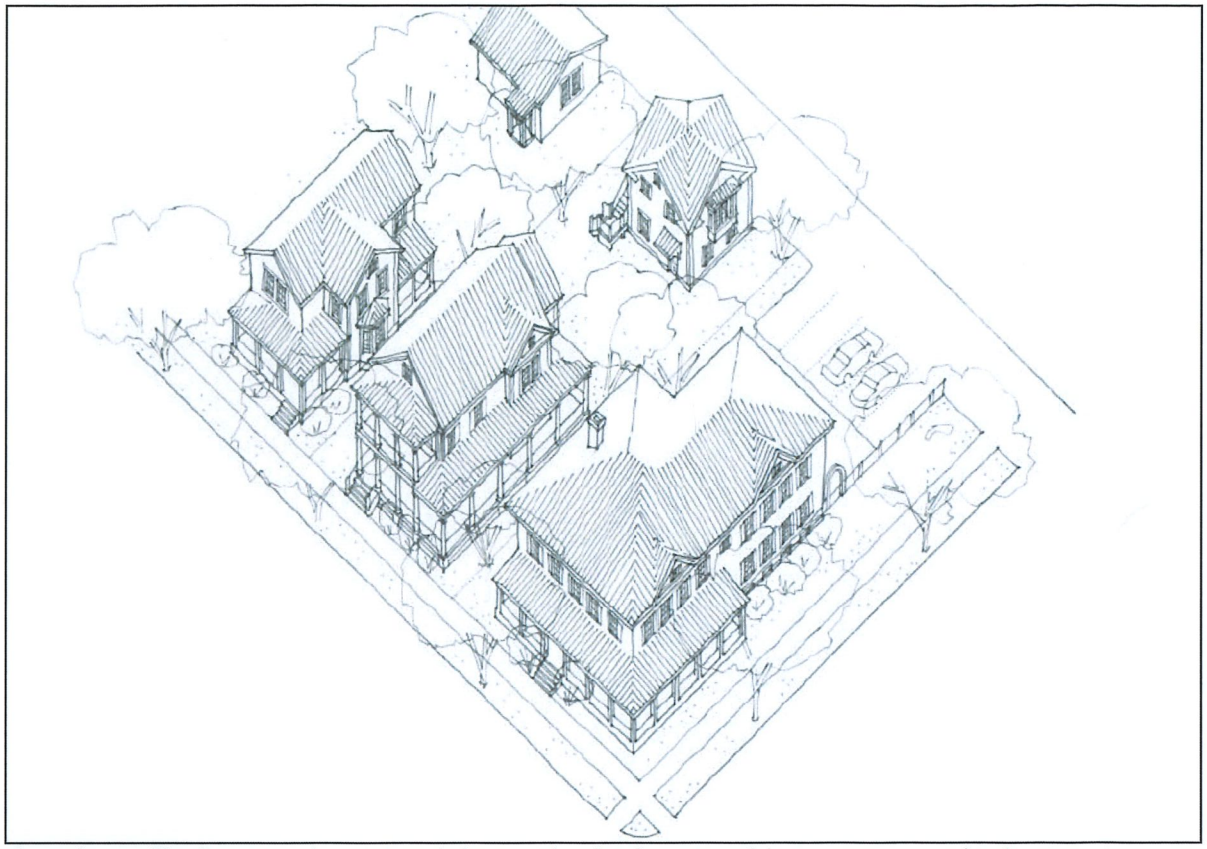
Aug 9 2019 11:49:51 AM.

Area of Rezoning Request




T4 Neighborhood Center-Open
T3 Neighborhood
T4 Neighborhood
Subject Property

3.2.70 T4 Neighborhood Center (T4NC) Standards



General note: The illustration above is intended to provide a brief overview of the transect zone and is descriptive in nature.

A. Purpose

The Neighborhood Center (T4NC) Zone is intended to integrate appropriate, medium-density residential building types, such as duplexes, townhouses, small courtyard housing, and mansion apartments into a neighborhood framework that is conducive to walking and bicycling. Civic, transit, and commercial functions are located within walking distance.

B. Sub-Zones

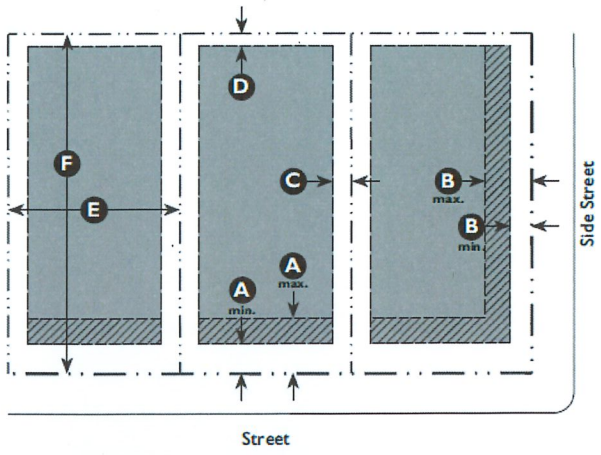
T4 NC-O (Open)

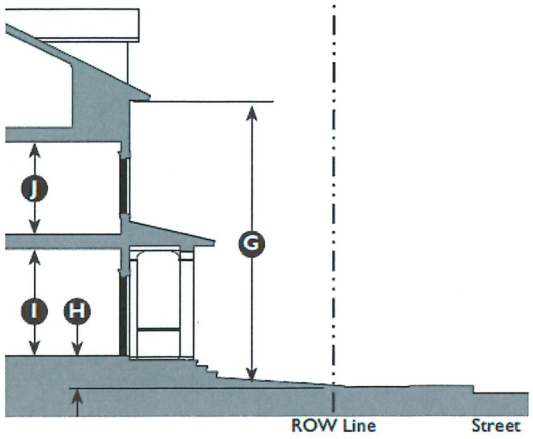
The intent of the T4NC-O Sub-Zone is to provide neighborhoods with a broader amount of retail and service uses in the scale and character of the T4NC zone.

C. Allowed Building Types

Building Type	Specific Regulations
Carriage House	5.1.40
Detached House – Medium	5.1.60
Detached House – Compact	5.1.70
Cottage Court	5.1.80
Duplex	5.1.90
Townhouse	5.1.100
Mansion Apartment	5.1.110
Apartment House	5.1.120
Landmark Building	5.2.30
T4 NC-O Sub-zone Only	
Flex Building	5.1.130
Main Street Mixed Use	5.1.140
Gas Station	5.2.40
Large Footprint Building	5.2.50

T4 Neighborhood Center (T4NC) Standards





Key

---- ROW / Property Line

—— Setback Line

Building Area

Facade Zone

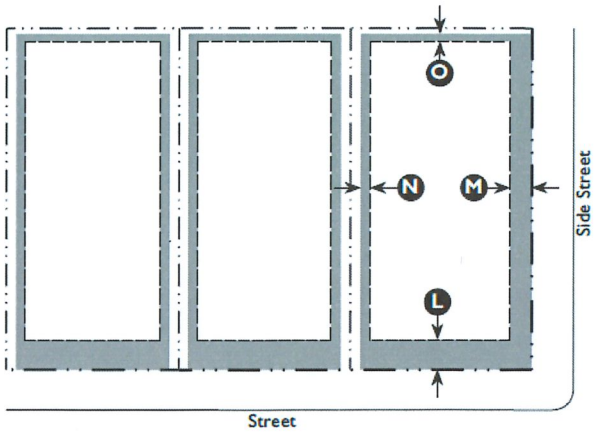
D. Building Placement		
Setback (Distance from ROW/Property Line)		
Front	10' min., 25' max. [1]	A
Side Street	10' min., 20' max.	B
Side:		
Side, Main Building	5' min.	C
Side, Ancillary Building	0' min.	
Rear	0' min.	D
Façade within Façade Zone:		
Front	40%	
Side Street	20%	
Lot Size (37,500 SF max.)		
Width	150 ft. max.	E
Depth	250 ft. max.	F
Large Footprint Building Only		
Width	Max. width of block face	E
Depth	Max. depth of block face	F
Miscellaneous		
Where existing adjacent buildings are in front of the regulated build-to-line (BTL) or front setback, the building may be set to align with the façade of the front-most immediately adjacent property.		
Loading docks, overhead doors, and other service entries may not be located on street-facing fades.		
The Administrator may exempt the following uses from the maximum lot size requirement: Community Recreation Facility; Meeting Facility or Place of Worship (>10,000 SF); Parks & Open Areas; Recreation and Entertainment Facility: Outdoor; School: Public or Private; School: College or University; Water or Marine Oriented Facility.		

E. Building Form		
Building Height		
Main Building	2.5 stories max.	G
Ancillary Building	2 stories max.	
Ground Floor Finish Level:		H
Residential	18" min., 60" max.	
Non-Residential (T4NC-O)	6" max.	
Ground Floor Ceiling:		I
Non-Residential (T4NC-O)	10' min.	
Upper Floor(s) Ceiling	8' min.	J
Ground Floor lobbies and Common areas in multi-unit buildings may have a 0" to 6" ground floor finish level.		H
Within 25' of the rear property line, buildings may not be more than a half-story taller than the allowed height of adjacent buildings.		
Appurtenances		
Architectural (cupolas, towers, steeples, chimneys, etc.):		
Roof Area (combined)	25% max.	
Height	18' max.	
Mechanical, Structural (heat and air, elevator enclosure, etc.):		
Roof Area (combined)	25% max	
Height	18' max.	
Footprint		
Width:		
Main Building	100' max.	
Large Footprint Building	Max. width of block face.	
Upper floors must have a primary entrance along the Front.		

Notes

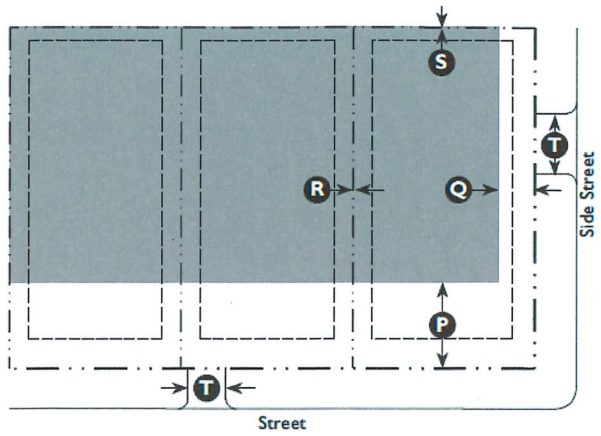
[1] The Front Setback for the Flex and Main Street Mixed Use building type (excluding Large Footprint Building) shall be: 10' min., and 18' max. A

T4 Neighborhood Center (T4NC) Standards



Key

---- ROW / Property Line
— Setback Line
Encroachment Area



Key

---- ROW / Property Line
— Setback Line
Allowed Parking Area

F. Encroachments and Frontage Types

Encroachments

Front	12' max.	L
Side Street	12' max.	M
Side	3' max.	N
Rear	0' max.	O

Encroachments are not allowed across a side or rear property line, or across a curb.

See Division 5.3 (Private Frontage Standards) for further refinement of the allowed encroachments for frontages.

Required Frontage Types

Common Yard	Stoop [1]	Shopfront [1 2]	Arcade [1 2]
Porch, Projecting [1]	Forecourt	Terrace [1 2]	
Porch, Engaged [1]	Dooryard [1]	Gallery [1 2]	

[1] Accessory steps may exceed the maximum encroachment.

[2] Allowed in T4HC-O Sub-Zone only, unless explicitly permitted as a Frontage Type for Landmark Buildings.

Additional Encroachments Permitted

Balconies	Chimneys	Ramps	Other
Bay Windows	Decks	Stairway	

These elements may encroach setbacks as conveyed above.

G. Parking

Required Spaces

Principal Residential Uses:	
All Allowed Uses	1 per 1500 sf min.
Office and Service or Retail and Restaurant Uses:	
All Lodging Uses	per Table 4.1.40
Except: Inn	1 per 2 rooms min.
All Other Allowed Uses	2.5 per 1000 sf min.

For parking requirements for Recreation, Education, Safety, Public Assembly; Transportation, Communication, Infrastructure; and Industrial uses see Table 5.6.30.A (Parking Spaces Required).

Location (Setback from Property Line)

Front	40' min.	P
Side Street	15' min.	Q
Side	0' min.	R
Rear	5' min.	S

Miscellaneous

Curb Cut or Parking Driveway Width		T
40 spaces or less	14' max.	
Greater than 40 spaces	18' max.	

H. Allowed Uses

Type of Use

Principal Uses	See Section 4.1.30 (Principal Use Table)
Accessory	See Division 4.3 (Accessory Uses and Structures)
Temporary	See Division 4.4 (Temporary Uses and Structures)

Use Definitions

Principal Uses	See Section 4.1.40 (Principal Use Definitions)

I. Lots with Buildings Oriented to Water or Marsh

Building Location

If a site is designed to address the water/marsh the ADU may locate between the Main Building and the Front Street.

Front Setback - ADU	3' or 12' (not in between)
Front Setback - Main Building	25' min.
Separation b/t ADU and Private Frontage on Main Building	10' min. May include breezeway

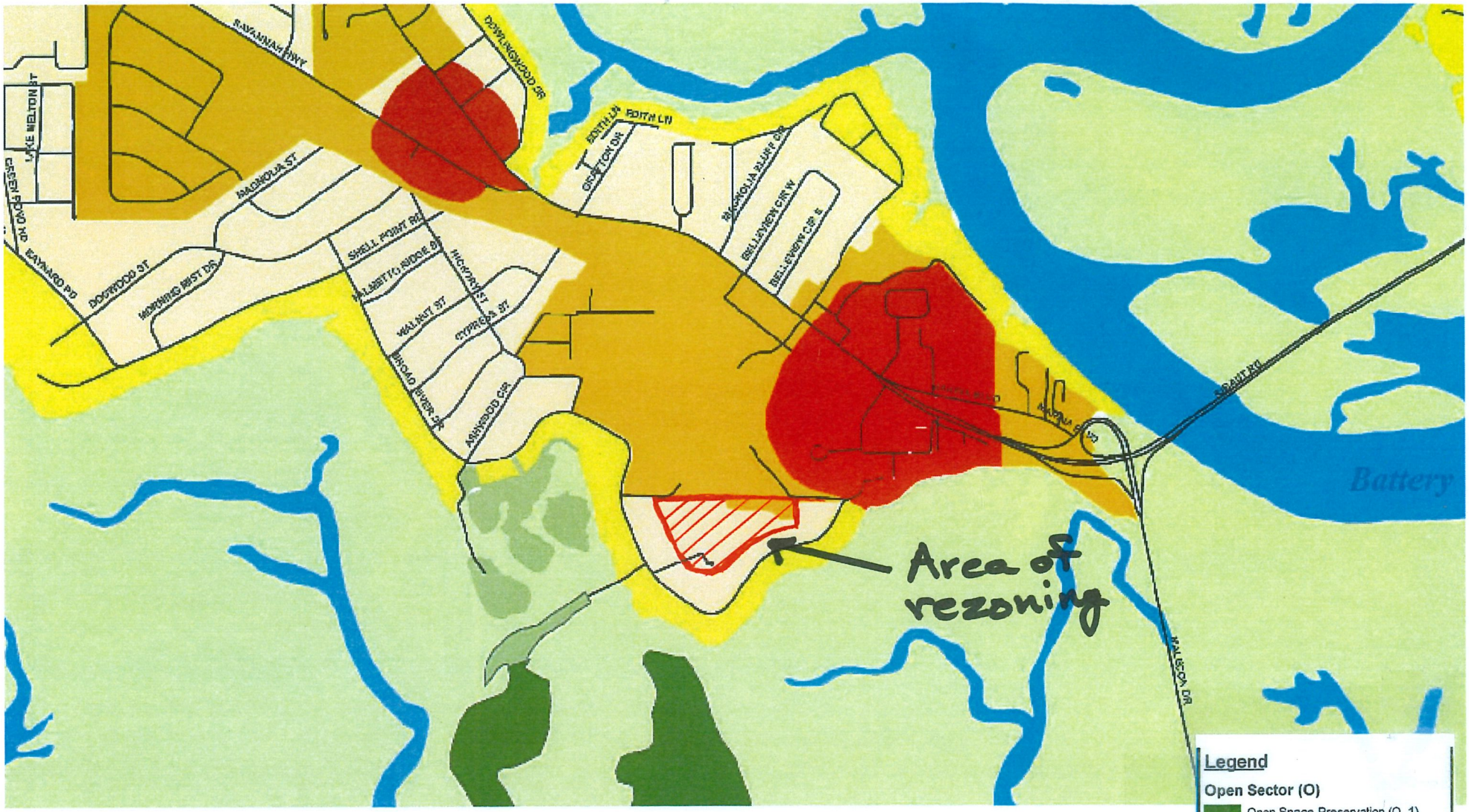
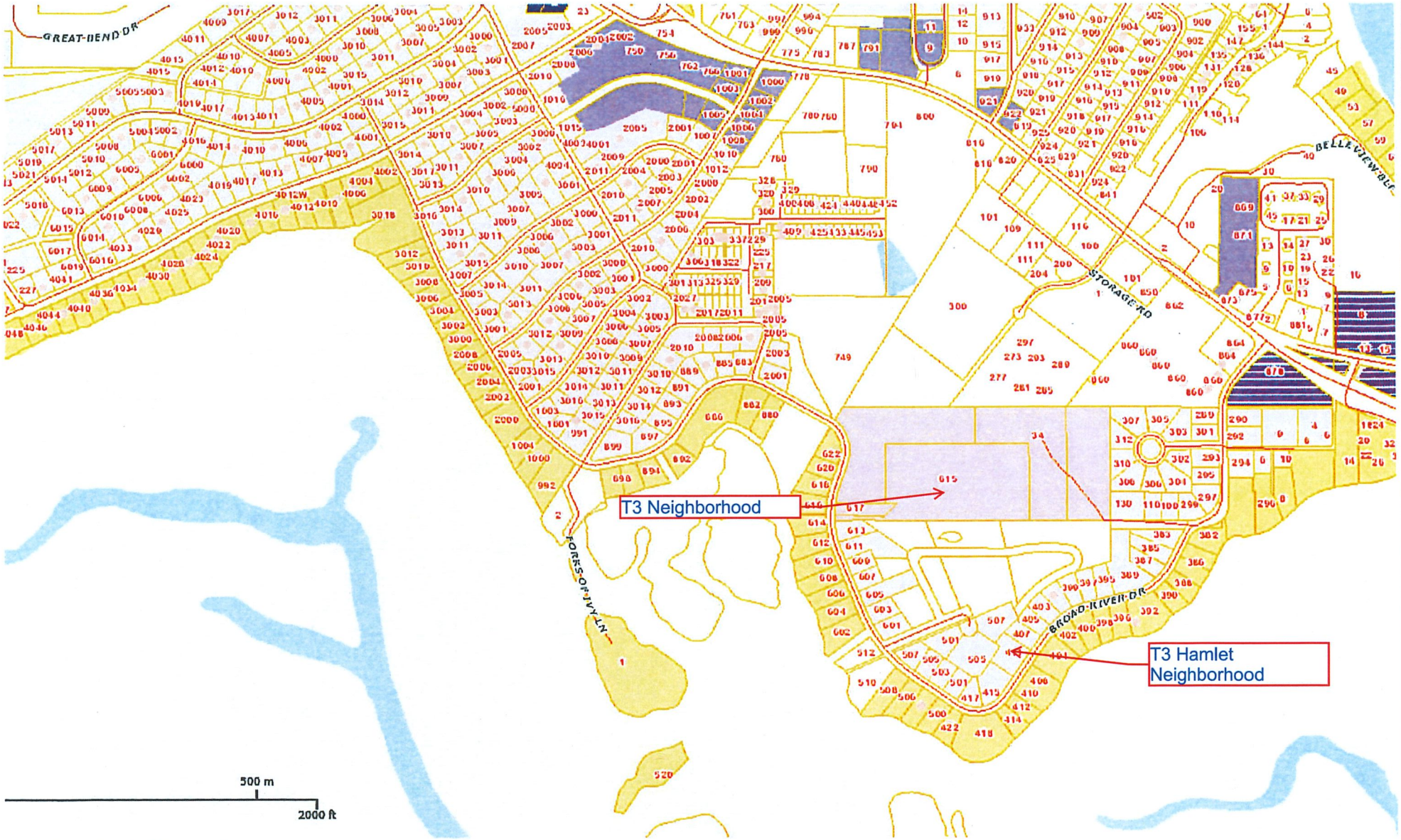


Exhibit C

Future Land Use Map

County Zoning

Exibit D



ı Aug 12 2019 09:57:49 AM.

The Application

PROPOSED ZONING AMENDMENT
Town of Port Royal South Carolina

Fee: $250.00
PUD: $500.00 plus $5.00 per acre

To The Honorable Mayor and Town Council:
The undersigned hereby respectfully request that the Town of Port Royal Ordinance be amended as described below:

(1) This is a request for a change in the: (Check one)
(✓) Zoning Map (fill in items #2, 3, 4, 5, 6, and 8 only)
( ) Zoning Text (fill in items #7 and 8 only)

(2) Give exact address and plat map reference for property you propose a zoning change;

District No.____ Map ____ Parcel (s) R112 033 00B 090A 0000

Address 1 Hammock Dr. Port Royal, SC 29935

(3) Area of subject property 15.114 Sq. Ft. or (acres.)

13.964 to be rezoned and developed by church.
1.15 will be retained by seller under current zoning.

(4) Current Zoning (remember to list any overlays)
T3 Suburban

(5) Proposed Zoning (remember to list any overlays)
T4 Neighborhood Center open

* Under item #8 explain why this area should be zoned as you proposed.

(6) Does the applicant own all of the property proposed for this zoning change?
( ) YES (✓) NO If NO, give the address of the property involved which he does not own and the owner's name and contact information: Hammock 15 LLC
109 Savannah Hwy, Beaufort SC 29906 843-379-3111

(7) Proposed language for TEXT change_____

(8) Explanation: see attached document

(If more space is needed, continue on back)

Pursuant to Section 6-29-1145 of the South Carolina Code of Laws, is this tract or parcel restricted by any recorded covenant that is contrary to, conflicts with, or prohibits the activity described in this application? ____ Yes ✓ No

It is understood by the undersigned that while this application will be carefully reviewed and considered, the burden of proving the need for the proposed amendment rests with the applicant.

Date: 5.5.2020

Owners Name: Taylor R. Burgess

Signed: TRB

Address: 2442 Bull St. Suite B
Beaufort SC 29902

Phone #: 843-476-9735
Email: taylor@crosscommunity.org

Additional parties: Tim Rentz (843-575-8468)
pgpsjc19@gmail.com
Greg Baisch: gbaisch@wardedwards.com
Paul Moore: pmoore@wardedwards.com

Proposed Zoning Amendment
Section 8 Explanation

Cross Community was started in January 2017, and for 18 months we met at Beaufort High School before moving to the YMCA in the fall of 2018. Our church serves a wide range of families across Beaufort county, so our desire has been to be located as centrally as possible. As our church family has grown, we are now prepared to establish a permanent facility. Meeting at the YMCA on Sunday mornings has provided us with a great central location, which makes the property at 1 Hamrick Drive an ideal permanent solution since it is only a few minutes away from where we currently gather for worship.

We are currently gathering online each week due to COVID-19, but we typically hold two worship gatherings on Sunday mornings at 9:00 and 10:45 a.m. Throughout the week, we have a staff of 7 and a small team of volunteers serving in our office from 8:30-4:30 Monday-Thursday. Our office is closed on Fridays. While we do occasionally expect to have periodic events for our church family on Saturdays (approximately 3-4 events annually), the highest volume of on-site presence will continue to be on Sundays from 9 a.m. until approximately 12:30 PM when our second service concludes. At this time, we do have a conceptual plan that would provide a visual for the size of the building and the layout of the property. With the size of the property we are seeking to purchase, 1 Hamrick Drive will adequately serve the needs of our church family for the foreseeable future.

Under the current zoning, 1 Hamrick Drive will allow 35 residential units. This would create significant daily traffic, whereas our traffic would be limited primarily to Sunday mornings with only 7 staff and small groups occupying the space for the rest of the week. Additionally, our development of the property would result in a significant reduction of the impervious ratio.

As far as continued development goes, the church has no long-term plans or desires to have a daycare service or school. Outside of our worship gatherings and the regular training and classes we offer, our church family meets off-site in small groups that gather in homes across the community, so even as the church continues to grow, the on-site volume will remain limited primarily to Sunday mornings.

Beyond our use of the property, we truly wish to open our doors to the Shell Point community as well. We would be more than willing to allow the neighborhood to use our facility for HOA meetings or neighborhood gatherings, and we have even discussed the possibility of a walking trail that encircles the property, which we would extend as an amenity to the neighborhood. Our belief is that our presence at 1 Hamrick Drive would be far less obtrusive than what would be brought on by a residential development or retailer, and our hope is to truly be a benefit to the residents of the Shell Point community.