

# TOWN OF SEABROOK ISLAND

Planning Commission Regular Meeting

February 10, 2021 – 1:30 PM



Virtual Meeting (Zoom)

[Watch Live Stream \(YouTube\)](#)

***Consistent with recommendations from the U.S. Centers for Disease Control and Prevention related to “social distancing,” this meeting will be conducted virtually via Zoom.***

***Participate in the Virtual Meeting:*** Individuals who wish to participate in the virtual meeting via Zoom may access the meeting as follows:

- [Instructions for Joining & Participating in the Virtual Meeting](#)
- To join by computer, tablet or mobile device: [Access Zoom Meeting](#)
- To join by phone: Call (646) 558-8656 *\*Please note that long distance rates may apply\**
- Meeting ID: 829 2408 8117 Passcode: 611883

***Submit a Written Comment:*** Individuals who wish to submit a comment in advance of the meeting may do so in writing by 12:00 pm on the day of the meeting using one of the following options:

- Email: [jcronin@townofseabrookisland.org](mailto:jcronin@townofseabrookisland.org)
- Mail or Hand Deliver: 2001 Seabrook Island Road, Seabrook Island, SC 29455

***Watch Live Stream Video:*** The meeting will be live streamed on the town’s YouTube channel beginning at 2:30 pm.

- Watch Live: [Live Stream Video \(YouTube\)](#)

## AGENDA

### CALL TO ORDER

### APPROVAL OF MINUTES

1. Regular Meeting: January 13, 2021 *[Pages 3–5]*

### OLD BUSINESS ITEMS

1. Temporary Encroachment Permit: 2021 PGA Championship Parking *[Pages 6–63]*

### NEW BUSINESS ITEMS

*There are no New Business Items*

### ITEMS FOR INFORMATION / DISCUSSION

1. Update on Proposed Changes to Charleston County ZLDR

*[Pages 64–74]*

**ADJOURN**

# TOWN OF SEABROOK ISLAND

## Planning Commission Regular Meeting

January 13, 2021 – 1:30 PM



Virtual Meeting Hosted via Zoom

[Live Streamed on YouTube](#)

### MINUTES

Present: Ken Otstot (Chair), Stan Ullner (Vice Chair), Wayne Billian, Jim Newton, Sharon Welch, Joe Cronin (Town Administrator)

Absent: None

Guests: Matt Clark (PGA), Tony Woody (Thomas & Hutton), Paul Ford (Reveer Group)

Acting Chairman Otstot called the meeting to order at 1:33 PM and welcomed everyone in attendance. Town Administrator Cronin confirmed that the requirements of the Freedom of Information Act were fulfilled, and the meeting agenda was properly posted.

#### ELECTION OF CHAIR & VICE CHAIR FOR 2021

Acting Chairman Otstot opened the floor for nominations for the position of Chairman. Mr. Newton nominated Mr. Otstot for the position of Chairman. Mr. Billian seconded the nomination. There being no further nominations, Acting Chairman Otstot called for a vote. The vote in favor of electing Mr. Otstot as Chairman was **APPROVED** by a vote of 5-0.

Chairman Otstot then opened the floor for nominations for the position of Vice Chairman. Mr. Newton nominated Dr. Ullner for the position of Vice Chairman. Mr. Billian seconded the nomination. There being no further nominations, Chairman Otstot called for a vote. The vote in favor of electing Dr. Ullner as Vice Chairman was **APPROVED** by a vote of 5-0.

#### APPOINTMENT OF SECRETARY FOR 2021

Chairman Otstot nominated Town Administrator Cronin to serve as Secretary to the Planning Commission for 2021. Mr. Newton seconded the nomination. There being no further nominations, the vote in favor of electing Town Administrator Cronin as Secretary was **APPROVED** by a vote of 5-0.

#### APPROVAL OF MINUTES

1. **Regular Meeting: November 4, 2020:** Mr. Billian made a motion to approve the minutes from the November 4, 2020, meeting as submitted. Mr. Newton seconded the motion. The motion was **APPROVED** by a vote of 5-0.

## OLD BUSINESS ITEMS

1. **Camp St. Christopher:** Chairman Otstot provided Planning Commission members with a report of his findings regarding Camp St. Christopher. He stated that the 240-acre site has significant historic value. In a normal year, the camp attracts 70,000 visitors; however, due to the COVID pandemic, the camp has not received visitors for the better part of the year, which has impacted the camp's finances. He stated that the camp is not subject to a conservation easement under the land trust, and there is an ongoing lawsuit regarding ownership of the land. Town Administrator Cronin reminded members that the camp was zoned only to allow camp-related uses and structures. If the property was ever sold or redevelopment, it would need to go through a public rezoning process.

## NEW BUSINESS ITEMS

*There were no New Business Items.*

## ITEMS FOR INFORMATION / DISCUSSION

1. **Temporary Encroachment Permit: 2021 PGA Championship Parking:** Town Administrator Cronin informed members that the town had received a temporary encroachment permit application from the PGA for off-site parking related to the 2021 PGA Championship on Kiawah Island. The off-site parking would be located on the property behind Freshfields Village. The applicants were seeking to install an additional access point on Seabrook Island Road primarily to alleviate the impact to the traffic circle at Freshfields by allowing patrons to be directed in either direction as conditions warrant. He then introduced Mr. Matt Clark (PGA) and Mr. Tony Woody (Thomas & Hutton), who provided a detailed overview of their request.

Mr. Newton asked if COVID was expected to impact attendance at the 2021 tournament. Mr. Clark responded that it was anticipated that attendance would be limited, but the data included in the traffic study was based on full attendance.

Chairman Otstot noted that he didn't see any real traffic problems during the last event in 2012.

Mr. Billian noted that the traffic study did not address traffic concerns at the Maybank/River and Maybank/Bohicket intersections. Mr. Woody stated that the study did not look at those areas, but that they may put signage at those locations to assist with traffic flows.

Town Administrator Cronin asked about the safety plans for the pathway. Mr. Woody responded that the plans called for two traffic control officers at the proposed driveway; one would control vehicle access and the other would monitor safety at the pathway.

Mr. Billian asked if there would be bike racks at the parking area. Mr. Woody responded that bicycle parking had not been discussed, but was certainly possible.

Town Administrator Cronin noted that KICA would be limiting contractor traffic during the tournament and asked whether there had been similar conversations with SIPOA. Mr. Clark responded that he had reached out to SIPOA, but he has not yet been able to engage in conversations with them.

The town's independent traffic consultant, Paul Ford of the Reveer Group, provided some initial feedback on the traffic study and proposed plans.

Mr. Newton asked if the roadway and landscaping would be put back to its existing conditions after the tournament. Mr. Clark responded that he has already been in contact with the town's landscape contractor to restore the site after the tournament.

There being no further discussion, Town Administrator Cronin stated that the application was tentatively scheduled for the February meeting for additional review and approval.

2. **Proposed Changes to Charleston County ZLDR:** Town Administrator Cronin provided members with an update regarding proposed changes to the county's Zoning and Land Development Regulations Ordinance (ZLDR). He stated that the county was considering a change that would eliminate the existing R-4 district, which allows 4 dwellings per acre, and replace it with a new R-6 district, which would allow 6 dwellings per acre. He noted that there are several large parcels between Seabrook and Kiawah Islands which are currently zoned R-4. If the proposed changes were to be adopted, the allowable density on these parcels would increase by 50%, which would have a significant impact on the local road and utility systems, as well as the character of the Sea Islands. He stated that he had provided comments to the county on behalf of the town and was notified that the county's Planning Commission had asked staff to propose amendments that would better protect communities along the Sea Islands. It is anticipated that amended language will be presented at the county's February meeting.
  
3. **2021 Meeting Schedule:** Town Administrator Cronin provided members with a copy of the 2021 meeting schedule.

There being no further business, Chairman Otstot asked for a motion to adjourn. Mr. Billian made a motion to adjourn the meeting. Mr. Newton seconded the motion. The motion was **APPROVED** by a vote of 5-0, and the meeting was adjourned at 2:36 PM.

Minutes Approved:



Joseph M. Cronin  
Town Administrator

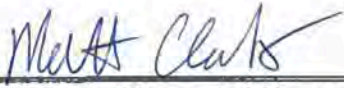
# APPLICATION FOR ENCROACHMENT PERMIT

## Town of Seabrook Island

Street or Road: Seabrook Island Parkway Subdivision: TMS #205-00-00-005 Date: 12-11-2020

The undersigned applicant (owner) hereby applies to the Town of Seabrook Island for a permit to encroach on a public right-of-way.

(Attach a print of the sketch of plan to each copy of this form)

  
(Applicant [Owner's [Signature])

12/11/20  
(Date)

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### ENCROACHMENT PERMIT PERMIT No: \_\_\_\_\_

Issued to: (Name) \_\_\_\_\_ Street or Road: \_\_\_\_\_

Address: \_\_\_\_\_ Subdivision: \_\_\_\_\_

Telephone No: \_\_\_\_\_

In Compliance with your request and subject to all the provisions, terms, conditions, and restrictions written herein, you are authorized and permitted to:

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Town of Seabrook Island

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Zoning Administrator, Town of Seabrook Island

(Note) This form is to be submitted to the Zoning Administrator, Town of Seabrook Island. When submitting the form the applicant shall sign the application for the encroachment permit and acceptance of the provision, etc on the back.

## Provisions, Terms, Conditions and Restrictions

1. **PERMITTEE:** The word "Permittee" used herein shall mean the name of the person, firm or corporation to whom this permit is issued, his, her, its heirs, successors, and assigns.
2. **FUTURE MOVING OF ENCROACHMENT:** If, in the opinion of The Town of Seabrook Island it should become necessary to relocate or remove the encroachment, or any part thereof contemplated herein, on account of improvements, relocation or widening of the road or street, or for any other sufficient reason, such moving or removing shall be done on demand of the duly authorized representative of the Town of Seabrook Island at the expense of the Permittee.
3. **PROTECTION OF TRAVELING PUBLIC:** Adequate provision shall be made for the protection of the traveling public at all times such that, during the process of the work, all necessary detours, barricades, warning signs and watchmen shall be provided by and at the expense of the Permittee. The Permittee agrees to observe all rules and regulations of the Town of Seabrook Island while carrying on the work.
4. **RESPONSIBILITY:** The Permittee, its successors or assigns, assumes full responsibility for any accidents to persons or damage to property, including the street or road, that may be caused by the construction, maintenance, use, moving, or removing of the encroachment contemplated herein, and agrees to indemnify the Town of Seabrook Island for any liability incurred or injury or damage sustained by it.
5. **PERMIT SUBJECT TO INSPECTION:** This permit shall be kept at the site of the work at all times while said work is underway, and must be shown to any representative of the Town of Seabrook Island or Law Enforcement Officers on demand.
6. **STANDARDS OF CONSTRUCTION:** All work shall conform to recognized standards of construction and shall be performed in a workman like manner. No pavement shall be cut, no tunneling shall be permitted and no excavation shall be made nearer than two feet to the edge of any type pavement unless specifically authorized herein. All trenches within the limits of the Roadway shall be backfilled with suitable material and thoroughly tamped in layers not greater than six inches in thickness. All pipes, conduit, cables, etc shall have a minimum cover of 30 inches.
7. **PERMITTEE** shall at all times comply with all provisions of the Town Code and Development Standards Ordinance of the Town of Seabrook Island.

I, we, accept the permit herein granted and agree to comply with all the provisions, terms, conditions and restrictions set out herein.

Date: 12/11/20 Permittee: Matt Clark



January 27, 2021

Joseph Cronin  
Town Administrator  
Town of Seabrook Island  
2001 Seabrook Island Road  
Seabrook Island, SC 29455

Re: Traffic Impact Analysis  
2021 PGA Championship  
3<sup>rd</sup> Party Review

Dear Mr. Cronin:

Reveer Group (Reveer) has completed its review of the Traffic Impact Analysis (TIA) for the upcoming PGA Championship (the event) and provide herein information as to its conformance with industry standards, assessment of analysis and results, and items that the Town of Seabrook Island's (Town) Planning Commission may want to further request or evaluate prior to voting on the associated encroachment permit.

As you certainly know, the event requests use of and improvements to the existing dirt drive off Seabrook Island Road and directly across from its intersection with Andell Bluff Boulevard to provide secondary access to the parking lots for approximately 25% of spectators. The access plan is included as **Attachment 1**.

Reveer performed a third-party technical review of the TIA prepared by Thomas & Hutton for PGA of America entitled, "*Traffic Impact Analysis, PGA-Patron & Bus Parking Area Traffic Study*" and dated August 2020. In general, the report's criteria and methodology as well as organization and presentation of data were conforming to industry standard. The checklist used by the SCDOT for technical compliance is included as **Attachment 2**. The results are realistic, the recommendations make sense and are achievable, and the "acceptable" amount of delay, though subjective, is reasonable under the special event conditions with limited windows of peak traffic. However, I raise question to the analysis in a couple locations, specifically on its traffic projections and expected impacts under other scenarios that were not studied. My findings are elaborated upon in the following items.



1. Traffic Growth and Adjustment Factors – A combination of the applied annual growth rate of traffic and reduction factors applied to Saturday traffic is underestimating the number of cars that will be on Seabrook Island Road (SIR) when the event starts and, by association, the impact to traffic during the event. Starting with the annual growth rate, the mid-week traffic was generated by taking traffic counts from May of 2018 and increasing them at an annual growth rate of 2%. Data provided shows an increase of 9% along SIR from 2017 to 2019. If you go back to 2014 and include the years where traffic decreased for a period, there is still a 4% growth through 2019.

The Saturday traffic was generated by reducing the mid-week number by approximately 60% based on data collected at a location on James Island and one on Sullivans Island, which may not be representative of Seabrook Island on a Saturday. In the TIA for the Senior Living Facility just up the road from this location, also prepared by Thomas & Hutton, it stated that reduction factors should not be applied to Saturday traffic as counts collected at the security gate showed visitor-traffic was approximately equal to the amount that would be removed by the reduction factor.

**Main takeaway** – Recommend further analysis to show if adjustments to these values yield significantly different results?

2. Traffic Distribution and Limits of Study – The distribution of traffic was assigned as 75% to the Kiawah Island Parkway entrance and 25% to the Seabrook Island entrance. The report only reports on the traffic conditions at the new driveway on SIR, where typically you would also investigate the nearest up and downstream intersections. The report states that the Kiawah entrance should always be “flowing” since it will be a continuous right turn. As this is conceptually true, speed along the road will be reduced during right turns (15mph per report) and should have some level of inefficiency as drivers enter the parking fields and determine where to next proceed. I would be interested in knowing what the risk is for traffic backing up to and through the traffic circle and creating a blockage for the traffic heading out via SIR. The report shows SIR backing up 1,800 feet at peak times (from the driveway all the way to the traffic circle) when only receiving 25% of the traffic but having to stop for 36 seconds while the other two phases of the signal (traffic officer) happen. It seems plausible that Kiawah Island Parkway would back up to the circle since the distance is similar (2,100 ft vs. 1,800) while receiving 3-times the amount of traffic. Also, with adjustments to traffic per #1 above, is the 25/75 split still valid and what are the implications of changing it?

**Main takeaway** – Recommend having the traffic engineer assess and respond to the likelihood of this condition and the risks posed to SIR.

3. Traffic Generation – The exiting traffic on Saturday at 6:00pm was calculated as 15% of the daily total, upon which 50% was assigned to leave via SIR. It was not clear where the 15% comes from as I would think that people leaving at this time (6:00-7:00pm) on the event’s most heavily attended day would exceed 15%; just something I noted and should be confirmed.

**Main takeaway** – Question if this was received and supported by the PGA’s previous data.

- 4. Traffic Control Officer(s) – The report recommends the use of traffic control officers during peak periods of the event to manage traffic at the PGA driveway and allow the intersection to act like it has a traffic signal. This implies that there are periods when officers are not there, and the intersection has stop signs at the PGA driveway and leaving the Marina from Andell Bluff. The analysis does provide results for this scenario and introduces a safety risk for users of the shared-use path should vehicles and pedestrians not have the additional direction of the officers.

**Main takeaway** – Confirm that traffic control officers will be always present and if not, determine the impacts on traffic and safety.

- 5. Results – The results show the seconds of delay that a driver can, on-average during the peak period(s), expect while driving through the intersection. I looked at the “worst-case” where you enter the back of the line just when the queue reaches its maximum and traffic is stopped. I was curious on how much more delay would be added to the computed averages. I calculated Friday from 11:00am-12:00pm when the queue was the most. In this condition, delay can be expected to increase on SIR by about 50% and on Andell Bluff by 400% compared to the results in Table 4.

**Main takeaway** – Results are still (subjectively) “generally acceptable” considering the magnitude and short-duration of the event.

Road Section	Delay on Friday @ 11:00am (sec)		
	Reported	Worst-Case	Increase
East on SIR (to traffic circle)	52	77	25 (48%)
West on SIR (to gate)	55	85	30 (55%)
South on Andell Bluff (leaving Marina)	20	83	63 (415%)

It should also be noted that the maximum delay of 71 seconds reported occurs on Saturday evening and is applied to the westbound (towards the gate) traffic on SIR, which is counterintuitive since everyone is headed “out”, and you would not expect the most delay to be for travelers coming “in”. This is due to a change in the traffic model where priority was given to the traffic leaving the Marina and stopping the traffic headed towards the gate. Since the traffic officer can be more flexible than a computer-controlled real signal, this situation is manageable, but I found it interesting on how it was being modeled; another point of discussion with the traffic engineer.

In summary, the report sets a general expectation of traffic delay caused by the PGA Championship. It is recommended that further discussions be held with the traffic engineer for concerns stated herein so you have the best information to make a formal decision on the encroachment request and to set expectations with and respond to questions from your residents. What is clear is that real-time communication and proper response between control officers at the SIR driveway, the traffic circle, and the Kiawah driveway is paramount to reducing traffic delays and maintaining safety. I look forward to discussing this with you here shortly.

Sincerely,

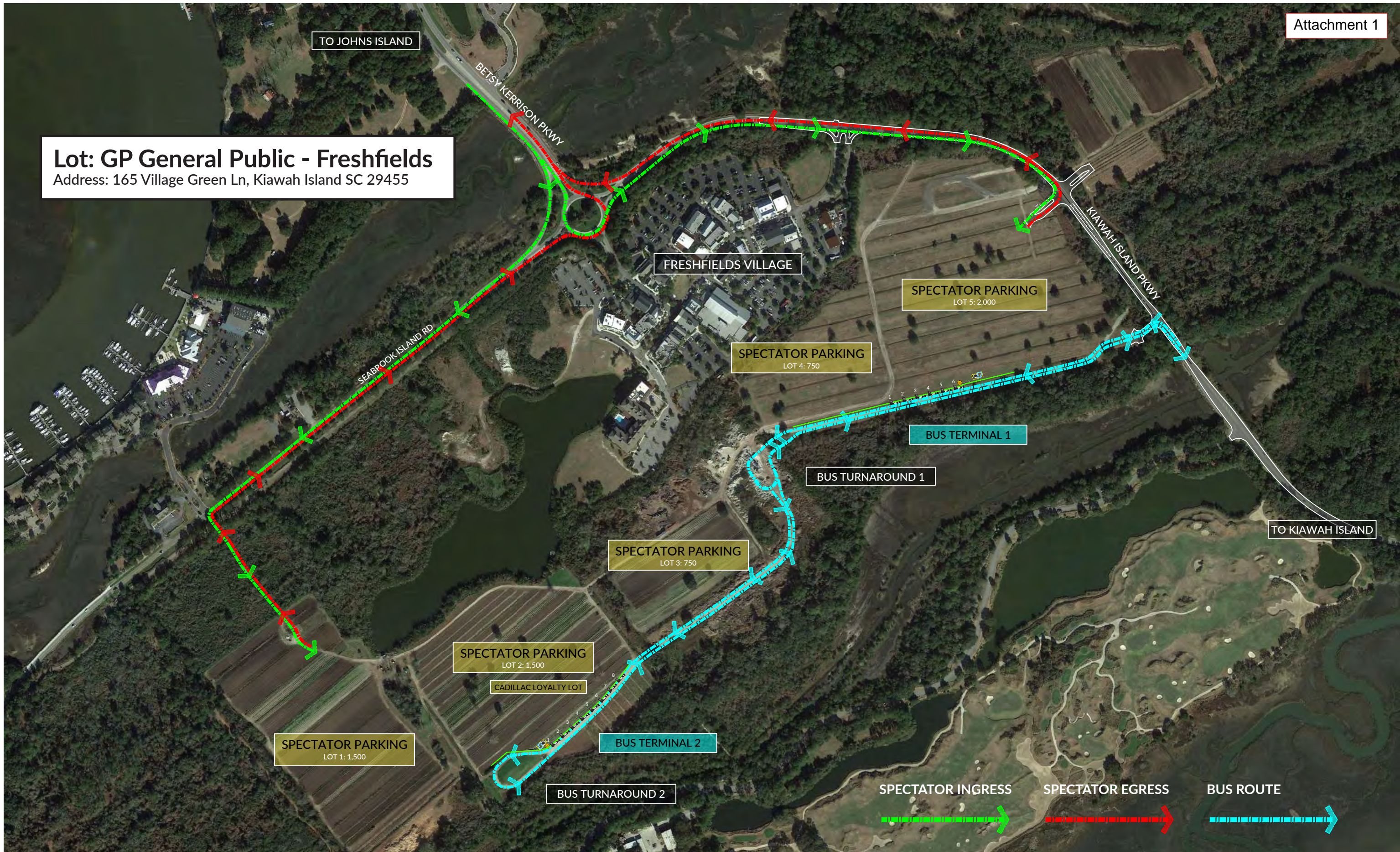
**REVEER GROUP**



Paul A. Ford, PE

Vice President of Engineering

**Lot: GP General Public - Freshfields**  
Address: 165 Village Green Ln, Kiawah Island SC 29455



## Traffic Impact Study Technical Completeness Checklist

### Analyst Requirements

Yes  No South Carolina PE Stamp and Signatures

### Introduction and Executive Summary

#### Existing Conditions

- Yes  No Study Area Descriptions and Roadway Classifications
- Yes  No Analysis Period Correct (AM, Mid-day, PM and/or Saturday)
- Yes  No Existing Traffic Operations (LOS, Volumes, Speed Limit, Crash Data, Etc.)
- Yes  No Other Projected Transportation Improvements in the Area

#### Impacts

- Yes  No Trip Generation Summary
- Yes  No Trip Distribution and Traffic Assignment (assumptions justified) (no)
- Yes  No LOS Analysis: Background Traffic Growth and Site Build-out
- Yes  No Sight Distance Analysis at Access Points

#### Mitigation

- Yes  No Identify Need for Turn Lanes, Capacity and Storage Length
- Yes  No Identify Need for Signalization (recommended control officers)
- Yes  No Identify Measures to Mitigate LOS Deficiencies

#### Figures

- Yes  No Vicinity Map
- Yes  No Site Plan and Proposed Land Use (Access Plan via separate attachment)
- Yes  No Existing Peak-hour Volumes
- Yes  No Projected Background Peak-hour Volumes
- Yes  No Trip Distribution % Including Added Project Peak-hour Volumes
- Yes  No Project Build-out Volumes
- Yes  No Existing and Recommended Lane Configurations

Yes  No Intersection LOS (existing, background, build, mitigated) (or Table)

**Tables**

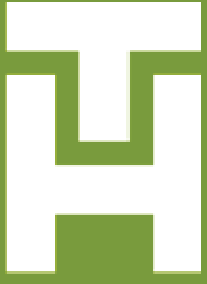
Yes  No Trip Generation

Yes  No Intersection LOS (existing, background, build, mitigated)

**Other**

Yes  No Technical Appendix (e.g. HCM and Synchro Analysis, Trip generation, etc.)

Notes:



THOMAS  
&  
HUTTON

## TRAFFIC IMPACT ANALYSIS

PGA – PATRON & BUS PARKING  
AREA TRAFFIC STUDY  
CHARLESTON COUNTY, SOUTH CAROLINA

Prepared for:  
PGA of AMERICA

J – 28631.0000

AUGUST 2020

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## 1. INTRODUCTION

A PGA Tour event is planned for The Ocean Course on Kiawah Island, South Carolina, in May 2021. This study is undertaken in support of an encroachment permit for a temporary driveway connection on Seabrook Island Road to accommodate traffic entering and exiting the event. This study area does not extend beyond Seabrook Island Road in Seabrook Island, SC.

Parking for patrons, media, and officials is proposed off Seabrook Island Road, and bus shuttles will run to and from the golf course from Kiawah Island Parkway. A site location map is shown in **Figure 1**. A limited number of tickets are sold for the site, and information on scheduling and ticket sales is provided by the PGA, based on attendance at previous events.

This study will examine the traffic impacts of the proposed golf tournament on the intersection of Seabrook Island Road and Andell Bluff Boulevard/proposed PGA parking access driveway. Traffic control measures to accommodate event traffic will be identified.

Design hour conditions for the event are identified based upon spectator arrivals and departures as well as background (base) traffic volumes on Seabrook Island Road. The design hours are identified as Friday 11:00 – 12:00 noon; Saturday 11:00 – 12:00 noon; Saturday 3:00 – 4:00 pm; and Saturday 6:00 – 7:00 pm. The intersection of Seabrook Island Road and Andell Bluff Boulevard/the proposed PGA Parking access driveway is focus of this study.

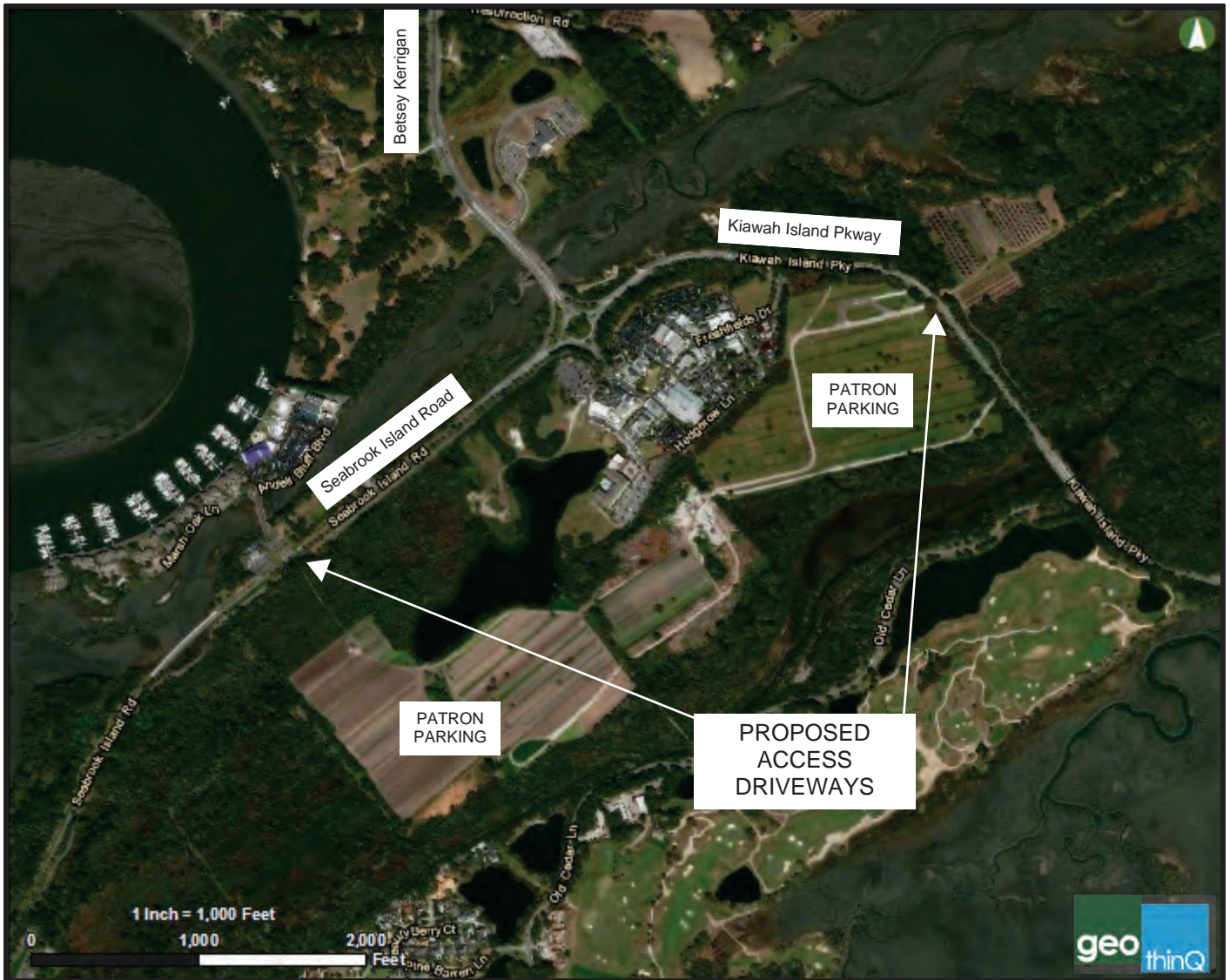
## 2. EXISTING CONDITIONS

### Roadway Conditions

Seabrook Island Road is an east-west, two-lane major collector roadway with a posted speed limit of 35 mph. Seabrook Island Road provides access to the Town of Seabrook Island.

Andell Bluff Boulevard is a north-south, two-lane roadway with a grass median at its intersection with Seabrook Island Road. There is no posted speed limit. This road provides access to a gated residential community and to a marina village. Andell Bluff Boulevard terminates at Seabrook Island Road at a stop controlled T-intersection.

The access driveway to the patron and bus parking area is approximately opposite from Andell Bluff Boulevard. The access driveway is unimproved due to its limited usage.



**PGA Patron & Bus Parking**  
The Ocean Course

**FIGURE 1**  
**PROJECT LOCATION MAP**

Charleston County, SC

J28631.0000



Traffic Conditions

Traffic operations at intersections are typically evaluated in terms of “Level of Service” or LOS. The LOS is a measurement of delay incurred at an intersection or for a particular movement. LOS is defined by the Transportation Research Board’s Highway Capacity Manual (HCM) from which LOS A represents free flow conditions with minimal delays; LOS F represents congested conditions. Generally, a LOS D or E is considered acceptable; however, for event conditions, LOS is typically in the E or F range, depending on the size and location of the event.

Table 1 shows the HCM criteria for signalized and unsignalized intersections.

**Table 1. Level of Service definitions**

LEVEL OF SERVICE	Control Delay per Vehicle (seconds)	
	Signalized Intersection	Unsignalized Intersection
A	$\leq 10$	$\leq 10$
B	$>10$ and $\leq 20$	$>10$ and $\leq 15$
C	$>20$ and $\leq 35$	$>15$ and $\leq 25$
D	$>35$ and $\leq 55$	$>25$ and $\leq 35$
E	$>55$ and $\leq 80$	$>35$ and $\leq 50$
F	$>80$	$>50$

### 3. BASE CONDITIONS

South Carolina Department of Transportation count station 723 is located on Seabrook Island Road, south of Andell Bluff Boulevard, and South Carolina Department of Transportation count station 348 is located on Betsey Kerrigan Parkway, south of River Road. Historical volumes, obtained for the SCDOT count stations, are shown in Table 2.

**Table 2. SCDOT Count Station Data**

Count Station	2012 ADT	2013 ADT	2014 ADT	2015 ADT	2016 ADT	2017 ADT	2018 ADT	2019 ADT
#723 – Seabrook Island Rd	5,900	6,000	5,400	5,600	4,600	5,600	6,100	6,600
#348 – B. Kerrigan Pkwy	13,000	13,300	12,300	14,000	12,400	13,900	13,700	14,800

Based on data from the nearby SCDOT count stations, traffic volumes in the study area have fluctuated in the past several years. The 2016 and 2017 traffic volumes are lower than those counted in 2014; however, there has been positive growth over the past three years. Given this information, growth of 2% percent per year is determined to be an appropriate background growth rate.

Collecting accurate traffic counts is currently not feasible due to the impacts of Covid 19. For this reason, traffic counts collected in May 2018 are adjusted by 2% annually to represent 2021 base traffic conditions.

Since Friday and Saturday traffic volumes were not counted in 2018, the midweek afternoon peak hour 2018 traffic counts are factored to develop base traffic volumes for the four design hours; Friday and Saturday 11:00 – 12:00 pm, Saturday 3:00 – 4:00 and 6:00 - 7:00. SCDOT Continuous Count Stations provide hourly historic traffic data that can be used to determine how traffic fluctuates during the course of a week. Using historical traffic count data from October 2019, the Friday peak hour volumes are adjusted to reflect the four base study conditions. The count data are included in Appendix A. The calculations are included in Appendix B.

The base traffic volumes for the design hours are shown in **Figure 2**.

#### 4. TRIP GENERATION

Trips generated by the PGA Tour event are estimated using data provided by PGA of America. The PGA data includes shuttle ridership numbers (two hour ridership volumes are provided for various hours of the event, from Monday through Sunday). Also included are vehicle occupancy numbers, ticket redemption rates, and numbers of patrons, officials, members of the media, and VIP’s that are expected to use the parking lots and the shuttle busses. The information provided by PGA is included in Appendix C, and a summary of the projected trips is shown in Table 3.

**Table 3. Trip Generation**

Time Period	Event-Generated Traffic	
	Enter	Exit
Saturday 11:00 am– 12:00 pm	2,525	146
Saturday 3:00 pm – 4:00 pm	2,029	1458
Saturday 6:00 pm – 7:00 pm	87	2186
Friday 11:00 am – 12:00	2,835	130

During peak hours of the tournament, traffic volumes entering the PGA Tour event are higher than the capacity of one inbound lane. Access to the patron parking areas is provided from Seabrook Island Road and from Kiawah Island Parkway. During most of the qualifying rounds, either the Seabrook Island Road access or the Kiawah Island Parkway access can accommodate the incoming traffic. As incoming tournament traffic increases, two access points are needed to accommodate the event traffic. The traffic volumes in Table 3 are 100 % of the event traffic; however, during peak inbound times of the event, 25% of this traffic is assigned to the Seabrook Island Road access and 75% is assigned to the Kiawah Island Parkway access. At non-peak traffic times, the access driveway on Seabrook Island Road can handle a higher percentage (up to 100%) of inbound traffic.

#### 5. TRIP DISTRIBUTION

Based on existing road network, the event-generated vehicular trip distribution for the PGA event is as follows:

- 100% to/from the north via Betsy Kerrison Parkway

The site generated trips are assigned to the study intersection and access points based on the trip distribution assumptions, with 25% of the heaviest entering volumes assigned to the study intersection. (75% of inboound traffic is assumed to use the Kiawah Island driveway, where inbound traffic has a continuous inbound right turn.) Site generated trips are shown in **Figure 3**.

## 6. FUTURE 2021 EVENT CONDITIONS

For event conditions on Seabrook Island Road, the site generated volumes (Figure 3) are added to the base volumes (Figure 2) to determine the design hour 2021 event volumes (Figure 4). The future volumes are used to calculate the intersection Levels of Service for the event.

Traffic moving through the intersection of Seabrook Island Road and Andell Bluff Boulevard/ the proposed PGA parking access driveway will be controlled manually during peak traffic times of the tournament event. In the scenario where an unsignalized intersection is controlled by an officer/flagperson, the operation of the intersection is no longer similar to a stop-controlled intersection; instead the intersection operates as a traffic signal with the traffic control officer assigning “green time” to various approaches to the intersection. For this reason, the level of service of the intersection is determined using a signalized intersection model.

The Synchro model assumes split “phases” for the eastbound and westbound approaches of Seabrook Island Road, and another green “phase” for northbound and southbound traffic. Northbound right-turning traffic exiting the PGA driveway can run simultaneously with the westbound green traffic. Users of the nonmotorized vehicle path along the south side of Seabrook Island Road can cross the PGA driveway when the eastbound Seabrook Island Road traffic is moving. Therefore the Synchro model assumes three phases at the study intersection.

The results of the capacity analyses at the intersection of Seabrook Island Road and Andell Bluff Blvd/PGA Driveway are shown in the Table 4, and the Synchro reports are included Appendix D.

**Table 4. Future Levels of Service (2021)**

		Saturday 11:00 am (LOS/DELAY)	Saturday 3:00 pm (LOS/DELAY)	Saturday 6:00 pm (LOS/DELAY)	Friday 11:00 am (LOS/DELAY)
Seabrook Island Rd and Andell Bluff Blvd / PGA access	Officer Control				
SB approach (Andell Bluff Blvd)		A / 5	A / 2	A / 2	B / 20
NB approach (PGA Driveway)		A / 1	B / 11	C / 30	A / 1
EB approach (Seabrook Island Rd)		C / 29	C / 26	D / 41	D / 52
WB approach (Seabrook Island Rd)		C / 34	D / 41	E / 71	E / 55
<b>Intersection Overall</b>		<b>C / 28</b>	<b>B / 14</b>	<b>D / 38</b>	<b>D / 48</b>

The above values of delay and LOS assume traffic control from a traffic signal controller, while in reality, traffic control will be provided by a traffic control officer. For this reason, the values are approximate, and will vary based on how much time each approach is given to proceed. Nonetheless, the signalized intersection model is the most accurate way to model traffic control at the study intersection, and it provides insight into how traffic demand can be accommodated at the intersection.

In normal driving conditions, drivers expect to experience LOS C or D; however, drivers typically expect to experience slightly more delay than normal when driving to, from, or near a major event. Due to the volume of traffic generated by this PGA event, it is not feasible to expect LOS C or D for all approaches to the study intersection for the entire event.

At the study intersection, overall LOS D or better is expected as a weighted average of approach delay during the PGA event. During the peak traffic times of Friday am and Saturday pm, LOS E, with delay ranging from 55 seconds to 73 seconds per vehicle is anticipated at the westbound approach to the intersection of Seabrook Island Road and Andell Bluff Boulevard/ the PGA driveway. All other movements are expected to experience LOS D or better during these peak times. Similarly, LOS D or better is expected during the midweek, before the event generates higher traffic volumes as it nears the weekend rounds. A Synchro analysis of Wednesday morning traffic conditions, included in Appendix D, shows LOS D or better on all approaches.

LOS on Friday, Saturday, and Sunday evening (studied in the worst case Sat 6:00 pm event) is expected to drop to LOS E on some approaches, when traffic is exiting the tournament. During these time periods, the traffic control officer(s) can use the PGA parking area driveway to store vehicles, while keeping the public road queues minimized.

The Friday late morning event (11:00 am) experiences the highest traffic demand of all study periods. During this time period, 2,835 vehicles are projected to drive to the shuttle parking area of the PGA event, the highest of the four study periods; and the base traffic volumes on Seabrook Island Road and Andell Bluff Boulevard are also higher than the other study periods. With traffic split 25%/75% between the two access driveways, overall LOS D is anticipated at the study intersection. During this time period, the 321 eastbound vehicles on Seabrook Island Road are expected to experience LOS D, with projected delay of 52 seconds per vehicle. This level of delay is within the range of delay that is considered to be generally acceptable.

SimTraffic was used to predict traffic queues during the study times. With approximately 1900 feet between the PGA driveway and the roundabout at Betsey Kerrigan Parkway/ Freshfields Village and Seabrook Island Road/Kiawah Island Parkway, it will be important to limit westbound queues at the study intersection. As shown in Table 4, westbound queues on Seabrook Island Road will need to be monitored to prevent backups during peak inbound traffic periods.

**Table 5. Future Queues (2021)**

		Saturday 11:00 am (FEET)	Saturday 3:00 pm (FEET)	Saturday 6:00 pm (FEET)	Friday 11:00 am (FEET)
Seabrook Island Rd and Andell Bluff Blvd / PGA access	Officer Control				
SB approach (Andell Bluff Blvd)		86	86	86	96
NB approach (PGA Driveway)		77	456	620	56
EB approach (Seabrook Island Rd)		183	152	129	284
WB approach (Seabrook Island Rd)		409	427	200	1897

## 7. SUMMARY / CONCLUSIONS

A PGA Tour event is planned for The Ocean Course on Kiawah Island, South Carolina, in October 2021. An encroachment permit for a temporary driveway connection on Seabrook Island Road to accommodate traffic entering and exiting the event is required.

Parking for patrons, media, and officials is proposed off Seabrook Island Road and Kiawah Island Parkway, and bus shuttles will run between the golf course and Kiawah Island Road. Traffic conditions at the intersection of Seabrook Island Road and Andell Bluff Boulevard/ the PGA access driveway were studied in support of the encroachment permit application.

At the study intersection, overall LOS D or better is expected as a weighted average of approach delay during the PGA event. During the peak traffic times of Friday am and Saturday pm, LOS E, with delay ranging from 55 seconds to 73 seconds per vehicle is anticipated at the westbound approach to the intersection of Seabrook Island Road and Andell Bluff Boulevard/ the PGA driveway. All other movements are expected to experience LOS D or better during these peak times. Similarly, LOS D or better is expected during the midweek, before the event generates higher traffic volumes as it nears the weekend rounds.

During the peak exiting time periods, the traffic control officer(s) can use the PGA parking area driveway to store vehicles, while keeping the public road queues minimized.

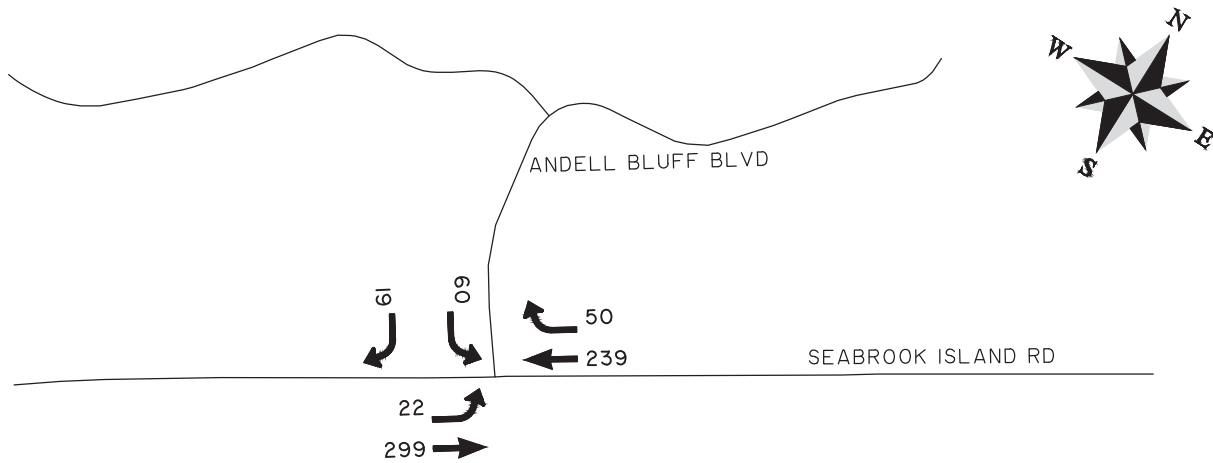
In addition to motor vehicles, there is a paved multi-purpose path that runs along the south side of Seabrook Island Road. Traffic control will need to be provided to monitor the multi-purpose path so these users can safely cross the proposed PGA driveway. The path users will be able to cross when eastbound Seabrook Island Road is moving.

In summary, event traffic can reasonably be accommodated with the proposed access plan. Traffic control officers, variable message signs, and uninterrupted inbound parking lot flows are all expected to be utilized during the PGA event to minimize traffic impacts.

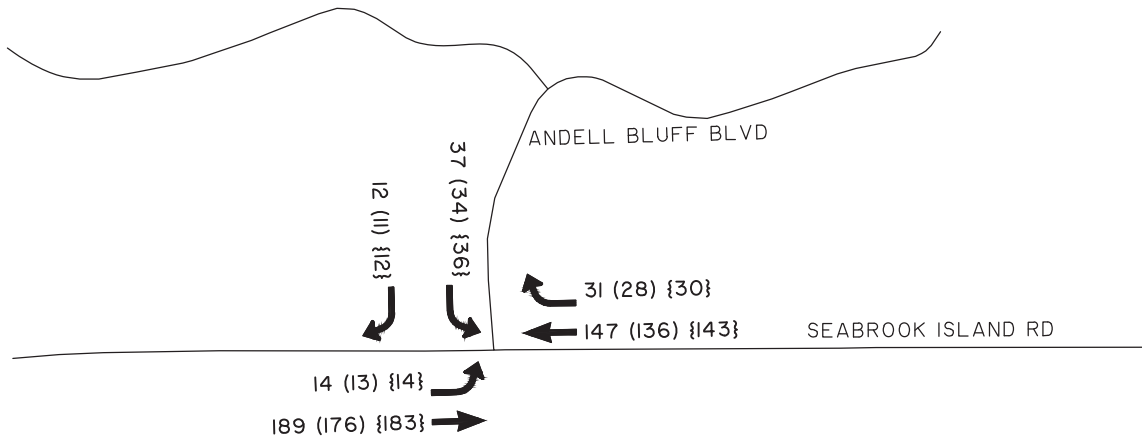


## 7. RECOMMENDATIONS:

1. Provide multiple parking lot attendants to open additional inbound parking lanes so vehicles waiting to park don't back up into the street.
2. Monitor the roundabout and communicate with traffic control persons at Seabrook Island Road and Andell Bluff Blvd/ PGA Driveway to facilitate moving inbound left turns into the parking area and/or assigning more traffic to the Kiawah Island driveway (This right turn movement should be free-flowing at almost all times) to prevent backup of traffic to roundabout.
3. Provide at least two traffic control persons at Seabrook Island Road and Andell Bluff Blvd/ PGA Driveway. Monitor the multi-purpose path so these users can safely cross the PGA Driveway.
4. During peak exit times, provide traffic control persons at the roundabout to alternate flow from the two exiting driveways.
5. Anticipate heavy inbound traffic needing two entrances. Place at least two (2) variable Message signs on Betsey Kerrigan Parkway, Southbound to direct drivers to two lanes when inbound traffic is heavy.  
Anticipated times of heavy inbound traffic include:  
Thursday through Sunday 8 am to noon  
Saturday noon to 3:00 pm  
Monday 8 am
6. During peak times, expect to take up to two minutes to "cycle" traffic among the three traffic splits at Seabrook Island Road, Andell Bluff Blvd, and PGA Driveway. Traffic Splits are:  
Westbound Seabrook Island road and northbound right turns  
Eastbound Seabrook Island Road  
Northbound and southbound Andell Bluff Blvd/PGA Driveway



Friday 1:00 - 2:00 PM Traffic Volume →  
2021 BASE TRAFFIC VOLUMES



Saturday Design Hour Volume →  
11:00 am (3:00 pm) {6:00 pm}  
2021 BASE TRAFFIC VOLUMES

# PGA PATRON & BUS ACCESS STUDY

FIGURE 2  
2021 BASE TRAFFIC VOLUMES

PGA of AMERICA

LOCATION: SEABROOK ISLAND, SC

DATE: AUGUST 2020

JOB NUMBER: J-28631

DRAWN BY: MB

REVIEWED BY: DPE

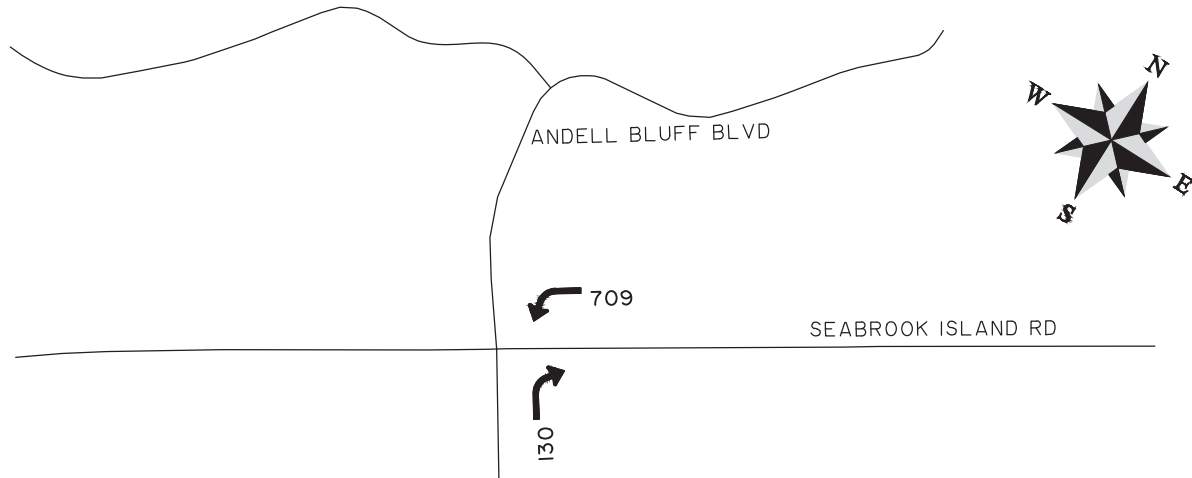
SHEET: FIGURE 2

SCALE: 1" = 300'

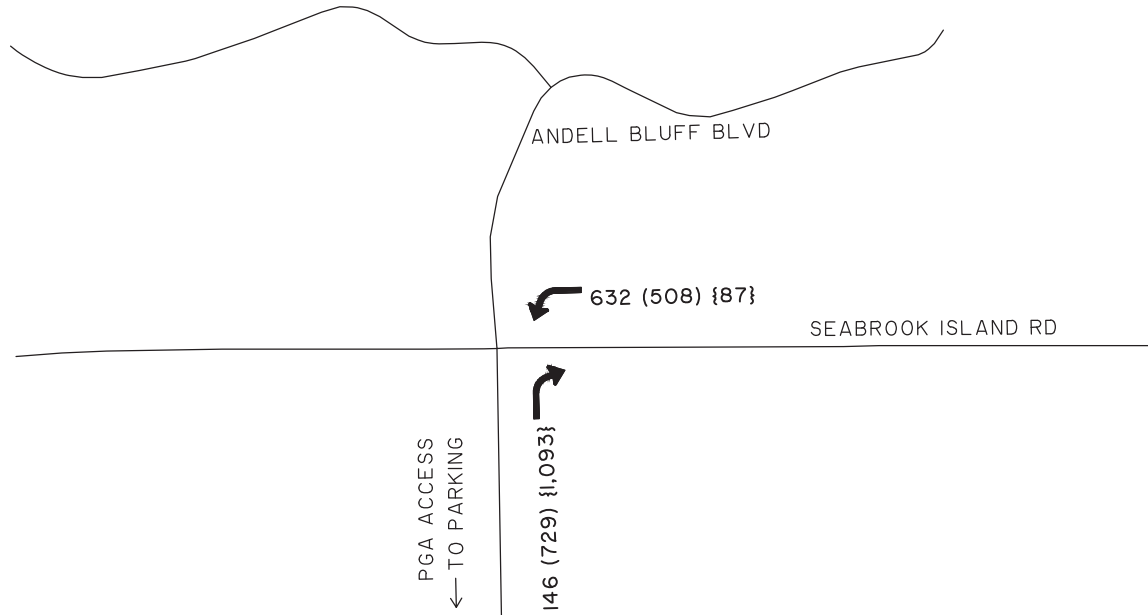


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Friday 1:00 - 2:00 PM Traffic Volume →  
EVENT-GENERATED TRAFFIC VOLUMES



Saturday Design Hour Volume →  
11:00 am (3:00 pm) {6:00 pm}  
EVENT-GENERATED TRAFFIC VOLUMES

## PGA PATRON & BUS ACCESS STUDY

### EVENT-GENERATED TRAFFIC VOLUMES

CLIENT:

PGA of AMERICA

LOCATION: SEABROOK ISLAND, SC

DATE: AUGUST 2020

DRAWN BY: MB

SHEET: FIGURE 3

JOB NUMBER: J-28631

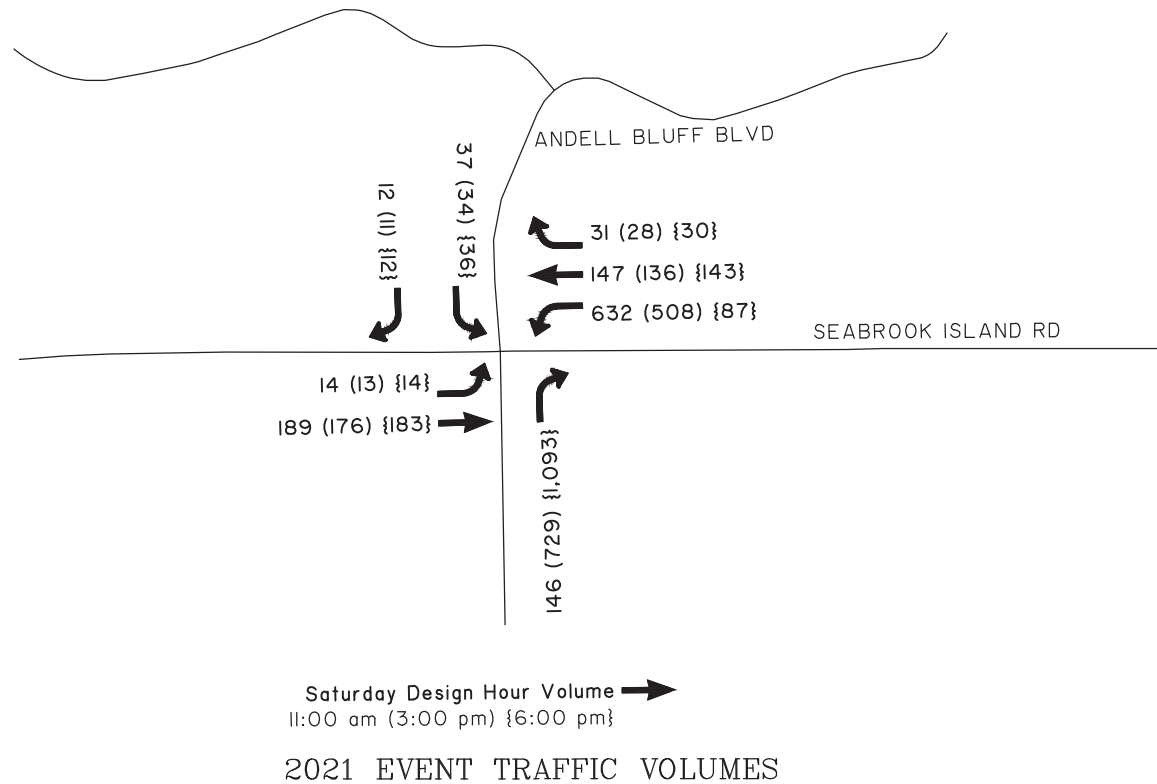
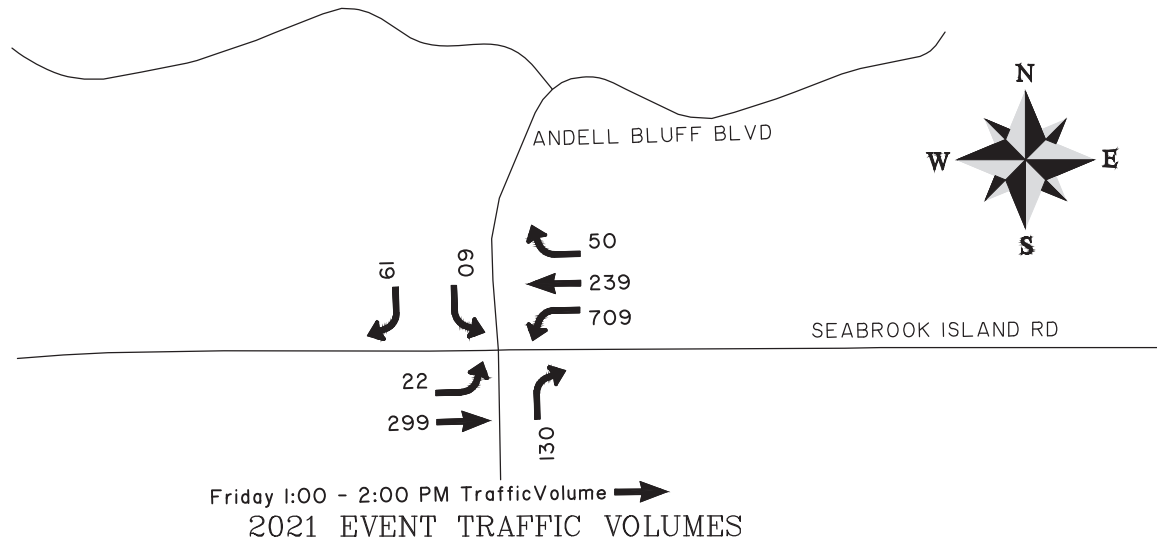
REVIEWED BY: DPE

SCALE: 1" = 300'



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## PGA PATRON & BUS ACCESS STUDY

### 2021 EVENT TRAFFIC VOLUMES

CLIENT:

PGA of AMERICA

LOCATION: SEABROOK ISLAND, SC

DATE: AUGUST 2020

JOB NUMBER: J-28631

DRAWN BY: MB

REVIEWED BY: #####

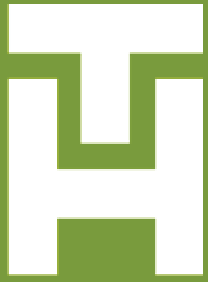
SHEET: FIGURE 4

SCALE: 1" = 300'



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## **TRAFFIC IMPACT ANALYSIS**

PGA – PATRON & BUS PARKING  
AREA TRAFFIC STUDY

### **APPENDIX A**

EXISTING TRAFFIC COUNTS

J – 28631.0000

August 2020

# S H O R T C O U N T S , L L C

735 Maryland St  
Columbia, SC 29201

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

File Name : Seabrook Island Rd @ Andell Bluff Blvd

Site Code :

Start Date : 5/29/2018

Page No : 1

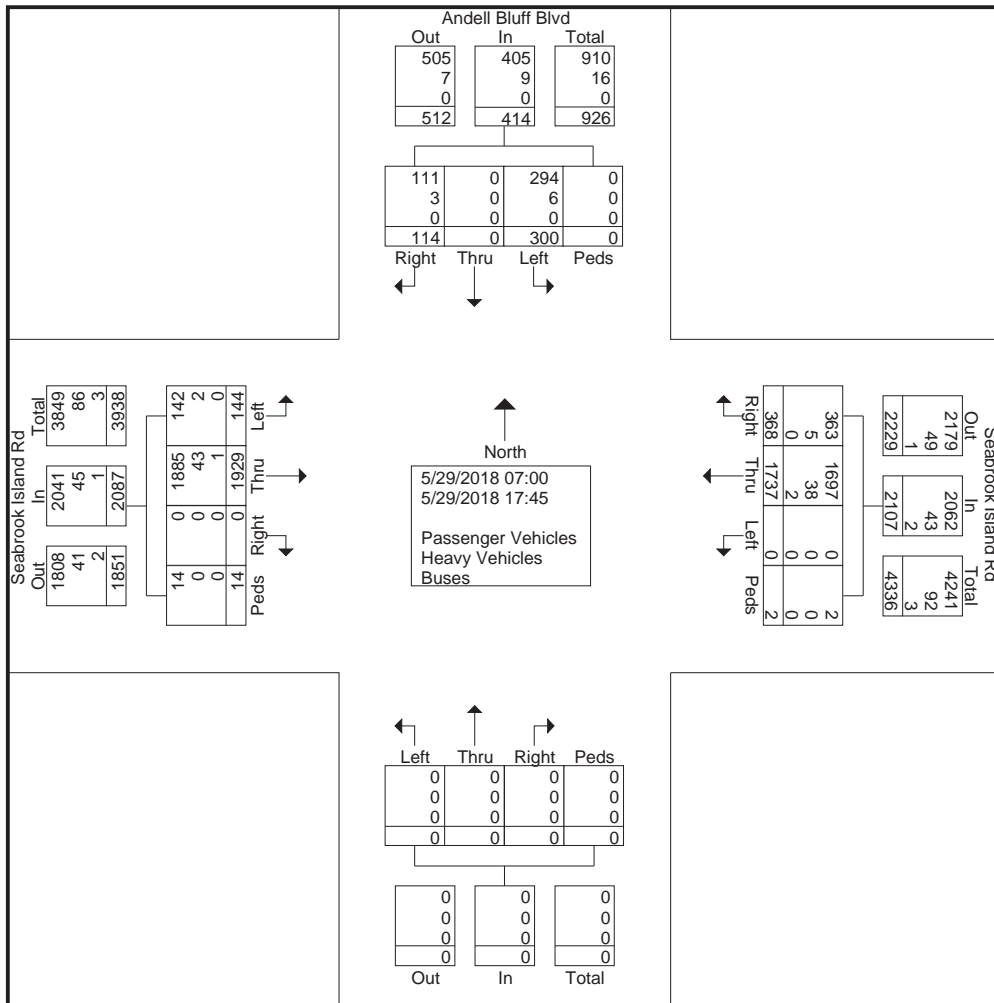
Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

Start Time	Andell Bluff Blvd Southbound				Seabrook Island Rd Westbound				Northbound				Seabrook Island Rd Eastbound				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
07:00	4	0	1	0	0	23	4	0	0	0	0	0	1	36	0	1	70
07:15	3	0	0	0	0	35	2	0	0	0	0	0	1	23	0	0	64
07:30	0	0	4	0	0	38	13	0	0	0	0	0	1	41	0	1	98
07:45	4	0	6	0	0	41	10	0	0	0	0	0	3	39	0	1	104
<b>Total</b>	<b>11</b>	<b>0</b>	<b>11</b>	<b>0</b>	<b>0</b>	<b>137</b>	<b>29</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>139</b>	<b>0</b>	<b>3</b>	<b>336</b>
08:00	4	0	0	0	0	47	10	0	0	0	0	0	4	45	0	1	111
08:15	5	0	2	0	0	62	8	0	0	0	0	0	2	53	0	1	133
08:30	6	0	3	0	0	55	8	0	0	0	0	0	5	57	0	0	134
08:45	8	0	4	0	0	63	15	0	0	0	0	0	4	62	0	2	158
<b>Total</b>	<b>23</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>227</b>	<b>41</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>15</b>	<b>217</b>	<b>0</b>	<b>4</b>	<b>536</b>
11:00	9	0	3	0	0	61	14	0	0	0	0	0	4	69	0	0	160
11:15	19	0	6	0	0	40	12	0	0	0	0	0	7	69	0	1	154
11:30	11	0	3	0	0	57	16	0	0	0	0	0	4	61	0	0	152
11:45	16	0	3	0	0	63	14	0	0	0	0	0	4	78	0	0	178
<b>Total</b>	<b>55</b>	<b>0</b>	<b>15</b>	<b>0</b>	<b>0</b>	<b>221</b>	<b>56</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>19</b>	<b>277</b>	<b>0</b>	<b>1</b>	<b>644</b>
12:00	10	0	4	0	0	52	16	0	0	0	0	0	12	83	0	0	177
12:15	8	0	4	0	0	50	14	0	0	0	0	0	6	72	0	0	154
12:30	13	0	3	0	0	73	19	0	0	0	0	0	2	66	0	0	176
12:45	5	0	3	0	0	72	8	0	0	0	0	0	2	70	0	0	160
<b>Total</b>	<b>36</b>	<b>0</b>	<b>14</b>	<b>0</b>	<b>0</b>	<b>247</b>	<b>57</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>22</b>	<b>291</b>	<b>0</b>	<b>0</b>	<b>667</b>
14:00	6	0	5	0	0	57	11	0	0	0	0	0	2	55	0	0	136
14:15	14	0	3	0	0	58	15	0	0	0	0	0	2	58	0	1	151
14:30	14	0	2	0	0	51	10	1	0	0	0	0	7	81	0	0	166
14:45	18	0	9	0	0	60	12	0	0	0	0	0	5	59	0	3	166
<b>Total</b>	<b>52</b>	<b>0</b>	<b>19</b>	<b>0</b>	<b>0</b>	<b>226</b>	<b>48</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>16</b>	<b>253</b>	<b>0</b>	<b>4</b>	<b>619</b>
15:00	9	0	4	0	0	48	8	1	0	0	0	0	7	81	0	0	158
15:15	5	0	5	0	0	56	6	0	0	0	0	0	7	64	0	0	143
15:30	16	0	3	0	0	55	10	0	0	0	0	0	4	60	0	0	148
15:45	17	0	4	0	0	51	10	0	0	0	0	0	6	71	0	0	159
<b>Total</b>	<b>47</b>	<b>0</b>	<b>16</b>	<b>0</b>	<b>0</b>	<b>210</b>	<b>34</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>24</b>	<b>276</b>	<b>0</b>	<b>0</b>	<b>608</b>
16:00	12	0	3	0	0	56	14	0	0	0	0	0	3	64	0	0	152
16:15	7	0	5	0	0	75	6	0	0	0	0	0	3	55	0	0	151
16:30	10	0	3	0	0	51	10	0	0	0	0	0	0	66	0	1	141
16:45	9	0	3	0	0	47	9	0	0	0	0	0	5	54	0	0	127
<b>Total</b>	<b>38</b>	<b>0</b>	<b>14</b>	<b>0</b>	<b>0</b>	<b>229</b>	<b>39</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>239</b>	<b>0</b>	<b>1</b>	<b>571</b>
17:00	6	0	2	0	0	73	10	0	0	0	0	0	4	79	0	0	174
17:15	7	0	6	0	0	49	13	0	0	0	0	0	11	64	0	0	150
17:30	9	0	1	0	0	55	18	0	0	0	0	0	9	51	0	1	144
17:45	16	0	7	0	0	63	23	0	0	0	0	0	7	43	0	0	159
<b>Total</b>	<b>38</b>	<b>0</b>	<b>16</b>	<b>0</b>	<b>0</b>	<b>240</b>	<b>64</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>31</b>	<b>237</b>	<b>0</b>	<b>1</b>	<b>627</b>
<b>Grand Total</b>	<b>300</b>	<b>0</b>	<b>114</b>	<b>0</b>	<b>0</b>	<b>1737</b>	<b>368</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>144</b>	<b>1929</b>	<b>0</b>	<b>14</b>	<b>4608</b>
<b>Approch %</b>	<b>72.5</b>	<b>0</b>	<b>27.5</b>	<b>0</b>	<b>0</b>	<b>82.4</b>	<b>17.5</b>	<b>0.1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6.9</b>	<b>92.4</b>	<b>0</b>	<b>0.7</b>	
<b>Total %</b>	<b>6.5</b>	<b>0</b>	<b>2.5</b>	<b>0</b>	<b>0</b>	<b>37.7</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3.1</b>	<b>41.9</b>	<b>0</b>	<b>0.3</b>	
<b>Passenger Vehicles</b>	<b>294</b>	<b>0</b>	<b>111</b>	<b>0</b>	<b>0</b>	<b>1697</b>	<b>363</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>142</b>	<b>1885</b>	<b>0</b>	<b>14</b>	<b>4508</b>
<b>% Passenger Vehicles</b>	<b>98</b>	<b>0</b>	<b>97.4</b>	<b>0</b>	<b>0</b>	<b>97.7</b>	<b>98.6</b>	<b>100</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>98.6</b>	<b>97.7</b>	<b>0</b>	<b>100</b>	<b>97.8</b>
<b>Heavy Vehicles</b>	<b>6</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>38</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>43</b>	<b>0</b>	<b>0</b>	<b>97</b>
<b>% Heavy Vehicles</b>	<b>2</b>	<b>0</b>	<b>2.6</b>	<b>0</b>	<b>0</b>	<b>2.2</b>	<b>1.4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1.4</b>	<b>2.2</b>	<b>0</b>	<b>0</b>	<b>2.1</b>
<b>Buses</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>3</b>
<b>% Buses</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.1</b>	<b>0</b>	<b>0</b>	<b>0.1</b>

# S H O R T C O U N T S , L L C

735 Maryland St  
Columbia, SC 29201

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



# SHORT COUNTS, LLC

735 Maryland St  
Columbia, SC 29201

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

File Name : Seabrook Island Rd @ Andell Bluff Blvd

Site Code :

Start Date : 5/29/2018

Page No : 3

Start Time	Andell Bluff Blvd Southbound					Seabrook Island Rd Westbound					Northbound					Seabrook Island Rd Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. 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	4	0	0	0	4	0	47	10	0	57	0	0	0	0	0	4	45	0	1	50	111
08:15	5	0	2	0	7	0	62	8	0	70	0	0	0	0	0	2	53	0	1	56	133
08:30	6	0	3	0	9	0	55	8	0	63	0	0	0	0	0	5	57	0	0	62	134
08:45	<b>8</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>12</b>	<b>0</b>	<b>63</b>	<b>15</b>	<b>0</b>	<b>78</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>62</b>	<b>0</b>	<b>2</b>	<b>68</b>	<b>158</b>
Total Volume	23	0	9	0	32	0	227	41	0	268	0	0	0	0	0	15	217	0	4	236	536
% App. Total	71.9	0	28.1	0		0	84.7	15.3	0		0	0	0	0		6.4	91.9	0	1.7		
PHF	.719	.000	.563	.000	.667	.000	.901	.683	.000	.859	.000	.000	.000	.000	.000	.750	.875	.000	.500	.868	.848
Passenger Vehicles	23	0	8	0	31	0	219	41	0	260	0	0	0	0	0	14	216	0	4	234	525
% Passenger Vehicles																					
Heavy Vehicles	0	0	1	0	1	0	8	0	0	8	0	0	0	0	0	1	1	0	0	2	11
% Heavy Vehicles	0	0	11.1	0	3.1	0	3.5	0	0	3.0	0	0	0	0	0	6.7	0.5	0	0	0.8	2.1
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



# S H O R T C O U N T S , L L C

735 Maryland St  
Columbia, SC 29201

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

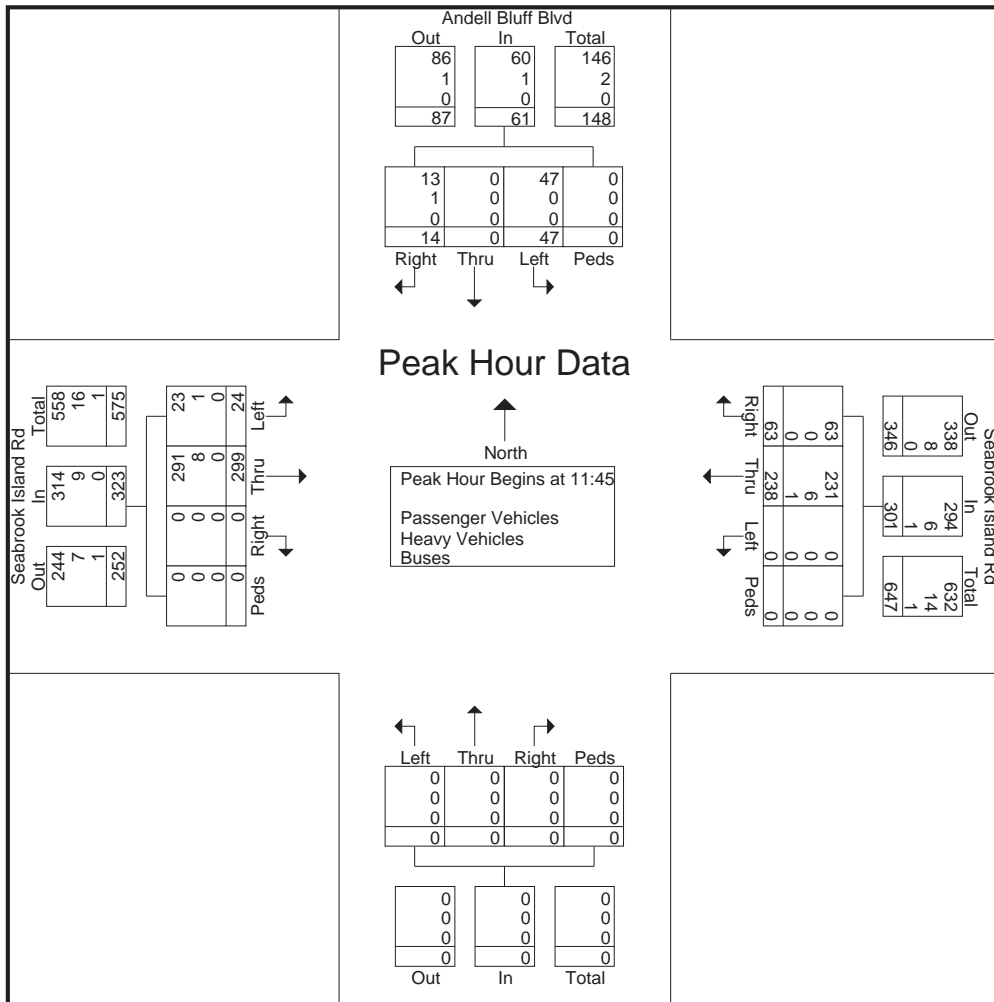
File Name : Seabrook Island Rd @ Andell Bluff Blvd

Site Code :

Start Date : 5/29/2018

Page No : 4

Start Time	Andell Bluff Blvd Southbound					Seabrook Island Rd Westbound					Northbound					Seabrook Island Rd Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 11:00 to 12:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:45																					
11:45	16	0	3	0	19	0	63	14	0	77	0	0	0	0	0	4	78	0	0	82	178
12:00	10	0	4	0	14	0	52	16	0	68	0	0	0	0	0	12	83	0	0	95	177
12:15	8	0	4	0	12	0	50	14	0	64	0	0	0	0	0	6	72	0	0	78	154
12:30	13	0	3	0	16	0	73	19	0	92	0	0	0	0	0	2	66	0	0	68	176
Total Volume	47	0	14	0	61	0	238	63	0	301	0	0	0	0	0	24	299	0	0	323	685
% App. Total	77	0	23	0		0	79.1	20.9	0		0	0	0	0	0	7.4	92.6	0	0		
PHF	.734	.000	.875	.000	.803	.000	.815	.829	.000	.818	.000	.000	.000	.000	.000	.500	.901	.000	.000	.850	.962
Passenger Vehicles	47	0	13	0	60	0	231	63	0	294	0	0	0	0	0	23	291	0	0	314	668
% Passenger Vehicles																					
Heavy Vehicles	0	0	1	0	1	0	6	0	0	6	0	0	0	0	0	1	8	0	0	9	16
% Heavy Vehicles	0	0	7.1	0	1.6	0	2.5	0	0	2.0	0	0	0	0	0	4.2	2.7	0	0	2.8	2.3
Buses	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% Buses	0	0	0	0	0	0	0.4	0	0	0.3	0	0	0	0	0	0	0	0	0	0	0.1



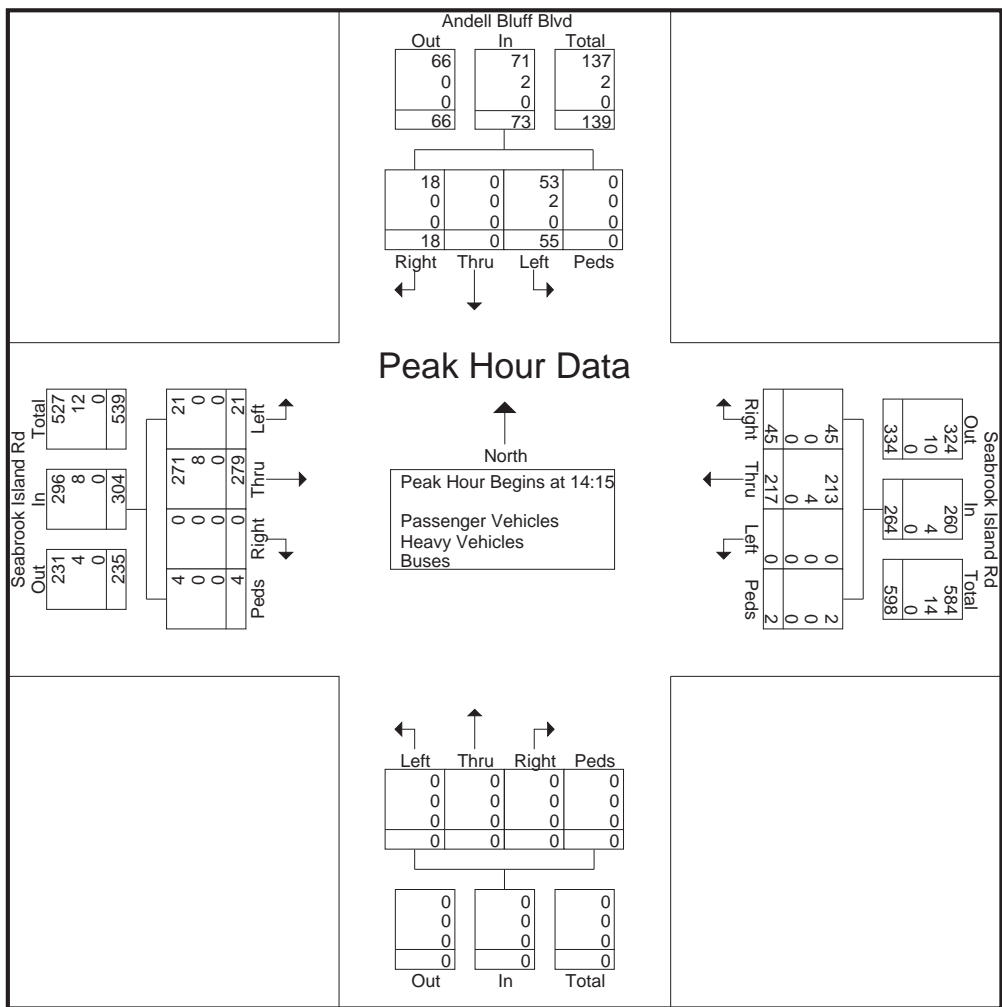
# S H O R T C O U N T S , L L C

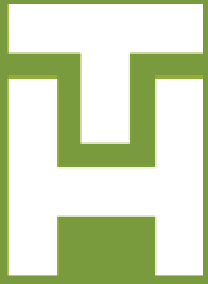
735 Maryland St  
Columbia, SC 29201

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

File Name : Seabrook Island Rd @ Andell Bluff Blvd  
Site Code :  
Start Date : 5/29/2018  
Page No : 5

Start Time	Andell Bluff Blvd Southbound				Seabrook Island Rd Westbound					Northbound					Seabrook Island Rd Eastbound					Int. Total	
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds		App. Total
Peak Hour Analysis From 14:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 14:15																					
14:15	14	0	3	0	17	0	58	15	0	73	0	0	0	0	0	2	58	0	1	61	151
14:30	14	0	2	0	16	0	51	10	1	62	0	0	0	0	0	7	81	0	0	88	166
14:45	18	0	9	0	27	0	60	12	0	72	0	0	0	0	0	5	59	0	3	67	166
15:00	9	0	4	0	13	0	48	8	1	57	0	0	0	0	0	7	81	0	0	88	158
Total Volume	55	0	18	0	73	0	217	45	2	264	0	0	0	0	0	21	279	0	4	304	641
% App. Total	75.3	0	24.7	0		0	82.2	17	0.8		0	0	0	0	0	6.9	91.8	0	1.3		
PHF	.764	.000	.500	.000	.676	.000	.904	.750	.500	.904	.000	.000	.000	.000	.000	.750	.861	.000	.333	.864	.965
Passenger Vehicles	53	0	18	0	71	0	213	45	2	260	0	0	0	0	0	21	271	0	4	296	627
% Passenger Vehicles																					
Heavy Vehicles	2	0	0	0	2	0	4	0	0	4	0	0	0	0	0	0	8	0	0	8	14
% Heavy Vehicles	3.6	0	0	0	2.7	0	1.8	0	0	1.5	0	0	0	0	0	0	2.9	0	0	2.6	2.2
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





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## **TRAFFIC IMPACT ANALYSIS**

PGA – PATRON & BUS PARKING  
AREA TRAFFIC STUDY

### **APPENDIX B**

CONVERSION OF THURSDAY TO FRIDAY AND  
SATURDAY TRAFFIC VOLUMES

J – 28631.0000

August 2020

# PGA PATRON & BUS ACCESS STUDY

## COMPARISON OF THURSDAY & SATURDAY COUNT DATA SCDOT CONTINUOUS COUNT STATION 0144

Thursday, October 17, 2019  
Site 0144 - Charleston - James Island  
SC 171 Between US 17 and Wappoo Creek Bridge

Saturday October 19, 2019  
Site 0144 - Charleston - James Island  
SC 171 Between US 17 and Wappoo Creek Bridge

Friday October 18, 2019  
Site 0144 - Charleston - James Island  
SC 171 Between US 17 and Wappoo Creek Bridge

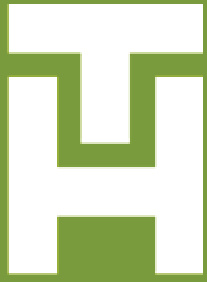
Thursday, October 17, 2019				Saturday October 19, 2019				Friday October 18, 2019					
Site 0144 - Charleston - James Island				Site 0144 - Charleston - James Island				Site 0144 - Charleston - James Island					
SC 171 Between US 17 and Wappoo Creek Bridge				SC 171 Between US 17 and Wappoo Creek Bridge				SC 171 Between US 17 and Wappoo Creek Bridge					
Northbound		Southbound		Northbound		Southbound		Northbound		Southbound			
Time	Current	Current	NB+SB	Time	Current	Current	NB+SB	% of Thur	Time	Current	Current		
								pm peak					
1:00	94	137		1:00	189	270			1:00	148	214		
2:00	65	82		2:00	148	189			2:00	80	122		
3:00	52	60		3:00	95	144			3:00	61	71		
4:00	47	49		4:00	58	81			4:00	54	46		
5:00	168	82		5:00	83	60			5:00	157	65		
6:00	489	270		6:00	194	116			6:00	436	275		
7:00	1523	824		7:00	348	291			7:00	1412	837		
8:00	2611	1401		8:00	562	492			8:00	2488	1336		
9:00	2159	1452		9:00	1012	792			9:00	2033	1523	% of Thurs pm peak	
10:00	1596	1382		10:00	1264	963			10:00	1580	1312	NB	SB
11:00	1556	1421		11:00	1472	1175	2647	61.7%	11:00	1568	1482	1.01	1.04
12:00	1651	1619	3270	12:00	1453	1477			12:00	1680	1599		% of Thur
13:00	1649	1687	3336	13:00	1373	1447			13:00	1812	1724	NB+SB	pm peak
14:00	1604	1697	3301	14:00	1210	1367			14:00	1498	1772	3270	0.99
15:00	1663	1785	3448	15:00	1162	1380	2542	59.3%	15:00	1708	1924	3632	1.05
16:00	1758	2226	3984	16:00	1180	1408			16:00	1823	2277	4100	1.03
17:00	1808	2479	4287	17:00	1158	1395			17:00	1751	2382	4133	0.96
18:00	1716	2465	4181	18:00	1066	1230	2296	53.6%	18:00	1671	2391	4062	0.97
19:00	1531	1871		19:00	968	1132			19:00	1486	1744	3230	
20:00	971	1405		20:00	707	945			20:00	1083	1311	2394	
21:00	629	978		21:00	607	701			21:00	799	970		
22:00	533	743		22:00	493	647			22:00	588	783		
23:00	352	532		23:00	386	506			23:00	428	701		
24:00:00	232	428		24:00:00	295	344			24:00:00	344	451		

PGA PATRON & BUS ACCESS STUDY

COMPARISON OF THURSDAY & SATURDAY COUNT DATA  
SCDOT CONTINUOUS COUNT STATION 0143

Thursday, October 17, 2019			
Site 0143 - Charleston - Sullivans Island			
SC 703 - S51 to S199			
	Northbound	Southbound	
Time	Current	Current	NB+SB
1:00	19	13	32
2:00	19	9	28
3:00	7	9	16
4:00	0	0	0
5:00	12	3	15
6:00	34	31	65
7:00	124	183	307
8:00	504	402	906
9:00	503	553	1056
10:00	437	440	877
11:00	466	433	899
12:00	516	466	982
13:00	563	546	1109
14:00	525	572	1097
15:00	619	544	1163
16:00	593	638	1231
17:00	590	628	1218
18:00	554	599	1153
19:00	493	555	1048
20:00	383	299	682
21:00	205	212	417
22:00	188	158	346
23:00	106	98	204
24:00:00	53	68	121

Saturday October 19, 2019				
Site 0143 - Charleston - Sullivans Island				
SC 703 - S51 to S199				
	Northbound	Southbound		% of Thur
Time	Current	Current	NB+SB	pm peak
1:00	71	36	107	
2:00	24	33	57	
3:00	22	16	38	
4:00	11	9	20	
5:00	8	5	13	
6:00	15	16	31	
7:00	47	56	103	
8:00	122	147	269	
9:00	245	248	493	
10:00	373	310	683	
11:00	410	377	787	63.9%
12:00	399	441	840	
13:00	360	377	737	
14:00	347	370	717	
15:00	335	306	641	52.1%
16:00	374	381	755	
17:00	309	438	747	
18:00	301	464	765	62.1%
19:00	311	292	603	
20:00	265	234	499	
21:00	227	133	360	
22:00	206	151	357	
23:00	160	111	271	
24:00:00	121	68	189	



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## **TRAFFIC IMPACT ANALYSIS**

PGA – PATRON & BUS PARKING  
AREA TRAFFIC STUDY

### **APPENDIX C**

TRIP GENERATION CALCULATIONS

J – 28631.0000

August 2020



**2012 PGA Championship The Ocean Course: Shuttle Ridership (2 Hr Volume)**

		<b>11AM</b>	<b>3PM</b>	<b>6PM</b>	<b>Total</b>
<b>General Public/Volunteers</b> Freshfields	Mon.	5075	3747	205	9027
	Tues	6711	3199	753	10663
	Wed.	6428	5061	104	11593
	Thurs	12425	3465	1567	17457
	Fri.	12782	6022	995	19799
	Sat.	11275	9315	305	20895
	Sun.	11974	7763	299	20036
	<b>Corporate &amp; PC's</b> Night Heron Park	Mon.	397	122	25
Tues		465	221	44	730
Wed.		487	205	69	761
Thur		662	306	37	1005
Fri.		739	514	10	1263
Sat.		740	477	45	1262
Sun.		808	499	42	1349
<b>Media</b> Courtyard Waterfront Springhill Riverview Residence Inn		Mon.	34	18	8
	Tues	96	52	15	163
	Wed.	187	52	24	263
	Thur	216	152	4	372
	Fri.	214	12	7	233
	Sat.	161	22	2	185
	Sun.	148	318	1	467
	<b>Officials</b> Holiday Inn Express Holiday Inn Hilton Garden Inn	Mon.	28	6	7
Tues		87	7	3	97
Wed.		61	41	5	107
Thur		196	66	6	268
Fri.		145	8	18	171
Sat.		105	21	5	131
Sun.		85	26	0	111
<b>VIP's</b> Sanctuary		Mon.	91	39	12
	Tues	133	130	13	276
	Wed.	179	109	10	298
	Thur	211	108	35	354
	Fri.	295	232	47	574
	Sat.	344	308	34	686
	Sun.	262	339	62	663
	<b>On Island</b> Red	Mon.	455	341	560
Tues		588	583	429	1600
Wed.		725	497	229	1451
Thur		1319	672	249	2240
Fri.		1329	948	128	2405
Sat.		1107	1373	118	2598
Sun.		1046	1419	100	2565
<b>On Island</b> Blue		Mon.	233	240	210
	Tues	507	362	158	1027
	Wed.	414	297	248	959
	Thur	1078	430	148	1656
	Fri.	873	671	151	1695
	Sat.	677	1032	185	1894
	Sun.	653	1049	33	1735
	<b>On Island</b> Yellow	Mon.	145	310	371
Tues		304	463	113	880
Wed.		314	433	85	832
Thur		611	573	107	1291
Fri.		510	620	88	1218
Sat.		509	769	122	1400
Sun.		470	587	57	1114
<b>TOTAL SHUTTLE RIDERSHIP TO EVENT</b>		Mon.	5625	3932	257
	Tues	7492	3609	828	11929
	Wed.	7342	5468	212	13022
	Thur	13710	4097	1649	19456
	Fri.	14175	6788	1077	22040
	Sat.	12625	10143	391	23159
	Sun.	13277	8945	404	22626

**2012 PGA Championship The Ocean Course**

	<u>Total Tickets</u>	<u>Actual Attendance</u>	<u>Redemption</u>	<u>Actual Ridership</u>	Estimated # of Vehicles (based on riders per vehicle)			
					<u>1.5</u>	<u>2</u>	<u>2.5</u>	<u>3</u>
Mon.	36208	10581	29%	12679	8453	6340	5072	4226
Tues	37992	11886	31%	15436	10291	7718	6174	5145
Wed.	31293	13264	42%	16264	10843	8132	6506	5421
Thurs	36127	23830	66%	24643	16429	12322	9857	8214
Fri.	39130	28640	73%	27358	18239	13679	10943	9119
Sat.	37430	18273	49%	29051	19367	14526	11620	9684
Sun.	39383	28884	73%	28040	18693	14020	11216	9347

**Estimated # of vehicles by Ridership @ Previous 6-year Average**

	<u>Total Actual Tickets</u>	<u>Redemption</u>	<u>Total Actual Riders</u>	Estimated # of Vehicles (based on riders per vehicle)			
				<u>1.5</u>	<u>2</u>	<u>2.5</u>	<u>3</u>
Mon.	36208	30%	12679	8453	6340	5072	4226
Tues	37992	44%	15436	10291	7718	6174	5145
Wed.	31293	57%	16264	10843	8132	6506	5421
Thurs	36127	72%	24643	16429	12322	9857	8214
Fri.	39130	76%	27358	18239	13679	10943	9119
Sat.	37430	82%	29051	19367	14526	11620	9684
Sun.	39383	76%	28040	18693	14020	11216	9347





### 2021 PGA Championship The Ocean Course

#### Projected attendance @ Previous 6-year Average Redemption

	<u>Total Forecasted Tickets</u>	<u>Redemption</u>	<u>Projected Attendance</u>	Projected # of Vehicles (based on riders per vehicle)			
				<u>1.5</u>	<u>2</u>	<u>2.5</u>	<u>3</u>
Mon.	31760	30%	9528	6352	4764	3811	3176
Tues	32960	44%	14502	9668	7251	5801	4834
Wed.	25610	57%	14598	9732	7299	5839	4866
Thurs	37610	72%	27079	18053	13540	10832	9026
Fri.	39110	76%	29724	19816	14862	11889	9908
Sat.	39610	82%	32480	21653	16240	12992	10827
Sun.	39610	76%	30104	20069	15052	12041	10035

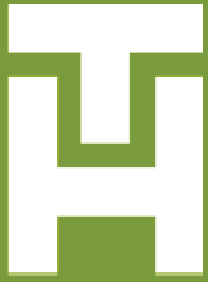
#### Projected attendance @ based on 2017 Redemption

	<u>Total Forecasted Tickets</u>	<u>Redemption</u>	<u>Projected Attendance</u>	Projected # of Vehicles (based on riders per vehicle)			
				<u>1.5</u>	<u>2</u>	<u>2.5</u>	<u>3</u>
Mon.	31760	30%	9528	6352	4764	3811	3176
Tues	32960	38%	12525	8350	6262	5010	4175
Wed.	25610	57%	14598	9732	7299	5839	4866
Thurs	37610	75%	28208	18805	14104	11283	9403
Fri.	39110	83%	32461	21641	16231	12985	10820
Sat.	39610	92%	36441	24294	18221	14576	12147
Sun.	39610	81%	32084	21389	16042	12834	10695

PGA EVENT - CALCULATION OF HOURLY TRAFFIC VOLUMES

DESIGN HOUR CONDITIONS:

ENTERING TRAFFIC:	EXITING TRAFFIC:
<p>Friday 11:00 am                      14,175 Shuttle Riders over two hours -  <math display="block">\text{Hourly Volume} = \frac{14,175 \times 0.5}{1.0 \text{ phf}}</math> <math display="block">\frac{2.5 \text{ passengers/vehicle}}</math>                     = 2,835 vehicles                      Assign 25% to Seabrook Island Rd = 709</p>	<p>Friday 11:00 am                      1% of Daily Total                      = (0.01 x 12,985)                      = 130 vehicles                      Assign 100% to Seabrook                      Island Rd = 130</p>
<p>Saturday 11:00 am                      12,625 Shuttle Riders over two hours -  <math display="block">\text{Hourly Volume} = \frac{12,625 \times 0.5}{1.0 \text{ phf}}</math> <math display="block">\frac{2.5 \text{ passengers/vehicle}}</math>                     = 2,525 vehicles                      Assign 25% to Seabrook Island Rd = 632</p>	<p>Saturday 11:00 am                      1% of Daily Total                      = (0.01 x 14,576)                      = 146 vehicles                      Assign 100% to Seabrook                      Island Rd = 146</p>
<p>Saturday 3:00 pm                      10,143 Shuttle Riders over two hours -  <math display="block">\text{Hourly Volume} = \frac{10,143 \times 0.5}{1.0 \text{ phf}}</math> <math display="block">\frac{2.5 \text{ passengers/vehicle}}</math>                     = 2,029 vehicles                      Assign 25% to Seabrook Island Rd = 508</p>	<p>Saturday 3:00 pm                      10% of Daily Total                      = (0.10 x 14,576)                      = 1458 vehicles                      Assign 50% to Seabrook                      Island Rd = 729</p>
<p>Saturday 6:00 pm                      391 Shuttle Riders over two hours -  <math display="block">\text{Hourly Volume} = \frac{391 \times 0.5}{0.9 \text{ phf}}</math> <math display="block">\frac{2.5 \text{ passengers/vehicle}}{= 87}</math>                     = 87                      Assign 100% to Seabrook Island Rd = 87</p>	<p>Saturday 6:00 pm                      15% of Daily Total                      = (0.15 x 14,576)                      = 2186 vehicles                      Assign 50% to Seabrook                      Island Rd = 1093</p>



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## **TRAFFIC IMPACT ANALYSIS**

PGA – PATRON & BUS PARKING  
AREA TRAFFIC STUDY

## **APPENDIX D**

SYNCHRO 10th EDITION CAPACITY ANALYSES  
2021 EVENT TRAFFIC VOLUMES

J – 28631.0000

August 2020

Lanes, Volumes, Timings  
2: PGA Driveway/Andell Bluff & Seabrook Island Rd

Event Condition Fri am  
08/25/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕				↗		↕	
Traffic Volume (vph)	22	299	0	709	239	50	0	0	130	60	0	19
Future Volume (vph)	22	299	0	709	239	50	0	0	130	60	0	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>					0.993				0.865		0.967	
Fl <sub>t</sub> Protected		0.997			0.967						0.964	
Satd. Flow (prot)	0	1892	0	0	1823	0	0	0	1644	0	1736	0
Fl <sub>t</sub> Permitted		0.997			0.967						0.964	
Satd. Flow (perm)	0	1892	0	0	1823	0	0	0	1644	0	1736	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					5				837			73
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		260			1815			610			170	
Travel Time (s)		5.1			35.4			16.6			4.6	
Peak Hour Factor	0.92	0.92	0.92	1.00	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	0%	0%	2%	2%	2%
Adj. Flow (vph)	24	325	0	709	260	54	0	0	141	65	0	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	349	0	0	1023	0	0	0	141	0	86	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2				1	1	2	
Detector Template	Left	Thru		Left	Thru				Right	Left	Thru	
Leading Detector (ft)	20	100		20	100				20	20	100	
Trailing Detector (ft)	0	0		0	0				0	0	0	
Detector 1 Position(ft)	0	0		0	0				0	0	0	
Detector 1 Size(ft)	20	6		20	6				20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex				Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0				0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0				0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0				0.0	0.0	0.0	
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type	Split	NA		Split	NA				Perm	Perm	NA	
Protected Phases	2	2		6	6							4
Permitted Phases									8	4		
Detector Phase	2	2		6	6				8	4		4
Switch Phase												

Lanes, Volumes, Timings  
2: PGA Driveway/Andell Bluff & Seabrook Island Rd

Event Condition Fri am  
08/25/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	5.0		5.0	5.0				1.0	5.0	5.0	
Minimum Split (s)	15.0	15.0		22.5	22.5				14.0	14.0	14.0	
Total Split (s)	22.0	22.0		54.0	54.0				14.0	14.0	14.0	
Total Split (%)	24.4%	24.4%		60.0%	60.0%				15.6%	15.6%	15.6%	
Maximum Green (s)	17.5	17.5		49.5	49.5				9.5	9.5	9.5	
Yellow Time (s)	3.5	3.5		3.5	3.5				3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0				1.0	1.0	1.0	
Lost Time Adjust (s)		0.0			0.0				0.0		0.0	
Total Lost Time (s)		4.5			4.5				4.5		4.5	

Lead/Lag

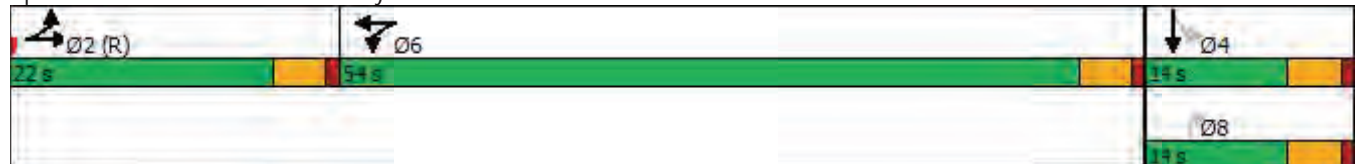
Lead-Lag Optimize?

Vehicle Extension (s)	3.0	3.0		3.0	3.0				3.0	3.0	3.0	
Recall Mode	C-Min	C-Min		Min	Min				None	None	None	
Act Effct Green (s)		20.1			49.5				6.9		6.9	
Actuated g/C Ratio		0.22			0.55				0.08		0.08	
v/c Ratio		0.83			1.02				0.16		0.43	
Control Delay		52.2			55.2				0.4		19.6	
Queue Delay		0.0			0.0				0.0		0.0	
Total Delay		52.2			55.2				0.4		19.6	
LOS		D			E				A		B	
Approach Delay		52.2			55.2			0.4			19.6	
Approach LOS		D			E			A			B	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	0 (0%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.02
Intersection Signal Delay:	47.8
Intersection LOS:	D
Intersection Capacity Utilization:	87.6%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 2: PGA Driveway/Andell Bluff & Seabrook Island Rd



Summary of All Intervals

Run Number	1	2	Avg
Start Time	6:57	6:57	6:57
End Time	8:00	8:00	8:00
Total Time (min)	63	63	63
Time Recorded (min)	60	60	60
# of Intervals	2	2	2
# of Recorded Intervals	1	1	1
Vehs Entered	1474	1606	1542
Vehs Exited	1480	1567	1522
Starting Vehs	42	34	38
Ending Vehs	36	73	55
Travel Distance (mi)	619	657	638
Travel Time (hr)	52.1	80.5	66.3
Total Delay (hr)	31.6	58.7	45.2
Total Stops	2061	1887	1972
Fuel Used (gal)	26.7	34.5	30.6

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	Avg
Vehs Entered	1474	1606	1542
Vehs Exited	1480	1567	1522
Starting Vehs	42	34	38
Ending Vehs	36	73	55
Travel Distance (mi)	619	657	638
Travel Time (hr)	52.1	80.5	66.3
Total Delay (hr)	31.6	58.7	45.2
Total Stops	2061	1887	1972
Fuel Used (gal)	26.7	34.5	30.6

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Intersection: 2: PGA Driveway/Andell Bluff & Seabrook Island Rd

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Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	R	LTR
Maximum Queue (ft)	247	1583	56	96
Average Queue (ft)	189	1133	6	50
95th Queue (ft)	284	1897	36	89
Link Distance (ft)	232	1785	582	142
Upstream Blk Time (%)	11	20		
Queuing Penalty (veh)	0	0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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Network Summary

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Network wide Queuing Penalty: 0

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Lanes, Volumes, Timings  
2: PGA Driveway/Andell Bluff & Seabrook Island Rd

Event Condition Sat am  
08/25/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕				↗		↕	
Traffic Volume (vph)	14	189	0	632	147	31	0	0	146	37	0	12
Future Volume (vph)	14	189	0	632	147	31	0	0	146	37	0	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr't					0.994				0.865		0.967	
Flt Protected		0.997			0.963						0.964	
Satd. Flow (prot)	0	1892	0	0	1817	0	0	0	1644	0	1736	0
Flt Permitted		0.997			0.963						0.964	
Satd. Flow (perm)	0	1892	0	0	1817	0	0	0	1644	0	1736	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					4				876		94	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		260			1815			610			170	
Travel Time (s)		5.1			35.4			16.6			4.6	
Peak Hour Factor	0.92	0.92	0.92	1.00	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	0%	0%	2%	2%	2%
Adj. Flow (vph)	15	205	0	632	160	34	0	0	159	40	0	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	220	0	0	826	0	0	0	159	0	53	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2				1	1	2	
Detector Template	Left	Thru		Left	Thru				Right	Left	Thru	
Leading Detector (ft)	20	100		20	100				20	20	100	
Trailing Detector (ft)	0	0		0	0				0	0	0	
Detector 1 Position(ft)	0	0		0	0				0	0	0	
Detector 1 Size(ft)	20	6		20	6				20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex				Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0				0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0				0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0				0.0	0.0	0.0	
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type	Split	NA		Split	NA				Perm	Perm	NA	
Protected Phases	2	2		6	6						4	
Permitted Phases									8	4		
Detector Phase	2	2		6	6				8	4	4	
Switch Phase												



Lanes, Volumes, Timings  
 2: PGA Driveway/Andell Bluff & Seabrook Island Rd

Event Condition Sat am  
 08/25/2020

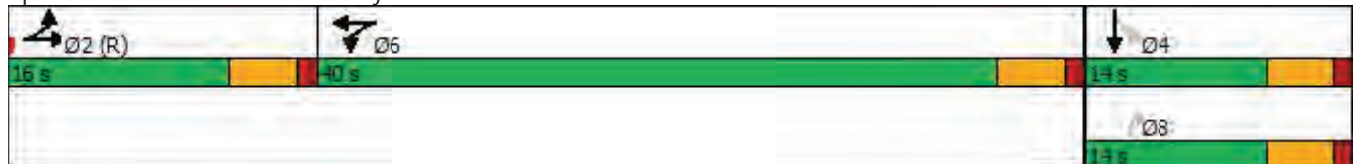


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	5.0		5.0	5.0				1.0	5.0	5.0	
Minimum Split (s)	15.0	15.0		22.5	22.5				14.0	14.0	14.0	
Total Split (s)	16.0	16.0		40.0	40.0				14.0	14.0	14.0	
Total Split (%)	22.9%	22.9%		57.1%	57.1%				20.0%	20.0%	20.0%	
Maximum Green (s)	11.5	11.5		35.5	35.5				9.5	9.5	9.5	
Yellow Time (s)	3.5	3.5		3.5	3.5				3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0				1.0	1.0	1.0	
Lost Time Adjust (s)		0.0			0.0				0.0		0.0	
Total Lost Time (s)		4.5			4.5				4.5		4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0				3.0	3.0	3.0	
Recall Mode	C-Min	C-Min		Min	Min				None	None	None	
Act Effct Green (s)		16.4			34.4				5.7		5.7	
Actuated g/C Ratio		0.23			0.49				0.08		0.08	
v/c Ratio		0.50			0.92				0.17		0.23	
Control Delay		28.6			34.3				0.4		5.1	
Queue Delay		0.0			0.0				0.0		0.0	
Total Delay		28.6			34.3				0.4		5.1	
LOS		C			C				A		A	
Approach Delay		28.6			34.3			0.4			5.1	
Approach LOS		C			C			A			A	

Intersection Summary

Area Type: Other  
 Cycle Length: 70  
 Actuated Cycle Length: 70  
 Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.92  
 Intersection Signal Delay: 27.8  
 Intersection LOS: C  
 Intersection Capacity Utilization 70.8%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 2: PGA Driveway/Andell Bluff & Seabrook Island Rd



Summary of All Intervals

Run Number	1	2	Avg
Start Time	6:57	6:57	6:57
End Time	8:00	8:00	8:00
Total Time (min)	63	63	63
Time Recorded (min)	60	60	60
# of Intervals	2	2	2
# of Recorded Intervals	1	1	1
Vehs Entered	1150	1333	1241
Vehs Exited	1154	1325	1239
Starting Vehs	24	22	22
Ending Vehs	20	30	24
Travel Distance (mi)	493	566	530
Travel Time (hr)	23.2	28.1	25.7
Total Delay (hr)	6.8	9.3	8.0
Total Stops	692	915	803
Fuel Used (gal)	17.2	19.9	18.5

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	Avg
Vehs Entered	1150	1333	1241
Vehs Exited	1154	1325	1239
Starting Vehs	24	22	22
Ending Vehs	20	30	24
Travel Distance (mi)	493	566	530
Travel Time (hr)	23.2	28.1	25.7
Total Delay (hr)	6.8	9.3	8.0
Total Stops	692	915	803
Fuel Used (gal)	17.2	19.9	18.5

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Intersection: 2: PGA Driveway/Andell Bluff & Seabrook Island Rd

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Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	R	LTR
Maximum Queue (ft)	183	409	77	86
Average Queue (ft)	93	267	10	34
95th Queue (ft)	160	409	48	68
Link Distance (ft)	232	1785	582	142
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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Network Summary

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Network wide Queuing Penalty: 0

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Lanes, Volumes, Timings  
2: PGA Driveway/Andell Bluff & Seabrook Island Rd

Event Condition Sat 3 pm  
08/25/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕				↗		↕	
Traffic Volume (vph)	13	176	0	508	136	28	0	0	729	34	0	11
Future Volume (vph)	13	176	0	508	136	28	0	0	729	34	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>					0.994				0.865		0.967	
Fl <sub>t</sub> Protected		0.997			0.964						0.964	
Satd. Flow (prot)	0	1892	0	0	1819	0	0	0	1644	0	1736	0
Fl <sub>t</sub> Permitted		0.997			0.964						0.964	
Satd. Flow (perm)	0	1892	0	0	1819	0	0	0	1644	0	1736	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					4				842		101	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		260			1815			610			170	
Travel Time (s)		5.1			35.4			16.6			4.6	
Peak Hour Factor	0.92	0.92	0.92	1.00	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	0%	0%	2%	2%	2%
Adj. Flow (vph)	14	191	0	508	148	30	0	0	792	37	0	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	205	0	0	686	0	0	0	792	0	49	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2				1	1	2	
Detector Template	Left	Thru		Left	Thru				Right	Left	Thru	
Leading Detector (ft)	20	100		20	100				20	20	100	
Trailing Detector (ft)	0	0		0	0				0	0	0	
Detector 1 Position(ft)	0	0		0	0				0	0	0	
Detector 1 Size(ft)	20	6		20	6				20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex				Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0				0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0				0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0				0.0	0.0	0.0	
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type	Split	NA		Split	NA				Perm	Perm	NA	
Protected Phases	2	2		6	6						4	
Permitted Phases									8	4		
Detector Phase	2	2		6	6				8	4	4	
Switch Phase												

Lanes, Volumes, Timings  
 2: PGA Driveway/Andell Bluff & Seabrook Island Rd

Event Condition Sat 3 pm  
 08/25/2020

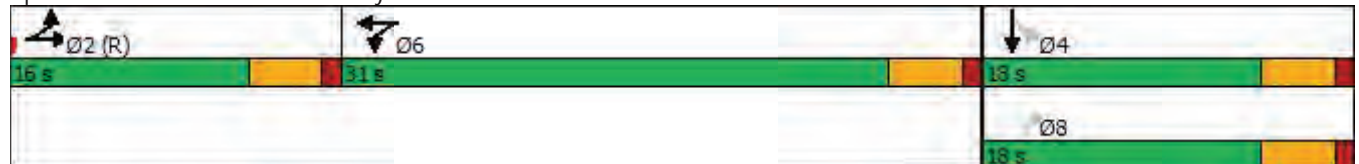


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	5.0		5.0	5.0				1.0	5.0	5.0	
Minimum Split (s)	15.0	15.0		22.5	22.5				14.0	14.0	14.0	
Total Split (s)	16.0	16.0		31.0	31.0				18.0	18.0	18.0	
Total Split (%)	24.6%	24.6%		47.7%	47.7%				27.7%	27.7%	27.7%	
Maximum Green (s)	11.5	11.5		26.5	26.5				13.5	13.5	13.5	
Yellow Time (s)	3.5	3.5		3.5	3.5				3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0				1.0	1.0	1.0	
Lost Time Adjust (s)		0.0			0.0				0.0		0.0	
Total Lost Time (s)		4.5			4.5				4.5		4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0				3.0	3.0	3.0	
Recall Mode	C-Min	C-Min		Min	Min				None	None	None	
Act Effct Green (s)		16.1			26.3				9.1		9.1	
Actuated g/C Ratio		0.25			0.40				0.14		0.14	
v/c Ratio		0.44			0.93				0.83		0.15	
Control Delay		26.0			40.7				10.6		2.1	
Queue Delay		0.0			0.0				0.0		0.0	
Total Delay		26.0			40.7				10.6		2.1	
LOS		C			D				B		A	
Approach Delay		26.0			40.7			10.6			2.1	
Approach LOS		C			D			B			A	

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.93  
 Intersection Signal Delay: 24.1  
 Intersection Capacity Utilization 70.3%  
 Analysis Period (min) 15  
 Intersection LOS: C  
 ICU Level of Service C

Splits and Phases: 2: PGA Driveway/Andell Bluff & Seabrook Island Rd



Summary of All Intervals

Run Number	1	2	Avg
Start Time	6:57	6:57	6:57
End Time	8:00	8:00	8:00
Total Time (min)	63	63	63
Time Recorded (min)	60	60	60
# of Intervals	2	2	2
# of Recorded Intervals	1	1	1
Vehs Entered	1566	1812	1688
Vehs Exited	1580	1814	1697
Starting Vehs	39	30	32
Ending Vehs	25	28	26
Travel Distance (mi)	684	785	734
Travel Time (hr)	33.2	42.5	37.8
Total Delay (hr)	9.2	14.8	12.0
Total Stops	1032	1394	1215
Fuel Used (gal)	24.4	29.0	26.7

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	Avg
Vehs Entered	1566	1812	1688
Vehs Exited	1580	1814	1697
Starting Vehs	39	30	32
Ending Vehs	25	28	26
Travel Distance (mi)	684	785	734
Travel Time (hr)	33.2	42.5	37.8
Total Delay (hr)	9.2	14.8	12.0
Total Stops	1032	1394	1215
Fuel Used (gal)	24.4	29.0	26.7

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Intersection: 2: PGA Driveway/Andell Bluff & Seabrook Island Rd

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Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	R	LTR
Maximum Queue (ft)	152	427	456	86
Average Queue (ft)	73	230	210	36
95th Queue (ft)	124	366	436	72
Link Distance (ft)	232	1785	582	142
Upstream Blk Time (%)			1	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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Network Summary

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Network wide Queuing Penalty: 0

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Lanes, Volumes, Timings  
 2: PGA Driveway/Andell Bluff & Seabrook Island Rd

100% inbound - 50% outbound



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕				↗		↕	
Traffic Volume (vph)	14	183	0	87	143	30	0	0	1093	36	0	12
Future Volume (vph)	14	183	0	87	143	30	0	0	1093	36	0	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>					0.984				0.865		0.966	
Fl <sub>t</sub> Protected		0.997			0.984						0.964	
Satd. Flow (prot)	0	1892	0	0	1835	0	0	0	1644	0	1735	0
Fl <sub>t</sub> Permitted		0.997			0.984						0.964	
Satd. Flow (perm)	0	1892	0	0	1835	0	0	0	1644	0	1735	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					6				638		73	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		260			1815			610			170	
Travel Time (s)		5.1			35.4			16.6			4.6	
Peak Hour Factor	0.92	0.92	0.92	1.00	0.92	0.92	0.92	0.92	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	0%	0%	2%	2%	2%
Adj. Flow (vph)	15	199	0	87	155	33	0	0	1093	39	0	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	214	0	0	275	0	0	0	1093	0	52	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2				1	1	2	
Detector Template	Left	Thru		Left	Thru				Right	Left	Thru	
Leading Detector (ft)	20	100		20	100				20	20	100	
Trailing Detector (ft)	0	0		0	0				0	0	0	
Detector 1 Position(ft)	0	0		0	0				0	0	0	
Detector 1 Size(ft)	20	6		20	6				20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex				Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0				0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0				0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0				0.0	0.0	0.0	
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type	Split	NA		Split	NA				Perm	Perm	NA	
Protected Phases	2	2		6	6						4	
Permitted Phases									8	4		
Detector Phase	2	2		6	6				8	4	4	
Switch Phase												



Lanes, Volumes, Timings  
 2: PGA Driveway/Andell Bluff & Seabrook Island Rd

100% inbound - 50% outbound

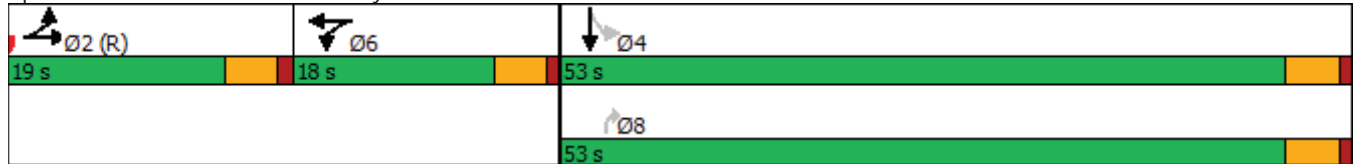


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	5.0		5.0	5.0				1.0	5.0	5.0	
Minimum Split (s)	15.0	15.0		15.0	15.0				14.0	14.0	14.0	
Total Split (s)	19.0	19.0		18.0	18.0				53.0	53.0	53.0	
Total Split (%)	21.1%	21.1%		20.0%	20.0%				58.9%	58.9%	58.9%	
Maximum Green (s)	14.5	14.5		13.5	13.5				48.5	48.5	48.5	
Yellow Time (s)	3.5	3.5		3.5	3.5				3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0				1.0	1.0	1.0	
Lost Time Adjust (s)		0.0			0.0				0.0		0.0	
Total Lost Time (s)		4.5			4.5				4.5		4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0				3.0	3.0	3.0	
Recall Mode	C-Min	C-Min		Min	Min				None	None	None	
Act Effct Green (s)		18.0			14.7				43.8		43.8	
Actuated g/C Ratio		0.20			0.16				0.49		0.49	
v/c Ratio		0.57			0.90				0.97		0.06	
Control Delay		41.4			71.0				30.3		1.6	
Queue Delay		0.0			0.0				0.0		0.0	
Total Delay		41.4			71.0				30.3		1.6	
LOS		D			E				C		A	
Approach Delay		41.4			71.0			30.3			1.6	
Approach LOS		D			E			C			A	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	0 (0%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle:	80
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.97
Intersection Signal Delay:	37.7
Intersection LOS:	D
Intersection Capacity Utilization:	93.5%
ICU Level of Service:	F
Analysis Period (min):	15

Splits and Phases: 2: PGA Driveway/Andell Bluff & Seabrook Island Rd



Summary of All Intervals

Run Number	1	2	Avg
Start Time	6:57	6:57	6:57
End Time	8:00	8:00	8:00
Total Time (min)	63	63	63
Time Recorded (min)	60	60	60
# of Intervals	2	2	2
# of Recorded Intervals	1	1	1
Vehs Entered	1412	1447	1430
Vehs Exited	1403	1429	1415
Starting Vehs	39	31	35
Ending Vehs	48	49	48
Travel Distance (mi)	604	611	607
Travel Time (hr)	145.1	224.1	184.6
Total Delay (hr)	123.1	201.9	162.5
Total Stops	597	570	583
Fuel Used (gal)	49.0	67.3	58.1

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	Avg
Vehs Entered	1412	1447	1430
Vehs Exited	1403	1429	1415
Starting Vehs	39	31	35
Ending Vehs	48	49	48
Travel Distance (mi)	604	611	607
Travel Time (hr)	145.1	224.1	184.6
Total Delay (hr)	123.1	201.9	162.5
Total Stops	597	570	583
Fuel Used (gal)	49.0	67.3	58.1

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Intersection: 2: PGA Driveway/Andell Bluff & Seabrook Island Rd

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Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	R	LTR
Maximum Queue (ft)	129	200	597	86
Average Queue (ft)	51	126	595	41
95th Queue (ft)	105	190	620	75
Link Distance (ft)	232	1785	582	142
Upstream Blk Time (%)			80	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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Network Summary

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Network wide Queuing Penalty: 0

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Lanes, Volumes, Timings  
2: PGA Driveway/Andell Bluff & Seabrook Island Rd

Event Condition Wednesday am peak  
08/25/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕				↗		↕	
Traffic Volume (vph)	16	230	0	735	241	43	0	0	150	24	0	9
Future Volume (vph)	16	230	0	735	241	43	0	0	150	24	0	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr t					0.994				0.865		0.962	
Fl t Protected		0.997			0.966						0.965	
Satd. Flow (prot)	0	1892	0	0	1823	0	0	0	1644	0	1729	0
Fl t Permitted		0.997			0.966						0.965	
Satd. Flow (perm)	0	1892	0	0	1823	0	0	0	1644	0	1729	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					4				876		73	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		260			1815			610			170	
Travel Time (s)		5.1			35.4			16.6			4.6	
Peak Hour Factor	0.92	0.92	0.92	1.00	0.92	0.92	0.92	0.92	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	0%	0%	2%	2%	2%
Adj. Flow (vph)	17	250	0	735	262	47	0	0	150	26	0	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	267	0	0	1044	0	0	0	150	0	36	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2				1	1	2	
Detector Template	Left	Thru		Left	Thru				Right	Left	Thru	
Leading Detector (ft)	20	100		20	100				20	20	100	
Trailing Detector (ft)	0	0		0	0				0	0	0	
Detector 1 Position(ft)	0	0		0	0				0	0	0	
Detector 1 Size(ft)	20	6		20	6				20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex				Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0				0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0				0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0				0.0	0.0	0.0	
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type	Split	NA		Split	NA				Perm	Perm	NA	
Protected Phases	2	2		6	6						4	
Permitted Phases									8	4		
Detector Phase	2	2		6	6				8	4	4	
Switch Phase												

Lanes, Volumes, Timings  
2: PGA Driveway/Andell Bluff & Seabrook Island Rd

Event Condition Wednesday am peak  
08/25/2020

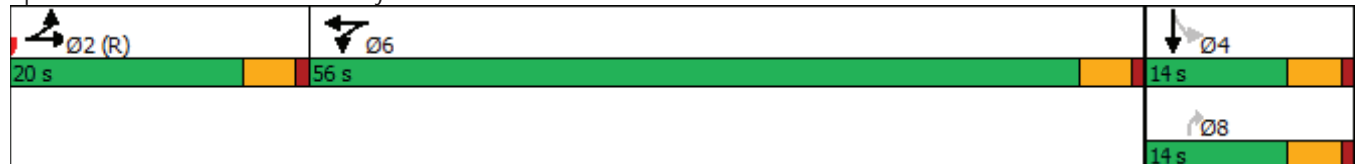


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	5.0		5.0	5.0				1.0	5.0	5.0	
Minimum Split (s)	15.0	15.0		15.0	15.0				14.0	14.0	14.0	
Total Split (s)	20.0	20.0		56.0	56.0				14.0	14.0	14.0	
Total Split (%)	22.2%	22.2%		62.2%	62.2%				15.6%	15.6%	15.6%	
Maximum Green (s)	15.5	15.5		51.5	51.5				9.5	9.5	9.5	
Yellow Time (s)	3.5	3.5		3.5	3.5				3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0				1.0	1.0	1.0	
Lost Time Adjust (s)		0.0			0.0				0.0		0.0	
Total Lost Time (s)		4.5			4.5				4.5		4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0				3.0	3.0	3.0	
Recall Mode	C-Min	C-Min		Min	Min				None	None	None	
Act Effct Green (s)		18.8			52.1				5.6		5.6	
Actuated g/C Ratio		0.21			0.58				0.06		0.06	
v/c Ratio		0.68			0.99				0.16		0.20	
Control Delay		42.3			45.6				0.4		5.1	
Queue Delay		0.0			0.0				0.0		0.0	
Total Delay		42.3			45.6				0.4		5.1	
LOS		D			D				A		A	
Approach Delay		42.3			45.6			0.4			5.1	
Approach LOS		D			D			A			A	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.99  
 Intersection Signal Delay: 39.5  
 Intersection Capacity Utilization 84.4%  
 Analysis Period (min) 15  
 Intersection LOS: D  
 ICU Level of Service E

Splits and Phases: 2: PGA Driveway/Andell Bluff & Seabrook Island Rd



Summary of All Intervals

Run Number	1	2	Avg
Start Time	6:57	6:57	6:57
End Time	8:00	8:00	8:00
Total Time (min)	63	63	63
Time Recorded (min)	60	60	60
# of Intervals	2	2	2
# of Recorded Intervals	1	1	1
Vehs Entered	1488	1503	1495
Vehs Exited	1498	1491	1494
Starting Vehs	31	22	24
Ending Vehs	21	34	28
Travel Distance (mi)	633	639	636
Travel Time (hr)	37.0	32.7	34.9
Total Delay (hr)	16.1	11.8	13.9
Total Stops	1219	931	1076
Fuel Used (gal)	23.5	22.4	22.9

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	Avg
Vehs Entered	1488	1503	1495
Vehs Exited	1498	1491	1494
Starting Vehs	31	22	24
Ending Vehs	21	34	28
Travel Distance (mi)	633	639	636
Travel Time (hr)	37.0	32.7	34.9
Total Delay (hr)	16.1	11.8	13.9
Total Stops	1219	931	1076
Fuel Used (gal)	23.5	22.4	22.9

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Intersection: 2: PGA Driveway/Andell Bluff & Seabrook Island Rd

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Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	R	LTR
Maximum Queue (ft)	247	744	56	84
Average Queue (ft)	150	403	5	33
95th Queue (ft)	222	720	33	71
Link Distance (ft)	232	1785	582	142
Upstream Blk Time (%)	1			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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Network Summary

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Network wide Queuing Penalty: 0

# ZLDR REVIEW PROJECT

Charleston County Planning Commission

February 8, 2021



## R-4 ZONING DISTRICT

- Amendment proposed by staff: Increase R-4 density from 4du/ac to 6du/ac.
- Jan. 11, 2021 Commission direction: The Commission directed staff to investigate:
  - No increases in the R-4 Zoning District density for properties located in the Rural Area (outside the UGB); and
  - Allow increases in the R-4 Zoning District density for properties located in the Urban/Suburban Area (within the UGB) *except those located adjacent to the UGB and on the Sea Islands, which should maintain the current density of 4du/ac, if feasible.*
- Single-family residential densities allowed by adjacent jurisdictions:
  - Town of Mt. Pleasant: 9du/ac
  - City of Charleston: 8du/ac
  - City of North Charleston: 6,000SF min. lot sizes; equates to 7du/ac

## R-4 ZONING DISTRICT (CONT'D)

- Revised proposal:
  - All properties currently zoned R-4 continue to be zoned R-4 (not including properties located in overlay zoning districts that regulate densities) subject to the following:
    1. Maintain 4du/ac for all R-4 properties that:
      - Are located in the Rural Area (outside the UGB);
      - Are located in the Urban/Suburban Area (inside the UGB) and any part adjoins the UGB as of the date of adoption of this ordinance; and/or
      - Currently have a Future Land Use designation of Urban/Suburban Cultural Community Protection (*negates the need for the proposed S-4 Zoning District*).
    2. Allow density increases through the Conservation Subdivision process for R-4 properties in the Urban/Suburban Area (inside the UGB) that do not adjoin the UGB as follows:
      - 6du/ac when 30-49.9% of the total site area is delineated as Conservation Area; and
      - 8du/ac when 50% or more of the total site area is delineated as Conservation Area.
    3. Continue to allow up to 8du/ac through the PD process when .05 ac of common open space per dwelling unit plus 10% of the land designated for nonresidential uses is provided (*previous proposal was to increase this to 12du/ac*).

## PUBLIC INPUT AS OF JAN. 21, 2021

- 422 letters have been received as of Jan. 21, 2021:
  - 1 letter in favor of proposed RR-3 changes
  - 1 letter in favor of proposed RR-3 and R-4 changes (CTAR)
  - 334 letters against the RR-3 and R-4 changes on Johns Island
  - 32 letters against zoning changes for property behind Freshfields/along Kiawah Island Parkway
  - 25 letters against zoning/density changes in general
  - 8 letters against any changes on Seabrook and Kiawah Islands
  - 7 letters against any zoning changes until infrastructure issues are addressed
  - 5 letters calling for more public outreach about the changes
  - 4 letters calling for no density increased outside the UGB
  - 3 letters calling for no more homes on Johns Island
  - 1 letter against tree removal for development
  - 1 letter against the proposed mini-golf and larger housing development projects



## Joe Cronin

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**From:** John Gregg  
**Sent:** Friday, February 5, 2021 12:03 PM  
**To:** planning@charlestoncounty.org  
**Subject:** Proposed Revisions of Zoning and Land Development Regulations  
**Attachments:** Planning and Zoning Workshop January 11, 2021

Gentlemen and Ladies,

I refer to the upcoming Planning Commission meeting (February 8) at which revised proposed changes for R-4 zoning will be presented for consideration by the Commission. According to the materials included in the meeting agenda, Planning and Zoning staff characterized the request of the Commissioners regarding R-4 zoning as follows:

“Allow increases in the R-4 Zoning District density for properties located in the Urban/Suburban Area (within the UGB) *except those located adjacent to the UGB and on the Sea Islands, which should maintain the current density of 4du/ac, if feasible*”

The revised proposed changes for R-4 zoning according to the agenda are as follows:

“All properties currently zoned R-4 continue to be zoned R-4 (not including properties located in overlay zoning districts that regulate densities) subject to the following:

1. Maintain 4du/ac for all R-4 properties that:
  - Are located in the Rural Area (outside the UGB);
  - Are located in the Urban/Suburban Area (inside the UGB) and any part adjoins the UGB as of the date of adoption of this ordinance; and/or
  - Currently have a Future Land Use designation of Urban/Suburban Cultural Community Protection (*negates the need for the proposed S-4 Zoning District*).
2. Allow density increases through the Conservation Subdivision process for R-4 properties in the Urban/Suburban Area (inside the UGB) that do not adjoin the UGB as follows:
  - 6du/ac when 30-49.9% of the total site area is delineated as Conservation Area; and
  - 8du/ac when 50% or more of the total site area is delineated as Conservation Area.
3. Continue to allow up to 8du/ac through the PD process when .05 ac of common open space per dwelling unit plus 10% of the land designated for nonresidential uses is provided (*previous proposal was to increase this to 12du/ac*).

Whether or not the revised proposed changes are consistent with the intent of the quoted request from the Commissioners, the revised proposal has the potential for allowing greatly increased density for R-4 properties that are located on the sea islands of Kiawah and Seabrook.

As noted in my previous comment (January 8, 2021; file attached), increased zoning density as proposed has the potential for adding more than 1,000 homes on Seabrook Island near Freshfields Village.

We oppose the proposed changes for R-4 zoning as applied to the sea islands as being totally out of character with the Kiawah and Seabrook communities. Further, as stated in my January comment to the Planning Commission, the increased density will exacerbate the existing challenges facing residents of our community to evacuate for the threat of disaster events.

Kind regards,

John Gregg  
Mayor, Town of Seabrook Island

## Joe Cronin

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**From:** Joe Cronin  
**Sent:** Thursday, February 4, 2021 3:23 PM  
**To:** jevans@charlestoncounty.org  
**Cc:** Andrea Pietras; John Gregg  
**Subject:** R-4 Comments/Questions

Joel,

I was reviewing the summary of the revisions for the R-4 district and had a couple comments/questions.

It appears that the revised language will maintain a maximum density of 4 dwelling units per acre (DUA) for any property which 1) is located in the urban/suburban area (inside the UGB); and 2) any part of the property adjoins the UGB as of the date of adoption. This appears to create a two-part test for properties located inside the UGB, whereby they would have to meet both conditions to maintain a maximum density of 4 DUA.

The revised language also allows density increases ranging from 6 to 8 DUA under the Conservation Subdivision process for R-4 zoned properties which 1) are located in the urban/suburban area (inside the UGB); and 2) do not adjoin the UGB.

The three parcels we are most interested in are TM # 205-00-00-005, 204-00-00-111 and 204-00-00-112. All three of these properties are currently zoned R-4 and located in the urban/suburban area (inside the UGB), but no part of any of these properties directly adjoins the UGB. In all instances, there are other properties between those parcels and the UGB line.

The way I read it, it appears that these three parcels would have the ability to increase to 6 or even 8 DUA under the Conservation Subdivision process, rather than maintaining a maximum density of 4 DUA. Am I understanding that correctly? If so, this doesn't appear to address the concerns with density on the sea islands, as requested by the Planning Commission during the meeting on January 11th.

Secondly, if the parcels were allowed to increase the density under the Conservation Subdivision process, would the allowable density be 6/8 dwelling units per GROSS acre, or per NET acre (ie. after subtracting the conservation area)?

While allowing more flexibility in lot sizes and setbacks would be reasonable to allow developers to capture some of lost units from the designated conservation areas, allowing as many as 8 dwelling units per acre would be totally out of character with Seabrook and Kiawah Islands and would have the potential to severely overburden our transportation and utility systems.

Respectfully,

Joseph M. Cronin  
Town Administrator  
Town of Seabrook Island  
2001 Seabrook Island Road  
Seabrook Island, SC 29455  
Office: (843) 768-5321  
Cell: (843) 637-9832  
[www.townofseabrookisland.org](http://www.townofseabrookisland.org)



# Town of *Kiawah Island*

**Mayor**

John D. Labriola

**Council Members**

F. Daniel Prickett  
Maryanne Connelly  
John Moffitt  
Scott M. Parker, MD

**Town Administrator**

Stephanie Monroe Tillerson

Thursday, February 4, 2021

Charleston County Planning Commission  
4045 Bridge View Drive  
North Charleston, SC 29405

Reference: Proposed amendments to the Charleston County Zoning and Land Development Regulations Ordinance (ZLDR)

Dear Commissioners,

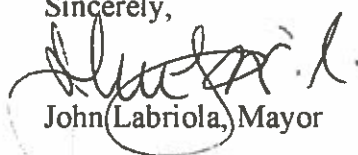
Property owners on Kiawah Island have followed the recent discussion of potential Zoning and Land Development Regulation changes on Johns Island. Two proposed changes would negatively impact Johns Island and undermine the Urban Growth Boundary (UGB), a cornerstone of zoning and planning in Charleston County.

The analysis shows over 2,400 parcels of additional dwelling units (DUs) could be built on Johns Island as a result of implementing these changes. This creates a large influx in additional DUs being built on Johns Island, some of which will be built outside the Urban Growth Boundary. Also, over 1,000 additional DUs could be built near Freshfields Village located between Seabrook and Kiawah Islands.

We believe it is inappropriate to increase densities on our Islands, which already lacks the infrastructure to handle the growth and will exacerbate the existing overburden on Johns Islands roads. Concurrent with these potential zoning changes, Charleston County is considering various possibilities for road improvements on Johns Island, including how best to handle traffic between Main Road and Betsy Kerrison Parkway.

We respectfully request that you not adopt the proposed changes to the RR-3 and R-4 zoning districts and defer this matter until infrastructure improvements have been made. At that time, you will be able to make a more informed decision that will be inclusive of a framework to handle the existing transportation and infrastructure problems without creating additional ones.

Sincerely,



John Labriola, Mayor





## Johns Island Task Force

Respect, Protect, Enhance

Charleston City Planning Commission  
4045 Bridge View Drive, Suite A-314  
North Charleston, SC 29405

5 Feb 2021

Reference: Changes to the Zoning and Land Development Regulations (ZLDR)

Dear Commissioners:

On behalf of the members of the **Johns Island Task Force**, and in alliance with the member of the **Johns Island Community Association** and the **Johns Island Council**, I respectfully submit for consideration our recommendations regarding the proposed changes to the County's Zoning and Land Development Regulations (ZLDR).

We **endorse** the following changes that were made in the latest Planning Commission package:

- Eliminating any changes to RR-3 zoning.
- Modifying density calculations to eliminate wetlands and OCRM critical line. Note that this change is consistent with both what the City does now and with what the County does for Conservation Subdivisions and for recent Overlays.

We **oppose** any changes to the R-4 zoning at this time. While we applaud the proposed elimination of changes to R-4 zoning outside the Urban Growth Boundary (UGB) and inside the UGB when the property is adjacent to the UGB, we oppose the proposed upzoning of R-4 within the UGB.

By our calculations, these changes could add up to an additional 8,000 houses that would be allowed by right on Johns Island and unincorporated Seabrook Island. Even if in the end "only a few thousand" houses are actually built, this is a huge impact on Johns Island. This is much too great a change to implement without a through consideration of the implications, including:

**Affordable Housing:** We appreciate there is a need for more bona fide affordable housing in Charleston County. Any upzoning should assure affordable housing is included and that it is located near work centers, where public transportation is available, and where public services such as healthcare are available.

**Traffic:** Adding 8,000 houses would result in over 16,000 additional cars using the roads of Johns Island every day. As a comparison, according to [SCDOT Data](#), that is more than twice the traffic than uses River Road between Maybank and Main every day. To further exasperate traffic congestion, about 2,000 of these houses would be allowed near Freshfields. These 4,000 cars would have to traverse the 15 miles from inside the UGB, to outside, then back inside again just to exit Johns Island.

**Dutch Dialogues:** We need to anticipate the County adoption of the Dutch Dialogues recommendations, including elevation-based developments. The implementation of these

recommendations will result in fewer houses allowed in water event (e.g., floods, storm surges, rising sea levels, compound flooding) prone areas. Any changes in county-wide density must be done in conjunction with the adoption of the Dutch Dialogues recommendations where the reduction in densities in one place (lowlands) could be offset by increases in densities elsewhere (highlands).

Fortification of the UGB: Any upzoning inside the UGB should be considered in light of how it will fortify the UGB. This can be achieved by allowing higher densities in the appropriate areas inside the UGB using Transfer of Development Rights (TDR) from outside the UGB. This would further strengthen the UGB by decreasing the number of allowable houses outside the UGB and at the same time provide more housing stock where it can be supported.

Finally, we have the **additional recommendation:**

Conservation Subdivisions are “a way to connect interconnected networks of conservation lands by requiring significant percentages of buildable land to be preserved, in addition to all constrained wetlands, floodplains, and steep slopes.” (From Randall Arendt’s *Rural by Design*). For example, if a developer preserves 50% of AG-8 land, they can increase their density from 1 house per 8 acres, to 1 house per 4 acres. It’s a good tradeoff: the developer gets more houses and the community gets more conserved land.

The issue is that the ZLDR allows wetlands to be included in the conserved land, unlike what the quote above would require. This basically allows a developer to obtain a density bonus for not building on unbuildable land. And this higher density is adjacent to fragile wetlands. We **recommend** that all wetlands, OCRM critical line area and freshwater ponds, or at the very least a very significant percentage, be excluded from the conserved land calculations.

Thank you for your consideration.

Sincere regards,



John Zlogar

Chair, Johns Island Task Force

*The **Johns Island Task Force** is a coalition of community members, landowners and nonprofit organizations dedicated to promoting the welfare of the diverse and vibrant community of Johns Island by providing places dedicated to traditional land uses including culture, history, agriculture, forestry, and outdoor recreation.*

*The mission of the **Johns Island Community Association** is to protect the Island we love by encouraging responsible growth and preservation, which requires protecting rural spaces while creating a vibrant community.*

*The mission of the **Johns Island Council** is to be the central Johns Island advisory organization that provides information to guide responsible development while preserving the historic culture of Johns Island and to engage the community to support its schools.*